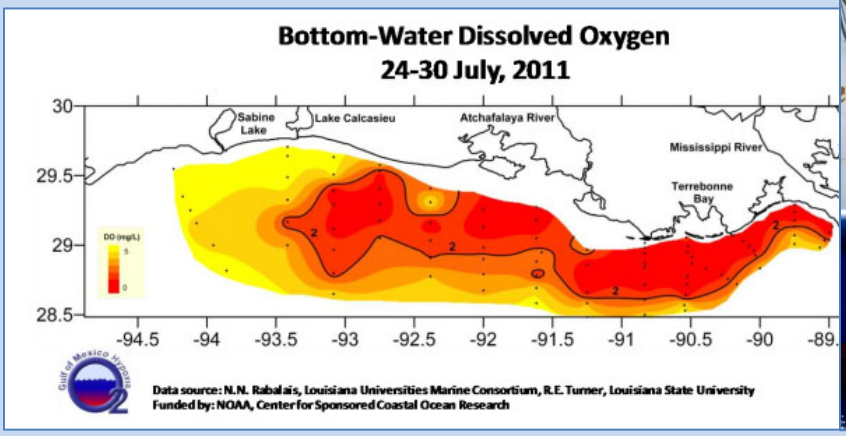




Briefing Book prepared for External Review of

Louisiana Universities Marine Consortium

September 2011



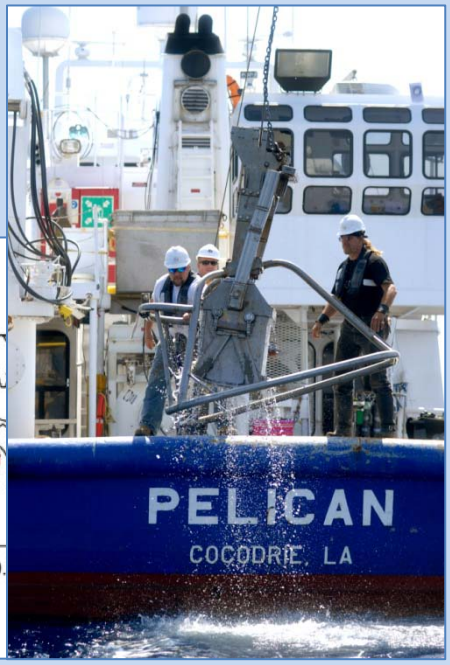


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Louisiana Universities Marine Consortium: Relatively New Kid on the Block

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2011, IN PRESS, *GULF OF MEXICO SCIENCE*

Abstract

The Louisiana Universities Marine Consortium (LUMCON) just marked its 30th anniversary since its founding with legislation in 1979. Thus, LUMCON is a relatively new addition to the marine laboratories fringing the Gulf of Mexico. Its building was started in 1983 and completed in 1986. The following years have seen LUMCON grow in research breadth, regional and national renown, and its role in research and education programs directly relevant to Louisiana's needs in marine and coastal science. LUMCON serves all Louisiana schools with interests in marine research and education and reaches well beyond the state's borders. LUMCON strives to make all levels of society increasingly aware of the environmental, economic and cultural value of Louisiana's coastal and marine environments.

Historical Foundation

Beginning in the late 1960s Louisiana university representatives began to discuss plans for the development of a marine research and education consortium that could meet the growing needs of researchers and provide educational enrichment for students throughout the state. The Louisiana Advisory Commission on Coastal and Marine Resources, 1971-1973, produced a report calling for the funds to build a marine research center on the Louisiana coast. Instrumental in taking that report to fruition were Sammy Nunez, at the time President of the Louisiana Senate; Dr. Darryl Felder, University of Southwestern Louisiana, now University of Louisiana at Lafayette, Dr. Jack Van Lopik, Louisiana Sea Grant College Program Director; Dr. David Boudreaux at Nicholls State University [whose wife was the daughter of Woody J. DeFelice, member of the Board of Regents, see below], and Lyle St. Amant of the Louisiana Department of Wildlife and Fisheries. While the proposal to form the Louisiana Universities Marine Consortium for Research and Education (LUMCON) was endorsed by the Louisiana Board of Regents and enacted into law by the Louisiana legislature in 1979.

Governance

LUMCON is an institution of higher education under the Louisiana Board of Regents representing a consortium of 20 public and private universities (Fig. 1). The 13-

member LUMCON Council and Executive Committee in the original legislation changed into a joint university governance in 1995. LUMCON is now governed by an Executive Board of the Chancellor and a Vice-Chancellor of Louisiana State University, and a President and Vice-President of the University of Louisiana at Lafayette and Nicholls State University. The Executive Director formulates programs and conducts the daily business of LUMCON.



Figure 1. The Louisiana Universities Marine Consortium Marine Center, view from harbor.

Leadership over the years has been provided by:
Donald F. Boesch, Executive Director, 1980 – 1990
Michael J. Dagg, Interim Director, 1990 – 1991
Paul W. Sammarco, Executive Director, 1991 – 1995
Michael J. Dagg, Interim Director, 1995 – 1996
Michael J. Dagg, Executive Director, 1996 – 2001
Kerry St. Pé, Interim Administrator, 2002 – 2005
Nancy N. Rabalais, Executive Director, 2005 – present (2011)

The Early Years

After four years of operating out of trailers, the time had finally come for LUMCON to break ground on construction of its Marine Research and Education Center. It was April 1983, and Governor David Treen (1980–84) flew down to Cocodrie in a helicopter through rough weather to a hastily drawn up National Guard tent in a quagmire of the construction site (Fig. 2).



Figure 2. Governor David Treen breaks ground on the future LUMCON Marine Center. To his left is Sammy Nunez, President of the Louisiana Senate. To the right is 10-year old, Kristin Boesch.

Out of the dredged spoil material cut from the future marina for the LUMCON Marine Center, doubled end-on-end 60-ft sections of 18-in diameter pipe were joined together and filled with cement to form one of the pillar foundations of the LUMCON Marine Center. There were 800 of these 120-ft pilings filled with concrete that formed the foundation of the LUMCON Marine Center. The 800 cement pilings formed a friction bed on top of dredged spoil material on which the 75,000 sq ft building was constructed from 1983 to 1986 at a height of 18 ft above sea level. A separate maintenance, heating and cooling system, and vessel operations building was constructed on ground level. The few LUMCON employees at the time occupied temporary trailers subject to hurricane flooding and large insects inside and out.

The early LUMCON employees and those still in residence today called the days of pre- and during-construction the ~~"T~~railer Days," because LUMCON was then housed in five temporary trailers (Fig. 3). One, the administration trailer that was raised to a level of 18 feet, and four accompanying trailers—the library and miscellaneous offices trailer, the zooplankton lab, the benthic lab, and the ~~"h~~ousing" trailer with a few bunk beds and a kitchen were on a much lower elevation. ~~"I~~t was obvious who would be least likely to get wet feet," remembers Nancy Rabalais, one of the earlier researchers who occupied the benthic lab filled halfway with water in Hurricane Juan in October 1985.



Figure 3. The ―Trailer Days,‖ when LUMCON was housed in five temporary offices, laboratories, and residence/cafeteria. The main library was housed at Nicholls State University in Thibodaux.

LUMCON employees moved into the new Marine Center in 1986, even though its construction was not completed until 1987. The Marine Center's dedication ceremony was held beneath the facility in May 1987 (Fig. 4) and was attended by approximately 200 people, including Governor Edwin Edwards, LUMCON Council Chairman Dr. Darryl Felder, U.S. Representative Billy Tauzin and U.S. Senator John Breaux. ―John Breaux can clearly be considered one of the political founders of LUMCON. He supported the concept of the Consortium back in the late 1970s,‖ said first director Donald Boesch (1980-90).



Figure 4. Governor Edwin Edwards (right) addresses a meeting of the Louisiana Board of Regents shortly after the opening of the new Marine Center dedicated by him in 1987.

Another strong advocate of the Consortium was Woodrow J. DeFelice (1914–87). In January 1996, the Marine Center was renamed the W. J. "Woody" DeFelice Marine Center in recognition of his support for LUMCON and his dedication to improving education in Louisiana. DeFelice served as Lafourche Parish school superintendent from 1959–71 and served on the Louisiana Board of Regents from 1974–80, during the formative years of LUMCON.

As LUMCON forged ahead, increasing its number of employees and expanding and strengthening its research and education programs, the old, weather-beaten trailers began to slowly disappear…one by one. Only the administrative trailer that housed Boesch's office still remains in its original location.

Today's Marine Center

The Woody J. DeFelice Marine Center is strategically located in Cocodrie, LA, in the upper end of one of Louisiana's larger estuaries, Terrebonne-Timbalier Bay about 2 hr from New Orleans and 3 hr from Baton Rouge. The marine lab is close to and between two major rivers (the Mississippi and the Atchafalaya) that dictate the coastal ecosystem's morphology, processes and functions north of a productive coastal ocean, and is close to the remainder of the Gulf of Mexico. The Marine Center stands amidst unique dynamic circumstances: new delta and a degrading delta, large areas of coastal erosion and wetland degradation, hurricane-impacted landscapes, areas of coastal restoration and flood control, highly productive fisheries, a large seasonally hypoxic coastal water ecosystem, a changing coastal ocean ecosystem, a transportation/oil and gas production nexus, and a unique social and cultural milieu.

With its observation tower that rises 65 feet above the ground, the Marine Center is a striking feature on the flat marsh landscape. The 75,000 sq ft building and the neighboring maintenance and vessel operations center of 5,500 sq ft are the anchor of LUMCON. The Marine Center was designed with ample protection from hurricane flooding and winds: the main floor is elevated 18 ft above mean sea level, the exterior is constructed to withstand wind gusts of up to 250 miles per hour, and the laboratories are centrally located within the building to protect LUMCON's research and supporting scientific instruments and equipment. Other research and office space surround the inner core of laboratories.

Below the main level, facilities include a fisheries lab, seawater system, lobby display area, and storage. The facility has persevered through multiple tropical storms and major hurricanes, often with severe setback (Juan, Andrew, Ivan, Lilli, Katrina, Rita, Gustav, Ike), but in other circumstances has survived well. The design and resiliency of the facility will serve marine research and education well into the future. One issue with

any marine laboratory on the Gulf of Mexico is the ability to withstand sea level rise along with the infrastructure that supports access to the facility.

The main level has 26,000 sq ft of research, educational, computer, library and administrative space located in the south wings next to the marina below. Eight full-sized research laboratories (460 to 650 sq ft), including a spawning and hatchery facility, are maintained by faculty members for their research, graduate education, visiting collaborators and support of university courses. Seven smaller (250 sq ft) labs are available for visiting scientists, summer faculty, and special projects. In addition to individual research laboratories, shared research space is available in the forms of a 2,750 sq ft main level seawater room with a dedicated room for the culture of plankton, a ground-level 1,520 square feet fisheries laboratory, and a ground-level shaded open area (unheated and unenclosed) with large and small holding systems that are easily reconfigured.

Half of the laboratories of the Marine Center are equipped with running sea water--the heart and soul of an experimental marine laboratory. The seawater supply system has the capacity to deliver 100 gallons per minute of either ambient, unfiltered, or filtered high salinity (30-35 psu) water. High salinity water is made available at the Marine Center by transporting open Gulf sea water in the storage tanks aboard the R/V *Pelican*.

The education facilities include two laboratories with access to the seawater system, a multipurpose classroom with a small lab bench, a dark room, a distance learning video conferencing classroom with an integrated laboratory, and an educators' resource room. Additional facilities include a collections room, a 97-seat auditorium, a small conference room, a multi-use computer laboratory, and a library containing Louisiana's most comprehensive collection of up-to-date marine science journals. There are also dormitories and cafeteria to serve overnight classes, summer school, and visiting researchers.

LUMCON's six remote Environmental Monitoring Stations along the Louisiana coast collect and archive real-time meteorological and hydrographic data to provide a broad community of scientists, educators, students, and the public with quality-controlled environmental data from Louisiana's Gulf coast. A Vaisala 915 mega-hertz LAP-3000 Lower Atmosphere Profiler and a radio acoustic sounding system (RASS) located at the Marine Center provides a profile of wind speeds and air temperatures throughout the lower atmosphere. The data from the stations and profiler are freely available in real-time via http://weather.lumcon.edu. LUMCON also hosts two sites, one at the DeFelice Marine Center and one at LUMCON's Port Fourchon lab, for the Los Alamos National Laboratory's Lightening Mapping Array project to collect and transmit lightening data during storm events (especially hurricanes) to the Los Alamos National Laboratory for the study of storm intensity. Additionally, hypoxia studies of Dr. Rabalais include two coastal ocean observing systems offshore (http://wavcis.csi.lsu.edu, stations CSI-6 and CSI-9).

Vessels

Marine research and education centers are often known as much by their seagoing vessels as their land-based facilities. LUMCON's research vessels, crew, and marine technicians have long been an integral part of the Consortium's success. LUMCON's vessel operations have gained the Consortium respect from researchers and educators worldwide.

LUMCON acquired its first research vessel, the *R. J. Russell*, from Louisiana State University in 1982 (Fig. 5). The vessel was named for the well-known geologist Russell, who adamantly stated several times that LSU should never own a research vessel. Cruises on the *Russell* were more than a little rocky and a more than a little leaky.



Figure 5. Research vessel *R. J. Russell.*

While LUMCON's researchers were thankful for the *Russell*, they realized her limitations and their need for a larger, better-outfitted oceangoing vessel. LUMCON Executive Director Dr. Donald Boesch (1980–90) spent several years planning for the new ship, and when the 105-foot sparkling blue and white R/V *Pelican* turned the bend and sailed into LUMCON's harbor in May 1985, it was greeted with great celebration. LUMCON's R/V *Pelican* was designed by Gulf Marine Design, Inc. of Mandeville, Louisiana, and was built by Allied Shipyard in LaRose, Louisiana. The first cruise was a Louisiana Wildlife and Fisheries Groundfish Survey and the second was the first shelfwide documentation of the hypoxic zone in the Gulf of Mexico—both of which continue to this day. Within its first year, Hurricane Juan (October 1985) tested the seaworthiness of the *Pelican* and its crew.

The *Pelican* has proven herself to be an exceptional ship, repeatedly ranking as one of the nation's top University-National Oceanographic Laboratory System (UNOLS) vessels. The *Pelican* is the most heavily subscribed vessel of the UNOLS regional and coastal class fleet averaging 250 days per year for the past 10 years. In 2001 the *Pelican* became a 116-foot vessel with a mid-life refit (Fig. 6). Each trip to the shipyard enhances the performance of its technical equipment, winches and cranes, and navigation capabilities. She continues to be fitted with the latest technological advances. The *Pelican* hosts a variety of scientific cruises supporting LUMCON research activities as well as many other organizations' research activities (e.g. U.S. Geological Survey, Louisiana Department of Wildlife and Fisheries, Woods Hole Oceanographic Institution, Dauphin Island Sea lab, Texas A& M University, University of Southern Mississippi, Minerals Management Service, and SAIC). The *Pelican* has sailed as far south as Venezuela and as far north as Georges Bank.



Figure 6. LUMCON's research vessel *Pelican*, a heavily subscribed member of the University-Naval Oceanographic Laboratory System (UNOLS).

While the *Pelican* was well-suited for oceanographic research, LUMCON needed a smaller vessel for nearshore research and educational cruises. In 1986, LUMCON sold the *R. J. Russell* and added to its fleet the R/V *Acadian* (Fig. 7), a 58-foot ship that was built by Breaux's Bay Craft in Loraeuville, Louisiana. School groups from across the country have sailed through Terrebonne Bay aboard the *Acadiana*, learning about the estuary through hands-on activities such as fish and invertebrate collection and identification and water quality testing. Research cruises have taken her from the west Florida shelf to the upper Texas coast. Smaller boats (a variety of 14-30 ft outboard boats, a pontoon boat, an airboat and canoes) provide research and educational visitors access to swamps, rivers, freshwater, brackish and saltwater marshes, coastal bays as well as fringing barrier islands and open bay habitats.



Figure 7. The research vessel *Acadiana* at dock in Cocodrie under the observation tower of the LUMCON Marine Center.

The Fourchon Lab

The DeFelice Marine Center serves as the focal point for LUMCON's marine research and education activities, but another lesser-known LUMCON facility also serves an important role. The Port Fourchon Laboratory was built in 1973 for the Nicholls State University (NSU) biology program with funding from the Wisner Foundation. At that time, this field laboratory near Grand Isle with access to the Gulf through Belle Pass was the only marine science station on the Louisiana Gulf Coast. In 1979, NSU subleased the building to LUMCON, providing Consortium members with a research and education base for trips to nearby beaches, lakes, bays and the Gulf of Mexico.



Figure 8. LUMCON's Port Fourchon field laboratory near Grand Isle

Research Programs

The mission of Louisiana Universities Marine Consortium is twofold: to conduct research and education programs relevant to Louisiana's needs in marine science, and to serve as a resource facility for all Louisiana schools with interests in marine research and education. Thus, LUMCON fosters understanding of the economic and cultural value of Louisiana's coastal and marine environments. LUMCON has major research programs in coastal marine science ranging from basic to applied science in areas including aquaculture, coastal ecosystems, hypoxia, phytoplankton ecology, biogeochemistry,

fisheries production, coastal processes, coastal restoration, and river-ocean interactions. The external research funds average $3.75 million per year (5-year average).

The LUMCON faculty, while small, has over the years established critical research programs:
Michael J. Dagg, Professor, 1979 – present (2011), zooplankton ecology
Nancy N. Rabalais, Professor, 1983 – present (2011), benthic ecology, coastal ecosystem studies, eutrophication and hypoxia
Denis J. Reed, Associate Professor, 1986 – 1997, coastal geomorphology
F. Quay Dortch, Associate Professor, 1986 – 2004, phytoplankton ecology and community dynamics
Edward J. Chesney, Associate Professor, 1987 – present (2011), fisheries ecology
Brent A. McKee, Associate Professor, 1988 – 1996, sedimentary processes
Paul J. Sammarco, Professor, 1991 – present (2011), coral reef ecology
Rodney A. Powell, Associate Professor, 1998 – 2009, trace metal chemistry
Christopher W. Finelli, Associate Professor, 1999 – 2006, interaction of physics and biology
Brian J. Roberts, Assistant Professor, 2007 – present (2011), biogeochemistry
Alexander Kolker, Assistant Professor, 2008 – present (2011), sedimentary processes
Geoff Sinclair, Assistant Professor, 2008 – present (2011), phytoplankton ecology

Education Programs

LUMCON provides assisted and unassisted hands-on field trip experiences to a variety of local, state, regional and national visitors. Field trip visitors are welcome throughout the year. Aside from the 2,415 in-state two- and four-year university students on 170 field trips in the most recent five years, LUMCON hosted 733 students on 41 field trips. From 2005-2009, approximately 10,000 pre-college students participated in day and overnight field trips and 1,134 public organization members, including the Louisiana School for the Deaf and the U.S. Environmental Protection Agency mentoring program for the visually impaired. Approximately 14,500 visitors participated in educational field trips from 2005-2009. In addition to field trips, public display areas of LUMCON are designed to allow walk-in visitors to learn about LUMCON and the surrounding environment and community any time of year.

LUMCON also conducts many workshops, symposia, training exercises, and special summer camps. Examples include teacher workshops (H-2-O), STEPS (to introduce science teachers to hands-on science enquiry), and BWET (to fuse the Louisiana Sea Grant Discovery Camp, the Coastal Roots program with LUMCON's Bayouside Classroom, and the LUMCON Estuarine and Awareness Discovery Camp).

A notable program originating from LUMCON is Bayouside Classroom (BC), which was developed as part of an NSF Early Career Grant to Dr. Chris Finelli and which received an NSF education award. BC combines over 50 teachers at 41 locations measuring water quality and entering data into the publicly accessible database housed at LUMCON since 2001 (http://www.lumcon.edu/education/StudentDatabase/). The data have been and are still used by many teachers from other states interested in comparing

BC data. BC serves as a service-learning project at Tulane University and is incorporated into the curriculum for Terrebonne Parish middle school advanced biology classes. It is also part of one of few NOAA-funded BWET programs in the Gulf of Mexico, a partner in the Gulf of Mexico Alliance Ocean Literacy project, and a mechanism for involving under-represented students in marine science.

For university students, LUMCON offers semester distance learning courses and summer field courses. Registration, credit and tuition are through a member university, and the courses are taught at or from the LUMCON Marine Center. The DLVC (distance learning video conference) classroom is used for the spring semester Changing Coastal Oceans class, which broadcasts to up to six universities. LUMCON offers regular introductory and upper level summer undergraduate\graduate field courses that alternate between even and odd years: Coastal Landscape Photography, Bottlenose Dolphin Population Biology, Introductory to Marine Science, Introductory to Marine Zoology, Coral Reef Ecology, Coastal Field Geology, Marine Field Ecology, Marine Invertebrate Ecology, Marine Fish Ecology, and Wetland Vegetation. Participating students averaged 45 per year in the most recent five years. The summer courses offer exposure to the coastal and marine environment through field and lab work, traditional classroom lectures and discussion with our research faculty and occasionally instructors from outside institutions.

In addition to university level courses, the LUMCON intern program gives qualified undergraduate students the opportunity to conduct an 8-week field intensive research project during the summer. Students reside at the DeFelice Marine Center and work under the supervision of a faculty advisor and the University Education Coordinator.

Graduate education is supported by LUMCON faculty who are adjunct faculty at member universities or others across the nation. Since 1987, 47 students (17 Ph.D. and 31 Masters) have graduated under the direction of LUMCON faculty. Currently there are eight Ph.D. and four Masters graduate students working with LUMCON faculty. Fifteen Postdoctoral Associates have been mentored by LUMCON faculty.

LUMCON is an institutional member of AAUS (American Association of Underwater Scientists) and follows its Diver Safety Guidelines. LUMCON accepts letters of reciprocity from member AAUS institutions.

End Note

From a few trailers clustered on the side of a harbor, to a world-renown research and education facility with a fleet of sought-after vessels and a top-notch staff, LUMCON has clearly come a long way. No matter what surprises lay ahead, the Consortium will continue to chart forward as long as it has the strength and support of its employees and of those members throughout the state who utilize its many resources.

Louisiana Universities Marine Consortium

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Governance

Appendix 2.

ACT 557

Regular Session, 1979
ACT NO. 557
HOUSE BILL NO. 682

An Act to amend Title 17 of the Louisiana Revised Statutes of 1950 by adding thereto a new chapter, to be designated as Chapter 28, to be comprised of R.S, 17:3451 through R.S. 17:3456, both 17:3456, both inclusive, and to amend Section 651 of Title 36 of the Louisiana Revised Statutes of 1950 by adding a new Subsection to be designated as Subsection M, and to amend said Title 36 to add a new Section to be designated as Section 801.5 relative to the Louisiana Universities Marine Consortium for Research and Education; to provide for the creation of the Consortium; to provide for the creation of its governing body within the Department of Education; to provide for its governing body within the Department of Education; to provide for its membership, terms of office, compensation, powers, duties, and functions; to provide for the appointment of and the compensation, powers, duties, and functions of an executive director of the council; to require an annual report by the Consortium to the Louisiana Board of Regents; to provide with respect to the governing body in relation to governmental reorganization; and to provide for related matters.

Be it enacted by the Legislature of Louisiana:
Section 1. Chapter 28 of Title 17 of the Louisiana Revised Statutes of 1950, to be comprised of R.S. 17:3451 through R.S. 17:3456, both inclusive, is hereby enacted to read as follows:

CHAPTER 18. LOUISIANA UNIVERSITIES MARINE CONSORTIUM
FOR RESEARCH AND EDUCATION

§3451. Purpose
The purpose of this Chapter is to create the **Louisiana Universities Marine Consortium** for Research and Education with the **primary** function of conducting research and promoting **education in the marine sciences and marine technology, particularly where related to coastal resources and the impact of energy related industries upon these coastal resources. Such** functions shall be performed principally at the Louisiana Universities Marine Consortium Center on the Louisiana Gulf Coast.

§3452. Louisiana Universities Marine Consortium for Research and Education; creation; membership
The Louisiana Universities Marine Consortium for Research and Education, referred to hereinafter as the consortium, is hereby created as a body corporate and shall be composed of all public institutions of higher education now or hereafter offering a four-year curriculum toward a baccalaureate degree in science or engineering in Louisiana.

§3453, Executive Board of the Louisiana Universities Marine Consortium for Research and Education; creation; membership; terms of office; vacancies; compensation;

A. There is hereby created the Council of the Louisiana Universities Marine Consortium for Research and Education within the Department of Education as provided by R.S. 36:651(M) and as provided by R.S. 36:801.5. The council shall be the governing body of the consortium, for budgetary review and control of all funds. The Louisiana Board of Regents shall serve as fiscal agent for the consortium and shall review and approve its budgetary request and operating budget and shall review and approve all funds appropriately awarded or bequeathed to the consortium. All funds appropriated to the consortium shall be appropriated as a separate line item within the appropriation board of the Board of Regents.

B. The Council of the Louisiana Universities Marine Consortium for Research and Education shall be composed of one representative from the Louisiana Board of Regents, one representative from the Board of Supervisors of the Louisiana State University and Agricultural and Mechanical College, one representative from the Board of Supervisors of Southern University and Agricultural and Mechanical College; **and** one representative from each of the public institutions of higher education offering a four-year curriculum toward a baccalaureate degree in science and engineering.

C. The Council shall be domiciled in East Baton Rouge Parish.

D. Each representative board or institution comprising the consortium shall appoint a person to serve on the council for a term of two years. Each member of the counsel shall serve without compensation except for reimbursement of all necessary travel expenses incurred in the performance of official duties of the council, such expenses to be paid in conformity with regulations governing state officials.

E. The members of the council shall elect from the membership a chairman and a vice chairman whose terms shall be fixed by the council. The council shall meet on or before the first Monday in September each year, at other times as fixed by the council, or upon call of the chairman.

F. A vacancy occurring prior to expiration of a term shall be filled for the unexpired portion or the term within thirty days after the date on which the vacancy occurs by appointment of the respective board or institution whose position on the council is vacated by such vacancy.

G. Nine members of the council shall constitute a quorum for the transaction of business and all official action of the council shall require the favorable vote of a majority of the members of the council. The council shall adopt rules for the transaction of its business and shall keep an accurate record of all of its proceedings and official actions. All papers, documents, and records appertaining to the council shall be filed at the domicile of the council.

§3454. Louisiana Universities Marine Consortium for Research and Education; governance, funding

A. The Council of the Louisiana Universities Marine Consortium for Research and Education shall have authority to:

(1.) Sue and be sued, including the right to recover all debts owing to the consortium, and to retain legal counsel therefor.

(2.) Actively seek and accept donations, bequests, or other forms of financial assistance for educational purposes from any public or private person or agency, subject to the approval of the Board of Regents, and comply with rules and regulations governing grants from the federal government or any other person or agency which are not in contravention of the constitution and laws of the state of Louisiana.

(3.) Determine the fees which shall be paid by students.

(4.) Purchase land and purchase or construct buildings necessary for the use of the consortium subject to the approval of the Board of Regents and in accordance with applicable laws; provided that all valid campsite leases dated on or before April 16, 1979, including the option to extend the leases for an additional ten year period, as provided in R.S. 41:1211 et seq., shall remain in full force and effect.

(5.) Purchase equipment, properly maintain, and make improvements to facilities necessary for the use of the consortium in accordance with applicable state laws.

(6.) Except as otherwise provided in this chapter, approve the appointment of such administrative offices and other personnel as it deems necessary and designate their titles. In making its appointments, the council shall give consideration to the recommendations of the chief administrative officer and, in proper cases, to the head of any college or university affected by an appointment. Appointments of classified employees shall be in conformity with applicable civil service laws, rules, and regulations. The compensation of all officers and employees, except those classified civil service employees, shall be fixed by the council, and the officers so appointed shall serve at the pleasure of the council.

(7.) Formulate curricula and programs of study.

(8.) Adopt, amend, or repeal rules and regulations necessary or proper for the business of the council.

(9.) Affiliate with any institution giving any special course of instruction, upon such terms as the council deems expedient, which terms may include the retention by such institution of the control of property, faculty, and staff.

(lO.)Enter into contracts and agreements with other public agencies with respect to cooperative enterprises and undertakings relating to or associated with college or university purposes and programs in accordance with applicable laws.

(11.) Perform such other functions as are necessary or incidental to the supervision and management of the consortium.

(12.) Employ the proceeds of all donations, grants, subscriptions, and bequests made to the consortium so as to effect the purposes of and in accordance with the terms and conditions of such donations, grants, subscriptions, and bequests.

(13.) Establish such subcommittees as may be necessary to assist the council and the executive committee in the implementation of the provisions of this Chapter.

(14.) Adopt necessary rules and regulations regarding the hours of employment and the accrual and use of sick leave and annual leave for all personnel employed by the council.

B. The Council may create an executive committee composed of the chairman, vice chairman,
and three members elected by the council from its membership. The executive committee shall meet at times to be determined by the chairman of the council and shall consider only those matters assigned to the committee by the council; however, the council may adopt rules and regulations to delegate to the executive committee the authority to act for the council on a particular matter in which case a majority of the executive committee shall be required to take such action. In addition the council may adopt rules and regulations to authorize the executive committee to act when an emergency arises requiring immediate action in the interim between council meetings. All actions of the executive committee shall be submitted to the council for approval or rejection at the next regularly scheduled meeting of the council, except in emergency matters or in matters where the council has delegated authority to the committee. All proceedings of the executive committee shall be recorded.

C. The council may enter into contracts and agreements with any public agency for the establishment of state or other public offices on the property and in the buildings belonging to or under the control of the consortium. The council may enter into contracts and agreements for joint construction, equipment, maintenance, and financing of such buildings, and enter into contracts and agreements for the joint financing, supervision, and conduct of cooperative enterprises and undertakings.

D. The liability of any of the acts of the consortium or any of its employees, or persons associated with any property of the consortium, shall be the liability of the consortium as represented by the executive board.

§3455. Executive director; appointment; functions

The council may appoint a chief administrative officer who shall be the executive director of the council. The executive director of the council shall serve at the pleasure of the council and shall, with the approval of the council and subject to the applicable civil service laws, rules, and regulations of the state, appoint and remove all professional, research, technical, clerical, and stenographic employees of the consortium. The compensation of the executive director shall be fixed by the council. The executive director shall serve as secretary

to the **council,** the executive committee, and any additional committees appointed by the council to assist in the implementation of the provisions of this Chapter.

§3456. Annual Report
On or before December 31 of each **year,** the council shall submit an annual report of the activities of the consortium to the Louisiana Board of Regents together with any additional **information which the Board of Regents may require.**

Section 2. Subsection M of Section 651 and Section 801.5, both of Title 36 of the Louisiana Revised Statutes of 1950, are hereby enacted to read as follows:

§ 651. Transfer of boards, commissions, departments, and agencies to Department of Education; boards, commissions and agencies within Department of Education.
II. The council of the Louisiana Universities Marine Consortium for Research and Education shall be within the Department of Education as provided in R.S. 36:801.5.
(R.S. 17:3451-17:3458)

§ 801.5 Transfer; Council of the Louisiana Universities Marine Consortium for Research **and Education.**
The agency placed within the Department of Education by the provisions of R.S. 36:651(M) shall exercise all powers, duties, functions, and responsibilities provided or authorized by the constitution or laws which are in the nature of policy making, rule making, licensing, regulation, enforcement, or adjudication and exercise all advisory powers, duties, and functions provided by law and shall administer and implement all programs provided or authorized by law. The executive director shall, with the approval of the council, employ, appoint, remove, assign, and promote such personnel as is necessary for the efficient administration of such powers, duties, functions, and responsibilities and for the administration and implementation of such programs, in accordance with applicable civil service laws, rules, and regulations. The agency shall perform and administer its functions which are in the nature of accounting and budget control, procurement, and contract management and program analysis, data processing, personnel management, and grants management subject to budgetary control and approval and review by the Board of Regents of all funds appropriated, awarded or requested. The agency as provided in this Section shall exercise the powers, duties, functions, and responsibilities as provided by the constitution and by-law and shall administer and implement the programs authorized in this Section or any other provision of law independently of the secretary, the undersecretary, and any assistant secretary.
Section 3. If any provision or item of this At or the application thereof is held invalid, such invalidity shall not affect other provisions, items, or applications of this Act which can be

given effect without the invalid provisions, items, or applications, and to this end the provisions of this Act are hereby declared severable.
Section 4. All laws or parts of laws in conflict herewith are hereby repealed.

Approved July 18,1979.

ACT No. 1243

HOUSE BILL NO. 2397

BY REPRESENTATIVES CARRIER, ALARIO, R. ALEXANDER, ANDING, ANSARDI, BERGERON, DIEZ, DOERGE, DURAND, GUILLORY, HILL, KRIEGER, LANDCASTER, LEBLANC, MARTINY, MCCALLUM, MCCLEARY, MONTGOMERY, MORRELL, ODINET, PATTI, QUEZAIRE, RIDDLE, SIMPKINS, SIRACUSA, TRAVIS, AND TRICHE

AN ACT

To amend and reenact R.S. 17:3452, 3453, 3454, 3455, and 3456, relative to the Louisiana Universities Marine Consortium for Research and Education; to provide for the powers, duties, and responsibilities of the Board of Regents; to delete certain provisions relative to the Council of the Louisiana Universities Marine Consortium for Research and Education; to create and provide for the powers, duties, and responsibilities of an executive Board of the Louisiana Universities Marine Consortium for Research and Education; to provide for the creation of an advisory council; to provide relative to the executive branch of state government; and to provide for related matters.

Be it enacted by the Legislature of Louisiana:

Section 1. R.S 17:3452, 3453, 3454, 3455, and 3456 are hereby amended and reenacted to read as follows:

§3452. Louisiana Universities Marine Consortium for Research and Education; creation; membership

The Louisiana Universities Marine Consortium for Research and Education, referred to hereinafter as the consortium, is hereby created as a body corporate under the authority of the Board of Regents to be administered by an executive board as provided in this Chapter.

§3453. Executive Board of the Louisiana Universities Marine Consortium for Research and Education; creation; membership; terms of office; vacancies; compensation; organization; duties

A. There is hereby created the Executive Board of the Louisiana Universities Marine Consortium for Research and Education within the Department of Education as provided by R.S. 36:651(M) and 801.4. The executive board shall administer the affairs

of the consortium. The executive board shall report to and be responsible to the Board of Regents on all fiscal and programmatic matters. The executive board shall appoint an executive director of the consortium who shall report to to board. The executive board shall meet not less often than twice annually.

B. The Executive Board of the Louisiana Universities Marine Consortium for Research and Education shall be composed of the chancellor and one vice chancellor, chosen by the chancellor, of Louisiana State University and Agricultural and Mechanical College in Baton Rouge, the president and one vice president, chosen by the president, of Nicholls State University, and the president and one vice president, chose by the president, of the University of Southwestern Louisiana.

C. The executive board shall be domiciled in East Baton Rouge Parish.

D. Each member of the executive board shall serve without compensation except for reimbursement of all necessary travel expenses incurred in the performance of official duties of the council, such expenses to be paid in conformity with regulations governing state officials.

E.(1) The executive board shall be chaired, for a one-year term, by one of the institutional chief executive officers. The remaining two chief executive officers shall be the first vice chair and second vice chair respectively. At the end of each term the first vice chair shall become the chair, the second vice chair shall become the first vice chair, and the chair shall become the second vice chair.

(2) The initial positions of the chief executive officers shall be chosen by random drawing.

F. The executive board of the consortium shall establish an advisory council composed of representatives from the three institutions with members on the executive board, representatives from the private sector and public and private agencies that use the consortium's facilities. The advisory board shall include not less than one representative of each public institution of higher education offering a four-year curriculum toward a baccalaureate degree in science and engineering and one representative from the Louisiana Association of Independent Colleges and Universities. The advisory board shall meet as necessary to respond to requests of the executive board for advice and information as well as to provide the executive board with the benefit of perspectives represented on the council.

§3454. Louisiana Universities Marine Consortium for Research and Education, governance, funding

A. The Louisiana Universities Marine Consortium for Research and Education shall be subject to the governance of the Board of Regents. The board shall serve as the fiscal agent for the consortium and shall review and approve the consortium's budgetary request and operating budget and shall review and approve all funds appropriately awarded or bequeathed to the consortium. The executive board of the consortium shall prepare and submit all budget requests and other budgetary documents required by the Board of Regents for its approval. All funds appropriated to the consortium shall be appropriated as a separate line item within the appropriation of the Board of Regents.

B. As the governing body of the Louisiana Universities Marine Consortium for Research and Education, the executive board of the consortium shall have authority to:

(1) Sue and be sued, including the right to recover all debts owing to the consortium, and to retain legal counsel therefore.

(2) Actively seek and accept donations, bequests, or other forms of financial assistance for education purposes from any public or private person or agency and comply with rules and regulations governing grants from the federal government or any other person or agency which are not in contravention of the constitution and laws of the state of Louisiana.

(3) Determine the fees which shall be paid by students.

(4) Purchase land and purchase or construct buildings necessary for the use of the consortium in accordance with applicable laws, provided that all valid campsite leases dated on or before April 16, 1979, including the option to extend the leases for an additional ten-year period, as provided for in R.S. 41:1211 et seq., shall remain in full force and effect.

(5) Purchase equipment, properly maintain, and make improvements to facilities necessary for the use of the consortium in accordance with applicable state laws.

(6)(a) Except as otherwise provided in this Chapter, approve the appointment of such administrative officers and other personnel as the executive board deems necessary and designate their titles. In making its appointments, the executive board shall give consideration to the recommendations of the executive director and, in proper cases, to the head of any college or university affected by the appointment. Appointments of classified employees shall be in conformity with applicable civil service laws, rules, and regulations.

(b) The compensation of all officers and employees, except those classified civil service employees, shall be fixed by the

executive board and the officers so appointed shall serve at the pleasure of the executive board.

(7) Formulate curricula and programs of study.

(8) Adopt, amend, or repeal rules and regulations necessary or proper for the business of the consortium.

(9) Affiliate with any institution giving any special course of instruction, upon such terms as the executive board deems expedient, which terms may include the retention by such institution of the control of proper, faculty, and staff.

(10) Enter into contracts and agreements with other public agencies with respect to cooperative enterprises and undertakings relating to or associated with college or university purposes and programs in accordance with applicable laws.

(11) Perform such other functions as are necessary or incidental to the supervision and management of the consortium.

(12) Employ the proceeds of all donations, grants, subscriptions, and bequests made to the consortium so as to effect the purposes of and in accordance with the terms and conditions of such donations, grants, subscriptions, and bequests.

(13) Establish such subcommittees as may be necessary to assist the executive board in the implementation of the provisions of this Chapter.

(14) Adopt necessary rules and regulations regarding the hours of employment and the accrual and use of sick leave and annual leave for all personnel employed by the consortium

C. The executive board may enter into contracts and agreements with any public agency for the establishment of state or other public offices on the property and in buildings belonging to or under the control of the consortium. The executive board also may enter into contracts and agreements for joint construction, equipment, maintenance, and financing of such buildings, and enter into contracts and agreements for the joint financing, supervision, and conduct of cooperative enterprises and undertakings.

D. The liability of any of the acts of the consortium or any of its employees, or persons associated with any property of the consortium, shall be the liability of the consortium as represented by the executive board.

§3455. Executive director; appointment; functions

The executive board may appoint a chief administrative officer who shall be the executive director of the consortium. The executive director of the consortium shall serve at the pleasure of the executive board and shall, with the approval of the executive board and subject

to the applicable civil service laws, rules, and regulations of the state, appoint and remove all professional, research, technical, clerical, and stenographic employees of the consortium. The compensation of the executive director shall be fixed by the executive board. The executive director shall serve as secretary of the executive board, the executive committee, and any additional committees appointed by the executive board to assist in the implementation of the provisions of this Chapter.

§3456. Annual report

On or before December thirty-first of each year, the executive director shall submit an annual report of the activities of the consortium to the executive board together with any additional information the executive board may require.

Section 2. This Act shall become effective upon signature by the governor or, if not signed by the governor, upon expiration of the time for bills to become law without signature by the governor, as provided in Article III, Section 18 of the Constitution of Louisiana. If vetoed by the governor and subsequently approved by the legislature, this Act shall become effective on the day following such approval.

Approved by the Governor, June 29, 1995.
Published in the Official Journal of the State:
August 9, 1995
A true copy:
W. Fox McKeithen
Secretary of State

BYLAWS OF THE EXECUTIVE BOARD OF THE LOUISIANA UNIVERSITIES MARINE CONSORTIUM FOR RESEARCH AND EDUCATION

In Regular Session, 1995, House Bill No. 2397 amended and reenacted R.S. 17:3452, 3453, 3454, 3455, and 3456, of Act 557, relative to the Louisiana Universities Marine Consortium for Research and Education, and signed by the Governor as ACT 1243, August 9, 1995, to create an Executive Board and delete certain provisions relative to the LUMCON Council. The newly created Executive Board shall administer to the affairs of the consortium. The Executive Board shall report to and be responsible to the Board of Regents on all fiscal and programmatic matters. The Louisiana Universities Marine Consortium for Research and Education shall be subject to the governance of the Board of Regents.

ARTICLE I

OFFICE

1.1 Principal Office. The principal office of the Executive Board of the Louisiana Universities Marine Consortium for Research and Education, a body corporate under the authority of the Board of Regents administered by an Executive Board, shall be in East Baton Rouge Parish, Louisiana, shall be in the City of Baton Rouge, East Baton Rouge Parish, Louisiana.

ARTICLE II

MEETING

2.1 Regular Meetings. The Executive Board shall meet not less often than twice annually. The Executive Board shall meet during the month of September of each year and at other times as fixed by the Executive Board or upon call of the Chairman.

2.2 Special Meetings. Special meetings may be called at any time by the Chairman, or by the Vice-Chair, upon the written request of at least three (3) members of the Executive Board.
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2.3 Location of Meetings. The Executive Board may hold meetings at any location in the State of Louisiana.

2.4 Notice of Meetings. Written or printed notice stating the place, day, hour, and proposed agenda of the meeting shall be delivered no less than seven (7) days before the date of the meeting, either personally or by mail. The notice for a special meeting may be reduced from seven (7) days to two (2) days providing that all members of the Executive Board waive the seven (7) day notice requirement. Public notice of meetings shall be in accordance with the open meetings law of the State of Louisiana, Act No. 681.

2.5 Quorum. Four (4) members of the Executive Board shall constitute a quorum and no action may be taken without a favorable vote of at least four (4) members of the Executive Board.

2.6 Proxies. Proxies may not be used by or for any member of the Executive Board at its meeting.

2.7 Rules of Order. Meetings shall be conducted in accordance with Robert's Rules of Order and such other rules adopted by the aye > nay vote of the members present.

2.8 Order of Business. The order of business of the Executive Board shall be as follows:

a. Call to Order
b. Roll Call
c. Correction and approval of the minutes of the preceding meeting
d. Reports and recommendations of standing and special committees.
e. Reports and recommendations of the Executive Director.
f. Reports and recommendations of the Chairman of the Executive Board
g. Reports and announcements for the general information of the Executive Committee
h. Other Business
i. Adjournment

2.9 Minutes. Written minutes of all meetings shall be taken. Copies of said minutes shall be mailed Along with other pertinent information via a briefing booklet to each member of the Executive Board prior to the next regular or special meeting of the Executive Board. The minutes shall be considered as tentative until approved by the Executive Board at its next regular meeting.

ARTICLE III

OFFICERS

3.1 Officers. The Executive Board shall be comprised of the chancellor and one vice chancellor, chosen by the chancellor of Louisiana State University and Agricultural and Mechanical College in Baton Rouge, the president and one vice president, chosen by the president, of Nicholls State University, and the president and one vice president chosen by the president, of University of Louisiana at Lafayette.

3.2 Chairman of the Executive Board. It shall be the duty of the Chairman of the Executive Board to preside over all meetings of the Executive Board and to appoint, subject to the approval of the Executive Board.

3.3 First Vice Chairman of the Executive Board. In the absence of the Chairman, the First Vice-Chairman shall preside over the meeting of the Executive Board.

3.4 Secretary to the Executive Board. It shall be the responsibility of the LUMCON Executive Secretary to see to the filing, indexing, and preservation of all minutes, papers, and

documents pertaining to the business and proceedings of the Executive Board and of its committees, and to be the custodian of all the records of the Executive Board.

ARTICLE IV

ADVISORY BOARDS

4.1 Executive Advisory Board. The Executive Advisory Board shall be comprised of the three Vice-Chancellors/Vice-Presidents who serve on the Executive Board. The primary duty of the Executive Advisory Board is to oversee, in an advisory capacity, the operation of LUMCON business between scheduled Executive Board meetings. The Executive Advisory Board shall meet and work directly with the LUMCON staff. They are empowered to gather information, make inquiries, hold hearings, and make recommendations to the Executive Board.

4.2 External Advisory Council. The Executive Board shall establish an External Advisory Council composed of representatives of the three institutions with members on the Executive Board, representatives from the private sector and public and private agencies that use the consortium's facilities. The External Advisory Council shall include not less that one representative of each Louisiana institution of higher education offering a four-year curriculum toward a baccalaureate degree in science and engineering and one representative from the Board of Directors of the Louisiana Association of Independent Colleges and Universities. The External Advisory Council shall meet as necessary to respond to requests of the Executive Board for advice and information as well as to provide the Executive Board with the benefit of perspective represented on the External Advisory Council.

4.3 Special Committees. The Chairman of the Executive Board may appoint other committees which it deems necessary with such functions, powers, and authority as may be determined. Unless otherwise provided in the action creating such committee, the Chairman of the Executive Board shall determine the number of its members and designate the chairman and vice-chairman thereof. The Chairman of the Executive Board may also appoint *ad hoc* committees for special assignments for specified periods of existence not to exceed the completion of the assigned task. A majority in number of the members of each committee shall constitute a quorum.

ARTICLE V

STAFF

5.1 Staff. The Executive Board shall appoint a Chief Administrative Officer whose title shall be Executive Director for the Louisiana Universities Marine Consortium for Research and Education. The Executive Director shall, with the approval of the Executive Board and subject to the applicable laws, rules and regulations of the state, appoint and remove all professional, research, technical, clerical and stenographic employees of the consortium as may be deemed necessary for the performance of its functions. The duties and responsibilities of the Executive Director shall be as prescribed by ACT 1243 and as prescribed by the Executive Board.

ARTICLE VI

FINANCES

6.1 Budget. The Executive Board shall serve as fiscal agent for the consortium and shall review and approve the consortium's budgetary request and operating budget and shall review and approve all funds appropriately awarded or bequeathed to the consortium. The Executive Board of the consortium shall approve all budget requests and other budgetary documents required by the Board of Regents.

6.2 Obligations. Once the budget is adopted, the obligations therein reflected may be incurred by the Executive Board.

6.3 Annual Report. On or before December thirty-first of each year, the Executive Director shall submit an annual report of the previous fiscal year's activities of the consortium to the Executive Board together with any additional information the Executive Board may require.

ARTICLE VII

ADOPTION OF RULES, PUBLICATIONS AND AMENDMENTS

7.1 Adoption of Rules. These rules were presented to and adopted by the Executive Board in the State of Louisiana on thi**s** 22nd day of April, 1998.

7.2 Publications. These rules shall forthwith be published in the ***Louisiana Register.***

7.3 Amendments**.** These rules may be amended at any Regular or Special meeting, provided notice of such proposed amendment is submitted to the Executive Board in accordance with the provisions of Article II, Section 2.4.

LOUISIANA UNIVERSITIES MARINE CONSORTIUM
VESTED AUTHORITIES

As per ACT No. 1243 from HOUSE BILL NO.2397

To amend and reenact R.S. 17:3452, 3453, 3454, 3455, and 3456, relative to the Louisiana Universities Marine Consortium for Research and Education; …
Approved by the Governor, June 29, 1995.

Executive Board
The Executive Board shall report to and be responsible to the Board of Regents on all fiscal and programmatic matters. The Executive Board shall appoint an Executive Director of the Consortium who shall report to the Executive Board and Board of Regents.

Executive Director
The Executive Director, the chief executive officer of the Consortium, is empowered to perform all actions to make effective the policies of the Louisiana Universities Marine Consortium (LUMCON), a body corporate under the authority of the Board of Regents and supervised by LUMCON's Executive Board. The Executive Director is charged with the overall responsibility for the Consortium and the administration of the Consortium in accordance with the authority vested in the Executive Director by the Consortium's Executive Board.

Vested Authorities
The Executive Board shall report to and be responsible to the Board of Regents on all fiscal and programmatic matters. The Executive Board shall appoint an Executive Director of the Consortium who shall report to the Executive Board and Board of Regents. The Executive Director …. shall, with the approval of the Executive Board and subject to the applicable civil service laws, rules, and regulations of the state, appoint and remove all professional, research, technical, clerical, and stenographic employees of the Consortium. All personnel actions carried out by the Executive Director are reported to the Executive Board for its review and approval at the bi-annual meetings as a "Personnel Activity" report.

The Executive Board shall serve as the fiscal agent for the Consortium and shall review and approve the Consortium's budgetary request and operating budget and shall review and approve all funds appropriately awarded or bequeathed to the consortium. The Executive Board of the Consortium shall prepare and submit all budget requests and other budgetary documents required by the Board of Regents for its approval. The budgetary requests are prepared for the Executive Board by the Executive Director and relevant staff and are submitted to the Executive Board at the bi-annual meetings for its consideration and approval. The Executive Director also provides to the Executive Board

at the bi-annual meetings a listing of new grants, grant extensions, and grant monetary modifications for its review and approval.

The Executive Board approves the appointment of such administrative officers and other personnel as the Executive Board deems necessary and designate their titles. In making its appointments, the Executive Board shall give consideration to the recommendations of the Executive Director. The appointments are reported to the Executive Board for its approval at its bi-annual meetings as a "Personnel Activity" report.

The compensation of all officers and employees shall be fixed by the Executive Board. The compensation levels are developed by the Executive Director in consultation with supervisory staff and according to performance evaluations and presented to the Executive Board for its consideration and approval.

In addition, the **Executive Board** of the Consortium shall have authority to:
(1) Sue and be sued, including the right to recover all debts owing to the consortium, and to retain legal counsel therefore.
(2) Actively seek and accept donations, bequests, or other forms of financial assistance for education purposes from any public or private person or agency and comply with rules and regulations governing grants from the federal government or any other person or agency which are not in contravention of the constitution and laws of the state of Louisiana.
(3) Determine the fees which shall be paid by students.
(4) Purchase land and purchase or construct buildings necessary for the use of the consortium in accordance with applicable laws, provided that all valid campsite leases dated on or before April 16, 1979, including the option to extend the leases for an additional ten-year period, as provided for in R.S. 41:1211 et seq., shall remain in full force and effect.
(5) Purchase equipment, properly maintain, and make improvements to facilities necessary for the use of the consortium in accordance with applicable state laws.
(6) (a) Personnel appointments, covered above.
(b) Compensation, covered above.
(7) Formulate curricula and programs of study.
(8) Adopt, amend, or repeal rules and regulations necessary or proper for the business of the Consortium.
(9) Affiliate with any institution giving any special course of instruction, upon such terms as the Executive Board deems expedient, which terms may include the retention by such institution of the control of proper, faculty, and staff.
(10) Enter into contracts and agreements with other public agencies with respect to cooperative enterprises and undertakings relating to or associated with college or university purposes and programs in accordance with applicable laws.
(11) Perform such other functions as are necessary or incidental to the supervision and management of the consortium.
(12) Employ the proceeds of all donations, grants, subscriptions, and bequests made to the consortium so as to effect the purposes of and in accordance with the terms and conditions of such donations, grants, subscriptions, and bequests.

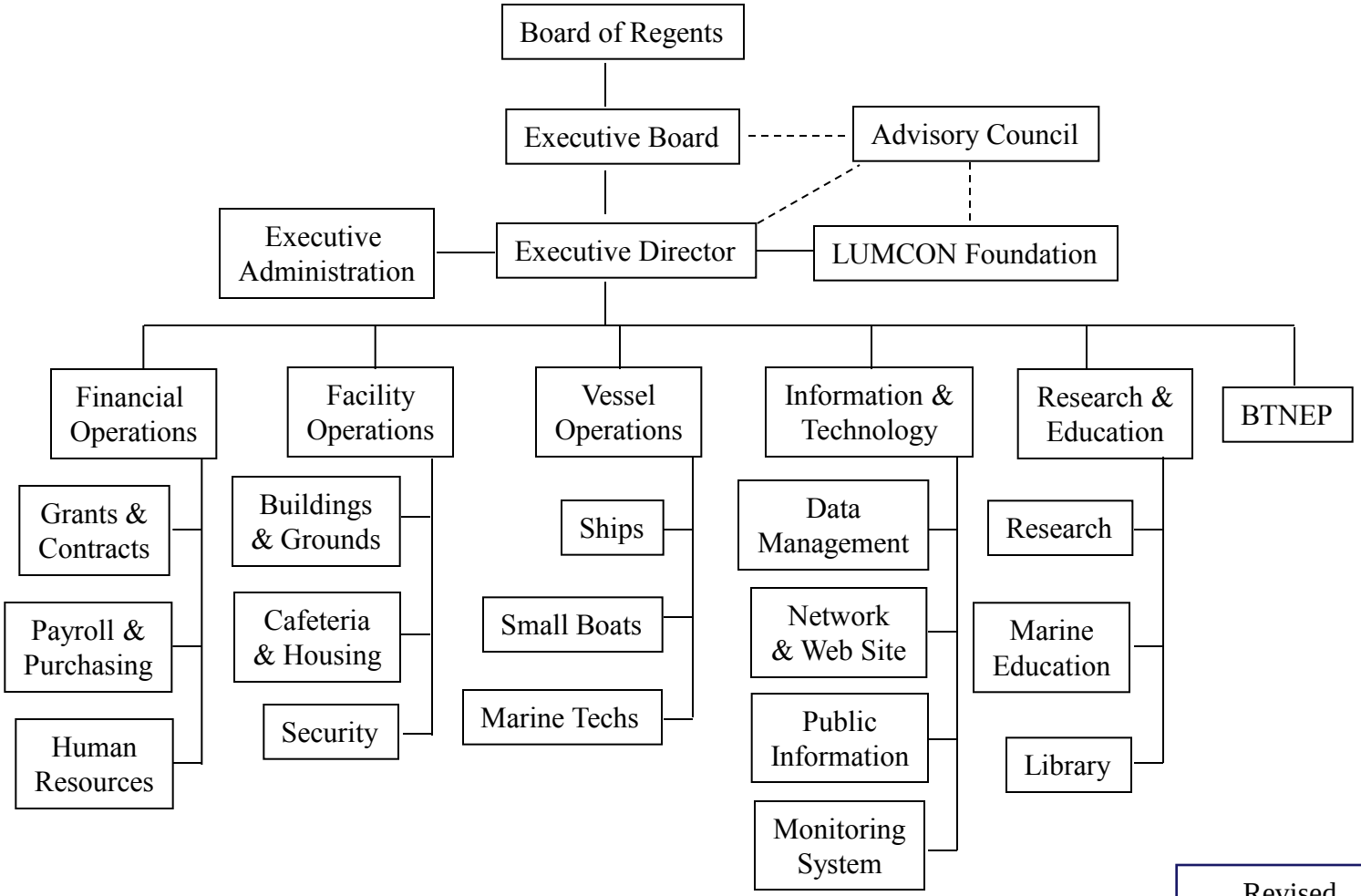
(13) Establish such subcommittees as may be necessary to assist the executive board in the implementation of the provisions of this Chapter.
(14) Adopt necessary rules and regulations regarding the hours of employment and the accrual and use of sick leave and annual leave for all personnel employed by the consortium.

The Executive Board may enter into contracts and agreements with any public agency for the establishment of state or other public offices on the property and in buildings belonging to or under the control of the Consortium. The Executive Board also may enter into contracts and agreements for joint construction, equipment, maintenance, and financing of such buildings, and enter into contracts and agreements for the joint financing, supervision, and conduct of cooperative enterprises and undertakings.

The liability of any of the acts of the Consortium or any of its employees, or persons associated with any property of the consortium, shall be the liability of the Consortium as represented by the Executive Board.

Organization

LOUISIANA UNIVERSITIES MARINE CONSORTIUM



LUMCON EXECUTIVE BOARD

(Effective November 1, 2010)

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Tammy Toups/ Executive Services Assistant
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Chair serves 1 year term; Rotation occurs at Fall Executive Board Meeting.
Chair becomes 2nd Vice Chair; 2nd Vice Chair becomes 1st Vice Chair;
1st Vice Chair becomes Chair.

LUMCON EXECUTIVE BOARD

(Effective September 8, 2010)

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Chair serves 1 year term; Rotation occurs at Fall Executive Board Meeting.
Chair becomes 2nd Vice Chair; 2nd Vice Chair becomes 1st Vice Chair;
1st Vice Chair becomes Chair.

LUMCON EXECUTIVE BOARD

(Effective January 12, 2010)

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Louisiana State University and A&M College

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Chair serves 1 year term; Rotation occurs at Fall Executive Board Meeting.
Chair becomes 2nd Vice Chair; 2nd Vice Chair becomes 1st Vice Chair;
1st Vice Chair becomes Chair.

LUMCON EXECUTIVE BOARD

(Effective November 25, 2008)

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Chair serves 1 year term; Rotation occurs at Fall Executive Board Meeting.
Chair becomes 2nd Vice Chair; 2nd Vice Chair becomes 1st Vice Chair;
1st Vice Chair becomes Chair.

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Chairman serves 1 year term; Rotation occurs at Fall Executive Board Meeting.
Chairman becomes 2nd Vice Chairman; 2nd Vice Chairman becomes 1st Vice Chairman;
1st Vice Chairman becomes Chairman.

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Chairman serves 1 year term; Rotation occurs at Fall Executive Board Meeting.
Chairman becomes 2nd Vice Chairman; 2nd Vice Chairman becomes 1st Vice Chairman;
1st Vice Chairman becomes Chairman.

LUMCON EXECUTIVE BOARD 2006

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Chairman serves 1 year term; Rotation occurs at Fall Executive Board Meeting.
Chairman becomes 2nd Vice Chairman; 2nd Vice Chairman becomes 1st Vice Chairman;
1st Vice Chairman becomes Chairman.

LUMCON EXECUTIVE BOARD 2005

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1st Vice Chairman becomes Chairman.

Policies

LUMCON Employee Handbook & Policies

The LUMCON Employee Handbook is available on line through the Intranet Administrative web site. It is attached as a pdf file to the reviewer documents enclosed.
http://www.lumcon.edu/admin/FormsAndDocs/Employee_Packet.pdf
It is updated as necessary, and all employees have access it through the Intranet Administrative site.

The following forms can be downloaded and filled out. Just click on the title to open or right click to save.

Employee Packet

Institutional Endorsement Apr2010

LEAVE FORM

LUMCON Employee Performance Review

LUMCON Safety Manual

Phone Bid Sheet

purchase order

PURCHASE REIMBURSEMENT

Special Construction Projects

Travel Authorization

Travel Expense

WebUpdateRequestForm

Quick Links:

Louisiana State Travel Office

LOUISIANA UNIVERSITIES MARINE CONSORTIUM

POLICIES CONCERNING FACULTY APPOINTMENT, PROMOTION AND CONTRACT RENEWAL

6 September 2006

Statement of Effect

This document is effective October 1, 2006 and pertains to faculty hired after that date. The Louisiana Universities Marine Consortium "Policies Concerning Faculty Appointment and Promotion" drafted June 1990 and most recently revised April 22, 1998, remains in effect for faculty hired prior to October 1, 2006.

General Policies

It is the policy of the Executive Board of the Louisiana Universities Marine Consortium to maintain a staff, employed by the Consortium, of highly qualified scientists, educators and librarians as a Faculty. These individuals may be appointed at the rank of Instructor, Assistant Professor, Associate Professor, or Professor; or equivalent ranks within the Librarian series, with the qualifications of all ranks equivalent to those of the member and affiliate universities. Position descriptions are provided in the Appendix.

In order to promote high standards of scholarship and attract and retain excellent faculty members, the Executive Board may grant promotion to higher ranks and extended employment through a series of renewable contracts to those faculty members with an outstanding record of performance and contribution to the Consortium.

New faculty may be appointed to a position at the Assistant Professor, Associate Professor or Professor level, which shall carry a minimum commitment of nine months salary support from the Consortium per annum during their term of appointment. Faculty in the Librarian series will receive twelve months salary support from the Consortium per annum during their term of appointment. Instructor also carries a twelve months salary support from the Consortium per annum during the term of appointment.

Individuals meeting the requirements for faculty status but being paid primarily from a grant or contract may be appointed as a Research Faculty member. In order to encourage contributions to the Consortium and extend the effectiveness of the Faculty, Research Faculty members will have the same rights and privileges regarding service on faculty committees, including committees for faculty searches and promotions, and other faculty activities. Research Faculty are eligible for up to 6 months support as determined by the Executive Director. Level of support will be

contingent upon his/her contributions to the Consortium, availability of funds, the individual's research funding history and status, and will continue only as funds are available.

The Faculty shall serve under the supervision and direction of the Executive Director within the policies established by the Executive Board. The Executive Board expects that the Executive Director and other Consortium administrators will formally consult with the Faculty on matters concerning the research and educational programs of the Consortium and the status of the Faculty. All appointments, re-appointments and non-reappointments will be made by the Executive Director with the approval of the Executive Board.

Criteria for Appointment to Each Faculty Rank

- **Instructor**
  - Masters degree in science or education.
  - At least three years experience in education or research at the college level.
- **Assistant Professor**
  - Doctoral degree in science or education.
  - Clear evidence of potential for scholarly activity in research or education.
- **Associate Professor**
  - Doctoral degree in science or education.
  - At least three years service at the Assistant Professor level.
  - Clear evidence of a significant scholarly career as indicated by scientific publications of research or educational activities and creative work of high quality.
  - A record of educational activities, usually including some teaching at the graduate level.
  - A record of service to their institution, the profession and society.
- **Professor**
  - Doctoral degree in science or education.
  - At least five years service at the Associate Professor level.
  - Clear evidence of an exceptional scholarly career as indicated by scientific publications of research or educational activities of sufficient quality to bring the faculty member national and international recognition and a reputation of scholarship.
  - A record of educational activities, usually including graduate teaching and the direction of graduate students.
  - A record of competent and significant service to their institution, the profession, and society.
- **Assistant Librarian**
  - Masters degree in Library and/or Information Science from an accredited American Library Association institution.
  - Clear evidence of potential for excellence in academic special librarianship.

- **Associate Librarian**

  - Masters degree in Library and/or Information Science from an accredited American Library Association institution.
  - At least three years service at the Assistant Librarian level.
  - Clear evidence of potential for excellence in job performance and mastery of the role of a special library manager.
  - Clear evidence of significant achievements in scholarly or high-quality creative activities to indicate a potential for continued contributions to special librarianship or other academic disciplines.

- **Librarian**

  - Masters degree in Library and/or Information Science from an accredited American Library Association institution.
  - At least five years service at the Associate Librarian level.
  - A consistent pattern of excellence in job performance and recognition of outstanding achievement in an area or areas of specialization or responsibility.
  - Clear evidence of high-quality scholarly or creative achievements that make a significant contribution to the library profession.

Contract Appointment, Reappointment and Non-reappointment

Instructors shall be appointed for terms not to exceed three years. They may be reappointed for a contract period of up to three years, and may hold this rank indefinitely under succeeding three-year appointments. The Executive Director shall make reappointment at the Instructor level. Prior to making a new or renewed appointment, the Executive director shall determine the consensus of the Faculty. Reappointment will require satisfactory performance of the duties outlined in the position description. Non-reappointment at the Instructor level will result in a one-year, terminal appointment.

Assistant Professors shall be appointed for an initial term of three years. Assistant Professors may be reappointed for an additional term of up to three years, but may not hold this rank for longer than six years. The Executive Director shall make an initial appointment or a three-year reappointment based on annual performance evaluations and a review of performance by the faculty. Before the end of six years of full-time service as an Assistant Professor, there will be a review for promotion to Associate Professor. With a promotion to Associate Professor, a six-year reappointment will be made by the Executive Director. Non-reappointment at the time of this review will result in a one-year, terminal appointment.

An initial appointment for an Associate Professor or Professor will be for six years. In the fifth year of the six-year contract, Associate Professors or Professors will be reviewed in a process similar to that for promotion to Associate Professor. An individual may be reappointed to the same rank, promoted to higher rank, or not re-appointed. Prior to making a decision, the Executive Director shall review the findings of the review committee and determine the consensus of the Faculty. Re-appointment or promotion will be for an additional six years. Non-reappointment will result in a three-year, terminal appointment.

The procedures for appointment, evaluation, and promotion within the Research Faculty ranks shall be the same as for faculty positions in the Professor series. Research Faculty shall be appointed, contingent on the availability of researcher-generated external research funds to support the position, for terms not to exceed three years. They may be reappointed for periods of up to three years. The Executive Director will make a reappointment based on annual performance evaluations and a review of performance by the faculty. Non-reappointment will result in a one-year, terminal appointment.

Criteria for Promotion and/or Reappointment

Promotion to a higher faculty rank and/or contract renewal shall be based on the satisfactory evaluation of basic performance criteria for contributions in research, teaching, and public, professional, and institutional service. Each faculty member in the Professor series is expected to:

(a) Conduct research in a relevant scientific discipline and publish results of research or educational activities in refereed journals and other appropriate media;

(b) Teach courses to an extent appropriate for faculty based at LUMCON facilities, either at the Marine Center or at the campus of a member university (commensurate with the institutional support provided);

(c) Contribute to graduate education through adjunct or other appointments at one or more of the member universities;

(d) Make contributions via service to the Consortium, the scientific community, or the public (commensurate with the institutional support provided).

All Faculty eligible for promotion and/or reappointment to Associate Professor or Professor should have demonstrated excellence in research or education, which has achieved a national level of recognition as reflected by such indicators as:

- Significant publication record in refereed journals;
- Publication of scholarly books;
- Development of marine science curricula;
- Receipt of fellowships and awards;
- Receipt of significant external funding, which is competitively awarded, for research or education;
- Frequent citation of publications;
- Service as an editor or member of the editorial board of a scientific journal;
- Presentation of invited papers at national and international meetings;
- Organization of national or international symposia;
- Service as a member of a review panel for national organizations; and
- State or national leadership in professional organizations.

Appointment or promotion to the rank of Professor shall be as a consequence of the national and international stature and recognition, which the faculty member has earned. Appointment to this rank shall not be as a result of length of service.

The particular role of a Librarian and the diversity of roles within the Library require that librarians be evaluated according to criteria that are appropriate for the special library profession. The Librarian is expected to take responsibility for the selection, acquisition, organization, expansion, preservation, and dissemination of specialized information in response to the overall goals and objectives of the Consortium. All Librarians eligible for promotion and contract renewal should have demonstrated excellence in special librarianship as reflected by such indicators as:

- Initiation of new projects, procedures, or functions which improve services of the Marine Center Library, including new technologies, manuals, guides, columns, bibliographies, data analysis relating to library collections, functions, etc.;
- Publications including books, texts, indexes, translations or compilations, reviews, articles, bibliographies related to librarianship or other academic disciplines;
- Development of innovative procedures, technologies, exhibits or standards.

Procedures for Review

The Executive Director is responsible for the timely and professional execution of all promotion and contract renewal procedures as outlined in this document. Review for promotions and six-year contract renewals shall be conducted by a Review Committee, appointed by the Executive Director. The candidate shall have an opportunity to discuss the makeup of the Committee with the Executive Director prior to formal appointment of the Committee. The Committee shall consist of representatives of the Marine Center Faculty and Faculty from member or affiliate universities, the latter of whom shall represent the general scientific discipline of the candidate. The Committee shall be comprised of faculty senior in rank to the candidate to the extent possible without completely excluding representation of Marine Center Faculty. The Committee Chair shall be a LUMCON Faculty member. Of the external members, none shall be LUMCON Executive Board members. Collaborators are excluded from being Committee members.

The Committee Chair is responsible for the timely, professional and thorough deliberations of the Committee in accordance with the procedures outlined in this document. The Promotion Review Committee shall examine all documentation and information pertinent to the faculty member under review, subject to legal limitations of confidentiality, and present a written report of its deliberations, including a recommendation regarding promotion or re-appointment to the Executive Director. In their evaluation the Committee shall consider a minimum of the following documentation:

1) Complete curriculum vitae of the candidate;
2) A written statement by the candidate; identifying significant strengths, activities, professional interests, future research plans and directions, and any other information the candidate believes to be of value to the Committee;
3) Representative publications selected by the candidate;
4) Pertinent information from annual job performance evaluations;

5) At least four (4) letters of evaluation solicited by the Committee from professionals outside of Louisiana; these references shall include individuals selected from a list provided by the candidate. Referees should be senior in rank to the candidate when feasible.

In addition, the Committee may seek additional information from knowledgeable individuals within and outside of the Louisiana university system.

The Committee Chair shall prepare a written report, to be signed by all Committee Members, in which a recommendation for or against promotion or re-appointment of the candidate is included. This report shall contain a thorough explanation of the Committee's recommendation. The report shall be delivered to the Executive Director.

The report of the Promotion Review Committee shall be submitted to members of the LUMCON Faculty senior in rank to the candidate for their consideration. They shall sit as a body to consider the information provided by the Committee and shall voice their support or lack thereof in a report to the Executive Director.

The Executive Director shall review the candidate's complete review dossier and the summaries and recommendations of the Review Committee and the LUMCON Faculty and make a decision either to decline or recommend promotion and/or re-appointment. The Executive Director decision will be given in writing to the candidate.

If the candidate's promotion or re-appointment is declined, the notification will provide an explanation for declination. Copies of the reports from the Review Committee and the LUMCON Faculty shall be included in the communication to the candidate.

If the Executive Director recommends promotion for the candidate, the candidate's review dossier shall be made available to the Executive Board for inspection, at least one week prior to when the Executive Director presents the recommendation to the Executive Board.

The Executive Director shall notify the candidate, in writing, of the Executive Board decision on or before May 15 of the year of review for promotion or re-appointment. The decision will indicate either approval or disapproval of the Executive Director's recommendation.

The evaluation process for promotion or re-appointment must be initiated sufficiently early to allow careful deliberation of the candidate's credentials at all levels involved in the review. Consequently, the following dates should be used:

November 1 The candidate makes a formal request to the Executive Director that a promotion review procedure be initiated for completion by May 15. In the case of a re-appointment, the Executive Director shall notify the individual that a review process will be initiated.

November 15 The Executive Director proposes a Committee and invites comments by the candidate. Communications continue until all potential Committee members are discussed and the candidate has opportunity to comment. Candidate submits documentation to Marine Center Director for submission to the Committee.

December 15	The Executive Director formally appoints the Committee and the Committee Chair. The Executive Director ensures that the promotion policy document, materials provided by the candidate, and relevant personnel records are submitted to the Committee, and will, if necessary, instruct the Committee on the administration of LUMCON's promotion and appointment procedures.
March 15	The Committee recommendation and appropriate materials are presented to the Executive Director. The Executive Director provides the Committee recommendation along with the candidate's dossier to the appropriate LUMCON Faculty review committee.
April 15	The LUMCON Faculty makes a recommendation to the Executive Director.
May 15	The Executive Director notifies the candidate of the final decision.

If at any time during the review process, dates are not being met, the Executive Director shall inform the candidate of the new schedule, which respects the intervals described above. The process shall be completed no later than June 15.

Appeal Process

A candidate, who has been evaluated and has not been recommended for promotion or re-appointment, may appeal by preparing a written statement detailing the basis of the appeal on grounds of procedure, judgment, or both. The written statement must be presented to the Executive Director no later than June 15. The Executive Director may uphold or reverse the previous decision, inform the candidate by July 15, and submit his or her recommendation for Executive Board consideration no later than August 15.

If the matter remains unresolved to the satisfaction of the candidate, the candidate may appeal to a subcommittee of the LUMCON Executive Advisory Board, comprised of the three Vice-Chancellors/Vice-Presidents who serve on the Executive Board. To appeal, the candidate shall prepare a written statement detailing the basis of the appeal on grounds of procedure, judgment, or both and submit it to the LUMCON Executive Director by July 3l. The LUMCON Executive Director will present the candidate's written statement, together with the complete review dossier, to the Executive Board subcommittee no later than August 15. The review of the Executive Advisory Board shall be completed and presented to the full Executive Board for formal action at the September Executive Board Meeting. If the Executive Board supports the candidate's appeal, the Executive Board shall take action it deems appropriate. If the Executive Board denies the appeal, the terminal appointment appropriate to the individual's rank shall begin when the Executive Board decision is announced. If the initial review is related to an early review for either promotion or reappointment, the conditions of the candidate's original contract appointment will continue.

Termination

Termination is an administrative action whereby a contract appointment is allowed to reach maturity without renewal or ended prior to its stated ending date due to financial exigency or for cause.

(a) Termination for cause

Cause for dismissal is any conduct seriously prejudicial to the Louisiana Universities Marine Consortium, such as infraction of law or commonly accepted standards of morality, violation of institutional or Executive Board rules and regulations, willful neglect of duty or incompetence. The foregoing enumeration of causes shall not be deemed exclusive; however, action to discharge, terminate, or demote shall not be arbitrary or capricious, nor shall it infringe upon academic freedom.

Before dismissal for cause, a faculty member shall be entitled to have the charges stated in writing and to have a written description of the evidence supporting such charges, with a list of witnesses and a brief summary of each witness' testimony, and to have a hearing before a special committee of the Faculty appointed by the Executive Director. This Committee will be charged to make a recommendation to the Executive Director with respect to dismissal of the faculty member. The faculty member who has exhausted due process procedures may petition the Executive Board within thirty (30) days for a review. No official action shall be taken until the Executive Board makes a final determination.

(b) Termination for financial exigency

All appointments are made subject to the continued availability of funds for the position. Any appointment may be terminated by the Executive Board because of financial exigency as a result of a state of emergency declared by the Executive Board. In such case, every reasonable effort will be made to find some appropriate alternate assignment for the individual within the Consortium.

APPENDIX

Louisiana Universities Marine Consortium Position Descriptions

PROFESSOR SERIES

ASSISTANT PROFESSOR, ASSOCIATE PROFESSOR, AND PROFESSOR. The duties and responsibilities of persons holding these positions are not significantly different from similar positions within university faculty. Scientists are expected to pursue a combination of research, teaching, advisory service, and required administrative activities with research being the top priority. The responsibilities at all levels in this category are similar in kind but different in degree. Persons in the Professor series are expected to successfully conduct independent research in their discipline. This will typically include obtaining funding for research and education programs from outside the Marine Center and the successful dissemination of the results of research activities through meetings, seminars and refereed publications. Professors are expected to do some teaching, either during the summer in LUMCON's summer program, or at one of the member universities. The supervision of graduate students or participation in graduate committees is strongly encouraged. Scientists are expected to perform institutional service that contributes to the overall goals and objectives of the Consortium, including internal operations and service to the State, Nation, and professional community.

LIBRARIAN SERIES

ASSISTANT LIBRARIAN, ASSOCIATE LIBRARIAN, AND LIBRARIAN. The duties and responsibilities of persons holding these positions are not significantly different from similar positions within the university faculty. As members of the research and academic community, librarians are expected to participate in the research, academic, and administrative activities of the Marine Center and Consortium. Their primary responsibility as a manager of a Special Library is the selection, acquisition, organization, expansion, preservation, and dissemination of specialized information. The responsibilities at all levels in this category are similar in kind but different in degree. Librarians are expected to perform institutional service that contributes to the overall goals and objectives of the Consortium, including internal operations and service to the State, Nation, and professional community.

INSTRUCTOR

INSTRUCTOR. The duties and responsibilities of persons holding these positions are not significantly different from similar positions at member universities. Instructors are expected to focus on education activities in the marine sciences. This will include the development of teaching aids, manuals and materials, conduct workshops, teach in the LUMCON Summer Program, and involvement with curriculum development and professional organizations. Instructors are expected to perform institutional service that contributes to the overall goals and objectives of the Consortium.

LOUISIANA UNIVERSITIES MARINE CONSORTIUM

POLICIES CONCERNING FACLTY APPOINTMENT AND PROMOTION

June 1990
Revisions: March 1993; September 19, 1995; April 22, 1998

General Policies

It is the policy of the Executive Board of the Louisiana Universities Marine Consortium to maintain a staff, employed by the Consortium, of highly qualified scientists, educators and librarians as a Faculty. These individuals may be appointed at the rank of Instructor, Assistant Professor, Associate Professor, or Professor; or equivalent ranks within the Librarian series, with the qualifications of all ranks equivalent to those of the member universities[1]. Position descriptions are provided in Appendix 1.

In order to promote high standards of scholarship and attract and retain excellent faculty members, the Executive Board may grant indeterminate tenure to those faculty members with an outstanding record of performance and contribution to the Consortium. Tenured faculty shall retain their status until they retire, resign, are terminated for cause, or as a result of financial exigency.

Faculty may be appointed to tenure-track positions at the Assistant Professor, Associate Professor, or Professor level, which shall carry a minimum commitment of nine months salary support from the Consortium per annum during the term of appointment. Faculty in the Librarian series are tenure-track and receive twelve months salary support from the Consortium per annum during the term of appointment. Instructor is a non-tenure-track position, carrying twelve months salary support from the Consortium per annum during the term of appointment.

Other faculty being paid primarily from a grant or contract may be appointed to non tenure-track faculty members, the procedures for appointment, evaluation, and promotion within these ranks shall be the same for all faculty positions in the Professor series. Furthermore, in order to encourage contributions to the Consortium and extend the effectiveness of the Faculty, all tenure-track and non tenure-track faculty members, including Instructors, will have the same rights and privileges regarding service on faculty committees, including committees for faculty searches and promotions, and other faculty activities.

[1] **Except where stated, reference to ranks in the Professor series also apply to ranks in the Librarian series.**

Executive Board Meeting Minutes

MINUTES
LOUISIANA UNIVERSITIES MARINE CONSORTIUM
EXECUTIVE BOARD

Woody J. DeFelice Marine Center, Cocodrie, LA
May 2, 2011, 11 a.m.

I. Call to Order (Dr. Michael Martin)

Dr. Michael Martin, LUMCON Executive Board Chair, called the meeting of the Executive Board for the Louisiana Universities Marine Consortium to order on September 8, 2010 in the LUMCON Marine Center Executive Conference Center at 11 am.

II. Roll Call (Dr. Rabalais)

LUMCON Executive Board members present for the meeting:

Dr. Michael Martin, Chair
Chancellor, Louisiana State University
Dr. Joseph Savoie, 1st Vice Chair (beginning 11:30)
President, University of Louisiana Lafayette
Dr. Stephen Hulbert, 2nd Vice Chair
President, Nicholls State University
Dr. Tom Klei, Louisiana State University
Interim Vice Chancellor of Research and Graduate Studies
Dr. Robert Twilley, University of Louisiana Lafayette
Vice President for Research and Development
Dr. David Boudreaux, Nicholls State University
Vice President for Institutional Advancement

Dr. Martin determined that five of six Executive Board members constituted a quorum and called the meeting to order.

Guests in attendance:

Jim Purcell (Commissioner of Higher Education), Kim Hunter-Reed (Board of Regents staff), Harold Boutte (Board of Regents staff), Regent Joe Wiley, Regent Charlotte Bollinger, Rep. Joe Harrison (District 51), Kerry St. Pé (BTNEP), Earl Melancon (Nicholls); Joe Malbrough, Holly Hebert, Wayne Simoneaux, Paul Sammarco, Alex Kolker, Geoff Sinclair, Nicole Cotton, Heidi Boudreaux, Ed Chesney, John Conover, Bruce Benoit, Lora Pride, Maria Suarez (all LUMCON).

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III. Approval of Prior Minutes (Dr. Martin)

Dr. Martin asked if there were any comments, revisions or addition to the minutes of the Executive Board meeting of September 8, 2010. There were none.
Hulbert moved approval and Boudreaux seconded approval of the minutes as presented. Being no objections, the minutes were approved.

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IV. Report of the Executive Director (Dr. Rabalais)

A. Director's Report

Dr. Rabalais focused primarily on activities related to the BP Deepwater Horizon oil spill since the last meeting in September 2010 with additional media attention at the one year anniversary. LUMCON has claims for loss of income and logistical support during the spill and following. Additional claims were supplemental to the initial, and further claims are possible. Other BP-related news concerned the Gulf Coast Ecosystem Restoration Task Force and the BP GRI-funded research program.

Dr. Rabalais reported that there had been partial signoff on the completion of repairs from hurricanes Katrina and Rita (2005) that allows full use of apartments, dormitories, offices, and library in October 2010. This will boost failing revenues from visiting scientists, summer school participation and K-12 and university field trips.

Dr. Rabalais reported that budget cuts and shortfalls in the LUMCON state budget prompted furloughs in January applicable to the full fiscal year, with the ability to make up the differences from various funds and research grants. Not all staff members were covered by the use of other funds.

Additional brochures were handed out concerning LUMCON and the Revelle Lecture for the National Academies given by Dr. Rabalais.

B. Open House April 16

Dr. Rabalais noted that the briefing book contained a synthesis of the highly successful Open House held by LUMCON, with about 1000 attendees, and a brochure/map provided to visitors about the day's activities. Special treats this year were air boat rides, the presence of the Commissioner of Higher Education, Dr. Jim Purcell, and children games on the front lawn.

C. Financial Reports

Dr. Rabalais presented a series of financial reports including the following and discussed each item with the Executive Board:

<u>FY11 Budget as of March 31, 2011</u> – Dr. Rabalais presented the breakdown of LUMCON's budget as of March 31, 2011 and the remaining percentage of funds, which is on target for the FY. She reminded the Board that under the current budget scenario, LUMCON remained with nine unfilled positions, including two faculty members, administrative and finance staff, information and technology staff, and education staff, and that she instituted 4-13.5% furloughs across the staff. Further complications to the FY11 budget were increased retirement rates as part of LUMCON's share to fringe benefits, with no compensation from the state budget. Dr. Rabalais continues to work with the Board of Regents concerning ways to supplement the LUMCON budget and to

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communicate the difference between LUMCON and tuition/fee generating institutions (impacts on across-the-board cuts and inability to generate certain types of revenue). Questions? None.

FY11 Indirect Cost Recovery Budget as of March 31, 2011 – Dr. Rabalais presented the FY11 ICR budget as of March 31, 2011, and an estimation of the balance to date, which is on target for the year. The breakdown by principal investigator of generation of indirect cost recovery funds was also included along with an estimation of what ICR would be for FY12 given the current rate of fund increase and decrease. Dr. Rabalais was asked about the current ICR rate (43% of modified total costs, less equipment, vessel rental and subcontract award over $25,000) and if it was fully recovered (mostly but some awards, such as the Board of Regents Support Fund and some private funding are lower). She further explained that she expected the self-generated from awards to be about the same in the coming FY.

Ancillary Budgets
Additional budget sheets were provided for expenditures and balances through March 31, 2011 for the BTNEP program, cafeteria/dormitories, and vessel operations. Dr. Rabalais reminded the Board that the state match for the BTNEP program federal funds from EPA was included in the LUMCON state budget and has been suffering from depletion with budget cuts to the point that the BTNEP's ability to match federal funds was difficult. There is no longer a deficit in the cafeteria/dormitory budget, which forced layoffs in the prior FY. The breaking point for recovery was the listing on the Office of Facility Planning and Control. Once initiated it was able to move more quickly than in the previous three years.

A question was raised concerning the reimbursement that LUMCON expected from BP, which is about $132,000 that will continue to go up with a second claim and a further claim for anticipated future costs, e.g. parking lot repair and hull paint for the R/V *Pelican.* Representative Harrison noted that he will co-chair an oversight committee of the Legislature for repayment of BP claims.

The Vessel Operations ancillary budget is doing well and bringing income to LUMCON for other programs. Vessel Operations had a shortfall since January because of the shipyard time and a delay in getting U.S. Coast Guard certification for certain aspects of the ABS certification for the low line of the vessel.

FY12 Budget Outlook
Dr. Rabalais discussed the projection for the FY12 budget and ancillary fund that provided an increase in the LUMCON budget to offset an additional pay period in FY12, but not the expected increase in LUMCON's portion of employee fringe benefits. Possible change of health insurance to private ownership may be an additional increase. Expect external and self-generated to be similar to the previous year.

Since there were no budgets to be approved, there is no necessary approval by the Board of any of these budget updates.

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D. New and Extended Research Grants

Dr. Rabalais pointed to the report of the new research grants awarded since the last Executive Board meeting, extensions, and supplements. There were several related to the BP oil spill, marine environmental education, ship operations, the EPA funding for the BTNEP, a new NSF collaborative project, and aquaculture ventures. Notable was the first NSF-funded REU (Research Experience for Undergraduates). This will provide LUMCON with funds to host REU students for a 10-week period in summer 2011. This is the first marine science REU program in the state. Extensions, other than extensions without additional funds, were mainly from NOAA.

A motion was made by Dr. Savoie and seconded by Dr. Hulbert to approve acceptance of the new, extended, and supplemented research awards to LUMCON. The motion carried unanimously.

E. Personnel Changes

Changes in LUMCON personnel since the last board meeting were presented. These included new hires, changes in status, and resignations. The activity for the period was typical of employee turnover in vessel operations, research staff, and temporary workers.

A motion was made by Dr. Hulbert and seconded by Dr. Savoie to approve acceptance of the personnel changes as outlined in the briefing book. The motion carried unanimously.

F. LUMCON Activity Reports

<u>Education</u>
University Education has been active with field trips and adult education and plans for summer 2011. LUMCON is currently teaching Changing Coastal Oceans with a record enrollment and five member universities enrolled. LUMCON again hosted the Graduate Symposium for Gulf state marine science institutions this spring. The variety of universities from within Louisiana and across the United States taking field trips continues to be impressive.

K-12 education continues to reach across the state and across Gulf of Mexico states with its programs and collaborations. LUMCON initiated an adult education program "Gulf Lagniappe" which includes six sessions in the spring and early summer that include lectures from LUMCON faculty, laboratory exercises and a field trip on the R/V *Acadiana*. A new grant for adult education called "Wetland Warriors" will focus on sectors of the community, e.g., educators, policy-makers, industry.

<u>Research</u>
A list of current LUMCON research awards, numbering 62, was provided, indicating the amount and funding agency. Many of these involve subcontracting by the LUMCON Finance department to other universities.

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Barataria-Terrebonne National Estuary Program
Kerry St. Pé, Director, highlighted activities of BTNEP in addition to providing a written report of activities since the last Board meeting. He emphasized activities, such as the volunteer program, the specialty calendars with beautiful photography that emphasize coastal resources, the colonial nesting bird atlas, the paddle Bayou LaFourche with over 100 paddlers per day, continued research on the Grand Island ridge project, many media contacts, and the planned La Fête d'Ecologie festival.

Library
The importance of the Board of Regents support of the LOUIS system was emphasized, because the traditional 70:30 split by LOUIS and an academic institution was part of the reduced LUMCON state budget. The LUMCON portion of this budget has doubled. Rabalais inquired whether she should respond for LUMCON to the Board of Regents or depend on the governing Board universities to respond. Dr. Martin indicated that it was better for the university body to respond.

Marine Center Operations
As noted in the Director's report, Mr. Simoneaux reported that Katrina Phase II repairs to dormitories and apartments were completed, with first occupancy beginning September 10, 2010. Outside stairways have been replaced; this was accomplished by putting deferred maintenance funds into the FEMA contract. A scope of work for repairs to the Fourchon Lab, downstairs and bulkhead, from many storms is underway by the Office of Facility Planning and Control. LUMCON was awarded funds from the ARRA "Lead by Example" Stimulus Funds for replacement of light fixtures at LUMCON with those that are more energy-efficient. This is being completed in-house to be most cost effective.

A question was raised concerning the poor condition of the parking lot. Mr. Simoneaux explained that FEMA only pays10-20% of the total cost for mitigation, e.g., blacktopping the lots. He noted that the downstairs lobby was requested to have a mitigation to make the display area more "flood friendly." Those funds were not approved and the old, ruined plywood was removed and then the remainder of the interior to its current open space.

Vessels Report – The R/V *Pelican* schedule for 2011 was provided and compared with the scheduled of other UNOLS (University National-Oceanographic Laboratory System) ships, which is the academic fleet for the U.S. The R/V *Pelican* remains the most utilized vessel in the UNOLS fleet exclusive of most ocean- and all global-class fleet members. Nancy Rabalais and Joe Malbrough remain active in the UNOLS community, with Rabalais an elected member to the Council and Malbrough as the Research Vessel Operators Committee Chair.

The importance of UNOLS as a supporter of marine science in Louisiana and a potential funder to a marine science institution for additional research vessels was pointed out by Dr. Rabalais. A UNOLS brochure was included in the briefing materials. Dr. Rabalais emphasized the importance of LUMCON's membership in UNOLS for NSF-funded equipment and support for up-to-date technology. The other advantage is that it requires inspection and safe operating procedures. Other temporary research vessels in the Gulf of

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Mexico in response to the BP oil spill are less than adequate and do not meet the same safety standards.

Dr. Rabalais reported that the National Science Foundation intended to release a Request for Proposals for three regional class UNOLS vessels. LUMCON is partnering with the University of Rhode Island and Oregon State University, because the east and west coast operators sought out LUMCON as the best operator in the Gulf of Mexico. Dr. Rabalais stated that her goal as Executive Director of LUMCON was to get another NSF-funded UNOLS vessel into the Gulf of Mexico under the operation of LUMCON. LUMCON's ability to remain as a marine science and education institution will be instrumental in this competition as well as representation on several national advisory boards.

In response to questions, Dr. Rabalais outlined that the R/V *Pelican* was owned by the state and equipment on the ship was funded by NSF and owned by LUMCON. Asked if Mississippi was a competitor for a vessel, Dr. Rabalais replied in the affirmative and that similar to the BP GRI competition there were many, not exclusive, arrangements to go after the new vessels. If LUMCON is successful in acquiring a new UNOLS vessel, then the *Pelican* would be removed from UNOLS status but kept operating. There is sufficient business to keep two ships fully operational. Mr. Malbrough indicated that the "life" of the *Pelican* was 8 more years according to the retirement scheduled for UNOLS vessels. The plan is for the new vessel to be a regional class, of 150-170 ft length, but under 500 total gross tons.

V. Report and Recommendations of the Chair of the Executive Board

Dr. Martin introduced the idea for the generation of the Task Force to review the LUMCON structure, function and future with needs for continual fiscal support, and with regard to the initiation of several research consortia in the wake of state needs for coastal restoration and in anticipation of the BP GRI request for proposals.

Dr. Martin indicated that the governing presidents had met in January 2011 to talk about LUMCON, the continual fiscal needs, the explosion of consortia over the last three months with regard to BP research money. He noted that the last Strategic Plan was developed in 1999, albeit with yearly updates. The three concluded that it was time to think about the future of LUMCON in light of current initiatives at the State level and with regard to current and longer term potential research investments. He reported that the Division of Administration was asked to give an assessment of the LUMCON facilities for consideration, both in the short- and long-term. The DoA report was positive concerning the current condition of the facilities and their upkeep. He said that Dr. Robert Twilley of ULL was asked to form a Task Force to address these issues.

Dr. Twilley opened his remarks by indicating that the three universities had designated individuals to serve on the Task Force:

Nicholls State University
David Boudreaux, Ph.D.
Vice President for Institutional Advancement

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Earl Melancon, Ph.D.
Distinguished Service Professor of Biological Sciences.

Louisiana State University
Christopher F. D'Elia, Ph.D.
Professor and Dean
School of the Coast & Environment
Richard Koubek, Ph.D.
Dean, College of Engineering

University of Louisiana at Lafayette
Robert R. Twilley, Ph.D.
Vice President for Research
Donald F. Hayes, Ph.D., PE, BCEE
Endowed Professor of Civil Engineering
Co-Director, Institute for Coastal Ecology and Engineering

Ex-officio
Nancy N. Rabalais, Ph.D.
Executive Director, LUMCON
Mr. Kerry St. Pé
Director, Barataria-Terrebonne National Estuary Program (BTNEP)

Dr. Twilley formed the Task Force mostly through email conversations and exchange of documents beginning in mid to late April, and brought Dr. Rabalais and Mr. St. Pé into the conversation in a meeting with Dr. D'Elia on April 29 prior to this meeting. He explained the other consortia that had formed as a result of needs of the state for coastal science and restoration and in response to the potential BP research funds and future restoration activities. These include the *Coastal Sustainability Consortium, Gulf Research Initiative for a Resilient Louisiana,* and *Louisiana Universities Gulf Research Collaborative – LUGRC*, each of these partnered with LSU, ULL, Tulane and UNO. None were legislated similar to LUMCON but Memoranda of Understanding were developed. During the discussions for the BP GRI response, the LUGRC added LUMCON as a member of the Steering Committee. A *Water Institute* is being created.

Dr. Twilley identified the document he was providing to the Board members as a draft following the initial conversations (by email) and the meeting with D'Elia, Twilley, Rabalais and St. Pé. He indicated that the mission of LUMCON as stated on the front page of the web site "to stimulate and coordinate marine science and education," and followed with a description of the numerous consortia that had been formed in response to the needs of the state coastal restoration activities and the BP Deepwater Horizon oil spill, for research and restoration. He noted the overlap with the LUMCON mission and the several consortia that involved the major institutions involved in similar research lines, LSU, ULL, University of New Orleans, and Tulane University. The key issue is that the governance of LUMCON does not include all the institutions just listed, i.e., Tulane and UNO. He indicated that he had pushed hard for the four universities to include LUMCON in their MOUs, but unsuccessfully. Some of the consortia had added associate membership but without governance rights and that LUMCON had been added

to the LUGRC as a member of the Steering Committee to coordinate Louisiana's response to the BP research call. He stated that it was fine for LUMCON to serve as the education facilities and help coordinate what research it can, but that the universities themselves should do the coordination that they want to achieve. He further pointed out that the Water Institute under formation wants a single university consortium in response.

Dr. Rabalais pointed to the original legislation for the formation of LUMCON with the *primary function of conducting research and promoting education in the marine sciences and marine technology, particularly where related to coastal resources and the impact of energy related industries upon these coastal resources*.

Dr. Twilley repeated given the mission on the web site "to stimulate and coordinate" that the parallel roles of LUMCON and the other consortia should be defined more clearly. The Task Force draft is just the status for further discussion.

Ms. Bollinger noted that she did not see the need for additional mechanisms for the universities to work with each other in response to the current developments. She noted that Dr. Rabalais had been present with Dr. D'Elia at the Board of Regents and that Dr. Rabalais seemed agreeable to working with the LUGRC in response to the BP request for proposals. She stated that whatever research is conducted should be readily available to coastal planners and the public.

Rep. Harrison noted that the mission of LUMCON (legislated) does include coastal issues among other foci. It is difficult for any single institution to focus on all the issues. If the strategy of various groups is more directed, then it needs to be identified. Alignment is needed with the institutions and the funding scheme.

Dr. Martin indicated that he and Dr. Savoie had discussions concerning not just who is involved in the governance but who is not—Tulane and UNO. He stated that the delegation did not want to see UNO and Tulane develop a consortium with Mississippi universities to compete with Louisiana. Thus, the formation of the consortia involving the four universities. The focus was how does the science body across the state build long-term expertise and the ability to respond to funding opportunities, such as the one afforded by the BP research funds.

Dr. Rabalais noted that when she became Executive Director of LUMCON the Board emphasized the need for more coastal-oriented research. With recent hires, this was becoming more of a focus, and that unfilled positions would provide further opportunities should the budget situation improve.

Dr. Martin stated that the President of Tulane, Dr. Scott Cowan, would not support LUMCON as a coordinating mechanism unless Tulane had a hand in the governance. Dr. Twilley agreed. Dr. Savoie and he then approached Dr. Hulbert concerning the formation of a Task Force to consider the present status of LUMCON, its mission, its form of governance, participation and leadership.

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Dr. Hulbert noted that the original conversation concerned the role, scope and mission of LUMCON and rebuilding the consortium with the three universities in the governance and not the issue the four universities (LSU, ULL, UNO and Tulane) He stated that a yearly rotation of Chair did not serve LUMCON well in stewardship and further that Dr. Rabalais and her colleagues have been doing exactly what the Executive Board asked for—changing faculty direction, broadening research areas in coastal science, and much more education and outreach. He does not see the recent emails and conversations, mostly in the last week, serving all the universities in the state, but just the four. Should Nicholls not be involved in governance anymore, there needs to be a mechanism for statewide inclusion. He sees LUMCON as a viable research and education institution that the four universities are not prepared to acknowledge.

Dr. Savoie noted that the mechanism for a 13-university governance, as originally, was not a very good mechanism. Dr. Hulbert suggested a restructuring that has LUMCON reporting directly to the Board of Regents and to re-engage with all universities. When the governance went to three universities many former active members retreated, but newer relationships are being built across the state as new faculty are using LUMCON. LUMCON needs the support of the Board of Regents, and from his viewpoint that role has been missing in the eight years he has been at Nicholls.

Dr. Martin said that there was no intention to be exclusive but to be inclusive. There are a variety of ways to work things out, but the private institutions need to be included. Dr. Boudreaux asked for a list of consortium members to see the status of Tulane and UNO, which are both members. Martin indicated that they work elsewhere where they have more of a role in ownership. The views of the several universities differ as to how they view their roles in LUMCON. There needs to be a review of the governance structure to see if it is suitable for other major universities.

Dr. Twilley said that the Task Force needed guidance as to what the Executive Board was seeking. He argued that this discussion was different from a strategic planning exercise, which is not the job of the Task Force. A strategic plan would require the involvement of LUMCON staff and outside consultants. The Task Force needs to know its boundaries. Dr. Hulbert said that in his opinion the original conversation has not yet occurred, i.e. the role of the Task Force and the fact that Dr. Rabalais and Mr. St. Pé have to be involved. What the Board of Regents needs to do is maximize the role of LUMCON to want the faculty from across the state to come together and chose LUMCON as the center around which they would organize.

A long discussion ensued on the gathering of institutions for response to the BP research funds. It was clear that single consortia had not proven to be the only response to the request for proposals. Dr. Rabalais noted that multiple institutions arranged multiple groupings to respond to the request for proposals. Dr. Martin reiterated the need for a single entity to focus on the larger restoration funds to come and that the governance structure of LUMCON needs to be changed to have a greater buy-in of the important players in coastal issues.

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Dr. Martin encouraged the Task Force to continue its work. He asked Rep. Harrison Harrison if the current conversation met his expectations of discussing LUMCON's role, structure, governance and activities. Rep. Harrison answered that he had forced the conversation with his introduced legislation to change the governance of LUMCON to Nicholls. He recognized the leadership of LSU, ULL and UNO, but that LUMCON and BTNEP had done the hard work and brought these institutions to where they are today. He stressed the importance of funding support for LUMCON, its inclusive nature and the importance of groups coming together to form a stronger team..

VI. Executive Session

Dr. Martin asked that the Executive Board go into Executive Session to discuss litigation matters, as noted in the posted agenda. So moved by Dr. Hulbert and seconded by Dr. Savoie. The vote was unanimous.

The meeting of the Executive Board was reconvened at 12:30 am. Dr. Martin reported that there were no actions taken by the Executive Board while in Executive Session, no motions, no decisions and no votes.

VII. Other Business

Dr. Martin asked if there was any other business to be brought before the Executive Board. There was none.

VIII. Adjournment

Dr. Martin entertained a motion to adjourn given by Dr. Boudreaux and seconded by Dr. Twilley. Being no opposition the meeting was adjourned.

Respectfully submitted:

DRAFT MINUTES, NOT YET APPROVED

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Dr. Michael Martin*, Chair
LUMCON Executive Board

*Transcribed and edited by Dr. Nancy Rabalais, LUMCON Executive Director, and Secretary to the Executive Board of LUMCON; audio tapes archived.

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MINUTES
LOUISIANA UNIVERSITIES MARINE CONSORTIUM
EXECUTIVE BOARD

Woody J. DeFelice Marine Center, Cocodrie, LA
September 8, 2010, 10 a.m.

I. Call to Order (Dr. Hulbert)

Dr. Stephen Hulbert, LUMCON Executive Board Chair, called the meeting of the Executive Board for the Louisiana Universities Marine Consortium to order on September 8, 2010 in the LUMCON Marine Center Executive Conference Center at 11 am.

II. Roll Call (Dr. Hulbert)

LUMCON Executive Board members present for the meeting:

Dr. Stephen Hulbert, 1st Vice Chair Present
President, Nicholls State University
Dr. Michael Martin, 1st Vice Chair Present
Chancellor, Louisiana State University
Dr. Joseph Savoie, 2nd Vice Chair Present (at 10:30)
President, University of Louisiana Lafayette
Dr. David Boudreaux, Nicholls State University Present
Vice President for Institutional Advancement
Dr. Doris Carver, Louisiana State University Present
Interim Vice Chancellor of Research and Graduate Studies
Dr. Robert Twilley, University of Louisiana Lafayette Present (at 11:00 am)
Vice President for Research and Development. Dr. Twilley is a new representative for ULL.

Dr. Hulbert determined that four of six Executive Board members constituted a quorum and called the meeting to order. Drs. Savoie and Twilley joined the meeting at 11:30 am for full attendance by the Executive Board members.

Guests in attendance:
Dean Blanchard (BTNEP), Shanna Bonvillain, Nicole Cotten, Heidi Boudreaux, Holly Hebert (recorder), Russell Martin, Lora Pride, Brian Roberts, Geoff Sinclair, Wayne Simoneaux, Joe Marlborough (all from LUMCON)
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III. Approval of Prior Minutes (Dr. Hulbert)

Dr. Hulbert asked if there were any comments, revisions or addition to the minutes of the Executive Board meeting of July 10, 2010. There were none.
Martin moved approval and Boudreaux seconded approval of the minutes as presented. Being no objections, the minutes were approved.

IV. Report of the Executive Director

A. Director's Report

Dr. Rabalais focused primarily on activities related to the BP Deepwater Horizon oil spill since the last meeting in July 2010 and the current condition of being capped with no further flow of oil from the well head.

The concern now for the Unified Command Center is post oil spill reconnaissance, continued lookout for oil and its containment, identification of oil in coastal habitats and subsurface in the Gulf of Mexico, and dispersal of undetermined subsurface plumes. Dr. Rabalais participated as one of five academic leaders to join Dr. Steve Murawski of NOAA, National Marine Fisheries, and representatives of the Unified Area Command in a conference call in August to help define the valuable role of the academic community in post-spill diagnostics, reconnaissance, mitigation and restoration. Dr. Rabalais also attended an informal meeting of area citizens and two members of the Presidential Commission for the oil spill in Houma before their public meeting in New Orleans on July 12-13. While the BP Deepwater Horizon oil spill has generated interest and funds for research program, it has also disrupted many investigators' abilities to conduct other research in the Gulf of Mexico

B. BP Deepwater Horizon Oil Spill Responses, Challenges and Opportunities

Dr. Rabalais distributed a compilation provided by Mr. Simoneaux concerning the activities at LUMCON during the spill with regard to requests for use of LUMCON facilities and personnel. Of note, Governor Jindal had visited the LUMCON Marine Center several times and went on a fishing trip in August to show to the nation that Louisiana seafood was safe for consumption and fisheries were in good health. He was photographed in his LUMCON cap. LUMCON had provided as much help as possible in support of research and education activities related to the spill and state and federal agency requests for logistics, while trying not to be overrun by BP requests. A second compilation showed the requests for and use of dormitory space. With the soon to be completed complement of Hurricane Katrina damaged dormitories the LUMCON Marine Center should be able to provide more space for continuing work on the BP spill. LUMCON remains committed to serving research and education, including BP-funded studies as long as services are compensated. Dr. Martin asked about future activities; Dr. Rabalais responded that the activity has slowed down and many employees have been sent home.

C. Financial Reports

Dr. Rabalais presented a series of financial reports including the following and discussed each item with the Executive Board:

FY10 Budget Close Out – All state funds were expended, but operation of LUMCON continues to be dependent on indirect cost recovery from research grants and revenues generated by the LUMCON vessel fleet, in particular the R/V *Pelican.*

FY10 Indirect Cost Recovery Budget FY10 – Dr. Rabalais presented the breakdown of ICR brought in by various investigators at LUMCON and an estimation of how much would be generated in FY11. Dr. Rabalais reported that the ICR FY10 budget for FY10 had supported excess costs in energy consumption, maintenance supplies and repairs, library subscriptions (minimal), and support of administrative staff for the conduct of LUMCON business. The carryover is sufficient for a similar level of use in FY11, but not more. Dr. Martin asked if all of our ICR expenditures were consistent with Circular 821. There has been a redefinition of ICR to F&A for a specific purpose so that it was spent on administration rather than programmatic.

FY10 End of Year Budgets – The budgets for the end of FY10 for BTNEP, the vessels, and cafeteria/dormitories were presented. The state general fund for BTNEP match was expended. Dr. Rabalais once again stressed that the state general fund match for BTNEP has been cut in proportion to LUMCON budget cuts and that the amount of funding was becoming insufficient to provide the required match for the Federal funds from EPA. Dr. Rabalais explained that decreased revenues for the cafeteria/dormitories had led her to lay off two cafeteria/dormitory employees, but that they had been rehired as part-time employees. A question was raised about the final occupation of the refinished dormitory rooms. Dr. Hulbert, who had participated on a tour of the R/V *Pelican* prior to the Executive Board meeting, along with Drs. Boudreaux and Carver, noted the excellent condition of the vessel and the dedication of the crew to its excellent performance.

FY11 Budget and Indirect Cost Recovery for FY11 – The budget for FY11 had already been approved by the Executive Board and spread among cost centers. The anticipated FY11 Indirect Cost Recovery budget was provided, and Dr. Rabalais noted that the FY11 ICR would cover shortfalls in the FY11 budget but NOT mid-year cuts. Dr. Martin questioned adherence to the state salary freeze executive order. Dr. Rabalais replied that there were no merit or cost-of-living increases in FY10 or provided in FY11, and that there was a 3% furlough of state-supported and ICR-supported staff in FY10.

FY12 Budget Reduction Exercise [handout] – Dr. Martin asked if LUMCON has been requested to provide a mechanism for a 38% budget cut. Dr. Rabalais responded that she had done this multi-tier reduction scenario and that given the nature of personnel issues, Dr. Hulbert had asked to examine this in Executive Session. She also reported on her presentation to the Board of Regents Finance Committee in August concerning these reductions. She had pointed out the inability of LUMCON (similar to the LSU Ag Center and the Pennington Center) to generate fees or tuition to offset costs. Mr. Bill Wilson joined Dr. Rabalais at this meeting to support the idea of the unique nature of LUMCON and its facilities and its inability to incorporate further cuts.

Capital Outlay – Dr. Rabalais presented what was the proposed LUMCON Capital Outlay plan for FY12-16. It is the same as FY11-15. It was discussed that at member universities

the Capital Outlay plans had been sent forward with little review, because of the financial condition of the state and lack of capital outlay funds for FY12. Several items that were in deferred maintenance for last year have been moved off the list, and others moved up higher on the list.

Acceptance of the LUMCON Capital Outlay request for FY12-16 was motioned for approval by Dr. Martin and seconded by Dr. Carver. The motion carried unanimously.

D. New and Extended Research Grants

Dr. Rabalais pointed to the report of the new research grants awarded since the last Executive Board meeting, extensions, and supplements. Dr. Rabalais also noted that many more proposals were in the works, pending, or possibly funded that were not shown on the newly funded research grant list. Some of these are related to NSF RAPID grants for BP oil spill work and others are for affiliations with other collaborators in Gulf of Mexico states for BP rapid funding. **A motion was made by Dr. Martin and seconded by Dr. Carver to approve acceptance of the new, extended, and supplemented research awards to LUMCON. The motion carried unanimously.**

E. Personnel Summary

Changes in LUMCON personnel since the last board meeting were presented. These included new hires, changes in status, and terminations. One personnel issue will come up in Executive Session

Dr. Martin moved and Dr. Carver seconded that the personnel report be accepted as printed. The motion carried unanimously.

F. LUMCON Activity Reports

University Education – Despite not having summer school at the end of FY09 and start of FY10, Summer Season 2009, University Education has been active with field trips and adult education and plans for summer 2010.

Hurricane Repair and Facility Issues [handout] – Mr. Simoneaux provided an update on hurricane repairs including two storms in 2005 and two storms in 2008. Dormitories are nearing completion, hopefully by mid October. The Marine Center lobby is being dismantled with funds from hurricane recovery and with some financial support, but not all, by the LUMCON maintenance staff to renew it to a "flood friendly" status. The replacement of the outside stairs is funded under Deferred Maintenance, but the funds are incorporated into a hurricane recovery awards. The bulkhead of the Fourchon camp may be repaired by the Wisner Foundation who owns the land. Mr. Simoneaux has put them in contact with the State Office of Facility Planning and Control. The Wisner Foundation is adamant about no trespassing on their land and beaches. Dr. Twilley indicated how this had disrupted research for ULL students. He was in touch with the Wisner Foundation concerning this and will report back to Dr. Rabalais as he tries to work

this out. LUMCON also received a grant from Stimulus Funding for replacement of light bulbs to more energy efficient ones.

Vessels Report – The R/V *Pelican* schedules for the remainder of 2010 and for the anticipated days in 2011 were presented. The *Pelican* continues to be heavily subscribed, and over-subscribed. The R/V *Acadiana* has been busy with educational trips, deployment of AUVs for the WHOI/Horizon Marine and small ADCP mooring placement cruises for the USGS and the Naval Research Laboratories (NRL). LUMCON's Phantom II remotely operated vehicle (ROV) was deployed in support of Dr. Sammarco's invasive coral research. The knowledge, maintenance and deployment of the ROV have put this LUMCON asset into a competitive market with similar products. Small vessels have been busy with education cruises, dive trips and oil spill related trips out to the marshes and barrier islands in search of the toxic crude oil and injured wildlife. Dr. Rabalais continues as a member of the UNOLS (University-National Oceanographic Laboratory System) Council, and Mr. Malbrough serves as the Vice Chair of the UNOLS RVOC (Research Vessels Operators Committee). A question was asked about the "life" of the *Pelican* which Mr. Malbrough said would be about 10 more years. Dr. Rabalais said that the UNOLS FIC (Fleet Improvement Committee) for a new Regional Research Vessel plan, and that a potential exists for a vessel in the Gulf in collaboration with other Gulf states. Dr. Martin suggested that there may be a different business model for generating funds for a new vessel. Could a Foundation borrow the money, build, and then generate funds to pay back the bonds. Dr. Rabalais explained the Memorandum of Understanding with the National Science Foundation and the U.S. Coast Guard as a designated Research Vessel. Have to be pro-active now for refurbishing and/or replacing the *Pelican*.

V. Executive Session

Dr. Hulbert asked that the Executive Board go into Executive Session. So moved by Dr. Martin and seconded by Dr. Boudreaux. The vote was unanimous.

VI. Report of the Executive Board

The meeting of the Executive Board was reconvened at 11:30 am. Dr. Hulbert reported that there were no actions taken by the Executive Board while in Executive Session, no motions, no decisions and no votes.

A. Faculty Contract Extension

Dr. Rabalais presented the three-year reappointment materials for Dr. Brian Roberts, including his current curriculum vita and statement of research and education activities. A recommendation was made by Dr. Rabalais to continue the appointment of Dr. Brian Roberts at the Assistant Professor level for an additional three-year period, at the end of which there would be a review for consideration of promotion to Associate Professor with an additional contract. **Dr. Boudreaux moved that the Executive Board approve the appointment of Dr. Brian Roberts for an additional three-year appointment. Dr. Savoie seconded. The vote to approve the re-appointment carried unanimously.**

B. Executive Board Rotation

The rotation of Executive Board members and chair positions took place at the end of the meeting. The Chair position rotated to Dr. Michael Martin of Louisiana State University, the 1st Vice Chair position to Dr. Joseph Savoie of the University of Louisiana at Lafayette, and the 2nd Vice Chair position to Dr. Stephen Hulbert of Nicholls State University.

VII. Adjournment

Dr. Hulbert entertained a motion to adjourn given by Dr. Boudreaux and seconded by Dr. Twilley. Being no opposition the meeting was adjourned.

Respectfully submitted:

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Dr. Stephen Hulbert*, Chair
LUMCON Executive Board

*Transcribed and edited by Dr, Nancy Rabalais, LUMCON Executive Director, and Secretary to the Executive Board of LUMCON

MINUTES
LOUISIANA UNIVERSITIES MARINE CONSORTIUM
EXECUTIVE BOARD

July 9, 2010

I. Call to Order (Dr. Hulbert)

Dr. Steve Hulbert, LUMCON Executive Board Chair, called the meeting of the Executive Board for the Louisiana Universities Marine Consortium to order on July 9, 2010 in the President's Conference Room, Nicholls State University, at 11:00 am. Dr. Hulbert noted that all were in attendance, and that a quorum was constituted.
He requested the roll call.

II. Members Present

Dr. Stephen Hulbert, Chair
President, Nicholls State University
Dr. Michael Martin, 1st Vice Chair
Chancellor, Louisiana State University
Dr. Joseph Savoie, 2nd Vice Chair
President, University of Louisiana Lafayette
Dr. David Boudreaux
Vice President for Institutional Advancement
Dr. Doris Carver, Louisiana State University
Interim Vice Chancellor of Research and Graduate Studies
Dr. Steve Landry, University of Louisiana Lafayette
Director of Research and Sponsored Programs

Guests in attendance:
Mr. Bill Wilson, Baton Rouge; Mr. Kerry St. Pé, Director, Barataria-Terrebonne National Estuary Program, BTNEP; LUMCON Staff Ms. Holly Hebert, Dr. Ed Chesney, Mr. John Conover; Public, Ms. Julie Leroux.

III. Acceptance of Agenda

Dr. Hulbert asked to include a discussion of Kerry St. Pé's involvement in statements concerning rock dikes to stop BP oil spill entrance into the Barataria estuary earlier in the agenda.

IV. Approval of Prior Minutes (Dr. Hulbert)

Dr. Hulbert asked for discussion on the minutes of the Executive Board meeting of January 11, 2010.

Boudreaux moved approval and Dr. Martin seconded approval of the minutes as presented. Being no objections, the minutes were approved.

V. Reports and Recommendations of the Executive Director

A. Director's Report

Dr. Rabalais noted that the seasonal summer high tide conditions at LUMCON were re-enforced with Hurricane Alex generated high water and a following low pressure system so that much of the those periods the LUMCON Marine Center entrance and parking areas were under water. Work continued with relay of employees from parking areas near the highway, except one day when water service was interrupted to the Marine Center. She further noted that the Executive Board meeting was being held at Nicholls State University in Thibodaux because of expected high water in Cocodrie for the day.

Dr. Rabalais presented the summary of an oil spill symposium coordinated by the Consortium on Ocean Leadership, of which she is an Insider Trustee, in Baton Rouge on June 23, and following COL activities to brief Vice President Biden's Domestic Policy staff on the state of the research programs, the need for coordination in data accumulation, research programs, and data dissemination.

The remainder of the Executive Director's report outlined the many requests for help from the research community, federal agencies, BP, BP consultants and the BP Incident Command Center in Houma and in Cocodrie for logistical support. Dr. Rabalais stated her intent to support requests that were reasonable, primarily in support of research and education, and to *not* benefit financially from the BP oil gusher incident.

A following discussion ensued on the merit of LUMCON seeking fees that would help supplement the LUMCON budget in view of current economic downturn in the state with regard to higher education. Dr. Martin discussed the need for "net positive income" with regard to LUMCON's budget and activities. Dr. Rabalais explained that fees were being collected for agencies such as the U.S. Environmental Protection Agency use of the Fourchon field camp for sample collection and transfer. The generation of these fees has allowed the Fourchon facility to be open to researchers and educators since its closure in spring 2009 as a result of LUMCON budget cuts. Dr. Rabalais explained that several discussions were ongoing concerning use of the LUMCON Marine Center for e.g., contaminated bird stabilization, operations center for U.S. Fish & Wildlife Service for barrier island nesting bird surveys, staging area for the LA Dept of Wildlife and Fisheries for barrier island wildlife surveys, and many others detailed in the Executive Board briefing book. She stated that these requests were especially time consuming for Mr. Simoneaux, Marine Center Superintendent, and herself in making decisions in the best interest of LUMCON and the State.

Requests for dormitory beds, 38 right now, cannot be used for BP activities. They are being held open for research and education, and housed night-to-night basis. Should they become available, we would make use of available beds for higher fees. If had more

resident space, go after $100 per night to offset the expenses, was recommended for LUMCON to pursue.

Questions were raised on the feasibility of keeping LUMCON Marine Center open for continued access for marine science and education. Dr. Hulbert pointed out that the Board of Regents had already been advised that the LUMCON Marine Center would be susceptible to rising sea level and subsidence.

With regard to the many state mechanisms to stop the BP oil from coming into the estuaries, Mr. St. Pé presented to the Executive Board copies of a letter he had submitted to the U.S. Army Corps of Engineers regarding a proposal for rock dikes in the Barataria Basin passes to stop the flow of BP oil spill contaminants into Barataria Bay. He expressed concern for the BTNEP program and his position as its director with regard to strong opposition of his stance by the Governor of Louisiana and the LA Department of Natural Resources. Mr. St. Pé expressed his concern that his stance was objectionable to parish and state officials and that his position as a state, non classified employee was in jeopardy. The Executive Board confirmed that it was Mr. St. Pé's duty to respond with accurate information concerning coastal issues concerning the restoration, mitigation and conservation of Louisiana's coastal resources. Dr. Rabalais noted that she as Executive Director was in a position between Mr. St. Pé and any political pressure, and secondly guarded by the LUMCON Executive Board. The Executive Board stated that Mr. St. Pé's role as Director of BTNEP was to provide scientific expertise in decisions related to coastal restoration with regard to BTNEP's General Management Conference Plan. Dr. Martin stated that the veracity of research in support of Mr. St. Pé's statement is consistent with other science reports related to the BP oil spill.

On another line of political implications, Dr. Rabalais reported that she as a member of the Ocean Observing System, GCOOS-RA and member of the National Federation of Regional Associations, to ask for oil and gas royalty returns to for IOOS, has avoided endorsement of those actions.

B. Financial Reports

Several budget reports were provided the Executive Board members: the status of the FY10 budget as of May 31, 2010, which indicated an 8.3% remaining in the budget to cover the last month, June, of the fiscal year. Dr. Rabalais indicated that this difference would be made up from the LUMCON Indirect Cost Recovery fund.

The Indirect Cost Recovery FY10 fund spreadsheet provided indicated that the fund was healthy although reduced from the previous fiscal year because of continued budget shortfalls.

Dr. Rabalais commended Ms. Boudreaux for her work with the budget close out and the help of the Library Assistant with Finance matters.

The anticipated FY11 budget from the Board of Regents was presented at $41,747 below the FY10 funded state budget. Two reasons that make the FY11 budget below what was available in

FY10 are: the LUMCON employees on -01, -04 funds would be taken off furlough, and the retirement rate has increased from ~15% to 21% for the coming fiscal year. The ability to meet the FY11 budget was based on several unfilled positions—Executive Administrative Assistant, Senior Educator, Faculty (2), Human Resources (assumed by Finance Manager), temporary vacancy in Finance, database specialist, web site developer, and IT manager. Job responsibilities have been shifted within Information & Technology and University Education and research grants to help meet the shortfalls in work responsibilities. Shortfalls in the Finance department are being met with the transfer of some of the time of the Librarian Assistant for help in that department.

Dr. Rabalais indicated that drastic cuts to services would be likely with the mid-year budget cuts, including no summer school, no summer internships, closure of the Fourchon Field Lab, shifting of vessel insurance payments to vessel funds, cuts to journal subscriptions, moving an employee from state general to indirect cost recovery. There will also remain four unfilled positions. Adjustments to vessel, dormitory and cafeteria usage rates will be necessary.

Dr. Martin moved to accept the FY10 budget reports; Dr. Savoie seconded; the motion passed unanimously.

The state general FY2010-2011 continuation budget was presented, with enhancements as noted. This submission was mostly pro forma because the intent of the Division of Administration was to announce an approximate 8% budget cut for the second half of FY2009-2010.

VI. Call for Executive Session

At the beginning of discussion of the FY11 budget, Dr. Hulbert asked for an Executive Session of the Executive Board to discuss items of budgetary importance that would impinge on staff employment and salaries. A motion was made by Dr. Martin and seconded by Dr. Boudreaux to go into Executive Session., 12:31 pm.

VII. Call for End of Executive Session

Dr. Hulbert called the Executive Board back into session at 1:37 pm. He noted that no decisions had been made and no motions taken during the Executive Session

A motion was made by Dr. Martin and seconded by Dr. Landry that the general concepts and directions of LUMCON's FY2011 budget as presented by Dr. Rabalais be approved in general concept. The motion passed unanimously.

No motion was made concerning the disposition of a BTNEP employee salary compensation recommendation by Mr. Kerry St. Pé.

C. Audit Report

Dr. Rabalais presented the findings of the State Legislative Audit Advisory Council for LUMCON with regard to its procedural controls in the Finance department. This included a review of LUMCON's internal control; tests of financial transactions; tests of adherence to applicable laws, regulations, policies, and procedures governing financial activities. The review by the State Auditor presented no findings for LUMCON for the said audit review. Dr. Rabalais thanked Ms. Heidi Boudreau, Finance Manager, for her continued excellent work in managing LUMCON's finances and reporting and control. Dr. Hulbert congratulated Dr. Rabalais and the LUMCON staff for a series of good audit reports.

D. Strategic Plan FY12-16

Dr. Rabalais presented the LUMCON Strategic Plan for FY2011-2012 through FY 2015-2016 as recently submitted to the Division of Administration. She noted that she was proposing, in addition to the current LUMCON indicators of performance, other indicators that were more demonstrative of LUMCON's current activities, as well as a shift to more electronic communications. She pointed to the highlighted sections of the Strategic Plan as examples of how LUMCON's activities had shifted over the last several years in response to budget cuts, alternative mechanisms of communication, and better indicators of what LUMCON was doing to serve higher education in the realm of marine science and education. She also indicated that she had expanded the discussions of many of the strategies, implementation plans, and reasons for changing indicators.

Dr. Martin asked Dr. Rabalais to explain that LUMCON was outside of the higher education realm of getting credit for graduate students. She also pointed to the "Identification of potential external factors beyond the control of LUMCON" in development of new indicators of success. These factors included the current Administration, Economics, Financial status within higher education, i.e. no tuition and fees increases and no credit for activities related to graduation rates, Economy and federal agency support, Setbacks from hurricane damages, and the new Deepwater Horizon British Petroleum oil spill and its demands on LUMCON resources.

The final part of the report was a listing of current and proposed Performance Indicators requested of LUMCON for LaPAS reporting with a shift to these indicators beginning FY12. Dr. Martin recommended that the LUMCON faculty should be publishing more with regard to the collaboration with graduate students that are not showing credit where it should be credited. Dr. Martin stated in the end that these are indicators of productivity. And, as the formula continues that LUMCON needs to be differentiated separate from other institutions. Dr. Chesney pointed that he is supportive to external users, to the detriment of his own research program and publication record, and that he could demand publication authorship but does not because it is seen as part of his LUMCON role. Dr. Rabalais pointed out that there are new indicators for LUMCON that will show its unique contributions to marine science research and education.

A question was raised concerning user fees for use of LUMCON Marine Center facilities by outside investigators. This is something that will be considered in the future, because

LUMCON is a unique resource that can provide facilities that no other higher education institution can support.

A discussion followed on the role of LUMCON in higher education. Dr. Martin noted that many of the "university" indicators of success for faculty, such as Science Citation Indices and H factors, were low overall for LUMCON faculty. Dr. Rabalais explained to the Executive Board the unique nature of LUMCON and its faculty in serving the members of the Executive Board and the Consortium in research and education programs. Many of the activities of the faculty at the LUMCON Marine Center require a different expenditure of time so that visitors can continue to enjoy the services that LUMCON provides. These activities are not usually required of "typical" faculty on university campuses.

A recommendation of catalogue of services should be developed for users of the Marine Center and its capabilities. Such a system is being developed for user fees. Along the lines of a "positive net revenue" for LUMCON, Dr. Martin made some suggestions about out-sourcing some services relevant to LUMCON's operations, such as cafeteria and dormitories. Dr. Rabalais explained that this was not entirely feasible given the remote location of the Marine Center. She noted that many services from "up the road" had been cancelled because the Marine Center was too distant to make it profitable for private concerns. For example, services have ended for vending machines, floor mats, and delivery of the New Orleans paper, *Times-Picayune.* She also noted that the end of the road in Cocodrie was not the same as reserving football weekends at the Lod Cook Alumni Center. Dr. Martin recommended that LUMCON Marine Center should consider moving funds into the LSU Foundation in the name of LUMCON. Dr. Hulbert reminded that LUMCON was a different entity than most "net positive revenue" activities on main campuses.

Dr. Martin moved and Dr. Savoie seconded that the Executive Board approve the LUMCON Strategic Plan for FY12-16 be approved as presented. The motion passed unanimously.

E. New and Extended Research Grants

Dr. Rabalais pointed to the report of the new research grants awarded since the last Executive Board meeting, extensions, and supplements. These awards amounted to $913,829.

A motion was made by Dr. Martin and seconded by Dr. Savoie to approve acceptance of the new, extended, and supplemented research awards to LUMCON. The motion carried unanimously.

F. Personnel Changes

Changes in LUMCON personnel since the last board meeting were presented. These included new hires, changes in status, and terminations. Dr. Rabalais indicated that she had to lay off some employees due to lack of funds in the cafeteria and dormitory budget, but that these individuals were re-hired on an as-needed basis. One termination was for cause.

Dr. Martin moved and Dr. Savoie seconded that the personnel report be accepted as printed. The motion carried without opposition.

G. Grievance Procedures

Dr. Rabalais asked the Executive Board members to direct their attention to the LUMCON, Grievance Procedures, first presented in January 2010, for their consideration. At that Executive Board meeting a motion was made and accepted to table further consideration of this policy until further review. Dr. Rabalais pointed out that subsequent review had not taken place and that the document remained ready for acceptance. She noted that the document followed closely the Louisiana State University grievance procedures for non-classified employees and that the State of Louisiana Civil Service Commission had looked at the policy and deemed it appropriate. Dr. Rabalais recommended that the Executive Board approve this policy for LUMCON on behalf of its employees and as direction for the Executive Director in dealing with employee issues. Dr. Hulbert recommended that this policy is necessary given the activities of a former employee.

Dr. Landry moved acceptance of the LUMCON Grievance Procedures as presented by Dr. Rabalais in January and presently July 9, 2010; the motion was seconded by Dr. Boudreaux. The motion was unanimously approved.

H. LUMCON Activity Reports

(1) Dr. Rabalais presented updates from the K-12, teacher and University Education programs with high levels of activity, despite no summer school due to budget cuts. There have been shifts in activities from University Education to web site services. Dr. Rabalais reported on her engagement with the LA Environmental Education Commission and the development of an Environmental Literacy Program.

(2) Mr. Kerry St. Pé, Director, Barataria-Terrebonne National Estuary Program, presented highlights of the BTNEP program since January 2010, which naturally focused upon the efforts of BTNEP to respond to the BP oil spill and the many volunteer activities that BTNEP coordinated. He highlighted changes in personnel in Education Coordinator to Alma Wagner. He noted the consumption of their staff with the BP oil spill, and using personnel to focus on that event. He recognized the volunteer effort on Grand Isle. He highlighted the use of GPS-enabled, digital cameras by volunteers to document oiling of habitats on the Grand Isle area.

(3) Marine Center Operations reported on Katrina/Rita repairs, Gustav/Ike repairs and continuation of reduced energy consumption through constant monitoring of inside/outside temperatures of the Marine Center. Once again the date of November repeated itself, this time for 2010. As Dr. Martin observed, the month date remained the same but the year changed. Dr. Rabalais noted that Mr. Simoneaux has been a key person in keeping activities functioning at the Marine Center.

(4) Vessel Operations reported that the R/V *Pelican* was the first research vessel on site at the BP Deepwater Horizon oil spill. One of the *Pelican* crew members brother was a professional photographer and documented the cruise. The *Pelican* would have been more involved in the BP spill, but the calendar was fully subscribed. Other UNOLS, NOAA, and EPA vessels were called in to the spill site for observations and research.

VII. Reports and Recommendations of the Executive Board Chair

Dr. Rabalais informed the Executive Board that her initial 5-year appointment as Executive Director had expired. The Executive Board moved (Dr. Martin) and seconded (Dr. Landry) that the appointment of Dr. Rabalais be extended an additional five years.

Dr. Rabalais indicated that there would be a new Vice President of Research for ULL with the appointment of Dr. Robert Twilley. Dr. Rabalais reminded the Executive Board that it was legislated to have two meetings per year, one in September and one in the spring. The Executive Board, while meeting two times annually, had slipped in the timing of their meetings. The rotation of the Executive Board chair and vice chairs should take place at the end of the September Executive Board meeting, if one were scheduled for September. Dr. Hulbert and Dr. Rabalais will work towards a September 2011 meeting.

VII. Adjournment

Dr. Hulbert entertained a motion to adjourn given by Dr. Boudreaux and seconded by Dr. Landry. Being no opposition the meeting was adjourned.

Respectfully submitted:

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Dr. Steven Hulbert, Chair
LUMCON Executive Board

Minutes
Transcribed and edited by Nancy Rabalais, Executive Director

MINUTES
LOUISIANA UNIVERSITIES MARINE CONSORTIUM
EXECUTIVE BOARD

January 11, 2010

I. Call to Order (Dr. Savoie)

Dr. Joseph Savoie, LUMCON Executive Board Chair, called the meeting of the Executive Board for the Louisiana Universities Marine Consortium to order on January 11, 2010 in the Cook Room, Lod Cook Alumni Center, Louisiana State University at 1:00 pm.
He requested the roll call.

II. Roll Call (Dr. Rabalais)

LUMCON Executive Board members present for the meeting:

Dr. Joseph Savoie, Chair Present
President, University of Louisiana Lafayette
Dr. Stephen Hulbert, 1st Vice Chair Absent
President, Nicholls State University
Dr. Michael Martin, 2nd Vice Chair Present
Chancellor, Louisiana State University
Dr. Steve Landry, University of Louisiana Lafayette Present
Director of Research and Sponsored Programs
Dr. David Boudreaux, Nicholls State University Present
Vice President for Institutional Advancement
Dr. Doris Carver, Louisiana State University Present
Interim Vice Chancellor of Research and Graduate Studies

Attendance by five of the six Executive Board Members constitutes a quorum.

Guests in attendance:
Dr. Chris D'Elia, Dean, School of the Coast and the Environment, LSU; Mr. Bill Wilson, Baton Rouge; Mr. Kerry St. Pé, Director, Barataria-Terrebonne National Estuary Program, BTNEP; LUMCON Staff Ed Chesney, Geoff Sinclair, Heidi Boudreaux, John Conover, Lora Pride, Wendy Morrison, Melissa Baustian, Bruce Benoit, Maria Suarez; members of the public, Brenda Babin, Julie Leroux

III. Approval of Prior Minutes (Dr. Savoie)

Dr. Savoie asked for discussion on the minutes of the Executive Board meeting of July 30, 2009.
Martin moved approval and Stewart seconded approval of the minutes as presented. Being no objections, the minutes were approved.

IV. Call for Executive Session

Dr. Savoie noted that the Executive Board could talk about concepts in general, but that any issues dealing with specific personnel should be dealt with in Executive Session, as advertised in the announcement for the Executive Board meeting, two weeks in advance. Dr. Savoie entertained a motion to go into Executive Session.
The motion was made by Dr. Martin and seconded by Dr. Landry. A roll call was taken and the motion passed unanimously.

The LUMCON Executive Board moved into Executive Session concerning potential litigation related to a personnel issue. The Executive Board, Dr. Rabalais, Ms. Boudreaux, and Ms. Christine Brashear remained in the meeting.

Dr. Savoie called the meeting of the Executive Board of LUMCON back into open session at 1:42 pm, and stated that no decisions had been made and no motions taken during the Executive Session.

V. Reports and Recommendations of the Executive Director

A. Director's Report

Fiscal matters were in order until the early January announcement of an 8% budget cut mid fiscal year.

B. Financial Reports

Several budget reports were provided the Executive Board members, the November 30, 2009 status of FY2009-2010, the category breakdown of the FY2009-2010 state budget through November 30, 2009, the indirect cost recovery budget income by investigator through November 20, 2009, and the indirect cost recovery budget status as of November 30, 2009. Dr. Martin asked how much more could LUMCON withstand in budget cuts and still maintain its research and education mission. He also cautioned about using indirect costs to fill budget holes.
Dr. Landry moved to accept the budget reports; Dr. Martin seconded; the motion passed unanimously.

Dr. Rabalais indicated that drastic cuts to services would be likely with the mid-year budget cuts, including no summer school, no summer internships, closure of the Fourchon Field Lab, shifting of vessel insurance payments to vessel funds, cuts to journal subscriptions, moving an employee from state general to indirect cost recovery. There will also remain four unfilled positions. Adjustments to vessel, dormitory and cafeteria usage rates will be necessary.

The state general FY2010-2011 continuation budget was presented, with enhancements as noted. This submission was mostly pro forma because the intent of the Division of Administration was to announce an approximate 8% budget cut for the second half of FY2009-2010.

A motion was made by Dr. Landry and seconded by Dr. Martin to accept the submitted FY2010-2011 continuation budget with enhancements. The motion passed unanimously.

C. Capital Outlay Request

The Capital Outlay Request for FY2011-2012 was presented to the Executive Board. A question was raised concerning the split in costs for the R/V *Acadiana* refit. Dr. Rabalais explained that 10% of the request would be for planning and architectural drawings and consultation. Dr. Rabalais mentioned how helpful Regent Joe Wiley had been in supporting LUMCON's capital outlay requests at the Board of Regents.
A motion was made by Dr. Landry and seconded by Dr. Martin to accept the submitted capital outlay request. The motion passed unanimously.

D. New and Extended Research Grants

Dr. Rabalais pointed to the report of the new research grants awarded since the last Executive Board meeting, extensions, and supplements. Dr. Rabalais also noted the large amount of vessel support in the grants.
A motion was made by Dr. Landry and seconded by Dr. Carver to approve acceptance of the new, extended, and supplemented research awards to LUMCON. The motion carried unanimously.

E. Personnel Summary

Changes in LUMCON personnel since the last board meeting were presented. These included new hires, changes in status, and terminations.
Dr. Martin moved and Dr. Landry seconded that the personnel report be accepted as printed. The motion carried without opposition.

Dr. Rabalais pointed out that Dr. Rodney Powell had resigned from LUMCON in October 2009. Given the budget shortfalls, there are no funds to advertise or fill the position this fiscal year, and the outlook for the next fiscal year indicates that the position will remain unfilled. The position will remain open until the budget picture improves.

Dr. Rabalais presented the Executive Board with a draft policy for a Grievance Procedure that more clearly laid out the procedures available for LUMCON employees, all of which are unclassified. The policy was modeled after the LSU unclassified grievance procedure and checked for consistency with state civil service guidelines. The Executive Board members felt that time was needed to study the policy, and Dr. Rabalais was asked to follow up with respective university Human Relations offices.
Dr. Boudreaux moved to table discussion and action on the draft policy; Dr. Martin seconded; the motion was unanimously approved.

Dr. Rabalais will continue to develop the procedure by having the Executive Board university Human Resource departments and the Division of Administration, Human Resources Office, review it.

F. LUMCON Activity Reports

The FY2008-2009 Annual Report for LUMCON was presented to the Executive Board with notice that it would be forward to the Board of Regents as required in the LUMCON legislation. Dr. Rabalais noted that despite the budget cuts LUMCON had excelled and wanted to acknowledge the staff for their excellence. Dr. Savoie added his appreciation.

The facilities report detailed the many issues and status with hurricane repairs. Wayne Simoneaux continues to work with the state Office of Risk Management, Office of Facility and Planning Control, and FEMA to finalize hurricane repairs dating back to hurricanes Katrina and Rita in 2005 and complicated further by damage due to hurricanes Gustav and Ike in 2008. The elevator repairs are 95% complete and just need certification, insurance, and warranty plan. The Fourchon site continues to be repaired despite plans to close it for Spring and Summer 2010.

The schedule of 214 days for the *Pelican* in 2010 was presented, and the number of days was expected to increase to 254. The maximum days for the *Pelican* are 264 and are mostly kept below 250 for maintenance and repairs. The *Pelican* is in the shipyard for major repairs and improvements to ADCPs, crane, anchor system, new aft control station, new winch and other maintenance needs. There will be a UNOLS inspection on 23-24 February 2010.

VI. Reports and Recommendations of the Executive Board Chair

The rotation of Executive Board members and chair positions took place at the end of the meeting. The Chair position rotated to Dr. Hulbert of Nicholls State University, the first Vice Chair position to Dr. Martin of Louisiana State University, and the Second Vice Chair position to Dr. Savoie of University of Louisiana at Lafayette. Dr. Rabalais thanked Dr. Savoie for his service as Chair of the Executive Board. Dr. Savoie thanked the LUMCON staff for their continued hard work.

VII. Adjournment

Dr. Savoie entertained a motion to adjourn given by Dr. Boudreaux and seconded by Dr. Landry. Being no opposition the meeting was adjourned.

Respectfully submitted:

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Dr. E. Joseph Savoie III, Chair
LUMCON Executive Board
Transcribed and edited by Nancy Rabalais, Executive Director

MINUTES
LOUISIANA UNIVERSITIES MARINE CONSORTIUM
EXECUTIVE BOARD

July 30, 2009

I. Call to Order (Dr. Savoie)

Dr. Joseph Savoie, LUMCON Executive Board Chair, called the meeting of the Executive Board for the Louisiana Universities Marine Consortium to order on July 30, 2009 in the Executive Board Room at the DeFelice Marine Center located in Cocodrie, LA at 11:00 a.m.

He requested the roll call.

II. Roll Call (Dr. Rabalais)

LUMCON Executive Board members present for the meeting:

Dr. Joseph Savoie, Chair
President, University of Louisiana Lafayette
Dr. Stephen Hulbert, 1st Vice Chair
President, Nicholls State University
Dr. Michael Martin, 2nd Vice Chair
Chancellor, Louisiana State University
Dr. Robert Stewart, University of Louisiana Lafayette
Director of Research and Sponsored Programs
Dr. David Boudreaux, Nicholls State University
Vice President for Institutional Advancement
Dr. Brooks Keel, Louisiana State University
Vice Chancellor of Research and Graduate Studies

Attendance by six of the six Executive Board Members constitutes a quorum.

Guests in attendance:

Dr. Chris D'Elia, Dean, School of the Coast and the Environment, LSU; Mr. Joseph Wiley, Member Board of Regents, Chair LUMCON Committee; Mr. Bill Wilson, Baton Rouge; Mr. Kerry St. Pé, Director, Barataria-Terrebonne National Estuary Program, BTNEP; LUMCON Staff Brian Roberts, Rodney Powell, Ed Chesney, Alex Kolker, Heidi Boudreaux, Joe Malbrough, John Conover, Beth Bourge, Nicole Cotten, Wendy Morrison, Danielle Richardi, Russell Martin, Wayne Simoneaux, Bruce Benoit, Maria Suarez.

III. Approval of Prior Minutes (Dr. Savoie)

Dr. Savoie asked for discussion on the minutes of the Executive Board meeting of November 25, 2008. Martin moved approval and Stewart seconded approval of the minutes as presented. Being no objections, the minutes were approved.

IV. Reports and Recommendations of the Executive Director

A. Director's Report

Dr. Savoie turned the meeting over to Dr. Nancy Rabalais, Executive Director of LUMCON. Dr. Rabalais referred to her report that pointed to the fact that LUMCON among other institutions of higher education had suffered severe budget cuts in the FY2010 anticipated budget. She further pointed out that LUMCON was positioned between a state agency and an institution of higher education with no benefits to be gained from either designation. Although LUMCON is not a degree granting institution, the faculty teach classes that accrue credits to member universities and advise students that graduate from member universities. As such, LUMCON does not benefit from the formula that gives credit for students graduated. On the other hand, reporting to Division of Administration demands paperwork constraints and obligations not experienced by other institutions of higher education.

Dr. Rabalais also pointed out that Senator Mary Landrieu was present at a coastal restoration event in Houma at the beginning of June and visited the R/V *Acadiana* and discussed LUMCON's research opportunities with regard to coastal restoration.

B. Financial Reports

Two sets of information, closeout of FY09 and the draft budget for FY10 were presented to the Executive Board. The overall state general budget at end of June, although still in the 45-day closeout period, were close to final figures, along with the BTNEP closeout, the vessels closeout, the dormitory and cafeteria closeout and the status of the indirect cost recovery fund at the end of June 2009. The decline in ICR was accredited to hurricane recovery costs that had yet to be reimbursed to LUMCON. The decrease in the cafeteria/dormitory fund was attributed to the lack of being able to house an adequate number of students post Katrina and large purchases such as a hood for the serving line warming unit. Vessel Operations at the end of FY08 was in the red and is now in the black, with a strong ICR component. A question was raised as to "How are we financially?" with the answer of "okay, just a cash flow issue."

A question was raised concerning seeking loans to pay for hurricane damage repair and then seeking reimbursement. This was not seen as a viable situation because OFPC holds the authority to approve contracting for repairs from the hurricanes and for permanent repairs overall.

A question was raised concerning the ICR recovered by Dr. Dortch who had left LUMCON 5 years prior. Dr. Rabalais explained that she had taken over Dr. Dortch's research programs and was expending those funds, which would soon reach zero.

The Executive Board advised that LUMCON would be wise to use the staff of Senator Landrieu to get federal funds to repair and replace lost funds in the system. The Board recommended using the Congressional delegation to cut through the red tape that has hampered recovery efforts.

Dr. Savoie advised that there were opportunities for LUMCON, LSU Pennington Biomedical Institute, and similar non-degree granting institutions to develop a formula based on research grants, faculty numbers, hours of teaching and graduate advisement. The BTNEP portion of the LUMCON budget would need to be excluded as a subpart. This may give these institutions a better chance at surviving across the board budget cuts. Over the years LUMCON's budget has not increased as much as higher education overall within the systems. The cut for FY2010 will be 8% of the FY09 budget.

A preliminary budget with salaries and cuts for individual personnel was provided to the Executive Board members as part of the packet for the Executive Session where discussions of personnel were to be conducted. Basically the LUMCON budget has been balanced, after several attempts at different types of furloughs, with a 3% across the board -04 and -01 budgeted personnel and cuts in library acquisitions. Other contingencies included loss of FTE positions. The budget already has considered five unfilled positions. Basically $3,220,000 in FY09 is now $2,962,000 in FY10.

Dr. Savoie noted that the Executive Board could talk about concepts in general, but that any issues dealing with specific personnel should be dealt with in Executive Session, as advertised in the announcement for the Executive Board meeting, two weeks in advance. Dr. Savoie entertained a motion to go into Executive Session; the motion was made by Mike Martin and seconded by Bob Stewart. A roll call was taken and the motion passed unanimously.

The LUMCON Executive Board moved into Executive Session.

Dr. Savoie called the meeting of the Executive Board of LUMCON back into open session and stated that no decisions had been made and no motions taken during the Executive Session.

C. Further Consideration of FY2010 Budget

Dr. Rabalais was asked to continue her presentation of a draft budget scenario for the LUMCON FY2010 budget. She noted that there was additional information in the board briefing book concerning actions taken at consortium member universities, and a series of memos to the Executive Board members pertaining to various budget scenarios. Dr. Rabalais proposed that the LUMCON budget for FY10 be balanced with a 3% decrease across the board for -04, -01 supported employees, no salary increases, and a substantial cut from library acquisitions to be made up partially from the LUMCON ICR account. She noted that the LUMCON library depended on member institution libraries to maintain services at LUMCON.

A motion was made by Mike Martin and seconded by Bob Stewart to accept the 3% furlough scenario for -04 and -01 state employees, no pay raise and cuts as necessary elsewhere in the LUMCON budget to meet the 8% budget reduction. The motion carried unanimously.

Dr. Rabalais pointed to the Performance Indicators that were reduced to reflect fewer resources at LUMCON to accomplish the goals intended in Goals for 2020 that has guided these indicators for many years. The new indicators also showed what factors were decreased and what percentage that would mean in overall indicators. These performance indicators become part of the FY1010 Operating Plan for the FY2010 budget.

A question was raised concerning the drop in RV *Acadiana* days at sea, which reflected the inability to house overnight students, and thus a lower use rate of the vessel for education trips. The small boats fleet was defined as anything other than the RV *Pelican* and the RV *Acadiana*.

A question was raised concerning participating universities and if any were from outside Louisiana. The outside universities are listed in the University Education report on p. 34.

D. Capital Outlay for FY2011-2015

The capital outlay request for FY 2010-2014 was provided the Executive Board as supplemental material. Dr. Rabalais indicated that the next year's capital outlay would follow closely the current strategy, especially since 2 of the top 4 "new" capital outlay items in the FY2010 budget had been LUMCON items. Dr. Rabalais and Mr. Simoneaux will be meeting with Mr. Rich Griswold on Sep. 3 concerning the LUMCON capital outlay request. Mr. Joe Wiley indicated that he would also attend representing the Board of Regents.

E. Personnel Summary

Changes in LUMCON personnel since the last board meeting were presented, mostly for information. The Board inquired as to unfilled positions. Dr. Rabalais stated that there were several unfilled positions to meet the FY2010 budget reductions.

Steve Hulbert moved and Bob Stewart seconded that the personnel report be accepted as printed. The motion carried without opposition.

F. New Research Grants

Dr. Rabalais pointed to the report of the new research grants awarded since the last Executive Board meeting, extensions, and supplements.

A motion was made by Mike Martin and seconded by Bob Stewart to approve acceptance of the new, extended, and supplemented research awards to LUMCON. The motion carried unanimously.

Dr. Rabalais explained that the new grants list was only part of the research activity at LUMCON and pointed out additional grants that would be on the list for the next meeting, including grants to Dr. Sinclair, Vessel Operations, Dr. Chesney, and Dr. Visser with CWPPRA funds for Science Advisory activities.

Dr. Stewart identified new potential funds from the office of coastal protection with regard to using LUMCON as a mechanism for contracting. Dr. Rabalais mentioned that she had met with the LACES group, Rick Rainey, Cynthia Duet, to talk about mechanisms such as CREST to fund short-term and longer-term contractual and research awards.

G. Education

Education activities have been high with K-12, teacher workshops and the summer program. LUMCON is experiencing difficulties having member universities grant graduate credit for some of the courses taught at LUMCON. Ms. Cotten is working on those issues. Dr. Hulbert was apprised of the Nicholls Masters Degree in Environmental Science and Marine Biology substituting a Nicholls course for LUMCON courses. A question was raised concerning the number of graduate students, which were identified as 3 LSU, 1 Nicholls, 1 Duke University, 3 Tulane University, 1 University of Miami, and several other from Louisiana universities that were advised by faculty on campus but conducted their research at LUMCON.

H. Information and Technology

As presented in the Board briefing book, with a statement about the many productive solutions to saving money for LUMCON.

I. BTNEP

Mr. Kerry St. Pé will be awarded the Gulf Guardian Award, Individual, in fall of 2009. He mentioned in particular from the BTNEP report concerning the Nicholls University Jubilee, the Fete d'Ecologie, the paddle Bayou LaFourche, volunteer plantings in Jean Lafitte Park, the Tilapia kill in lower Barataria, and new CDs "Down the Bayou" on the shrimping industry and "Harvest to Restore" on the beneficial use of dredge material.

J. Facilities

The facilities report detailed the many issues and status with hurricane repairs. There have been substantial improvements and increased efficiency in energy usage, with a big dent in funds expended, e.g., 14% in wattage and 57% in natural gas units, half cutting costs in this year compared to last year. Congratulations to the staff for these improvements.

K. Vessel Operations

The Vessel Operations report outlined activities since the last Board meeting. The number of days for the *Pelican* in 2010 is close to 2009 but will go up. The maximum days for the *Pelican* is at 264 and is mostly kept below 250 for maintenance and repairs. There will be a UNOLS inspection in December 2009. A question was raised about another regional vessel. Dr. Rabalais stated that it remained on the UNOLS plan but that the funds did not exist, nor would they for a while. A question was raised concerning the refit figures for the *Acadiana* refit in capital outlay. It was explained that the initial year was 10% and a design phase. It was recommended to put the remainder in the second year $1 million, because it is impossible to fund a ship repair over 2 years. A change will be made in the capital outlay request.

V. Reports and Recommendations of the Executive Board Chair

Dr. Rabalais asked the Executive Board to consider the role of the Executive Board versus the Board of Regents with regard to declaring financial exigency related to LUMCON's budget scenarios in the future should budget cuts continue along the expected dramatically declining trajectory. She had requested information concerning financial exigency from the Board of Regents counsel but had received no answer. Dr. Martin requested that the Chair of the LUMCON Executive Board, Dr. Savoie, should determine what authority exists for the LUMCON Board or the Board of Regents or any other entity to determine the authority and process for financial exigency for LUMCON should that become a reality. Dr. Savoie said that he would look into it.

VII. Adjournment

Dr. Savoie entertained a motion to adjourn. Dr. Hulbert moved to adjourn. Being no opposition the meeting was adjourned.

Respectfully submitted:

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Dr. E. Joseph Savoie III, Chair
LUMCON Executive Board

Transcribed and edited by Nancy Rabalais, Executive Director

MINUTES
LOUISIANA UNIVERSITIES MARINE CONSORTIUM
EXECUTIVE BOARD

November 25, 2008

I. Call to Order

Dr. Michael Martin, LUMCON Executive Board Chair, called the meeting of the Executive Board for the Louisiana Universities Marine Consortium to order on November 25, 2008 in the Executive Board Room at the DeFelice Marine Center located in Cocodrie, LA at 10:30 a.m.

He requested the roll call.

II. Roll Call

LUMCON Executive Board members present for the meeting:

Dr. Michael Martin, Chairman
Chancellor, Louisiana State University
Dr. Joseph Savoie, 1st Vice Chair
President, University of Louisiana Lafayette
Dr. Stephen Hulbert, 2nd Vice Chair
President, Nicholls State University
Dr. Brooks Keel, Louisiana State University
Vice Chancellor of Research and Graduate Studies
Dr. Robert Stewart, University of Louisiana Lafayette
Director of Research and Sponsored Programs

LUMCON Executive Board members not in attendance:

Dr. David Boudreaux, Nicholls State University
Vice President for Institutional Advancement

Attendance by five of the six Executive Board Members constitutes a quorum.

Guests in attendance:
Dr. Astrid Merget, Dr. Chuck Wilson, LSU; Mr. Bill Wilson and Mr. Richard Lipsey, Baton Rouge; LUMCON Staff

III. Approval of Prior Minutes

Dr. Martin asked for discussion on the minutes of the Executive Board Meeting of April 28, 2008. Dr. Stewart gave one correction to Ms. Lillie Wicher.

The minutes of April 28, 2008 were declared approved as corrected.

IV. Reports and Recommendations of the Executive Director

Dr. Martin turned the meeting over to Dr. Nancy Rabalais, Executive Director of LUMCON. Dr. Rabalais welcomed the Board members present and indicated that the booklet included reports as usual; some sections she would expand on and explain while some sections were for the Board's information.

A. Director's Report

Dr. Rabalais directed the members of the Executive Board to the booklet outlining primarily issues related to the double hurricanes Gustav and Ike, with record wind speeds and water levels, respectively. Mr. Simoneaux will provide more details in the Marine Center report.

An item not in the Director Report was Dr. Rabalais' attendance at the Board of Regents review of Supplemental Funding for FY08. LUMCON had no supplemental funding, but Dr. Rabalais pointed out the vulnerability of LUMCON to coastal hazards as well as the ability of LUMCON to recover and continue its excellent activities. A five-year summary of funding and activities was presented and explained.

B. Financial Summary

The first series of reports outlined the closeout of the FY08 fiscal year.

Dr. Rabalais explained the matching funds for BTNEP in addition to the EPA funds that come from the Louisiana Legislature and passed through to BTNEP. When the LUMCON budget increases or decreases, the BTNEP match parallels it.

Dr. Martin asked what the LUMCON Indirect Cost Recovery rate was – 43% of modified total direct costs, excludes vessels and equipment, determined by US Department of Human Health. LUMCON can only ask for a limited increase at a time. The BTNEP and CREST indirect cost recovery rates were increased over the last two years. The ICR budget by month and the estimated ICR for the next fiscal year were explained, as well as the ICR budget that covers activities not funded by the State General Fund.

The next set of reports outlined the FY09 budget and status as of November 2008.

The next series was the FY10 budget submitted to Division of Administration. We requested an inflation increase and expanded and new services, including staff, operations, supplies, vehicles, and replacement small boat. A question was asked by Dr. Stewart what the actual costs to run LUMCON would be. Dr. Rabalais will develop such a budget and bring it to the Board of Regents for approval and work with the legislative delegation to seek increases in the next legislative session. Such a request would need Executive Board approval, probably through a conference call. [N.B., a draft fully-funded budget scenario of $6.2 million was sent to the Executive Board for their information.]

Dr. Stewart moved to accept the LUMCON FY10 budget submission as presented; Dr. Keel seconded; the motion was approved unanimously.

A question was raised about contingencies for a potential 22% budget cut. Dr. Rabalais recommended that the funds and associated personnel issues be deferred to Executive Session.

The Operational Plan that is appended to the FY10 Division of Administration budget submission was presented. Dr. Rabalais said that she paid particular attention to this Operational Plan because of negative performance indicators tied mostly to lack of facilities still unrepaired from Hurricane Katrina.

A question was raised on the outlook for federal funding. Federal funds are tight and right now tied up in a federal continuing resolution.

The Capital Outlay request, in a separate document, was provided to the Executive Board for their approval. The request was due on October 15, and was submitted by that date. LUMCON has two of the first four "New Projects" listed in the Board of Regents submission to Division of Administration. A major issue is paving and drainage, especially because of hurricane flooding and mud. Rich Griswold has worked to increase our percentage of capital outlay within the Board of Regents division. Also included was a summary of deferred maintenance. Three projects are underway for $173K, with an additional $57K remaining in the deferred maintenance account

Dr. Stewart moved to accept the LUMCON FY10 capital outlay submission as presented; Dr. Savoie seconded; the motion was approved unanimously.

Dr. Rabalais reported that when asked by the Board of Regents about items for a $500K potential stimulus request she listed analytical equipment, truck, safe decent offshore boat for field trips and research, Fourchon lab renovations, and repair of the back lot boardwalk.

C. Personnel Summary

Dr. Rabalais introduced the two new faculty members, Dr. Alex Kolker and Dr. Geoff Sinclair. Approval for these was given by the Executive Board in April.

Dr. Stewart moved to approve the LUMCON personnel report as presented, including the appointment of the two new Assistant Professors; Dr. Hulbert seconded; the motion was approved unanimously.

Dr. Rabalais reported that Dr. Sami Ullah was still being considered for an Assistant Professor position but was unable to acquire the necessary visa to visit for an interview.

D. Research

The list of new, extended, and supplemented research awards was presented to the Executive Board.

Dr. Martin requested a motion to approve acceptance of the grants as presented. Dr. Stewart moved for approval; Dr. Hulbert seconded; No discussion; Motion passed unanimously.

Dr. Rabalais reported that the biggest setback for research following the 2008 hurricanes was the fisheries laboratory of Dr. Ed Chesney. The 8-ft above sea level flood was the highest yet in the history of the Marine Center, and the inability to have fresh water and power hindered recovery operations, especially in the downstairs area, including holding tanks and experimental facilities.

Dr. Martin questioned the future of the LUMCON Marine Center in the face of subsidence, rising sea level, and increasing intensity and frequency of tropical storms. What thoughts are there on an extended future? Dr. Rabalais explained that there was a need for coastal restoration that incorporated natural landforms and processes, along with a combination of levees to protect communities. She noted that the Marine Center was outside of any planned levee, and referred the Board to photos in her Report that showed the extensive flooding below Boudreaux Canal, where the levees surrounding Chauvin stopped. If it is possible to shore up LUMCON, it would be possible to save the facility with the vessels docking elsewhere. She stated that there would be days when employees could not reach Cocodrie. She estimated this projection within 25 years. Dr. Martin asked about the subsidence rate. Mr. Simoneaux stated that the benchmark first laid 12 years ago at LUMCON has risen 12 inches over 10-12 years, about an inch a year, basically a measure of subsidence since the dredge fill material is within the confines of higher land. With an increase of 3-4 mm a year of sea level rise, what would be the long-term future of LUMCON? Dr. Rabalais stated that there would be no expiration on the LUMCON Marine Center in the foreseeable or long-term future, since it is too much of an investment and the only such facility serving the State's institutions of higher education, research, and education.
She reported that the new Louisiana Department of Wildlife and Fisheries Laboratory on Grand Isle is planned for 18 feet above sea level, the same as LUMCON, but the Grand Isle lab is much more exposed to storm surge, similar to the LUMCON Fourchon Lab.

Dr. Rabalais reported that the CREST program, Coastal Restoration and Enhancement through Science and Technology, funded by NOAA, set aside $1.4 million in FY08 for research support, but the current budget is in the federal continuing resolution. It is not clear what the future will be. The CREST Executive Board agreed to forego the Scholars Program in which each member institution (12) would receive $2,000 to put to student activities should be suspended until the FY09 budget is known. LUMCON provides the contracting and accounting work of CREST and oversees the CREST Office at LSU.

LUMCON also serves as the fiscal agent for Science Advisory work for CWPPRA now at ULL. LUMCON does as much work as possible on these pass through activities, with some indirect cost recovery return to LUMCON, in order to provide an objective, no special interest oversight of these programs.

E. Education

The University Education and K-12 and Teacher Education program reports were provided in the Board briefing books. Dr. Rabalais called special attention to the B-WET announcement from Senator Landrieu's office for the joint Louisiana Department of Education, Louisiana Sea Grant, BTNEP and LUMCON activity awarded as one of five in the Gulf of Mexico in a NOAA competition.

F. Library Report

LUMCON Librarian, John Conover, explained rain damage of Library during Hurricane Gustav. The initial and second repairs of the roof expansion joints are still not acceptable. Precautions in Gustav were to remove journals from the area to tables and cover them with plastic sheeting. Shelves under this area were also covered with plastic sheeting. Mr. Simoneaux reported that this initial Hurricane Katrina repair was being negotiated with ORM and FEMA, but that it would be fixed.

G. Information and Technology

The Information and Technology department is the electronic lifeline to the world, within the facility, and for visitors. The current activities are mostly finding out what does not work anymore post 2008 hurricane season. The long period of no electricity and high temperatures and humidity damaged much of the technologically advanced equipment. In addition IT is fixing monitoring stations as possible. The Terrebonne station has again disappeared but the IT department is working with oil companies to have the station rebuilt. Dr. Stewart asked about liability questions with using oil company facilities. There are strict agreements with the companies, just as offshore, and well-defined boarding agreements. IT has been very busy with professional development, data management, developing a data node for GCOOS, newsletters, and the annual report to submit by the end of the year.

H. BTNEP

Mr. Kerry St. Pé emphasized the highlights in the report. WetShop is a project that was highlighted in the EPA evaluation of the BTNEP program. Susan Bergeron leads the project of 25 teachers, who are required to present a workshop at their home institution. The EPA evaluation gave the BTNEP program a rating of excellent.

The emergency dredging of Bayou Lafourche post Hurricane Gustav at Donaldsonville for Mississippi River diversion to flush the water and improve water quality is an important project for BTNEP. Mr. St. Pé serves as an advisor and facilitator to the project

I. Facilities

The very detailed report of status of hurricane reports was updated by Mr. Simoneaux. Thirteen rooms under repair from Katrina were completed and reoccupied. Eleven other rooms need mold remediation and repair. There are different contracts for mold

remediation and repairs. About half of the beds are in each of the phases. The library expansion joints will have to be redone.

There was a meeting with FEMA for Gustav and Ike for the Marine Center and for Fourchon, which lost all facilities and equipment on the bottom floor. Mr. Simoneaux has asked for remediation to make the repaired lab more flood-friendly. Issues to resolve are costs of replacement versus remediation. The same situation holds true for the Marine Center lobby, which we are trying to remediate to be more flood-friendly and avoid future hurricane costs versus what it costs to return the area to "pre" hurricane status each time it floods. Because of this, the LUMCON lobby has been unrepaired since Hurricane Katrina, and the future is not clear.

Since Ike, LUMCON has had water over the parking lot three times, which softens the grounds and has made it difficult to work with yard restoration. This continuing problem is the reason paving and drainage are high on the LUMCON priority list for capital outlay.

J. Vessel Operations

There were some vessel days lost due to the 2008 hurricane season, but many of the lost days are being made up with post hurricane research activity. The estimated vessel days for calendar year 2009 are a bit low, but we usually make up the days as the year progresses. Of the vessels in the UNOLS (University-National Oceanographic Laboratory System) fleet, the *R/V Pelican* has the best usage rate of any vessel in its size class, and most other size classes, except the global class that is always at sea. LUMCON will lose some NSF days next year to support the Cape Hatteras to avoid its layup. We do not like to lose NSF days because it hampers our requests for vessel equipment and improvements.

A question concerning the *R/V Acadiana* refit was addressed by Mr. Malbrough.

V. Reports and Recommendations of the Executive Board Chair

The change in Board Chairmanship at the end of this meeting was agreed upon with Dr. Savoie becoming Chair, Dr. Hulbert becoming 1st Vice Chair, and Dr. Martin becoming 2nd Vice Chair.

Dr. Stewart and the remainder of the LUMCON Executive Board praised the LUMCON staff for their perseverance, dedication and excellent work in times of the hurricanes, post hurricanes and always.

Dr. Martin called for an Executive Session to discuss personnel issues.

VI. Executive Session

After a unanimous roll call vote, the Board entered into Executive Session.

VII. Report of the LUMCON Executive Board

Dr. Martin called the regular session back to order.

Dr. Martin advised Dr. Rabalais, that as discussed during Executive Session, she was to:

1) Continue the search for an additional Assistant Professor at LUMCON in the field of coastal processes as long as the State budget scenario allowed.

2) Provide annual salary increases as proposed and revised for Dr. Rabalais, with the exception of those negated by the Executive Board.

3) Continue consideration of multiple scenarios for budget cuts.

VII. Adjournment

After determining that there was no further business to discuss, Dr. Martin requested a motion to adjourn; Dr. Hulbert motioned; Dr. Stewart seconded. Dr. Martin adjourned the meeting after thanking the participants for their time.

Respectfully submitted:

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Dr. Michael Martin, Chair
LUMCON Executive Board

Transcribed and edited by Nancy Rabalais, Executive Director

MINUTES OF THE
LOUISIANA UNIVERSITIES MARINE CONSORTIUM
(LUMCON) EXECUTIVE BOARD

Monday, April 28, 2008

I. Call to Order

Dr. William Jenkins, LUMCON Executive Board Chairman, called the meeting of the LUMCON Executive Board for Louisiana Universities Marine Consortium to order on Monday, April 28, 2008 in the Executive Board Room at the DeFelice Marine Center located in Cocodrie, LA at 10:30 a.m.

Dr. Jenkins introduced himself as the Interim Chancellor of LSU and as thus had taken over the role of Chairman of the LUMCON Executive Board. He stated that it is a privilege for him to be again involved with LUMCON. He requested the roll call.

II. Roll Call

LUMCON Executive Board members present for the meeting:

Dr. William Jenkins, Chairman
Interim Chancellor, Louisiana State University

Dr. Stephen Hulbert, 2nd Vice Chair
President, Nicholls State University

Dr. Brooks Keil, Louisiana State University
Vice Chancellor of Research and Graduate Studies

Dr. David Boudreaux, Nicholls State University
Vice President for Institutional Advancement

Dr. Robert Stewart, University of Louisiana Lafayette
Director of Research and Sponsored Programs

LUMCON Executive Board members not in attendance:

Dr. Ray Authement, 1st Vice Chair
President, University of Louisiana Lafayette

Attendance by five of the six Executive Board Members constitutes a quorum.

Guests in attendance:
Dr. Nancy Rabalais, LUMCON Executive Director
LUMCON Faculty; Dr. Ed Chesney, Dr. Paul Sammarco, Dr. Brian Roberts

Other LUMCON personnel: Ms. Heidi Boudreaux, Ms. Lora Pride, Ms. Wendy Morrison, Mr. Joe Malbrough, Ms. Nicole Cotton, Ms. Trudy Hebert, Mr. Kerry St. Pé, Director; BTNEP

III. Approval of Prior Minutes

Dr. Jenkins asked for discussion on the minutes of the Executive Board Meeting of , , 2007 – there was none.

Dr. Boudreaux moved to accept; Dr. Keel seconded. The minutes of September, , 2008 were approved as distributed.

IV. Reports and Recommendations of the Executive Director

At this time, Dr. Jenkins turned the meeting over to Dr. Nancy Rabalais, Executive Director of LUMCON. Dr. Rabalais welcomed the Board members present and indicated that the booklet included reports as usual; some sections she would expand on and explain while some sections were for the Board's information.

A. Director's Report

Dr. Rabalais directed the members of the Executive Board to the booklet outlining recent developments at LUMCON since the last meeting in September. If the Board members had any questions on any of the reports, division personnel were present to help her answer those questions.

The Executive Director's report pertains to her activities with regard to the LUMCON research and operations. She directed the Board to the picture of Senator May Landrieu and herself at the Consortium on Ocean Leadership where she had an opportunity to introduce her to LUMCON and its initiatives. Since then she was elected to the Board of Trustees of the Consortium. Also listed are other events which she represented LUMCON as listed. The main objectives I am working on at Capital Hill is NOAA's Center for Coastal Ocean Research and Harmful Algal Bloom and Hypoxia Research and Control Reauthorization and Appropriations Act; a bill sponsored by Senators Bloom and Snow that has been reauthorized several times.

Nancy then directed the Board to the insert announcing she will be receiving an award from ASLO (Advancement for Science of Luminology Technology) in June and also the Park award for Water Technology and Resources. She was congratulated by several of the Board members and Dr. Jenkins indicated that it should be noted in the minutes that the LUMCON Executive Board as a whole commended Dr. Rabalais for her awards continuous outstanding research. Dr. Rabalais then directed the Board's attention to the section on Green Louisiana where she indicated her opinions on the subject which are to have alternate fuel sources rather than Ethenol and recycling paper resources for accounting matters and push for recycling in all parishes. Commissioner Angele responded that she had sent it on to her staff, thanked Nancy for her concern, and indicated that Dr. Rabalais contact the Legislature for her budget concerns.

Dr. Jenkins spoke on the Green movement. He indicated that Universities are under a great amount of national pressure to sign up for this initiative and many have quickly signed on without considering the monetary commitment that goes with it. Each facility would have a column according to your standing and prestige indicating how compliant your facility is. Costing it out very carefully, the national movement on the Green agenda's required compliance reports on your institution's Green status are just too costly. Futhermore, the production of Ethenol as an alternative fuel is an ecological and economical disaster. They are praising themselves for having 15% ethanol content in gasoline while people are starving and the cost of food is escalating out of sight. I am fully supportive, but the truth is that it will require more resources than many of us are capable of handling.

Dr. Keel commented that many institutions signed on too quickly. All were urged to make commitments, but in Louisiana with the backlog of deferred maintenance now present and the inability to get basic maintenance. In a few years we would be evaluated to perform maintenance to our facilities based on our records that none of us could afford. We took the path of costing it out and it did not take long to realize that we could never afford it. Another factor is that Ethanol eats at plastic tanks, clogs filters and requires more maintenance. Nancy stated that it would worsen the dead zone. Dr. Jenkins indicated that he would instate a green policy for LSU, but that it would be outsourced and only to the extent that LSU can afford over a period of time.

B. Financial Summary

Dr. Rabalais introduced Ms. Heidi Boudreaux as Finance Manager. She took over the position from Mr. Hebert. The report details the status of our 2008 budget which shows that we are on track, except for the $30,000.00 of extra energy costs that I just signed off on to come out of 04 indirect costs. We are on track so far as having the 25% needed to get through the end of the fiscal year. Some of this is due to the fact that we have not hired two faculty and probably will not until next fiscal year and also we have not hired a senior educator and education associate. We have moved two positions from 04 to 01 to make sure that the State does not think that we have too much money. She asked if the Board had any questions on the status of the budget. The first page is of the 01 budget and on the second page the Indirect Cost Recovery Budget which I have done some studies based on income and expected expenditures given that we have moved some people over to 01 and determined that we will do better, although not much. This enable us to still have a sufficient security comfort zone in our indirect cost recovery since we have to cut into our 04 budget about $60,000.00 for expected energy overruns next fiscal year.

Dr. Stewart asked why there is an excess in salaries and wages when looking at the General Budget. You did not come near the $1.7 million budgeted; only $1.3 million. Dr. Rabalais responded that this is mostly due to not hiring the two faculty members or the two positions in education. She also indicated that she has moved 04 into 01, but not at the same salary levels of the people leaving. Dr. Keel wanted to know the current number of Faculty. Nancy responded that currently there are 6 full-time Faculty. She is not really considered Faculty. She directed the Board to the performance indicators.

Currently we have 5 plus two more is 7 full time faculty, but only 75% of Faculty wages are State supported.

Dr. Stewart asked about the PIs listed on Indirect Cost and who among them are faculty. Nancy indicated that faculty included Drs. Chesney, Dagg, Powell, Sammarco, and Roberts; Conover is Faculty/Librarian; Rabalais is faculty/Executive Director; Quay Dortch is adjunct but left some funds which I am spending on Phytoplankton research; Dr. Kastler was senior marine educator but is no longer here; Jenneke Visser is a pass through LUMCON, a Corp of Engineers Science Advisory Committee that she administers under the fiscal umbrella of LUMCON; St. Pe' is BTNEP Director. It is my strong desire to work toward hiring new faculty members to generate new research grants. Dr. Stewart pointed out that the report indicates Dr. Rabalais produces about 51% of indirect cost funding through her research grants. She indicated that about half of that is her generated research funds, with the other half consists of programs like Crest which are administered by LUMCON and might include some Vessel Ops funding that are now showing under Joe Malbrough rather than me. All of that goes back into funding Vessel Operations to fund things like educational costs of using the Acadiana and small boats.

On Page 15 we've provided the Division of Administration Budget presented to the House Appropriations earlier this year. It defines some cuts because of moving categories around which left us with $50,000.00 less. Next on page 18 is this year's budget which is at 3.2 million and next is 3.17 million dollars. This is not the budget that we submitted to Dr. Savoie this summer. He developed a whole suite of budgets for higher education, but Division of Administration is working with the individual universities now instead of Dr. Savoie. Because of those decreases and funding in general has not kept up with inflation some of our performance indicators were modified. Right now we have been asked to send in what we want and also asked to submit with a 5% cut. What is even more disturbing is the universities can raise tuition whereas we, as Pennington, don't have tuition to raise.

Old performance standards on page 19 are in black and new are in red to allow you to determine which were changed. Basically if we receive less salary support we cannot continue to provide as many services and we cannot repair or buy any new boats when they break. I've also modified the Library performance indicators to show there are fewer walk-in and more on-line. Cafeteria expenses exceeded revenues due to half of our dorms still unavailable due to damage from Hurricane Katrina, so I balanced that out putting them both at $115,000.00. We still provide a huge education program by moving toward day programs or outreach because we can't accommodate as many overnight stays as before the storms. We will discuss remediation status later.

When I went to the Appropriations Committee, Representative Lambert, who was chairing the subcommittee on Education, was very excited about LUMCON and asked what we needed and I kept adding the tally came to $694,000.00 based on current needs. When he asked why we had 2 fewer boats on our performance standards -- I replied no money – no boats. Within three weeks I received his letter requesting a 5% budget cut

scenario. Included are his letter and my response. That would calculate to a $158,000.00 cut in state general funds plus the prior $50,000.00 loss for a new budget of basically 3 million. I will give you a better picture and more detail during Executive Session. It would also cut by 5% the BTNEP budget, necessary as matching funds for federal EPA funding. It would reduce acquisitions. We would get even further behind on satisfactory research equipment.

Dr. Hulbert said the new administration's approach to committee structure is disconcerting and just adds to the confusion. You are less able to obtain information. There is so much smoke and mirrors you don't know what is going in. Now the talks are a 2 ½ % cut but there shouldn't be any. We are all using our own staffs focused on our own institutions whereas Nancy is mostly going it alone as far as obtaining funding for LUMCON.

Nancy stated that Regent Harold Stokes attended Open House on Saturday and was very impressed. Nancy suggested that Regents hold a meeting at LUMCON. It has been quite some time since Regents held a meeting at LUMCON.

Kerry St. Pe' said the reduction in State funding comes at a time when we are looking at an increase of $600,000.00 in federal funding for which we need the match of 50/50.

Mr. Clifford Smith indicated that generally members of the Board of Regents are very supportive of LUMCON. He was just not sure how supportive the staff would be and urged Dr. Rabalais to use the Board of Regents to further her cause. He could just not understand the reception she received from Representative Lambert and then almost immediately be asked to cut the budget in addition to the cut that was already requested.

Dr. Hulbert stated that with the new administration and members of the House and Senate many are not aware that LUMCON does not have the ability to raise tuition to cover the cuts in funding as the Universities have although they are lagging behind. We have to make them more aware of the situation and the impact on LUMCON. Dr. Savoie was present when Nancy presented the budget and he said that this was like Legislation 101 because everyone is learning to be a legislator right now.

Dr. Boudreaux moved to accept the LUMCON financial reports as presented; Dr. Hulbert seconded; Dr. Jenkins called for discussion, there was none, the Financial Report is accepted as presented.

Dr. Rabalais moved on the Auditor's findings of the last procedural audit. The results as indicated by the report was that there were no findings. We are required to keep a paper trail in addition to electronic records. As I indicated in my letter to Angele, we would rather not be required to waste paper, but we do our best to produce the papers requested. There has been a move within the finance department to reduce the amount of paper produced. Dr. Jenkins asked for clarification on what a procedural audit entailed. Ms. Boudreaux informed the Board that they determine whether you are

following state rules and regulations in accounting for budget expenditures. Copies went to the State, Regents, and Legislative representatives.

Dr. Jenkins requested a motion to officially express the Board's gratification and satisfaction with the No Findings results of its Procedural Audit. Dr. Stewart moved; Dr. Hulbert seconded - There was no discussion. Unanimously approved; Motion passed.

C. Personnel Summary

The next report is on personnel activity. There have been employee change in position and terminations. There were six terminations. We have always experienced a high turnover in vessel personnel mostly due to inability to keep up with the oil field pay rates. It is the same in all of the NOAA fleet. We can only charge so much for the ship to remain competitive. We are fortunate that we have some very dedicated employees at LUMCON who strive to keep the research programs going. We are tied in our vessel day rates by UNOLS which are funded by NSF.

Dr. Stewart moved to approve the LUMCON personnel report as presented; Dr. Hulbert seconded - No discussion. Unanimously approved; Motion passed.

The next two pages pertain to a hiring freeze. We were fortunate enough to hire some personnel in December when I anticipated this action beforehand. I did attempt to fill the senior marine educator position. The positions on the left were those we asked for. We still have to request approval whether it is from 04 or grant funding. All were approved except for a marine education associate.

D. Annual Report

Dr. Rabalais introduced the 07 Annual Report. After Dr. Dagg resigned without submitting an Annual Report and Mr. St. Pe' served three years as Interim Administrator, we submitted an Annual Report which covered 5 years. Last year it was a more substantial report and this year we went to a report which highlights our achievements. Over 500 copies were mailed to State Legislature, Regents, educational facilities, governmental and community leaders, and universities. It was also sent to the State Depository and is will be posted on our web site. When asked about feedback, Dr. Rabalais stated that other than when she meets someone and they remark that it seems like LUMCON has been busy, there is no official feedback. We are considering developing a shorter, glossier brochure to use for fund raising . Dr. Jenkins remarked that the content was excellent but that he did not think that it was being used efficiently. Dr. Stewart said that what was being produced in his opinion was sufficient for the purpose because most go through it and then toss it. Dr. Rabalais said that is why we did not go to a glossier, more expensive edition. Dr. Hulbert indicated that he receives numerous electronic editions and can't keep up with them and so most are trashed whereas one in print will be looked at. With a flashier, glossier edition we would also have to send a donation envelope.

Dr. Rabalais said that Board of Regents asked her to submit for a development person in our new expanded request to which Clifford Smith indicated that he was in favor of a marketing/development person to market LUMCOM and pursue grants from both government agencies as well as private industry. Most people do not feel that LUMCON is being marketed to its full potential. At one meeting Regent Bruno went ballistic over the fact that Nancy was presenting on behalf of LUMCON and that we do not have an outreach/sales/public relations person on staff.

Dr. Hulbert expressed his disdain that Regents does not promote LUMCON's excellent programs and say what a wonderful asset LUMCON is. They only expouse what will benefit them. LUMCON does have coverage, mostly for its research programs in the local newspapers.

E. Research

Page 31 has a list of new and extended awards. Some represent time extensions only while others show monetary changes.

Dr. Jenkins requested a motion to approve acceptance of the grants as presented. Dr. Keel moved for approval; Dr. Hulbert seconded - No discussion. Unanimously approved; Motion passed.

Dr. Stewart asked Nancy about her federal funding for next year. She replied that her funding was cut by 50%. Dr. Stewart indicated that this was par for funding. Nancy indicated that there are no new starts in ecology this year. NSF is level, but losing against inflation. They are funding fewer projects and cutting ship time. There are joint NIH and NSF funding but not at the usual rate.

Dr. Rabalais informed the Board of the relationship between Crest and LUMCON. LUMCON is the fiscal agent for CREST (Coastal Restoration and Enhancement through Science and Technology). There are 13 member universities throughout Louisiana and Mississippi. It is an earmark. We asked Senator Landrieu for 1.5; she went after 1.7 million and received 1.4 after 1.6 went through NOAA. We have a panel and funding this year. I am working with NOAA to get it to be permanent. It is strong right now but if there is a continuing resolution and no new budget, it will fall by the wayside as it did two years ago. LUMCON's share of the 1.4 million is 17½% overhead. Crest is further explained in the Executive Session Book. It is goverened by an Executive Board consisting of representatives of the 13 members which provides input to Interim Director Doug Daigle who maintains contact with Congress. Nancy was recently elected Chair of Executive Board replacing Bob Cashner in July. Technical Advisory Board gives advice on how science and research should go and works directly with the Director in working with scholars and scheduling workshops. Works with LUMCON as fiscal agent to insure that funding gets to where it should go. We do have faculty interviews ongoing. We had seventeen applicants, with 7 interviews scheduled. I will talk to you further during Executive Session. Those who had tenure before were grandfathered and new are on rolling contract. Our timeline are somewhat

different in that they follow tenure more closely because we are not authorized to grant tenure.

F. Education

On page 33 the University Education activities are listed for your information. The University Program Brochure is included showing courses we offered. We have had more interest in our summer program this year with a later application deadline. Coastal Landscape Photography, Introduction to Marine Ecology, Coastal Field Geology, Marine Field Ecology, and Coral Reef Ecology will be taught. Intro to Marine Science (only two applied so it was cancelled).

LSU, under the School of the Coast and Environment had approval for a new undergraduate degree in Coastal Environmental Science. Some courses are LUMCON courses and LUMCON is being considered as an intensive site for undergraduate education for a semester or intersession. Dr. Ed Laws discussed but did not go into detail. Dr. Laws was here at open house and toured facilities. He has a much better idea of what we have to offer. Nicholls is also considering utilizing LUMCON facilities for its Marine Biology and Environmental Science Master Degrees. We help graduate and seniors with internships at LUMCON. Ed, Jay Cable with the Department of Oceanography and Coastal Sciences and I are talking. This strengthens our ties to the member universities.

Dr. Jenkins interjected that we have a once-in-a-lifetime opportunity as an academic community to lead coastal environmental issues and coastal restoration that we cannot afford to do this in an expedient manner. This is a chance for Louisiana lead the world. We need to stop worrying about who gets credit and where the boundaries are. Dr. Stewart also said that every university needs to step up to the plate on coastal restoration.

There is no K-12 report because Ms. Murt Conover has been so busy with students. We have an ocean literacy program and our Bayouside Classroom is very popular in the middle schools. We had tons of field trips with 3 groups in a row from Webster last week. This program has been adopted by Terrebonne Parish Schools as a requirement for its 8th grade advanced science curriculum. Ms. Conover trains teachers to train teachers for Bayouside Classroom in workshops. We are attempting to convince Terrebonne Parish School Board to give us financial assistance with this very popular program. I am looking for a Senior Marine Educator and Marine Education Associate so we can keep up with the programs we are offering.

G. BTNEP

On Page 39 there are details of BTNEP's activities since the last meeting in September 07. I would like to highlight some of these events. We held our annual Paddle Lafourche which is a 4 day event where people paddle a portion of Bayou Lafourche from Donaldsonville to Larose over a 4 day period. This is the first time that I have paddled the whole trip. 175 attended. Each night we had activities on the bayouside. We do this to promote Bayou Lafourche and its heritage and culture. The Migratory Bird Fstival, a three day event, was held in Grand Isle. We found a new invasive species which spread to Terrebonne Parish; the Island Apple Snail. It grows to 5 pounds. There is a lot of media exposure. The impact is that it feeds voraciously on vegetation and can devastate the marsh. Gretna, the Barataria System, Shriever and Bayou Black. We hope it stays east of the Atchafalaya. It has been a problem in Hawaii and Florida. It has devastated the Hydrilla. We don't know the whole effects of the Snail. Predators are raccoons. We are in contact with Florida researches. They crawl out of the water and lay their eggs in the grass that can be identified by its bright pink color. They pass along the Rat Lung Disease. Federal funding is to rise by $600,000.00 EPA and our match is 50/50. We asked for additional time in lieu of the state funding cut but they refused. BTNEP has a relationship with LUMCON with LUMCON as the fiscal agent. We have had a very good relationship with LUMCON and we have nine employees.

H. Library Report

Our Library report by Mr. John Conover shows recent Library activities. Our performance indicators were changed as reflected by the chart on page 37 which shows the decrease in physical visits to the Library while electronic visits are soaring.

I. Information and Technology

Our IT report is also listed. Dr. Stewart asked about LUMCON's capacity of video conferencing. LUMCON teaches Changing Coastal Oceans to ULL, LSU, Nicholls and Southeastern out of our video conferencing room and we also bring the students down for a week of field trips. Dr. Laws and I also discussed teaching from LUMCON to LSU via videoconferencing. One of the larger awards is from MMS for $215,000.00 to maintain the Atmoshperic Doppler outside. $60,000.00 of that goes to Visala for maintenance. It is our way to continue working with MMS to get the data they are looking for. Los Almos Lab and Chevron Oil have a project with DoD to install lightning sensors on our monitoring stations and offshore platforms to monitor Hurricane generated lightening. In negotiations with LONI and cost required to connect in Schriever. Budget cuts may cut this project. Dr. Hulbert said it cost Nicholls 1.5 million. They are constantly adding facilities. He offered to put Nancy in touch with Larry Howe at Nicholls. Regents has a 50 million request for upgrades.

J. Facilities

We had a meeting in April 2007 and told our dorms would be completed in November, 2007. We had a meeting earlier this year and bids were awarded in the last week or so to the original architect. We opted to do only half at a time. It has taken a bit to get everything done. Downstairs is going to be made flood friendly per plans drawn up by ULL's Architecture department. The light poles will also be installed. We want to dredge and fix our bulkhead, but we are running into red tape with FEMA and Office of Facilities and Planning who want to make sure they are not spending more than they have to. Mr. Simoneaux has been doing a wonderful job of working with both to get these projects completed. We have about $300,000.00 in deferred maintenance for things like the rusted stairwell, air conditioners, sewer plant, and elevators Mr. Rich Griswold increased our share last year after his visit when he viewed the safety issues that needed immediate attention. We are going to install some video surveillance equipment near the ship and storage facility.

K. Vessel Operations

All LUMCON boats including the Pelican, Acadiana, small boats, and canoes are very busy. The Pelican schedule is included (296 days) and Ed says we are oversubscribed and need to send business to other vessels. We are required to have maintenance. This brings me to Clifford's favorite topic, the $100,000.00 request to Capital Outlay for the study for a new vessel which will be a UNOLS ship but housed at LUMCON. We would probably have to retire the Pelican to get the new ship, but we can still use the Pelican. One quarter is Louisiana investigators, mostly Nancy. LDWLF, LSU has some NSF and Department of Navy funded time. Texas institutions come here and use the Pelican for Hypoxia research. LSU through the Hypoxia project investigators Stone, Chun Yun Le, Brian Fry, Gene Turner, and Dubroc Justic use the Pelican for their research. Many of the UNOLS ships are built by NSF. What we can do is be prepared to bid on the next regional vessel, but all of these are far off. Texas has joined us in wanting the next vessel housed here because their last ship fell apart because the main office was irresponsible in maintenance of the vessel, whereas LUMCON has a very good reputation in running the Pelican.

V. Reports and Recommendations of the Executive Board Chair

At this point Dr. Rabalais turned the meeting back over to Dr. Jenkins for the Chairman's report and advised that Dr. Jenkins will be chair at one additional meeting in the Fall. Thereafter the Chair will be passed to ULL. Dr. Joe Savoie will be replacing him on June 1 and will serve for one year. I would also like to thank Dr. Authement for his many years of service on the LUMCON Executive Board. Dr. Jenkins requested that Dr. Rabalais take care of formally thanking Dr. Authement for his service to LUMCON. Dr. Boudreaux asked that the contact list for the Executive Board be changed to reflect Ms. Audrey Dozar as the contact for Dr. Hulbert.

Dr. Jenkins took this opportunity to state that it is time to define LUMCON's role and insure that LUMCON is funded appropriately and make certain that it reaches its potential at Regents. I have such a desire that LUMCON become a Woods Hole but

realize that this will not happen. Why is LUMCON not reaching its full potential. There is a lot of space that is not being utilized at this time. The main problem is funding. The universities haven't abandoned LUMCON and utilize its facilities from time to time. We have multiple stressors from NOAA which is well represented. A major threat to the US is the disintegration of Louisiana's coastal areas. We should have a huge federal presence here. The main focus of LUMCON is offshore and we have been trying to focus more on onshore research, but the money has just not materialized; neither State nor Federal. LSU and UNO researchers have plots of fertilized marsh grass in our back yard. Dr. Jenkins said LUMCON's goal should be collaboration, interaction, cohesion. Dr. Rabalais said that the change from a 13 member Board to a 3 member Board may have dampened the enthusiasm of those that were excluded. We have strong collaboration with them on projects and they have used our equipment, but we are isolated and it does cost a lot of money to get down here right now and is a matter of the amount of their funding.

Dr. Brian Roberts, LUMCON's new faculty hire, indicated that what lured him here is LUMCON's location and being in the middle of all this research. Finding a way to bring in a development person that gets the profile of LUMCON out there to bring in more funding is the first step. Initially it will be an additional cost, but if they are successful in their efforts, the initial cost will be worth it. It will generate more money. We are attempting to get to eight faculty members right now, but that is about as big as we can get. This is an incredibly interesting are to work out of, but getting our name out is most important. My experience is that the research community is more familiar with the individual researchers than they were with LUMCON. Continuing to bring in more people and continuing to have cutting edge facility and bring in more funding so that I can continue my research. Another major factor is the time it takes to build an affiliation with a university because we do not offer degree programs at LUMCON.

Dr. Chesney stated that LUMCON has always been designed to be the sum of the parts. It is the sum of the researchers working not only at LUMCON, but throughout Louisiana in different areas of Marine Science. It is the sum of those parts. LUMCON was never designed to become like a Woods Hole. It would be difficult given that the universities have well developed programs to become anything like a Woods Hole. We can grow and have better synergies. As a faculty member I have always worked to make LUMCON better on several different levels. There are issues on both sides that keep it from being better than it is. It must begin at the Executive Board's level to be effective. Over the years things have actually eroded with regard to use of this facility and interaction between LUMCON proper and some of the universities basically as resentment of the taking over by three universities although it can be argued that these three are the main contenders in Marine Science. That changed the use of this facility by UNO as a prime example. They were much more represented and we had much more collaboration with UNO. The parts are still here, but they are no longer connected. It may be more fruitful to figure out how to make it work in its present structure. Dr. Hulbert said that Legislators are positioning to tinker with our structure. Historically, Regents has not taken a position in terms of the importance of funding LUMCON sufficiently and we have had to continually protect what little funding we

obtained over the last five years. If you reopen the legislation you will be drawing battle lines. The State of Louisiana has not stepped forward and built its Institutions (its flagship university, regional universities, or community colleges). Louisiana needs to seriously recognize the importance of its educational facilities of higher education and support them sufficiently. We need to define the rules of engagement so that they can be understood by all. Extramural grants and contracts should be phenomenal. Dr. Boudreaux advised that about 8 -10 years ago a two day workshop with LUMCON and other personnel with outside consultant and discussed what it being discussed today. The only real change has been the faculty focus on Louisiana issues which will get some support, whereas in the beginning the focus was more international. We need to refresh the vision and get conversation going. Perhaps the new Commissioner of Higher Education can be educated on the purpose of LUMCON, the importance of its location, and its need for funding. Clifford said that the concept of LUMCON is unusual for Louisiana. We must rob funding from somewhere for a person to educate and inform Louisiana about the importance of LUMCON.

Dr. Brooks Keel stated that we need to define the research performed at LUMCON:
Is the same research being performed by other researchers in Louisiana?
Is it supported by Federal funding?
Is it the type of research that coastal Louisiana will be interested in?
Is the research being performed at LUMCON unique to this particular area?
What portion of the research being conducted by LUMCON faculty is directly related to coastal wetlands brown water?

IV. Executive Session

After a unanimous roll call vote, the Board entered into Executive Session at 12:39 a.m.

Dr. Jenkins called the regular session back into order at 1:04 p.m.

On behalf of himself and the Executive Board, he commended Dr. Rabalais on her performance and promotion of LUMCON educational and research initiatives as Executive Director and her recent awards in the field of Science.

Further, he advised Dr. Rabalais, that as discussed during Executive Session, she was to proceed with:

1) Formally convey sincere gratitude and appreciation to Dr. Ray Authement for his many years of devoted service and promotion of LUMCON's educational and research initiatives as a member of the Executive Board on behalf of LUMCON and its governing authority.

2) Authorized Dr. Rabalais to continue the pursuit of faculty candidates along the guidelines set forth in LUMCON's present policies pertaining to faculty as per discussions held during Executive Session.

3) Directed Dr. Rabalais to initiate the process of annual faculty and staff evaluations along procedures and guidelines discussed during Executive Session.

4) Directed Dr. Rabalais to update the Executive Board contact list to represent the present Board members and their current staff.

Dr. Jenkins called for a motion authorizing Dr. Rabalais to act upon the directives stated above. Dr. Hulbert moved; Dr. Boudreaux seconded - No discussion. Unanimously approved; Motion passed.

VII. Adjournment

After determining that there was no further business to discuss Dr. Jenkins requested a motion to adjourn; Dr. Hulbert motioned, Dr. Stewart seconded. Dr. Jenkins adjourned the meeting after thanking the participants for their time.

The LUMCON Executive Board meeting adjourned at 1:20 p.m.

Respectfully submitted:

_____

Dr. William Jenkins, Chair
LUMCON Executive Board

Transcribed by Lillie Wicher, Recorder
Edited by Nancy Rabalais, Executive Director

MINUTES
LOUISIANA UNIVERSITIES MARINE CONSORTIUM
EXECUTIVE BOARD

Friday, September 14, 2007

I. Call to Order

Dr. Stephen Hulbert, LUMCON Executive Board Chairman, called the meeting of the LUMCON Executive Board for Louisiana Universities Marine Consortium to order on Friday, September 14, 2007 in the Executive Board Room at the DeFelice Marine Center located in Cocodrie, LA at 10:20 a.m.

II. Roll Call

LUMCON Executive Board members present for the meeting:

Dr. Stephen Hulbert, Chair
President, Nicholls State University

Chancellor Sean O'Keefe, 1st Vice Chair
Chancellor, Louisiana State University

Dr. David Boudreaux, Nicholls State University
Vice President for Institutional Advancement

Dr. Brooks Keel, Louisiana State University
Vice Chancellor of Research and Graduate Studies

Dr. Robert Stewart, University of Louisiana Lafayette
Director of Research and Sponsored Programs

LUMCON Executive Board members not in attendance:

Dr. Ray Authement, 2nd Vice Chair
President, University of Louisiana Lafayette

Attendance by five of the six Executive Board Members constitutes a quorum.

Guests in attendance:
Dr. Nancy Rabalais, LUMCON Executive Director
LUMCON Faculty: Dr. Ed Chesney, Dr. Brian Roberts, Mr. John Conover
Other LUMCON personnel: Mr. Wayne Simoneaux, Ms. Heidi Boudreaux, Ms. Lora Pride, Ms. Holly Hebert, Mr. Joe Malbrough, Ms. Nicole Cotton, Mr. Christian Chauvin, Mr. Kerry St. Pé

III. Approval of Prior Minutes

Dr. Hulbert asked for discussion on the minutes of the Executive Board Meeting of May, 7, 2007 – there was none.

Dr. Boudreaux moved to accept; Chancellor O'Keefe seconded. The minutes of May 7, 2007 were approved as presented.

IV. Reports and Recommendations of the Executive Director

Dr. Hulbert turned the meeting over to Dr. Nancy Rabalais, Executive Director of LUMCON. Dr. Rabalais welcomed the Board members present.

A. Director's Report

Dr. Rabalais presented the briefing booklet, which outlined developments at LUMCON since the last meeting in May. She indicated some reports were for the Board's information only while others required action. Division personnel were present to help her answer questions.

The Executive Director's report included information on the LUMCON budget, budget negotiations, and Capital Outlay request. Dr. Piers Chapman has resigned as director of the CREST program.

LUMCON will be hosting a Joint Meeting of the LA Senate and House Committee on Coastal Restoration and Flood Protection on October 25 and an all day event CWPPRA site dedication on October 26.

April 26, 2008 has been established as the date for the LUMCON Open House.

The LUMCON Strategic Plan has been submitted.

Dr. Hulbert asked why there was nothing in the Strategic Plan about replacement of the research vessel(s). Dr. Rabalais explained that information about equipment replacement is not included in performance indicators, but rather in Capital Outlay.

B. Financial Summary

Ms. Heidi Boudreaux has assumed the position of Finance Manager and is performing well in that capacity..

LUMCON closed the FY07 budget year with no carryover funds. An overage in the budget of approximately $50,000.00 in utilities will be covered by Indirect Cost Recovery.

The approved FY 07-08 State General Fund budget was presented in the ISIS manner and the other by division of LUMCON. Our budget increase for the year resulted in Dr. Savoie's recognition that LUMCON and the LSU Pennington Center could not raise tuition or fees and that they are not formula funded.

Chancellor O'Keefe asked for explanation on the difference in wages between the 1.6 million in the 06-07 budget and 1.4 million in the 07-08 budget. The apparent $200,000 salary deficit was a spread to Indirect Cost Recovery so that we could maximize the utility expenditures in the State General Funds. Despite the apparent

deficit in salaries, there are more FTEs so that across the board increases will cover all employees.

LUMCON indirect cost rate is set by DHHS, and we have renegotiated a rate of 43% from the 40% established 8 years ago.. A larger increase was possible, but an increase of only 3% is allowed at one time, which is established for a three-year period.

Chancellor O'Keefe moved to accept the LUMCON financial report as presented; Dr. Stewart seconded - No discussion. Unanimously approved; Motion passed.

Included in the briefing book was a letter sent to Rich Griswold with the bound copy of the Capital Outlay request. We had a very productive meeting with Mr. Griswold, other Board of Regent, Division of Administration and Legislative Appropriations staff at the Marine Center. Mr. Griswold intended to increase LUMCON's percentage of the overall deferred maintenance expenditures. Deferred maintenance includes outside stairwells, tower air conditioning, asphalt parking lot, sewer system, and freight elevator.

Regent Clifford Smith was apprised of the new priorities and outline for LUMCON's Capitol Outlay request for FY 07-08. One new item and higher up in the list is the Vessel Operations Storage Building, $90,000, in a non-flood area on State land in Houma. The Marine Ops Building moved down a bit, primarily because of recent knowledge of how slowly a regional vessel might come to the Gulf of Mexico, if at all. This can wait until we receive our $100,000.00 to start the study to replace the *Pelican.* Dr. Hulbert advised that Rich Griswold finalized Capital Requests yesterday and sent it in draft form to the members of the Board of Regents almost immediately so they will have it at their annual meeting. Knowing that Dr. Rabalais was leaving for China within the next day, he stated that he would work with Regent Smith to make sure that LUMCON's Capitol Outlay was followed up on.

Dr. Stewart moved to accept the LUMCON Capital Outlay Request as submitted; Chancellor O'Keefe seconded - No discussion. Unanimously approved; Motion passed.

Dr. Rabalais moved to Indirect Cost Recovery detailed on page 23. This represents how indirect costs were generated over the last year and based on that how much we expect to recover given no change in activity and then how we hope to spend those funds to bring up short-falls in the State General Budget.

Vessels close-out for FY 06-07 showed a very successful vessels operation with regard to money and services we provide.

New grants generated by LUMCON through the end of August, and extensions of grants usually with no additional funds were presented.

Dr. Keel moved to accept the LUMCON New Grants and Extended Grants Funding Reports as submitted; Dr. Boudreaux seconded - No discussion. Unanimously approved; Motion passed.

The letter from the Department of the Treasury; Internal Revenue Service, was presented ending our multi-year battle with the IRS to have the funds derived from the sale of two vessels to the marine property foundation for us to actually spend those funds.

C. Personnel Summary

Dr. Rabalais indicated that the Personnel Activity Summary was pretty straightforward showing new employees, resignations, and position changes. Dr. Jessica Kastler is resigning at the end of September, there are empty slots for a Marine Education Associate that was never filled and a Public Information Officer. Regent Mike Bruno said he will support a LUMCON development person to help raise funds external to LUMCON. Dr. Rabalais introduced Dr. Brian Roberts, LUMCON's new Assistant Professor.

Chancellor O'Keefe moved to accept the LUMCON personnel report as presented; Dr. Stewart seconded - No discussion. Unanimously approved; Motion passed.

D. Annual Report

Dr. Rabalais presented the FY 05-06 Annual Report, which was due last December. Our intent is to have the FY 06-07 Annual Report finished closer to the end of December.

E. Research

The board approved the re-advertisement of two remaining coastal research faculty positions.

Dr. Piers Chapman is presently the director of the CREST program office, but is leaving LSU shortly. In May, Bob Cashner stepped down as Chair of the CREST Executive Board and Dr. Rabalais was chosen to replace him in July 2007. We have developed an ad for a permanent Director and Mr. Doug Daigle is interim administrator. Dr. Stewart stated that while the concept of CREST is a good one, getting traction in the Federal budget has been particularly difficult.

F. Education

The results of the 2007 Summer Program and the LEAD Camp were presented. Dr. Rabalais has posted the advertisement for Senior Marine Educator to replace Dr. Kastler and will also work to fill a Marine Education Associate position.

G. Environmental Monitoring Station

The Environmental Monitoring Station in Terrebonne Bay was rebuilt and prepared for instrumentation after a few instances with barges. There are two, one on the old station and one on the new station. The hypoxia research program continues to work

with LSU WAVCIS on offshore stations to combine meteorology, physical oceanography, and oxygen conditions. The atmospheric Doppler profiler will continue under LUMCON oversight for the next three years with funding from the Minerals Management Service.

H. BTNEP

Kerry St. Pé provided the update on BTNEP activities.

I. Facilities

We are still repairing the facility damages from Hurricanes Katrina and Rita. Project worksheets are at Office of Facilities and Planning. The architect is working with the contractor to put together bids to get these things finished, which are the apartments and dorms, downstairs lobby mitigation, Fourchon bulkhead and lighting. ULL's Dr. Thomas Sammons and students of the College of Design provided two architectural renderings of how the downstairs lobby might be configured to be flood friendly.

J. Vessel Operations

The *R/V Pelican* compares well with the other vessels in the UNOLS fleet, and is the most used vessel in the regional class and smaller. Good work and services entice scientist to use the *Pelican.* There are 270 days pending for 2008. .

IV. Executive Session

The Board entered into Executive Session at 11:23 a.m. Dr. Hulbert called the regular session back into order at 12:21 p.m.

With regard to salaries, the Board approved Dr. Rabalais' list of salaries as presented with the following changes: Dr. Rabalais' salary increase is to be 5%; Dr. Jessica Kastler's salary increase is 0; Mr. Kerry St. Pé's is 5%.

Dr. Stewart moved to accept the salary increases as presented with the stated changes; Dr. Boudreaux seconded - No discussion. Unanimously approved; Motion passed.

The Board directed that LUMCON stay within the policies of the University members of the LUMCON Board and to develop and implement as appropriate post tenure reviews.

Chancellor O'Keefe moved to accept the development of a policy on post tenure reviews as stated; Dr. Keel seconded - No discussion. Unanimously approved; Motion passed.

The Board authorized the Executive Director of LUMCON to begin preliminary proceedings and discussions on an adjunct faculty member to be associated at her discretion, contingent upon the professional courtesy of notifying the University of record where the Adjunct Professor resides at present to make sure they are apprised of this activity. They further instructed Dr. Rabalais to wait on implementation of the final determination on that matter once the courtesy call has been conducted and Board approval thereafter. The courtesy call will be made by the incoming Chair, Chancellor Sean O'Keefe.

V. Reports and Recommendations of the Executive Board Chair

The Board commended Dr. Rabalais on the exceptional quality of Dr. Rabalais' performance as Director of LUMCON and the quality of reports presented to the Executive Board.

VI. Rotation of the Executive Board Chair

Dr. Rabalais thanked Dr. Hulbert for his service as Chair of the LUMCON Executive Board during the past year and officially recognized that at the conclusion of this meeting, the Chair will rotate to Chancellor O'Keefe for a period of one year.

As his first order of business as the Chair of the LUMCON Executive Board Chancellor O'Keefe inquired about the next meeting. Dr. Rabalais indicated that during his last term as Chair he set an aggressive agenda in that the Board would meet more than twice a year. Chancellor O'Keefe suggested that in the spring the Executive Board could meet the afternoon on Friday April 25, 2008, the afternoon before Open House.

VII. Adjournment

Dr. Boudreaux moved to adjourn, Dr. Keel seconded. Chancellor O'Keefe, after determining that there was no further business to discuss adjourned the meeting after thanking the participants for their time.

The LUMCON Executive Board meeting adjourned at 12:31 p.m.

Respectfully submitted:

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Dr. Stephen Hulbert, Chair
LUMCON Executive Board

Transcribed by Lillie Wicher, Recorder
Edited by Nancy Rabalais, Executive Director

MINUTES
LOUISIANA UNIVERSITIES MARINE CONSORTIUM
(LUMCON) EXECUTIVE BOARD

Tuesday, May 8, 2007

I. Call to Order

Dr. Stephen Hulbert, LUMCON Executive Board Chair, called the meeting of the Executive Board for Louisiana Universities Marine Consortium to order on Tuesday, May 8, 2007 in the Executive Board Room at the DeFelice Marine Center located in Cocodrie, LA at 2:28 pm. He requested the roll call.

II. Roll Call

Lillian Wicher, the recorder called the roll.

LUMCON Executive Board members present for the meeting:

Dr. Stephen Hulbert, Chair
President, Nicholls State University

Dr. Ray Authement, 2nd Vice Chair
President, University of Louisiana Lafayette

Dr. David Boudreaux, Nicholls State University
Vice President for Institutional Advancement

Dr. Brooks Keel, Louisiana State University
Vice Chancellor for Research and Economic Development

Dr. Robert Stewart, University of Louisiana at Lafayette
Director of Research and Sponsored Programs

LUMCON Executive Board members not in attendance:

Chancellor Sean O'Keefe, 1st Vice Chair
Louisiana State University

Attendance by five of the six Executive Board Members constitutes a quorum.

Guests in attendance:
Dr. Chuck Wilson, Dr. Robert Twilley, Louisiana State University
Mr. Clifford Smith, Board of Regents
Dr. Nancy Rabalais, LUMCON Executive Director
Mr. Kerry St. Pé, Director BTNEP
LUMCON Faculty: Dr. Ed Chesney, Dr. Rodney Powell, Mr. John Conover
Other LUMCON personnel: Ms. Heidi Boudreaux, Mr. Wayne Simoneaux, Mr. Joe Malbrough, Ms. Danielle Richardi, Dr. Nazan Atilla, Ms. Nicole Cotten, Mr. Russell Martin, Ms. Lora Pride

III. Approval of Prior Minutes

Dr. Hulbert asked for any discussion on the minutes of the Executive Board Meeting of September, 2007 – there were none.

Dr. Authement moved to accept; Dr. Boudreaux seconded. The minutes of May 8, 2007 were approved as submitted.

IV. Reports and Recommendations of the Executive Director

On noting his upcoming retirement, Dr. Rabalais congratulated Dr. Authement on being the longest tenured member of the LUMCON Executive Board as well as the longest tenured President of a Louisiana University.

A. Director's Report

A report outlining several major personnel moves as well as her activities as Executive Director of LUMCON and in the science community since the last meeting is included in the booklet.

At the end is a description of the Acadiane presentation on display at LUMCON before it continues its tour around the State. Ribbons extending from the tower to the first floor of LUMCON represent the tidal changes in the Bay of Fundy.

The Board of Regents LUMCON Committee will be meeting on May 23 at which Dr. Rabalais will make a presentation. LUMCON along with other higher education groups are presenting budgets to the House Appropriations Committee on May 15.

Dr. Stewart inquired about the standing water in the parking lot, which Dr. Rabalais explained as leakage from drainage from the downstairs fisheries laboratory.

B. Financial Summary

Mr. Bill Hebert, LUMCON's Financial Manager, resigned in early January. We initiated a search for a replacement and during that period, Ms. Heidi Boudreaux and Dr. Rabalais have been struggling through every detail of the financial department and figuring most out. Ms. Heidi Boudreaux was recommended as the new LUMCON Finance Manager.

The current status of the 06-07 Budget was presented. With 25% of the fiscal year remaining we are in a good financial state. We are presently running about a $15,000 per month overrun on utility charges, which is coming out of indirect funds to cover the shortage in State funds. Indirect cost recovery is sufficient to support these

overruns, but they should be covered in the State budget so that ICR can be used more effectively.

Dr. Stewart inquired if Dr. Denise Reed is still doing research at LUMCON and if any of her research dollars go to LUMCON. Dr. Rabalais said that although Denise sometimes operates out of LUMCON in her capacity as an adjunct professor, her research funding is maintained within UNO.

The FY07 budget for Indirect Cost Recovery was calculated from the average 2006 ICR. Much of the LUMCON indirect cost recovery goes to support the IT department, Education department, portions of salaries of some employees, operating expense overruns such as utility bills, and summer programs. Enhancements to the LUMCON budget are needed to fully support the education and IT staffs. Indirect cost recovery was increased in early 2007 to 43% of modified total direct (excludes vessel rental, equipment, and ICR on amounts over $10,000 of a subaward). We could have increased the ICR more, but only 3% is allowed at a time. We are in the range of everyone else, probably a little less, at least for marine labs competing for similar funding.

Dr. Stewart moved to accept the LUMCON grants as presented; Dr. Boudreaux seconded. No discussion. Unanimously approved; Motion passed.

The budget proposed for FY07-08 was presented as submitted to the Board of Regents; the House Appropriations Committee. The slight increase was due to Dr. Rabalais' meeting with Dr. Savoie, Mr. Vandal and system heads in January, and pointing out those non-formula funded institutions, such as LUMCON, do not benefit from increases that are across the board for formula funding nor does it collect tuition and fees that can help makeup shortfalls. This affects the Pennington Center as well. Some increases were in the faculty dedicated fund and staff salaries, but were insufficient to cover all LUMCON employees. The state-funded LUMCON budget increased from $2.9 to 3.2 million. Insurance and auditor fees have gone up, and LUMCON will be audited this year. Some items that used to be in dedicated funds have rolled over to state general. It may look like an increase, but it really is not. Dr. Authement asked if LUMCON had been included in the 5% faculty increase. Dr. Rabalais indicated yes, but not for the full amount across the board; it is discretionary. The proposed budget brings LUMCON almost back to pre-Katrina levels with inflation. The LUMCON proposed budget is in line with Dr. Savoie's strategy for an overall increase in higher education funding. Dr. Authement stated the Executive Board needs to maintain LUMCON's inclusion in all the provisions of the state general budget proposal, such as the $1,500 raise for employees. Dr. Rabalais said this was supposedly included in the budget, but it does not cover it fully.

C. Personnel Summary

Dr. Rabalais introduced Ms. Heidi Boudreaux her recommendation for Finance Manager of LUMCON, effective immediately. She served as Interim Finance Manager since Mr. Hebert's departure. A new Human Resources Manager will be

hired. Joseph Malbrough was promoted to Marine Superintendent. Dr. Chris Finelli, Associate Professor, officially departed LUMCON in January for a position at the University of North Carolina at Wilmington. He remains as an Adjunct Associate Professor to oversee the completion of a Ph.D. student at LSU.

Dr. Authement moved to accept the LUMCON personnel report as presented; Dr. Boudreaux seconded. No discussion. Unanimously approved; Motion passed.

D. Research

:LUMCON advertised for three coastal research faculties in September with a closing date in December. Three candidates were interviewed in March. Dr. Hulbert and Dr. Rabalais discussed the candidates that were supported by the LUMCON faculty. For the record, Dr. Hulbert said that Dr. Rabalais sent candidate resumes to Executive Board members and asked our opinions. Dr. Hulbert instructed Dr. Rabalais to begin negotiations with the three candidates: Dr. Brian Roberts of Oakridge National Laboratory; Dr. Dianne Greenfield of Monterey Bay Research Aquarium; Dr. Jennifer Edmonds from University of Georgia at Athens. Dr. Edmonds recently declined the offer. Negotiations with Dr. Roberts and Greenfield are ongoing. We, at most, will fill two positions by the fall if both are agreeable to coming to LUMCON. She requested permission to re-advertise for the third position.

Dr. Authement moved to grant permission to advertise, Dr. Stewart seconded. No discussion. Unanimously approved; Motion passed.

E. Education

Education was reorganized at the beginning of the year to more firmly define responsibilities for K-12, teachers, formal public education, and University education programs. Ms. Nicole Cotten is in charge of University Education programs. Dr. Kastler is in charge of K-12, teacher and formal public education. There have been numerous groups through the LUMCON Marine Center since last September. Current enrollment for summer courses is: Coastal Landscape Photography – 16; Introduction to Marine Zoology – 10; Marine Invertebrate Ecology – 5; Marine Fish Ecology – 9; and Wetland Vegetation – 4. Qualified students are supported by room and board scholarships through LUMCON and we also offer internships.

F. Information and Technology

Included is a report concerning advances in information and technology. A 5-year annual report was presented. It covers the period of FY01-FY05, when no reports were completed. The annual reports will return to a regular schedule. A public outreach strategy of sending photos of classes at the Marine Center to legislators from that area is being developed. Mr. Clifford Smith indicated the State of Louisiana really does not fully utilize LUMCON to its full potential, mostly because many people are unaware of LUMCON and its programs. He stressed there should be more

advertising of LUMCON's research and education initiatives. He is working towards having a Board of Regents meeting at LUMCON.

G. BTNEP

A report of activities was included. Mr. St. Pé discussed the outlook for coastal restoration and flood protection in the current CPRA plan. Bitnet's federal budget for 07 is currently cut, as is the State portion. EPA is not generally viewed as a coastal agency. The Ocean Commission Report recommended that Naps be moved to NOAA, a move supported by the Association for Naps. For Dr. Keel's information, Dr. Rabalais advised that at one time the Louisiana Department of Environmental Quality was the agency over BTNEP. Several years ago BTNEP was put under the direction of LUMCON. LUMCON is the fiscal agent for BTNEP.

H. Library

Mr. John Conover presented updates on the Library in a prepared report. New accessions have been acquired from other collections. Journal subscriptions continue to escalate, along with all the electronic search services. It is a continual struggle to fund the Library.

I. Facilities

Mr. Wayne Simoneaux presented an update on the prepared report. The most important item was a meeting planned with FEMA, Facility Planning, Architects, and Contractors is rescheduled for tomorrow to define mechanisms and a time line for the much needed permanent repairs, both at LUMCON and at Fourchon, following damage from 2005 hurricanes. Permanent repairs remaining include about 50% of the dorm rooms, the downstairs lobby and display area (to be mitigated), the bulkhead at the Fourchon Field Lab, screening in the downstairs portion at Fourchon, and light poles. The estimated cost is between $500,000 and $700,000.

Nancy said that as far as research, the facility is fully functional. Our education programs are really hampered, although the education department has been more involved in outreach programs. If the students cannot come to the Marine Center, the education staff goes to them, especially with the local schools.

Ideas for mitigating the downstairs lobby have been discussed with LSU School of Design faculty members and others, but no concrete plans have been prepared. Dr. Rabalais has also been informed that ULL has a very good Design School. Dr. Authement said that LUMCON should contact Tom Sammons to see if he would be willing to take the lobby redesign on as a class project.

J. Vessel Operations

A full report of the research vessels and small boats was provided in the meeting documents. The *Pelican* is estimated to be at sea approximately 238 days in 2007.

The *R/V Acadiana* also remains busy with research and education trips. The *R/V Eugenie*, which LUMCON was operating as a bareboat charter for Tulane, was sold by Tulane to a private individual at the end of January 2007, so that Dr. Rabalais' request that it be removed from LUMCON by that date was met. Mr. Joe Malbrough provided information on the Regional Class Vessel, which amounts to NSF not having adequate funds for two additional regional class vessels in the fleet. One may be funded for the Atlantic with work in the Gulf. Mr. Malbrough and Dr. Rabalais also had discussions with Dr. Bob Stewart in Lafayette with Texas A&M at Galveston officials concerning their attempts to secure a regional vessel. Delaware built their own vessel along design guidelines so that UNOLS would have no trouble including it into the UNOLS fleet. A description of the University of Delaware's *R/V Sharp* was provided along with its $20 million price tag.

Dr. Rabalais reminded the Board that there is a life expectancy on the *Pelican* of 15 years post re-fit, and there is no visible movement towards another regional vessel in the Gulf for a very long time. Because it takes 7-8 years to get something funded through Capital Outlay, now is the time to get started on a state-funded research vessel. Dr. Authement indicated that in his opinion it was time that Louisiana approached NSF with matching dollars from the state in the form of Capitol Outlay. Mr. Clifford Smith agreed to accompany Dr. Rabalais to talk to Reggie Dupre concerning the need for another research vessel at LUMCON.

V. Reports and Recommendations of the Executive Board Chair

Dr. Hulbert said that his only comment is that the Chair will be transitioned to LSU after the Fall meeting for a term of one year to get back on cycle. When he inquired if an Executive Session was required, Dr. Rabalais indicated she had personnel issues to discuss with the Board in Executive Session.

Dr. Authement moved that the Board enter Executive Session; Dr. Boudreaux seconded. All guests with the exception of Dr. Rabalais were asked to leave the room.

The Board entered **Executive Session** at 3:45 p.m.

The regular meeting of the Board reconvened at 4:18 p.m.

Dr. Hulbert reported that during Executive Session, evaluation of employees was discussed in terms of salary and compensation. The process was discussed, not individuals.

Dr. Stewart moved that the Executive Director be granted flexibility to determine salary increases based on evaluation of productivity of faculty based on research, education and service. Dr. Boudreaux seconded based upon the premise that evaluations be consistent with last year's review in terms of procedure. Vote was unanimous; Motion carried.

VI. Other Business

Dr. Hulbert inquired if there was anything else to come before the Board. There being no further business, he called for a motion for adjournment.

VII. Adjournment

Dr. Authement moved to adjourn, Dr. Stewart seconded. Dr. Hulbert adjourned the meeting after thanking the participants for their time and participation.

The LUMCON Executive Board meeting adjourned at 4:23 p.m.

Respectfully submitted:

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Dr. Stephen Hulbert, Chair
LUMCON Executive Board

Transcribed by Lillie Wicher, Recorder
Edited by Nancy Rabalais, Executive Director

MINUTES OF THE
LOUISIANA UNIVERSITIES MARINE CONSORTIUM
(LUMCON) EXECUTIVE BOARD
September 28, 2006

I. Call to Order

Dr. Ray Authement, LUMCON Executive Board Chairman, called the meeting of the Louisiana Universities Marine Consortium Executive Board to order on September 28, 2006 at 2:00 p.m. in the President's Conference Room at the Nicholls State University in Thibodaux, LA and requested the roll call.

II. Roll Call

The roll was called:

LUMCON Executive Board members present for the meeting:

Dr. Ray Authement, Chairman
President, University of Louisiana Lafayette

Dr. Stephen Hulbert, 1st Vice Chair
President, Nicholls State University

Dr. Robert Stewart; University of Louisiana Lafayette
Director of Research and Sponsored Programs

Dr. David Boudreaux; Nicholls State University
Vice President for Institutional Advancement

Absent from the meeting:

Mr. Sean O'Keefe, 2nd Vice Chair
Chancellor, Louisiana State University

Dr. Chuck Wilson, Louisiana State University
Interim Vice Chancellor of Research and Graduate Studies

Four of the six Executive Board Members attended and constituted a quorum.

Guests in attendance:
Dr. Nancy Rabalais, LUMCON Executive Director, Mr. Kerry St. Pé, BTNEP Director
LUMCON Faculty: Dr. Rodney Powell, Mr. John Conover; LUMCON Librarian, Dr. Jessica Kastler; Marine Education Instructor
LUMCON Staff: Mr. Wayne Simoneaux, Facilities Supervisor; Mr. Joe Malbrough, Port Captain, Mr. Chuck Guidry, Vessel Operations Assistant

III. Approval of Prior Minutes

Dr. Authement asked for discussion or objections before approval of the minutes of the Executive Board Meeting held on May 9, 2006. Dr. Hulbert moved to adopt the minutes as presented; Dr. Boudreaux seconded. No discussion or objections. **The minutes of May 9, 2006 were adopted as submitted.**

IV. Rotation of Chair of LUMCON Executive Board

Dr. Authement, according to the By-Laws of LUMCON, turned the chairmanship over to Dr. Hulbert. Mr. Sean O'Keefe will become 1st Vice Chair, and Dr. Authement, 2nd Vice Chair. Dr. Hulbert assumed the role of Chair of the LUMCON Executive Board.

V. Reports and Recommendations of the Executive Director

A. Director's Report

Dr. Hulbert turned the meeting over to Dr. Nancy Rabalais, Executive Director of LUMCON.

Dr. Rabalais welcomed the Executive Board Members and indicated that the booklet contained a substantial amount of information, some for information and other for discussion.

Two items of note are:

1. JSOST (Joint Subcommittee on Ocean Science and Technology) research priorities for the next decade. A series of meetings and review are being conducted for this important document, and Dr. Rabalais is involved.

2. There are several policy changes and updates completed and others underway. Some are included in the briefing book.

B. Financial Summary.

End of the fiscal year 05-06 state budget accounting was provided and indicated that State General Funds were depleted. Budget shortfalls were funded with Indirect Cost Recovery funds. Other documents outlined end of the fiscal year accounting of vessels, auxiliary funds, and indirect cost recovery by month and principal investigator.

> ***Dr. Stewart asked why all State general funds were depleted. Dr. Rabalais indicated that LUMCON is required to zero balance the State portion of its budget and that shortfalls for utility bills and library acquisitions were covered by Indirect Cost Recovery funds.***

The Operating Budget for FY 2006-2007 totaling $2,975,217 was presented as submitted to the Division of Administration. A plan for expenditures to be covered by Indirect Cost Recovery (approximately $370,000) was incorporated into the financial plan for FY07. Dr, Rabalais noted that overall expenditures for utilities continue to outstrip the funds provided by the state, budget cuts incurred following the hurricanes have not been fully recovered, and state funding is not keeping up with inflation

Dr. Hulbert wanted to know if LUMCON had been hit with the recent risk management benefit cost increase. Dr. Rabalais confirmed that this was the case, along with increased charges for fringe benefits and incomplete funding of expected faculty salary dedicated funds.

The vessel operations budget at the end of FY06 was presented. The overall budget went from a <$56,381> to $17,132 surplus. The *RV Pelican* budget is the largest and supports small boat overages and educational rates for the *RV Acadiana* and small boats. Cafeteria and dormitory ancillary funds were less for FY06 because of limited ability to house visitors due to damaged dormitories, but the funds is in a positive balance.

Dr. Stewart motioned, Dr. Authement seconded to approve the FY 2006 – 2007 budget as presented. Dr. Hulbert asked if there was any detail on faculty salary increases. Dr. Rabalais indicated faculty and staff salary information was included in the Executive Session section. No further discussion ensued, no objections. The budget was approved as presented.

The results of the Legislative Auditor's Compliance Audit of LUMCON were presented. There were no findings, compared to a single finding in 2004. Two issues (an ongoing investigation and an advisory opinion she sought from the Louisiana Board of Ethics about potential nepotism in hiring personnel on the *Pelican*) were still pending when this audit was written.

New and extended research grants through September 15, 2006 totaling $2,527,765 were presented. This includes a large pass-through CREST award and vessel operations grants. Dr. Rabalais' hypoxia research award ($700,000 for 3 years) includes about 20 days of funding for the *RV Pelican* per year.

Dr. Hulbert requested a motion to approve the grants report as presented. Dr. Stewart motioned, Dr. Authement seconded. Dr. Stewart asked if these were all new grants.

New grants are listed in the top part and renewals were in the second part. The Annual Report represents all grants for the past five year period, separated into research and education and also LUMCON as a fiscal agent for BTNEP to delineate the difference.

Dr. Boudreaux inquired about grants submitted but not funded and those pending in the grant process. Dr. Stewart noted that the "New Awards" document does not fully show grant funding and efforts.

LUMCON has a high rate of submission and estimated to be about 25-30% success rate. Dr. Rabalais will provide a more detailed accounting of this. Dr. Rabalais indicated that the Indirect Cost Recovery fund report showed that level of activity for individual faculty members. CREST falls under Dr. Rabalais. BTNEP is a separate line. Dr. Rabalais is still carrying some Dortch Grants.

Dr. Authement inquired if any of indirect cost recovery was returned to the principal investigator. Dr. Stewart voiced his desire to see a portion of the indirect cost money returned to the faculty.

Dr. Rabalais indicated that some was returned indirectly in free use of LUMCON's phones, photocopying, printing, fax, vehicle use, and postage. At one time the Director returned a portion of the indirect cost recovery to the PI, but that only lasted a year. LUMCON also provides match funds for equipment proposals. Dr. Rabalais said that indirect cost recovery supports more than half of the education department, two-thirds of the IT department, part of the finance department, and part of the cafeteria and dorms, with additional indirect benefits for the researchers. Until the LUMCON budget was cut in FY06, funds were available for limited faculty supply and travel. Dr. Rabalais indicated that if there were to be indirect cost recovery return, then the support of researchers' needs, for example in photocopying, telephone, and postage, would then be charged to grants as is common in most universities. The current arrangement has worked, but could be revisited.

Dr. Stewart inquired what the strategy was for key proposal to have a writer or editor review the proposal before submission. Dr. Stewart said that if LUMCON had a larger appropriation support for the program itself at LUMCON, that faculty could be assisted with a writer or editor support in developing a document.

Dr. Rabalais indicated that there was not always time to review the proposals, but that larger efforts always entailed closer scrutiny.

Dr. Hulbert asked if there was any further discussion, none ensued. Being no objections, the New and Extended Research awards were approved as presented.

The Capital Outlay plan for 2007-2008 basically repeats former proposals. Given the post hurricane rebuilding needs, there is little chance that our requests would be granted in the coming fiscal year.

Dr. Hulbert suggested LUMCON contact Clifford Smith to get some support in the long run with Regents and others to start doing some things at LUMCON. Dr. Stewart indicated that Regents was presently working on Capital Outlay. Dr. Hulbert stressed that it was time to apprise Clifford of LUMCON needs, otherwise LUMCON would get nothing.

Dr. Rabalais will follow up on this.

Dr. Boudreaux referred to a LUMCON Regents Committee.

Dr. Rabalais addressed the committee in spring 2006. Bob Steward and Bill Wilson attended, and we received a good response and a lot of interest, including the need to have the Board of Regents meet at LUMCON in the future.

C. Personnel Summary

Ms. Heidi Boudreaux, LUMCON's personnel officer, submitted a report that outlines personnel changes from April through September 2006. A critical new hire is a cafeteria/dorms utility laborer to help the overworked staff; funds are from ancillary fees. Important vacancies are a database specialist, science writer, marine educator, senior facility technician and assistant

director of operations and facilities. Searches are underway for all positions or modified positions. Dr. Rabalais and Mr. Simoneaux are developing a plan to replace the senior facility technician by promoting from within the staff and providing two individuals with training, new responsibilities and increased salary. Dr. Rabalais requested permission to advertise for a vessel operations superintendent to replace Mr. Rabalais who retired on August 3, 2006. Presently Joe Malbrough., Chuck Guidry, Brenda Babin, and Dr. Rabalais are handling Vessel Operations activities. Dr. Rabalais presented a revised Organizational Chart that replaces an Assistant Director for Operations and Facilities with equal responsibilities for Marine Center Superintendent and Marine Operations Superintendent, reporting directly to the Executive Director. The proposed organizational chart is part of the LUMCON budget proposal for FY07.

Dr. Hulbert asked if he should entertain a motion to accept at this time or wait until Executive Session. Dr. Rabalais indicated that at some point the Board would need to acknowledge that these personnel changes have been made and give her the authority to conduct a search for a Marine Operations Superintendent. Dr. Authement moved to accept the Organizational Chart as presented, Dr. Boudreaux seconded; no discussion, motion passed to approve the organizational chart.

Dr. Rabalais said the other major personnel issue was the need to hire more faculty and discussion on that would be entertained during the Executive Session.

Policy Updates

An Accepted Use of Computers policy was developed and approved as required by the Legislative Auditor.

A revised Hurricane Procedures Plan is in effect with new plans for emergency contact. Discussion ensued concerning when to evacuate and for what level storm, keeping employees out of danger, visitors at the Marine Center. Mr. Simoneaux, Vessel Operations, Marine Education and the Executive Director work together to follow the procedures for securing the facility and evacuating the premises. The evacuation depends on the speed and location of the storm, because water levels may rise well ahead of landfall. Dr. Rabalais said that personnel are not at any time put in any danger of loss of property or life and that we try to make sure they get home in time to secure their own property and families.

A consistent compensatory leave policy for unclassified staff has been developed in accordance with State of Louisiana labor laws and regulations. An issue that keeps coming up are differential ways people obtain overtime and compensatory time at what level. This policy follows state guidelines and had input from other universities in its development. The Employee Handbook is being updated. UMCON employees also need to be aware of visitor policies consistent with the LUMCON handbook and what visitors should be told by employees.

Dr. Hulbert asked if any of these policies have been approved by the Board and in his opinion any that pertained to personnel should be approved by the Board. Dr. Authement stated personnel policies are mandated by the State laws.

D. Marine Education as presented.

E. BTNEP Report as presented.

F. Library Report

There is a continual battle of rising journal and library costs with no increases in the State General Budget. Many of the journals are becoming electronic with additional cost for paper copy. This does not, however, reduce the subscription costs. The LUMCON Library is a unique asset in marine sciences and is used by staff and many visiting researchers, students and interested individuals.

G. Facilities

Mr. Wayne Simoneaux presented information on the continuing hurricane repairs, FEMA, and extended maintenance needs. An updated fee schedule for housing and meals was provided.

H. Vessel Operations

Pelican
The *Pelican* has been through stability and incline tests. The new HiSeasNet is a much needed asset but requires more work to make it fully functional. UNOLS activities were historically handled primarily by Mr. Steve Rabalais. With his retirement, Dr. Rabalais, Mr. Malbrough, and Mr. Guidry are handling this aspect together, along with the submission of the many NSF reports and proposals. The *Pelican* continues to be used for many days at sea.

Acadiana
The Acadiana is working more and more due to the efforts of Mr. Malbrough. Rates were increased for its use, use by private industry, and education rates (with continued waiver of partial costs). Small boat rates were also increased, with waivers for educational uses.

Eugenie
The *Eugenie*, owned by Tulane University, is still being maintained, berthed and operated by LUMCON.

Marine Foundation
Bill Wilson, John McDermott and Steve Rabalais met with the IRS in Washington DC to get the IRS ruling we need to release marine foundation funds acquired from the sale of two donated vessels. The release of the funds is still pending. There is another donated boat that might have been worth $25,000.00 at one point, but is now deteriorated and will be disposed of.

Regional Class Vessel
There has always been a huge enthusiasm by the Executive Board to get the new vessel at LUMCON. Texas A&M University has put together a consortium ($!50,000 per member in funds or ship usage) to bid on the regional class vessel for the Gulf. LUMCON was excluded from that meeting, but would not have been able to finance such an involvement. Dr. Rabalais expressed hesitancy in further pursuing a regional class vessel at this time, because of change in

the type of vessel being considered and the logistical hurdles, the uncertainty that the vessel would come to the Gulf of Mexico, ambivalence of LUMCON staff in pursuit of the vessel, and change in staff support. It is also unknown at this point what LSU's intentions are concerning the consortium that Texas A&M University is building.

Dr. Hulbert said that LUMCON had a great advantage in the possibility of getting the regional research vessel. Everything is in our favor and we don't have to worry about any other universities. Dr. Authement said that if LUMCON doesn't purse the vessel LUMCON will become second fiddle in the Gulf marine science community and we will see the demise of this consortium. Dr. Hulbert insisted that a LUMCON proposal is necessary, but is concerned with unknown LSU intentions.

Dr. Authement moved that LUMCON remain active as a candidate and to be prepared to aggressively pursue the RFP on the UNOLS regional vessel. Dr. Boudreaux seconded. Dr. Hulbert asked for any further discussion, there was none. No opposition. The motion for the Director of LUMCON and her staff, based on LUMCON's reputation in administering the Pelican, to aggressively move ahead on the acquisition of the UNOLS vessel and obtaining funding to pursue LUMCON's operation and administration of the vessel was so ordered.

I. Additional Reports

The Annual Report Fiscal Years 01 – 05 was presented. These are supposed to be on an annual basis with the report due in December for the preceding fiscal year. We plan to make broad distribution of this 5-year report and return to an annual reporting basis as legislated.

VI. Chairman's Report

A. Policies Concerning Faculty Appointment, Promotion and Contract Renewal

The document was developed by the LUMCON faculty, vetted and revised several times. It was forward to Executive Committee members prior to this meeting. The document is consistent with our promotion and tenure document that still stands and is consistent with the tenure review process on a six year schedule. The proposed system provides an initial appointment of three years with internal reviews during that period and a determination at three years if you remain at LUMCON. After six years there is an external peer review series with appointment to Associate Professor level for six years, or one-year terminal contract. External peer reviews will continue at six-year intervals with promotion, no promotion but reappointment, or one-year terminal contract. All faculty are reviewed by the Executive Director annually.

Dr. Stewart indicated that most of the rolling contracts they have start out with a first five years. After that it progresses at five-year periods unless there are compelling reasons not to do so.

Dr. Rabalais said that the proposed document is more similar to typical review procedures and times consistent with tenure at a university. LUMCON is hesitant to continue providing funding for five more years in a rolling contract when a faculty member is not being productive. The criteria for review at the six-year interval are consistent with university tenure policy.

Dr. Authement moved that the Board approve the policy for appointment of new untenured faculty positions. Dr. Boudreaux seconded. Dr. Authement asked for further discussion, there was none. Motion approved.

The next item was the faculty ad which also went out to the Executive Committee. It is very broad on expertise, but focused on coastal research. We have three positions and the areas of interest are phytoplankton ecology, wetlands science, and biogeochemistry. Dr. Rabalais requested approval to proceed with the search.

Dr. Hulbert advised a vote was not necessary, but that everyone was in agreement and approval was granted to advertise.

A Memorandum of Understanding about care for animals in research is being required by LSU for any funds that pass through or come from their institution. Dr. Rabalais expressed concerns about unnecessary restriction, the inclusion of education, and the inclusion of non-research, non-fish organisms (the primary point of concern at LUMCON). We are working with the LSU group but are worried that any funds that pass through LUMCON will require further agreements with other universities. Jim Bates will not sign anything that goes through LSU right now that needs an animal care and use document, including Dr. Chesney's Sea Grant funds.

Dr. Authement moved that the Board delay action until we can run this policy by the ULL and Nicholls staff to determine their protocols for research animals. Dr. Boudreaux seconded. Motion approved.

Dr. Hulbert asked if there were any additional items to discuss in open session. There were none. Dr. Stewart moved that the Board enter Executive Session. Dr. Boudreaux seconded. So moved and the Executive Board members and Dr. Rabalais entered into Executive Session at 3:54 p.m.

VII. Executive Session

The Executive Board reconvened at 4:47 p.m.

The Executive Board directed Dr. Rabalais to issue pay raises as had been discussed and decided upon during the Executive Session. She was also directed to begin advertising for additional staff and faculty along the guidelines discussed during the Executive Session.

Dr. Rabalais was directed to contact Clifford Smith and advise him of the status of the GOM vessel issue. A meeting with the governing board was advised. Dr. Hulbert indicated it might be useful to keep meetings concerning the GOM vessel at the Vice Presidential level.

Dr. Rabalais was advised that if she required a meeting on any issue, either the boat or personnel matters before the spring meeting that she contact Dr. Hulbert's office and they will move as quickly as possible to schedule. Dr. Rabalais encouraged Executive Board members to attend the faculty candidate seminars as time allowed.

Dr. Authement motioned that upon ascertaining viable personnel candidates, she should send resumes to the Board and they will concur and come to a decision at the meetings. Dr. Boudreaux seconded. Motion passed.

VIII. Adjournment

The LUMCON Executive Board meeting adjourned at 5:12 p.m.

Respectfully submitted:

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Dr. Stephen Hulbert, Chairman, LUMCON Executive Board

Transcribed February 27, 2007
Lillian Wicher, Recorder
Revised by Dr. Nancy Rabalais, April 26, 2007

MINUTES OF THE
LOUISIANA UNIVERSITIES MARINE CONSORTIUM
(LUMCON) EXECUTIVE BOARD
May 24, 2006

I. Call to Order

Dr. Ray Authement, LUMCON Executive Board Chairman, called the meeting of the LUMCON Executive Board for Louisiana Universities Marine Consortium to order on May 24, 2006 at 2:30 p.m., in the Executive Conference Room at the Defelice Marine Center in Cocodrie, LA and requested the roll call.

II. Roll Call

The roll was called:

LUMCON Executive Board members present for the meeting:

Dr. Ray Authement, Chair
President, University of Louisiana Lafayette

Dr. Stephen Hulbert, 1st Vice Chair
President, Nicholls State University

Dr. Harold Silverman, Louisiana State University
Interim Vice Chancellor of Research and Graduate Studies

Dr. Robert Stewart; University of Louisiana Lafayette
Director of Research and Sponsored Programs

Dr. David Boudreaux; Nicholls State University
Vice President for Institutional Advancement

Absent from the meeting:

Sean O'Keefe, 2nd Vice Chair
Chancellor, Louisiana State University

Five of the six Executive Board Members attended and constituted a quorum.

Guests in attendance:
Dr. Chuck Wilson, Louisiana State University
Dr. Nancy Rabalais, Executive Director
Mr. Kerry St. Pé, Director of BTNEP
LUMCON Faculty; Dr. Ed Chesney, Dr. Christopher Finelli, Dr. Rodney Powell, Mr. John Conover; LUMCON Librarian, Dr. Jessie Kastler; Marine Education Supervisor
Other LUMCON personnel: Mr. Bill Hebert, Mr. Steve Rabalais, Ms. Brenda Leroux Babin, and Ms. Danielle Richardi

III. Approval of Prior Minutes

Dr. Authement asked if there was any discussion before approval of the minutes of the Executive Board Meeting held on January 20, 2006. Dr. Boudreaux moved to adopt the minutes as submitted; Dr. Wilson seconded. No discussion or objections. The minutes of January 20, 2006 were adopted.

IV. Reports and Recommendations of the Executive Director

Dr. Authement turned the meeting over to Dr. Nancy Rabalais, Executive Director of LUMCON.

Dr. Rabalais welcomed the Executive Board Members.

A. Dr. Rabalais reported that LUMCON is legally required to provide notice of the meeting with the agenda and materials to be considered seven business days in advance of an Executive Board meeting. She inquired whether the Executive Board would accept the notice and materials electronically by the same deadline. The Board agreed that notice and the Book in pdf form could be sent by e-mail in compliance with the seven-day notice requirement.

B. Dr. Rabalais indicated that there were additional auxiliary pages to the Board book, concerning Open House, Hurricane Recovery, FY 07 Budget and activities of the LUMCON staff.

C. Open House

Dr. Stewart, Dr. Boudreaux and Regent Clifford Smith attended the spring Open House.

Dr. Stewart requested that the commendation of outstanding performance by the Director and her staff be presented in the form of a motion. Dr. Boudreaux seconded and commented that Open House was a remarkably well-done event. Dr. Authement asked if there was any further discussion, there was none, motion passed.

D. Board of Regents LUMCON Committee meeting and presentation

Dr. Authement commended Dr. Rabalais on her performance before the Board of Regents. Several members of the Board state that they were impressed with Dr. Rabalais' knowledge and presentation on LUMCON's behalf and wished to support LUMCON better than they had in the past. He spoke to Mr. Clifford Smith, Richard D'Aquin and several others at Regents and considered it a very profitable session for LUMCON. Dr. Rabalais thanked Dr. Bob Stewart and Mr. Bill Wilson for their support. Clifford Smith indicated that from a community standpoint he thought her presentation was terrific and would like to see Dr. Rabalais attend these meetings on an annual basis to report to the Board of Regents. Dr. Rabalais indicated that she would welcome the opportunity to meet with the Board of Regents more often.

E. University Education Program

Dr. Rabalais presented information developed by the faculty and the Summer Program Coordinator for a long-term re-development of the LUMCON Summer Program curriculum. The university catalogues have changed over the years so that not all LUMCON courses are listed uniformly with regard to title, credits, and level, some LUMCON courses are not listed, and the special topics courses do not carry the specialized title on the student transcript because they are not unique courses listings. Dr. Rabalais proposed the direction LUMCON wants to head into the future and expressed the need to proceed in this direction. Discussion ensued. Dr. Rabalais indicated that meetings with the various departments the new curriculum would affect would be scheduled where we would request discussion with their curriculum committees to modify course listings in the catalogues. Courses would be listed similar to the two page list with the title, short description, the number of credits and that the course is being offered at LUMCON. We would also request that courses offered at LUMCON be listed in a special section like the Gulf Coast Research Lab is now listed in several catalogs.

Dr. Authement requested the Boards decision on acceptance of the re-development of LUMCON's University Education curriculum in the form of a motion. Dr. Boudreaux motioned, Dr. Hulbert seconded. No discussions, No exceptions. Motion Approved.

F. Financial Summary.

February and March end of month expenditure reports were provided. At present we are in line with % of year expenditures overall with some categories, such as energy costs, well over budget. Dr. Authement about the utility increases, which Mr. Hebert replied were 10-15% over budget. We attribute part of this to missing roof insulation but also higher energy costs. Dr. Authement asked if LUMCON could charge an energy surcharge to the students as the universities do. Dr. Rabalais acknowledged that such fees were additional to tuition, which LUMCON does not collect, but that increased housing and meal rates would recoup some costs, but little in the overall energy bill. Dr. Stewart asked about including an energy surcharge to grants. Nancy indicated at present, indirect cost recovery covers specific costs, and that such a direct charge on a grant would not be allowable. LUMCON will attempt to renegotiate a higher Indirect Cost Recovery rate when the current agreement ends in December 2006.

FY 07 Budget – LUMCON's budget for FY07 is down $147,000.00 from last year, which included a 3.6% budget cut. Dr. Rabalais appeared before the House Appropriations Committee to present the LUMCON budget. Dr. Rabalais further told the Board of Regents LUMCON Committee that there were several enhancements that could help LUMCON's budget shortfalls and loss against inflation. Dr. Authement asked about the Governor's proposal on pay raises and mandated costs on the budget. Mr. Hebert answered that LUMCON had no information as yet on the budget surplus and contingency funds. Dr. Authement suggested that Dr. Rabalais speak to the Regents staff to insure that LUMCON is not left out of the contingency fund that is being set up.

Pay Raises – Dr. Rabalais indicated that the FY07 budget does not include any supplemental funds for salaries because the potential source was not certain. Dr. Authement indicated that

mandated cost money had already been distributed into the budgets, at least for the Universities.

New Research Grants – A list of new and renewed research grants and vessel operations support grants was provided.

Dr. Authement requested a motion to approve the 2007 budget and grants as presented. Dr. Boudreaux motioned, Dr. Stewart seconded. No discussion, No objections. Budget is approved as presented.

G. Personnel Summary

Personnel action reflects the changes from December 2005 through almost the end of April 2006, a retirement of our Chief of Security, many vessel operations changes and part time employment changes. There are no major fires or dismissals.

Dr. Authement requested a motion to accept personnel actions. Dr. Boudreaux moved, Dr. Stewart seconded. No discussion, no objections. The personnel summary was accepted as presented.

H. Organizational Chart

The January 2006 organizational chart is the one approved in the last budget submission and is in place. It has been changed to more easily reflect divisions at similar levels. No job titles have been changed.

Dr. Boudreaux asked about the LUMCON Advisory Council. Dr. Rabalais replied that LUMCON is legislated to have an Advisory Council of member universities, private entities and federal and state agencies. The Council met once, at least 8 years ago. Bill Wilson has requested that it be revived to help with LUMCON public support, funding, and private funding. It was felt that most of the Universities were too busy trying to take care of themselves that it might not be too successful to try to pull them together soon. Dr. Authement requested that Dr. Rabalais select university representatives to serve on the Advisory Council, submit them to the Board so their appointment could be initiated by the Executive administration. Dr. Silverman inquired if the incorporation of LUMCON is such that LUMCON is required to report both directly to the Board of Regents and the Executive Board. Dr. Rabalais responded that LUMCON is an institution of higher education under the Board of Regents. The Executive Board governs LUMCON and the Board of Regents distributes our budget.

Dr. Hulbert moved that the Executive Board assign members to the Advisory Council. Dr. Stewart seconded. Dr. Authement asked for discussion or objections. No discussion, No objections. The organizational chart was approved as submitted.

I. Facilities and Operations

Hurricane Recovery – There were a number of things left undone on the waterproofing of the roof by the Phase 1 contractor. The Phase 2 contractor will have to complete this before they can begin what should be a 45-day contract to insulate the roof. There has been virtually no progress on the repair of dorms, apartments and cafeteria repairs except the environmental assessment and a mold remediation bid process. The Fourchon facility remains much as it was with regard to the damaged bulkheads and pier. A recap of the worksheet submitted to FEMA deals mainly with damage done to Dr. Ed Chesney's fisheries lab, damage to monitoring program displays downstairs, and infrastructure at the Marine Center. Dr. Rabalais indicated that the initial estimate of repairs and recovery was about 1 million dollars but will go over this amount. Dr. Stewart asked if there were any damages sustained at the Red Fish Point facility at one time held by LUMCON through ULL. LUMCON no longer holds the lease on the Fearman Bayou facility, and it is in the ownership of ULL. LUMCON is still paying the utilities, about $15 per month for electricity.

Acadiana – is being utilized more for sponsored research activities and generating more funding than in the past. Port Captain Joe Malbrough has been responsible for generating capital for that vessel.

Eugenie – The Tulane University boat remains in the hands of LUMCON for maintenance and operation as long as Tulane has sponsored research projects that use the boat.

Pelican – has a full schedule and will probably be at sea 265 days this year. The Pelican will be operating in the Caribbean for about 2 ½ months in late summer and early fall. Similar work will be likely in 2007.

Regional Class Vessel – Mr. Rabalais reported that the request for proposals for operating a new regional class vessel will be out in September. Operation of a new regional class vessel requires:
(1) Need for the vessel. There is no region in the United States right now that has a more profound shortage than the Gulf of Mexico. The Gyre is gone and working in Brazil. The Longhorn is rumored to be sold or scrapped soon. This leaves the Pelican as the only remaining UNOLS vessel in the Gulf.
(2) A successful track history of operating a UNOLS vessel. Texas A & M was the biggest example of an unsuccessful operator of a UNOLS vessel. LUMCON is one of the best examples of a successful operator.
(3) A sufficient infrastructure to support the 150' vessel, including dock facilities, shop facilities, ability to get the ship into the dock, which will probably be a 10'+ draft. LUMCON does not have sufficient facilities here to support that size vessel.
(4) The operator of the regional class vessel will have to administrate it and have the support of other oceanographic institutions in the region. We had plans at one time to do this, but that has not come to fruition. Texas A & M, on the other hand, has made a convincing start toward putting together a consortium, but they are not much further than LUMCON in this initiative.
(5) Demonstrate a viable ocean scientist program within the institution or at least within the Consortium, i.e., many federally funded researchers, preferably NSF funded, that will use this vessel. LUMCON's complement of researchers is well below that of Texas A & M.

Dr. Silverman indicated that the biggest of the five requirements seemed to be the docking capabilities and dockside vessel support. For a research community, we have to develop a consortium idea, including LUMCON and other Louisiana researchers. It was suggested that the facility for docking the vessel could be in Houma. Regent Clifford Smith indicated that the current operation and standards of the Pelican, along with the location of LUMCON near the Mississippi River, are great assets in competing for operation of the new vessel. Mr. Smith also mentioned that it was still possible to garner $75,000.00 seed money to pursue the RFP. Drs. Authement and Hulbert concurred that LUMCON should pursue the vessel and build an alliance within the State and potentially a corporate alliance to go after this. Mr. Rabalais indicated that the Consortium has to go outside the boundaries of the State of Louisiana to be a viable candidate for the operation of the vessel. Dr. Silverman suggested $30,000.00 could possibly be obtained through the Board of Regents by way of the support fund for major proposals. The purpose falls slightly out of the Support Fund guidelines, but an arrangement could possibly be made to capture about ½ of the money, which would make a good start. This would go far in helping develop the proposal. Steve said that demonstrating that there is an infrastructure in place to support this vessel would have to be built and would cost millions of dollars. None here can give the assurance that it will be built.

Dr. Hulbert motioned that a team be put together to start a Consortium to be prepared to aggressively pursue the RFP on the UNOLS regional vessel. Dr. Silverman seconded. Dr. Authement asked for any further discussion, there was none. Any opposition, there was none. The motion for the Director of LUMCON and her staff to move ahead on the RFP of the UNOLS vessel, the formation of a Consortium, and obtaining funding to pursue LUMCON's operation and administration of the vessel. So ordered.

J. Additional Reports on the Library, Information Technology, Open House and Calendar of Events were referred to in the Board book**.**

V. Chairman's Report

A. Faculty Status

Dr. Stewart distributed materials to the Board concerning the Executive Committee review of materials submitted to them by Dr. Rabalais and the faculty on obtaining tenure at member universities. At a meeting among the Vice Presidents and Vice Chancellor it was admitted that gaining tenure at a member university would be extremely difficult for the Executive Director to implement. The Executive Committee investigated other mechanisms at the Institute of Ecosystem Studies, Middlebrook NJ Marine Science Consortium, Skidaway and Pennington, and suggested a method 5-year rolling contracts. The strength and focus is on employee scientific accomplishments, quality, and productivity.

The first five years are similar to leading up to tenure. Faculty will have a science peer review at least every five years, similar to current policies on professional rank. The contracts will be developed by the Executive Director and approved by the Executive Board. Employee reviews during the first five years were basically three stages. Stage 1 was probationary years until an annual performance review from a supervisor that covers that year

in terms of employee conduct and recommended changes. The science performance reviews are performed by an advisory peer review. Most have an advisory period being conducted in the third year advising that employee on what they need to do differently, i.e., more publications, write more grants, participate more in the activities of your institution. Stage 3 is in the fifth year. A rolling contract peer review is conducted with the majority of the peer reviewers from outside the institution but from the employee's field or closely related field. That review recommends eligibility for a rolling 5-year contract and professional rank and pay level. After the five year period and a positive review, an employee would then enter into a 5-year rolling contract. Every year of employment you have another 5 years beyond that to look at. Salary is adjusted for scientific seniority and accomplishments by peer review and employees are rewarded for their scientific excellence, quality, and productivity.

If however, a scientific peer review results in a negative finding, you have a number of different choices. They can be reprimanded or terminated depending on what the recommendations presented to the Executive Director. Employee pay or rank might be reduced. Additional peer reviews may be required to make certain we are dealing with the right facts. If an employee is terminated based on a negative scientific review they have at least an additional year of employment. Subsequent 5-year periods are rolled for every subsequent year of employment. At least every 5 years, the employee has a scientific performance review.

On personnel issues, the person responsible for handling those is the Executive Director and employees can still be reprimanded and/or terminated for cause. Most of those are misconduct or illegal activity. Employees may be terminated upon declaration of a financial exigency. Personnel and grievance issues go to the Executive Director of LUMCON for resolution. A decision can also be appealed to the Executive Board.

Dr. Authement asked for any discussion and/or reaction from the Executive Director. Dr. Rabalais asked if Dr. Stewart had shared her most recent comments with the Vice Presidents. He indicated yes. Dr. Rabalais indicated that she has had difficulty with this issue all along with her main concerns being:

(1) The stature of LUMCON within higher education as being an equal partner in research and academic endeavors. If our faculty carried different types of appointments or titles that we might not have the same privileges as the faculty members on campuses that we may be trying to interact with or competing with for funding, research programs, graduate students, or anything else.
(2) Difficulty in attracting new scientists without providing tenure, although you are proposing that this would be a long-term means of employment.
(3) Turnover in faculty as they become established and leave for a tenured position.
(4) Reduced acknowledgement of LUMCON faculty as instructors of courses that derive credits at the member institutions, the ability to have and advise graduate students, ability to serve on a graduate faculty.
(5) Exclusion from tenure-track options, such as NSF early career grant, professional development grants from the Board of Regents Support Fund, ability to get supplemental funds for faculty raises.

Dr. Silverman stated that some concerns are more serious than others, but of most concern is recruiting. The biggest issue is LUMCON having world-class faculty and recruiting them, as historically. The only solution now is to recruit with the proposed mechanism and see what happens. Dr. Hulbert also indicated that the only way you are going to find out if rolling contracts will work is to try them. Dr. Silverman concurred.

Dr. Authement said that LUMCON cannot deny the opportunity to try this system to see how it works, while still protecting the people here, and not doing so would be abdicating our responsibilities to the Board of Regents and to the State. Dr. Authement further stated that this is a reasonable test of a new system that could work and keep this Board responsible not only to the Regents, but also to the State.

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Dr. Hulbert inquired if there were positions at LUMCON under recruitment at present. Dr. Rabalais replied that we have been holding off because of this issue and the research base of LUMCON is being eroded. Dr. Hulbert recommended that if LUMCON has positions that are on hold, the Board should act.

Dr. Hulbert moved that the Board approve the 5-year rolling contract for new unclassified research scientist positions. Dr. Boudreaux seconded. Dr. Authement asked for further discussion, there was none. Motion approved.

Dr. Silverman inquired about the open positions Dr. Rabalais, said that her research position was open, although she has not given up her research. Dr. Quay Dortch's position and two positions that existed at one time, but funds have been eaten up by inflation. Dr. Finelli's position beginning in January 2007.

Dr. Authement inquired if the update on faculty tenure data included updated profiles of present faculty and indicated that the Board still needed to look at LUMCON's senior faculty profiles. This should include the number of years they have been at LUMCON and what their future looks like. In the face of this tenure issue, some people may leave and we need to know when this will be.

Dr. Stewart said that it was the will of the Board in previous conversations to begin to try to move into Coastal Restoration activities in the hiring of future positions. Is it still a priority in new hires? Dr. Rabalais indicated that Coastal Restoration is a big issue and had thought at one time, a coastal wetland ecologist or restoration ecologist might be appropriate, but there are many coastal people in the State, all competing with each other. She indicated a coastal ecologist that might work on animal/plant interactions or an ecologist working on how much sediment is needed to build this particular type of marsh may integrate better with existing scientific expertise. The empty Dortch position is important because of important issues with regard to Phytoplankton Nutrients and Eutrophican both in the coastal region, offshore and in the Mississippi River. LUMCON was very close to filling a Biogeochemist position and that person could have worked equally well in both coastal ocean and wetlands. Dr. Rabalais stated that if the three positions were filled, there would be a $46,000 shortfall in the existing budget. Not all of them would come in at the same time or maybe even in this fiscal year, so it would be next year beginning July 07, before all three would be on board and we would have to fully cover those salaries. With July 08, if we did recruit 3 new faculty

members, then we would need to continue those salaries with an unknown budget future. Dr. Rabalais said that as most academic departments usually work, the faculty usually sits in consultation with each other to talk about these issues and that she would want to do that with the LUMCON faculty would like to be able to do that with our faculty. She said that a report on developing mechanisms for contracts and an ad would be provided at the next Executive Board meeting.

VI. Executive Session

Dr. Authement entertained a motion for Executive Session. Dr. Silverman motioned. Dr. Boudreaux seconded. All in attendance except the Executive Board and Dr. Rabalais, as Executive Director, were asked to leave the room.

Attendees were invited back into the meeting at 2:50 p.m.

Dr. Authement advised that the Executive Director had submitted a request involving consultancy. She asked for permission to consult with federal agencies.

Dr. Hulbert motioned to approve; Dr. Boudreaux seconded. No discussion or objections. So ordered.

VII. Adjournment

Dr. Hulbert moved to adjourn, Dr. Boudreaux seconded. Dr. Authement, after determining that there was no further business to discuss, thanked the participants for their time and adjourned the meeting.

The LUMCON Executive Board meeting adjourned at 2:56 p.m.

Respectfully submitted:

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Dr. Ray Authement, Chairman, LUMCON Executive Board

Transcribed September 1, 2006
Lillian Wicher, Recorder
Revised by Dr. Nancy Rabalais, September 17, 2006

MINUTES OF THE
LOUISIANA UNIVERSITIES MARINE CONSORTIUM
(LUMCON)
EXECUTIVE BOARD

January 20, 2006

I. Call to Order

Chancellor Sean O'Keefe, LUMCON Executive Board Chairman called the meeting of the LUMCON Executive Board for Louisiana Universities Marine Consortium to order on January 20, 2006 at 10:30 a.m., in the Executive Conference Room at the DeFelice Marine Center in Cocodrie, LA and requested the roll call.

II. (A) Roll Call

The roll was called:

LUMCON Executive Board members present for the meeting:

Chancellor Sean O'Keefe, Chairman
Chancellor, Louisiana State University

Dr. Ray Authement, 1st vice Chair
President, University of Louisiana Lafayette

Dr. Stephen Hulbert, 2nd vice Chair
President, Nicholls State University

Dr. Harold Silverman, Louisiana State University
Interim Vice Chancellor of Research and Graduate Studies

Dr. Robert Stewart; University of Louisiana Lafayette
Director of Research and Sponsored Programs

Dr. David Boudreaux; Nicholls State University
Vice President for Institutional Advancement

All six Executive Board Members attended and constituted a quorum.

Guests in attendance:
Mr. Kerry St. Pé, Director of BTNEP
LUMCON Faculty; Dr. Ed Chesney, Dr. Christopher Finelli, Dr. Rodney Powell, Mr. John Conover, Dr. Jessica Kastler
Other LUMCON personnel: Mr. Bill Hebert, Mr. Steve Rabalais, Ms. Brenda Leroux Babin, and Ms. Danielle Richardi

Materials referred to in the minutes were included in either the January 20 board-briefing book or provided at the meeting.

II. (B) Board Rotation

The LUMCON enabling legislation states that the Chairman position is held for a one-year term. Due to an oversight at the October 6 Executive Board Meeting, the first order of business was the rotation of the Chair of the Executive Board. The rotation of the Chairmanship was executed on January 20 directly after roll call, with Chancellor Sean O'Keefe relinquishing the chair to Dr. Ray Authement.

LUMCON Executive Board members effective January 6, 2006:

Dr. Ray Authement, Chairman
President, University of Louisiana Lafayette

Dr. Stephen Hulbert, 1st vice Chair
President, Nicholls State University

Chancellor Sean O'Keefe, 2nd vice Chair
Chancellor, Louisiana State University

Dr. Robert Stewart; University of Louisiana Lafayette
Director of Research and Sponsored Programs

Dr. David Boudreaux; Nicholls State University
Vice President for Institutional Advancement

Dr. Harold Silverman, Louisiana State University
Interim Vice Chancellor of Research and Graduate Studies

III. Approval of Prior Minutes

Dr. Authement asked if there was any discussion before approval of the minutes of the October 6, 2005 Executive Board Meeting. Dr. Silverman stated that a correction was needed to correct the name of the President's Science Advisor to Jack Marburger. Chancellor O'Keefe moved to accept the minutes with the correction; Dr. Hulbert seconded. The minutes of October 6, 2005 were approved.

Dr. Authement turned the meeting over to Dr. Nancy Rabalais, Executive Director.

IV. Report of the Executive Director

Dr. Rabalais welcomed the Executive Board members. She referred to the Executive Director's report to bring the Board up to date. We are working toward full recovery from the storms and are very functional other than the dorms. Considering this, LUMCON is going out to the public vs. having the public coming to us. As the dorms are repaired, more groups will return to LUMCON.

Participation on Committees:

(1) Corp of Engineers Water Resources Institute committee on the framework for restoring coastal Louisiana—a group made up mostly of the National Technical Review Committee of the LCA plan including Don Boesch and Leonard Shabman. The report

was briefed in Washington DC and will be briefed to the State next week. It takes different stances from many of the State, Corp of Engineers, and political institution reports on how to restore the coast after the hurricanes of 2005. This report points out the need to do restoration, flood protection and navigation at the same time, the potential for one activity to be detrimental to the other, and the need for a long-term landscape use picture for the entire coast of Louisiana, not just New Orleans, that will meet the three goals.

(2) A National Academies committee on the Mississippi River Clean Water Act, which will have an effect on the quality of the Mississippi River water delivered to the state and the Gulf of Mexico.

(3) Ocean Research Advisory Panel (for the last 4 years), the advisory group to the two subcommittees that brief the White House on the Ocean Action Plan. The group is actively reviewing the science and technology research plan for the Ocean Action Plan, and helping to develop the national workshop for Ocean Research Priorities.

Dr. Rabalais asked if any Board members had questions. There were none.

A. Financial Summary (Dr. Nancy Rabalais)

(1) Budget Cut – Included is the budget representing the 3.6% cut that trimmed $108,439 off the budget in travel, supplies, salaries, related benefits, acquisitions, and professional services. Other budget items remain intact. The same 3.6% was cut from the BTNEP budget. 3.6% was not debilitating because of staff changes.

(2) Pay Raises – Faculty increases were effective July 1, 2005 and staff increases were effective January 9, 2006. All FY05 increases will cover the full 12 months in FY06. The only issue is an unclear memo from the State about merit increases. Although they are discretionary, they can be withheld only with approval by the State.

(3) FY06 Budget – Status as of 11/30/05 provided, and updated verbally through 12/31/05. Considering that we are 5 months into the 12-month fiscal year, the budget balances are below the 50% expenditure target. Energy and salaries are the main part of our budget. However, energy is well above anticipated expenditures, because of cost of fuel and lack of an insulation cover on the roof. If we keep on this spending structure and collect an anticipated $300,000 in indirect cost recovery, the budget should balance at the end of the FY. We have reduced spending as much as possible, and implemented some cost savings procedures.

(4) 2007 Budget – This budget was submitted in November, which is the same amount as the 3.6% cut on FY06. Plus, we submitted an increase in salaries and an enhancement package as well. As of this meeting, we are anticipating an 8% budget cut in FY07 above the 3.6% cut on FY06, and we are preparing draft budgets.

(5) Capital Outlay – Dr. Savoie's letter indicated that some institutions were much higher priority after the hurricanes. LUMCON is listed in the continuing section with only two moved forward—a marine operations building/bulkheads/piers and paving/drainage of the grounds.

Dr. Authement asked if there were any questions or comments. Dr. Stewart stated that an issue of budgets in out years was to mesh the strategic plan and the budget. It is very important to understand what LUMCON's strategic plan is and how it affects budget requests. Dr. Rabalais noted that she understands the desirability of this planning, but that currently there are few concrete answers to budget projections.

Several questions were raised concerning repairs to the building and their funding. Those items will be covered in the Facilities and Operations report.

Executive Board members noted potential sources of funds: Doctor Silverman mentioned the Louisiana Recovery Authority (LRA). Mr. St. Pé said each parish has a long-term recovery team, and most of the recovery work is being done by local communities. Chancellor O'Keefe indicated that the state will receive 6.2 billion dollars of community development block grants that the LRA, not FEMA, will be administering the disbursement of these funds. Dr. Authement mentioned that some of the legislature thought that the funds should be distributed by them and not LRA. Dr. Stewart indicated at the Board of Regents was considering $20 million for coastal science and the environments. There was also a potential fund allowing the Commissioner to ask for work force money related to technical training at community colleges. The Board members agreed to send information concerning these potential sources of funding to Dr. Rabalais.

B. Personnel Summary (Dr. Nancy Rabalais)

Personnel action reflects the standard changes. One change not included is a pending retirement that will save us salary funds, but we will be paying retirement. Dr. Rabalais reported that the expected retirement of Mr. Steve Rabalais would not occur as anticipated, but will be delayed. Anticipated changes in administrative structure will also be delayed, but continue to be an important consideration.

C. Operations and Vessels (Mr. Steve Rabalais)

Hurricane Damages

Phase 1 to waterproof the roof has not been fully accepted as complete. Phase 2 went out for bid and was accepted but we cannot release the project until a determination is made as to coverage by FEMA. Presently, FEMA has determined that the new roof is an improvement and they won't fund it, even though the construction was the only type available. Facility Planning and Control will get the issue resolved, because other institutions are also having the same problem. Technically the roof is permanent and waterproofed, but not durable, and there are problems with drainage and insulation. We have high energy costs because the roof is not insulated.

Chancellor O'Keefe said that as time passed it was more likely we would end up with only 90% of the cost. Mr. Rabalais indicated that Facility Planning and Control and ORM said that we would get these funds, whether they are State funds or FEMA funds.

The other major impact from Hurricane Katrina was water damage to half the dorms and apartments. The environmental remediation team is processing the scope of work, but anticipate that contractors will only mediate mold damage but not make permanent repairs. Once the facilities are approved for temporary occupancy, the LUMCON staff will do the work with just funding for materials from ORM.

There were a minor items including generator problems, but they have been resolved.

Vessel Activities

Pelican closed out the year with 265 days. The 2006 schedule indicates 242 days but will more likely be close to 265. Acadiana was at sea for 131 days. The Pelican will go into the shipyard in August for routine maintenance at an approximate cost of $180,000.00. A $150,000 proposal was submitted to NSF for a number of upgrades to the ship. The new day rate for the Pelican to be submitted to NSF is $6,645, compared to last year's rate of $5,400. The increase is primarily for fuel. Dr. Rabalais indicated that other vessels pass the cost of fuel to the user

RFPs for ship design teams for the regional class vessel were released in summer 2006, and awards will be made in fall 2006. The date for a ship in the water is 2009, which is 3 more years than initially planned.

D. Research Grants (Dr. Nancy Rabalais)

The listing of new or renewed grants and the anticipated indirect cost recovery was presented, and was accepted by the Board. Dr. Rabalais pointed to the descriptions of the grants to demonstrate the breadth of faculty research, and relevance to State needs. The chart indicates a range of estuarine ecology, phytoplankton, hypoxia, mariculture, corals on offshore oil platforms, and BTNEP education initiatives. To indicate how active our researchers are, the publications from our research staff and activities and involvements of the staff in state, national, and international activities were listed. The Board congratulated the faculty on such an impressive list of accomplishments.

E. BTNEP Report (Mr. Kerry St. Pé)

The BTNEP report goes back to June 2005 and includes information similar to the research faculty report. Mr. St. Pé indicated that the program has been especially active since the hurricanes, with numerous media interactions. It is also involved in many discussions concerning coastal restoration with mechanisms to use sediments from the river bottom. Dr. Rabalais agreed that the potential for the scientific community's knowledge play a major role in rebuilding the coast. However, societal needs very often become much more important. In the longer term it may put a lot more pressure on people to objectively view what needs to be done and that will be difficult for the political bodies involved.

F. Marine Education (Dr. Jessica Kastler)

The report indicated a reduction in on-site visits, but the education department has been busy by taking their activities outside of LUMCON into the community. Dr. Kastler noted the participation in World Water Monitoring Day and an invitation to expand participation in St. Tammany Parish with a grant from Tulane.

The 2006 Summer Program was presented, but there will be difficulty funding it. Shortfalls in funding necessitate the increase in course fees. The costs for the part of the session in FY07 are anticipated but the budget is unknown. The split of costs for the Summer Program over two fiscal years complicates the budget process.

Dr. Authement asked if it would be appropriate to move the entire program to the next FY, which is allowable. Mr. Hebert indicated that it was possible, but in the end the total cost is the same. Dr. Rabalais said that she would rather pay this fiscal year's education costs in this FY because we have the funds, and the funding for the next FY is not known.

Dr. Rabalais asked for a confirmation from the Board that she should pursue the tuition return policy as indicated at the June 2005 Board meeting, prior to her accepting the Executive Director position, and the Board agreed. A previous exercise by Dr. Dagg, based on a 50% return from state universities and a 66% return from private institutions, would generate $10,000 a year. At that time it did not seem necessary, but now $10,000 is a necessary income and should be pursued. Dr. Rabalais is prepared to do this, but all the universities have to agree that this is appropriate and can be achieved. LUMCON provides scholarships to students for room and board and support for summer interns with funds from the Foundation. Scholarships are variable according to need and academic standing.

F. Information Technology (Ms. Brenda Leroux Babin)

The report gave the status of the Environmental Monitoring Stations, which continue recovery from storm impacts. Some problems are related to structural damage, others to hardware and communications. The Terrebonne Station remains to be rebuilt. However, the progress and substantial development of the monitoring system is notable. A Monitoring Advisory Committee has been formed and will meet not less than quarterly, but also as needed. The first meeting included Dr. Tom Soniat from Nicholls University as an affiliated user of the system. Others will be invited in the future. One goal of the LUMCON Environmental Monitoring system is to avoid duplication of effort and maintain a high profile within the Gulf of Mexico Coastal Ocean Observation System Regional Association. Dr. Rabalais is a GCOOS governing board member, and Ms. Babin will serve on the Data Management Committee.

A new LUMCON information brochure is available for distribution. The monthly activity calendars and the winter newsletter show the high level of activities at LUMCON. LUMCON has been in the press; an article is included about recovery that appeared in the Houma Courier and the Baton Rouge Advocate.

V. Reports and Recommendations of the Board Chairman

Dr. Authement opened discussion on tenure lines and strategic planning. Dr. Rabalais said that the initiation of either of these projects was delayed by the hurricanes, but pointed to the ancillary materials that outline the LUMCON faculty approach to the issue. The Executive Director and the faculty are aware that these are issues that need our attention. Dr. Authement gave the first comment to Chancellor O'Keefe who had initiated these discussions.

Chancellor O'Keefe noted that the range of challenges in trying to determine the appropriate means to implement tenure is possibly beyond challenging; however, the primary objective of having LUMCON faculty tenure lines associated with member universities is the ultimate goal. The most important element in the history of this issue is an assertion by the Regents that they have found no basis of authority to grant tenure and therefore to hire tenure track positions. While tenure granted by the LUMCON Executive Board has been the history and tradition, the

Board of Regents are concerned with the legality and want the issue of tenure has to be cleared up. Chancellor O'Keefe envisions a procedure that positively lays out the proposition that a new LUMCON hire is on tenure track and that s/he has an affiliation with an institution. These conditions would be clearly laid out to the candidate. One benefit would be campus departments taking more interest in LUMCON. The arrangements will benefit of LUMCON as well as the Institutions involved by moving. Dr. Hulbert stated that it is imperative that the potential mechanisms do not counter policies of departments, faculty senates, and promotion and tenure procedures.

Dr. Authement said that financial problems within the state and higher education are forcing many difficult decisions concerning departments and programs, and that LUMCON is as vulnerable as any other institution. If the LUMCON budget is severely reduced, there is no protection for the faculty. Dr. Authement suggested that the issue of new hires and the mechanism for tenure for them be examined first. These individuals should be brought in on a double tenure tract—at LUMCON and also at an institution of higher education. The Institution, at the end of the probationary period, will work with the LUMCON Director to grant tenure. Second, we should look at a profile of the present faculty and determine where we are in terms of stage of career, tenure, and active research. However, matching of areas of expertise and university programs may not be obvious. The desire is to protect the tenured faculty at LUMCON in the face of financial exigency. Dr. Authement also indicated that the governing universities were not interested in recovering research funds that a LUMCON faculty member earns, or transferring the salary lines.

Dr. Hulbert noted that the faculty who are previously tenured, have a property right and are protected, so long as LUMCON exists. Chancellor O'Keefe added that property rights of tenure have been tested in court, and there are ample arguments to support those rights. However, a collateral affiliation with an institution is the best route because tenure becomes a contestable point, only if LUMCON still exists.

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Dr. Boudreaux raised the issue of affiliation of LUMCON faculty with governing board universities or all Consortium universities. Dr. Authement expressed the opinion that all institutions that have been members of LUMCON should be given the opportunity to engage in the tenure affiliation of LUMCON faculty.

Dr. Rabalais pointed out that at least two faculty positions could be filled if there were adequate funds. She queried Board members if they had funds in their universities to insure that a new LUMCON faculty member would be protected in case of financial exigency. Drs. Authement and Hulbert stated that their universities are already holding unfilled positions for the express purpose of meeting budget cuts and providing protection for future cuts. Dr. Authement further commented that developing a procedure for bringing new faculty into a tenure track position would open avenues for the faculty already at LUMCON. He noted that there are one or two faculty at LUMCON that ULL could absorb if they needed help. Chancellor O'Keefe said that there are a number of faculty search efforts underway and the LSU plan could easily be modified in order to try to meet the objectives of the unfilled positions LUMCON is looking to fill.

Dr. Authement asked the faculty to express their opinions of the preceding discussion.

Mr. Conover, Associate Librarian, stated that there is no adjunct faculty status at any university, but Dr. Authement stated that this could be accomplished through the member university libraries.

Dr. Powell noted the difficulty of a LUMCON faculty member being responsive to a university department and LUMCON, when the goals, expectations and requirements may differ. He questioned the review procedures that could cause difficulties when we meet the goals and guidelines on the main campus but still not detract from LUMCON, or vice versa.

Dr. Chesney expressed concerns that he works with multiple departments and affiliated institutions on the LSU campus, e.g., Engineering, Veterinary Science, Oceanography, and the Ag Center Aquaculture program, and that being responsive primarily to one would dilute the other relationships and run counter to the idea of a consortium.

Another issue is that the LUMCON faculty keeps getting, through the rumor mill, comments about which institution or unit is going to get which LUMCON faculty member. Chancellor O'Keefe stated that there would be no action taken without it being brought to this table by having a majority vote of the three institutions.

Dr. Authement recommended that starting this process with new hires would be a chance to address these issues. Obviously, how they are evaluated in the final tenure decision will have to be between the University and LUMCON tenure committees with equal weight in the decision, and it will have to be a mutual decision. What we are asking is the Director and faculty get together and develop a procedure for hiring new people. Dr. Hulbert thought the issue of two masters is a very real one for the Faculty and the Board, and that it has to be addressed cautiously.

Dr. Stewart agreed that the issue of two masters is a valid concern, but that he did not see the Board suggesting two masters. He described arrangements at the USGS National Wetland Center where researchers were assigned to other agencies or organizations for 10, 15, 20 years. They were always under the supervision of that organization, and he as director of the wetland center did not get involved unless necessary. Those clear lines have to be established for LUMCON/university arrangements.

Dr. Authement countered that the primary presenter in the tenure case would be the Director, who takes the case of supporting tenure for a LUMCON faculty member at a particular institution. ULL, for example, is not asking for a research record on campus, but rather at LUMCON. However, if ULL needs to take responsibility for the financial support of the LUMCON faculty member, ULL would be guaranteed of high quality and a fit on campus because the affiliation and lines of review were clearly laid out at the onset of the faculty member's career. Dr. Hulbert said that formalized agreements between institutions and LUMCON that protect the interest of LUMCON and the Board and the interest of the faculty member as being responsible to LUMCON for their direction would be necessary.

Dr. Boudreaux suggested that alternatives to tenure be examined, such as multiple rolling year contracts that are subject to review by the Executive Board. With whatever new policy, perhaps an alternate such as contract could be offered to the individual, renewable on successful completion of the contract. Dr. Rabalais restated that it is very difficult to get a commitment

from a person to an institution if they have no long-term commitment. We are finding in our survey that places with no tenure have difficulty obtaining qualified candidates and retaining them. The need for long-term commitments is necessary to ensure LUMCON's research and education initiatives.

Dr. Hulbert said that the three Vice Presidents needed to participate with Dr. Rabalais to work up these scenarios. He also suggested that an academic officer from each university should participate in these conversations to get something that is workable. The three vice presidents were invested with this task.

VI. Adjournment

Chairman Authement, determining no need for an Executive Session, inquired if there were more issues to come before the Board. There being none, he called for adjournment. Dr. Hulbert moved to adjourn, Dr. Stewart seconded. The LUMCON Executive Board meeting adjourned at 12:21 P.M.

Respectfully submitted:

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Dr. Ray Authement, Chairman, LUMCON Executive Board

Transcribed March 3, 2006
Lillian Wicher, Recorder
Edited March 9, 2006
Nancy Rabalais Executive Director

MINUTES OF THE
LOUISIANA UNIVERSITIES MARINE CONSORTIUM
(LUMCON) EXECUTIVE BOARD

June 14, 2005

I. Call to Order

Chancellor Sean O'Keefe, LUMCON Executive Board Chairman, called the meeting of the LUMCON Executive Board for Louisiana Universities Marine Consortium to order on June 14, 2005, in the Executive Board Room at the Defelice Marine Center located in Cocodrie, LA. He requested the roll call.

II. Roll Call

Lillian Wicher, the recorder called the roll.

LUMCON Executive Board members present for the meeting:

Chancellor Sean O'Keefe, Chair
Chancellor, Louisiana State University

Dr. Ray Authement, 1st Vice Chair
President, University of Louisiana Lafayette

Dr. Stephen Hulbert, 2nd Vice Chair
President, Nicholls State University

Dr. Robert Stewart, University of Louisiana Lafayette
Director of Research and Sponsored Programs

Dr. David Boudreaux, Nicholls State University
Vice President for Institutional Advancement

LUMCON Executive Board members not in attendance:

Dr. Harold Silverman, Louisiana State University
Interim Vice Chancellor of Research and Graduate Studies

Attendance by five of the six Executive Board Members constitutes a quorum.

Guests in attendance:
Dr. Chuck Wilson, Dr. Robert Twilly, Louisiana State University
Mr. Clifford Smith, Board of Regents
Mr. Kerry St. Pé, Interim Administrator, LUMCON
LUMCON Faculty; Dr. Ed Chesney, Dr. Nancy Rabalais, Dr. Mike Dagg, Dr.Christopher Finelli, Dr. Rodney Powell, Mr. John Conover, LUMCON Librarian
Other LUMCON personnel: Ms. Brenda Babin, Mr. Wayne Simoneaux, Ms. Danielle Richardi, Mr. Russell Martin, Mr. Adam Sapp, Ms. Lora Pride, Ms. Heather Carnocki, Mr. Ivy Boudreaux, Mr. D. J. Suberville, Mr. Steve Rabalais, Mr. Bill Hebert

III. Approval of Prior Minutes

Chancellor O'Keefe asked for any discussion on the minutes of the Executive Board Meeting of December 9, 2004 – there was none.

Dr. Authement moved to accept; Dr. Boudreaux seconded. The minutes of December 9, 2004 were approved.

Chancellor O'Keefe turned the meeting over to Kerry St. Pé Interim Administrator of LUMCON

IV. Reports and Recommendations of the Interim Administrator

A. Research Programs

A report outlining new grants and renewed and extended grants was presented by Mr. Hebert. The new grants received by LUMCON faculty from December 2004 through May 2006 totaled $567,182. Renewed and extended grants total was $348,946. The new and renewed grants total was $916,128. LUMCON depends heavily on grants received by faculty and staff. Sixty percent of LUMCON's funding is from indirect cost in the form of grants.

B. Financial Summary

Mr. Bill Hebert, LUMCON's Financial Manager, presented the LUMCON budget summary as of April 30, 2005. Expenditures and budget balances for 10 months of the fiscal year were on track. Of the funds left in the balances, there is $50,966 for the Governor's savings plan, which will take from indirect costs.

Chancellor O'Keefe raised questions concerning the self-generated funds of $1.2 million, which were explained by Mr. Hebert.

Dr. Authement asked about the $50,900.00 Governor's cutback. Mr. Hebert explained that LUMCON was instructed to withhold it. The balance of $50,966 remains, and the state may or may not retain it.

When asked about purchasing authority, Mr. Hebert explained that the State has to approve LUMCON's contracting/subcontracting authority over $20,000. Basically LUMCON has the same contracting and expenditure authority as other state agencies.

Dr. Boudreaux moved to accept the status of the LUMCON FY04-05 budget as presented; Dr. Authement seconded - No discussion. Unanimously approved; Motion passed.

C. Personnel Summary

Mr. St. Pé presented a summary of personnel activity between November 13, 2004 and May 27, 2005 that reflected normal activity. A professor from your university means that LUMCON hired them as a part-time summer school instructor.
The issue of LUMCON offering university courses for which the tuition remains with the universities and all costs are incurred by LUMCON was discussed. The expenses of university education at LUMCON have far exceeded those budgeted initial through professional services contracts. LUMCON looses money every summer. Dr. Steward recommended that the LUMCON Executive Director work with the Executive Committee to develop a plan to remedy the situation.

D. Facilities and Vessel Operations

Mr. Steve Rabalais, Director of Operations and Facilities, presented the operations and vessels report. He reported that LUMCON now has a safety program that qualifies LUMCON as an official Class B facility. Mr. Wayne Simoneaux was credited with the successful development and implementation of the LUMCON safety program.

Building and grounds personnel participated in the JASON Project, a nation-wide program that came to LUMCON.

The Hurricane Lili FEMA damage project is complete, including major dredging of the harbor to 13-foot depth. Dr. Stewart asked if there was a way to get the Corps of Engineers to include routine LUMCON dredging in their base budget for the Houma Navigation Canal. Mr. Rabalais explained that such a plan could possibly involve LUMCON in dredging damage litigation, whereas the plan employed used a small dredge and material was deposited on LUMCON property, thus indemnifying LUMCON from litigation.

Mr. Rabalais reported that the Southwest Pass monitoring installation at the Pilot's Association facility was complete. We now have an end point to trace nutrients coming down the river. Instruments include a nitrate sensor and a regular suite of environmental and meteorological sensors. We think a barge about a year ago destroyed our Terrebonne Bay station. With Southwest Pass up and running we will concentrate on replacing the station in Terrebonne Bay. It will be about half way out of the ship channel right behind Timbalier.

Dr. Stewart asked if the monitoring stations were designed to become part of a coastal observing system. The LUMCON stations would fit into the proposed Regional Association. Dr. Rabalais is a newly elected member of the Board of Governors, and LUMCON participated in northern Gulf of Mexico ORION submission to NSF.

The *Pelican* will be at sea in 2005 approximately 290 days, which is the most aggressive schedule in the UNOLS fleet for its class. Dr. Hulbert requested an update on the competition for the new NSF vessel in the Gulf of Mexico. $25 million was set-aside in an accumulated NSF budget over the last two fiscal years. Given significant NSF budget cuts, it is questionable if the $25 million is going to be released to build the vessel. NSF is anticipating further budget cuts next year,

and NSF personnel are pessimistic about funding of the vessel. If at all, a new Gulf of Mexico regional class vessel will be several years into the future. If and when a regional class vessel is built ant that vessel goes to the Gulf of Mexico, LUMCON's chances to obtain the vessel are good. LUMCON will be able to support two vessels. The estimated cost of the support facilities is about $2.2 million, and is in LUMCON's capital outlay.

Chancellor O'Keefe asked how the State of Louisiana would benefit by investing $2 million for support facilities. A second vessel that complements the *Pelican* with additional technology, size, and capacity for research will support marine science for Gulf of Mexico researchers both from within the state and outside the state. The return is in additional federal research dollars to the Gulf of Mexico, which in turn continues to enhance our knowledge of the Gulf of Mexico and its resources, information that is critical to the State in the management of its resources. Chancellor O'Keefe agreed with this. The connection, once made, would support the capital outlay by the State.

Mr. St. Pé added that the revenues from the *Pelican* also support the *Acadiana* and small boats and the educational activities that use them.

Bob Stewart suggested that the new Director should monitor funding for NSF vessel, particularly one for the Gulf, within Congress and NSF.

The three SES vessels were sold for $450,000.00 plus the $60,000.00 we got from the Nigerians. The funds are in LUMCON's LSU Foundation account.

The *Eugenie* is a 60-foot vessel that LUMCON operates with funding from Tulane University. When funding from Tulane ends, the vessel will be returned to them for operation.

E. Education Report

The report submitted by Dr. Jessica Kastler was accepted.

Issues of public outreach were discussed with regard to bringing LUMCON more in the public eye, including the State Legislature and the Board of Regents. Examples of the Legislature Joint Committee on Natural Resources that met in Cocodrie, and testimony by Dr. Rabalais on hypoxia for the Senate Committee on Natural Resources were presented as examples of appropriate LUMCON exposure.

Dr. Hulbert suggested that more information concerning LUMCON needs to reach the legislators, with more direct communications. Regent Clifford Smith has been very good about promoting LUMCON and individual regents have visited LUMCON. The desire and need for a Board of Regents meeting at LUMCON was noted.

Chancellor O'Keefe suggested that at the beginning of the next legislative session the LUMCON Executive Board sponsor an event for presentation by the new

LUMCON Executive Director to explain the facility and LUMCON programs. Regent Clifford Smith said that he could speak on behalf of the Board of Regents that they would be interested in sponsoring this effort.

Dr. Authement asked about LUMCON public relations. Mr. St. Pé reviewed the input of the Marine Educators, the science writer, and the IT division in public education. Outreach and citizen education is also part of everyone's job at LUMCON. Dr. Authement stated that in his opinion there is a need for representation of LUMCON in Baton Rouge, but also in Washington. LUMCON should consider professionals to do this job. We need greater efforts on LUMCON's part. The heads of the three universities concurred that they should be more involved in promoting LUMCON in Baton Rouge and Washington.

F. Library and Information Technology Reports

Reports submitted by Mr. John Conover and Brenda Leroux Babin were accepted as submitted.

IV. Reports and Recommendations of the Executive Board Chair

Dr Quay Dortch resignation and Adjunct Faculty status request

Dr. Quay Dortch, a LUMCON faculty member, was on leave of absence for two years, and resigned in January 2005. She has a Ph.D. student at LSU who is working on completion of her degree, and continues active collaboration with LUMCON scientists.

Dr. Hulbert moved that Adjunct status be granted to Dr. Dortch, Dr. Boudreaux seconded. No objections. Approved.

Director Search Update

Chancellor O'Keefe said it was his understanding that the search for a permanent Executive Director for LUMCON has been ongoing for several years. Mr. St. Pé has served as Interim Administrator for three years. The Chancellor noted his appreciation for Mr. St. Pé's efforts. The Executive Board presented Mr. St. Pé with a plaque of appreciation for his service to LUMCON.

Dr. Nancy Rabalais added that the staff of LUMCON is also very appreciative of what Mr. St. Pé has done for LUMCON.

Chancellor O'Keefe suggested that the Board enter into Executive Session to discuss the remaining items on the Agenda.

Dr. Authement moved that the Board enter Executive Session; Dr. Hulbert seconded. All guests with the exception of Kerry were asked to clear the room.

The Board entered **Executive Succession** at 11:55 a.m. The regular meeting of the Board reconvened at 1:05 p.m.

Finelli Tenure

On the issue of Dr. Christopher Finelli's request for tenure and status of Associate Professor, Chancellor O'Keefe asked for a motion granting tenure and promotion.

Dr. Hulbert motioned to grant tenure; Dr. Stewart seconded. So ordered. Chancellor O'Keefe congratulated Dr. Finelli.

Conover Tenure
On the issue of John Conover's request for tenure and status of Associate Librarian, Chancellor O'Keefe asked for a motion granting tenure and promotion.

Dr. Stewart motioned to grant tenure; Dr. Authement seconded. So ordered. Chancellor O'Keefe congratulated Mr. Conover.

Director Search Update
Chancellor O'Keefe announced that Dr. Nancy Rabalais was offered the position of Executive Director of LUMCON and has accepted the position.

Dr. Authement motioned to name Dr. Rabalais as Executive Director of LUMCON; Dr. Hulbert seconded. So ordered. Chancellor O'Keefe congratulated Dr. Rabalais on her appointment as Executive Director of LUMCON to become effective today, June 14, 2005. He also indicated there would be a short period in which Dr. Rabalais and Mr. St. Pé will perform as a transition team.

Kerry St. Pé Salary Adjustment
Chancellor O'Keefe announced that the Board wished to implement a 5% salary adjustment for Kerry St. Pé, the effective date to be July 1, 2004. This adjustment is made to correct an oversight from last year.

Other Business
Chancellor O'Keefe inquired if there was anything else to come before the Board. There being no further business to come before the Board, Chancellor O'Keefe called for a motion for adjournment.

VII. Adjournment

Dr. Hulbert moved to adjourn, Dr. Stewart seconded. Chancellor O'Keefe, after determining that there was no further business to discuss adjourned the meeting after thanking the participants for their time.

The LUMCON Executive Board meeting adjourned at 1:13 p.m.

Respectfully submitted:

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Chancellor Sean O'Keefe, Chair
LUMCON Executive Board

Reviewer Documents

LOUISIANA UNIVERSITIES MARINE CONSORTIUM (LUMCON)
STRATEGIC PLAN: FY2011-2012 THROUGH FY2015-2016
REVISED

PROGRAM: MARINE/COASTAL SCIENCE RESEARCH AND EDUCATION IN LOUISIANA

Vision Statement

The Louisiana Universities Marine Consortium (LUMCON) will maintain a national and international reputation as a leading marine research and education institution, and stimulate and coordinate and facilitate scientific research among the marine science and education programs within Louisiana.

Goals

LUMCON's primary goals remain to support Louisiana through essential research, education of all levels of society, and support for other institutions or individuals who seek similar goals. In the end, the goals of *Vision 2020*—education, economy, and quality of life and Outcome Based Indicators for (1) Youth Education, (2) Diversified Economic Growth, and (3) Natural Resources—are supported. The initial LUMCON Strategic Plan from 1999 that looked forward 20 years is now 10 years dated, and for all attempts to find revisions, the most recent located was 2003 for *Vision 2020*. The state is halfway to its original *Vision 2020* goals, but operating in a substantially different economic framework, locally, regionally, nationally, and globally. The challenge for LUMCON is to maintain its unique status and capabilities within this different economic framework by enhancing its research portfolio, seeking alternate sources of funding, and re-assessing its service and fee structure and performance indicators.

The Barataria-Terrebonne National Estuary Program is administered by LUMCON, with primary funding from the U.S. Environmental Protection Agency. Matching funds from the state budget (declining in the last five years) are required to receive the external federal funding. The availability of this support facilitates garnering external research and education funds. Because state funds for LUMCON and BTNEP are within one line of the higher education budget, the opportunities, results and successes of LUMCON reflect the activities of the faculty and staff of the Marine Center in Cocodrie, LA as well as the BTNEP program.

A restatement and ranking of goals for LUMCON are below. The mission and vision of LUMCON are not altered. Reorganization of the Strategic Plan will reflect these goals with existing performance indicators (altered values) and revised performance indicators (for more realistic economic status and types of activities that have changed over time).

Goal 1 is "To increase public and private research and development activity in the marine sciences and related fields." LUMCON scientists generate about $3 million annually in support of research programs. The majority of these funds are from federal sources, e.g., NOAA Center for Sponsored Coastal Ocean Research, Minerals Management Service, National Marine Fisheries Service, Louisiana Sea Grant College Program, U.S. Geological Survey, U.S. Army Corps of Engineers, and National Science Foundation; but also State funds, Department of Natural Resources, Louisiana Coastal Recovery Authority; and private industry, aquaculture ventures.

LUMCON's faculty and staff are actively engaged in research that supports better understanding of sustainable coastal resources and the transfer of science knowledge to policy makers. LUMCON researchers and their collaborators from within and outside of Louisiana conduct research within the vital coastal zone of Louisiana, its nearshore coastal waters and the open Gulf of Mexico. The major objective of LUMCON and BTNEP research programs is to stimulate and enhance understanding of Louisiana's coastal regions through independent and cooperative research programs. The results are widely disseminated through the science community, to resource managers and decision makers, as well as to the public at large. The BTNEP program promotes conservation of Louisiana's wetlands through public education and outreach, but also funds studies on coastal resources.

Goal 2 is "To be a learning enterprise in which all Louisiana businesses, institutions and citizens are actively engaged in the pursuit of knowledge." LUMCON seeks to increase student achievement and the number of students completing courses in science**,** technology, engineering, and mathematics. Coastal and ocean science disciplines cross-integrate these aspects of education. LUMCON's research programs are designed to support and enhance education programs that address undergraduate and graduate education. Our objective is to contribute and proactively transfer basic and applied scientific knowledge about Louisiana's coastal marine environments (marshes, bays, estuaries and coastal regions) to scientific peers, panels, committees, managers, and government agencies, so that decisions at the local, state and federal level can be made on the basis of the best available scientific knowledge. LUMCON and BTNEP also support environmental literacy for Louisiana citizens.

LUMCON and BTNEP host hundreds of visitors each year from Louisiana, out of state and international. The location of the W. J. DeFelice Marine Center within the coastal marsh landscape is unique and intimately conveys information concerning coastal environments. LUMCON and BTNEP educates visitors from K-12 through the adult population on our natural resources, ecological functions, human-caused and natural change in the coastal ecosystem, and resource stewardship, while exposing them to local culture and traditions.

Goal 3 is "To provide a unique research and education structure, in terms of people, resources and philosophy, that enhances the success of staff, collaborators, visitors and the public in a better understanding of Louisiana's important and valuable resources." The location of the LUMCON Marine Center on the upper end of Terrebonne Bay and its

proximity to the Mississippi River delta and Atchafalaya River delta estuary, large estuaries, and expansive coastal wetlands, makes it an ideal venue for the study of coastal Louisiana. The Fourchon Camp, leased from the Wisner Foundation via Nicholls State University, serves access to important chenier ridges and barrier island habitats.

LUMCON is unique among Louisiana higher education institutions in its location, services, and access to Louisiana coastal habitats and waters. LUMCON also provides services not available from other higher education institutions, laboratory seawater systems, a specialized marine science library, a fleet of research vessels and small boats, a facility in which visitors can experience the nature of Louisiana wetlands, and an Environmental Monitoring Program with observing systems in inshore coastal waters, the Mississippi River and the nearshore coastal ocean. These observing systems provide real-time weather and water quality information to a broad spectrum of society. The challenge for LUMCON recently and into the future is to develop a user base willing to support the operational phase of environmental monitoring.

Mission

LUMCON will conduct research and education programs directly relevant to Louisiana's needs in marine and coastal science, develop products that educate local, national, and international audiences, and serve as a facility for all Louisiana schools with interests in marine research and education in order to make all levels of society increasingly aware of the environmental, economic, and cultural value of Louisiana's coastal and marine environments.

Philosophy

Louisiana is a state highly dependent on its coastal resources. Coastal fisheries and offshore oil and gas are two vital, integrated components of the State's economy. Louisiana's coastal communities are increasingly affected by coastal land loss and its impacts on these resources. Eutrophication from river-borne nutrients impacts coastal habitats and Louisiana's continental shelf, including the 'Dead Zone.' Toxins from harmful algal blooms and pathogen contamination from improperly treated sewage impact oyster growing waters of the State. Pollutants from a variety of sources impact the state's waters. It is important for these and related marine issues to be addressed from within the state. University faculty and others must have the capabilities for addressing these important environmental issues through their research and education programs. Science education in Louisiana's universities and classrooms must stress these and other issues that are culturally, ecologically, and economically tied to Louisiana's future, and assure that well trained graduates are available to work on these issues. It is increasingly important that an environmentally literate citizenry be trained and instilled with concepts of stewardship of resources so that important socio-economic, environmental, and cultural decisions can be made by an informed public. LUMCON is uniquely positioned—location, facilities, and research and education programs—to work with the universities, researchers, educators and the public to address these important issues relating to the coastal and marine resources of Louisiana.

LUMCON is recognized locally, statewide, nationally and internationally as a center of excellence in marine science and education. LUMCON provides access to Louisiana's marine environments for scientists and students at Louisiana universities and from elsewhere. LUMCON facilities and activities are intended to encourage and stimulate the study of Louisiana's important coastal regions by members of Louisiana's university community.

Goals and Objectives

I. Goal: To conduct basic and applied research that increases the scientific understanding of Louisiana's marine/coastal environment. This goal is modified from FY2011-2015 Strategic Plan, which was "To significantly increase public and private research and development activity in the marine sciences and related fields." These more specific items will be incorporated into objectives.

Objective I.1 - To increase public and private research and development activity in the marine sciences and related fields.

Linked to LUMCON PI #4474, Number of scientific faculty (state), PI#14665, Number of scientific faculty (total), PI#7824, Number of grants, PI#7823, Research grants-expenditures, PI#7822, Number of peer-reviewed scientific publications, PI#4457, Grants: state-funding ratio

New LUMCON PIs (4) will be developed to identify the number of graduate students, Masters and Ph.D., that are advised as a committee chair by a LUMCON faculty member; to identify the number of graduate students for which LUMCON faculty members serve as committee members; number of graduate students, not advised, for which LUMCON faculty assist in their research; the ratio of students assisted (in the above mentioned ways) to the number of LUMCON research faculty members.

Strategy I.1. Increase the number of LUMCON scientific faculty from 4 FTE (at 9-mo state support) to 7.5 FTE (9-mo state support) by 30% by 2016.

Implementation: Aggressively seek funding and scientific faculty members with national reputations.

Strategy Analysis Checklist

Analysis: Impact on other strategies considered. There has been a resignation among the state-funded faculty leaving LUMCON with 4.5 FTE (9-mo state funding for 6 faculty). There are no funds in the FY2010-2011 or FY2010-2011 budgets. However, there will be an opportunity with the retirement of one or more senior faculty members to release faculty salary funds, as well as the opportunity for the state general fund to increase support of LUMCON. Likewise the scientific faculty that bring in 3 months of support (currently 6) and the executive director, who is an active researcher and generator of external funds = 7, would be supplemented by 3 new faculty members for a total of 10 scientific research faculty generating external research funds.

Authorization: Authorization does not currently exist, but there is anticipation that the FY2011-2012 dire fiscal condition will improve beginning FY2013-2014
Organization Capacity: Resource needs identified; executive director will work with Board of Regents on formula funding for non-degree granting institutions
Timeframe: To begin FY 2013-2014
Fiscal Impact: Impact on operating budget; Return on investment determined to be favorable: Yes, the grants:state general funding ratio will increase, once new faculty are at LUMCON and bring in external research funds.

Strategy I.2. Maintain institutional support levels for LUMCON scientific faculty and increase the scientific faculty by 30% by 2016.

Implementation: FY2011-2012 is not expected to generate additional funds for faculty members. However, with a possible retirement in FY2013 there may be an opportunity to hire a new faculty members. The next job will be to aggressively seek funding and scientific faculty members with national reputations so that external research funds increase and subsequently Indirect Cost Recovery Funds.

Strategy Analysis Checklist

Analysis: Impact on other strategies considered. There has been a resignation among the state-funded faculty leaving LUMCON with 4.5 FTE (9-mo state funding for 6 faculty). There are no funds in the FY2010-2011 or FY2010-2011 budgets. However, there will be an opportunity with the retirement of one or more senior faculty members to release faculty salary funds, as well as the opportunity for the state general fund to increase support of LUMCON. Likewise the scientific faculty that bring in 3 months of support (currently 6) and the executive director, who is an active researcher and generator of external funds = 7, would be supplemented by 3 new faculty members for a total of 10 scientific research faculty generating external research funds.
Authorization: Authorization does not currently exist, but there is anticipation that the FY2011-2012 dire fiscal condition will improve beginning FY2013-2014
Organization Capacity: Resource needs identified; executive director will work with Board of Regents on formula funding for non-degree granting institutions
Timeframe: To begin FY 2013-2014
Fiscal Impact: Impact on operating budget; Return on investment determined to be favorable: Yes, the grants:state general funding ratio will increase, once new faculty are at LUMCON and bring in external research funds.

Strategy I.3. Maintain and develop new collaborative research activities between university scientists and LUMCON scientists

Implementation: Promote exchanges of ideas, data, and dialog among LUMCON scientists and external collaborators; develop research projects that will involve students and LUMCON faculty.

Strategy Analysis Checklist

Analysis: Impact on other strategies considered. The increase in collaborative efforts will increase the number of grants and external research funds, and subsequently Indirect Cost Recovery funds
Authorization: Authorization exists

Organization Capacity: Resource needs identified; responsibility assigned; executive director will mentor new assistant professors, continue to communicate research opportunities to faculty members; help in the development of proposals and budgets; provide match from the LUMCON budget as appropriate and possible; consider reduced indirect cost recovery when appropriate.
Time Frame: Already ongoing
Fiscal Impact: Return on investment determined to be favorable; external grants will increase and indirect cost recovery fund will increase.

Strategy I.4. Increase the number of university scientists and students using the Marine Center for their research programs by 10% by 2016.

Implementation: Selection of new faculty members who are active field researchers and who use the unique facilities of LUMCON in their research; marketing and promotion of LUMCON services/facilities available to existing graduate programs and new approved science-related graduate programs.

Strategy Analysis Checklist

Analysis: Impact on other strategies considered; should increase external research funds; should increase use of the LUMCON facilities.
Authorization: Authorization exists; with increases in the LUMCON budget post FY2011-2012 additional faculty members will be hired and the number of students that can be supported will increase.
Organization Capacity: Strategies developed to implement needed changes or address resource needs; responsibility assigned; executive director will mentor new assistant professors, continue to encourage faculty members to mentor graduate students; maintain graduate student involvement as part of faculty promotion guidelines.
Time Frame: Already ongoing
Fiscal Impact: Return on investment determined to be favorable; external grants will increase and indirect cost recovery fund will increase.

Performance Indicators I.1

Output: Total faculty members.
Output: Total funding level of research grants obtained.
Output: Graduate student research activity.

Outcome: Percentage change in number of faculty members
Outcome: Percent change in funding level of research grants obtained.
Output: Graduate student activity.

II. Goal: To be a learning enterprise in which all Louisiana businesses, institutions and citizens are actively engaged in the pursuit of knowledge.

Objective II.1 To increase the level of participation by university students, K-12 students, teachers, and the general public in LUMCON's education programs by 10 % over current levels by 2016.

The existing set of indicators has been confusing, overlap, difficult to calculate, and do not represent many of the current activities of LUMCON and BTNEP because of budget cuts. Fewer faculty until FY2012-2013 so fewer students, courses; fewer K-

12 schools and universities can visit; more contact needs to be conducted outside of the Marine Center; lower printing budget, less printing, more electronic distribution; lower budget, lower marine education staff, fewer activities and contact hours. The revised and new indicators will be divided into university, K-12, teacher, and public outreach.

Linked to LUMCON PI#7827, Number of courses taught, PI#4462, Number of students registered, PI#7825, Number of credits earned, PI#7826, Number of participating universities, PI#4455, Number of university student contact hours, NEW, number of university field trips (including graduate symposia), number of participating universities, PI#4468, Contact hours for non-university students, [This PI will be divided into K-12, teacher, and public] PI#4469, Total number of non-university groups, [This PI will be divided into K-12, teacher, and public.] NEW: number of schools/classes and number of K-12 students visited external to the LUMCON Marine Center (rational: more trips out of LUMCON as school budgets drop). PI#17383, Number of new educational products developed, PI#17384, Number of educational products produced, PI#17385, [This PI will include printed and electronic media], Number of products reproduced, [This PI will include printed and electronic media], NEW, number of electronic distributions of educational products; PI#21099, Number of workshops/events sponsored [This will be divided into teacher workshops (#, and # participants) and other public events (#, and # participants). Public events would include activities such as Leadership Terrebonne, adult education seminars, Ichths and Herps Annual Meetings, photography contest (# and # participants).] NEW: number of visitors to the Marine Center registered in the guest registry. NEW: number of visitors to pages on the LUMCON web site. NEW: number of visits to the LUMCON environmental monitoring site. NEW: number of visits to the BTNEP web site. DELETE: number of K-12 contact hours per FTE; this included contact hours by faculty members, a variable number of FTEs, and BTNEP staff other than those identified as "educators."

A plan for transition of the FY2011-2012 Performance Indicators to the revised, deleted, divided, and new FY2013-2016 Performance Indicators will be developed in collaboration with the Division of Administration, Office of Planning and Budget.

Strategy II.1. Work with the universities to (a) better identify marine science courses and programs on the campuses that can benefit by field programs at LUMCON, (b) increase awareness at Louisiana universities of courses offered at LUMCON, (c) develop courses that will integrate with the new LSU undergraduate degree in environmental and coastal sciences, (d) work with other "coastal" universities to include LUMCON courses in their curricula, (f) continue to enhance university and field trip options and adequately advertise, and (g) work more closely with the two-year and technical colleges.

Implementation: LUMCON has collaborated with Louisiana universities to standardize the LUMCON Summer Program offerings and to provide a breadth of courses that

meet the expectations of a summer field program and to supplement courses that can be obtained on campus. LUMCON faculty and the University Education Associate have developed a well-enrolled video distance learning course "Changing Coastal Oceans." LUMCON will work with the universities to expand the distance learning capabilities. Additional information is posted on LUMCON website, with personal trips by the University Education Associate to universities, and with good communications with department chairs. LUMCON and BTNEP will continue to enhance university-level field trips and to convey their availability to Louisiana universities and others from out-of-state. Funding for incorporation into campus courses will depend on the individual university. Additional information to be posted on LUMCON website, and flyers/brochures mailed to as many schools/universities as possible.

Strategy Analysis Checklist

Analysis: Impact on other strategies considered; separation of the university level from K-12 and public will make PI accountability clearer and easier to calculate and document.
Authorization: Authorization exists; 2011-2012 will reduce activities; budgets may improve to increase activities in FY2012-2013 as LUMCON scientific faculty are hired.
Organization Capacity: Responsibility assigned; university education coordinator will be encouraged to continue and increase efforts
Time Frame: Already ongoing
Fiscal Impact: Impact on operating budget; should increase usage fees, dormitory and cafeteria usage, boat rentals, tuition return and credit accumulation to the participating universities; increase graduation rates of participating universities

Strategy II.2 concerning university field trips was incorporated into Strategy II.1.

Strategy II.3. Continue to offer training workshops to provide teachers with marine experience and knowledge that they can transfer to their K-12 students.

Implementation: LUMCON currently has several teacher training programs, mostly in conjunction with BTNEP, Sea Grant Program, and the Louisiana Department of Wildlife and Fisheries. Combining efforts reduces costs, increases the academic inventory, and avoids duplication of efforts among these entities. The LUMCON Bayouside Classroom program has expanded and will continue to enhance environmental science education. Additional educational information for teachers is posted on LUMCON website, and flyers/brochures mailed to as many schools/universities as possible. LUMCON will increase its participation in the State Environmental Education Commission with the appointment of the Executive Director to the Commission.

Strategy Analysis Checklist

Analysis: Impact on other strategies considered; will be limited to the number of environmental education staff, currently at low numbers
Authorization: Authorization exists; 2011-2012 will reduce activities; budgets may improve to increase activities in FY2012-2013 as LUMCON scientific faculty are hired and start to participate in educational activities
Organization Capacity: Responsibility assigned; K-12 and teacher educator
Time Frame: Already ongoing
Fiscal Impact: Impact on operating budget; should increase usage fees, dormitory and cafeteria usage, and boat rentals.

Strategy II.4. Continue to offer field trips to local bays, wetlands, and barrier islands for K-12 students, teachers, and public groups. [The Performance Indicators for this section will be revised, divided, deleted, and added to accommodate a division of K-12 and pubic.] The teacher groups are included in Strategy II.3. As K-12 school budgets decline, there will be fewer groups visiting the Marine Center, using the facilities, and providing usage fees, cafeteria and dormitory revenues, and boat rentals. To continue serving K-12 groups, the LUMCON Marine Education staff will take their field trips and laboratories to the students. BTNEP has one full-time educator. However, many members of the BTNEP staff are engaged in education and public outreach. New and expanded services proposals will seek additional marine education staff. The availability of the LUMCON vessel *Acadiana* is also a limitation for field trips when it is contracted in support of research programs. A new marine education vessel continues as part of LUMCON's capitol outlay request.

Strategy Analysis Checklist

Analysis: Impact on other strategies considered; will be limited to the number of environmental education staff, currently at low numbers
Authorization: Authorization exists; FY2011-2012 will reduce activities; budgets may improve to increase activities in FY2012-2013 as LUMCON scientific faculty are hired and start to participate in educational activities
Organization Capacity: Responsibility assigned; marine education staff of LUMCON and BTNEP
Time Frame: Already ongoing
Fiscal Impact: Impact on operating budget; should increase usage fees, dormitory and cafeteria usage, and boat rentals after an initial slump.

Strategy II.5. NEW: Offer lectures to public groups, hosts public groups at the LUMCON Marine Center, and promote the LUMCON Marine Center as a destination for visits by the public. OLD: Continue to offer lectures and laboratory programs for K-12 students, teachers and public groups.

Implementation: LUMCON's Marine Education staff provide excellent experiential learning activities at the Marine Center and as many as the number of personnel permits. The LUMCON Marine Education staff also takes the "Coastal Classroom" outside of the Marine Center to regional and state science education meetings and fairs with educational activities. LUMCON currently has two educators who conduct these activities; this number is one less than in FY2006-FY2007. A new adult education program will start in FY2010-2011. New and expanded services proposals will seek additional marine education staff for enhancement of these programs or

supplement funds for logistics, equipment, materials, and printing. LUMCON has a biennial public open-house with events to showcase LUMCON education programs and research activities [not held in FY2009-2010 due to budget limitations]. The ability to draw visitors to LUMCON is currently hampered by uncompleted repairs from the hurricane seasons of 2005 and 2008. The LUMCON Marine Center lobby was a showcase of environmental education materials. Continued flooding of the area has precluded its reoccupation until re-construction is completed and environmental education materials revamped and displayed. The configuration of the area will change because the area will not be returned to its original status, and insufficient funds were available for mitigation to make the lobby area more "flood friendly."

Strategy Analysis Checklist

Analysis: Impact on other strategies considered; delayed by hurricane repairs, and the space will not be reconfigured to its original design; delays expected in developing new education materials
Authorization: Authorization exists for hurricane report, up to a point; no mitigation funds provided
Organization Capacity: Responsibility assigned; executive director, marine education staff, and marine center superintendent
Time Frame: Delayed because of hurricane damage; adult education will start in FY 2010-2011.
Fiscal Impact: Impact on operating budget; funds will be needed to redesign and reoccupy the educational spaces in the LUMCON Marine Center lobby.

Strategy II.6. Continue to collaborate with and support the Barataria-Terrebonne National Estuary Program in its public education programs on coastal resource conservation, participation in the BTNEP programs and activities, and dissemination of printed materials, videos, and other promotional materials.

Implementation: The BTNEP produces and distributes thousands of booklets, posters, curriculum packages, videos, educational CDs, and technical documents to the public and to educators through various venues such as web sites, festivals, demonstrations, teacher workshops. Their ability to print as much is curtailed due to budget cuts. Their ability to fully operate as a National Estuary Program is hampered, because the state matching funds have fallen well below what is required. The BTNEP is administered by LUMCON, and as the LUMCON state general budget declines so does the state match available from the LUMCON budget.

Strategy Analysis Checklist

Analysis: Impact on other strategies considered; decline in state general fund match is affecting BTNEP ability to continue level of services, education and outreach
Authorization: Authorization exists; but 1:1 matching by state general fund is not currently available
Organization Capacity: Responsibility assigned; LUMCON Executive Director and BTNEP Director
Time Frame: Already ongoing
Fiscal Impact: Impact on operating budget; means of finance identified but inadequate

Strategy II.7. Continue to provide public service to the scientific, educational and public communities.

Implementation: LUMCON's science staff serves their professional community in many support activities, and the entire LUMCON staff supports activities in the regional

and local community. These activities will continue to be valued as part of LUMCON's mission.

Performance Indicators II.1

Output: Number of students, teachers and public involved in marine center education programs, number of educational products produced, reproduced, and distributed.

Outcome: Change in number of students, teachers and public involved in marine center education programs, change in number of educational products produced, reproduced, and distributed.

III. Goal. To provide a unique research and education structure, in terms of people, resources and philosophy, that enhances the success of staff, collaborators, visitors and the public in a better understanding of Louisiana's important and valuable resources. This goal replaces a prior Goal "To provide excellent support for LUMCON's research and the education/outreach activities in terms of vessel operations, library facilities, laboratories, classrooms and dormitory and cafeteria services." The amended goal better describes the support provided in achieving LUMCON's mission. The details are broken down by category in the strategies.

Linked to LUMCON PI #s 21621, 12662, 12670, 12668, 12665, 12668, 12663 for vessels; 7842, 7843, 7844 for library; 21624, 21625, 21626 for dormitory/cafeteria. Many of these indicators remain viable and reflect LUMCON support of research and education; others need to be revised with regard to current ways of doing business; others need to be added to help better reflect the unique role of LUMCON in support of marine science and education in the state and out-of-state.

ADD ENVIRONMENTAL MONITORING, hits on web site, number of sites.

Objective III.1 To increase facilities and services to levels necessary to support expanded activities in research and education programs through 2016.

Strategy III.1. Make quarterly assessment of the usage for all boats and vessels so future needs can be predicted and met.

Implementation: When demand for boats exceeds available boats, either procure new boats or replace those that are no longer usable. However, it is difficult to keep track of the requests for vessels that cannot be met because lack of vessels or lack of staff to operate those vessels. LUMCON vessels were originally supported (in part) with state-funded staff, supplies and maintenance. This has not been the case for several decades, and the vessel procurement, use, and maintenance must be met entirely from self-generated fees. In addition, many of the vessels are provided at reduced rates for education purposes, placing further costs on the vessel operations budget. This places restrictions on the *Pelican* but opens many opportunities for scheduling, new equipment, fleet-shared use of equipment, services provided by UNOLS. With the

Research Vessel designation from the U.S. Coast Guard, the *Pelican* is also bound by certain restrictions in the type of work it can perform for hire.

Strategy Analysis Checklist

Analysis: Impact on other strategies considered; price of vessel usage may affect whether researchers or educators may be able to hire vessels as other budgets within the state decrease. This will indirectly and negatively affect vessel revenues, need to increase rates, and negative feedback into rates and use.
Authorization: Authorization exists; the ability to support all vessel use and support must be balanced with the fees generated to support staff, equipment, maintenance, and large ship-yard maintenance.
Organization Capacity: Resource needs identified; strategies developed to implement needed changes or address resource needs; responsibility assigned to Vessel Operations Superintendent under the supervision of the Executive Director.
Time Frame: Already ongoing
Fiscal Impact: Means of finance identified

Strategy III.2. Make quarterly assessment of demands on library services.

Implementation: Increase library services as needed, dependent on funding. The idea of a printed, hard-bound book, print journals, and print documents has changed dramatically particularly over the last decade. More journals are available via electronic media; some journals are available only in electronic media. The LUMCON Library has seen a shift of "walk-in" users to access through electronic visits. Changes have been made in the Performance Indicators for these aspects of usage to more accurately reflect this change. The costs of subscriptions, however, have not decreased due to a shift in media. With reduced budgets, the LUMCON Library has suffered dramatic cuts to journal subscriptions and had no budget for other acquisitions. The budget is primarily aimed at maintaining electronic services to its faculty, staff, students and other users. Part of this is to subscribe with other Louisiana libraries to LOUIS which is a state consortium that provides electronic source services to its members; the LOUIS system is a cost savings and a major mechanism to avoid duplication in library services. The LUMCON Library, like many others, is becoming more of a "virtual" library. The Board of Regents funding for LOUIS is in jeopardy, and we will not know the results of those budget cuts/negotiations until after the FY2011-2012 projected cuts. Thus, providing Performance Indicators for FY2011-2012 to FY 2015-2016 is difficult at this point.

Strategy Analysis Checklist

Analysis: Impact on other strategies considered; unknowns with regard to budgets identified.
Authorization: Authorization exists; funds continue to decrease
Organization Capacity: Resource needs identified; responsibility assigned to LUMCON Librarian under the supervision of the Executive Director
Time Frame: Already ongoing
Fiscal Impact: Impact on operating budget is nil, because reductions in the state general fund support will be passed down to the Library.

Strategy III.3. Make quarterly assessment of the demands for dormitory and cafeteria services

Implementation: Once the damage from Hurricane Katrina is fixed, we will be in full capacity for dormitory beds. It will take a while to re-advertise the availability of

increased rooms, and thus a while for dormitories to increase in occupancy. Also, as state budgets are cut, including universities, public primary and secondary schools, and private schools, fewer schools will be able to take overnight field trips to LUMCON. However, there is often a cost savings when many students are brought (cut down on transportation fees). It will be a while before the trends become obvious. Changes will be made in room and meal rates, but not to the exclusion of having attendance at the Marine Center. Should there be demands on occupancy above the resources, we will make necessary changes to optimize rooms for more capacity and provide the necessary meal services. LUMCON is currently working with a minimal staff in dormitories/cafeterias, having to lay off two full-time workers and hiring part-time employees in response just for the activities that need support. The staffing of the cafeteria/dormitories will be assessed constantly and cost savings determined and implemented.

Strategy Analysis Checklist

Analysis: Impact on other strategies considered; changes in fees, usage, employees will be determined and balanced between costs and income
Authorization: Authorization exists
Organization Capacity: Resource needs identified; responsibility assigned to the Marine Center Superintendent and the supervisor of the cafeteria/dormitory staff
Time Frame: Already ongoing
Fiscal Impact: Means of finance identified and modified as needed.

Performance Indicators III.1

Output: Number of days of vessel use, journal use and use of other library services, and cafeteria/dorm use.

Outcome: Change in days of vessel use, journal use and use of other library services, and cafeteria/dorm use.

APPENDIX I: PROCESS DOCUMENTATION

PROGRAM: RESEARCH AND EDUCATION IN MARINE SCIENCE

I. A brief statement identifying the principal clients and users of each program and the specific service or benefit derived.

The principal clients and users of the LUMCON research and education programs are the LUMCON Executive Board universities: Louisiana State University, Nicholls State University, and the University of Louisiana in Lafayette. Other state universities that are members of the Consortium are Southern University – BR, Grambling University, the University of New Orleans, McNeese State University, Northeast Louisiana University, Southeastern Louisiana University, LSU-Shreveport, Southern University - NO, Louisiana Tech University, Northwestern University; the LSU Agricultural Center, and private universities such as Tulane, Loyola, Xavier, Dillard, Our Lady of Holy Cross, Louisiana College, and many out-of-state universities that seek the unique resources of LUMCON for their field experiences.

Numerous federal agencies, state agencies and private organizations are beneficiaries of LUMCON research programs, including: the U.S. Army Corp of Engineers, the Environmental Protection Agency, the Minerals Management Service, the National Science Foundation, the Office of Naval Research, the National Oceanographic and Atmospheric Administration, the Department of Commerce/National Marine Fisheries Service, National Aeronautics and Space Administration the Department of Energy; state agencies, including Department of Health and Human Resources, the Department of Natural Resources, the Department of Environmental Quality, and Department of Wildlife and Fisheries; Terrebonne and Lafourche parishes; private organizations such as Lake Pontchartrain Foundation, Gulf Restoration Network, the Nature Conservancy, the National Audubon Society, aquaculture venturists, Houma Chamber of Commerce, Lafourche Parish Chamber of Commerce.

K-12, teacher, university and public groups from all over the state visit the Marine Center for field trips and other educational experiences. Many visitors from out-of-state also benefit from the programs that LUMCON offers. The greatest concentration of groups is from schools in Terrebonne, Lafourche, and St. Mary's Parish. The Bayouside Classroom has expanded into Cameron Parish, and the Service Learning Center at Tulane University. Many civic organizations as well as the general public visit the facility and learn about important scientific issues. All of these populations served receive education and increased awareness of marine sciences and their economic and cultural value to Louisiana's coastal/marine environments.

II. Identification of potential external factors that are beyond control of LUMCON that could significantly affect the achievement of goals and objectives.

The Administration – With changes in governors and their administration, LUMCON as a member of higher education is subject to any changes that reflect state support of higher

education. LUMCON's state appropriation from year-to-year have been a stand still budget at best. Since FY2008-2009, LUMCON has suffered a percentage reduction in state funds as higher education has borne the majority of state budget cuts. The BTNEP state match support has also suffered cuts to higher education, because these funds are in the LUMCON budget and are reduced as LUMCON's budget is reduced. Without increased state funding an increase in the number of faculty and maintenance of LUMCON services will be very difficult to accomplish.

Economics – Within the bleak economic picture since 2008, Louisiana like most states has suffered reductions in revenues. High levels of budget reductions within the state budget were burdened by higher education, and greater reductions are expected for the FY2011-2012 as economic stimulus funding decreases. LUMCON's vision is to maintain its stature as a unique and valued marine research and education institution despite declining financial support through alternative and innovative approaches to funding, reassessment of mechanisms of achievement of goals, and alternative avenues for achieving its mission.

Financial status within higher education – LUMCON is further challenged in its inability to offset budget cuts in that it is unable to increase tuition (LUMCON teaching credits accrue tuition to the member universities) or increase its graduation rate as required to increase tuition (students are enrolled at member universities). These are features that degree-granting institutions of higher education are capable of enhancing but are not available to LUMCON, or any other non-degree granting institution of higher education, such as the LSU Pennington Center. These research institutions generate considerable external funds, but the state general fund support has been decreasing over recent years so that general services are threatened.

Economy and federal agency support – Approximately 70% of LUMCON's total annual revenue (was 60%) are derived from external funds, primarily from federal agencies. Should funding levels for federal agencies supporting marine research and education decline, as they have since FY2007-2008 and will continue to decline as the federal budget deficit is reigned in, LUMCON programs will be negatively affected. Fewer federal resources to marine science research will negatively impact the ability of LUMCON faculty to generate research grants. A similar situation is seen within the Louisiana agencies; their budgets have also been decreasing. As research opportunities and external funding drop, so will the ability to bring in external funds. The net result is less activity that supports general LUMCON services and a reduction in the indirect cost recovery fund that also supports general LUMCON services. LUMCON depends heavily on its research grants brought in by LUMCON faculty to provide the essential new research results that feed into marine environmental education programs. These programs will also suffer as faculty research grants that support the education programs dwindle.

Setbacks from hurricane damage – Located in Cocodrie at the upper end of Terrebonne Bay, and the Fourchon lab near Grand Isle, LUMCON's facilities and vessels are highly susceptible to hurricane damage. Mitigative and protective measures are taken for each tropical storm that enters the Gulf of Mexico, but full force storms will cause damage.

Recovery efforts begin immediately, but larger storms, such as Hurricanes Katrina and Rita in 2005 and Ike and Gustav in 2008, cause so much damage that services may be curtailed for extended periods. At the beginning of FY2009-2010, LUMCON dormitories, the downstairs lobby and information area, post lamps, and the Fourchon dock and bulkhead were still unrepaired. We anticipate complete restoration of the Marine Center dormitories in November 2010 and anticipate improved residency indicators beginning FY2011-2012 after a full fiscal year of recovery of the capacity. The number of visiting groups, however, has decreased also as a result of the economic downturn, and we do not expect recovery of occupancy rates to pre-2005 levels. The downstairs lobby, once an attractive environmental communication area, will not be returned to its former effective space, even with construction, when that starts. The Fourchon Camp bulkhead deteriorated with time but was severely damaged in 2005 and further in 2008, with no repair or mitigation in between times. The bulkhead and docking remain unrepaired, creating unsafe conditions and preventing the effective use of the remote lab for research and education.

With continued loss of barrier islands, salt marshes, natural land ridges, the potential for hurricane damage increases. Protecting the Louisiana coast through mitigation and restoration projects is a prime effort of the state. However, progress is slow and high water and damage potential increases with time that restoration does not occur. The LUMCON Marine Center, however, is a unique feature of higher education and for the entire state, that measures to continue its protection, enhancement, and use are imperative for the services it serves the state to continue. There is a long life remaining in the LUMCON structure, its human resources, and its future potential.

Deepwater Horizon British Petroleum oil spill – Beginning in April 2010 with the Deepwater Horizon British Petroleum oil spill, LUMCON has become a focus of needs, initiatives, support logistics, research space, oil spill effort space, dockage, vessel use, and increased education needs, among others—all with no additional support from the state general budget, or the ability to increase income through tuition increases (see above). Reasonable use fees, comparable to other coastal research laboratories, have been instituted to recover the time of the staff and use of facilities. We are operating under several guiding principles (1) to be as helpful as we possibly can with resources, information, or space; (2) to serve research and education first and state and federal agencies second; (3) *not* to benefit financially from the disaster; and (4) maintain our vision and missions of research and education. The length of time these distractions will be factors in the functioning of LUMCON and BTNEP is unknown. But, these activities place additional stresses and demands on facilities, staff, time, and psyche, and prevent routine maintenance and normal support of activities. All these will need time to recover.

III. The statutory authority for each goal.

LUMCON programs in research and education are authorized by Act 557 of the 1979 Revised Session; Chapter 28 of Title 17 of Louisiana Revised Statutes as Amended by Act 1243 of the 1995 Regular Session.

IV. A description of any program evaluation used to develop objectives and strategies.

The Board of Regents sponsored an external review of LUMCON's programs in late 2000. The review indicated that LUMCON's programs in research and education are of great importance and value to the state and they should be expanded. The LUMCON Executive Board and the Board of Regents continue to identify the uniqueness of LUMCON and its service to the state's marine research and education agenda. The Board of Regents within the FY2009-2010 have paid greater attention to those institutions that are faced with percentage cuts without the ability to generate outside fees. The uniqueness of LUMCON as a vital state and higher education resource has resounded from the Board of Regents.

V. Identification of the primary persons who will benefit each objective

See Performance Indicator documentation attached for each objective.

VI. How will duplication of effort be avoided?

LUMCON programs in research and education are unique within the state of Louisiana and are not duplicative of any programs at universities or in other K-12 schools. Many environmental education efforts are joint ventures among several entities, such as LUMCON, the BTNEP, Louisiana Department of Wildlife and Fisheries, and the Louisiana Sea Grant College Program. The LUMCON faculty and environmental educators look for collaborations rather than competing with other institutions. In fact, LUMCON research grants often include researchers from Consortium member institutions, with a positive feedback to the income of the relevant institution. LUMCON Executive Director, Dr. Nancy Rabalais, has been in discussions with Secretary Robert Barham of the Louisiana Department of Wildlife and Fisheries to assess the capabilities of LUMCON and LaDWF in relation to their newly constructed marine laboratory at Grand Isle, so that enhancement is the modus operandi rather than duplication of efforts.

VII. Documentation for each Performance Indicator.

See below.

VIII. A description of how each performance indicator is used in management decision-making.

See Performance Indicator documentation

APPENDIX II: PERFORMANCE INDICATOR DOCUMENTATION

Program: Research and Education in Marine Science

Objective: To conduct basic and applied research that increases the scientific understanding of Louisiana's marine/coastal environment.

Indicator: Total funding level of research grants obtained.

1. Indicator type: Output

2. What is the rationale for this indicator? This is the simplest and most direct index of the level of research activity at the LUMCON Marine Center.

3. What is the source of the indicator? All research grants have specified start and end dates, and award levels are stated in legally binding, auditable contracts. These funding levels can be compiled internally by LUMCON financial managers.

4. **What is the frequency of data collection**? Data can be gathered as necessary but summaries are routinely provided to the LUMCON Executive Director at quarterly intervals.

5. **How is the indicator calculated**? Grant funds obtained by LUMCON faculty are summed. Multi-year grants are annualized before inclusion in the total.

6. Does the indicator contain jargon? No.

7. Is the indicator an aggregate figure? Yes

8. Who is responsible for data collection, analysis and quality? Ms. Heidi Boudreaux, Finance Manager.

9. Does the indicator have limitations or weaknesses? Yes, it contains no information on research quality. Also, because the number of LUMCON scientific faculty is small (7 persons, 4.5 state supported, with intent to replace 1 faculty member and hire 2 new faculty), the success or failure of a few proposals can skew the indicator when it is calculated over a short time basis; the indicator is somewhat volatile and a longer term average of the indicator will be its best use.

10. How is the indicator used in management decision making or other agency processes? Research is the primary means by which LUMCON contributes to the knowledge base of the marine environment in Louisiana. This indicator (and its components) is used to gauge the overall success rate of LUMCON's research programs in marine science. The level of research funding is also relevant to a faculty member's evaluation, promotion potential and continuance of contract.

Objective: To increase public and private research and development activity in the marine sciences and related fields.
Indicator: Percent change in funding level of research grants obtained.

1. Indicator type: Outcome

2. What is the rationale for this indicator? This is the simplest and most direct index of change in the level of research activity at the LUMCON Marine Center.

3. What is the source of the indicator? All research grants have specified start and end dates, and award levels are stated in legally binding, auditable contracts. These funding levels can be compiled internally by the LUMCON finance department.

4. **What is the frequency of data collection**? Data can be gathered as necessary but summaries are routinely provided to the LUMCON Executive Director at quarterly intervals.

5. **How is the indicator calculated**? The increase or decrease in funding level is compared to the same reporting period in the previous year.

6. Does the indicator contain jargon? No.

7. Is the indicator an aggregate figure? Yes

8. Who is responsible for data collection, analysis and quality? Ms. Heidi Boudreaux, Finance Manager.

9. Does the indicator have limitations or weaknesses? Yes, it contains no information on research quality. Also, because the number of LUMCON scientific faculty is small (7, 5.25 FTEs filled, 2 open), the success or failure of a few proposals can skew the indicator when it is calculated over a short time basis; the indicator is somewhat volatile and a longer-term average of the indicator will be its best use.

10. How is the indicator used in management decision making or other agency processes? Research is the primary means by which LUMCON contributes to the knowledge base of the marine environment in Louisiana. This indicator (and its components) is used to gauge the overall success rate of LUMCON's research programs in marine science. The level of research funding is also relevant to a faculty member's evaluation, promotion potential and continuance of contract.

Objective: To increase the level of participation by university students, K-12 students and teachers, and the general public in LUMCON's education programs by 10 % by 2016.
Indicator: Number of students, teachers and public involved in marine center education programs.

1. Indicator type: Output

2. What is the rationale for this indicator? This is the simplest and most direct index of the level of educational activity at the LUMCON Marine Center.

3. What is the source of the indicator? All university, K-12 activities and scheduled public activities are coordinated by the K-12 Marine Educator and the University Education Coordinator who keep records of all activities.

4. **What is the frequency of data collection**? Data can be gathered as necessary but summaries are routinely provided to the LUMCON Executive Director at quarterly intervals.

5. **How is the indicator calculated**? Students, teachers and public groups that schedule formal visits to the Marine Center are summed on a person-day basis (e.g. 1 person for 2 days is 2 person days, as is 2 persons for 1 day). Walk in visitors are not included in this indicator, but will become a new performance indicator.

6. Does the indicator contain jargon? No.

7. Is the indicator an aggregate figure? Yes

8. Who is responsible for data collection, analysis and quality? The K-12 Marine Education Associate, the University Education Coordinator, the Receptionist, and the Public Information Specialist, with review by the Executive Director.

9. Does the indicator have limitations or weaknesses? Yes, it contains no information on quality of educational programs. Considerable effort is continually expended to increase the quality of these programs and to increase the distribution through LUMCON visitors and visitors outside of LUMCON, through visiting schools around the state.

10. How is the indicator used in management decision making or other agency processes? This indicator (and its components) is used to gauge the overall success rate of LUMCON's education programs in marine science. In addition, its success will determine the level of institutional resources (funds and space) allocated to it.

Objective: To increase the level of participation by university students, K-12 students and teachers, and the general public in LUMCON's education programs by 10 % by 2016.

Indicator: Change in number of students, teachers and public involved in marine center education programs

1. Indicator type: Outcome

2. What is the rationale for this indicator? This is the simplest and most direct index of change in the level of educational activity at the LUMCON Marine Center.

3. What is the source of the indicator? All university, K-12 activities and scheduled public activities are coordinated by the K-12 Marine Educator and the University Education Coordinator who keep records of all activities.

4. **What is the frequency of data collection**? Data can be gathered as necessary but summaries are routinely provided to the LUMCON Executive Director at quarterly intervals.

5. **How is the indicator calculated**? The increase or decrease in student, teacher or public visitors is compared to the same reporting period in the previous year.

6. Does the indicator contain jargon? No.

7. Is the indicator an aggregate figure? Yes

8. Who is responsible for data collection, analysis and quality? The K-12 Marine Education Associate, the University Education Coordinator, the Receptionist, and the Public Information Specialist, with review by the Executive Director.

9. Does the indicator have limitations or weaknesses? Yes, it contains no information on quality of educational programs. Considerable effort is continually expended to increase the quality of these programs and to increase the distribution through LUMCON visitors and visitors outside of LUMCON, through visiting schools around the state.

10. How is the indicator used in management decision making or other agency processes? This indicator (and its components) is used to gauge the overall success rate of LUMCON's education programs in marine science. In addition, its success will determine the level of institutional resources (funds and space) allocated to it.

Objective: To increase facilities and services to levels necessary to support continued and expanded activities in research and education programs through 2016.

Indicator: Number of days of vessel use, journal use, and cafeteria/dorm use indices. Additional indicators of electronic expansion of information and outreach are added.

1. Indicator type: Output

2. What is the rationale for this indicator? Days of vessel use are a simple and direct index of the level of activity in vessel operations. Similarly the number of journal users is an index of library activity (modified from high "walk-in" use to electronic visits) and the number of cafeteria/dorm users is an index of use of these facilities.

The number of journals is no longer a reliable indicator because the LUMCON Library has had to assume major cuts so that the LUMCON budget can cover other necessary services.

3. What is the source of the indicator? Vessel Operations keeps records of all users, library staff tabulates journal number and journal use for assistance in allocating library budgets, and cafeteria/dormitory staff keep records for reservations and billing purposes.

4. **What is the frequency of data collection**? Quarterly.

5. **How is the indicator calculated**? Only days actually spent at sea are used for vessels; journal numbers are determined by subscriptions, library use is determined by the number of "walk-in" and electronic visitors; and cafeteria/dorm use is determined as number of overnight visitors using the dormitory facilities (person nights and person meals).

6. Does the indicator contain jargon? No.

7. Is the indicator an aggregate figure? Yes, but each of the three service categories are reported separately.

8. Who is responsible for data collection, analysis and quality? Vessel Operations Superintendent for vessels; Librarian for journals and library use; Receptionist for cafeteria/dorm use.

9. Does the indicator have limitations or weaknesses? No.

10. How is the indicator used in management decision making or other agency processes? Indices within this indicator category are used to make decisions regarding resource allocation within LUMCON.

Objective: To increase facilities and services to levels necessary to support expanded activities in research and education programs through 2016.

Indicator: Change in days of vessel use, journal numbers, journal use and use of other library services, and cafeteria/dorm use

1. Indicator type: Outcome

2. What is the rationale for this indicator? Change in days of vessel use is a simple and direct index of the level of activity in vessel operations. Similarly change in the number of journals and library users (multiple types) are indices of library activity. Change in the number of cafeteria/dorm users is an index of use of these facilities. The occupancy rate of dormitories is an additional indicator of usage and change in usage.

3. What is the source of the indicator? Vessel Operations keeps records of all users, Librarian tabulates journals and journal use, and the Receptionist keeps records of dormitory and cafeteria use for billing purposes. These data are used for allocating library budgets, and managing cafeteria/dormitory budgets so there are no deficits. The vessel budget is self-sustaining but would benefit from state general funds.

4. **What is the frequency of data collection**? Quarterly..

5. **How is the indicator calculated**? The increase or decrease in each index is compared to the same reporting period in the previous year.

6. Does the indicator contain jargon? No.

7. Is the indicator an aggregate figure? Yes, but each of the three service categories are reported separately.

8. Who is responsible for data collection, analysis and quality? Vessel Operations Superintendent, Library, and Receptionist/Marine Center Superintendent, respectively.

9. Does the indicator have limitations or weaknesses? No.

10. How is the indicator used in management decision making or other agency processes? Indices within this indicator category are used to make decisions regarding resource allocation within LUMCON.

Objective: To increase LUMCON visibility and public outreach through electronic media and additional use indicators through 2016.

Indicator: Change in electronic newsletters and e-News, change in number of accesses to LUMCON web site pages, change in the number of registered day visitors.

1. Indicator type: Outcome

2. What is the rationale for this indicator? These metrics provide measures of more intangible successes in LUMCON's presence in the Marine Science and Education venues in Louisiana and outside of Louisiana. Number of electronic visits to LUMCON web pages and environmental monitoring data are tangible measures of use. The number of outside day visitors is easily determined from those who sign the guest book (realizing that not all day visitors will sign).

3. What is the source of the indicator? Counts on the LUMCON web pages and visitor registry.

4. **What is the frequency of data collection**? Quarterly.

5. **How is the indicator calculated**? The increase or decrease in each index is compared to the same reporting period in the previous year.

6. **Does the indicator contain jargon?** No.

7. **Is the indicator an aggregate figure?** Yes, but each of the categories are reported separately.

8. **Who is responsible for data collection, analysis and quality?** Public Information Specialist.

9. **Does the indicator have limitations or weaknesses**? Number of day visitors is contingent on the willingness of the visitor to sign the guest registry.

10. **How is the indicator used in management decision making or other agency processes**? Indices within this indicator category are used to make decisions regarding resource allocation within LUMCON.

APPENDIX III: PROPOSED REALINGMENT and REVISION OF PERFORMANCE INDICATORS FOR LUMCON

PROGRAM: RESEARCH AND EDUCATION IN MARINE SCIENCE

1. **(KEY) To increase public and private research and development activity in the marine sciences and related fields by 10% by Fiscal Year 2015-2016.**

Performance Indicators – research productivity

K Number of scientific faculty (state) (LAPAS CODE – 4474

K Number of scientific faculty (total) (LAPAS CODE – 14665

K Number of grants (LAPAS CODE – 7824)

K Number of research grant expenditures (in millions) (LAPAS CODE – 7823)

K Grant $ per FTE (science faculty total) (LAPAS CODE – 21578) *REVISED*

K Grant:state funding ratio (LAPAS CODE 4457)

S Number of peer-reviewed scientific publications (LAPAS CODE – 7822)

2. **(KEY) To be a learning enterprise in which all Louisiana businesses, institutions and citizens are actively engaged in the pursuit of knowledge and increase activities by 10% by FY2015-2016.**

Performance Indicators – university students

K Number of university students registered (LAPAS CODE – 4462) *REVISED*

K Number of university credits earned (LAPAS CODE – 7825) *REVISED*

K Number of university student contact hours (formal and informal) (LAPAS CODE -4455) *REVISED*

S Number of university courses taught (LAPAS CODE- 7827) *REVISED*

S Number of graduate students, Masters and Ph.D., that are advised as a committee chair by a LUMCON faculty member (NEW LAPAS CODE)

S Number of graduate students, Masters and Ph.D. for which LUMCON faculty members serve as committee members (NEW LAPAS CODE)

S Number of graduate students, not advised, for which LUMCON faculty assist in their research (NEW LAPAS CODE)

S The ratio of students assisted (in the above mentioned ways) to the number of LUMCON research faculty members (NEW LAPAS CODE)

S Number of university student field trips (NEW LAPAS CODE) *was part of LAPAS 20381*

S Number of university students on field trips (NEW LAPAS CODE) *was part of LAPAS 20381*

S Number of university student contact hours (LAPAS CODE – 4455)

S Number of participating universities, courses and field trips (LAPAS CODE – 7826)

S Percentage of total budget to university instructional (NEW LAPAS CODE, separated from LAPAS CODE 21095; K-12 will have its own LAPAS percentage of total budget code).

Performance Indicators – K-12 students more clearly defined

K Number of K-12 field trip groups to LUMCON (NEW LAPAS CODE)

K Number of K-12 field trip groups outside of LUMCON (NEW LAPAS CODE)

K Number of K-12 field trip participants (NEW LAPAS CODE)

K Number of K-12 student contact hours (NEW LAPAS CODE, separated from LAPAS CODE 4468)

S Percentage of total budget to K-12 instructional (NEW LAPAS CODE, separated from LAPAS CODE 21095).

S Contact hours per K-12 FTE (LAPAS CODE 20384) DELETED

Performance Indicators – teacher education and development more clearly defined

K Number of workshops/events for teachers (LAPAS CODE – 21098) *REVISED*

K Number of teachers in workshops/events (NEW LAPAS CODE)

K Contact hours for teacher education and development (NEW LAPAS Code)

Performance Indicators – public outreach more clearly defined

S Number of public groups visiting LUMCON (NEW LAPAS Code)

S Number of citizens in public groups visiting LUMCON (NEW LAPAS Code)

S Number of citizens groups visited by LUMCON staff outside of the LUMCON Marine Center NEW LAPAS Code)

S Number of citizen contact hours NEW LAPAS Code)

S Number of outside visitors to LUMCON who sign the guest registry (NEW LAPAS Code)

S Number of new education products developed (K-12, teacher and public) (LAPAS CODE 21096) *REVISED*

S Number of educational products reproduced (printed or electronic) (K-12, teacher and public) (LAPAS CODE – 21097) *REVISED*

S Number of copies of educational products reproduced (printed or electronic) (K-12, teacher and public) (LAPAS CODE – 21098) *REVISED*

S Number of adult education activities (NEW LAPAS CODE)

S Number of adults participating in outreach activities (NEW LAPAS CODE)

S Number of adult education contact hours (NEW LAPAS CODE)

S Number of visits to LUMCON web site (NEW LAPAS CODE)

S Number of LUMCON Environmental Monitoring web sites (NEW LAPAS CODE)

S Number of visits to Environmental Monitoring web site (http://weather.lumcon.edu) (NEW LAPAS CODE)

S Number of visits to BTNEP web site (NEW LAPAS CODE)

3. **(KEY) To provide a unique research and education structure, in terms of people, resources and philosophy, that enhances the success of staff, collaborators, visitors and the public in a better understanding of Louisiana's important and valuable resources.**

Performance Indicators – LUMCON services in support of research and education

more clearly defined

Vessels:

S Number of vessels (fleet) (LAPAS CODE – 21621)

S Number of days at sea – R/V *Pelican* (LAPAS CODE – 12670)

S Number of days at sea – R/V *Acadiana* (LAPAS CODE – 12668)

S Number of days use of small vessels (LAPAS CODE -12668)

S Expenditures to state total (LAPAS CODE -12633) DELETED, no longer relevant because no state generated funds are used in support of vessels.

Performance Indicators - library services

S Number of marine science journals (LAPAS CODE – 7842); numbers drastically reduced with budget cuts. This indicator is kept, but it is not as relevant to library services as it was in FY2008-2008).

S Number of "walk-in" library users (LAPAS CODE – 7843) *REVISED*; numbers drastically reduced.

S Number of electronic visits to LUMCON Library records (LAPAS CODE – 7844)

S Number of interlibrary loan services or requests through various electronic search engines for resources for LUMCON staff (NEW LAPAS CODE)

Performance Indicators – cafeteria/dormitories

S Number of dormitory users (LAPAS CODE – 21624)

S Dormitory occupancy rate (LAPAS CODE – 21626)

S Number of meals served (LAPAS CODE – 21625)

Brochures

Schedule at a Glance

All Day Activities -

- Scavenger Hunt
- Outdoor Games
- Self-guided Tour
- Lab Activities
- Airboat Rides (last trip - 2:45)

Oil Spill Perspectives Schedule -

11:30 – 12 :00
"Oil spill effects on blue crab larvae"
Dr. Erin Grey, Tulane University

12:00 – 12:30
"Establishing a fingerprint of BP oil as it becomes part of our coastal environment"
Dr. Brad Rosenheim, Tulane University

12:30 – 1:00
"The Louisiana Shrimp Industry"
Alan Matherne, LSU Ag Center Extension Agent

1:00 - 1:30
"Response of salt marshes in Barataria Bay to a massive oiling event"
Dr. Alex Kolker, LUMCON

Video Presentation Schedule -

9:30 – 10:27
"Down the Bayou" – BTNEP

10:30 – 11:27
"Troubled Waters - A Mississippi River Story"- Bell Museum of Natural History, University of Minnesota

11:30 – 12:27
"Down the Bayou" – BTNEP

12:30 – 1:27
"Troubled Waters - A Mississippi River Story Bell Museum of Natural History, University of Minnesota

About LUMCON

The Louisiana Universities Marine Consortium (LUMCON) was formed in 1979 to coordinate and stimulate Louisiana's activities in marine research and education. LUMCON provides coastal laboratory facilities to Louisiana universities, and conducts research and educational programs in the marine sciences.

For more information about LUMCON, visit us on the web at WWW.LUMCON.EDU and look us up on Facebook.



Family Activities ✯ Airboat Rides ✯ Discussions ✯ Demonstrations, Displays and MORE!



LUMCON OPEN HOUSE

Saturday, April 16
9 AM - 3 PM

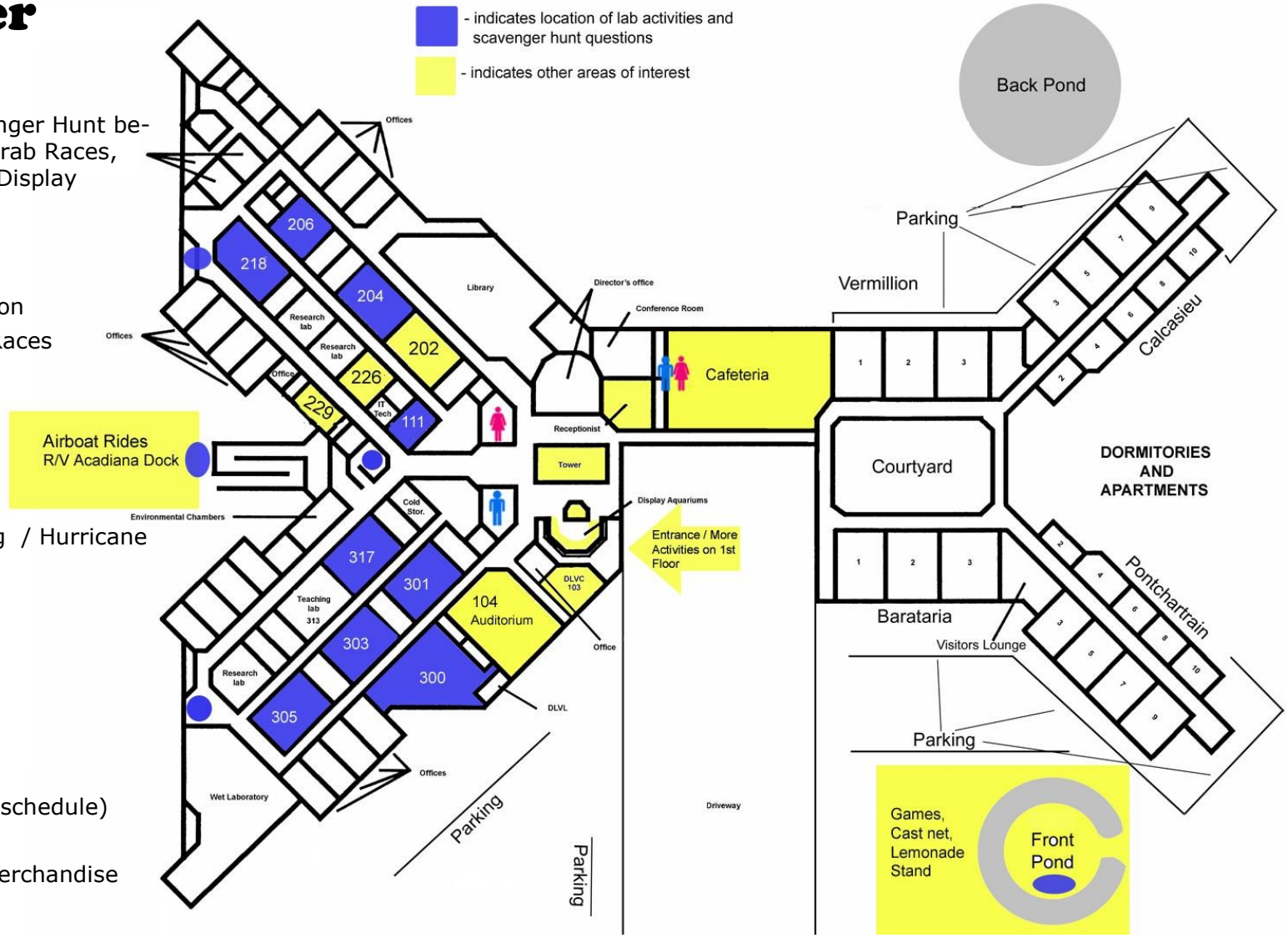
W.J. DeFelice Marine Center
8124 Highway 56
Cocodrie, LA

Louisiana Universities Marine Consortium – Lumcon

Welcome to the W.J. DeFelice Marine Center

Downstairs -
Entrance, Lobby, Scavenger Hunt begins and ends, Fiddler Crab Races, Jellyfish vs. Plastic Bag Display

Main Floor -
202 - Fish Printing
204 - Phytoplankton Examination
206 - Zooplankton - Plankton Races
Hall - Ocean Light Display
218 - Biogeochemistry
229 - Coastal Landscape Photo Display
226 - Photo Contest
111 - Environmental Monitoring / Hurricane Alley
Hall - "The Dead Zone"
317 - Sediments
305 - Coral Reefs
303 - Fish and Fisheries
300 - "The Bone Zone"
301 - Touch Tank
104 - Auditorium (see speaker schedule)
103 - Videos (see schedule)
Receptionist Area - LUMCON merchandise



Lunch provided in the cafeteria from 11 AM - 2 PM

LUMCON's Governing Structure and Membership

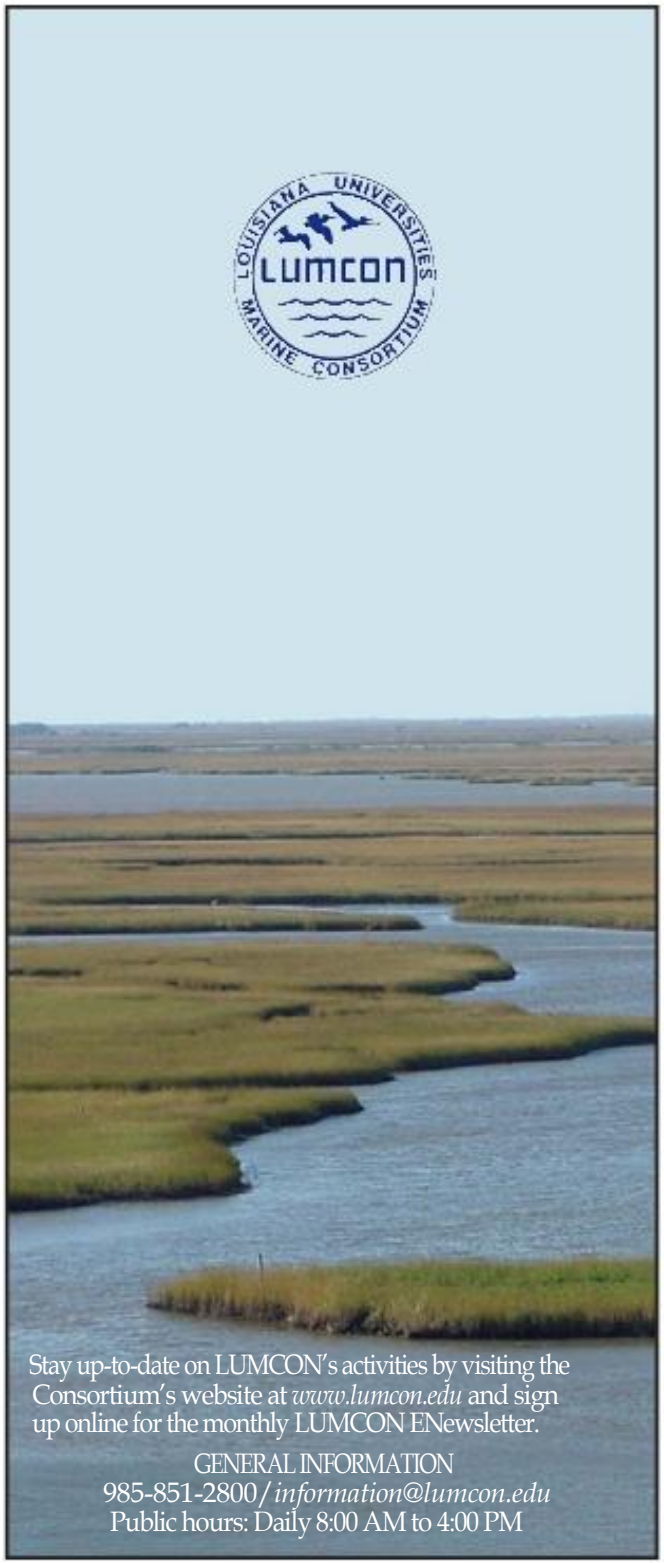
LUMCON is governed by a six-member Executive Board comprised of chief executive officers of Louisiana State University and A&M College, Nicholls State University and the University of Louisiana at Lafayette under the authority of the Louisiana State Board of Regents.

LUMCON Executive Director
Dr. Nancy Rabalais

Consortium Members
Centenary College of Louisiana
Dillard University
Grambling State University
Louisiana Association of Independent Colleges & Universities
Louisiana College
Louisiana State University and A&M College
Louisiana State University in Shreveport
Louisiana Tech University
Loyola University
McNeese State University
Nicholls State University
Northwestern State University
Our Lady of Holy Cross College
Southeastern Louisiana University
Southern University and A&M College
Southern University at New Orleans
Tulane University
University of Louisiana at Lafayette
University of Louisiana at Monroe
University of New Orleans
Xavier University



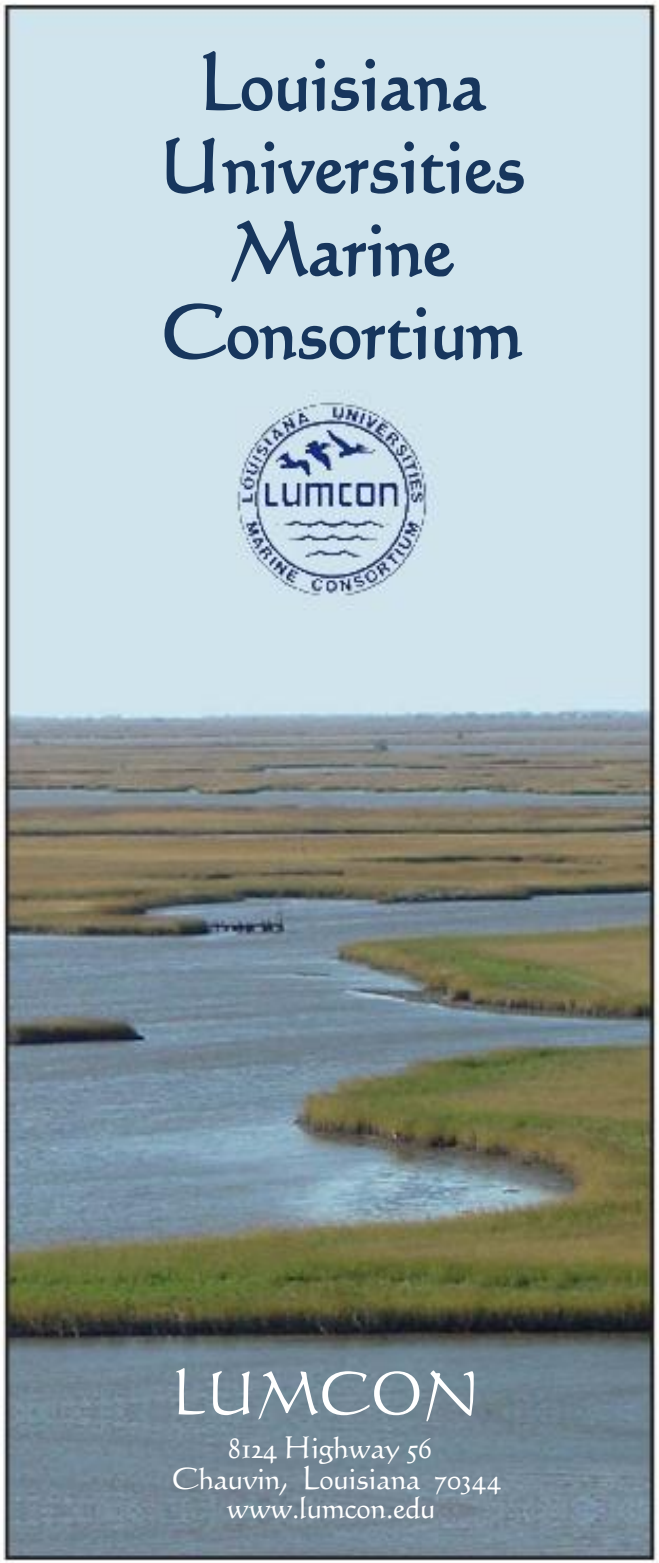
LUMCON's W. J. DeFelice Marine Center



Stay up-to-date on LUMCON's activities by visiting the Consortium's website at *www.lumcon.edu* and sign up online for the monthly LUMCON ENewsletter.

GENERAL INFORMATION
985-851-2800 / *information@lumcon.edu*
Public hours: Daily 8:00 AM to 4:00 PM

Louisiana Universities Marine Consortium



LUMCON

8124 Highway 56
Chauvin, Louisiana 70344
www.lumcon.edu

LUMCON's 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 serving as a facility for all Louisiana schools with interests in marine research and education

Facilities

LUMCON's **W. J. DeFelice Marine Center** is located in Cocodrie, approximately 85 miles southwest of New Orleans. The Center's location on the upper end of Terrebonne Bay, near the Mississippi River delta, extensive estuaries and coastal wetlands, makes it an ideal venue for the study of coastal Louisiana. The 75,000 square foot facility houses laboratories (some with running seawater), classrooms, a computer network, an extensive marine science library and housing to meet the needs of researchers, educators and students. Visitor highlights include LUMCON's 65-foot-tall observation tower, aquariums, educational displays and outdoor boardwalks. LUMCON also maintains a field laboratory at Port Fourchon, located west of Grand Isle.

LUMCON owns and operates two **research vessels**—the R/V *Pelican*, a 116-foot University-National Oceanographic Laboratory System (UNOLS) vessel used for oceanographic research in the Gulf of Mexico, Caribbean and Western Atlantic, and the R/V *Acadiana*, a 58-foot vessel used for short trips offshore and extended cruises in coastal bays, rivers and estuaries. LUMCON also has a fleet of small boats for use by researchers and educators in nearshore waters.

LUMCON's **Environmental Monitoring System** collects and provides realtime and long-term environmental data to a broad community of scientists, educators and the public. Stations at the Marine Center, off-shore, and in local bays, estuaries and the Mississippi River record wind speed and direction, precipitation, water height, air and water temperature, salinity, oxygen, nutrients and other data.
LUMCON posts current environmental data online at *weather.lumcon.edu*. This website also displays current weather conditions at the Marine Center as recorded through two cameras located in the observation tower.

Research

LUMCON scientists focus their research on projects of relevance to Louisiana, while also involving themselves in the global scientific community. Visiting scientists are also encouraged to use the Marine Center. Five themes form the basis of research by resident faculty and staff:

- RIVER/OCEAN INTERACTIONS
- COASTAL PRODUCTIVITY
- PROCESSES OF COASTAL CHANGE
- LIVING RESOURCES
- HUMAN AND INDUSTRIAL ENVIRONMENTAL IMPACTS

LUMCON Faculty

DR. ED CHESNEY
Fish ecology, with an emphasis on early life stages, recruitment and dynamics of coastal fish populations; the effects of anthropogenic stressors on coastal fishes; improving fish spawning and larval survivorship for marine aquaculture

DR. MICHAEL DAGG
The effects of the Mississippi River on the biological oceanography and productivity of the northern Gulf of Mexico

DR. ALEXANDER KOLKER
Geological oceanography and sediment dynamics, particularly climate and human effects on coastal zones.

DR. NANCY RABALAIS
Interactions of the Mississippi River and the Gulf of Mexico; dynamics of hypoxia and the consequences for living resources; harmful algal blooms; nutrient limitation and the effects of increased nutrients; integration of science and policy

DR. BRIAN ROBERTS
Aquatic ecosystem ecology and biogeochemistry with an emphasis on understanding how human activities affect the capacity of aquatic ecosystems

DR. PAUL SAMMARCO
Coral reef ecology; the influence of oil and gas platforms on the expansion of corals in the northern Gulf of Mexico; dispersal, recruitment and behavior of larval corals; genetics of coral populations; chemical ecology of corals

DR. GEOFF SINCLAIR
Biological oceanography/phytoplankton ecology. Research interests include phytoplankton physiology and behavior, biophysical interactions and changes in planktonic community composition.

Education

LUMCON's Marine Education program includes activities for audiences from K-12, university, teacher organizations and provides more than 3000 individuals per year with powerful field experiences and information on marine and coastal environments.

GOALS:
- Inform visitors of the research activities of LUMCON scientists
- Promote awareness of marine environments and their connection to land
- Clarify the scientific process and how it is used in making environmental decisions

K-12: At LUMCON, students become scientists. Through field and laboratory activities, they develop lasting impressions of how they can make a positive impact on their environment and communities. Overnight or day trips are designed to meet the needs and interests of Individual groups, including school classes, scouting organizations and home schools.

University: Students earn credit at Louisiana colleges for courses and internships completed at LUMCON. These offerings allow students to experience the coastal environment as scientists through intense field and laboratory activities supervised by Consortium researchers. University instructors may also reserve LUMCON facilities for field trips.

Teachers: University, K–12 and non-formal educators travel to LUMCON to improve their effectiveness in teaching science. Several programs help teachers understand the scientific process, learn marine/coastal science and gain confidence in active learning methods.

Public: Visitors may explore the displays, aquariums and observation tower at the Marine Center during public hours. Groups of more than 10 people may request a guided tour. Visiting groups may schedule a tour, educational cruise or overnight session with multiple educational activities.

Research and Education Programs

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. Their research addresses issues of the Gulf Coast region, but also extends beyond our coast and nation.

LUMCON's Marine Education Program raises awareness about coastal Louisiana through programs tailored for K–12, university, teacher and public audiences. LUMCON's educators highlight the research conducted by the Consortium's scientists and relate the importance of their work toward developing a better understanding of our environment.

Research Vessels

The 115-foot *R/V Pelican* is utilized by scientists from around the world for offshore oceanographic research cruises, primarily in the Gulf of Mexico. The *Pelican* belongs to a national fleet of research vessels coordinated by the University-National Oceanographic Laboratory System. The ship's name honors the Louisiana state symbol—the brown pelican, and two earlier vessels of the same name. You may see this vessel docked to the left of the Marine Center on the south end of the wet wing, but it is more likely to be at sea.



R/V Pelican



R/V Acadiana

The *R/V Acadiana* is a 58-foot vessel used for short research and educational cruises offshore and in our local coastal areas. The ship's name honors the region of southern Louisiana that was settled by the French Acadians. This vessel docks directly behind LUMCON.

LUMCON also maintains a fleet of small boats for short research and educational expeditions in nearby waters.

Marine Center Construction and Design

Construction of the W. J. DeFelice Marine Center was completed in 1987. The facility includes two buildings: a 75,000 ft^2 complex that accommodates LUMCON's research and educational programs and a 5424 ft^2 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 feet 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^2 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 tanks, environmental chambers and many types of scientific equipment. A large wet lab houses several fish holding tanks, live 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.

Seawater System

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

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Louisiana Universities Marine Consortium

Welcome to LUMCON's W. J. DeFelice Marine Center



LUMCON's 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 serving as a facility for all Louisiana schools interested in marine research and education

Background

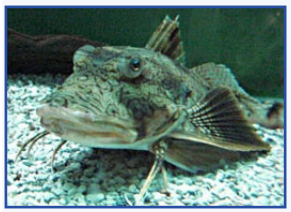
Louisiana Universities Marine Consortium (LUMCON) was established in 1979 by an act of the Louisiana Legislature to coordinate and stimulate marine research and education in Louisiana. The Consortium's base of operation is at the W. J. DeFelice Marine Center in Cocodrie, which lies within the expansive 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.

Sites of Interest

Marine Center public areas include all locations paved in red brick and the library.

1. AQUARIUMS/SHELL COLLECTION

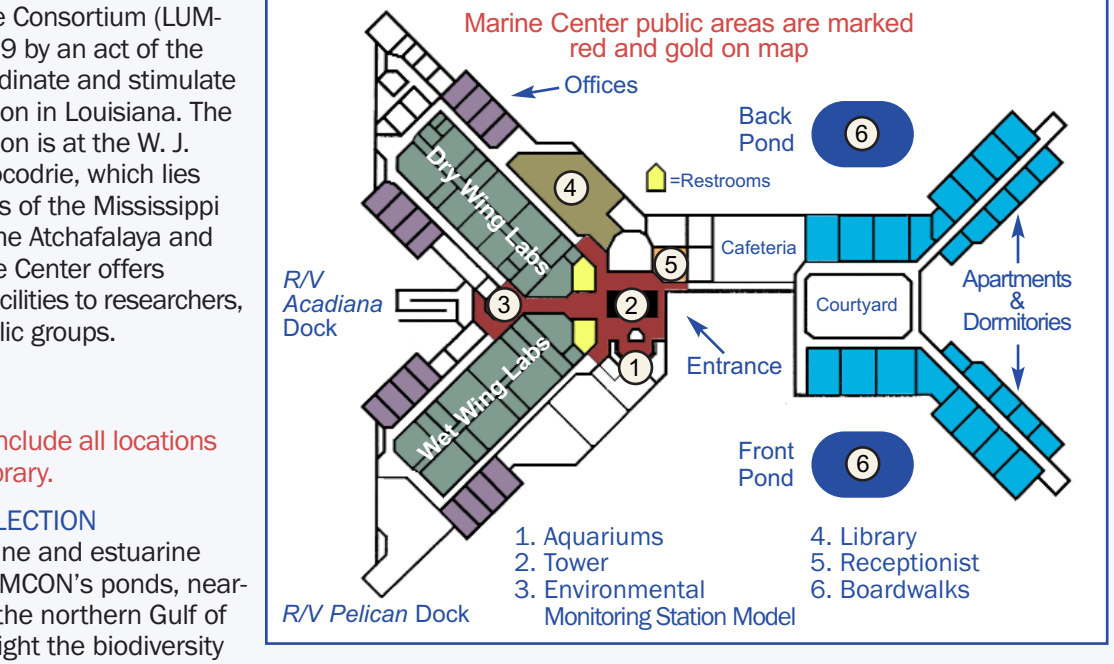
Aquariums display local marine and estuarine organisms collected from LUMCON's ponds, nearby marshes, open bays and the northern Gulf of Mexico. These displays highlight the biodiversity and richness of our coastal environment. Some of the fish and invertebrates you may see include Atlantic spadefish, black seabass, comb jellies, moray eels and bighead sea robins. Signs above each enclosure describe the organisms living inside. LUMCON's shell collection is located between the aquariums and the receptionist area.



Bighead sea robin

2. TOWER

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, as well as benches for relaxation. Informational panels discuss Louisiana's salt water marshes, Cajun culture, wildlife, commercial fishing industry, and several other topics related to this region. Two webcams facing east and west in the tower record current visible weather conditions, which can be viewed at *weather.lumcon.edu.*



Looking east across Highway 56, you can see Bayou Petit Caillou and Bay Cocodrie just beyond. To the southwest is the Houma Navigation Canal. Follow the gravel path back to LUMCON's rear dock to see the Marine Center's environmental monitoring station. If you look to the southeast you can see LUMCON's physical plant building and the administrative trailer that remains from LUMCON's early days. LUMCON operated out of several trailers from 1979–1986, before moving into the newly-constructed Marine Center.



LUMCON's old administrative trailer

3. ENVIRONMENTAL MONITORING STATION MODEL

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 Louisiana's coast. You can access current data from these stations and learn more about LUMCON's monitoring efforts at *weather.lumcon.edu*.



Tambour Bay monitoring station

4. LIBRARY

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. The public is welcome to utilize the library's resources, but holdings may not be checked out. Public hours are Monday–Friday from 8:00 AM–4:30 PM and are subject to change.

5. RECEPTIONIST

Remember your visit to LUMCON's Marine Center by purchasing a t-shirt, baseball cap or tote bag.

6. BOARDWALKS

Visitors are welcome to walk along LUMCON's boardwalks that border the front and back ponds. The ponds are home to fiddler crabs, blue crabs, speckled kingsnakes, nutria, mullet, sailfin mollies, Gulf killifish, sheepshead minnows and the occasional alligator. An assortment of birds can be spotted on LUMCON's grounds throughout the year, including great blue herons, great egrets, green herons, clapper rails, roseate spoonbills, and black-necked stilts.



Front pond boardwalk

Environmental Monitoring Governing Structure

LUMCON's Environmental Monitoring System is overseen by the Executive Director, managed by the Information and Technology Manager, and guided by an Advisory Committee. The advisory committee consists of LUMCON and non-LUMCON scientists, technicians and data managers, and the Executive Director. The committee advises the head of the monitoring program and his/her staff concerning its mission, setting goals and priorities, assisting in the implementation of the system, monitoring the progress, and seeking funding for the system.

LUMCON's Environmental Monitoring system is part of the Gulf of Mexico Coastal Ocean Observing System Regional Association (GCOOS) and the Integrated Ocean Observing System (IOOS).



LUMCON's W. J. DeFelice Marine Center

Stay up-to-date on southeast Louisiana's coastal weather by visiting the environmental monitoring website at http://weather.lumcon.edu

LUMCON GENERAL INFORMATION
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LUMCON's Environmental Monitoring System

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About Environmental Monitoring

LUMCON's Environmental Monitoring System collects and archives real-time meteorological and hydrographic data to provide a broad community of scientists, educators, students, and the public with quality-controlled environmental data from Louisiana's Gulf Coast.



The Louisiana Universities Marine Consortium (LUMCON) was formed in 1979 to coordinate and stimulate Louisiana's activities in marine research and education. LUMCON provides coastal laboratory facilities to Louisiana universities, and conducts research and educational programs in the marine sciences. LUMCON established a coastal environmental monitoring system to bring coastal information to scientists, educators, students, and the public throughout the state. All of the data are freely available in real-time via the Internet. Equipment for construction and instrumentation was obtained through grants from a variety of sources including: NOAA, EPA, NASA, USGS and the State of Louisiana. Maintenance and operation costs have been borne by various grants and LUMCON.

Data Users

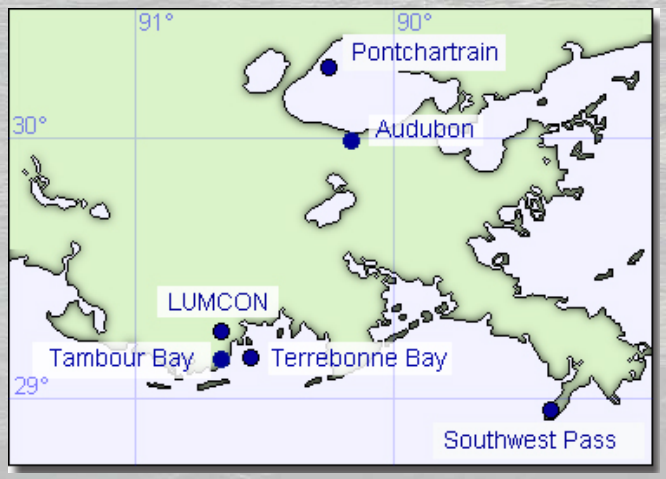
Weather Forecasting
Commercial Fishing
Recreational Boating
Resource Management
Fisheries Management
Habitat Restoration
Public Health
Science and Education
Maritime Industries
Emergency Preparedness
Shipping

Stations and Instrumentation

Six remote monitoring stations, located along the southeastern Louisiana coast, collect environmental data from an array of meteorological and hydrographical instruments.

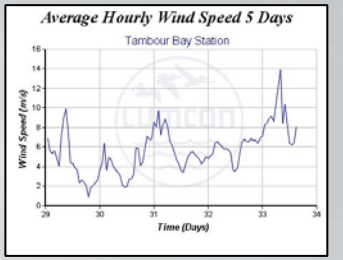
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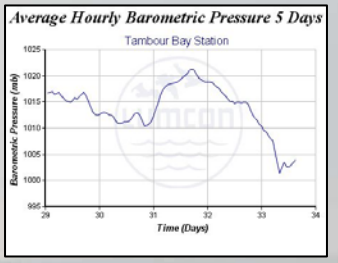
- Wind Speed and Direction
- Air Temperature
- Relative Humidity
- Precipitation
- Barometric Pressure
- Solar Radiation
- Quantum Radiation
- Water Temperature
- Water Height
- Salinity
- Conductivity
- Turbidity
- Chlorophyll Concentration

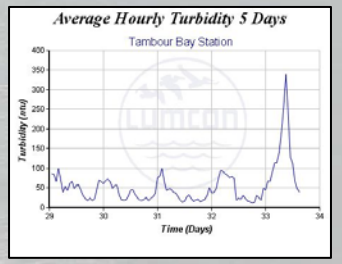


Data Acquisition and Processing

Campbell Scientific Microloggers collect data from the instruments. Once per minute the data are averaged and transmitted to LUMCON via spread spectrum radio transmission, cellular modem and/or direct Internet connection. At LUMCON, the data are then stored in a Microsoft SQL server database as well as archived in comma separated value (CSV) files. Current values are displayed in real-time on the website. One-day, five-day, thirty-day, and yearly graphs are are generated with current information when selected by a web visitor . A user can also download archived data by using a form to subset the data according to a set of criteria from the SQL server or by accessing the CSV files directly through a web browser or ftp. LUMCON's DODS or OpenDap Server provides the data in NetCDF format. Every hour, LUMCON sends data to the National Data Buoy Center (NDBC) and becomes part of the National Weather Service (NWS) data stream.







Shipboard Equipment

Electrical Service 20 kW Generator

Salt Water Supply – 80 gpm

Winches -

- Trawl Winch 500 ft. ¼ in. cable
- Hydro Winch 250 ft. 3/16 in. cable
- Electromechanical Winch 250 ft. 3 /16 in. single conductor cables
- SOSI ECO CTD Winch 1,800 ft. 1/8 in. single conductor cable

Booms -

- A-frame capacity 8,000 lbs.
- Port Davit capacity 1,000 lbs.
- Starboard Davit capacity 1,000 lbs.

Navigation- Furuno NAVNET 3D

Scientific Equipment -

- Seabird SBE19plus CTD with dissolved oxygen sensor and six 4-liter water sample bottles
- 0.1 m^2 Gomex-type SS Box Corer
- Wildco Ponar Grab
- 16 ft. Otter Trawl with doors
- Vertical Transducer Pole
- Phantom HD-2 ROV



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Joe Malbrough, Marine Superintendent
985-851-2871/jmalbrough@lumcon.edu

www.lumcon.edu/facilities/vessels

Louisiana Universities Marine Consortium

R/V *Acadiana*



LUMCON
8124 Highway 56
Chauvin, Louisiana 70344
www.lumcon.edu

R/V *Acadiana*







LUMCON owns and operates the 58 ft. Research Vessel *Acadiana* for scientific research and education programs in near shore waters off Louisiana and neighboring states in the Gulf of Mexico. Built by Breaux's Bay Craft, Inc. of Loreauville, Louisiana, the R/V *Acadiana* was designed and outfitted to conduct a variety of oceanographic and education duties. The vessel is a United States Coast Guard designated oceanographic research vessel.

The R/V *Acadiana*, along with the rest of LUMCON's research fleet, is administered through the Marine Operations Office at the DeFelice Marine Center in Cocodrie, Louisiana. The vessel is available for research and education programs for Consortium members, state and federal agencies, other non-profit organizations and oceanographic industries.

The R/V *Acadiana* conducts educational cruises with LUMCON marine educators and summer school and semester university classes. The vessel regularly conducts scientific trawling, box coring, acoustic surveys, hydrographic CTD casts, dive and ROV operations.

Specifications

General Characteristics and Description

Length Overall	58 ft.
Beam	18 ft.
Draft	4 ft.
Height (to top of mast)	24 ft.
Displacement	52 tons
Maximum Sustained Speed	10 knots
Range	1,200 miles
Endurance	5 days
Weather Limitations	over the side at 6 ft.
Work Schedule	12 hour/day
Total Berths	6
Crew	2
Scientific Staff	4 (can accommodate 25 scientists for day trips)
Laboratory Area	114 sq. ft. lab
Electrical	120/220
VAC	single phase
Propulsion	two 3406 Caterpillar

Shipboard Equipment

Electrical Service- Two Caterpiller 3306 motors, One 99 kW diesel generator with manual governor

Salt Water Supply- 80 gpm continous flow pump, MIDSAS system discharge at 60 gpm

Fresh Water Supply- Sea Recovery Reverse Osmosis Desalination produces 800 gallons in a single day

Equipment- Appleton Crane; A-Frame; J-Frame; Winches (Hydrographic, Electromechanical Oceanographic, Trawl)

Deck Equipment- Anchor Gear, Tugger Winch, Capstan, Small Boats

Scientific Instrumentation and Equipment- MIDAS, ADCP System, Echo sounders

Shared Use Equipment- Instrumentation, CTD/Rosette System, Corers, Dredges and Grabs, Towed Packages, Radioisotope Van, General Purpose/Clean Van, Water Systems and Associated Gear, Dive Gear

Computer Hardware and Network- Located in Electronics Lab, Located in Wheelhouse

Navigation-Located in Electronics Lab, Located in Wheelhouse



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www.lumcon.edu/pelican

Louisiana Universities Marine Consortium

R/V Pelican



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R/V Pelican

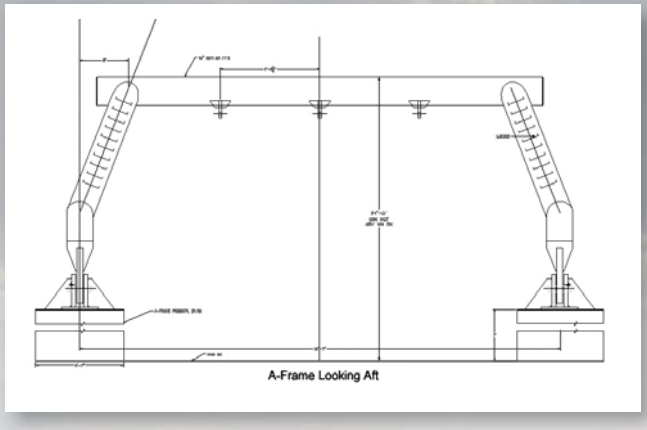
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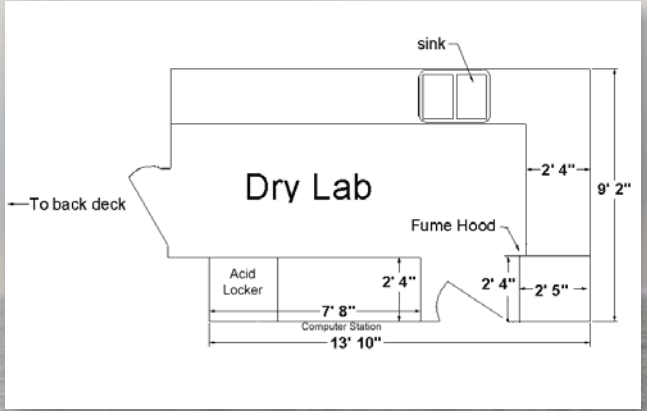
The *R/V Pelican,* along with the rest of LUMCON's research fleet, is administered through the Vessel Operations Office at the Marine Center. It was built in 1985 at Allied Shipyard in LaRose, Louisiana. The *R/V Pelican* was designed and outfitted to conduct a variety of oceanographic research missions. The ship is operated as an Oceanographic Research Vessel as designated by the United States Coast Guard and is maintained as an American Bureau of Shipping Class A-1+, AMS vessel.

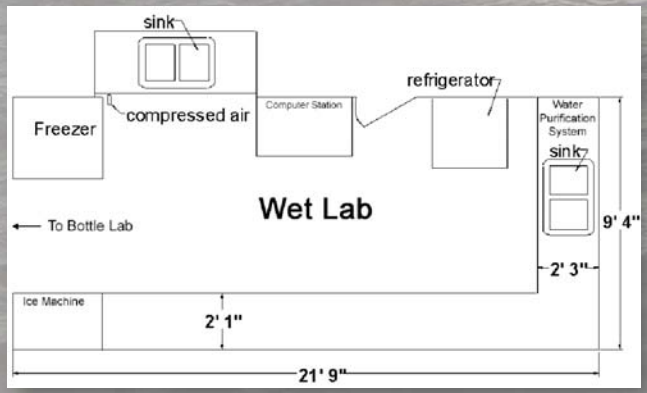


The vessel is available for research and education programs of Consortium members, state and federal agencies, other non-profit organizations, and oceanographic industries. The *R/V Pelican* schedule may be viewed at *www.lumcon.edu/pelican*

In 2002-03, the State of Louisiana and the National Science Foundation (NSF) provided funds to refit and expand the length of the *R/V Pelican.* Ten feet were added to her stern, increasing her length from 106 to 116 feet. The refit, included completely new interior walls, floors and overhead coverings. Bilage, ballast, potable, seawater systems, and piping associated with these systems were upgraded. The ship's steering system, internal communication system, alarm system, navigation panels and entire electrical system, including fixtures and panels, were also replaced. The engine and generators were rebuilt, and the generators were shock mounted to improve the overall acoustic qualities of the ship. 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.







Specifications

General Characteristics and Description

Length Overall	116 ft. 4 in.
Beam	26 ft. 6 in.
Draft (full load)	9.5 ft.
Height (to top of mast)	53 ft.
Displacement tonnage	514.59 LTSW
Gross registered tonnage	261 GRT
Maximum deck load	25 LT
Maximum sustained speed	9.2 knots
Maneuvering speed	0-9 knots
Range	3, 490 miles
Endurance	18 days
Weather Limitations capabilities in #5 sea state (8-12)	limited over the side
Work Schedule	24 hour/day
Total Berths	22
Crew	5*
Marine Technician	1*
Scientific Staff	16*
Electrical	460/208(3phase)/120(single phase) VAC 60 cycle
Propulsion	2-3412 Caterpillar
Bow thruster	80 hp Schottel

*These are mission dependent factors, such as requirements for extra crew or marine technicians

E-Newsletters

Volume 3: 2011
Volume 2: 2010
Volume 1: 2009

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January 2011 Volume 3, Issue 1

Headlines

LUMCON Researcher Receives Grant from The Greater New Orleans Foundation for

LUMCON Open House set for April 16

LUMCON Announces LEAD Camp Dates

Chesney to present at Louisiana Chapter of American Fisheries Society Meeting

LUMCON Researcher Receives Grant from The Greater New Orleans Foundation for

Recommend 176



Spartina alterniflora stems growing in oiled marshes in Barataria Bay, July 2010.

The Greater New Orleans Foundation has awarded a grant of $35,721 from its Gulf Coast Oil Spill Fund to Dr. Alex Kolker, LUMCON, on the topic of “Living with Oil: Resilience of Salt Marsh Ecosystems Following an Environmental Catastrophe.” For this project, Dr. Kolker will be examining the response of wetlands in Barataria Bay to the BP/Deepwater Horizon oil spill, the largest marine oil spill in US history. That spill released almost 200,000,000 gallons of crude oil and associated hydrocarbons into the Gulf of Mexico, much of which entered Louisiana waters. Nearly 430 miles of marsh shoreline in Louisiana were oiled, in concentrations that ranged from light to heavy.

Researchers at LUMCON and institutions around the nation have been worried about the impacts of this spill on the survival of Louisiana’s valuable and vulnerable wetlands. Indeed, Louisiana looses about 24 square miles of wetlands in an average year, though that number can vary from year-to-year as winds, storms and human impacts change through time. Kolker’s work in this project will attempt to quantify the trajectory of marshes across Barataria Bay, including marshes with a range of oil impacts. Last year, some wetlands that were heavily impacted by the BP/Deepwater Horizon Spill showed a rapid regrowth of *Spartina alterniflora* stems, suggesting that the ecosystems may be more resilient than some had feared. Determining whether this trend



http://www.lumcon.edu

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will continue will be part of the research project.

This research will be conducted using a photogrammetric approach. Marshes will be digitally photographed from the same location over a period of time. LUMCON researchers will then use image analysis software to calculate the percentage of area upon which growth occurs. This approach will allow LUMCON scientists to quantify the level of growth and loss without disturbing these sensitive systems.

This project will also have an outreach component, in which members of the community will be encouraged to share their observations of ecosystem resilience, recovery or loss. Details on this component will follow.

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LUMCON Open House set for April 16

Louisiana Universities Marine Consortium (LUMCON) is pleased to announce that this year's open house will be held on April 16, 2011, at the W. J. DeFelice Marine Center in Cocodrie. The event will show visitors the important marine research and education that LUMCON provides through fun and educational activities, displays and presentations.

The many family-oriented activities planned for this year's open house will combine learning with an ocean-full of fun! Included this year are airboat rides, a scavenger hunt, and many other hands-on activities for participants of all ages.

Adult visitors will enjoy exploring LUMCON's laboratories, interacting with researchers about the vital work being done at LUMCON, and hearing presentations on important marine topics.

For more open house information and updates, visit http://www.lumcon.edu/information/open_house

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LUMCON Announces LEAD Camp Dates

LEAD Camp is a program for students entering grades 8-12 who are interested in learning more about Louisiana’s coastal and marine environments. The 2011 LEAD Camp, will be held from July 5th through July 9th, and is a 5-day residential program that is designed to enhance participant environmental awareness and stewardship through in-depth scientific examination and exploration.

To be considered for selection, interested students must submit an application, an essay and a recommendation from a current teacher. The applicants who are selected to participate in the 2011 camp will spend five days and four nights at the DeFelice Marine Center in Cocodrie, LA. Participants will engage in in hands-on study of marsh and bay environments in activities such as plant and animal surveying, water sampling, sediment coring, beach profiling and more. The cost is $300 per student.

For more information about LEAD Camp, contact:
Jennifer Robinson

(985) 851-2843
jrobinson@lumcon.edu

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Chesney to present at Louisiana Chapter of American Fisheries Society Meeting

LUMCON Associate Professor Ed Chesney will be delivering a presentation entitled “Developing and disseminating preferred catch and release methods for Louisiana saltwater recreational anglers” on January 28 at the Louisiana Chapter of the American Fisheries Society meeting in Lafayette, Louisiana.

Because commercial and recreational fishing are often the most significant sources of mortality for fish populations, developing and promoting better catch and release practices for anglers is important. In his talk, Chesney will discuss recommended techniques for handling Louisiana’s principal saltwater fish species, preferred tools and methods for de-hooking fish to be released and other techniques and strategies to reduce fish stress and the impacts of recreational fishing bycatch.

Chesney will also discuss many of the catch and release strategies at LUMCON’s Gulf Lagniappe Adult Workshop on April 2, 2011.

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February 2011 Volume 3, Issue 2

Graduate Student Symposium to be held at LUMCON March 25 - March 27

The Coast & Environmental Graduate Organization (CEGO) at Louisiana State University will host the 12th annual Graduate Student Symposium at LUMCON's W.J. DeFelice Facility in Cocodrie, LA. The symposium will be held from Friday, March 25 through Sunday, March 27.

The Graduate Student Symposium has been an annual spring event since 1999, when graduate students of the University of South Alabama, the University of Southern Mississippi, and Louisiana State University joined together to create an opportunity for students in marine, biological and environmental sciences to present their research in a supportive, non-threatening environment at a cost suitable for students. CEGO hopes to attract attendees from universities throughout the southeast in order to widen the scope of research areas represented.

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LUMCON Announces 2011 Photography Contest Theme

"Birds of Louisiana" is the theme of LUMCONs 2011 Photography Contest. Amateur photographers are encouraged to submit their high-quality original color or black and white photographs in either print or digital formats. Each participant can enter up to five photographs. Photographs will be judged by category: Kids (12 and under), Teens (13 - 18), Adults (18 +), and LUMCON employees. A panel of judges will choose three winning entries from each category, and will also select an overall winner. Winners will be announced on April 16, 2011 at LUMCON's Open House. LUMCON employees are not eligible for the Grand Prize. Submissions must be received by April 1, 2010. LUMCON will send an email confirmation only to entries that include a valid email address. Photographs will not be returned.

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New Internship Program Provides More Opportunities for Research Training

Each summer, the LUMCON University Education program offers several undergraduate/graduate level field courses. Beginning this summer, however, the number of opportunities for undergraduate students will expand. LUMCON was recently awarded a Research Experience for Undergraduates (REU) Program, sponsored by the National Science Foundation. The REU

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Program offers research training experiences in coastal and marine science to six undergraduates during a ten week period between early June and mid-August. REU participants will conduct independent research projects with guidance from scientific mentors (LUMCON faculty members, post-doctoral associates, and/or visiting scientists) and their research teams. Each student is paired with a scientific mentor based on mutual research interests. The REU program is designed to give students a meaningful, hands-on research experience that takes advantage of state-of-the-art methods and technologies available at LUMCON.

Students selected to participate in the REU Program will receive a $5000 stipend, room and board at the DeFelice Marine Center and additional funding to support research and travel expenses.

NSF-supported REU participants must be current undergraduate students and citizens or permanent residents of the United States or its possessions. To be eligible the student must be returning to an undergraduate degree program in the fall following the REU program.

For more information or to apply for an internship at LUMCON, visit http://lumcon.edu/reu

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A Morning of Fun Learning for Grand Caillou Elementary Pre-schoolers



Seventy delighted pre-schoolers filed in to the Grand Caillou Elementary

school cafeteria to see live turtles, snails, crabs and other specimens, as well as dolphin bones, a nutria pelt and a pelican skull. While LUMCON K-12 Educator Murt Conover introduced the children to the animals and explained how each is important, Assistant Educator Jennifer Robinson organized another group of children with an educational craft activity.

The visit proved to be educational not just for the student, but also for the teachers. “I learned something today too,” said one pre-school teacher. “I didn’t know that a blue crab will regenerate a lost leg or claw.”

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March 2011 Volume 3, Issue 3

College Students Visit LUMCON for Spring Break to Learn about Coastal Louisiana



The week of March 14th – 18th was overflowing with visits from 62 students from 6 universities and colleges throughout the United States on spring break. The week was filled with educational canoeing excursions in the salt marsh, multiple sampling trips into Terrebonne Bay and visits to Trinity Island.

Monday began with a visit from 32 Iowa State, Northern Illinois and Western University students participating in the Louisianian Estuary Experience, a BTNEP/Bayou Grace Community Services, Inc. partnership hosting students from across the country on spring break. The students were given presentations by BTNEP and and the Bayou Grace community service group as well a tour of LUMCON and the surrounding salt marsh by canoe. Later in the day, Gettysburg College arrived for a discussion on hypoxia as well as a canoe trip into the salt marsh. The University of New Hampshire also arrived on Monday for a week of sampling for a research project pertaining to their Earth Sciences class. Some students sampled in the salt marsh, others sampled in Terrebonne Bay while the remainder of the students sampled on Trinity Island. On Tuesday, Ithaca College arrived after visiting Grand Isle to speak with the Houmas Indians and to plant trees with BTNEP. During the week, the Ithaca students learned about coastal Louisiana through canoeing in the salt marsh, an excursion on the R/V *Acadiana* into Terrebonne Bay and an absolutely beautiful visit to Trinity Island. Trinity Island was filled with many sights: Portuguese-men-of-war (*Physalia physalis*), ghost crabs (*Ocypode quadrata*), and nutria eat-outs.

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LUMCONs Changing Coastal Oceans has a Record Enrollment Year



LUMCON's spring semester compressed video course, Changing Coastal Oceans, reached a record enrollment this year with 23 students from four universities: Louisiana State, McNeese State, Nicholls

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State and Southeastern Louisiana Universities.

The students sit in a distance learning classroom on their college campus to view our faculty's lectures on a large screen or television, real-time, twice a week. During the semester, the students are required to attend a one weekend field trip to LUMCON to become submersed in the topics and environments discussed in lectures.

On the weekend of March 18th-20th, the students participated in the field trip component of the course. The day began with a 7:00 am departure on the R/V *Acadiana* for a six hour sampling cruise to three of the course's' historical stations in Terrebonne Bay. While in the bay, the students measured different water quality parameters, collected phytoplankton, zooplankton, ichthyoplankton, nekton and benthos. Samples were then returned to the lab for identification and analysis to compare what was collected and observed at the three stations. The students were eager to work up the trawl samples in the lab, which were mostly comprised of brief squid (Loliguncula brevis). The southern-most station had the highest concentration of phytoplankton (and, more than any previous class trip) and the northern most station had the highest concentration of ctenophores (comb jellies). On Sunday morning, the students were taken into the marsh for a few hours near Moss Bay for sediment sampling activities. The field trip is always the highlight of the class for the students and brings everyone together from the various campuses throughout the state.

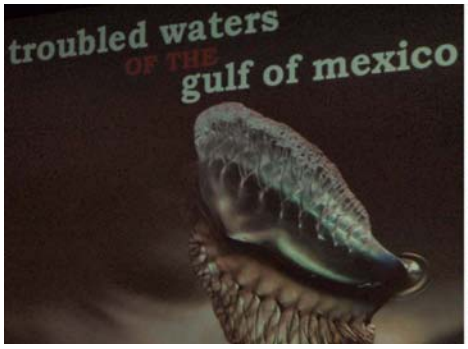
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LUMCON Scientist to Co-host Session at CERF Conference

LUMCON scientist, Alex Kolker, will co-host a session at this year's Coastal and Estuarine Research Federation (CERF) conference in Dayton Beach, FL-"Morphological Feedbacks in Changing Coastal Environments." The session focuses on understanding how the coastal ocean is changing as the earth enters a period of rapid environmental change. Earth's climate, the distribution of organisms across the planet, and cycles of sediments, nutrients and elements are all entering a period of rapid change, largely as a result of human activities. Understanding how these human-induced changes interact with a naturally dynamic planet is particularly important in the coastal zone where the land, the sea and atmosphere boundaries meet. The coastal zone is also home for much of the world's population, and environmental changes experienced there have real life consequences for many people. Scientists from all coastal disciplines are encouraged to submit to this session. The conference will be held from November 6-10, 2011, and this session is number SCI-060. For more information, visit the conference website, or contact the session co-hosts, LUMCON's Alex Kolker, and Zoe Hughes and Carol Wilson of Boston University.

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Roger Revelle Commemorative Lecture Highlights the Important Links Between the Ocean Sciences and Public Policy





Dr. Nancy Rabalais, LUMCON Executive Director and Professor, gave the Twelfth Annual Roger Revelle Commemorative Lecture in Washington DC on March 29. The lecture was created by the Ocean Studies Board of The National Academies in honor of Dr. Roger Revelle to highlight the important links between the ocean sciences and public policy.

Dr. Rabalais' talk, "Troubled Waters of the Gulf of Mexico," covered the events of the BP Deepwater Horizon oil spill through the present status of Natural Resource Damage Assessment and the Presidential Executive Order for the Gulf Coast Ecosystem Restoration Task Force. Her lecture provided a unique viewpoint of being the director of the Louisiana Universities Marine Consortium within a mile of a BP Operations Center in Cocodrie, the balancing of LUMCON resources with many requests for use, maneuvering the media, trying to conduct hypoxia research with oil along the shore, and some of the valuable science that has taken place in the wake of the tragedy. She also pointed out the damaged condition of the northern Gulf of Mexico ecosystem at the time of the BP oil spill with regard to a world

class dead zone and vanishing land in coastal Louisiana. Restoration must take into account the spill and other damaged resources and should be a challenge to approach carefully and thoughtfully.

The lecture was held at the Baird Auditorium at the National Museum of Natural History with a reception following in the recently completed Ocean Hall. As part of the day's activities, Dr. Rabalais participated in a Meet the Scientist session at the Natural History Museum with Dr. Michael Vecchione, squid expert. She gave a shortened version of her evening lecture and Dr. Vecchione talked about careers in marine biology. The audience included high school and middle school students from the Washington, DC area. The middle schoolers attended the full lecture later.

For almost half a century, Roger Revelle was a leader in the field of oceanography. He organized the first continual measurement of atmospheric carbon dioxide, an effort led by Charles Keeling, resulting in a long-term record that has been essential to current research on global climate change. With Hans Suess, he published the seminal paper demonstrating the connection between increasing atmospheric carbon dioxide and burning of fossil fuels. Revelle kept the issue of increasing carbon dioxide levels before the public and spearheaded efforts to investigate the mechanisms and consequences of climate change.

Dr. Rabalais will present the Revelle Commemorative Lecture at Scripps Institution of Oceanography, considered the home institution of Roger Revelle, on April 5.

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Ocean Leadership

LUMCON is a member of the Consortium for Ocean Leadership as part of a Gulf of Mexico Consortium with Dauphin Island Sea Lab and the Harte Research Institute of Texas A&M Corpus Christi. Dr. Nancy Rabalais, Executive Director and Professor of Louisiana Universities Marine Consortium and representative to Ocean Leadership for the Gulf Consortium, was re-elected to a second three-year term on the COL Board of Trustees. COL coordinated its annual Public Policy Forum at the U.S. Capitol on March 9th in the Senate Meeting Rooms. Dr. Rabalais moderated a session on Gulf Ecosystem Restoration, with speakers John Hankinsen, U.S. Environmental Protection Agency lead for the Gulf Coast Ecosystem Restoration Task Force; Dr. Larry Robinson, representing the NOAA Natural Resource Damage Assessment process and the NOAA perspective on the restoration efforts; Dr. Ann Jochens, Program Director for the Gulf of Mexico Coastal Ocean Observing System Regional Association, on the need for ocean observing systems in the wake of the BP oil spill and as a necessary component to follow restoration efforts; and Ana Unruh-Cohen of the House Resources Committee. The Board of Trustees and the Members meeting the following day were challenged by issues of ocean science in an unknown budget climate, how the COL can lead efforts to keep ocean science in the public discussion of national needs, and declining resources for important ocean science infrastructure such as vessels and observing systems.

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News From UNOLS

Nancy Rabalais and Joe Malbrough attended the UNOLS meeting in Arlington at NSF headquarters on March 7-8. UNOLS is the University National-Oceanographic Laboratory System of which LUMCON's R/V Pelican is viewed as the workhorse of the fleet (other than the global class vessels). Nancy Rabalais was re-elected as a member of the UNOLS Governing Board as a member-at-large for a new three-year term. Joe Malbrough, chair of the Research Vessel Operators' Committee reported on ongoing update of safety standards for the UNOLS fleet. The potential for three new regional class research vessels for the fleet, with one destined for the Gulf of Mexico, was of particular interest to LUMCON and its east and west coast academic partners. The continuing problems with the federal government and the National Science Foundation's Major Research Facility funds will delay the release of the request for proposals, but optimism continues for additional vessels.

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LUMCON Well-Represented at ASLO Meeting in Puerto Rico

LUMCON was present in force at the American Society of Limnology and Oceanography annual meeting in Puerto Rico in February. Special symposia were co-chaired by LUMCON faculty members: Brian Roberts and Nancy Rabalais, Oxygen Dynamics in Coastal Hypoxic Zones; Nancy Rabalais and Gene Turner, Nutrient Limitation in River-Influenced Coastal Systems; Dan Conley, Felix Janssen, Nancy Rabalais and Don Boesch, Impacts of Hypoxia on Biogeochemical Cycles. Presentations were given by Roberts et al., Spatial and temporal patterns in water column and benthic respiration in the northern Gulf of Mexico hypoxic zone; Rabalais et al., How Does Mississippi River Water Affect Phytoplankton growth in the Adjacent Upper Barataria Basin?; Turner and Rabalais, Phytoplankton Growth within and near the

Louisiana Coastal Current; and Geoff Sinclair et al., Spatial and Temporal Patterns of Nitrogen Uptake and Enzyme Activity on the Louisiana Shelf. Nancy Rabalais was a plenary speaker for the conference with her presentation of "Oilmageddon, Dead Zones and Vanishing Land."

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April 2011 Volume 3, Issue 4

Sinclair Receives Microbiology Grant

LUMCON Assistant Professor Geoff Sinclair, with collaborator Boris Wawrik of the University of Oklahoma has received a grant from the Moore Foundation's Microbiology Initiative for in kind services worth between $60,000 and $90,000. Sinclair's project involves growing and sequencing the transcriptomes (collections of cellular RNA) of three different bloom forming plankton species under three different nutrient conditions. Sinclair and Wawrik will conduct the majority of the work at LUMCON, with the analysis of the genomes being a joint LUMCON - University of Oklahoma effort.

Sinclair's research will focus on the dinoflagellates *Prorocentrum minimum*, *Scrippsiella trochoidae* and a toxic estuarine species, *Karlodinium micrum*.

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Lady Bug Ball





The LUMCON Coastal Classroom attended the Lady Bug Ball in Houma on April 2, not dressed as lady bugs, but as LUMCON spreaders of news of LUMCON activities, including the upcoming Open House. Emily Speir, Shanna Bonvillain and Nancy Rabalais captured (roped in) the attention of fair goers to tell them about the open house, the summer lead camp, the adult lagniappe program and the university summer school program. The usual mixture of seashells and bones were a hit in drawing in first the kids, then the adults to the booth. The Lady Bug Ball is a fund raiser for the South Louisiana Wetland Discovery Center and LUMCON was there as an information booth. There were over 5,000 in attendance, including tons of cute kids dressed as lady bugs and a pretty strong theme of red and black among the adults. We were in our LUMCON wear, mostly.

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LUMCON Librarian Serves on Grant Writing Panel at SAIL Conference

Every April, The Southern Affiliation of IAMSLIC Libraries (SAIL) holds their conference at a member institution. This year, John Conover attended the 2011 SAIL conference hosted by Texas A&M University at Galveston. John collaborated with Susan Stover of Mote Marine Lab and Michelle Leonard of the University of Florida in a panel discussion focusing on grant writing. Called "Grants for Libraries," the discussion was meant to provide beginners with basic information on the types of grants available to libraries, suggestions for where to look for funding agencies, a listing of internet-based grant writing resources, and discussion of helpful grant writing hints. Each panel member discussed grants that they had written and received over the past few years to help audience members understand the variety of funding sources available at the local, state and federal levels. During the talk, John highlighted the bibliographic databases created and maintained by LUMCON over the years related to offshore oil and gas development and research published on oil spill dispersants.

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Journalists, Informal Educators and Scientists Come Together to Discuss Science Communication and the Deepwater Horizon Oil Spill

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Conover was encouraged to see that the bibliographical databases hosted by LUMCON were not unknown to SAIL members, because the bibliographies, as well as their web addresses, were prominently listed in a later presentation on public resources available at SAIL libraries.

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LUMCON Hosts Successful Open House



"It was a great day," said Gibson resident, Winnie Theriot. "Seeing and learning so many things! ….the food was great."

Mrs. Theriot was one of nearly 1000 visitors to attend LUMCON's Open House on April 16. The event is designed to show visitors the important marine research and education services LUMCON provides. This year's open house featured free lunch, airboat rides, a challenging scavenger hunt, a touch tank, hands-on lab demonstrations and many opportunities for learning and play.

Although many of the open house activities were geared toward children, adult visitors had plenty to keep them interested as well. "I enjoyed learning about the research being done on the affects of the oil spill," said attendee Linda Bergeron. "I also enjoyed seeing the maps of coastal erosion."

LUMCON would like to thank all of the visitors who attended our open house, and the volunteers who helped to make it a success.

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Journalists, Informal Educators and Scientists Come Together to Discuss Science Communication and the Deepwater Horizon Oil Spill



On April 6-8th, the Metcalf Institute for Marine and Environmental Reporting of the University of Rhode Island, LUMCON and Louisiana State University hosted a science seminar on the Impacts of the Deepwater Horizon Oil Spill. The program was funded by a National Science Foundation RAPID grant.

The 2.5-day program in Cocodrie, LA brought journalists and informal educators together from around the country to learn about basic scientific principles and techniques and specific research questions arising from the oil spill. Various scientific experts discussed a number of topics relating to the oil spill: natural history of the Gulf of Mexico; fate and transport of the oil; dispersant use and impacts; ecosystem impacts; and seafood safety. Drs. Nancy Rabalais, Ed Chesney, Paul Sammarco and Alex Kolker from LUMCON were some of the guest speakers during the workshop. The participants deconstructed peer-reviewed journal articles to understand the data and scientific results and to translate the information to the public. The participants were also engaged in various scientific sampling methods during a 3-hour cruise into Terrebonne Bay aboard the 116-ft R/V *Pelican*. Participants learned that more questions than answers remain, funding is needed to answer those questions and all of the scientists present agreed that seafood coming out of the northern Gulf

of Mexico is being tested more than any other seafood and it is safe to eat. Since participating in the workshop, many of the journalist participants have written additional articles about the Deepwater Horizon Oil Spill (see links below).

http://www.huffingtonpost.com/susan-buchanan/bp-oil-spill-research-money_b_850576.html
http://www.nola.com/news/gulf-oil-spill/index.ssf/2011/04/gulf_seafood_industry_sputters.html
http://www.scientificamerican.com/article.cfm?id=one-year-after-bp-oil-spill-millions-of-barrels-oil-missing
http://www.scientificamerican.com/article.cfm?id=how-did-bp-oil-spill-affect-gulf-of-mexico-wildlife-and-ecosystems
http://www.scientificamerican.com/article.cfm?id=did-bp-oil-spill-ruin-gulf-seafood
http://www.scientificamerican.com/slideshow.cfm?id=how-did-bp-oil-spill-affect-gulf-of-mexico-wildlife-and-ecosystems
http://www.nature.com/news/2011/110419/full/news.2011.246.html

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May 2011 Volume 3, Issue 5

Flood Sediment Deposition Study



LUMCON Assistant Professor Alex Kolker has begun research to discover whether the Mississippi River flood will deliver any meaningful quantities of sediments to the marshes of Terrebonne Parish.

With partial funding from Louisiana Sea Grant, Kolker established seven sites along the coastal marshes to collect samples of sediments that may be deposited from now until the river flood waters recede. He plans to not only measure the amount of sediment, but also the chemical composition of the deposits.

"The flood has created a natural experimental for re-introduction of river water into the intracoastal Louisiana Mississippi River Delta system,"said Kolker. "From a scientific standpoint, the flood is incredibly interesting. According to my calculations, the Atchafalya River will temporarily become one of the ten largest rivers [by discharge] on the planet."

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A Very Busy Summer Begins

As the weather heats up, so does the activity level at LUMCON. Visiting scientists, summer semester students and DukeEngage participants are currently housed in the dorms, and they will soon be joined by a group of summer interns.

The month of May began with a LUMCON Executive Board meeting and two K-12 visiting groups. Next, the fourth session of LUMCON's popular Gulf Lagniappe adult education workshop series was held on May 14th.

The following day, a Tulane University Neurobiology course began at LUMCON and concluded May 27th. The Coastal Landscape Photography class, which began on May 23rd also wrapped up on May 27th with a display of the students' photography and artwork.

On May 17th, the DukeEngage program volunteers arrived and will be staying at LUMCON until July 13th. On May 21st, the fifth Gulf Lagniappe workshop took place and the month finished with a Lafourche Parish Native American K-12 education group.

June promises to be a busy month also, as the final Gulf Lagniappe workshop will be held on June 4th, the LUMCON REU Program interns arrive on June 5th and the Marine Invertebrate Ecology course

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begins on June 6th – and that's just the first week!

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Gulf Lagniappe Workshop Series Concludes on June 4



The Louisiana Universities Marine Consortium (LUMCON) invites the public to attend the final session of the popular Gulf Lagniappe adult education program on June 4, 2011. LUMCON Director Dr. Nancy Rabalais will give an informative talk on gulf hypoxia, better known as the "Dead Zone." Like each previous workshop, the last session will include a guided tour of the marine center, lab exercises, a cruise aboard the R/V Acadiana and lunch. Pre-registration is strongly encouraged to guarantee a space on the research vessel cruise, however on-site registration is available. The cost is only $10/person.

Funded by the Gulf of Mexico Alliance, the six-workshop Gulf Lagniappe program began in December, 2010. The topics included Louisiana fisheries, plankton populations and water quality, climate change and salt marsh ecology / geology.

To register for the final workshop, contact:
Murt Conover (mconover@lumcon.edu)
985-851-2860
or
Holly Hebert (hhebert@lumcon.edu
985-851-2842.

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Duke University Students Engage in Learning and Service



On May 19, a group of students from Duke University's DukeEngage program began an adventure at LUMCON that will immerse them in the culture, beauty and environment of coastal Louisiana.

The mission of the DukeEngage program is to "empower students to address critical human needs through immersive service, in the process transforming students, advancing the University's educational mission, and providing meaningful assistance to communities in the U.S. and abroad." "It's a pretty amazing program," said Charlotte Clark, of the Nicholas School of the Environment at Duke University and the Program Leader for the group.

DukeEngage has partnered with Bayou Grace Community Services, a non-profit organization in Chauvin, Louisiana, for guidance and support. For the first four weeks of their eight week stay at LUMCON, the students will learn about the challenges facing coastal Louisiana and they will embark on coastal restoration activities. The second half of their stay will focus more on community immersion, with projects to engage local residents in restoration activities. Also, with the help of LUMCON Educator Murt Conover, the volunteers will develop educational lessons and activities and teach local youth about the importance of conservation.

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July 2011 Volume 3, Issue 7

Lights... Camera... Hatchin': Researchers Conduct Black Skimmer Study





Arkansas State graduate researcher Brehan Furfey has spent most of the summer either on Louisiana's barrier islands or at the LUMCON Marine Center, studying the impact of the BP oil spill on Black Skimmers (*Rynchops niger*). Black Skimmers are sea birds that use their distinctive red and black beaks to skim the top of the water to catch fish. Because Black Skimmers are a sensitive indicator species of the overall health of their habitat, Furfey, with co-PI Dr. Jim Bednarz (also of Arkansas State) are collaborating with Dr. Aaron Pierce from Nicholls State University to study the foraging and nesting ecology of the birds.

Furfey has been doing field work on the barrier islands, including banding birds with radio transmitters to study the skimmers' habitat use and foraging behaviors, and establishing and maintaining camera equipment at skimmer nesting sites. The cameras are being used to monitor nest activities, including nest success or failure, parent and chick feeding practices and egg hatch rates.

Furfey plans to continue conducting field work for the rest of the summer before returning to Arkansas.

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Dead Zone Large But Not Record Size

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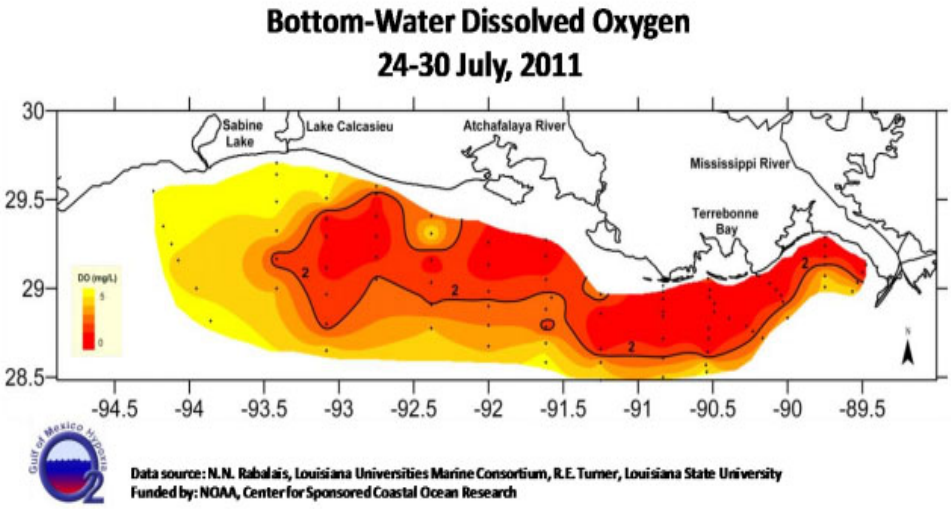


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Scientists have returned from mapping the 2011 Dead Zone along the Louisiana coast. This year, the zone is 17,520 square kilometers, or 6,765 square miles. This is larger than average, but below the large size predicted. Click here to view entire press release in PDF format.

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Dissecting Discovery



Thirteen campers from the South Louisiana Wetlands Discovery Center (SLWDC) Wetlands Restoration Summer Camp visited LUMCON on July 13 as one day of their week-long camp session. One of the main goals of SLWDC is to educate people about Louisiana's wetlands and to help students strengthen their science, math and technology skills through the use of hands-on learning with a focus on the ecology of the wetlands.

Led by Program Director Leah Gautreaux and teacher Wendy Delgato , the 13 and 14 year old campers were able to experience the wetlands first hand with a canoeing trip into the marsh, followed by frog dissecting in a teaching lab.

For more information on SLWDC, visit slwdc.org.

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Te Mana o Te Moana





"The Spirit of the Sea" is a collaborative effort that combines the wisdom of Polynesian peoples with their ancestors who loved and respected the sea. Several thousand years ago, the Polynesian ancestors traveled the Pacific on great voyaging canoes, called vaka moana, using only the stars, the ocean, and the surrounding wildlife to navigate, and lived closely connected to the sea. The modern sailors aim to sail in their ancestors' wake.

The North Star and the Southern Cross are the navigational tools that Pacific wayfarers use to guide them across the Pacific Ocean. Okeanos - Foundation for the Sea - follows the same celestial constellation. Okeanos uses this constellation as a guide on their quest to restore health to our oceans around the world, and to the Pacific Ocean in particular. The Okeanos constellation consists of five stars. The first of these stars refers to the effects that man-made threats have on marine life and, subsequently, on all life on earth. The second star is the founding of a fleet of Pacific Voyaging canoes, or vaka. As metaphors for a sustainable life, these vaka unite Pacific islanders through the revival and sharing of ancient knowledge, reminding islanders from whence they came, how deeply they are connected to their mother ocean, and how their future actions should continue to honor her. The constellation’s third star is the commissioning of a research report forecasting the economic impacts of a changing ocean if we continue business as usual. Film documentaries, the fourth star, bring the Pacific Ocean's current ecologic glories and tragedies into personal focus.

In Honolulu, the Okeanos Foundation, Stanford University’s Center for Ocean Solutions, Stockholm Environment Institute, International Union for the Conservation of Nature and the East West Center of the University of Hawaii provided the fifth star, a venue in Honolulu in late June where Kava Bowl Fellows, including LUMCON’s Executive Director Nancy Rabalais, and a great variety of professional, ethnic, and cultural backgrounds shared a common belief: that the ocean is essential to the earth’s survival. They also share a common goal: that together, we can find solutions to safeguard this valuable resource and thus, our future. To emphasize this fact, Summit discussions were be held in the Pacific tradition, where people sit around a kava bowl, meeting at eye-level and exchanging thoughts and ideas freely. The focus was on the threats lurking beneath the surface of our waters: warming waters, growing acidification and decreasing oxygen levels brought on by climate change and pollution, from plastics to chemicals.

On the ongoing journey after the conference, the vakas will sail to San Francisco and to meet more people, for example students and pupils, to inform them of the outcome of the conference, of the alarming changes happening in the Pacific. Such problems are imminent to the Pacific islanders who must relocate with sea level rise. But sea life all over the ocean is experiencing a change to their environment at rates not experienced for thousands of years or even longer. These changes create a serious risk to sea creatures and humans because we depend on marine food webs and ecosystems

for food, for coastal protection and for livelihoods. Visit http://www.pacificvoyagers.org.

The vakas are unique sailing vessels that employ solar panels and wind as their only source of power. The sailors are taught the celestial navigation of their ancestors and steer their courses without GPS. The vakas and the vegan diet of the Summit symbolized the ability to live a life on earth in a sustainable manner and by doing so leave a blue planet to our future generations.

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Coastal Landscape Photography Instructor Displays Wetlands Inspired Art

His many years of teaching the Coastal Landscape Photography course has made Southeastern Louisiana University instructor Dennis Sipiorski a familiar face at LUMCON. Each year, Sipiorski, along with other course instructors and students, ventures out into the marshes surrounding the DeFelice Marine Center to snap photos that capture the beauty of the estuaries. Besides taking photos, Sipiorski draws, paints and creates other works throughout the course that reflect his observations in the field. On May 27, at the conclusion of the course, fortunate visitors were able to view the photographs and other art created during the Coastal Landscape Photography course.

From now through August 13, Sipiorski's works are again on display at the Henry Hood Gallery at 325 East Lockwood St. in Covington, Louisiana. Visitors will be able to see Sipiorski's coastal Louisiana inspired paintings and ceramics. The latest works from Folsom sculptor Lucille Hunter will also be on display.
For more information, call the Henry Hood Gallery at (985) 789-1832.

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January 2010 Volume 2, Issue 1

Are We Blue? LUMCON Observes "Wear Blue for Oceans" Day

January 13, 2010 marks the country's first "Wear Blue for Oceans Day," sponsored by



"WearBlueForOceans.org," an organization of citizens and conservationists across the nation who support President Obama's intent to establish a comprehensive National Policy that protects, maintains, and restores our oceans, coasts, and Great Lakes.
The organization asked that citizens wear blue to show their support for the new policies. Several LUMCON employees (only 11 were willing to pose for the picture) wore blue in observance of "Wear Blue for Oceans" Day.

For more information about the Wear Blue for Oceans organization, the legislation it supports and events it sponsors, visit: http://www.wearblueforoceans.org.

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LUMCON and BTNEP Face Mid-year Budget Cuts

As a higher education institution in Louisiana, LUMCON is facing a mid-year budget cut of 8%, which means a year cut of 16% on a budget that has been on the decline for the past few years. The unique services and opportunities that LUMCON has provided for two decades will be maintained into the future, but measures had to be taken to meet the anticipated shortfall at the end of June 2010.

Two long-standing, unique services provided by LUMCON to higher

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education and research communities were cancelled awaiting a brighter funding future. The two cancelled programs were the University Summer Field Program, which provides students with immersive field courses and internship experiences, and the Port Fourchon Field Station, which provides housing facilities for research and educational experiences. In addition library acquisitions were cut for the remainder of the fiscal year, unfilled positions will remain empty, additional costs were passed on to vessel operations, and heavier demands will be borne by other, but limited, funds available to LUMCON . Personnel were furloughed by 3% earlier in the fiscal year to make ends meet from last year's budget cut.

The Barataria-Terrebonne National Estuary Program, as part of LUMCON, receives state funds to provide as a matching contribution for the larger grant received from the U.S. Environmental Protection Agency. The 8% cut to LUMCON also affected BTNEP's state funding, making it more difficult to conduct their unique services to the ecosystems and people within their program boundaries. Adequate state funds are critical for its existence.

LUMCON and BTNEP, within the higher education community of Louisiana, will survive these financial hard times and continue the great things that we do for the state, its people and its resources. Exactly how is the real challenge.

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Science, Technology, Engineering and Mathematics Looks to the Future

Louisiana is Racing to the Top (R2T) to develop a more rigorous STEM curriculum for K-20 students. Dr. Geoff Sinclair, assistant professor, and Nicole Cotten, university education coordinator, represented LUMCON in the initial coordination phase of developing Louisiana's STEM Initiative. They joined this effort to improve STEM education in the state with other Louisiana scientists, primary and secondary school educators, university professors, administrators, and representatives from the local business community. The Louisiana Department of Education, the Louisiana State University Cain Center for STEM Literacy and the College of Education, in partnership with the Colleges of Engineering and Basic Sciences, jointly sponsored a STEM (Science, Technology, Engineering and Mathematics) held their first summit on December 15, 2009. Several goals surfaced in the effort to Race to the Top:

- *Develop a rigorous curricula for math and science courses that include applications to STEM fields and 21st Century skills*
- *Expand STEM learning programs and opportunities for teachers and students*
- *Form regional alliances for the state STEM Initiative*
- *Identify experiences that motivate PK-12 learners to pursue post-secondary STEM studies and degrees*
- *Expand efforts to encourage young girls and minority students to explore STEM careers*

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Louisiana to Lithuania and Back



What does the Baltic Sea ex-Soviet Union country Lithuania have in common with Louisiana? They border the largest and second largest human-caused areas of low oxygen waters in the world, respectively. These waters without enough oxygen to support fish, crabs, lobsters, shrimp, shellfish, or other organisms that live on or near the bottom are often termed “dead zones.” Dr. Nancy Rabalais, LUMCON Executive Director, visited Vilnius, Lithuania in January to share her knowledge with Baltic Sea researchers and policy makers and learn from their experiences. The group she addressed in plenary was Baltic BONUS, the **B**altic **O**rganisations **N**etwork for F**u**nding **S**cience, which was holding its annual conference on their Baltic Joint Research Programme. Dr. Rabalais compared the Louisiana area of low oxygen (also known as hypoxia) with other such areas around the world in coastal waters that receive an overabundance of nitrogen and phosphorus from human activities on the land and waters draining to the ocean. The Baltic Sea has been hypoxic in the geologic past and in the early 20th century, but the worsening and expansion of hypoxia in this and the last century are driven by human-driven excesses in nitrogen and phosphorus. Hypoxia in the Baltic Sea covers an area at least three times the size of the zone off Louisiana, and many of the coastal waters and estuaries surrounding the Baltic also suffer from hypoxia, just as is the case along the coasts of the United States. The European Union and the Baltic Sea countries are dedicated to improving the water quality of the Baltic and its coastal waters. There are a number of international, European, and regional Conventions, agreements and other instruments aimed at sustainable development of the Baltic Sea region, especially related to the reduction of nonpoint source nitrogen and phosphorus. When asked by a member of the audience how the United States was dealing with the issue of the Mississippi River watershed and coastal hypoxia, all agreed that Europe was much better poised and effective in managing nutrients than the U.S.

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February 2010 Volume 2, Issue 2

Rabalais Appointed to Louisiana Environmental Education Commission



Governor Bobby Jindal has appointed Dr. Nancy Rabalais, Executive Director of LUMCON, to represent the Board of Regents on the Louisiana Environmental Education Commission. Dr. Rabalais' appointment begins in February 2010. She is looking forward to interacting with the Commission members to achieve their mission of creating ..... "a comprehensive and balanced environmental education initiative that will result in environmentally literate citizens who will effectively and constructively solve existing environmental problems, prevent new ones, and maintain a sustainable environment for future generations." The Commission hosts an Environmental Education Symposium on a biennial basis. The upcoming event will be in Baton Rouge on February 26-27, 2010. Other activities include: support for the Educator/Research Grant Program, an Art and Language Arts Contest, and volunteer support for an "Envirothon" contest that tests environmental knowledge of teams of students.

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Nitrogen, Phosphorus, AND Silica Across the Ocean

The British government is not alone in its desire to curb excess inputs of nitrogen (N) and phosphorus (P) into the atmosphere, land, and waters. Several international scientists joined members of the U.K. Natural Environment Research Council and Global Environmental Research Committee at the Royal Society in London on February 8-9, 2010 to help guide a new initiative on Macronutrient Cycles. Dr. Nancy Rabalais, LUMCON, joined two U.S. scientists and several from the European community in a discussion of the program, its goals, its implementation, and its boundaries (scientific approach). The U.K. program will focus on a few watersheds and quantify the scales (magnitude and spatial/temporal variation) of N and P cycling across a variety of landscapes and link findings to changing climate and a perturbed global carbon cycle. The group had already given notice to the British scientists that silica (Si), the building block of diatoms, should also be considered in the equation, because of its relationship to landscape use and subsequent flux to the coastal ocean. Iron (Fe) was not considered because of its fairly high levels in watersheds. Unfortunately the U.K. funding will be insufficient to take the integrated transformations of N, P, and Si into coastal waters, but rather is restricted to the land and waters in a catchment and possibly to the offshore end of the estuary. Given the funding level, the spatial scale of a catchment will range

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up to 400 square miles, with the basic research scale in sub-catchments of up to 40 square miles. Research will build upon a developing sensor network similar to the U.S. NEON (National Environmental Observation Network funded by the National Science Foundation).

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"A Scientific View of Plankton" for Environmental Educators

On Saturday, February 27, LUMCON Marine Educator, Jennifer "Murt" Conover led a phytoplankton study guide for environmental educators as part of the Louisiana Environmental Education Commission (LEEC) Environmental Education Symposium in Baton Rouge. . LUMCON's exhibit entitled, "Beyond Ordinary: A Scientific View of Plankton" was a two-part session developed by Ms. Conover with help from Wendy Morrison, LUMCON phytoplankton expert, and Nancy Rabalais, Executive Director. The first session covered the categories of planktonand their contribution to the Gulf of Mexico food web and hypoxia (low oxygen). Educational materials are available on http://www.gulfhypoxia.net. Attendees were then able to put their new knowledge to work on living plankton samples from Terrebonne Bay. Conover led participants in filtering phytoplankton samples, creating slides and examining the plankton on the slides under microscopes. The LUMCON phytoplankton guide (http://phytoplanktonguide.lumcon.edu) is the unique tool available to educators to help identify the myriad kinds of phytoplankton that would likely be part of the sample.

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March 2010 Volume 2, Issue 3

Hypoxia Research Coordination

Fishery managers, water quality monitors, funding agencies and scientists interested in the coordination of hypoxia research and its applications to resource management met in Bay St. Louis on February 17-18, 2010. Day one focused on NOAA funded research on the impacts of hypoxia on living resources; the second day focused on coordination of cruises, data management, data exchange, and education and outreach.

Several new research results highlighted the fisheries presentations. SEAMAP data (Southeast Area Monitoring and Assessment Program) fisheries-independent trawl survey with three years of high spatial resolution indicated high habitat loss in areas that one time had the highest abundances of demersal fishes and shellfish (Kevin Craig, University of South Florida). Most fishes avoid hypoxia and escape at dissolved oxygen levels from 1-2 mg/L, but aggregate near the edges of the hypoxic zone. Often fishes congregate above the hypoxic zone. Shrimp trawlers are adept at avoiding the low oxygen areas and can concentrate along the edges where catches are higher. The inability to migrate across the hypoxic area, however, exposes shrimp and demersal fishes to higher predation prevents migration to offshore areas and higher secondary production farther offshore is prevented.

Results from hypoxia research in North Carolina (Martin D. Smith, Duke) with a bio-economic predator-prey model indicates that the crab fishery would increase by 8%, $2-5 million, if the hypoxia were eliminated from areas of the Neuse River and the Albemarle-Pamlico Sound. Any gains, however, would be negated by the lack of fishery management for the blue crab fishery. Attendees noted that reduction of hypoxic conditions AND fisheries management would result in economic benefit to the North Carolina fishery. The same model was used to represent an average 10-15% decrease in revenues to shrimpers due to hypoxia.

Hypoxia researchers from LUMCON, Ed Chesney and Nancy Rabalais attended the workshop. Rabalais gave a presentation on “Maximizing Temporal and Spatial Observations of Hypoxia.”

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CREST Meets in Mississippi

CREST, Coastal Restoration and Enhancement through Science and Technology, is a NOAA-funded peer-reviewed academic program of the Office of Response and Habitat Restoration. The program is a cooperative

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venture between 11 universities in Louisiana and the University of Southern Mississippi. CREST had as one its driving motivations the recognition that large-scale public investments for restoration need advanced science and technology needs to help inform managers, officials, and planners in the policy-making process.

The most recent workshop for the CREST program was held at the Gulf Coast Research Laboratory, University of Southern Mississippi, Ocean Springs, MS on March 8. The workshop highlighted the research of CREST-funded research by:
Dr. Jinx Campbell (USM): The role of root associated fungi in saltmarsh restoration success;
Dr. Kevin Yeager, C. Brunner (USM): Assessing tectonic and associated drivers of subsidence and consequent impacts on coastal marshlands: the Pearl River, Louisiana;
Dr. Dan Petrolia (Mississippi State University): Economic assessment of rapid land-building technologies for coastal restoration

There were over 30 participants including academic researchers; the Mississippi-Alabama College Sea Grant Program; representatives of Federal agencies including the U.S. Army Corps of Engineers, EPA Gulf of Mexico Program, Northern Gulf Institute, National Park Service, U.S. Geological Survey; State agencies including Mississippi Dept. of Marine Resources; and non-governmental organizations, Nature Conservancy, Gulf Restoration Network, Natural Capitol Development.

The presentation by Dr. Petrolia, an agriculture economist, was covered by the Mississippi Press, front page. He reported the results of surveys conducted in summer 2008 that people in Mississippi recognize that barrier island and coastal wetlands restoration are important to hurricane protection as "speed bumps" to a major storm. Seventy percent of the survey respondents indicated that they were willing to pay for supporting barrier island restoration, but only up to a point.

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Comparative Marsh Ecology: Georgia and Louisiana



Students from the University of Scranton in Pennsylvania arrived in Cocodrie on March 16 ready to continue their comparative marsh ecology studies. The group led by Professor Mike Hardisky began their studies at the Sapelo Island National Estuarine Research Reserve (SINERR) in Georgia. There they studied and measured fishes and vegetation in a freshwater marsh. Similar measurements will be taken in the saltwater marshes surrounding the LUMCON Marine Center. The students will then compare and contrast the two environments, and consider what effects humans have on each. The students also participated in a university education research cruise on the R/V Acadiana.



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LUMCON Announces LEAD Camp Schedule for High School Students

LUMCON is pleased to offer two LEAD camps this year. The first will be June 20-24 and the second, July 25-29. LEAD Camp is a residential camp for students entering grades 9-12. Students will be provided meals and lodging at LUMCON's DeFelice Marine Center in Cocodrie, LA.
The camp is an unique opportunity for students who have an interest in Louisiana's coastal and marine environments to gain knowledge and experience though hands-on scientific exploration. Activities include a research criuse aboard the R/V *Acadiana*, salt marsh transects, fish and invertebrate dissections, water quality sampling, and much more.
The cost is $180 for each student, which includes meals and lodging.
Interested students or parents with questions can contact Jennifer Robinson at (985) 851-2843 or jrobinson@lumcon.edu.

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Traveling Exhibit Finds Permanent Home in Acadian Museum in Erath

L'Agriculture dans les marais de vieille Acadie: La restitution du 17eme siècle au rétablissement d'aujourd'hui

"Farming the wetlands of old Acadie: 17th century reclamation to present-day restoration," a Louisiana State University class effort since 2006, settled into its permanent home at the Acadiana Museum in Erath, Louisiana. The display was developed beginning with an LSU class that traveled to Nova Scotia and New Brunswick to learn about farming methods, dikes and restoration activities, keeping in mind similar activities along south Louisiana's coast. The exhibit examines the landscape and ecology of Nova Scotia where 17th century French settlers developed salt hay farms and grew crops on recovered marsh land by diking and draining intertidal areas. The exhibit also covers current coastal restoration activities in former Acadian territory.

The instructor for the class, Dr. Gene Turner, and the students who developed and produced the display, Melissa Baustian LSU/LUMCON Ph.D. candidate, Dr. Whitney Broussard at Univ. of Louisiana at Lafayette, Russell Fielding, LSU Ph.D. candidate, and Jenn Lasseigne, LSU/LUMCON Ph.D. candidate, were present for the dedication and grand opening on March 27. The bilingual exhibit had been traveling around Louisiana since its first presentation at
LSU, School of the Coast and Environment, 1-6 December 2006, followed by

- Wetlands Acadian Cultural Center, National Park Service, Thibodaux, LA, 11 December 2006 - 2 January 2007
- Louisiana State Museum, Patterson, LA, 5-27 January 2007
- LUMCON, Cocodrie, LA, March 2007
- Cité des Arts, Lafayette, LA, April - July 2007
- Acadia Memorial, St. Martinville, LA, September - November 2007

- University of Louisiana at Lafayette, LA , January 2008

The incorporation of the exhibit into the Acadiana Museum and the symposium held at the time of its opening were coordinated by Dr. Broussard, ULL, and Jennifer Ritter from the Center for Culture and Eco-Tourism, Lafayette, LA with funding from the Louisiana Endowment for the Humanities. The symposium included presentations by Dr. Broussard, Dr. Ray Brassieur of Univ. of Louisiana at Lafayette, and keynote speaker Dr. Robert Summerby-Murray of Mount Allison University, Canada. Dr. Summerby-Murray provided many of the connections and opportunities for the class on their trip. A lively and informative round table continued through the presentations with participation by local farmers, soil scientists, long-time residents and friends of Acadian Museum.

LUMCON is proud of its graduate student participation, the whole team effort and the carefully described linkages of culture and land development between Acadie (Canada) and Acadia (south Louisiana).

The Acadian Museum is free and open weekdays from 1:00 p.m. - 4:00 p.m., 203 South Broadway, 337-233-5832, http://www.acadianmuseum.com /museum.html.



Photo: Left to right: Whitney Broussard, Gene Turner, Melissa Baustian, Russell Fielding and Jenn Lasseigne with the Louisiana Acadiana flag

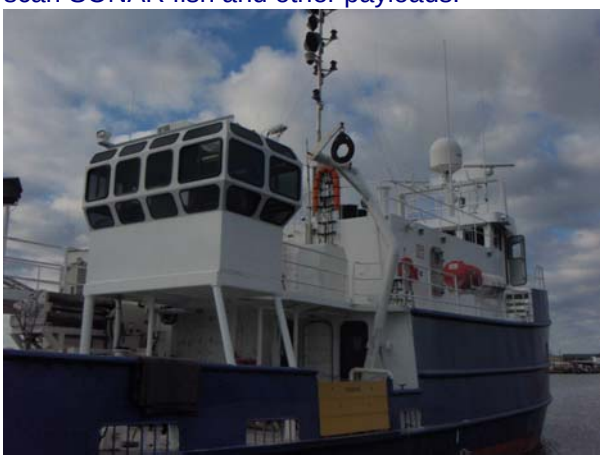
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Out of the Yard and into the Sea

The R/V *Pelican* spent 8 weeks in the shipyard for general maintenance, major modifications, and improved functionality. The obvious change is the new aft control station, where captain and engineer can work side-by-side in an enclosed, weather-resistant space with full view of the operations around the deck. Scientists remain outside in the weather! This weather tight

compartment gives the winch operator a better work station to observe and perform CTD casts, net tows, small ponar mud grabs and even maneuver the vessel if necessary. The Captain will also have a better maneuvering platform out of the environment with increased electronics to perform precise ship handling. New decking, flange plates, angle gussets and pipe stanchions were fabricated and cropped for the installation of the new aft steering/winch control station (see photo).

A new Markey Com 7 CTD winch was delivered and installed. The Markey COM-07 is a 10 HP single-drum instrument-grade science winch, with precision level-wind system and line-tension, line-count outputs from the two sheave fairleader level wind to a MTNW LCI90i readout. This electric winch contains 2,000 meters of 0.322 multi conductor wire. The max line pull is 2,400 lbs and max speed is 76 meters per minute. Typical applications are the deployment of industry-standard CTDs, water-sampling carousels, side scan SONAR fish and other payloads.



The ability to precisely position a ship is needed more by research operations, and the *Pelican* has come out of the yard with enhanced capabilities. Researches today require vessels to maintain very close position tolerances while sampling the water around them. One way to achieve this is by anchoring. The *Pelican's* anchoring system was extremely difficult to deploy, recover and was unsafe for the crew to operate in rough conditions. A new anchor handling system was installed which not only corrected the problem but gave the vessel greater holding capabilities. The new system also provides the crew a tool for handling mooring lines with the anchors windless' capstan. The ability to adjust lines under loads has been greatly needed during times of high winds and water. A Coastal Marine Equipment ¾" chain anchor windless was installed along with an anchor locker which holds 10 shots of chain.

The ship's hydraulic system received an upgrade during this maintenance period. The older and dilapidated open looped system was rebuilt to an "on demand" closed looped electric over hydraulic system with joystick controls. Proportional controlled valves allow for precise control of A and J frames, tugger winch, capstan, bow thruster and anchor winch. This system resulted in a cleaner, more efficient system.

The *Pelican* is the only ship in the research fleet that has three hull mounted ADCPs (acoustic Doppler current profiler) covering water depths of 3 to 1000 meters with 1200 kHz, 300 kHz and 75 kHz ADCPs. The ADCPs track the currents beneath the ship from near-surface to near-seabed, defining direction of the currents and speed. The acoustic windows for the ADCPs are now thinner and their new placement have increased separation with the addition of new transducer pods located on the port side. There will be less interference when running dual ADCPs allowing the data collecting will be more precise.

A new radar arch was fabricated and installed to accommodate the vessels FLIR, to clean up the topside of the wheel house and to offer more separation among the various antennas and radars which normally accumulate on a research vessel.

The vessel's Appleton crane was overhauled, and a Crane Smart system was installed to improve the overall safe handling of loads. The *Pelican* is a tool for science, so it is important that she is able to provide a safe and efficient platform for crew and researchers.

The *Pelican* arrived in Cocodrie from the shipyard on February 20th with much of its guts (wires) still exposed and unconnected, but the crew pulled it all together for a National Science Foundation inspection on February 23-24. The inspection went well, and we expect useful recommendations concerning operations and safety. Members of the Vessel Operations department are to be congratulated on this latest improvement for the *Pelican*. The hours were long and hard, which translates into keeping the *Pelican* a well-equipped and vital tool for coastal and oceanographic research.

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April 2010 Volume 2, Issue 4

Researchers Study Hurricane Protection Offered by Marsh Vegetation in Terrebonne Bay

While coastal marshes provide an important natural barrier against hurricane surges and wave action, there is a lack of specific research that identifies the structure of the marsh vegetation as it responds to strong and stressful water movement. Louisiana State University doctorial student Ranjit Jadhav is working with Dr. Q. Jim Chen, Associate Professor of Civil and Environmental Engineering, studying the interactions of hurricane waves and storm surges with coastal landscapes. As part of a project funded through the Southeast Regional Research Initiative (SERRI), Ranjit and his research group deployed a directional wave recorder at the LUMCON Terrebonne Bay environmental monitoring site and five more recorders on a marsh in the northern part of the Bay. The researchers intend to keep the instruments in place for a year and use the data they gather to develop numerical models that will assist in management of Louisiana's coastline.



Jadhav and team members at LUMCON preparing to launch

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Great River Road Links the Middle of the Nation with the Gulf of Mexico

The Mississippi River Parkway Commission gathered under the centuries-old oak trees at Oak Alley Plantation to celebrate the designation of Louisiana's "Great River Road" as a National Scenic Byway on April 8. The addition of the final state means that the Great River Road is the longest national Scenic Byway in the U.S. The designation will support more tourism opportunities and potential funds for infrastructure improvements along both sides of the River.

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Southern Association of Marine Laboratories Continues in Force

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The Mississippi River is a vital asset to the nation for transportation, water supply, ecosystems and water resources, economic development, and tourism. Its watershed drains 41% of the lower 48 United States, and it empties into the Gulf of Mexico southeast of New Orleans in the birdfoot delta and south of Morgan City at the Atchafalaya Delta. The River is critical to the health and sustainability of the north central Gulf of Mexico.

More than 60 members of the parkway commission met in Baton Rouge, April 7-9. The importance of the Mississippi River for Louisiana was underscored by three plenary presentations to the group by Garret Graves, Chair of the Louisiana Coastal Protection and Restoration Authority, C. C. Lockwood, premier nature photographer, and Dr. Nancy Rabalais, LUMCON Professor and Executive Director.

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Beautiful Weather and Scores of Guests Makes Louisiana Earth Day Celebration a Great Success



Clear skies and warm temperatures welcomed guests and exhibitors from across Louisiana to Baton Rouge for the Louisiana Earth Day celebration on Sunday, April 18. The grounds of the Old State Capitol, the Riverside Complex, and Lafayette Street in front of the Manship Theatre were full of exhibits from agencies, academia, schools, non-governmental organizations, and environmental educators. The Louisiana Earth Day is one of the top five Earth Day celebrations in the country. The festival carries the message of environmental responsibility through free entertainment and exhibits to over 45,000 festival goers each year.

LUMCON's contribution to this year's festivities featured various marine life specimens, such as a whale vertebra and the jaws of a shark. Also at the booth, kids of all ages created door hangers featuring their favorite marine animals. "We were very busy the whole time, and the people we met were just great!" said one LUMCON volunteer.

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Southern Association of Marine Laboratories Continues in Force

The Southern Association of Marine Laboratories has its Silver Anniversary this year. Discussions to form the organization began in 1985 and the first meeting was held in 1986. Today, the organization is 54 members strong, with 20 of the members, including LUMCON, being from the Gulf of Mexico. The SAML group is the largest regional group among the National Association of Marine Laboratories. The annual meetings provide marine laboratory directors a chance to meet, share ideas, seek input, discuss important issues relevant to their facilities, and visit various facilities around

the Gulf of Mexico and along the Southeastern U.S. shore. About 20 SAML members just met in Gulf Breeze, Florida, at the U.S. Environmental Protection Agency, Gulf Ecology Division on April 12-14. There is a lot of growth and excitement among the SAML members, even though the financial difficulties faced by many labs were bemoaned by their representatives.

An exceptionally appropriate slogan from the Wildlife Foundation of Florida, “We Create the Next Generation that Cares,” made a fitting backdrop for discussions of education and outreach activities at the labs and how to engage underserved and underrepresented populations—K-12 students, elementary and secondary teachers, undergraduate and graduate students, early career scientists and tenured faculty. Reaching school age students is much easier than engaging graduate students and academicians because the latter are much less of the overall population. Increasing efforts are required as we try to engage up this age structure. A working group will begin to coordinate efforts among the SAML members with regard to better serving and engaging underrepresented individuals.

Other discussion items covered Export Technology Control at the university and personal level; decreases in allowable indirect cost rates, what happens with recovered costs brought in by laboratory research funds, requirements for more cost sharing; Regional Governor Alliances, their structure, mandates, and interactions with regional, state, and local planning; updates from the coastal observing systems from the southeast U.S. coast and the Gulf of Mexico; and coastal and marine spatial planning and the role of marine laboratories.

LUMCON Executive Director, Nancy Rabalais, serves as President-Elect of SAML.

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May 2010 Volume 2, Issue 5

Media consults LUMCON experts for insight into possible effects of Gulf oil spill

In the aftermath of the Deepwater Horizon oil spill, national and local media interviewed LUMCON faculty about the possible ecological impacts of the disaster. Quotes from LUMCON faculty members Ed Chesney, Alexander Kolker and Nancy Rabalais have been featured in news stories on television, in print and on the radio.

New Orleans chef and WWLTV television personality Frank Davis interviewed Ed Chesney about the impact the spill could have on Louisiana's fish. Chesney, who specializes in fisheries and fish ecology, is concerned about how the spill could affect spawning and juvenile fish. "This is the time of year when there are lots of things breeding besides fishes," said Chesney, "so there are a number of potential serious outcomes." When asked about the safety of Gulf Coast seafood, Chesney explained, "If you had tainted seafood you'd know it. You would both smell it and taste it." Chesney worries more about the impact the spill will have on the seafood market, as it may give good quality seafood a bad reputation.

New York Times reporters visited LUMCON to speak with Wetlands scientist Alexander Kolker about the devastating effects oil could have on Louisiana's marsh. Besides providing one of the most diverse and productive ecosystems in the country, marshes also provide defense against hurricane forces. Kolker explained that the marsh grass that holds Louisiana's coastal soil in place has been under stress from influences such as salt water and weather events. An influx of oil could overwhelm and kill marsh grass. "Roughly 80 to 90 percent of all wetland loss in the United States happens here in Louisiana. When oil strikes this system," Kolker explained, "it will strike a system that is already under threat."

LUMCON Executive Director, Nancy Rabalais, has appeared on Southern California National Public Radio, Fox News, Washington Post, WWL Radio with Garland Robinette on Think Tank, National Resources Defense Council, interviewed by Science, Nature, Los Angeles Times, New York Times, Wall Street Journal, London Times, Earth&Sky, National Geographic, New York Times Week in Review, and Committee on Natural Resources of the US House of Representatives. Most recently Dr. Rabalais appeared on NPR's "Science Friday" with Ira Flato. Flato and Rabalais coined the word "Oilmeggedon," which will likely be seen again. The New York Times Week in Review, Sunday , May 9, had several hypoxia and oil spill comments.

The efforts of the LUMCON scientific staff and personnel is to provide a balanced, science-based consideration of what has taken place, what this might mean to various ecosystems should the oil spill impinge upon them, and the path to restoration and recovery.

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Governor, legislators and parish officials visit LUMCON



Gov. Jindal and Dr. Geoff Sinclair

On May 11, LUMCON staff welcomed Governor Bobby Jindal and members of the Terrebonne Parish Government as the officials arrived by Blackhawk helicopter at LUMCON. Jindal, joined by Terrebonne Parish President Michel Claudet, State Senator Norby Chabert, Representative Gordon Dove and Terrebonne Parish Council Chair Arlanda Williams landed at LUMCON before taking a fly-over of the area and holding a press conference at the BP oil spill response staging area nearby.

Faculty member Geoff Sinclair and Executive Director Nancy Rabalais (by phone) expressed to Governor Jindal and the other officials that LUMCON is prepared to provide scientific and logistical assistance to local, state and federal agencies in response to the oil spill.

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Governor Jindal Holds Press Conference at LUMCON

Ten days after his last visit to LUMCON, Governor Bobby Jindal returned, again to fly over areas of Terrebonne and Lafourche parishes to see the extent of the Deepwater Horizon on local estuaries and barrier islands. Jindal and local officials reported a sheen of oil entering the Gulf end of Terrebonne Bay and making landfall along barrier islands from Grand Isle to East Timbalier Island.



Governor Jindal held a press conference on the grounds of the LUMCON Marine Center in Cocodrie along with Terrebonne Parish President, Michel Claude, Representative Gordon Dove, and representatives of the U.S. Coast Guard, the Louisiana National Guard, and the joint oil spill response team.

The Governor called for swift action to protect coastal habitats, with dredging of sand to build berms on barrier island beaches and further dredging to extend barrier islands and construct defenses along the openings of inlets, such as the one closed across the Gulf access to Elmer's Island. Jindal expressed that constructed sand islands and other efforts in place to prevent oil encroachment have been effective.

During the press conference, he acknowledged the hospitality of LUMCON for hosting his helicopter landings and his visits, and further called attention to the broad base of background data that LUMCON scientists had been collecting over many years that serve as a baseline against which effects from the oil spill may be assessed.

After the conference, Jindal and his staff visited the Marine Center where Jindal visited with high school students from Soujourney Truth Academy in New Orleans, who were on a 2-day field trip to LUMCON.

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Film crew from Jean-Michel Cousteau's Ocean Futures Society team visits LUMCON



OFS team in front of Marine Center. From left: Nathan Denbeck, Brian Hall, Matt Ferraro, and Carrie Vonderhaar

Environmentalist, explorer and film-producer Jean-Michel Cousteau, founder of Ocean Futures Society (OFS), dispatched a team of environmental videographers and photographers to join him on the Louisiana Gulf Coast to discover and explain the realities of the Deepwater Horizon oil spill for a documentary film. Cousteau, son of oceanographer Jacques Cousteau, hopes by capturing the effects of the spill he can illustrate why this must never happen again and what must be done in the future.

Cousteau's team drove from OFS headquarters in Santa Barbara, CA to meet up with Cousteau, who was already in Louisiana to interview Plaquemines Parish President Billy Nungesser. While travelling along the coast, team members spoke with fishermen, business owners and others about what impact the oil spill has had on Gulf coast residents. They also explored oily marshes and dove into waters tainted with oil and dispersants 30 miles off the coast.

On their final stop, the group travelled to LUMCON to interview Dr. Nancy Rabalais, Executive Director, and expert on the Gulf of Mexico region of hypoxia (commonly called a "Dead Zone"). Dr. Rabalais explained the normally low oxygen conditions in the deeper water near the Deepwater Horizon oil spill, and the human-caused area of low oxygen that forms annually along the Louisiana shore because of freshwater discharge and increasing loads of nitrogen and phosphorus from the Mississippi River. The results of the interplay of the oil spill with Gulf hypoxia is not known, primarily because the extent, volume, and persistence of the spilled oil has to be considered in relation to other physical and biological processes. In different scenarios

the summer low oxygen may be aggravated, or conversely may be alleviated, or have no effect.

The OFS team left LUMCON on Wednesday, May 26th to return to Santa Barbara. They plan to re-group then return to Louisiana. Ferraro explained, “There’s too much to see and do; too much ground to cover for just one trip.”

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July 2010 Volume 2, Issue 6

LUMCON Joins National and State Experts to Study Effects of Gulf Oil Spill

The Louisiana Universities Marine Consortium (LUMCON) is partnering with two prestigious research institutions to determine the myriad impacts of the Deepwater Horizon oil spill into the Gulf of Mexico.

LUMCON signed a Memorandum of Understanding with The Woods Hole Oceanographic Institution, WHOI, and Louisiana State University to form a consortium called the Gulf Oil Research Program, or GORP.

“The purpose of the consortium is to work cooperatively to plan, secure funding for, execute and report on a program of scientific research to describe and quantify the effects of the oil spill on varied environments, communities and species in the affected region, and to develop and implement remediation where feasible,” according to the memorandum. “The explosion and sinking of the Deepwater Horizon oil platform in the Gulf of Mexico beginning on April 20, 2010, and the subsequent discharge of crude oil and gas from the wellhead at 1,500 m depth has created what may be the largest environmental catastrophe in U.S. history,” says the MOU. “Effects of the discharged oil and dispersant chemicals are expected to be widespread and long lasting in many environments of the Gulf of Mexico, including deep-sea benthos and water column, sub-tidal benthos, coastal marshes and beaches, with significant economic impacts to fisheries, tourism and coastal development.”

“LUMCON is uniquely situated directly on the Louisiana coast where the firsthand impacts of the oil spill are being expressed. Our superb research facilities, ships, and ready access to the most productive coastal and estuarine waters in the Gulf of Mexico will serve the three-member Consortium well,” said LUMCON Executive Director, Nancy Rabalais. “The LUMCON faculty includes coastal ocean ecosystem scientists, biogeochemists, fisheries experts, and a coastal barrier island and marsh sedimentologist. The north-south alignment with WHOI and LSU is unique with the advanced technology open-ocean and deep-sea research capabilities of WHO, LSU’s expertise in wetland, coastal, pollution and fisheries sciences, and LUMCON’s coastal presence.”

"We are eager to work with our colleagues in the Gulf at LSU and LUMCON on the challenges of this environmental catastrophe,” said Laurence P. Madin, WHOI executive vice president and director of research. “WHOI has a long history of research on the geochemical and ecological consequences of oil spills, some of it based on 40 years of study of a spill off our own shores in 1970. While the Gulf spill has shocked and horrified us all, it also has

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energized the research community to understand the effects and find ways to minimize current and future impacts."

Judy McDowell, chair of the biology department, director of the WHOI Sea Grant program and former associate dean, will serve as the Institution's Principal Investigator for research in the collaboration. "Judy has a distinguished career in the study of pollution impacts, including oil spills, on marine physiology and ecology," Madin said.

McDowell said the Gulf spill, while disastrous, presents a unique research opportunity. "The Deep Horizon spill is unprecedented in its complexity in enabling the scientific community to understand the fate, transport and potential long-term effects of oil in the Gulf of Mexico ecosystem," she said. The agreement comprises numerous goals and conditions, including:

- To assemble the best available research team from the scientific and technical staffs of each institution;
- The research plan will be comprehensive geographically and ecologically and based on the most current methods for sampling, analysis, modeling and data management;
- Data from the program will be available as soon as possible to all participating scientists and to others with legitimate need for access;
- Results will be published in the peer-reviewed scientific literature, according to normal academic practice, and also presented in technical reports, popular publications, websites and other media as appropriate.

The Memorandum of Understanding will be in effect for an initial term of three years. The participants have the option to renew it after that by mutual agreement.

The collaboration of WHOI, LSU and LUMCON will bring unique skills and expertise to bear in understanding impacts on both near-shore and deep-water habitats of the Gulf of Mexico.

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Ocean Leadership Holds Science Symposium on BP Disaster

As the world well knows, the Deepwater Horizon offshore drilling rig situated about 40 miles southeast of the Mississippi River delta exploded while drilling an exploratory well, killing 11 workers and causing the rig to sink to the seafloor. Two days after the incident, oil from the broken pope on the seafloor began to reach the surface of the Gulf of Mexico, beginning the worst oil spill in U.S. history.

On June 3, 2010 the Consortium for Ocean Leadership convened a federally-sponsored scientific symposium on the LSU campus to discuss the urgent science issues related to the oil spill. Over 200 participants attended, including scientists from approximately 50 academic institutions, ten non-profit organizations, and representatives from a dozen federal agencies. Drs. Ed Chesney and Nancy Rabalais were in attendance, and Dr. Rabalais presented a Gulf science institution viewpoint on what the oil spill meant to

LUMCON and what LUMCON was doing to support spill-related science. The symposium report has just been released and can be found at the Consortium for Ocean Leadership web site at http://www.oceanleadership.org/ocean-policy-legislation/gulf-oil-spill-scientific-symposium/

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Gulf State Representatives Brief Vice President Bidens Staff on Oil Spill Science Symposium

Vice President Biden will visit the Louisiana coast on Tuesday, June 29. In a related event, the Chair of Consortium for Ocean Leadership, Nancy Targett, University of Delaware, led a group of Ocean Leadership staff and organizational member representatives from the Gulf of Mexico states in a briefing for Vice President Biden's Domestic Policy Advisory Committee at the White House on June 22. The group met with Terrell McSweeny, Domestic Policy Advisor to the Vice President and Deputy Assistant to the President, and Brian Levine, Deputy Domestic Policy Advisor to the Vice President. Besides Target, Ocean Leadership was represented by Bob Gagosian, President COL, Kevin Wheeler, Vice President & Director, Public Affairs COL, Shirley Pomponi, Florida Atlantic University, Steve Lohrenz, University of Southern Mississippi, and Nancy Rabalais, Louisiana Universities Marine Consortium, in absentia. [Rabalais arrived in Washington for the meeting but it was delayed so that she had to leave before it was held.] The briefing summarized critical, cross-cutting challenges identified at the Science Symposium on June 3rd at Louisiana State University.

- **Coordination.** While the Coast Guard is the lead entity charged with first response, there is no national lead entity charged with coordinating the mobilization of science assets across federal agencies and within the ocean science community. There is an urgent need for high level integrated coordination of the science necessary to address ecosystem, policy, and social issues related to the spill. High level coordination will maximize outcomes and avoid duplication of effort by ensuring rigorous science and coordinated deployment of assets

- **Data Management.** Central coordination and availability of data and metadata and an overview of mobilized research tools (ships, ROVs, AUVs, etc.) is needed. Currently data availability and logistical information is fragmented and ad hoc. A single data portal/clearinghouse is needed. It should link to agency and academic sites that are posting data that has been collected through a vetted process.

- **Funding.** Need for expedited funding for rapid responses to research and monitoring by the federal and private sector. NSF's RAPID grants have been one of the only expedited funding mechanisms available to the external research community. Many in the ocean science community have deployed assets without funding, in order to respond immediately to the situation. Coupled with this is the need for broad

coordination

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2010 Forecast of the Summer Hypoxic Zone Size, Northern Gulf of Mexico

Abstract

As the environmental catastrophe from the Deepwater Horizon oil spill unfolds along the northern Gulf of Mexico, the persistent and unacceptable "Dead Zone" along the Louisiana shore continues to threaten living resources including humans that depend on fish, shrimp and crabs. Excess nutrients, particularly nitrogen and phosphorus, cause huge algae blooms whose decomposition leads to oxygen distress and even organism death in the Gulf's richest waters.

The June forecast of the size of the hypoxic zone in the northern Gulf of Mexico for July 2010 is that it will cover between 19,141 to 21,941 km^2 (average 20,140 km^2; equal to 7,776 mi^2) of the bottom of the continental shelf off Louisiana and Texas. The area is about the size of the state of New Jersey. The estimate is based on the May nitrogen loading (as nitrate+nitrite) from the Mississippi watershed to the Gulf of Mexico estimated by the U.S. Geological Survey. If the area of hypoxia becomes this large, then it will be the fifth largest since systematic mapping of the hypoxic zone began in 1985.

Caveats: 1) This predictions discounts the effect of large storm events which will temporarily disrupt the physical and biological system attributes promoting the formation of the low oxygen zone in bottom waters; 2) The potential space on the shelf where hypoxia occurs is limited by the bathymetry; 3) The predictions assume continued above average discharge through June and July; 4) unusual weather patterns affecting coastal winds, as experienced in 2009, may skew the prediction to be higher, or lower.

Furthermore, the effects of the Deepwater Horizon oil spill are undefined, but potentially significant.

View the entire report in PDF format:
2010 Gulf Hypoxia Forecast

For more information on hypoxia in the Gulf of Mexico, visit
http://www.gulfhypoxia.net

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SCUBA Diving in Contaminated Water



With the explosion of the BP Deepwater Horizon drilling platform and the subsequent gushing of tens of thousands of barrels of crude oil mixed with dispersant, new regulations are in place for



SCUBA diving activity for research. Areas that fall within the NOAA daily forecast for contaminated water will require high-risk diving training and full dry suits and full face masks. Even areas that fall outside the NOAA demarcation are subject to these restrictions.



The need for LUMCON research divers working in offshore areas from the Mississippi River to western Terrebonne Bay was put in place by Chevron/Texaco at one of the hypoxia coastal observing systems. The need was dramatized in early May when LUMCON divers, Nancy Rabalais and Alma Wagner, dove into plankton rich water off Caminada Pass (no oil in site for 9 miles) at another offshore platform, worked on oxygen meters underwater for 30 minutes, and then surfaced into a thick, as far as the eye can see, oil slick. The divers' gear and their exposed heads and hands picked up globs of the oil. Ivory soap and Dawn dishwashing detergent were used to cut the grease, but it was obviously time to get serious about the required training.



LUMCON divers, Lora Pride, Nancy Rabalais and Thomas Widgeon, joined five scientific divers from the Dauphin Island Sea Lab and two from Florida State University to take classroom, equipment and performance training. The course was taught by an instructor team from Scientific Diving International at the U.S. Environmental Protection Agency Environmental Research Laboratory in Gulf Breeze. Familiarization with the gear took place in a Pensacola YMCA swimming pool, and contaminated-water diving skills were practiced and performed in Santa Rosa Sound and Vortex Springs. Divers also received training in surface-supplied air support with a diving helmet.

These skills, which are necessary along with the equipment, were supplemented with training in contaminants, risk assessment, planning and supporting dives, decontamination procedures, and equipment care. We hope not to be exposed to any more oil, but we will be prepared, once the equipment arrives and the seas from Hurricane Alex calm down.

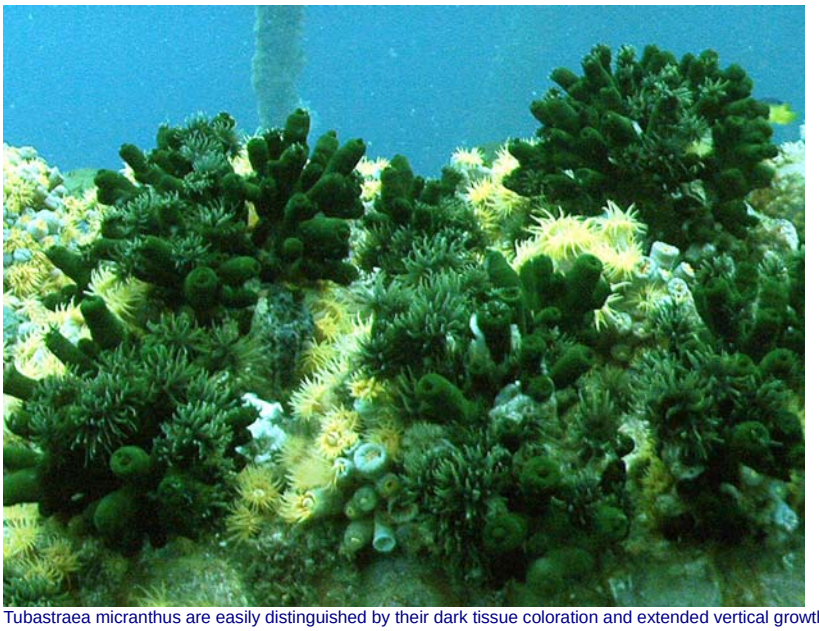
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Foreign coral species found in the Gulf of Mexico



Tubastraea micranthus are easily distinguished by their dark tissue coloration and extended vertical growth. Here they are shown occurring at a depth of 65 ft. on a horizontal support of the oil production platform Grand Isle-93 in the northern Gulf of Mexico. The coral species surrounding these colonies are Tubastraea coccinea (photo by Scott Porter).

In a newly released paper in the international scientific journal *Aquatic Invasion*, LUMCON researchers Professor Paul Sammarco and Scott Porter, with Dr. Stephen Cairns of the Smithsonian Institute, report for the first time the observation of a non-native coral species, *Tubastraea micranthus*, in the western Atlantic.

Tubastraea micranthus is closely related to *Tubastraea coccinea*, an invasive coral species that began inundating the Gulf of Mexico in the 1940s, and has become the most abundant coral in the western tropical Atlantic. The northern Gulf of Mexico currently hosts millions of *Tubastria coccinea* colonies.

Sammarco and Porter surveyed a total of 83 platforms in the northern Gulf of Mexico for coral colonization between the years 2000 and 2009. On only one platform, GI-93, which is located off Port Fourchon, LA west of the Mississippi River mouth. This location occurs at the cross-roads of two major shipping lanes. Because *Tubastraea micranthus* is limited to only a single platform, Sammarco and his colleagues believe the species must have been introduced recently. Sammarco believes that if the growth and reproductive rates of *Tubastraea micranthus* are similar to those of *Tubastraea coccinea*, the newly introduced species could pose a threat to native reef organisms.

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Shelfwide Cruise Delayed by Bonnie

Tropical Wave #3 became Tropical Depression #3, Tropical Depression Bonnie, Tropical Storm Bonnie, Tropical Depression Bonnie, and crossed southern Florida into the Gulf of

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Mexico headed at a rapid speed to the Mississippi River delta. At the Marine Center in Cocodrie and the BP Command Center, voluntary evacuation was in order primarily because of the expected coastal flooding. The Friday night midnight departure was delayed one day. The Hypoxia Shelfwide Cruise headed west instead of into the storm and began its mapping of bottom-water low oxygen values off the Atchafalaya River, mid-way along the study area. You can follow the scientific developments at http://www.gulfhypoxia.net.

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Presidential Commission on BP Oil Spill

Two members of the National Commission on the BP Deepwater Horizon Oil Spill and Offshore Drilling visited south Louisiana in the days before official hearings were held in New Orleans on July 13-14. Commissioners Dr. Fran Ulmer, Chancellor of the University of Alaska Anchorage and Dr. Donald Boesch, President of the University of Maryland Center for Environmental Studies, visited the Incident Command Center near Houma and met in a private session with citizens in Houma.

In Houma the two commissioners met with Lafourche Parish President Charlotte Randolph, Terrebonne Parish President Michel Claudet, LUMCON Director Nancy Rabalais, state Rep. Gordon Dove, R-Houma, Mike Voisin, owner of Motivatit Seafood in Houma, who organized the meeting, oil-and-gas industry representatives and other prominent community members to convey the spill's impact on the local economy, health and culture.

Boesch was the first director of LUMCON from 1979-1989 and appreciates the mixture of environment, industry and culture. Both Ulmer and Boesch noted that the major drivers of economics in Alaska and Louisiana were quite similar, petroleum exploration and production, fisheries, and tourism.

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EUTRO 2010

In 1993, Denmark hosted "International Symposium on Nutrient Dynamics in Coastal and Estuarine Environment.” The 1993 symposium proceedings were published as OPHELIA vol. 41 and 42, and a paper by Nixon (1995) "Coastal marine eutrophication: a definition, social courses, and future concerns" was one of the first to identify the increase in coastal eutrophication as a global phenomenon. A similar symposium was organized in 2006 with publications following in HYDROBIOLOGIA vol. 629 “Eutrophication in Coastal Ecosystems” focused on both science and management. So, what more do we know since 2006? A third international symposium on Research and Management of Eutrophication in Coastal Ecosystems was held 15-18 June 2010 in Nyborg, Denmark.



Robinson “Wally” Fulweiler, Boston University; Anna-Stiina Heiskanen, and Nancy Rabalais (a.k.a. the three wise ladies) were asked to synthesize the symposium of 60 presentations over four days. It was a challenge, but left a series of future challenges to address research and management in marine eutrophication:

- A better understanding of the role of organic nutrients in eutrophication - are they labile? How much production do they account for? Are there seasonal differences?

Do they promote different types of phytoplankton species?

- Combined efforts that include field observations, experimental manipulations, and models. We need to span both temporal and spatial scales – from local to global. And we need to understand the effects of eutrophication across biological scales – from genes to ecosystems.
- How does eutrophication interact with other global changes – in particular changes in temperature, CO2 concentrations (and thus a decrease in pH), wind strength, light, etc.
- Scale back the human footprint – ultimately the coastal zone will only be protected and perhaps, restored, if society changes. Therefore, we need new ways to communicate effectively with each other to provide informative and inspiring education opportunities for the public.
- Ecosystem approach for management – deliver economic benefits while protecting ecological services. With the science in hand, with more complexities to be discovered, our challenges become more social and economic in nature.

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LUMCON Scientist Poised to Study New Plant Growth in Oil-soaked Northeast Barataria Bay

While assisting researchers from Texas A&M University and Louisiana State University in mid-July, LUMCON assistant professor Alex Kolker made an unexpected discovery – small green shoots rising from oily, seemingly dead marsh grass in northeast Barataria Bay in Plaquemines Parish.



“We were in some areas that were pretty heavily impacted [by oil]. In some of these areas, we could see new growth. It was pretty exciting,” explained Kolker. Although the oil-soaked stems and leaves of the marsh grass, mostly *Spartina alterniflora*, appeared dead, Kolker noticed the small green shoots and went for a closer look. Kolker described the scene, “The oil coated the bottom 10 to 20 centimeters of the marsh, but we could see new sprouts coming up from the dead brown stems. Although the old stems died, the plants are staying alive.” The discovery may be the first sign of possible recovery for

some oil impacted areas along the Gulf coast. “If we lose the roots, or rhizomes of the plants, we lose the marsh because the roots hold the marsh together. But it looks like the roots are still alive. It really points to the resilience of the area.”
Kolker plans to return to the area to continue studying the size and density of the new growth.

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A Busy Summer for LUMCON Interns

As summer is just heating up, it’s drawing to a close for LUMCON student interns. Five students from across the country studied with LUMCON faculty this summer. Alex Ameen and Cyndhia Ramatchandirane are currently working with Dr. Alex Kolker studying Louisiana’s marsh, while Mayra Molina examines phytoplankton with Dr. Geoff Sinclair and Brendan Young assists Dr. Brian Roberts in looking at nutrient loading in the Gulf of Mexico. Blake Boling of Oklahoma University completed his internship for Sinclair in early July.



Alex Ameen earned his undergraduate degree in Environmental Science from the University of Virginia. He has been investigating the effects of the Deepwater Horizon oil spill on the geochemical properties of mangrove ecosystems.



Cyndhia Ramatchandirane is working on a degree in Geosciences from Wellesley College in Massachusetts. This summer, she has been examining soil deposits to reconstruct the chronology of storm and their impacts on Louisiana’s Chenier Plain.



Mayra Molina, from California’s Humboldt State University has spent the summer determining what food or nutrients phytoplankton of the Gulf of Mexico use and how quickly the nutrients are being used up to determine which phytoplankton community is using which resources.



Brendan Young is pursuing a degree in Environmental Science focusing on Aquatics at Dickinson College in Pennsylvania. Young is investigating the effects of nutrients, particularly carbon, on the hypoxic zone in the Gulf of Mexico off Louisiana’s coast.



Blake Boling had his first experience with Physical Oceanography at LUMCON, as he studied the diet of copepods. Boling plans to return to LUMCON in the fall to conduct more research.

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2010 Dead Zone - One of the Largest Ever

The area of hypoxia, or low oxygen, in the northern Gulf of Mexico west of the Mississippi River delta covered 20,000 square kilometers (7,722 square miles) of the bottom and extended far into Texas waters. The relative size is close to New Jersey. The critical value that defines hypoxia is 2 mg/L, or ppm, because trawlers cannot catch fish or shrimp on the bottom when oxygen falls lower.

This summer's hypoxic zone ("dead zone") is one of the largest measured since the team of researchers from Louisiana Universities Marine Consortium and Louisiana State University began routine mapping in 1985. Dr. Nancy Rabalais, Executive Director of LUMCON and Chief Scientist aboard the research vessel *Pelican*, was unsure what would be found because of recent weather, but an earlier cruise by a NOAA fisheries team found hypoxia off the Galveston, Texas area. She commented "This is the largest such area off the upper Texas coast that we have found since we began this work in 1985." She commented that "The total area probably would have been the largest if we had had enough time to completely map the western part."

LSU's Dr. R. Eugene Turner had predicted that this year's zone would be 19,141 to 21,941 square kilometers, (average 20,140 square kilometers or 7,776 square miles), based on the amount of nitrate-nitrogen loaded into the Gulf in May. "The size of the hypoxic zone and nitrogen loading from the river is an unambiguous relationship," said Turner. "We need to act on that information."

The size of the summer's hypoxic zone is important as a benchmark against which progress in nutrient reductions in the Mississippi River system can be measured. The Mississippi River/Gulf of Mexico Nutrient Management Task Force supports the goal of reducing the size of the hypoxic zone to less than 5,000 square kilometers, or 1,900 square miles, which will require substantial reductions in nitrogen and phosphorus reaching the Gulf. Including this summer's area estimate, the 5-year average of 17,300 square kilometers (6,680 square miles) is far short of where water quality managers want to be by 2015.

Instead of the usual continuous band of low oxygen along the coast, this summer's distribution was a patchwork of several areas. The scientists think that this result is because of recent tropical storm activity. Hurricane Alex crossed mid-Gulf earlier in July and stirred up water everywhere, mixing oxygen into the bottom layer. Low oxygen conditions subsequently returned. Later, Tropical Depression Bonnie scattered workers and ships away from the Deepwater Horizon oil spill area and threatened the beginning of the summer's shelfwide hypoxia mapping cruise. "The threat of high water and seas kept the R/V *Pelican* at the dock one day longer than planned," said Rabalais.

This year the mapping started south of Atchafalaya River and headed west instead of starting at the Mississippi River delta, because of expected high seas on the eastern part of the study area. The research group found a large area of hypoxia to the west, well past Galveston Bay, and far offshore, but did not have time to finish the map there. The ship returned to the Atchafalaya River area and began working its way to the east. Another large area of low oxygen was found nearer to the Mississippi River delta.

Nitrogen and phosphorus delivered from the Mississippi and Atchafalaya rivers stimulate high rates of algal growth as phytoplankton. When these algae, or fecal material from their

consumers, settle to bottom waters, decomposition of this organic matter by bacteria consumes dissolved oxygen. There is little chance for oxygen from the surface layers to penetrate to the bottom, because of a strong layering of fresher, warmer water over the colder, saltier Gulf of Mexico water during the summer. The result is oxygen depletion, with concentrations so low that many types of fish, shrimp and crabs must flee the area or suffocate. The remaining animals that live in the sediments die if the oxygen continues to fall toward zero.

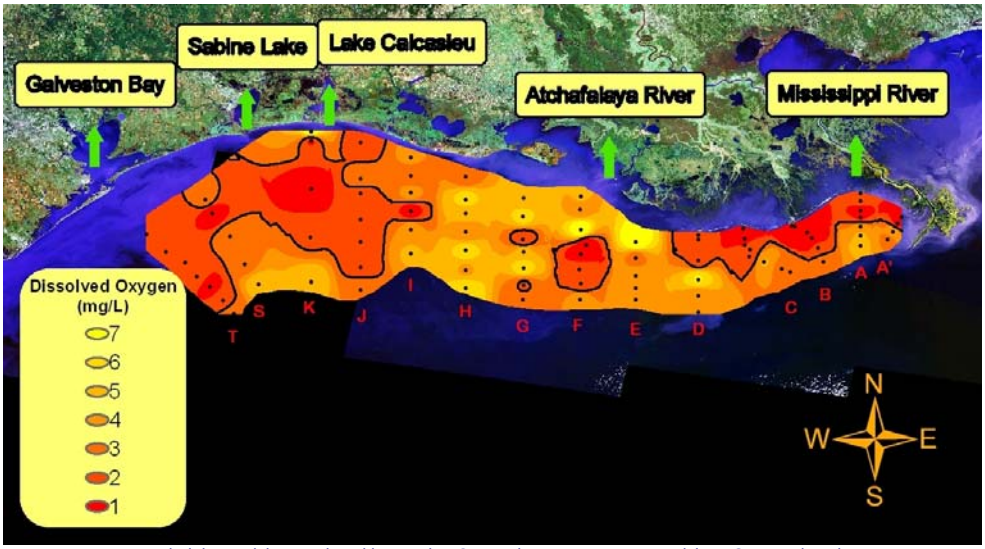
Much of the area where hypoxia occurs on the Louisiana coast had been exposed to oil from the British Petroleum Deepwater Horizon oil disaster. Up to and through the time of the research cruise, there were documented areas of oil sheen seen in satellite imagery west of the Mississippi River. Crew members and scientists were on the lookout for signs of oil, but only found thick oil in the crook of the delta west of Southwest Pass. [Note: work goes on around the clock, so at least 10 hours of sampling each day were in the dark.] Surface water samples intended for hydrocarbon analyses were collected at most stations.

The high biological productivity seen in surface waters to the west of the river was not unusual considering the prediction of size for 2010 and the continued flux of fresh water and nutrients from the river. "It would be difficult to link conditions seen this summer with oil from the BP spill," said Rabalais, "in either a positive or negative way." The slicks were not continuous over large areas for extended periods of time, which would be necessary to see the localized effects of toxicity or oxygen drawdown. Rabalais, who accidentally surfaced from a scuba dive into a surface oil slick in May, had seen miles and miles of phytoplankton thick waters before the slick moved in. "The Mississippi River nutrient-enhanced growth of phytoplankton is what fuels the hypoxic zone, and has for many years," she said.

For details of the 2010 hypoxia cruise, visit http://www.gulfhypoxia.net

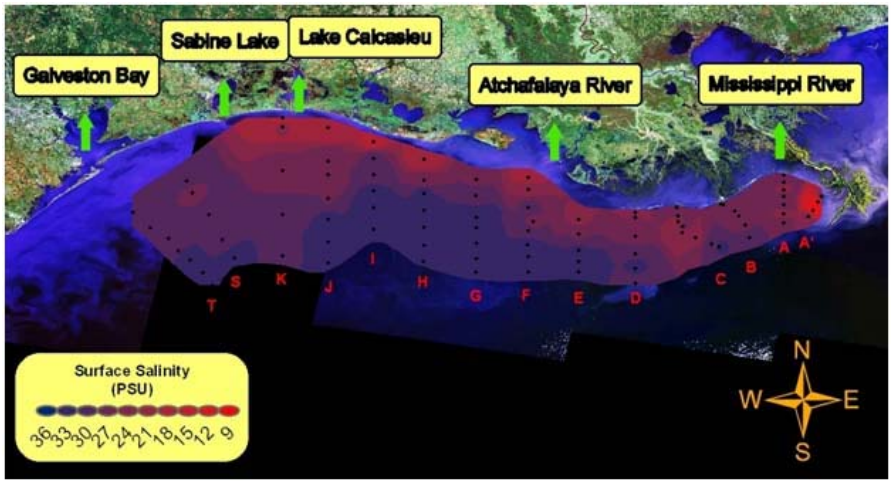
Funding from National Oceanic and Atmospheric Administration, Center for Sponsored Coastal Ocean Research

For further information, contact:
Dr. Nancy Rabalais, nrabalais@lumcon.edu
Dr. R. Eugene Turner, euturne@lsu.edu



Data source: N.N. Rabalais, Louisiana Universities Marine Consortium, R.E. Turner, Louisiana State University
Funded by: NOAA, Center for Sponsored Coastal Ocean Research

Oxygen concentration in bottom-water across the Louisiana-Texas shelf from July 25-31, 2010. The black line outlines values less than 2 mg/L, or hypoxia. Letters indicate transects. Black dots are sampled stations.



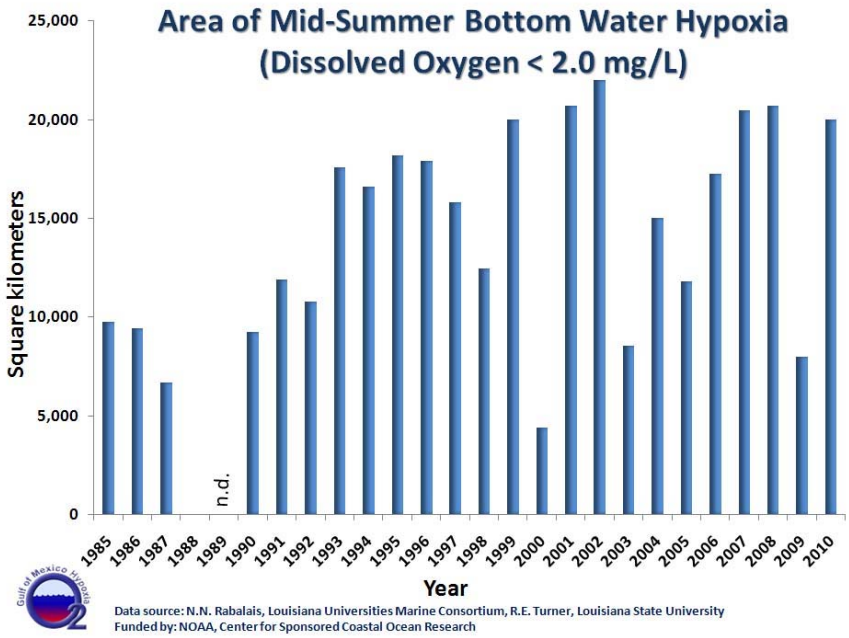
Data source: N.N. Rabalais, Louisiana Universities Marine Consortium, R.E. Turner, Louisiana State University
Funded by: NOAA, Center for Sponsored Coastal Ocean Research

Surface water salinity across the Louisiana-Texas shelf from July 25-31, 2010. The redder values are lower salinity and reflect the inputs from the Mississippi and Atchafalaya rivers.

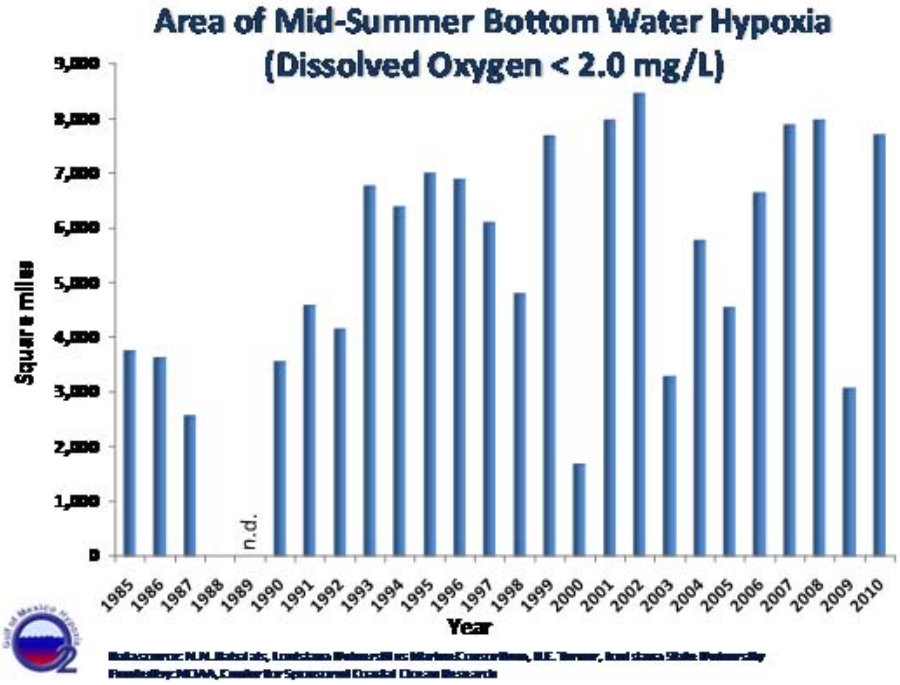


Data source: N.N. Rabalais, Louisiana Universities Marine Consortium, R.E. Turner, Louisiana State University
Funded by: NOAA, Center for Sponsored Coastal Ocean Research

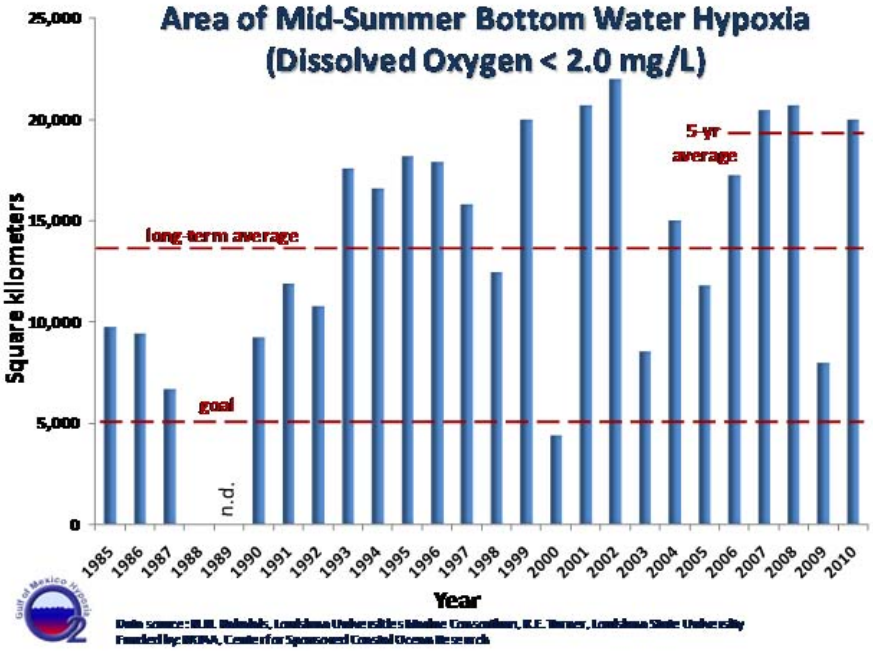
Surface water chlorophyll a values, which indicate how much phytoplankton is in the water. Note that chl a values mirror the inputs of fresh water and nutrients from the Mississippi and Atchafalaya rivers.



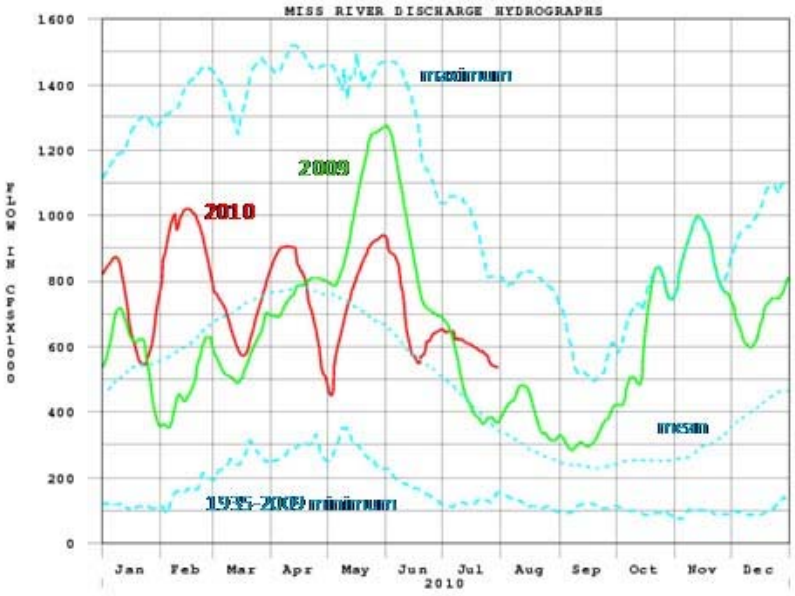
Time series of bottom-water hypoxic area since 1985.



Time series of bottom-water hypoxic area since 1985.



Time series of bottom-water hypoxic area since 1985. Landmarks for Hypoxia Action Plan indicated with red dashed lines.



Mississippi River discharge in cubic feet per second at Tarbert Landing through the end of July 2010. http://www.mvn.usace.army.mil/eng/edhd/tar.gif

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August 2010 Volume 2, Issue 8

2010 Dead Zone among Five Largest to Date

The area of hypoxia, or low oxygen, in the northern Gulf of Mexico west of the Mississippi River delta covered 20,000 square kilometers (7,722 square miles) of the bottom and extended far into Texas waters. The relative size is close to New Jersey. The critical value that defines hypoxia is 2 mg/L, or ppm, because trawlers cannot catch fish or shrimp on the bottom when oxygen falls lower.

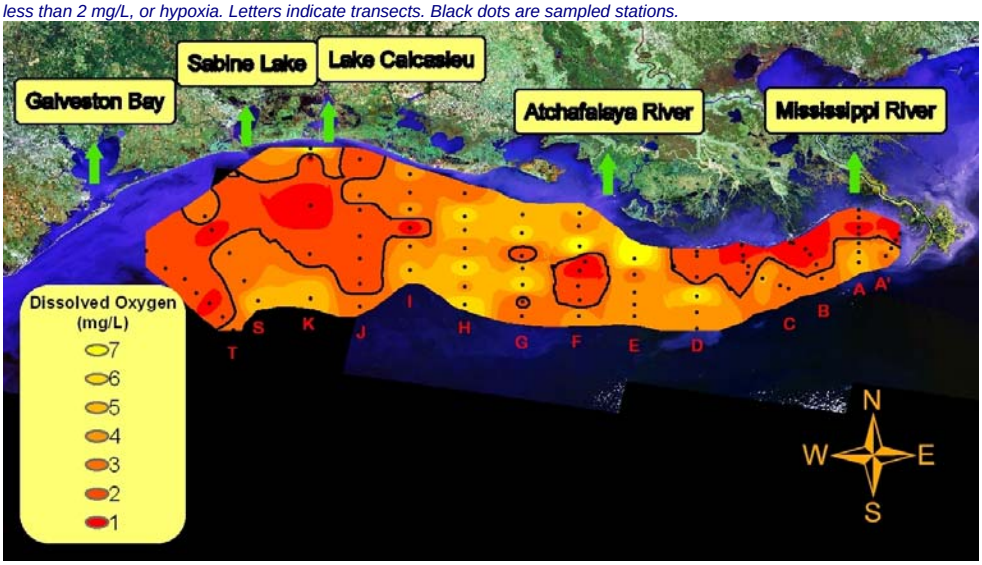
This summer's hypoxic zone ("dead zone") is one of the largest measured since the team of researchers from Louisiana Universities Marine Consortium and Louisiana State University began routine mapping in 1985. Tropical storms had disrupted the water column from the Mississippi River to the Atchafalaya River, but a large area of hypoxia remained intact off the upper Texas coast to Galveston and beyond.

The size of the summer's hypoxic zone is important as a benchmark against which progress in nutrient reductions in the Mississippi River system can be measured. The Mississippi River/Gulf of Mexico Nutrient Management Task Force supports the goal of reducing the size of the hypoxic zone to less than 5,000 square kilometers, or 1,900 square miles, which will require substantial reductions in nitrogen and phosphorus reaching the Gulf.

The progress of the cruise was provided in near real time from the research vessel Pelican on LUMCON's hypoxia web site. These data remain available for viewing, visit http://www.gulfhypoxia.net

Funding from National Oceanic and Atmospheric Administration, Center for Sponsored Coastal Ocean Research

Oxygen concentration in bottom-water across the Louisiana-Texas shelf from July 25-31, 2010. The black line outlines values less than 2 mg/L, or hypoxia. Letters indicate transects. Black dots are sampled stations.



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Governor Bobby Jindal Heads Out of Cocodrie



Governor Bobby Jindal sports a LUMCON hat as he departs the Marine Center for a day of fishing. Jindal hopes Louisiana's coastal waters will be opened for commercial fishing soon.

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NSF RAPID oil spill-related grant funding for LUMCON scientists

LUMCON faculty members are to receive RAPID grants to conduct oil related studies on Louisiana's marsh and waters and science communication. Assistant Professors Brian Roberts and Geoff Sinclair along with Professor Nancy Rabalais will receive RAPID grant funding in response to the BP oil disaster.

The first grant will deal with oil invading bald cypress swamps. Will oiling, or the hydrologic remediation designed to prevent oiling result in net losses in elevation of bald cypress swamps? Will it lower the resilience of their habitats? Brian Roberts, with Beth Middleton of the U.S. Geological Survey, National Wetlands Center in Lafayette received a 12-month grant from the National Science Foundation to answer those questions. The RAPID grant becomes effective September 1 for a 1-year period. Roberts and Middleton will look at the effects of oiling as a catastrophic disturbance on coastal elevation, as related to the biotic contributions of peat material. In response to the Deepwater Horizon oil-spill tragedy, they propose to test two hypotheses. The first hypothesis is that oiling, or hydrologic remediation designed to prevent oiling, will cause reductions in above- and below-ground production and peat accumulation, increases in soil respiration and decomposition rates, and ultimately result in net losses in elevation of bald cypress swamps. The second hypothesis is the resilience of the habitats, with regard to ecosystem processes, will be lower in oiled swamps than in undisturbed areas.

Geoff Sinclair, with Nancy Rabalais, received asecond grant which will fund the acquisition of automated water sampling equipment. The array of equipment consists of six automated telemetry capable ISCO water samplers with data loggers. The combination of sensors with water samplers permits automated sampling when oil fluorescence rises to a particular threshold. The equipment will improve temporal and spatial resolution as to when an environment is impacted by oil. It will also help assess the short and long term impacts of the oil on ecosystem processes. Sinclair and Rabalais expect that the equipment investment will yield timely and critical information to aid in oil spill policy and remediation. The grant begins August 15 for about a year.

Nancy Rabalais is part of an NSF RAPID with the University of Rhode Island, Metcalf Institute for Marine & Environmental Reporting, University of Rhode Island Graduate School of Oceanography, for "Improving Communication of Oil Spill Research." She is joined with other Louisiana partners, Dr. Chris D'Elia, Dean of the School of the Coast and Environment, and Robert Goidel and Lisa Lundy, Manship School of Mass Communications at Louisiana State University. The project will give journalists and informal science educators an immersive introduction to Deepwater Horizon oil spill (DHOS) research, in partnership with NSF RAPID-funded scientists who are investigating the spill's impacts. Stage I will bring scientists to a conference of environmental journalists in October 2010.

Stage II will be a 2.5 day Louisiana-based science immersion program in April 2011. Stage III will be a science immersion workshop for journalistsand a concurrent public lecture series to be held June 2011 at the URI GSO. The workshop and lectures will communicate early results from RAPID-funded projects and demonstrate scientific methods used in assessing oil spill impacts.

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Kolker views his field sites from a different perspective



Image courtesy of Alex Kolker and LightHawk

Normally, Assistant Professor Alex Kolker and his Tulane graduate student Kelly Williams see their field sights from the land or water. On August 23, they were provided a birds-eye view of the eastern Gulf coast of Louisiana courtesy of the Coalition to Restore Coastal Louisiana and the LightHawk organization. “It gave us an incredible view of the coast.” said Kolker.

Kolker and Williams were joined by Dallon Weathers, a coastal geologist from UNO, as they departed from UNO Lakefront Airport and headed East over Lake Borgne, toward the Chandeleur Islands. Williams was especially interested in seeing the field site in the Chandeleurs where she and Kolker study the response of the marsh in the area to hurricane impacts.
Next, the researchers flew over the bird-foot Mississippi River delta region to South Pass and up the mouth of the Mississippi where sediment deposition is building land. Kolker has become familiar with this region in his studies of hurricane impacts and the effects of oil on marshes.

See the map of their flight on Google Earth

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October 2010 Volume 2, Issue 9

Students contribute to the environment through art



Houma Jr. High art teacher Regina-Champagne Babin poses by a display of her students' artwork at LUMCON's Marine Center.

A display of seventeen duck illustrations graces a wall near the LUMCON Marine Center education laboratories. The paintings, created by Terrebonne Parish junior high and high school students, are part of art teacher Regina-Champagne Babin's vision to foster environmental awareness through art.

Babin's students are required to write a statement about coastal Louisiana and the challenges facing the Gulf coast then share what they learned with two adults. The point of the assignment is to educate students and the adults in their lives of the issues affecting the coast.

Babin became even more inspired after attending a "From H2O" workshop presented by LUMCON. She was surprised at how much she learned, and was eager to share that knowledge with her students. She also began looking for other ways to bring awareness to Louisiana's marine environment through art. Besides the artwork on display at the Marine Center, Babin and her students painted a large and vivid mural featuring a phytoplankton, the State of Louisiana and the declaration "Louisiana needs water quality."

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Virginia Tech group studies Piping Plover populations

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A research group from Virginia Polytechnic Institute and State University (Virginia Tech) will be in residence at LUMCON on and off throughout fall and winter to study what impact, if any, oil from the Deepwater Horizon spill has had on the populations of *Charadrius melodus*, or Piping Plover.

Piping plovers are small, stocky migratory shore birds. In the spring and summer, they breed in the northern United States and Canada. There are three locations where piping plovers nest in North America: the northern-most shorelines of the Great Lakes, river and lake shores in the Northern Great Plains, and sandy areas along the Atlantic Coast. In the fall, plovers migrate south and winter along the coast of the Gulf of Mexico and northern Caribbean islands. Because their nesting range has become much smaller over the years, especially in the Great Lakes area, piping plover are listed on the endangered species list with a total population of only 9,000 individuals.

The research group, funded by the U.S. Fish and Wildlife Service and led by Principal Investigators Dr. Jim Frasier and Dr. Dan Katlin, chose to locate their operations at LUMCON because the facility is centrally located on the gulf coast and close to overwintering plovers. Although team members practice deploying capture nets around the Marine Center to collect sanderlings, and an occasional ibis, their research is focused on Louisiana's barrier islands where they will catch, mark and release the plovers in their natural habitat—sand, not marsh.

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Author Deborah Cramer visits LUMCON



Author Deborah Cramer (right) enjoys a tour of LUMCON courtesy of educator Nicole Cotton (left)

Science writer, lecturer and author Deborah Cramer visited LUMCON's Marine Center on September 8th for a tour and a bit of exploring. Cramer earned awards and accolades for her depictions of ocean life in her books Great Waters: An Atlantic Passage and Smithsonian Ocean: Our Water, Our World.

Smithsonian Ocean: Our Water, Our World is the companion book to the Sant Ocean Hall, the ocean exhibit created by the Smithsonian's National Museum of Natural History and the National Oceanic and Atmospheric Administration (NOAA). The book is also being adapted for use in schools.

Although Cramer was in Louisiana for personal business, she was pleased that her schedule allowed for a visit to LUMCON. She hadn't been to the marshes of Louisiana before and canoed among them for a few hours. She discovered that Louisiana marshes are very different from the salt marsh in Massachusetts near her home. Cramer noticed that tidal water level change is much less in Louisiana than in Massachusetts and that Louisiana marshes, at least the day she visited, are less foggy. Dense fog makes canoeing difficult in Massachusetts, so she was pleased to be able to navigate and observe the marshes in Cocodrie by canoe.

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Forams forums: PhD Candidate attends Forams 2010



Lasseigne discusses her findings at Forams 2010

PhD candidate Jennifer Lasseigne travelled to Bonn, Germany for the International Symposium on Foraminifera (Forams 2010), which was held from September 5 – 10. At the conference, Lasseigne displayed her poster entitled Documenting the response of living benthic Foraminifera of the inner Louisiana continental shelf to seasonal changes in dissolved oxygen concentrations.

Foraminifera ("forams" for short) are marine protozoa that have shells and pseudopods that extend from small holes in the shells.

Some species of forams are more tolerant to low oxygen than others; therefore, the more tolerant species will survive in hypoxic conditions while less tolerant species perish. For this reason, researchers examine foraminiferal fossils (the empty shells left by dead forams) in sediment cores to estimate what bottom-water oxygen conditions have been in the past. For example, finding a large number of shells of a hypoxia-tolerant species, but no low-tolerant species shells in a layer of sediment implies that bottom water dissolved oxygen was probably low while that sediment was forming.

Conditions in the Gulf of Mexico complicate using forams to determine paleohypoxia (past hypoxic condition). The Gulf receives a large influx of nutrients in the spring that stimulate phytoplankton production and subsequent flux of carbon to the seabed; hypoxia develops in the spring and becomes persistent in the summer. Therefore, researchers have to ask: is the change in forams a response to the high organic loading or decreased bottom-water hypoxia or both? On the poster Lasseigne displayed at Forams 2010, she described results that suggest that higher proportions of some species may be more indicative of organic loading than dissolved oxygen concentrations.

Lasseigne's poster received a number of visitors, and the data she presented caused a buzz with some of the attendees. She was pleased that foraminiferal researchers could share their work and data with one another. "I was able to make new foraminifera contacts and discuss my results with some seasoned foram scientists," said Lasseigne, "and overall, that was the most beneficial point of the conference for me."

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November 2010 Volume 2, Issue 10

Iowa Agriculture Landscape Meets Gulf of Mexico Dead Zone



The research team meeting at Bluebonnet Swamp in Baton Rouge, LA from left to right, Manoj Jha, Cathy Kling, Sergey Rabotyagov, Gene Turner, Monika Moskal, and Phil Gassman. Not pictured: Nancy Rabalais

The first meeting of a group of scientists funded by the National Science Foundation to model the linkages of land use, water quality and low oxygen ('dead zones') west of the Mississippi River discharge was held in Baton Rouge, LA and Cocodrie, LA at the LUMCON Marine Center on October 1-2. The Principal Investigator is Dr. Cathy Kling of Iowa State University, and the research group includes modelers and researchers from Iowa State University, University of Washington, the U.S. Department of Agriculture, Texas A&M University, Louisiana State University (Dr. Gene Turner), and Louisiana Universities Marine Consortium (Dr. Nancy Rabalais).

The collaborative research project entitled "Northern Gulf of Mexico Hypoxia and Land Use in the Watershed: Feedback and Scale Interactions" will couple land use models, water quality models, economic scenarios, and hypoxia linkage models for determining best use and economically viable measures to reduce nutrients to the Mississippi River watershed and consequential expressions of hypoxia (low oxygen) on the Louisiana shelf.

In this project, the multi-disciplinary team takes a fresh look at this enormously complex coupled natural and human system with the development of an integrated modeling system that captures the key non-linearities in spatial processes associated with scaling up the impacts of individual decision making at the single, agricultural field scale to the impact on local watersheds and the downstream hypoxic conditions. The models explore the direct effects of policy variables and economic conditions on the crop choices and conservation actions of thousands of individual land owners, the cumulative consequences of their actions on water quality via landscape dispersion mechanisms, and the transport of those nutrients to the Gulf of Mexico. Incorporating

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Iowa Agriculture Landscape Meets Gulf of Mexico Dead Zone

Hypoxia Working Group Completes Volume

Watersheds to Oceans in the U.S. and Mexico

Troubled Waters Opens amid Academic Freedom Flap

A Green Tie Affair to Remember LUMCON supports Computers for the Coast

LUMCON Continues Leadership Role in UNOLS

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market feedbacks into the integrated modeling framework is essential for accurately assessing hypoxia policy impacts and strategies. Adaptive management feedback occurs when policy makers evaluate the effectiveness of a policy after implementation relative to the goal set prior to implementation. If the goal has not been met, the policy maker takes additional policy actions to induce additional conservation.

Besides outlining the first steps in the project and understanding individual researcher roles in the overall program, the group held a meeting at Bluebonnet Swamp in Baton Rouge, visited the Davis Pond Diversion at Highway 90 and saw a large alligator, visited drained agriculture land near Bayou des Allemands, had a marsh tour and mud walk with Gene Turner near the LUMCON Marine Center, toured the R/V *Pelican* and the R/V *Acadiana*, and climbed the LUMCON tower to see the expanse of marshland in Cocodrie. Besides the immersion in Mississippi River related issues in the deltaic plan and the offshore area of hypoxia, the group was given as much exposure to Cajun food as possible. Stops were made at Boudreaux & Thibodaux's in Houma and Sportsman's Paradise in Robinson Canal. The research team said that they could not have had a more productive first meeting than the one that coupled coastal landscapes and hypoxia with the flux of nitrogen and phosphorus from the Mississippi River.

Watch for more from LUMINATE, **L**andscape **U**se **M**odeling **In**tegrating **A**griculture and **t**he **E**nvironment as the research group shares information on their website (to be announced) and publishes results from their research. Results will be directly applicable to the Task Force of federal and state agencies that are addressing the reduction in Mississippi River nutrients and the diminution of the Dead Zone in the Gulf of Mexico. The group will also develop environmental education modules for upper level grade school, undergraduate and graduate students, which will be linked with the to be developed web site. Any activities of the research group will be linked with the LUMCON hypoxia web site at http://www.gulfhypoxia.net

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Hypoxia Working Group Completes Volume



Members of SCOR WG 128 at its first meeting in Vienna, Austria in April 2006

The SCOR (Scientific Committee on Ocean Research) Working Group 128: Natural and Human-Induced Hypoxia and Consequences for Coastal Areas has completed its work with the final publication of a series of articles in *Biogeosciences.* The goal of WG128 was to:

- Synthesize the state of the science of coastal hypoxia for:
  - prevalence and spatio-temporal variability,
  - natural and human causes,
  - effects on the biogeochemistry and ecology, and
  - resistance, resilience and recovery of ecosystems.
- Identify gaps in our understanding of hypoxia and make recommendations for future research;
- Determine the requirements for observing and modeling hypoxia and its impacts in coastal systems.

Co-Chairs of the working group were Jing Zhang, State Key Laboratory of Estuarine and Coastal Research, East China Normal University and Denis Gilbert, Maurice-Lamontagne Institute, Fisheries and Oceans Canada. Full group members were Venu Ittekkot (Germany), Lisa Levin (USA), Jack Middelburg (The Netherlands), Pedro Monteiro (South Africa), Wajih Naqvi (India), Temel Ogus (Turkey), Nancy Rabalais (USA), and Osvaldo Ulloa (Chile). Associate members were Boris Dewitte (France), Werner Ekau (Germany), Ragnar Elmgren (Sweden), Elva Escobar (Mexico), Andy Gooday (UK), Mike Kemp (USA), Angelica Peña (Chile), Mary Scranton (USA)

and Anja van der Plas (Namibia).

The articles in the *Biogeosciences* Special Issue are:

Historical records of coastal eutrophication-induced hypoxia
A. J. Gooday, F. Jorissen, L. A. Levin, J. J. Middelburg, S. W. A. Naqvi, N. N. Rabalais, M. Scranton, and J. Zhang
Effects of natural and human-induced hypoxia on coastal benthos
L. A. Levin, W. Ekau, A. J. Gooday, F. Jorissen, J. J. Middelburg, W. Naqvi, C. Neira, N. N. Rabalais, and J. Zhang
Coastal hypoxia and sediment biogeochemistry
J. J. Middelburg and L. A. Levin
Impacts of hypoxia on the structure and processes in the pelagic community (zooplankton, macro-invertebrates and fish)
W. Ekau, H. Auel, H.-O. Pörtner, and D. Gilbert
Coastal hypoxia responses to remediation
W. M. Kemp, J. M. Testa, D. J. Conley, D. Gilbert, and J. D. Hagy
Evidence for greater oxygen decline rates in the coastal ocean than in the open ocean
D. Gilbert, N. N. Rabalais, R. J. Diaz, and J. Zhang
Modeling dissolved oxygen dynamics and coastal hypoxia: a review
M. A. Peña, S. Katsev, T. Oguz, and D. Gilbert
Dynamics and distribution of natural and human-caused coastal hypoxia
N. N. Rabalais, R. J. Díaz, L. A. Levin, R. E. Turner, D. Gilbert, and J. Zhang
Coastal hypoxia/anoxia as a source of CH4 and N2O
S. W. A. Naqvi, H. W. Bange, L. Farías, P. M. S. Monteiro, M. I. Scranton, and J. Zhang
Natural and human-induced hypoxia and consequences for coastal areas: synthesis and future development
J. Zhang, D. Gilbert, A. Gooday, L. Levin, W. Naqvi, J. Middelburg, M. Scranton, W. Ekau, A. Pena, B. Dewitte, T. Oguz, P. M. S. Monteiro, E. Urban, N. Rabalais, V. Ittekkot, W. M. Kemp, O. Ulloa, R. Elmgren, E. Escobar-Briones, and A. Van der Plas

A complete set of papers may be ordered from Copernicus for $62.80 € at

http://www.biogeosciences.net/

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Watersheds to Oceans in the U.S. and Mexico



Meeting participants enjoyed a tour of the pyramids at Teotiuacán and the National Museum of Anthropology

A multi-national workshop ***"From the Rivers to the Gulf of Mexico, Towards an Ecosystem Management Approach"*** was held in Mexico City on September 27-28 to address issues of watershed management with regard to coastal water quality. While the U.S. is more legislated and coordinated in water quality issues than Mexico, the same problems have occurred or are still occurring in both nations. The U.S. Clean Water Act has done much to curb point source pollution, but, so far, failed to capture nonpoint sources of pollutants, nitrogen, and phosphorus. Mexico has a great need for waste water treatment, chemical pollution control, air quality standards, and, as in the U.S., nonpoint pollution control. Documentation of low oxygen areas

(hypoxia, ‘dead zones’) is increasing in Mexico’s coastal waters, a problem that plagues U.S. estuarine waters. Mechanisms for reducing inputs of nitrogen and phosphorus were shared along with institutional arrangements for coordinating efforts. The citizen, industry, and water quality managers coalition in the Tampa Bay Estuary was highlighted as a working, collaborative entity that has successfully addressed nutrient sources and their mitigation in that estuary.

The meeting was opened by Porfirio Álvarez, Integrated Assessment and Management of the Gulf of Mexico -LME, Project Coordinator, Antonio Díaz de León General Director of Environmental Policy and Regional Integration, SEMARNAT and Bonnie Ponwith, Director of NOAA’s Fisheries Southeast Fisheries Science Center. The U.S. contingent, including some with presentations were Denise Keehner, Director -U.S. Environmental Protection Agency, Office of Wetlands, Oceans and Watersheds, Robert Díaz -Virginia Institute of Marine Science- representing the STAP -GEF International Waters, Nancy Rabalais -LUMCON, Holly Greening, Director -Tampa Bay National Estuary Program, Morgan Gopnik -Duke University Marine Lab, Ann Jochens, Regional Coordinator, Phil Bass, State Policy Director -U.S. EPA Gulf of Mexico Program, Steve Wolfe, Florida Dept. of Environmental Protection, Christina Carollo -Florida Institute of Oceanography.

Following the Watersheds meeting on October 27, Nancy Rabalais, Robert Díaz, Porfirio Álvarez, and Chuck Chaitovitz -Principal Director Global Environment Technological Foundation, USA, participated in a panel presentation and question session with over 800 attendees at the National Water Commission of Mexico (CONAGUA) and brought a synthesis of the issues discussed at the Watersheds meeting. CONAGUA is a consultative and decentralized agency of the Mexican government, whose mission is to “manage and preserve Mexico’s water and its inherent public goods.”

Rabalais and Díaz also joined in a Mexico and U.S. discussion of joint efforts following the BP Oil Spill and a longer-term assessment of the Gulf of Mexico Large Marine Ecosystem. Drs. Bonnie Ponwith, Director NOAA Southeast Fisheries Science Center, and Porfirio Álvarez, Gulf of Mexico Large Marine Ecosystem Project, Chief Technical Advisor, UNIDO-GEF, noted the advantages from the U.S. efforts to monitor the effects of the oil spill to lay the foundations of a joint blue water assessment of the Gulf of Mexico LME.

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Troubled Waters Opens amid Academic Freedom Flap



From left: Helene Murray, U MN; Tracy Singelton, Birchwood

Larkin McPhee, winner of numerous documentary film awards including the Peabody award and Emmy awards, was not prepared for the pulling of the preview of her film “Troubled Waters: A Mississippi River Story” at the last minute by the University of Minnesota. Nearly 650 people saw the documentary in two showings at the university’s Bell Museum of Natural History on October 3rd. The controversy that shelved the film temporarily created a ruckus that probably drew more viewers to the opening than there would have been otherwise, but the end result was a grand opening of proportions appreciably and appreciatively more than expected.

Just under one hour, the film details the pollution generated in Minnesota from urban lawns, asphalt runoff, and primarily agricultural lands that flows to the northern Gulf of Mexico and contributes to the formation of a seasonal, but perennial “Dead Zone” where most shrimp and fish cannot live. The film begins in the Gulf of Mexico on a shrimp trawler, shifts to a research cruise on board the R/V Pelican, observes water quality monitoring of the Mississippi River in Baton Rouge, then heads up the watershed to Minnesota. Expanses of erodible soil, excess applications of fertilizers, nitrate-polluted aquifers, and agricultural practices that do not support conservation of land and waters were presented first. Then a series of farmers, who are applying best management practices, technological ways to measure and conserve fertilizers, organic farming, free-range beef and dairy operations, and prairie conservation provided hope that a more diverse and sustainable form of agriculture could enhance land, water and nutrient conservation within the upper Mississippi River basin.

After both showings of the film, a five-member panel including two farmers interviewed in the film, the director Larkin McPhee, the director of the Institute of the Environment at the University of Minnesota, and Nancy Rabalais, Executive Director of the Louisiana Universities Marine Consortium, answered questions from the audience. Questions ranged from agriculture technology to policy, but were directed to the contents of the film rather than the controversy surrounding its release. The film was pulled from its opening night by the University’s Vice President for Public Relations for “scientific review,” but was eventually released as planned by University President Bob Bruininks.

Interviews of the director, writer and produce Larkin McPhee and several of the panelists can be seen on a You Tube interview at http://www.youtube.com/watch?v=-2K-SKD9deA. The DVD of the documentary may be obtained from the Bell Museum of Natural History for $20 at http://www.bellmuseum.org or by phone 612-626-4440 .

As a side note, Nancy Rabalais was hosted to lunch by Dr. Helene Murray, Executive Director of the Minnesota Institute for Sustainable Agriculture, University of Minnesota, at the Birchwood Café, owned and operated by Tracy Singleton, who specializes in local grown and organic food products. The treat was a pumpkin, millet and Gruyere waffle with bacon lardons, sunny-side organic egg, housemade apricot plum jam, pear sage butter and pecans. Delicious!!


Rabalais' breakfast - bon appétit!

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A Green Tie Affair to Remember LUMCON supports Computers for the Coast

With the oil spill situation on our coast, many families have been impacted economically and may need computers to help rebuild their lives. In an effort to raise funds for the Computers for the Coast effort, Baton Rouge based Capital Area Corporate Recycling Council held a Green Tie Affair and Evening of Discovery on October 7, 2010. The Capital Area Corporate Recycling Council is a nonprofit group that keeps electronic materials out of landfills by providing refurbished / recycled electronics and computers to schools, nonprofits, the disabled and low income families.
LUMCON’s Executive Director Nancy Rabalais not only attended the “Green Tie” event, which was held at the LSU Rural Life Museum, but also donated an item to the auction. The lucky winner of LUMCON’s auction contribution will be able to join one of Dr. Rabalais’ hypoxia research cruises in 2011.
Rabalais also purchased two items from the auction: Fish by Trish Ransom, a whimsical work of recycled debris art and also a vibrantly colored and very heavy Robert Batson Jellyfish painting.





Top: Fish by Trish Ransom
Bottom: Robert Batson Jellyfish painting

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LUMCON Continues Leadership Role in UNOLS

The University National-Oceanographic Laboratory System (UNOLS) oversees the academic research vessels for the U.S. LUMCON's Research Vessel *Pelican* is a member of the UNOLS fleet, and is constantly at sea supporting marine science. The *Pelican*'s stature rose dramatically in the BP Deepwater Horizon Oil Spill with its first-on-the-scene research presence and featured in Science and Nature. Demand for its use continues, but the ship is so subscribed that additional academic research vessels had to be brought into the Gulf to support oil spill research. LUMCON Vessel Operations Superintendent Joe Malbrough moved up to Chair of the Research Vessel Operators Committee (RVOC). Rabalais and Malbrough also agreed to co-chair an ad hoc committee to "investigate the feasibility of a more flexible UNOLS to meet the needs of additional users." This committee will address alternative supplemental funding for the academic fleet.

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December 2010 Volume 2, Issue 11

Two Unique Opportunities for Journalists and Informal Science Educators

In response to the need for clear, accurate and sustained coverage of the effects of the BP Deepwater Horizon oil disaster, Metcalf Institute for Marine and Environmental Reporting is offering two fellowship opportunities in 2011: a Science Seminar on oil spill impacts, April 6-8, 2011; and the 13th Annual Science Immersion Workshop for Journalists, June 12-17, 2011.

These fellowships are made possible by a Rapid Response grant through the National Science Foundations office of Informal Science Education.

Metcalf Institute, Louisiana State University, and Louisiana Universities Marine Consortium (LUMCON) will offer a 2.5-day seminar for journalists and informal science educators from the Gulf of Mexico region. The science seminar, Impacts of the Deepwater Horizon Oil Disaster, will be held in Cocodrie, Louisiana, April 6-8, 2011. Participants will gain hands-on knowledge of oceanographic techniques in labs and on board LUMCON's R/V *Acadiana* and discuss the latest research on the BP Deepwater Horizon oil disaster with leading experts. Seminar is tuition free and includes room and board. Applications must be postmarked by January 31, 2011.

Metcalf Institutes 13th Annual Science Workshop for Journalists is a hands-on introduction to research methods, data analysis, translation of scientific research, and integration of science and policy. The 2011 workshop, Coastal Impacts: One Year of Research on the Deepwater Horizon Oil Spill, will be held in Narragansett, Rhode Island, June 12-17, and will explore the state of the science and methods used to assess the impacts of the Deepwater Horizon oil disaster in the Gulf of Mexico. Fellows will gain a better understanding of environmental science research methods, cultivate scientific resources and sharpen their reporting skills through daily fieldwork and labs. The Metcalf Workshop Fellowships are offered to working journalists from all media interested in environmental reporting. Fellowship award includes room, board, tuition and some travel support. Applications must be postmarked by January 21, 2011.

Applications for both programs may be downloaded at www.metcalfinstitute.org. For additional program information, call 401-874-6211 or emailfellowships@metcalfinstitute.org.

The mission of the Metcalf Institute for Marine and Environmental Reporting, at the University of Rhode Island Graduate School of Oceanography, is to promote clear and accurate reporting of scientific news and environmental issues; to strengthen understanding and working relationships between members of the scientific community and members of the news media; and to provide opportunities for beginning journalists to learn, on both a formal and an informal level, how to improve their skills in marine and environmental reporting.

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http://www.lumcon.edu

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Gulf Lagniappe Adult Education Workshop Series

LUMCON's Gulf Lagniappe workshops are a series of educational sessions for adults (18 years old or older) who would like to learn more about Louisiana's marine and coastal environments. Each workshop is a one-day long experience designed to foster a better understanding of and deeper appreciation for Louisiana's coast. The topics covered at each workshop are important environmental issues of the Gulf of Mexico region.
Every workshop will offer participants the chance to learn from research scientists whose work helps to define what we understand about coastal Louisiana's unique environment. Other activities include a cruise aboard one of LUMCON's research vessels, the R/V *Acadiana*; a tour of the DeFelice Marine Center; laboratory activities and more.
The LUMCON cafeteria will provide lunch on workshop days to those who register.
The cost is $10 / person for each session.
Space may be limited so pre-registration is encouraged. Limited on-site registration for is also available.

Registration form is available for download here.

Workshop titles and dates:

LOUISIANA FISHERIES (session 1): Dec. 18, 2010

- PLANKTON POPULATIONS / WATER QUALITY: March 12, 2011
- LOUISIANA FISHERIES (session 2): April 2, 2011
- CLIMATE CHANGE: May 14, 2011
- SALT MARSH GEOLOGY / ECOLOGY: May 21, 2011
- DEAD ZONES June 4, 2011

For more information, contact:
Murt Conover - 985-851-2860 or
Holly Hebert - 985-851-2842

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Old Home Week in Port Aransas

The University of Texas Marine Science Institute at Port Aransas, TX was the site of the biennial Gulf of Mexico Estuarine Research Society (GERS) on November 3-4. GERS is an affiliate of the Coastal and Estuarine Research Federation that publishes the journal Coasts and Estuaries. GERS brought Nancy Rabalais, 1983 graduate from the University of Texas Marine Science program and now Executive Director of LUMCON, back to visit, reminisce and give a perspective on the BP Deepwater Horizon Oil Spill. Her talk, entitled "Oilmaggedon, Dead Zones and Vanishing Lands," provided an image of the oil spill, life at the LUMCON Marine Center in the midst of the spill, the annual low oxygen areas in the Gulf of Mexico and the impacts on it by the spill versus the Mississippi River, amid the context of an insulted coastal landscape from more than a half-century of oil and gas development. Rabalais left the Port Aransas Lab in 1983 to come to LUMCON, but with

reflection was impressed with their growth in research, education and outreach. A constructed wetlands and barrier island dune habitat provides visitors with many impressions of the coastal zone and supports a wide variety of education and outreach venues. A new pier lab supports multiple observing systems within the Port Aransas Channel, including a state-of-the-art harmful algal bloom detection system. The new and renovated "Ark" provides a resource for injured marine and coastal turtles and sea birds that are rescued and need rehabilitation. The UTMSI is building a new building extension for their Aransas-Mission National Estuarine Research Reserve, and growth for new research faculty and programs. The building is "almost green," being situated and angled to take advantage of solar radiation and heating/cooling efficiency. It is Dr. Rabalais' hope that impending Texas state budget, cuts similar to those experienced by Louisiana higher education, spare this jewel of coastal research and education.

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LUMCON Well Represented at Gulf Coast Oil Spill Conference

Ten representatives from LUMCON were among the over 300 attendees at the "Collaborative Scientific Research Opportunities Relative to the Gulf Oil Spill" conference held in New Orleans on November 1 and 2, 2010. The conference was sponsored by the National Science Foundation with the collaboration of the Louisiana, Mississippi and Alabama EPSCoR programs.



The conference featured discussion of collaborative research opportunities covering the following topics:

- Engineering Aspects and the Transport and Fate of Spilled Oil
- Coastal and Ocean Environments: Damage, Remediation and Recovery
- Human Communities: Disaster Management, Sustainability and Health
- Economics, Policy and Decision Support Systems



Nancy Rabalais, LUMCON Executive Director, served on the opening plenary panel and delivered a commentary on the difficulties that researchers face in understanding funding opportunities, maneuvering through the Area Incident Command maze for access to study areas and data, working appropriately with the media, and maintaining ongoing research programs amidst the confusion and increased pressures for results.

"Breakaway strands" allowed attendees in of each of the four conference topics to discuss research needs and potential collaborations. The conference was instrumental in bringing together scientists from across the three-state region and in facilitating cross-discipline discussions of oil spill research needs that integrate sociology, economy, environmental science and engineering.

LUMCON faculty members Ed Chesney, Alex Kolker, Nancy Rabalais, Brian Roberts and Geoff Sinclair represented LUMCON at the conference, along with Jessica Czubakowski, Holly Hebert, Lora Pride and Maria Suarez. Kolker, Rabalais, Roberts and Sinclair displayed posters detailing their NSF RAPID-funded oil spill response research projects. Updates from the conference can be accessed through the LA Board of Regents web site http://web.laregents.org/program-evaluations/gulf-oil-spill-conference/.

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Unique Turtle Draws Conservationists to LUMCON

The Diamondback Terrapin Working Group held its 5th National Symposium on the Ecology, Status, and Conservation of the Diamondback Terrapin at the Louisiana Universities Marine Consortium (LUMCON) DeFelice Marine Center on November 12-14th, 2010.

The diamondback terrapin (*Malaclemys terrapin*) is believed to be the only turtle in the world that lives exclusively in brackish water habitats like tidal marshes, estuaries and lagoons. The turtle numbers are threatened by habitat destruction, road construction (terrapins are common road kill) and drowning in crab traps. Salt water incursion into brackish tidal marshes can potentially make large areas of the turtles' habitat saltier than they can tolerate. The species was once considered a delicacy to eat and was hunted almost to extinction. Due to this it is listed as an endangered species in

Rhode Island, threatened in Massachusetts, and a "species of concern" in Georgia, Delaware, Alabama, Louisiana, North Carolina and Virginia. A “species of concern” carries no federal status for protection.
The Diamondback Terrapin Working Group was formed in 2004 by individuals from academic, scientific, regulatory and private institutions/organizations working to promote the conservation of the diamondback terrapin, the preservation of intact, wild terrapin populations and their associated ecosystems throughout their range. The Diamondback Terrapin Working Group is committed to and supports research, management, conservation, and education efforts with the above goals in mind.
According to Dr. Russell Burke, who organized the symposium, LUMCON was chosen as the site for the symposium for a few reasons. “We wanted to hold the meeting along the gulf coast because we wanted to encourage a good turn-out from gulf coast residents.” explained Burke. “LUMCON was the best choice. Everything we needed was there – conference facilities, projectors, lodging. Not to mention the beauty of the place; it’s really a beautiful setting.” And, little did they know that a diamondback terrapin nested in the LUMCON garden a few years before.

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LUMCON Contributes to Commotion about the Oceans



More than 2,000 students, teachers, and parents attended this one-day experience to learn more about how we depend on the resources found on or near our coast. The organizations present led interactive and/or hands-on, minds-on activities that engaged students and encouraged environmental stewardship. Louisiana Universities Marine Consortium (LUMCON) attended this year with a menagerie of invertebrates found on the Gulf Coast. In LUMCON’s traveling touch tank exhibit, 850 students and adults viewed and touched live starfish, snails, horseshoe crabs and sea urchins. Students traveled around the concourse of LSU’s Pete Maravich Assembly Center to visit as many exhibits as they could in the time allotted.

LUMCON staff members and volunteers helped with the exhibit this year. LUMCON educator, Murt Conover, had this to say, “Ocean Commotion is a great event that allows many of us (the exhibitors) a chance to share our passion for the environment with a large number of students in one day. It is a hectic day, but there are no limits to exposure and education the students get out of this event.”>

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LAGNIAPPE Starts with Eager Adults

Cold and drizzly weather didn't dampen the enthusiasm of participants in LUMCON's first session of the Gulf Lagniappe Adult Education Workshop series. The workshop, held on December 18 at the DeFelice Marine Center, was entitled "Louisiana Fisheries" and featured an informative talk given by LUMCON Associate Professor Ed Chesney.

In his lecture, Chesney discussed some commonly held beliefs about Louisiana fisheries. He also pointed out both the resiliency and fragility of fisheries, and explained why Louisiana's "sportsman's paradise" is a unique and productive environment.

After lunch, the group took an engaging cruise aboard the R/V *Acadiana*. Education staff members Nicole Cotten and Murt Conover identified and explained the flora, fauna and unique environment in the waterways surrounding LUMCON, as dolphins playfully leaped aside the vessel.

Once the group returned, it was off to the laboratory to examine the microscopic larval fish and plankton gathered on the boat trip.



"I was very happy with my experience today," said one participant. "I learned more about our water than I've ever known."

The next workshop will be held on Saturday, March 12, 2011. The topic will be "Plankton Populations and Water Quality." Early registration is encouraged. Visit http://www.lumcon.edu/Information/news/default.asp?XMLFilename=201011221024.xml for more information.

Workshops are provided by LUMCON with support from the Gulf of Mexico Alliance and Dauphin Island Sea Lab, Alabama.

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Terrebonne Parish Students Apply What They Learn at LUMCON

Houma Junior High School student Brent Dupre, like several other Terrebonne Parish Students, applied what he learned at LUMCON to conduct the experiment that he entered into the Terrebonne Parish Science Fair. Dupre explained what inspired his project: “When the [Deepwater Horizon] oil spill happened, I was angry because I really like to fish, but the waters were closed. I remembered what I’d learned at LUMCON last year about water quality testing, so I decided to test whether visible oil in an area lowers the water quality.” He borrowed water sampling equipment from a Terrebonne High School science teacher to measure dissolved oxygen and other parameters to complete his experiment.

Eleventh grade H.L. Bourgeois High School student Dylon Dupre used skills and knowledge gained through LUMCON’s K-12 water quality monitoring program to complete his project. He studied the effects that antacids have on various beverages. Dupre and classmate Jackie Aquado borrowed pH instruments from their teacher to measure levels for their projects. “My teacher let me check it out to use at home. It [the probe] gave quick, easy results,” said Aquado. “I was comfortable using it because I had used one at LUMCON and throughout the Bayouside Classroom program.” Aquado tested the effects of storage temperature on the pH of fruit juice.

Each student agreed with Dylon Dupre’s statement: “I think all students should go to LUMCON because it is a really good thing. It’s fun and we learned a lot.”

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Retrospective

Does anyone remember anything this year other than the BP Deepwater Horizon disaster that started with a well blowout and the death of 11 workers on April 20? It consumed LUMCON’s time, energy and resources, but our staff excelled at meeting the challenges and opportunities. With a BP Operations Center within a quarter mile of the Marine Center, Cocodrie and the surrounding areas saw a level of intensity unlike anything seen in the past. Properties and waters were closed to the usual fare of commercial and recreational fishers, weekend visitors, boaters, and us. The uncontrolled gusher of oil from deep in the Gulf of Mexico off the Mississippi River delta and its spread across the northern Gulf of Mexico called for urgent action to stop the gusher, prevent its movement onto shore, and do the best possible to capture and remove oil that landed. The LUMCON research staff was already busy with spring and summer field trips, collections and experiments. The level of activity at the Marine Center was already high when the spill began. It continued as best it could, unless there was interference from oiled waters or marsh lands.



Volume 1: 2009

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January 2009 Volume 1, Issue 1

Cultural Immersion for LSU Chancellor Martin

Chancellor Michael Martin of Louisiana State University visited LUMCON on a whirlwind tour of south Louisiana. The overnight stop on December 1 was the respite between two days of traveling to visit the Barataria-Terrebonne National Estuary Program, the Port of Fourchon, LUMCON, T. Baker Smith and Son, and several seafood processers and wholesalers in the Houma area. Dr. Martin, who was seeking to learn more about the coastal area of Louisiana, will work eastward and westward along the Louisiana coast on his next tour(s). The trip was organized by Dr. Don Davis, Louisiana Applied Oil Spill Research and Development Program, and Dr. Chuck Brassieur, Anthropology Department of the University of Louisiana at Lafayette. Dr. Chuck Wilson, Associate Vice Chancellor for Academic Affairs at LSU and the Sea Grant Program Director, accompanied the group. During the evening at LUMCON, Dr. Davis presented the group, including LUMCON Executive Director Dr. Nancy Rabalais, his animated and well illustrated talk on “How We Came to Be – The History and Geology of Coastal Louisiana.” Dr. Brassieur shared his expertise on Louisiana and French North American folklife, wetlands cultural ecology, and Louisiana Native Americans.

In Photo: Dr. Chuck Wilson, Dr. Don Davis, Dr. Chuck Brassieur, and Dr. Mike Martin



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2009 Photography Contest

“Louisiana’s Marine Natural Resources” is the theme for the Louisiana Universities Marine Consortium's (LUMCON) 2009 Photography Contest. LUMCON hosts a photo exhibit every year during the month of April. Winning photos appear in LUMCON publications and on the website. Please include original color or black and white prints or digital images in jpeg or tiff formats that should be at least 300 dpi. Prints must be between 4 by 6 inches and 8 by 10 inches in diameter. Previous entries and published photographs are not eligible. The contest allows only five entries per person.

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Divisions include Kids (12 and under), Teens (13-18), Adults (18 and over) and LUMCON Employees. Entries should be postmarked no later than April 1, 2009 to qualify. Late or incomplete entries will not be considered. Entries will not be returned or confirmed by LUMCON. Winning entries will be announced by May 1, 2009.

Participation in the contest constitutes approval to publish the photograph. Contestants must own all rights to the work submitted. Other rules and specifications may apply, for more entry form and more information, please check LUMCON's website at http://www.lumcon.edu/lagniappe/photocontest/.

An entry form should be attached to each photograph. One entry per photograph and mail to:

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Marine Center Adds Faculty in Geological and Biological Oceanography

The Louisiana Universities Marine Consortium (LUMCON) announces the addition of two new assistant professors, Alexander Kolker and Geoffrey Sinclair. Both bring to LUMCON their distinct scientific backgrounds. Kolker from the Department of Earth and Environmental Sciences at Tulane University's School of Science and Engineering brings his expertise in coastal sediment dynamics and wetland processes. Sinclair from the Department of Marine, Earth and Atmospheric Sciencesat North Carolina State University (NCSU) is a specialist in the ecology of phytoplankton and toxic dinoflagellates.



Alexander Kolker received his Ph.D. in Marine and Atmospheric Sciences at the State University of New York, Stony Brook University and studied the influences of humans and climate on the coastal wetlands surrounding Long Island, NY. While at Stony Brook, he helped to develop research strategies to monitor salt marsh restoration to help government officials, academic peers and scientific advisory boards achieve their management goals. As a Scientist in Residence there, he investigated the marsh loss of Jamaica Bay, New York and advised the National Park Service on the salt marsh loss. Kolker has also studied the sedimentary geology of the Bohai Sea, China. Kolker worked under Dr. Mead A. Allison at Tulane University as a Postdoctoral Associate, then was promoted to the research faculty where he examined the Mississippi River Delta geology, focusing on subsidence, compaction and sediment deposition. "It is the geological processes in south Louisiana that I want to investigate," Kolker said.



Geoffrey Sinclair, phytoplankton ecologist conducted

his M.S.research on environmental and behavioral influences on the uptake of nitrate by the harmful and toxic dinoflagellate, *Karenia brevis,* that occurs in inshore waters. His doctoral research focused on the implications of the physiological and behavioral ecology of the toxic dinoflagellate on red tide outbreaks. He has already sailed twice on LUMCON's *R/V Pelican* to study the unique benthic (bottom) habitat as a refuge for life stages of the red-tide forming *Karenia.* Sinclair's extensive research has led to publications in the *Journal of Phytoplankton Research, The African Journal of Marine Science*, *Harmful Algae* and the *Journal of Phycology*. Sinclair's travel scholarships have assisted attendance at Harmful Algal Bloom meetings at Woods Hole, MA and Cape Town, South Africa. He says that as a new assistant professor he looks forward to collaborating on projects with LUMCON and other scientists in the eastuarine and coastal waters of the Gulf of Mexico. Dr. Sinclair served in the U.S. Peace Corps in the Republic of Benin before starting on his academic career.

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Midwest Water Managers Travel to the Gulf of Mexico



Water quality managers from several midwestern states and regional offices of the U.S. Environmental Protection Agency gathered in Cocodrie at LUMCON (Louisiana Universities Marine Consortium) for a first-hand look at what causes the low-oxygen area in the Gulf of Mexico, commonly known as the 'Dead Zone.'

The group of land-lubbers sailed on the *R/V Acadiana* on December 17 into Terrebonne Bay to see how the research team of Dr. Nancy Rabalais conducts their research on the area of low oxygen in the Gulf of Mexico. Although the venue was not quite the same in Terrebonne Bay as out in the Gulf of Mexico, similar procedures were carried out, such as deployment of two different salinity/temperature/dissolved oxygen/depth probes, collection of water samples for phytoplankton analysis, collection of benthic samples

to assess the bottom sediment community, and a trawl to see if there were any fish in the area. The cruise was in winter, in a period of cold water, little stratification, and few organisms in the trawl or mud grab, but these situations were similar, at least for the organisms, to that found in the Dead Zone in the middle of the summer. The trawl catch was easy to count with mostly small squid, a few croaker, bumper, and white trout, a few juvenile white shrimp, and a few portunid crabs (related to blue crabs). Dugan Sabins of the Louisiana Department of Environmental Quality provided the expertise for the trawl sample. Dr. Nancy Rabalais provided the expertise for the benthic sample, which was simple because there were no organisms in the mud grab. The participants conducted their own samples with water quality instruments, collected their own water samples and discussed the results of the data in the context of low oxygen conditions.

The day ended with a shrimp boil for the participants at the LUMCON Marine Center. The prior day was spent in discussions of strategies to address the hypoxia problem in the Gulf of Mexico. Attending the workshop on Dec 16 and the trip on the *Acadiana* on Dec 17 were representatives from EPA Regions 4, 5, 6, and 7, the Gulf of Mexico Program, LUMCON, and the states of Iowa, Missouri, Louisiana, and Mississippi. The *Acadiana* provided a good venue for the further discussions of the participants on ways to reduce nutrients and bring down the size of the Dead Zone in the Gulf of Mexico.

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LUMCON Employees Judge at Science Fair



Dr. Brian Roberts, assistant professor from LUMCON coaching judging student project at the Terrebonne Parish School Board Science Fair.

On Wednesday, December 10, 2008, a flurry of students, judges and observers filled the Houma Municipal Auditorium preparing for Terrebonne Parish School Board's science fair. Twelve volunteers participated in the judging from LUMCON including faculty members, Dr. Rodney Powell and Dr. Brian Roberts. Other lab personnel included Brenda Leroux Babin, Murt Conover, Nicole Cotten, Trudy Hebert, Wendy Morrison, Lora Pride, Danielle Richardi, and Kristen Sinclair. Two students from LUMCON, Melissa Baustian and Jenn Lasseigne also participated.

When asked why they participated in the event, the judges' responses were unanimous, “for the students.” By giving their time and scientific knowledge at events like the Terrebonne Parish science fair, LUMCON employees promote LUMCON's mission to coordinate and stimulate Louisiana's

activities in marine research and education.

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LUMCON's Information and Technology Manager Presents at AGU Fall Meeting

On Friday, December 19, 2008, Brenda Leroux Babin, LUMCON's Information and Technology Manager, along with Lei Hu of Dauphin Island Sea Lab presented “A Tale of Two Observing Systems: Interoperability in the World of Microsoft Windows” at the Fall Meeting of the American Geophysical Union (AGU) in San Francisco, CA. Babin's poster explained the implementation of Open Geospatial Consortium (OGC) technologies to serve data using Microsoft Windows servers and software. In the past, developers used only open source resources to develop implementations to serve data with OGC standards. This practice left many Ocean Observing Systems out of the data sharing process. The outcome of this project is the production of a cookbook that will allow other Observing Systems using Microsoft Windows technology to easily implement the standards on their systems.

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LUMCON's Unique Location Benefits Scientific Research

LUMCON provides a field office for the Science Application International Corporation (SAIC) from New Port, RI for their computerized survey data under the National Oceanic and Atmospheric Administration’s (NOAA) Debris Campaign funded by FEMA.

SAIC will be performing three water bottom search surveys for NOAA as part of a mapping Louisiana debris process. The surveys scheduled by location begin with the first survey soundings from Caillou Bay to Isle Desnieres. The second survey soundings will follow from Isle Desnieres to Timbalier, and a third survey soundings will follow on from Timbalier to Belle Pass. The areas mapped include depths of 8 feet to three miles out into the gulf. Nadeau says that the five month project updates debris locations, sounding depths and maps with more accurate information.

Nadeau says they first used the 24’ *M/V Sea Beneath* to find debris in the areas where they will be implementing a side scan and single beam sonars. They then follow with the multi-beam sonar to map the least depth on targets to find debris. SAIC also plans to use the *Lacey Marie*, a 42’oyster boat, operated by Campo Marine of Shell Beach, LA, outfitted with a ISS-2000 real-time survey system. This system consists of a high-end dual processor computer running the ISS-2000 software that provides survey planning and control along with data acquisition and logging for single beam, multi-beam and navigational data. The previous project in Lake Borgne also made use of these vessels.

In order to find the debris SAIC uses different types of vessels outfitted to house and run high tech equipment. The *Lacey Marie,* an oyster boat configured to not only accommodate the side scans but also the limited bathymetry system. If any errors occur during a sounding manual repair work corrects the testing in the bathymetry data. Both single beam and multi-beam sonar data collected, selected, and measured determine the positions of field debris. Located wrecks as well as large debris identified by SAIC using its highest point called a **contact** for

referencing. Other contacts include man-made objects such as sewer outfalls, pipelines and exposed cables. Contact points determine the locations and the instruments create TIFF images of these locations for documentation. NOAA receives TIFF images of all locations every week along with spreadsheets listing information about each contact. This information includes not only positions, but also measurements and files on the cumulative surveyed areas to date. A final side scan delivers a mosaic for each sheet in addition to the contact information and images.

NOAA uses the information for mapping and for reports to the Environmental Protection Agency (EPA) in prevention strategies and possibly the removal of debris. The EPA and nine other federal agencies, along with NOAA, completed an inter agency report with guides and strategies to prevent and reduce marine debris. Written by the Inter agency Marine Debris Coordinating Committee at the request of Congress, the report requests implementing recommendations focusing on marine debris sources, impacts and strategies. This report became part of the President's Ocean Action Plan. To learn more see website at: http://gulfofmexico.marinedebris.noaa.gov

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Seminar Season Starts with Secrets in Secretions by Brad Rosenheim

On Thursday, December 4, 2008, Dr. Brad Rosenheim of Tulane University kicked off the LUMCON Seminar season in the Distance Learning and Video Classroom (DLVC). Rosenheim, from the Department of Earth and Environmental Sciences at Tulane, revealed the "Secrets in Secretions- What we can learn from geochemical information in aragonite skeletons." He focused on research from the tropical North Atlantic. This research spanned hundreds of years done to produce proxy records of temperature, circulation and salinity. Secreted by coral colonies, aragonite skeletons as well as the schlerosponges reveal valuable data in their isotopic and chemical make up. The aragonite skeletons and schlerosponges provide a base for compiling information because their life spans for centuries. Therefore, they comprise a natural reference for comparing anthropogenic change. Aragonite skeletons' secretions in corals document shallow water data, while the secretions in the schlerosponges document data in deepwater.

Rosenheim says he uses his information to provide a richer temporal component for data sets to be used by ocean and climate modelers in assessing observed changes and their relationship to trends and cycles.



Dr. Brad Rosentheim of Tulane University and Dr. Alex Kolker of LUMCON prepare for the "Secrets in Secretions" presentation in the Distance Learning and Video Classroom at LUMCON.

Future Speakers include:
Feb 4--Ken Kraus of USGS Wetlands Center to speak on Climate Change and Tidal Freshwater Forested Wetlands

Feb 11--Dr. Scott France of the Dept of Biology at the University of Louisiana at Lafayette to speak on "In the Abyss: Studing the Evolution of Deep-sea Corals."

Mar 11--Dr. Mike Blum of Tulane University on Wetlands/Genetics

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Americorp Disaster Re-builders Tour LUMCON



On November 24, 2008, an Americorp group from the University of Illinois in Champaign visited LUMCON's W. J. DeFelice Marine Center. The group is a part of the Fuller Center Disaster Re-builders helping Terrebonne Parish locals to rebuild after hurricanes and other disasters. They were greeted with a brief tour of the facility. The group left with some of their questions answered about "what was going on in such a strange building built in the marsh," President Bart Tucker said.

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LUMCON Hosts Teacher Water Quality Workshop



Aboard LUMCON's *R/V Acadiana* teachers return from their field trip to test water quality in Terrebonne Bay.

Teachers from throughout Louisiana spent the weekend of January 23, 2009 learning about water quality at the Louisiana Universities Marine Consortium (LUMCON). After a tour of the W. J. DeFelice Marine Center, LUMCON Marine Educator Murt Conover introduced the 20 teachers to

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LUMCON's Bayouside Classroom program. Other programs introduced included the Barataria-Terrebonne National Estuary Program by Sandra Helmuth, the Louisiana State University (LSU) Coastal Roots Program by LSU's Dr. Pam Blanchard and the LSU Sea Grant by Dianne Lindstedt. Other presenters included LUMCON Librarian John Conover and Andrew Barron of BTNEP.

On Saturday, the teachers participated in hands-on sampling techniques aboard LUMCON's *R/V Acadiana.* The workshop ended on Sunday with presentations by the teachers followed by group discussions. Libra Lindon of Patterson, LA teaches 7th grade Life Science at B. Edward Boudreaux School in Baldwin said that since her school cannot take trips like many others, she plans to start a Science Club at the school and get the club to visit LUMCON and attend the Bayouside Classroom classes. "I learned on this trip to make science a fun memory and I hope that I will inspire my students for their future and the future of our world," Lindon said.

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LUMCON Faculty Presents at the ASLO Aquatic Sciences Meeting in Nice, France

During the week of January 25-30, 2009, LUMCON Assistant Professors Dr. Brian J. Roberts and Dr. Geoffrey A. Sinclair presented their latest research at the ASLO Aquatic Sciences Meeting in the Centre de Congrés Acropolis in Nice, France.

Roberts work entitled "*Marsh and Coastal Ocean Influences on the Relative Contribution of Bacteria and Phytoplankton to Ecosystem Respiration in Terrebonne Bay, Louisiana*" adds a new dimension to the Terrebonne Bay Project of Dr. M. J. Dagg, Dr. R. T. Powell and Research Associate C. M. Semmler of LUMCON. Located between the Atchafalaya and the Mississippi Rivers, Terrebonne Bay receives inputs from watershed drainage and from offshore through tides and wind events. Samples taken during flooding in local marshes suggest that dissolved organic carbon (DOC) cause lower salinity conditions at the edge of the marsh. As one moves further away from the marsh the DOC decreases. During the time of low river flow the waters fluctuate between low and high salinity, but during the period of high river flow the salinity remains low. "The project still in progress will include the latest findings up to the date of departure for the trip," Roberts said.

Sinclair presented his collaborative work with Daniel Kamykowski of North Carolina State University entitled "*Influence of Fluid Shear in the Benthic Boundary Layer on the Nitrogen Uptake and Assimilation of Karenia Brevis."* For two months, a high resolution instrument recorded qualities of the potential shear rates and water velocities in the benthic boundary layer. They observed shear rate effects on the uptake and assimilation of nitrate, urea and ammonium. "Both ammonium and nitrate rates displayed higher in cells after exposure to shear suggesting their cells displayed physiological recovery," Sinclair said.

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LUMCON Presents Seminar Speaker Dr. Scott France



On February 11, 2009, Dr. Scott France of the Biology Department at the University of Louisiana at Lafayette spoke on "In the Abyss:

Studying the Evolution of Deep-sea Corals." In the first part of his seminar, France described the technology used to sample these habitats and provided an overview of the natural history of the deep-water coral communities. "When people hear the term "coral," they typically form a mental image of warm, shallow-water, tropical coral reefs," France said. "However, corals are an important component of deep-sea communities, particularly where hard substrates are exposed, e.g. seamounts (mountains under the sea), canyons, ridges," he added. During the period 2003-2005, France and his colleagues made a series of submersible and ROV dives, in the New England and Corner Rise Seamount Groups, in the NW Atlantic Ocean and in the Aleutian Ridge, North Pacific Ocean. "What we found was that at the area atop seamounts throughout the testing in the Atlantic and in the Pacific Oceans, the same species of coral live," France said.

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Yes, We Are in Kansas!



Dr. Nancy Rabalais, Executive Director, traveled to Kansas City and Lawrence, Kansas in early February to address two groups on the linkages of the Mississippi River, its huge watershed, and water quality in the Gulf of Mexico, particularly the area of low oxygen, or hypoxia, that forms each spring-summer along the Louisiana coast. The first presentation was at the U.S. Environmental Protection Agency Region 7 headquarters and served as a tutorial that was web cast across the nation. The topic “Green Lands and Blue Waters: Mississippi River and Gulf of Mexico Hypoxia” was presented to about 40 ‘live’ individuals in the conference room, about 60 more ‘long-distance’ people in the same building, and countless others across the U.S. Dr. Rabalais is still getting input from those who “watched the web cast.” The presentation is available for viewing and use by others as an educational resource on Gulf of Mexico hypoxia at http://accordent.powerstream.net/008/00136/greenlands-bluewaters/GreenLands-BlueWaters/msh.htm

The next day, Dr. Rabalais provided a plenary address to the 59th Annual Environmental Engineering Conference at the University of Kansas. Some of the attendees said that they had heard her web cast from the day before. The focus of the presentation to the Conference, however, was more on the transition of science to policy, or perhaps sometimes not. The conference participants were earning continuing education credits in the areas of water quality, water and wastewater treatment, air quality, and solid and hazardous waste management. The states of Kansas, Missouri, Iowa, Nebraska and Oklahoma were represented and focused on the creative (ingenious) ways that engineers (or, ingenieurs) were addressing environmental problems in the face of the challenges posed by limited water and air resources, energy, and capital for improvements.

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Dead Zones in Chicago

Dr. Nancy Rabalais, LUMCON Executive Director and a AAAS Fellow, participated in a session at the AAAS meeting in Chicago in mid-February entitled "Solutions for Resuscitating Dead Zones: From Chicago to the Gulf of Mexico and Beyond." The session was organized by Dr. Don Boesch of the University of Maryland Center for Environmental Science. Speakers were Dr. Daniel Conley, Lund University, Sweden on the “Reversing Hypoxia in the Baltic Sea,” Dr. Michael Kemp, Horn Point Laboratory, University of Maryland, on “Recalcitrance and Tipping Points in Recovery from Hypoxia in the Chesapeake Bay,” Dr. Laurence Mee, in absentia, on “Lessons from the Black Sea,” Dr. Don Scavia, University of Michigan, on “Keeping Lake Erie Alive,” Nancy Rabalais, LUMCON, on “Assessing the Reassessment and Action Plan for Gulf of Mexico Hypoxia,” and Dr. Gene Turner, Louisiana State University, on “Corrective Surgery and a Better Diet in the Heartland.” Several media representatives were in the audience and several interviews were conducted—the results as yet unknown. There was one article on the front page of the Washington Post the next day primarily on the Chesapeake Bay anoxia, see http://www.washingtonpost.com/wp-dyn/content/article/2009/02/16/AR2009021601150.html.



Sphere Sculpture in Chicago’s Millennium Park

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LUMCON Will Share Higher Education Budget Cuts

Dr. Nancy Rabalais, LUMCON Executive Director, has been told to prepare for severe cuts in the Fiscal Year 2009-2010 State General Fund Budget. LUMCON’s current budget is $9.2 million, of which $3.2 million comes from the State. The remainder is from research grants, interagency transfers, self-generated funds, and statutory dedications. The projected cuts would mean $506,000 or $913,000 of the state-provided funding. The cuts would result in loss of research and education activities, loss of services from LUMCON to the public, reduced equipment and library acquisitions, unfilled positions, and personnel cuts or furloughs similar to other institutions of higher education. Such dramatic losses in state funds will also reduce the

matching funds required by the U.S. Environmental Protection Agency for support of the Barataria-Terrebonne National Estuary Program. More of the operating costs would need to be made up from the grants-associated return costs leaving fewer funds for discretionary programs. Whether these scenarios will come to bear depends on the anticipated revenue to be generated by the state for the next fiscal year. We are told to be optimistically cautious because the percentage to be cut may not be this high, but the general economy and price of oil do not appear to provide any relief. These estimates will become clearer as the Legislature begins in April and the appropriations process begins. Some good news: a portion of Congressional stimulus funds may come to LUMCON for small capital projects, including some that would help with energy efficiency. Next to salaries, energy bills are the next largest expense at LUMCON. LUMCON is already tightening its belt but continuing to meet its mission of furthering the marine science and education that support Louisiana's needs.

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March 2009 Volume 1, Issue 3

LUMCON Executive Director Helps Inform Congress on the Integrated Ocean Observing System (IOOS)

LUMCON Executive Director, Dr. Nancy Rabalais attended the biannual meeting of an organization linking the regional coastal ocean observing systems around the U.S. and helped with a day-long effort to educate Congress and the White House Office of Management and Budget on the importance of the program. The goals were to help Congressional members and their staff members better understand the real-time observing system network and to learn about important services that these systems bring to multiple users and stakeholders.

The LUMCON Environmental Monitoring System for inshore waters and collaborative work with Louisiana State University on offshore observing systems are part of the Gulf of Mexico Coastal Ocean Observing System Regional Association (GCOOS-RA), of which LUMCON is a member and Dr. Nancy Rabalais serves on its Governing Board. She also represents the GCOOS-RA at the National Federation of Regional Associations (NFRA), which has regional members from observing systems around the U.S. The national backbone for these regional observing systems is the NOAA Integrated Ocean Observing System (IOOS) program. The biannual NFRA board meeting was held at SAIC in McLean, VA on March 3, 2009 and the Congressional efforts took place the next day.

The focal point of the day was a briefing held in Congress on the IOOS program to a crowd of about 60 people, standing-room only. The panel members represented multiple stakeholders that depend on the real-time observations. For instance, Ed Sherlock, Emergency Manager, and Ulric Dalhgren, Harbor Master, for Annapolis explained how water level information coupled with wind and tidal information prepared them to take measures to defend the city of Annapolis from flooding during storms or simply higher tides from wind-forced water movement (as is often the case at the Marine Center in Cocodrie). Having the data prevents false alarms and greater efficiency in providing the necessary protection. Richard Glenn of Barrow represented the Alaska Arctic Science Consortium. He is also a subsistence whaling captain and depends heavily on tidal information, water temperature, winds and current information to guide the community's fishing efforts in a safe manner. Other speakers showed how real-time observing systems helped serve public health with regard to water intake systems along the Lake Huron/Lake Erie and how real-time data feeds into a private weather service. Dr. Rabalais explained the importance of real-time observations on harmful algal blooms and hypoxia in protecting human health and sustaining living resources. The incredible story of the day was from Dr. Alan Blumberg of the Stevens Institute. He was sitting in his office in Newark, New Jersey, when he saw the U.S. Airways plane go down in the Hudson River. He immediately started relaying real-time current speed and direction data to the rescue crews who needed to know how to position tug boats and rescue vessels alongside the plane. He was among the many heroes of that day.

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The remainder of the day was spent visiting four staff members in the House of Representatives and the Senate on the Science Committee and the Commerce, Justice Subcommittee, respectively, where Rabalais, some speakers from the briefing, and Josie Quintrell, the Executive Director of NFRA, continued spreading the examples of the importance of the real-time observations, the importance of Senate passage of S 22, the American Lands Act, in which IOOS appropriations were located, and the need in future budgets for increased funding of the IOOS program for the benefit of the national backbone and expansion of regional observing systems. "It was clear, at least to those of us visiting the Hill," said Rabalais, "that the IOOS program serves multiple important purposes and builds synergies among government, industry, research and users." An additional advantage of the day was that Dr. Rabalais re-established several connections that will help with the reauthorization and amendments to the Harmful Algal Bloom and Hypoxia Research and Control Act (the Snowe/Breaux bill).

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LUMCON Professor Speaks to Minerals Management Service

On Thursday, January 8, 2009, LUMCON Professor Dr. Paul Sammarco presented his latest findings about corals on oil platforms at the Minerals Management Service Information Transfer Meeting in New Orleans. Sammarco is studying the geographic distribution of coral in the Northern Gulf of Mexico. The Flower Garden Banks (FGB) coral reefs occur in the northern Gulf of Mexico along with thousands of oil and gas platforms. After surveying the FGB and thirty-five of the platforms in that area, Sammarco says that he found that the platforms provide hard substratum in shallow waters where before none existed. These surveys also revealed that the Mississippi River acts as an effective barrier against the dispersal of invasive species. The assessment of the likenesses between the coral populations on platforms and those in the FGB show that not all corals respond in the same way. The choice of of habitat depends on the species of corals. On oil producing platforms, the coral tend to live at a deeper level than abandoned Rigs-to Reef structures. Corals classified as brooders, a non-reef building coral are found to be more effective at colonizing patchy habitats in the northern Gulf of Mexico.

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LUMCON Vessels Assist in Launch and Retrieval of Spray Gliders for Woods Hole

On January 21, 2009, LUMCON's *R/V Acadiana* assisted Woods Hole Physical Oceanography Ocean Engineer, John Ahern with launching and retrieving an underwater vessel known as the "Spray Glider." Engineering Assistant Larry George says that the glider's scientific advantage consists of it being able to be navigated without connecting cables or the use of a human crew on board. The gliders carry sensors that collect data for months at a time allowing scientist to better understand the waters and their currents. The sensors measure vertical profiles of information such as salinity, turbidity and temperature presenting researchers with a clearer look at the layers and currents of the Gulf Stream.

In this project, funded by a United Kingdom oil company, the gliders follow a programmed route providing scientists more precise locations of information about the Gulf Stream and currents within the ocean. The Spray Glider is unique in that it can not only move vertically in one direction but it can also move at angles through the water column.

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The field project began with the first launching on the *R/V Acadiana* on November 8, 2007 and continued with an exchange on June 8, 2008. While the *R/V Acadiana* remained in port for repairs the *R/V Pelican* assisted with the next exchange on September 29, 2008. "Four months ago, the Woods Hole cruise set out on LUMCON's *R/V Pelican* with the 'Spray Glider,' and today, the *R/V Acadiana* brings in its replacement," Ahern said. "We will be back in another four months to collect the one we left today," Ahern added.

For more information see: http://www.whoi.edu/page.do?pid=10080

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LUMCON's Fourchon Facility Provides LSU class with a Memorable Louisiana Coastal Field Trip

On February 13-14, 2009 LUMCON's Fourchon laboratory facility hosted Louisiana State University Professor Dr. John W. Fleeger and his students. The Fourchon laboratory's location near the mouth of Bayou Lafourche allows the students to access both salt and brackish marshes and access to the barrier islands. Fleeger, a marine ecologist, introduced his Marine Communities class to field study at the Fourchon facility. The field trip included collecting organisms for laboratory identification and exposing students to marine communities such as oyster reefs and plant communities. The Fourchon facility contains laboratories and sleeping arrangements for scientific field studies and other science projects. Baton Rouge junior, Katie Peterson working on her major in Marine Biology and Coastal Environmental Sciences says she took the course because of the field component. "It doesn't seem 'right' to teach a course in marine communities entirely indoors and over 100 miles inland. For some of these students, this is their first trip to the Louisiana coast and we want it to be memorable. The Fourchon Lab fits the bill," said teaching assistant Barry Aronhime.

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LUMCON well-represented at Gulf of Mexico Alliances Nutrient Criteria Research Framework Workshop

LUMCON Faculty Members Dr. Brian Roberts and Dr. Geoff Sinclair attended the Gulf of Mexico Alliance's Nutrient Criteria Research Framework Workshop held in New Orleans March 10-12, 2009. The Gulf of Mexico Alliance is a partnership of the states of Alabama, Florida, Louisiana, Mississippi, and Texas, with the goal of significantly increasing regional collaboration to enhance the ecological and economic health of the Gulf of Mexico. The goal of the workshop was to examine the current state of our understanding of the transport, fate, and effects of nutrients and inform the process of developing estuarine nutrient criteria for estuaries and near shore coastal systems of the Gulf of Mexico. The three-day workshop included 17 presentations on coastal systems spanning the Gulf Coast from Corpus Christi Bay in Texas to Perdido Bay in Florida and including multiple areas of the shelf.

Dr. Roberts presented results from his collaborative work with LUMCON Research Associate Carrie Semmler, LUMCON Executive Director Dr. Nancy Rabalais, and LSU Professor Dr. Gene Turner on biogeochemical processing in the Atchafalaya River and Bay Ecosystem. The aim of this Louisiana Board of Regents Support Fund funded project is 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.

Dr. Gene Turner of LSU presented a talk co-authored by LUMCON Executive Director Dr. Nancy Rabalais and LUMCON Senior Research Associate Wendy Morrison (among others) summarizing results from their collaborative studies in the Barataria estuarine watershed. Dr. Turner and colleagues have been studying the watershed since the 1970s and have been monitoring water quality monthly since 1996.

More information on the workshop can be found at http://www2.nos.noaa.gov/gomex/nutrients/nuts_conf_09/welcome.html

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LUMCON and BTNEP Provide Strong Support for Wetlands Discovery Center

The South Louisiana Wetlands Discovery Center in Houma is closer to reality, and several LUMCON staff members are helping it along. The Advisory Board and named or nominated members of the Commission met with the Executive Director and Board of the Wetlands Discovery Center at the Bayou Terrebonne Waterlife Museum on Monday, March 9. Advisory Board members including Dr. Nancy Rabalais, LUMCON Executive Director, and Susan Testroet-Bergeron, Educator Coordinator for BTNEP, were present with other Advisory Board members and members of the newly formed Commission that will oversee the fiscal matters of the Discovery Center. Dr. Paul Sammarco, Ms. Nicole Cotten and Ms. Brenda Leroux Babin have been appointed to the Commission. The home of this Commission within the Louisiana state government is yet to be determined. These LUMCONers along with Mr. Wayne Simoneaux, LUMCON Marine Center Superintendent who is serving the Discovery Center in its facility design, are all working towards the initiation, building, enhancement and fulfillment of the Wetlands Discovery Center. The Center is designed to be primarily an educational asset for Terrebonne Parish but will also serve the region and the state as a Mecca for tourists who desire knowledge of the wetlands, their processes, their preservation and their restoration. The Center will provide research opportunities for middle and senior high school students for studies in wetland processes, conservation and restoration at the Discovery Center to be built near the Houma Public Library Main Branch. The Discovery Center is active with opportunities for students such as a Mandalay Trail Outing, a Night at the Museum, a Kids’ Workshop for Senator Circle in Houma, funding for teachers to attend the National Science Teachers Association meeting in New Orleans, and activities for World Wetlands Day. The Wetlands Discovery Center also has great, fun fund-raising activities such as the Lady Bug Ball, Secret Garden Tours, and Art Auctions that feature 19th century Louisiana art. Stay tuned. http://www.slwdc.org/

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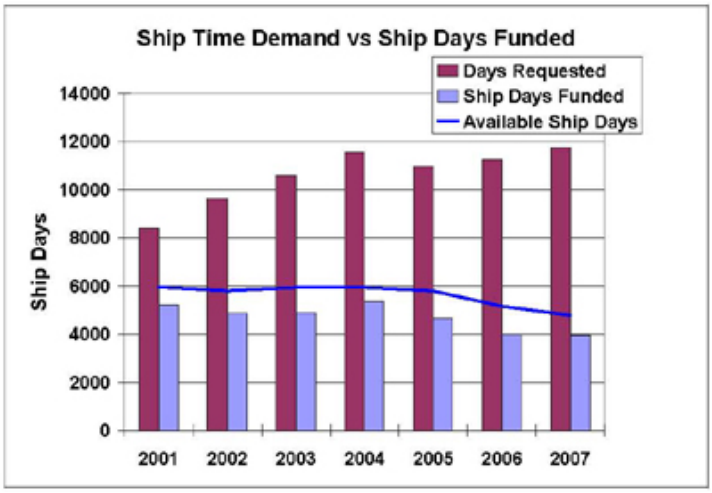
Oceanographic Vessel Updates

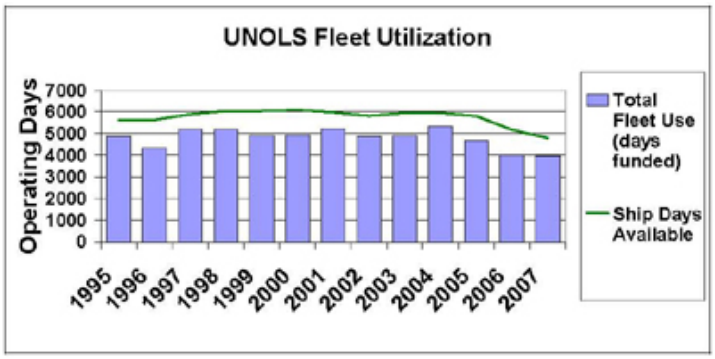
The bi-annual UNOLS (University Naval-Oceanographic Laboratory System) meeting was held at Moss Landing Marine Laboratories in conjunction with their Fleet Improvement Committee on March 10-12. LUMCON Executive Director, Nancy Rabalais, attended as a member of the UNOLS Council and representative of an ‘operator’ institution. The *R/V Pelican* is a member of the UNOLS fleet, and one of the most heavily used of the fleet, and the most heavily used of the local/regional class vessels. The *R/V Pelican* schedule can be seen among the other fleet members below. It is obvious that the Pelican is heavily

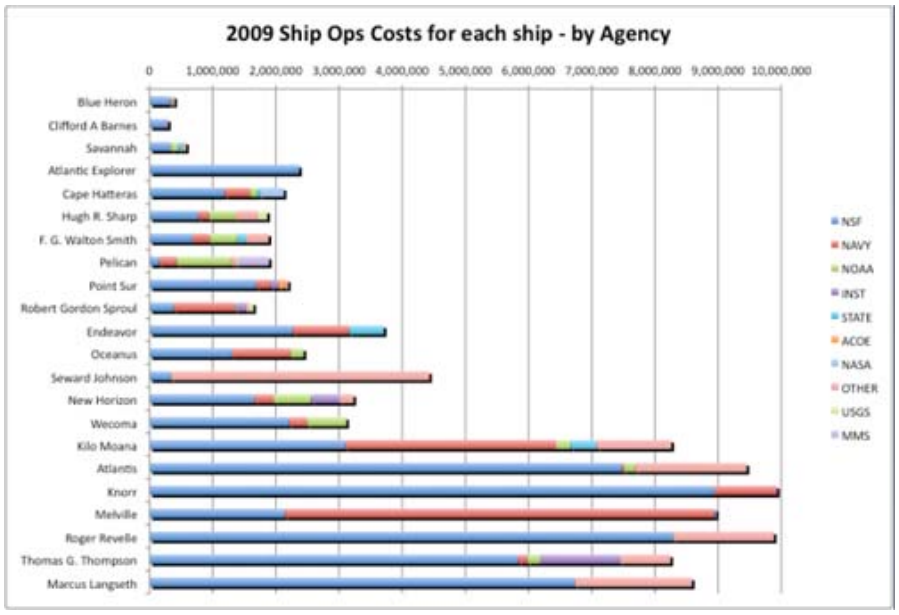
used, more than at a 'break-even' basis, the vertical red line, and that its funding portfolio is diverse. In addition the Pelican gave several of its NSF-funded days to the *R/V Cape* Hatteras to help it with its scheduling.

The UNOLS Council gave approval for its Draft Fleet Improvement Plan at the meeting that outlined vessel needs, retirements, and replacements through 2025. The plan calls for renewal of three regional research vessels, but there are no solid financial plans for the regionals. The *R/V Pelican*, which falls in the Regional/Local Class, is not on the UNOLS replacement schedule. Although the vessel would be replaced if sufficient funds were available, there are no formal plans for its replacement. Rather the replacement of the 'work horse' of the Gulf of Mexico rests within the realm of state, institutional and private efforts.

The following week, LUMCON Executive Director, Nancy Rabalais, attended a National Research Council committee meeting on the Evolution of the National Oceanographic Research Fleet. This study for the Ocean Studies Board of the National Academies of Science is charged with identifying how the future scientific and technical needs of the UNOLS fleet over the next 25 years will guide future capacity and capability of the oceanographic fleet. Specifically, the committee is reviewing the advances of Autonomous Underwater Vehicles (AUVs), ocean observing systems, deep-submergence vessels, remotely operated vehicles, information from satellites, and modeling that modify or dictate future vessel needs. The committee was treated to a tour of Woods Hole Oceanographic Institution's top-notch technological facilities for AUVs, drifters, gliders, ocean observing moorings, remotely operated vehicles, and human occupied vehicles. One disturbing trend that the committee and the oceanographic community must deal with is the increasing costs of operating oceanographic research vessels (see figure below) and the current trend for funding much less oceanographic research than is requested (see figure below). This also leaves the oceanographic vessel fleet severely-undersubscribed and unused. To be able to maintain an excellent platform for oceanographic research, several of these trends need to be reversed, and the nature of the fleet must become at the same time, more generalized to meet more needs and more specialized to meet the ever demanding advances in technology.







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Hypoxia Article Cited as Top Environmental Science Publication

"Gulf of Mexico Hypoxia: Alternate States and a Legacy" by R. Eugene Turner and Dubravko Justić, Louisiana State University; and Nancy N. Rabalais, Louisiana Universities Marine Consortium, 2008, 42 (7), 2323-2327; DOI 10.1021/es071617k.

From among 1300 papers published in the American Chemical Society's journal, *Environmental Science and Technology*, the paper listed above was chosen as the top environmental science paper for 2008. The field was narrowed by associate editors who nominated papers that they felt were of the highest caliber—these are papers expected to have a significant and long-lasting impact on the field.

The commendation is given at Erika Engelhaupt, *Environ. Sci. Technol.*, DOI: 10.1021/es900418d, Publication Date (Web): March 4, 2009, where the continuing search for a larger research vessel and a never ending search for research funds to continue the research are described. As Rabalais describes "Gene's the genius. He thinks systemwide," and Gene insists it is "Rabalais's careful and persistent measurements" as a key to their success. Dubravko Justić from Louisiana State University has been involved with the Louisiana hypoxia research since he crossed the Mediterranean Sea from Croatia and the Atlantic to join LSU and work with

Rabalais and Turner in 1991.



Authors Gene Turner, Dubravko Justic, and Nancy Rabalais (left to right)

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LUMCON Scientist Presents at the National Science Teachers Association's 2009 Conference

LUMCON Executive Director and Professor Dr. Nancy N. Rabalais was one of four scientists participating in the Shell Science Seminars, sponsored by Shell Oil Company at the National Science Teachers Association's 2009 Conference. March 19–22, 2009, the National Science foundation brought over 10,000 science educators to New Orleans. The Shell Science Seminars offered the latest in cutting-edge research in science and technology.

Rabalais's presentation "Marine Science into the Classroom: Oceanography via the Gulf of Mexico Dead Zone" gave over 100 teachers valuable information about her current research. Rabalais used the Mississippi River watershed and Gulf of Mexico coastal ocean ecosystem continuum to demonstrate the many examples of application of math, science and engineering through oceanography. She showed how the 'stove piping' of biological, chemical, physical and geologic oceanography was broken down in the interdisciplinary science of ecosystem research.

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LUMCON Presented Seminar Speaker Dr. Michael J. Blum of Tulane University



On March 19, 2009, LUMCON's Seminar Series presented "Ecological and micro evolutionary responses of coastal marsh plants to climate stressors" given by Tulane University Assistant Professor Mike Blum from the Department of Ecology and Evolutionary Biology.

Blum says that in the present era, global environmental changes such as climate warming, land use change, and the spread of non-native species have the potential to not only redistribute coastal marsh species, but to promote their evolution.

Blum presented data and results from several ongoing research projects designed to understand the potential responses of coastal plant communities to projected global changes, focusing on changes in salinity and atmospheric CO2. In one study, CO2 levels were elevated for plots containing the sedge Schoenoplectus americanus and monitored to assess changes in above and below ground biomass. Blum determined that the observed differences in biomasses could be attributed to geographic and genetic bases. In addition to in vitro experiments, phytotron experiments (germinating and growing seeds under controlled atmospheric and soil conditions) using seeds from seed banks established over the past 100 years also showed genetic responses to climate stressors including salinity and CO2.

In the near future, Blum plans to extend the scope of the phytotron experiment by attempting to germinate seeds as old as 8,000 years, allowing for the analysis of its genetic variability over a wider range of conditions. Blum also plans on further examining soil accumulation and carbon cycling changes resulting from the observed genetic selection of S. americanus due to the climatic stressors. You can visit Blum's website at: http://www.tulane.edu/~mjblum/Home.html

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April 2009 Volume 1, Issue 4

LUMCON Scientist Featured in Seminar Series

On April 17 2009, the University of Southern Mississippi Department of Marine Science featured LUMCON Associate Professor Rodney Powell as a guest speaker in their Spring 2009 Seminar Series. In his presentation, entitled "The Importance of High Temporal and Spatial Nutrient Sampling in the Mississippi River and Plume," Powell illustrated the need for more short-term data on the Mississippi River's coastal plume nutrient load variability and its relationship to the seasonal coastal hypoxic area.

"The seminar was well received," said Dr. Powell. "The audience agreed that this data set will provide strong evidence for the need to increase the number of high resolution studies in the coastal zone." For more information about Dr. Rodney Powell, visit his website: http://www.lumcon.edu/research/faculty.asp?name=rpowell

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LUMCON Professor Sheds Light on Algal Growth

Assistant Professor Brian J. Roberts of Louisiana Universities Marine Consortium, with Walter R. Hill and Shari E. Fanta of the University of Illinois Institute of Natural Resource Sustainability, published an article entitled "Quantifying phosphorus and light effects in stream algae" in *Limnology and Oceanography*, 54(1). The article, released in January 2009, discusses the effects of phosphorus and light in an experimental stream to determine their effects on the growth and composition of microalgae.

Because algae are an important part of the food base for aquatic inhabitants, algal growth impacts are seen throughout freshwater ecosystems and is of considerable interest to aquatic ecologists and others concerned with environmental issues. By applying simultaneous gradients of phosphorus and light to laboratory simulated streams, the authors were able to develop measurable relationships between the two variables and algal growth. They established limits for both light and phosphorus saturation for the growth of algal biovolume. Additionally, they determined that the effects of light are lessened by low phosphorus levels, and similarly phosphorus effects are lessened by lower light. Contrary to predictions, phosphorus content did not decrease with higher light levels; however, nitrogen levels did decrease substantially with increasing irradiance.

The findings in this study help fill a gap in stream ecology because, despite the fact that nutrients and light are two of the most important factors in aquatic habitat growth, their combined effects have rarely been studied. Although the authors conducted the study on a simulated stream, they maintain that the results are acceptably precise representations of the relationship between phosphorus, light, and algal growth.

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International Collaborations

A team of U.S. scientists spent a week each teaching modules for the Joint European Master in Water and Coastal Management (ERASMUS MUNDUS) at the University of Cádiz, Spain in March and April, 2009. The ERASMUS MUNDUS leads to a M.Sc. degree, combining one-week modules in environmental management, fresh water management and coastal management. The students complete 15 of the 60 modules provided and conduct a research project at a university in a country that is a member of the network. Dr. Nancy Rabalais, Executive Director and Professor of LUMCON, taught a module on Eutrophication to a group of 26 students. Dr. Rabalais students hailed from Ethiopia, China, Russia, Bangladesh, Brazil, Trinidad and Tobago, Philippines, India, Kenya, England, Portugal, Mozambique, Zambia, Spain, Fiji Islands, Malta, Eritrea and Ethiopia. Her co-instructors were Dr. Stephen Olsen, University of Rhode Island and Dr. Dennis Swaney, Cornell University.

Drs. Rabalais, Olsen, and Swaney met with other colleagues from the Scientific Steering Committee of LOICZ (Land-Ocean Interactions in the Coastal Zone) in Portugal for a week along with Dr. Alice Newton, University of Faro and Norway Institute of Limnology and Oceanography, Dr. Bill Dennison, University of Maryland Center for Environmental Studies, and Dr. Laurence Mee, Dunstaffnage Marine Laboratory, to develop a series of concept papers to share among workshop attendees for a meeting in Oslo in June 2009.



Coastal Management (ERASMUS MUNDUS) Ups and Downs

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Article Highlights Causes of Gulf of Mexico Hypoxia

A synthesis of research concerning hypoxia on the Louisiana/Texas inner continental shelf co-authored by an international group of coastal experts[1] was published on the front page of *Eos, Transactions of the*

American Geophysical Union (2009, 90(14): 117-118). The paper stressed that “Nutrient Enrichment Drives Gulf of Mexico Hypoxia” in support of a U.S. Environmental Protection Agency Science Advisory Board (SAB) assessment of research concerning the causes of Gulf hypoxia. The SAB confirmed and supported evidence from the initial assessment of the scientific evidence and subsequent peer-reviewed publications that nitrogen loads drive the timing and extent of hypoxia, that phosphorus loads are significant in the watershed and the Gulf of Mexico, and further recommended dual nitrogen and phosphorus reduction strategies that targeted the higher nitrogen and phosphorus yielding lands in the watershed, i.e. the tile-drained Corn Belt.

This paper followed a Commentary by Bianchi et al.[2] (*Eos, Trans. Amer. Geophys. Union*, 2008, 89(25): 2326-237) that challenged the findings of the SAB panel report. Thomas S. Bianchi was a member of the EPA Science Advisory Board Panel that confirmed the prior and subsequent research on causes of Gulf of Mexico hypoxia, and several other authors were co-authors of peer-reviewed synthesis papers updating the science.

[1]Authors are Donald F. Boesch and Walter R. Boynton, University of Maryland; Larry B. Crowder, Duke University; Robert J. Díaz, Virginia Institute of Marine Science, Robert W. Howarth, Cornell University; Laurence D. Mee, Dunstaffnage Marine Laboratory; Scott W. Nixon, University of Rhode Island; Nancy N. Rabalais, Louisiana Universities Marine Consortium; Rutger Rosenberg, Göteborg University; James G. Sanders, Skidaway Institute of Oceanography; Donald Scavia, University of Michigan; and R. Eugene Turner, Louisiana State University. Walter R. Boynton, Robert W. Howarth and James G. Sanders were members of the EPA Science Advisory Board, Hypoxia Assessment Panel.

[2]Authors of the Commentary are Thomas S. Bianchi, Steven F. DiMarco Robert D. Hetland, John W. Morse, and Gilbert T. Row, of Texas A&M University, and James H. Cowan, Jr. of Louisiana State University.

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LUMCON Assistant Professor Presents Seminar to National Wetlands Research Center

On Tuesday, April 28, 2009, LUMCON Assistant Professor, Alex Kolker presented a talk entitled "Sea-level Dynamics and the Ups and Down of Marsh Accretion" to the National Wetlands Research Center in Lafayette. Kolker's talk is part of LUMCON's contribution to coastal wetland science and restoration in Louisiana.

Kolker was pleased with the outcome of the meeting. "It went well," said Kolker, "I gave the talk and I was able to meet some potential collaborators."

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Terrebonne Parish Schools Aquatic Education Program

April 20-30, 2009, LUMCON educators Murt Conover and Jennifer Robinson educated 5th graders from Terrebonne Parish about water quality as part of the Terrebonne Parish Schools Aquatic Education Program sponsored by Louisiana Wildlife and Fisheries. Approximately 2,000 students from Terrebonne Parish went to Pointe-au-Chien WMA to attend

the field program.

Conover and Robinson were pleased with the outcome of the program. Conover expressed the educators' satisfaction, saying, "Jennifer and I had a great time working with the staff and volunteers from Wildlife and Fisheries and BTNEP to give the 5th graders of Terrebonne Parish a great educational experience. It is unquestionable that this event gives students a deeper appreciation and greater understanding of the environment and the resources right out their back doors. I am so proud that LUMCON K-12 education is invited to participate in this event every year."

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LUMCON Researcher and Collaborator Discover the Effects of the Lunar Cycle and Sea Temperature on Coral Growth

LUMCON professor Dr. Paul Sammarco and Dr. Amos Winter of the University of Puerto Rico seem like unlikely collaborators. Sammarco is a coral researcher, while Winter is a geologist and palaeoclimatologist, studying climate change throughout the Earth's geological history. The pair jokingly disagree about almost everything. However, the one thing they agree on is that there is plenty of information hiding between the high density bands of hermatypic, or reef-building, corals.

Corals, like trees, make annual growth bands. Researchers have observed that a coral's environment affects its annual growth band thickness. While examining some coral specimens, Dr. Winter noticed something unusual; there appeared to be smaller, more fine bands between the higher density annual growth bands. He determined that the smaller bands were dissepiments, or the "floors" supporting the coral polyps. When Winter calculated the average number of dissepiments between annual bands, he was surprised that the average, 12.3, is equal to the number of lunar months in a year. He contacted Dr. Paul Sammarco to provide a biological perspective to his findings. The pair discovered a correlation between the number of fine, dissepiment bands and water temperature. Using reliable sea temperature records from 1965 to 1991, the researchers found a significant decrease in the number of bands at times when the water temperature was cooler than average. However, the corals' banding did not seem to be affected by normal or higher temperatures.

Sammarco believes that their findings have diverse importance. "It has uses in palaeo-climatological and palaeo-ecological studies of how coral growth has been affected through geological time. This provides us with reliable, highly fine-scale records of cooling periods." Winter and Sammarco have submitted a manuscript for publication of these findings.

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Career Fair at Grand Caillou Middle School

On April 25, 2009, three members of LUMCON's Information and Technology Team shared with students at Grand Caillou Middle School how their careers help further the study of marine science. Environmental Monitoring Technician, Maria Suarez explained how a meteorologist from Costa Rica ended up in Cocodrie, LA, monitoring the weather and marine environments. Suarez showed the students a sonde, an instrument used for measuring water quality, and an anemometer, used to measure wind speed and direction. Database Specialist, Holly Hebert described her occupation to the students. She hoped to persuade the students to pay

attention in school because "the math you think that you are never going to use, we use daily." Information and Technology Manager, Brenda Leroux Babin not only shared her career in computer science, she also gave them general career advice about applying for jobs. Babin said, "the students were extremely attentive and asked probing questions during the sessions."



Holly Hebert inspires students to dream of a career managing data.

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May 2009 Volume 1, Issue 5

LUMCON News Posted Online

LUMCON's Spring 2009 Newsletter is now online. Click the link below to read about coastal changes beneath the waves - LUMCON's efforts to study hurricane impacts to coastal Louisiana. Also, you won't want to miss the beautiful winning entries from our 2009 photography contest!
http://www.lumcon.edu/information/news/newsletter/archive/2009_Spring.pdf

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Alexandra Cousteau Explores the Mississippi River



Great-granddaughter of the famous ocean explorer Jacques Cousteau, Alexandra Cousteau , journeyed down the Mississippi River to look at its influence on the area of low oxygen in the Gulf of Mexico (also known as hypoxia, or 'The Dead Zone'). This documentary is the fourth of six in her project "Expedition: Blue Planet—Exploring the Life Support System of Our World." Ms. Cousteau visited the Midwest, the Jean Lafitte National Historical Park and Reserve, the Mississippi River in Baton Rouge, and the blessing of the fleet in Golden Meadow. Alongside the Mississippi River, Ms. Cousteau interviewed Dr. Nancy Rabalais, Executive Director of LUMCON, and Dr. Gene Turner, Professor of Oceanography and Coastal Sciences, Louisiana State University. Besides the scientific basis for the linkages between the Mississippi River and Gulf of Mexico hypoxia, Ms. Cousteau continued on with aspects of conservation, societal changes, and the importance of water as a vital and imperiled renewable resource. The results of her journey will be published in a book, and the videos will be readily available on the Internet

Videos of the Interview can be viewed online here:
http://www.alexandracousteau.org/videos-usa

Photos: Above Alexandra Cousteau interviews Dr. Gene Turner and on right Alexandra Cousteau interviews Dr. Nancy Rabalais. Photos courtesy of Blue Legacy International



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NSF Earth Month Presentation and More

As part of Earth Month events at the National Science Foundation, Dr. Nancy Rabalais, LUMCON Executive Director, gave a presentation entitled “So What’s the Big Fuss about Dead Zones?” In answer to that question she outlined several items including the global increase in their size, severity and frequency of occurrence, biological impacts on organisms, disruption of ecosystem functioning, the rapid increase in the reactive Nitrogen content of the earth system greater than the increase in atmospheric CO_2, regime shifts, and more and more emerging problems with low oxygen and harmful algal blooms worldwide. The lecture was presented on April 27 in conjunction with the NSF Advisory Committee to the Environmental Research and Education Directorate, of which Dr. Rabalais is a member. The NSF also has a “Got Green?” initiative founded by staff volunteers with the goal of having NSF serve as a model environmentally responsible and sustainable Federal agency.

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Southern Association of Marine Laboratories Meets

The 24th meeting of SAML was held at the Estuarine Research Center (ERC) of Morgan State University and the Smithsonian Environmental Research Center (SERC), both on the shores of the Chesapeake Bay in Maryland. The ERC has a history of ownership by the Philadelphia Academy of Sciences and as its Benedict Lab. The Academy donated the facility to Morgan State University, which is an under-represented university. The ERC provides research and educational facilities not available on campus and also focuses on drawing in students from other under-represented universities. The SERC is in a terrestrial, watershed, coastal marsh and estuarine ecosystem with a focus on long-term studies in watershed science. On its grounds is the longest running CO2 salt marsh study in the world. Business at the SAML meeting included the usual association agenda with updates from the member laboratories. The running theme of these was the hard times with budget cuts. A panel of laboratory directors from a state agency (Dr. Bob Van Dolah, South Carolina, Department of Natural Resources), from a foundation-supported institution (Dr. Kumar Mahadevan, Mote Marine Laboratory), and a higher education institution (Dr. Nancy Rabalais, Louisiana Universities Marine Consortium) discussed the ramifications of these budget cuts in light of the different income sources. Nancy Rabalais was elected President-Elect of SAML to begin in 2009.

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Progress towards an Integrated Observing System for Harmful Algal Blooms

Identification of users and data and product needs highlighted Workshop #2 of GCOOS/GOMA HABIOS* held in St. Petersburg, FL on April 21-23. The eventual goal of HABIOS is to facilitate and enhance monitoring of harmful algae and their toxins so that forecasting, tracking and mitigation can help to avoid harmful impacts on human health and living resources. Drs. Nancy Rabalais and Geoff Sinclair represented LUMCON and Dr. Sibel Bargu of Louisiana State University provided the overall summary for Louisiana. The results of this workshop identified gaps in the information needs that will be

addressed in the final Implementation Plan. While current funding cuts are diminishing much-needed harmful algal monitoring efforts, having an Implementation Plan with prioritization for action is necessary for a quick and unified response from Gulf of Mexico should funding opportunities arise. Co-Chairs of the Steering Group for HABIOS are Dr. Nancy Rabalais, LUMCON, and Steve Wolfe, Florida Department of Environmental Protection, who along with Ann Jochens (GCOOS), will continue work by synthesizing the results of the St. Petersburg workshop and outlining the next steps.

*Gulf Coast Ocean Observing System (GCOOS)
Gulf of Mexico Alliance (GOMA)
Harmful Algal Bloom Integrated Observing System (HABIOS)

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LUMCON Student Honored

Melissa M. Baustian, a Ph.D. candidate in the Department of Oceanography and Coastal Sciences at Louisiana State University, was awarded the Joseph Lipsey, Sr. 2009 Memorial Scholarship in ceremonies at LSU on May 8.The "spirit" of this award is to recognize the contribution of a DOCS graduate student towards better understanding and preserving Louisiana's living coastal and marine resources.The 2009 award was shared with Jeremy L. Conkle.

Melissa studies under Dr. Nancy Rabalais of Louisiana Universities Marine Consortium. She is a constant reminder of academic pursuits at the LUMCON Marine Center, on board the *R/V Pelican*, *R/V Acadiana* and small boats, in the laboratories and being part of the LUMCON research endeavor. Ms. Baustian was identified as a Ph.D. student who excels in course work, education and public outreach, and her unique research program. Her dissertation work is focused on the benthic habitat, the microalgae that inhabit the sediments, and their potential for generating dissolved oxygen when sufficient light reaches the seabed. This process, if documented, will help explain why this area of low oxygen does not become totally anoxic (no oxygen) in the summer. Her research results will be instrumental in a better understanding of the oxygen dynamics of the hypoxic zone of the Louisiana coast. Ms. Baustian was praised as “an exemplar graduate student who is making a difference with her work on critical habitat in the northern Gulf of Mexico relevant to the hypoxia problem.” The scholarship honors the late Joseph Lipsey Sr., an avid Louisiana sportsman and founder of Steinberg's Sports Center in Baton Rouge, by recognizing the outstanding contributions of a Department of Oceanography and Coastal Sciences doctoral student. The scholarship was established by Joseph, Jr. and Richard Lipsey, sons of the late Joseph Lipsey, Sr.



LSU students honored. (L to R) Dr. Whitney Broussard, Top Dissertation Award LSU 2008; Broussard's major professor, Dr. R. Eugene Turner; Melissa M. Baustian, 2009 Lipsey Award recipient.

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Baton Rouge High School Student Wins Award for Hypoxia Research

Bonnie J. McLindon was one of two Louisiana high school students who were among the top presenters in their categories at the 47th National Junior Science and Humanities Symposium held at the U.S. Air Force Academy in Colorado Springs, CO. McLindon, of St. Joseph's Academy in Baton Rouge, took second place in the category of environmental sciences, which included more than 25 presenters. She was awarded a $6,000 scholarship for her project,"*Gulf Hypoxic Zones: Forecasting with Laboratory and Mathematical Simulations."* Bonnie's mentor is Linda Messina of St. Joseph's Academy, and she participated with the LUMCON Hypoxia Research Team aboard the *R/V Pelican* for the initiation of her project. The National JSHS, consisted of over 240 high school students presenting their original research in science, engineering, and mathematics. The Louisiana competition is organized by Louisiana State University Continuing Education. For further information: http://appl003.lsu.edu/unv002.nsf/9faf000d8eb58d4986256abe00720a51/4bfa1d10e666e5dd862575ba00644b10?OpenDocument

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June 2009 Volume 1, Issue 6

Research Awards for Coastal Restoration Science

Coastal Restoration and Enhancement through Science and Technology (CREST) is a program for academic research related to meeting the science background for restoration in coastal Louisiana and Mississippi. The program is funded by the National Oceanic and Atmospheric Administration through its Office of Response and Restoration. LUMCON administers the CREST program, which just awarded research grants in its 2009 competition.

The awards are: Quantifying Ecosystem Services in Coastal Louisiana: A Pilot Study of the Economic Benefits of Wave and Surge Attenuation (University of New Orleans) Development of New Geospatial Technology/Traditional Ecological Knowledge-Derived Information Tools for Enhancement of Current Coastal Restoration Decision Support Processes (University of New Orleans) The Effect of Diverted Mississippi River Nitrate on Marsh Soil Resilience (Louisiana State University) Evaluating Prescribed Fire Effects in Hurricane-Influenced Coastal Habitats along the Northern Gulf of Mexico (Louisiana State University) Long-term Field Experiments in Freshwater Coastal Marshes (Louisiana State University) Modeling Land Subsidence in Coastal Louisiana Due to the Growth of the Mississippi Delta (Tulane University) The need for the program is verified with a record number of pre-proposals (43) received for this year's competition, and 24 selected for full proposals. Yet, funding is endangered for FY2010. Letters have been provided for submission to NOAA from the Mississippi and Louisiana Legislatures for support of the critical role this research program plays in coastal restoration. For more information concerning the program and the research completed and underway, visit http://www.gulfcrest.org.

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LUMCON professor becomes of Executive Director Association of Marine Laboratories of the Caribbean (AMLC)

LUMCON professor Dr. Paul Sammarco was named Executive Director of the Association of Marine Laboratories of the Caribbean (AMLC) at a conference held in Dominica, West Indies. His term runs from 2009 through 2015.

At the same conference, which ran from May 25 - 29, Sammarco presented his paper entitled *Effectiveness of oil/gas platforms vs. "Rigs-to-Reefs" structures on promoting coral development in the northern Gulf of Mexico*. In the paper, as the title suggests, Sammarco and his colleagues, James Sinclair and Gregory S. Boland of U.S. Mineral Management Service and lab assistants Angela Lirette and Y.H. Tung, compare the effectiveness of unmodified platforms that may or may not still be producing to "Rigs-to-

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Reefs" structures, which are decommissioned offshore oil and gas structures that have been modified to serve as artificial reefs.

Through SCUBA and ROV reconnaissance, Sammarco and his colleagues determined that total coral density was similar between modified and unmodified platforms. However, they discovered species-specific differences in coral densities, as some species seemed to prefer one type of structure over another, and generally, corals were distributed more deeply on standing platforms than on "Rigs-to-Reefs" structures. Sammarco suggested that changing some structural details of "Rigs-to-Reefs" platforms prior to toppling them may promote better settlement of corals and other reef organisms, particularly reef fish.

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LUMCON Assistant Professor receives Hynes Award

LUMCON assistant professor Dr. Brian Roberts received the Hynes Award for New Investigators from the North American Benthological Society (NABS) at their annual meeting held 17 – 21 May 2009 in Grand Rapids, MI. The Hynes award is given annually to a new investigator (received a terminal postgraduate degree within the last 5 years) who was senior author of an outstanding primary publication in benthic science that



appeared in print during the previous 3 years. Dr. Roberts was chosen for the award for his paper “Multiple scales of temporal variability in ecosystem metabolism rates: results from 2 years of continuous monitoring in a forested headwater stream” that was co-authored by Dr. Pat Mulholland (Oak Ridge National Laboratory) and Dr. Walter Hill (University of Illinois) and published in the journal Ecosystems in 2007. In his introduction of Dr. Roberts as the Hynes award recipient, NABS president Dr. Nick Aumen (shown with Dr. Roberts in the photo) stated that “the nominations that the committee received for Brian were uniform in their praise, describing this paper as a groundbreaking piece of research. It is the first study to use the diel dissolved oxygen change technique on a continuous basis over a 2-year period to derive a temporally detailed record of metabolism in a stream ecosystem. Brian’s data are unique, and unlikely to be replicated soon, because of the challenge of developing reaeration values that can be applied across a range of discharges, thereby allowing estimation of gross primary production and community respiration for a stream reach on a daily basis. This paper will stimulate many future studies by others because Brian has shown how it can readily be done. As climate change and land use effects on stream ecosystems become even more important research topics in the future, Brian’s paper will continue to grow in stature and importance.”

Dr. Roberts and colleagues have continued monitoring ecosystem metabolism in Walker Branch beyond the two-year period included in the 2007 publication and are now in the 6th year of daily measurements. In his award presentation, Dr. Roberts drew upon this longer record as well results from other studies they have conducted to highlight what higher temporal resolution sampling can teach us about controls on day-to-day,

seasonal, episodic (e.g. storms and freeze events), and inter-annual variability in ecosystem metabolism rates that might be missed with the lower frequency sampling typical in most studies.

Later in the conference, Dr. Roberts presented a talk entitled "Biogeochemical processing along the continuum from the lower Atchafalaya River to the northern Gulf of Mexico". This talk, co-authored by LUMCON Research Associate Carrie Semmler, LUMCON Executive Director Dr. Nancy Rabalais, and LSU Professor Dr. Gene Turner presented results from their on-going Louisiana Board of Regents Support Fund funded project aimed at filling in an important gap in the current understanding of the transport and transformations of nutrients and organic matter as they pass below current monitoring stations on the river, through the Atchafalaya River delta estuary, and out to the "Dead Zone" region of the northern Gulf of Mexico.

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LEAD Campers Enjoy Experiencing Marine Science



Lead campers examine plankton under microscopes

June has been an exciting month for group of students participating in LUMCON's Estuarine Awareness and Discovery (LEAD) Camp program. This year the group will spend from June 21 - 27 at LUMCON's Marine Center, learning about marine science by working with scientists and educators. LEAD Camp activities include taking a cruise on the R/V Acadiana, exploring salt marsh by canoe, and examining specimens in laboratory sessions.

To be eligible to participate in LEAD Camp, applicants must be entering grades 9-12 in the fall. For more information, visit http://www.lumcon.edu/education/MarineEducation/.

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LUMCON's Research Vessel Makes Noise at AWF Boat Rally



LUMCON's *R/V Acadiana* joined scores of boats that gathered for the America's WETLAND Foundation's (AWF) Storm Warning: Last Stand for America's WETLAND boat rally held at the Houma Downtown Marina. Louisiana native performers Zachary Richard, Chubby Carrier, Waylon Thibodeaux and the Uppressors filled the air with music. Several state and parish leaders, including U.S. Senator Mary Landrieu, Representative Damon Baldone, Terrebonne Parish President

Michel Claudet, and St. Mary Parish President Paul P. Naquin took the stage to express the importance of saving Louisiana's coastline.

Several groups, including LUMCON, set up booths to provide information about coastal issues. LUMCON staff provided tours of the *R/V Acadiana* and answered rally goers' questions about the scientific equipment onboard. At 2:00 PM, the music stopped while bellows of handheld airhorns mixed with an assortment of vessel horns in a symbolic warning that the Atlantic Hurricane Season had arrived.

In photo above: Senator Landrieu with LUMCON Executive Director, Nancy Rabalais

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LUMCON Joins Ocean Leadership Executive Board

LUMCON is the lead representative for the Gulf of Mexico Consortium membership in the Consortium for Ocean Leadership (COL). As part of this association, Dr. Nancy Rabalais, LUMCON Executive Director, was elected to the COL Board of Trustees in 2008. Subsequently, being confirmed as the Chair of the COL Nominating Committee, she is now a member of the smaller Executive Committee that meets monthly via teleconference to help guide the management of COL. Other members of the Gulf of Mexico Consortium are the Harte Research Institute at Texas A&M University at Corpus Christi, the Dauphin Island Sea Lab, and Louisiana State University. Ocean Leadership represents 95 of the leading public and private ocean research education institutions, aquaria and industry with the mission to advance research, education and sound ocean policy. The organization also manages ocean research and education programs in areas of scientific ocean drilling, ocean observing, ocean exploration, and ocean partnerships.

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The Coastal Zone from Norway

What better respite from the Louisiana 95-100°F temperatures than to be in Oslo, Norway for nine days in late June (60-65°F). Dr. Nancy Rabalais, LUMCON Executive Director, participated in a five-day workshop that addressed “Global Environmental Change in the Coastal Zone: A Socio-Ecological Integration.” Four themes set the discussions and the subsequent papers that were drafted or outlined: (1) Coastal Innovation: New Methods and Solutions that Integrate Positive Adaptation (2) Fractal Coastal Futures: Emerging Global Trends, (3)Scales of Critical Change in the Coastal Zone, and (4) The Role of Governance in the Coastal Zone.Closer to reality in a changing coastal zone and the role of humans in the change and resolution of impacts were the following draft paper titles that captured the essence of the workshop: Between the Devil and the Deep Blue Sea: Useful Science for the Coastal Zone, Coastal Zone: Battle for Survival, Coastal Innovation: Turning the Tide, Coastal Zone Future – 2020, Global Environmental Change: A Socio-Ecological Integration, and Methods and Solutions that Integrate Positive Adaptation. The time has passed for planning, and it is now time for positive adaptation and mitigatior This series of papers will provide insights



and challenges to users and resources, including society, in the coastal zone. The meeting was co-sponsored by Land Sea-Interactions in the Coastal Zone (LOICZ). The last three days were spent by Dr. Rabalais in her role as member and co-chair of the Scientific Steering Committee of LOICZ, which faces a five-year, mid-term synthesis and plan for the next five years.

What have we accomplished in the first half of a ten-year plan and where do we go next? Dr. Rabalais rotates off LOICZ at the end of 2009, but continues in the synthesis and governance activities until then and likely into the future as an associated member. Rabalais says, "I will miss the wonderful associations with the scientists, sociologists and economists of the global coastal zone and being able to visit many of the coastal zones of the world."

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LUMCON Executive Board Meets in Cocodrie

Houma Kiwanis Hear about LUMCON

Water under Fire Producer Films Coastal Hypoxia Segments

Dead Zone Size Diminished in 2009

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LA-STEM Students Visit LUMCON



On July 18, 2009 thirty-five students from Louisiana State University's Louisiana Science, Technology, Engineering, and Mathematics (LA-STEM) Research Scholars Program spent the day experiencing LUMCON's educational resources. The program, which is funded by the National Science Foundation, Research Corporation, and the Louisiana Board of Regents, is designed to aid students in using all available resources to help them succeed at LSU, in graduate school, and in their future careers. The goal of the LA-STEM Program is to promote the life and diversity of the STEM student body by bringing together students with diverse backgrounds and experiences. The program focuses on providing a supportive and motivating environment for students which promotes academic success through mentoring, education and research.

The group, led by Program Manager Melissa Crawford, started the day with a guided tour of the facility. Afterward, the students split into two groups. While one group trawled for sea life aboard the *R/V Acadiana*, the other explored the bays and bayous surrounding LUMCON by canoe. Once the groups returned to the facility, they switched activities. By visiting LUMCON, the LA-STEM students were able to learn about LUMCON's unique resources and educational and research opportunities.

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LUMCON Executive Board Meets in Cocodrie

The Executive Board of the Louisiana Universities Marine Consortium met July 30, 2009 at the LUMCON Marine Center in Cocodrie. The Executive Board is the governing authority for LUMCON, which is an institution of higher education under the State of Louisiana Board of Regents. The current chair of the Executive Board is Dr. Joseph Savoie, President of University of Louisiana Lafayette. Also serving on the board are Dr. Robert Stewart, UL Lafayette; President Stephen Hulbert and Dr. David Boudreaux, Nicholls State University; and Chancellor Michael Martin and Dr. Brooks Keel, Louisiana State University. Visiting with the Executive Board, Executive Director Nancy Rabalais, and LUMCON staff were Regent Joe Wiley of the

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Board of Regents; Dr. Chris D'Elia, Dean of the LSU School of the Coast & Environment; Mr. Bill Wilson; and Rachel Perez of Senator David Vitter's office. Besides reviewing LUMCON programs, grants, and facilities, the main focus of the meeting was the Fiscal Year 2009-2010 State Budget. The LUMCON budget, like all institutions of higher education in Louisiana, was cut by about 8% below the Fiscal Year 2009 budget. The board approved an operating budget based on State General Funds that incorporated a 3% furlough of all state-supported employees, affirmed no salary increases for the coming fiscal year, and agreed to other cost cutting measures, such as a reduction in acquisitions, including library resources. There remain several unfilled positions that will not be hired, but there will be no employee lay-offs. Tightening is projected to occur again possibly in mid year, but certainly in the coming two to three years. Developing a mechanism for LUMCON to be formula-funded as the degree-granting institutions of higher education, and mechanisms for potential financial exigency were among other matters discussed. Despite these challenges of the current economic downturn, the LUMCON staff remains productive in research and education and works hard to keep the facilities and vessels working, safe, functional, pleasant, and meeting state requirements.

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Houma Kiwanis Hear about LUMCON

Executive Director, Nancy Rabalais, addressed the Houma Kiwanis group on July 13. Besides the general information about LUMCON, Dr. Rabalais described in detail the research and education programs at LUMCON. Who knows? The Kiwanis may be seen soon on an educational trip on the *R/V Acadiana*. Many of the Kiwanis members shared their history of Cocodrie and 'down the bayou' with Dr. Rabalais following the talk. Dr. Rabalais' host was Larry Frederick, father of Brooks Frederick, who is the artist that spent a hot summer in the LUMCON tower painting canvases for a panorama of the view from the tower. The artwork is now hanging outside the Parish President's office at City Hall in downtown Houma.

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Water under Fire Producer Films Coastal Hypoxia Segments



In Photo: Bob Diaz, Nancy Rabalais, Jim Byrne and Kyle Dodson

A Canadian documentary film producer and videophotographer visited LUMCON to complete segments for an environmental education film on *Eutrophication*. Eutrophication is the process by which the rate of primary production increases along with carbon accumulation in aquatic systems. The film will focus primarily on the effects of increased phosphorus on the eutrophication of lakes, which is primarily manifested by algal blooms, scummy water, poor water clarity, and often toxic

cyanobacterial blooms. A closing segment on the educational video will focus on coastal eutrophication as symbolized by coastal water oxygen deficiency, also known as hypoxia, or 'Dead Zones.' Dr. James Byrne, Professor and Chair of Geography at University of Lethbridge, Alberta, Canada, and his wife Leanne Little are the producers of a series of educational videos that are free to the public and the environmental science community. Their series, "Water Under Fire," is a seven-part documentary aired on Canadian television and sponsored by the Canadian Wildlife Federation (http://www.waterunderfire.ca). Kyle Dodson, videophotographer, accompanied Dr. Byrne on the trip to Louisiana. Joining the Canadian team was Dr. Robert Diaz of the Virginia Institute of Marine Science, an authority on oxygen depletion and the increased incidences of hypoxia around the world. After interviewing LUMCON Executive Director and Professor, Dr. Nancy Rabalais, who has studied hypoxia in the Gulf of Mexico for 25 years, the group went down LA Highway 1 to Grand Isle for a look at the Gulf of Mexico and more interviews of the shrimping community. Dr. Byrne is considering a separate documentary on just the coastal hypoxia issue now that he has visited Louisiana and learned more about this critical coastal water quality issue.

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Dead Zone Size Diminished in 2009

The research group that maps the extent of hypoxia [also known as oxygen depletion, oxygen deficiency, 'Dead Zone'] yearly on the northern Gulf of Mexico coast adjacent to the Mississippi River found that the area covered this year was 8,000 square kilometers, much less than expected. The crew of scientists and students from LUMCON, Louisiana State University, Nicholls State University, and the Philadelphia Academy of Natural Sciences mapped the area and acquired ancillary data on a 7-day cruise aboard the LUMCON research vessel *Pelican*. The best predictor for the areal extent of the low oxygen area is the nitrate-nitrogen load of the Mississippi River, along with a year term. Based on this relationship Drs. R. Eugene Turner of LSU and Don Scavia of the University of Michigan predicted that the size of the dead zone in 2009 would approach 24,000 square kilometers.

While the areal footprint of the low oxygen was smaller, the thickness was greater, the area was very close to shore, the low oxygen went into deeper waters, and the level of dissolved oxygen was well below the cutoff of 2 milligrams per liter, often close to anoxia, no oxygen. Animals such as bottom-dwelling crabs, eels, and brown shrimp were seen at the water's surface trying to escape the severe condition in the waters below. The smaller size was related to a shift in the alongshore currents that pushed the low oxygen water mass more to the east, local wind conditions in the shallower inshore areas, and a low flow of the Mississippi River at the time of the cruise.



The 2009 cruise marked the 25th anniversary cruise of the hypoxia series started in 1985. Dr. Nancy Rabalais, Executive Director and Professor, LUMCON, Mr. Sam LeBouef LUMCON Vessel Crew, and Mr. Jim Lee, LSU Research Associate were on board for the first cruise in 1985, which was also the second cruise for the newly commissioned research vessel



Pelican, and the 2009 silver anniversary cruise.

Visit http://www.gulfhypoxia.net and http://sites.google.com/site/2009gulfhypoxia/ for more information, maps, graphics and photos of the 2009 cruise and the 25th anniversary.

Bottom-Water Dissolved Oxygen
Black Line Outlines Less than 2 mg/L
18-23 July 2009

Data source: N.N. Rabalais, Louisiana Universities Marine Consortium, R.E. Turner, Louisiana State University

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August 2009 Volume 1, Issue 8

Hundreds of Whale Sharks Just Out the Back Door



John Dean, CPA from Houma, and a group of fishermen were working the Ship Shoal reef area on Saturday, August 1, and were not having much luck. They moved to an oil platform 1-2 miles off the west end of Ship Shoal and came across more whale sharks than they had ever seen. In the past, they have observed 8-10 in a group in sight while fishing offshore at night, but the group seen Saturday was more than the fishing group and he could count. They estimated 100-200 whale sharks or more. The fish were right adjacent to the fishing boat and ignored a swimmer that slipped into the water with them. Mr. Dean sent some photos to Dr. Nancy Rabalais, LUMCON Executive Director, and they are shown in this news report. The size and location of this pod has been transmitted to relevant agencies.

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Coastal Restoration Volunteers Congregate at LUMCON



Volunteers from America's Wetland Conservation Corps, an Americorp program, gathered at LUMCON for three days of training and the opportunity to mingle with their counterparts from other areas of the state. For the past three years, Program Manager Hilary Collis, from LSU's Agricultural Center, has assembled the volunteer group at LUMCON to "get into the thick of things."

The workshop featured talks from professionals from various state agencies. For

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example, BTNEP's Mel Landry taught the participants how to plan a volunteer project and David Bourgeois from Louisiana Sea Grant demonstrated water quality testing.



Sea Grant's David Bourgeois talks to the volunteers.

The program requires each volunteer to perform a coastal restoration project. Examples of the projects include vegetative plantings, trash clean-up, and a fishing line recycling program. Collis says that the training the volunteers receive at LUMCON helps them succeed in managing and performing their projects.

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New Orleans Area Students Experience Marine Science at LUMCON

"It was incredible - all the stuff we saw out there! I loved the dolphins! And how they showed us the different salinity levels and how pH levels change with the seasons! It was a great experience; like once in a lifetime!" raved Linda Arellain of her trip on the R/V Acadiana. Fellow student John Ortega added, "The dolphins were so cool - so were the crabs!" Linda, John and 23 other New Orleans area high school students visited LUMCON on July 28, 2009 as part of Loyola University's Math and Science Academic Summer program.



Loyola University's Math and Science Academic Summer program students studying shells at LUMCON

This was the third trip to LUMCON for Program Director Dr. Alvaro Alcazar, who likes to bring the students to visit LUMCON because he enjoys exposing them to different career possibilities in mathematics and natural science fields. "Part of what I do is to get students active in preserving our state and our planet," added Alcazar. Alcazar's summer program is part of a larger program based in Loyola's Twomey Center for Peace through Justice. The pre-college program offers students in grades 9 through 12 advantages such as college student mentors, Saturday tutorials and field trips like the one to LUMCON.

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October 2009 Volume 1, Issue 9

LUMCON's Information and Technology Manager Dives into ArcGIS Course

The rich history and nature of the Marine Protected Area of Capo Rizzuto was the site of Mappamondo's Dive GIS 2009 summer course. LUMCON's Information and Technology Manager, Brenda Leroux Babin participated in this course thanks to an 800 Euro scholarship awarded by the Marine Protected Area of Capo Rizzuto. Babin enjoyed the unique course that allowed her to combine ESRI's ArcGIS I training with direct applications to the marine environment.

Each morning began with a dive to map the habitats in the Marine Protected Area of Capo Rizzuto of the Ionian Sea. Afterward, Babin attended classes in ESRI's ArcGIS, remote sensing, fish identification, habitat mapping, and combining these skills to better understand the marine environment. Babin hopes to jump start a GIS program at LUMCON with the knowledge she has gained from this course.



Babin applying her ArcGIS instruction in the Ionian Sea

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LUMCON Assistant Professor Presents Research at CREST Meeting

Dr. Alex Kolker, Assistant Professor at LUMCON, was among the presenters at the Coastal Restoration and Enhancement Through Technology (CREST) principal investigators and researchers meeting that was held at Loyola University on September 16, 2009. At the meeting hosted by CREST director Doug Daigle, Kolker and other researchers who are carrying out CREST funded projects met to present their work.

In his CREST project, The Changing History and Impacts of Hurricanes

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along Louisiana's Coast and the Implications for Coastal Restoration and Revitalization, Kolker is examining soil samples from Louisiana's Chenier Plain in an effort to discover past hurricane strikes. He hopes to provide information that will help in coastal restoration projects and also aid in hurricane strike prediction.

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Nicholls State University Students Get Their Hands Dirty at LUMCON

"See the dark residue all over this cluster of oyster shells?", Nicholls State University professor Dr. Earl Melancon said to his students, as he pointed to a dark clump on an examining table, "It looks like mud, but actually it's mostly marine life. The slimy coating of mud on a rock or shell is actually the tubes and food waste deposits of the tube-dwelling Amphipod, Corophium louisianum. On closer examination you can find a multitude of small mud holes, which are the open ends of the slime tubes the amphipods make. It lives in u-shaped slimy tubes which it secretes from glands in its legs. It uses the long hairs on its anterior legs to filter food from the water."



By his bringing his Introduction to Marine Biology students to LUMCON's Marine Center on September 11 - 13, Melancon was able to give them the opportunity to study marine life in its natural setting. Besides attending lectures, the students waded through the marsh to study plants, examined plankton under microscopes and, among other activities, collected specimens aboard a boat. Melancon brought the students onto the water, not just to observe and collect specimens, but to give them an opportunity to discover something about themselves. Melancon explained, "I like to get the students into a boat as soon as possible because so much in marine science involves being out on the water. Some students have taken all the classes and even graduated before they learned that they get too seasick to do anything in a boat."

Many of the students hailed from South Louisiana and had been wet and muddy before, but not with the added knowledge of the complexity of marine communities offered by the Nicholls course. Others, without the wet and muddy experiences, were doubly treated to marine diversity, complexity and new environments.

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LUMCON Hosts Calypseaux Expedition Again

On September 11-13 the graduate students of the Nicholls State University Marine and Environmental Biology Program participated in the yearly Calypseaux Expedition, a retreat established to introduce students to the Louisiana Coast and the research conducted at Nicholls and LUMCON.

The six new graduate students were hosted by 18 veteran students, with three alumni including Jenn Lasseigne (MS '05). LUMCON faculty Nancy Rabalais and Paul Sammarco once again participated in this year's expedition, with Dr. Sammarco announcing that his student Jeremy Dunn will be defending his thesis at Nicholls on Friday, October 2. Also, Max Wike generously provided an impromptu tour of the Pelican with only 30 minutes notice.

This year's expedition emphasized an exploration of the unique bayou ridges that characterize the coast of the Barataria-Terrebonne Estuary System. Students first visited the remnant oak mounds of Bayou Sale where a surprise encounter with a 7-foot alligator added some excitement to their hike through the saltmarsh. The Bayou Sale remnant ridge was compared to a more recent ridge that is also in danger of becoming a remnant: Isle de Jean Charles. Theo Chaisson hosted the students at his marina with geologist Jim Sothern and long-time islander, Reverend Roch Naquin. While Mr. Sothern described his search for the geologic signature of the ancient Bayou Teche delta, Fr. Roch told the story of how his ancestor Jean Charles Naquin joined the island community by marrying a member of the Houma Tribe that inhabited the ridge in the 1800s. He reminisced about the thriving community of 800 families, his trip to school each morning by pirogue, and the ill-fated creation of Island Road in the 1950's. Sunset at Island Marina was enhanced by a grad-student jam session to top off the weekend's activities.

By using the facilities of LUMCON for this special yearly retreat, the Calypseaux Expedition is able to introduce students to the research and resources available to them, without the distractions that would be encountered on campus in Thibodaux, LA. It also provides an opportunity for Nicholls to celebrate the young yet substantial legacy of its Masters Program and to chart directions for future expeditions.

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October 2009 Volume 1, Issue 10

German Exchange Students Experience Coastal Louisiana



"I loved to see the landscape from the viewpoint in the tower," said Lion, a fifteen year old exchange student from Germany. "I really enjoyed the boat ride. In the building, I liked seeing the things in the collections room." Lion, along with nine other German high school students and two teachers, spent most of October 8, 2009 at LUMCON. While at LUMCON, marine educator Jennifer Robinson led the group on a tour of the facility and joined them for a cruise on the *R/V Acadiana* of the bays and bayous around LUMCON.

Exchange students from Germany pose on the deck of the *R/V Acadiana*

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LUMCON Announces 2010 Photography Contest Theme



“Louisiana’s Coastal Culture” is the theme of LUMCON’s 2010 Photography Contest. Amateur photographers are encouraged to submit their high-quality original color or black and white photographs in either print or digital

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formats. Each participant can enter up to five photographs. Photographs will be judged by category: Kids (12 and under), Teens (13 – 18), Adults (18 +), and LUMCON employees. A panel of judges will choose three winning entries from each category, and will also select an overall winner. LUMCON employees are not eligible for the Grand Prize. Submissions must be received by April 2, 2010. LUMCON will send an email confirmation only to entries that include a valid email address. Photographs will not be returned.

For complete contest rules and entry form, visit http://www.lumcon.edu/lagniappe/photocontest or pick up a brochure in LUMCON's Marine Center lobby.

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LUMCON Executive Director Presents at the National Caucus of Environmental Legislators

The National Caucus of Environmental Legislators met in Minneapolis, MN on 25-26 September 2009 to focus on the Mississippi River—watershed land use, water quality, changes in agricultural practices, increase in corn-based ethanol, climate change and critical areas for protection. Legislators hailed from Minnesota through Arkansas and Mississippi along the river corridor, but not unfortunately from Louisiana. Dr. Nancy Rabalais, LUMCON Executive Director, was present to describe what the cumulative impacts of Mississippi River water quality were on the coastal areas and nearby coastal ocean adjacent to the Mississippi River discharge at the birdfoot delta southeast of New Orleans and the Atchafalaya River delta 250 km to the west. Her presentation was followed by Dr. Dennis Keeney of the Institute of Agriculture and Trade Policy, who focused on how corn crops impact the Gulf of Mexico and how ethanol has impacted corn production. In addition to increased nutrients and their impacts on water quality within the watershed, the legislators received highlights of how global climate change would impact the Midwest. There will be a likely increase in precipitation in winter and spring, more heavy downpours and greater evaporation in summer, all of which would lead to more periods of both floods and water deficits. While the longer growing season provides the potential for increased crop yields, increases in heat waves, floods, droughts, insects and weeds will present increasing challenges to managing crops, livestock and forests. Predictions by Rabalais et al. (2009, *ICES J of Mar Sci,* 66, 1528-1537) are that the increased precipitation in the upper part of the watershed and earlier snow melt will increase the loads of nitrogen and phosphorus to the Gulf of Mexico while stratification in the coastal ocean will be strengthened by more fresh water and higher water temperatures, both resulting in a worsening condition of oxygen deficiency (=hypoxia, the 'dead zone').

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WATER: UNCERTAIN FUTURE: LUMCON Executive Director Presents at 2009 Nobel Conference

The 2009 Nobel Conference addressed WATER: UNCERTAIN FUTURE at its 45th annual event at Gustavus Adolphus College in Saint Peter, Minnesota. The Nobel Conference is the first ongoing educational conference in the United States to have the official authorization of The Nobel Foundation, Stockholm. Dr. Nancy Rabalais, LUMCON Executive Director, joined five other distinguished experts in two days of presentations and round table discussions with up to

4,000 attendees. The audience included primarily high school students, college students and members of the community that annually gather to partake in the Nobel Conference.

“Water is the lifeblood of Earth. It is the livelihood of every living thing. It is what binds us together. Without water we shall perish from the Earth.” stated the banners draping the Sports Complex where the event occurred.

The keynote speaker was engineer-economist P. K. Pachauri, Chair of the Intergovernmental Panel on Climate Change (IPCC), which shared the Nobel Peace Prize with Vice President Al Gore in 2007. He was followed by Nancy Rabalais, marine ecologist, who focused on “Nutrients, Nutrients Everywhere and Not a Drop to Drink,” specifically the nitrogen and phosphorus increases from the Mississippi River during the last half century that lead to the now annual, severe area of low oxygen along the Louisiana coast known as the ‘Dead Zone.’ “We cannot afford to waste the quality of our waters or the quantity of our waters, because there is a limit to water of good quality for human beings, organisms and ecosystems,” said Rabalais.



“Water ties together everything we care about,” said environmental scientists Peter Gleick, president of the Pacific Institute, Oakland, California. “But, abundant as it is, we are facing a crisis of running out of sustainably managed water. Asit Biswas, founder of the Third World Centre for Water Management in Atizapan, Mexico, challenged society to ensure the sustainability of water, and Christian environmental ethicist Larry Rassmussen, professor emeritus at the Union Theological Seminary, called upon faith-based groups to be responsible stewards of water. “The era of taking water for granted is over,” summed up water chemist David Sedlak, professor at the University of California Berkley, known for his research into human steroids and pharmaceuticals in drinking water supplies.

Two days prior to the Nobel Conference, Nancy Rabalais made a pre-conference presentation on “Nutrients: the New Global Change” to a smaller group of attendees at the Science Museum of Minnesota in Minneapolis. This was followed the next day by a live mid-day interview with MPR radio in Minneapolis. Dr. Rabalais’ Nobel Conference lecture, and those of the other presenters, can be viewed at http://gustavus.edu/events/nobelconference/2009/rabalais-lecture.php.

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Louisiana scientists continue study of Gulf of Mexico Dead Zone

A team of Louisiana scientists will continue their multi-decade studies of the Gulf of Mexico ‘Dead Zone’ with continued funding from the National Oceanic and Atmospheric Administration (NOAA). The focus in the coming years is modeling the causes of Gulf of Mexico hypoxia (low oxygen, often called a ‘Dead Zone’). Members of the group have been studying the low oxygen area for 25 years, making definitive connections between changes in Mississippi River basin landscape use, increases in Mississippi River nutrients such as nitrogen and

phosphorus reaching the Gulf, and the continually increasing size and severity of the low oxygen (hypoxic) area.

The ‘dead zone’ forms each spring and summer along the Louisiana and upper Texas coasts, also in Mississippi coastal waters, as a result of the high freshwater discharge of the Mississippi River along with the highly enriched nutrient waters. The result in a physically layered coastal ecosystem is a burst of algal growth and subsequent decay that sucks most oxygen out of the lower water column and at the seabed. Fishery resources are redistributed, full economic potential is diminished, and basic ecosystem functions such as biodiversity and food web structure are disrupted.

The research team, headed by Dr. Nancy Rabalais of the Louisiana Universities Marine Consortium, Dr. Eugene Turner of Louisiana State University and Dr. Don Scavia of University of Michigan, has been awarded $766,600 for the first of a five-year, $4 million project, subject to Congressional funding. The project is part of The Northern Gulf of Mexico Ecosystems and Hypoxia Assessment Program of NOAA entitled "Ecosystem Modeling of the Causes of Hypoxia." The Louisiana group will be collaborating with a group centered at Texas A&M University that has been researching Gulf of Mexico hypoxia since 2003.

The LUMCON/LSU team has documented the size of the ‘dead zone’ since 1985, finding minimal areas when the Mississippi River delivers little fresh water and nutrients to sizes reaching 22,000 square kilometers (8,500 square miles), or the size of the Massachusetts. The bottom area of the hypoxic zone is related most closely to the nitrate-nitrogen load of the Mississippi River in the preceding spring. The 2009 dead zone was predicted to be among the largest ever recorded, but measurements showed it instead to be small in bottom area but much larger in the total volume and more severe than normal. Members of the LUMCON/LSU team along with researchers from the University of Michigan have developed several predictive models that closely forecast the size of the summer hypoxic area.

The next steps for the research team are to refine the forecasting models for multiple scenarios of river discharge, nutrient loading, and physical conditions on different scales and for different times of the year. They will also further develop and refine the biological forcing mechanisms in a water quality based model inserted into a detailed dynamic model of the physics of the area where hypoxia occurs. The results of their studies will feed into nutrient management policy decisions for the watershed.
For more information, contact Nancy Rabalais at nrabalais@lumcon.edu or Eugene Turner at euturne@lsu.edu.

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Getting In Touch with Marine Science: LUMCON Participates in Ocean Commotion '09

On October 22, about 2000 students had a coastal experience at the Pete Maravich Assembly Center on the LSU campus. Ocean Commotion, hosted by the Louisiana Sea Grant College Program at LSU, is an annual hands-on educational event. LUMCON Educators Murt Conover and Jennifer Robinson helped the students "get a feel" for marine wildlife by hosting LUMCON's touch tank which allowed students to touch horseshoe crabs, sea urchins and starfish, among other sea "critters." Exhibits such as the LUMCON's touch tank help students gain a better

understanding of marine wildlife and the problems facing Louisiana's marine ecosystems.

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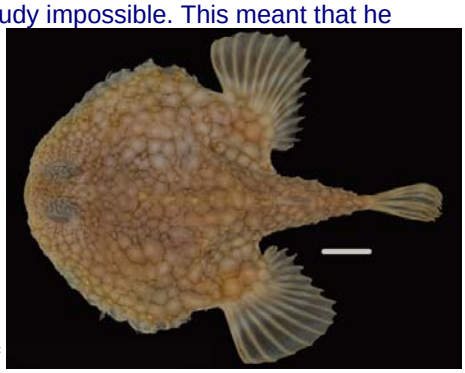
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LSU Curator of Fishes Discovers New Fish Species Aboard R/V Pelican


Chakrabarty examines specimens in R/V Pelican wetlab

Dr. Prosanta Chakrabarty boarded the R/V *Pelican* on January 26, 2009 at LUMCON's Marine Center with the hopes of finding "fresh fish." Chakrabarty, Curator of Fishes at Louisiana State University Museum of Natural Science (LSUMNS) and colleague Hsuan-ching “Hans” Ho of National Taiwan Ocean University were working on a phylogenetic analysis of batfish when they began to notice consistent variations in various populations of pancake bat fish, which led them to suspect there were several new species of pancake batfishes in the Gulf of Mexico. Batfish are flat anglerfishes that dangle a "lure," called an esca, to attract prey.

Unfortunately, all Chakrabarty's batfish specimens were fixed in formalin, which made accurate molecular study impossible. This meant that he needed to gather fresh specimens in order to test his suspicions. Fortunately, a member of the Louisiana Department of Wildlife and Fisheries contacted Chakrabarty to join their Southeast Area Monitoring and Assessment Program (SEAMAP), which involved trawling and sampling along Louisiana's gulf coast aboard the R/V *Pelican* .



"Although I thought my chances of collecting batfish or any bioluminescent fish were slim, I figured it would be a good opportunity to collect and learn about some local marine species," said Chakrabarty. To Chakrabarty's surprise, he was able to secure a specimen of the new fish species, along with several other new specimens to add to the LSUMNS collection. "The trip yielded much more than I could have asked for scientifically," said Chakrabarty. His morphological analysis, entitled, "Review of the Halieutichthys aculeatus species complex (Lophiiformes:Ogcocephalidae), with descriptions of two new species" will appear in the Journal of Fish Biology in early 2010.

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LUMCON Well Represented at Coastal and Estuarine Research Federation (CERF) 2009 Conference

Five LUMCON researchers, including three faculty members, presented their research findings at the Coastal and Estuarine Research Federation (CERF) 2009 conference in Portland, Oregon. The theme of the 2009 conference, which ran from November 1 - 5, was "Estuaries and Coasts in a Changing World."

Each researcher is listed below, with the title and a brief summary of his or her presentation:

Dr. Alex Kolker, Assistant Professor, gave a talk entitled "Global Climate Changes Recorded in Coastal Wetland Sediments: Linking Empirical Observation to Theeoretical Predictions." Kolker discussed the effects of accelerated global sea level rise on coastal areas by employing a relationship among coastal wetland accretion rates, sea level rise and global temperature change.

Assistant Professor Dr. Brian Roberts presented his talk entitled "Biogeochemical Processing in the Atchafalaya River/Bay System: Implications for Nutrient and Organic Matter Export to the Gulf of Mexico Hypoxic zone." Although much less studied than the Mississippi River system, the Atchafalya River/Bay system contributes about half of the freshwater inputs into the hypoxic area of the Gulf of Mexico. In his presentation, Roberts discussed his research on the net changes in hypoxia causing nutrients and organic matter concentrations through the Atchafalya River/Bay system.

Nancy Rabalais, Executive Director and Professor discusssed "Can Sediments Distinguish between Eutrophication and among Degrees of Oxygen Depletion: Evidence from the Northern Gulf of Mexico." She challenged some proxies for hypoxia and supported others. The work is continuing with input from Jenn Lasseigne, co-author and Ph.D. candidate. Rabalais also co-organized and co-chaired a session on "Physical, Biological and Chemical Interactions of Estuaries, Bays and Shelves."

Melissa Baustian, Ph.D. candidate. shared the results of a seasonal study she conducted from 2006-2008 off the central coast of Louisiana where she determined whether bottom-dwelling photosynthetic algae were present. Because so little light ever reaches the seafloor, researchers have assumed that no photosynthesis occurs. Baustian's findings contradict that assumption. Her presentation was entitled Benthic Primary Production on the Eutrophic Northern Gulf of Mexico Continental Shelf.

Research Associate Carrie Semmler presented a talk entitled "Chemical and Physical Factors Influencing the Distribution of Arsenic along the Freshwater-Seawater Mixing Zone of the Sagavanirktok River and the Coastal Beaufort Sea, Alaska." In her talk, Semmler discussed her M.S. thesis research conducted at Florida Institute of Technology in Melbourne, FL. The results of her study suggest that arsenic concentrations in her study area are controlled more by chemical factors than by biological processes. Semmler also served as the chair for the conference session entitled "Pollutants: Processes Affecting Concentrations."

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Point Mast and Bird Island Artificial Reefs Projects Near Completion



On Tuesday,

November 24th, Louisiana Department of Wildlife and Fisheries personnel left LUMCON to view the progress on projects to rebuild the Point Mast and Bird Island artificial reefs. The Louisiana Department of Wildlife and Fisheries, the Coastal Conservation Association of Louisiana and the National Oceanic and Atmospheric Administration joined forces on the projects as part of Louisiana State's artificial reef program. The goal of the Point Mast and Bird Island reef project is to provide the foundation for enhancing the marine ecosystem by simulating natural oyster bed reefs.



In 2002, the Coastal Conservation Association of Louisiana constructed the Bird Island artificial reef. Mounds of material still exist there; therefore, LDWF officials opted to build a new reef approximately 200 feet from the existing reef to avoid disturbing the present reef's flourishing ecosystem.

Doug Peter, Louisiana Department of Wildlife and Fisheries' Artificial Reef Coordinator, said that approximately 9500 tons of limestone are being used to build the reefs. Peter said they constructed the reefs using limestone because it is very similar to oyster shells in composition.

Unlike the Bird Island reef, the Point Mast reef, which was built in 1985 by the LDWF, required complete reconstruction.

Contractors completed the new Point Mast reef on November 23rd. The Bird Island reef is expected to be completed on November 25th.

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December 2009 Volume 1, Issue 12

Seasons Greetings and best wishes for a safe, healthy and peaceful New Year!

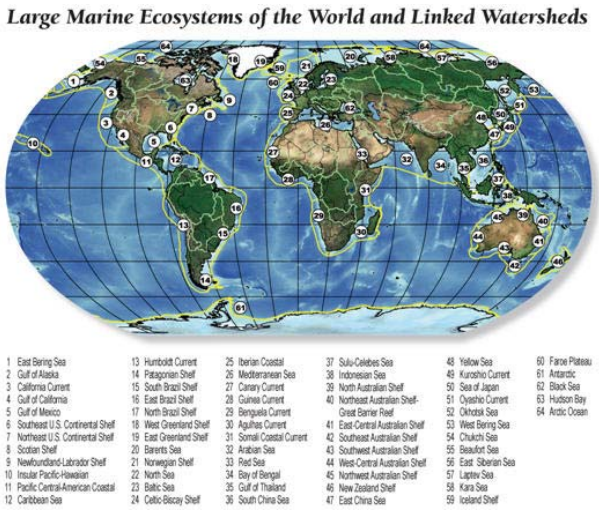


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U.S. Scientists Participate in Bi-National Gulf of Mexico Large Marine Ecosystem Meeting

The Large Marine Ecosystem (LME) concept was developed initially within the National Oceanic and Atmospheric Administration (NOAA) but is now a global program embraced by the Global Environmental Facility (GEF) through the United Nations implementing and executing agencies and supporting countries. The LME concept for ecosystem-based management and its five-module approach (productivity, fish and fisheries, pollution and ecosystem health, socioeconomics, and governance) are being applied to 16 international projects in Africa, Asia, Latin America, and Eastern Europe. The U.S. has 10 LMEs and linked watersheds, and is now sharing the Gulf of Mexico LME with Mexico (and on and off Cuba). An LME is distinguished from others by ecological criteria (bathymetry, hydrography, productivity, and trophically-related populations

The overall Gulf of Mexico LME program umbrella is “A Transboundary Diagnostic Analysis and Strategic Action Programme for the Gulf of Mexico Large Marine Ecosystem. The United Nations Industrial Development Organization, (UNIDO) assists developing countries in adopting a science-driven, ecosystem-based approach to the management of human activities affecting marine ecosystems and linked freshwater basins. UNIDO continues to recommend the use of LMEs as the geographic focus for ecosystem-based strategies to recover depleted fisheries, reduce coastal pollution, and restore damaged habitats.





Front row: Arturo Zaldivar, Maria Eugenia Lara, Jorge Herrera, Chris Simmoniello, Virginia Garcia, Nancy Rabalais. Back row: Antonio Diaz de León, Tom Minello, Ivan Barrera, Becky Allee, Jose Ignacio Fernandez, Kevin Summers, Ann Jochens, Porfirio Alvarez

A workshop taking place in August 2006 identified and prioritized a list of transboundary issues for the Gulf of Mexico LME. The participating countries of Mexico and the United States began to scientifically characterize the LME. The issues identified were the depleted level of fishery stocks, the shift from single species to ecosystem-based management, eutrophication and harmful algal blooms, habitat modification, and the value of ecosystem goods and services. The focus of the GEF-supported Gulf of Mexico LME project is on restoring and sustaining fisheries and fish stocks and on reducing and controlling nutrient over-enrichment for the protection of healthy ecosystems. They will identify the key information gaps in fisheries, eutrophication and its symptoms such as hypoxia and harmful algal blooms, pollution assessment, biodiversity, socio-economic conditions, legal/regulatory review, stakeholder analysis, hot spots, and contaminant levels. The Gulf of Mexico LME will start its initial assessments in the vicinity of Laguna de Terminos in the southern Bay of Campeche, as a previously well-studied lagoon with a significant amount of background data. The preliminary assessment will follow the form of a U.S. EPA EMAP assessment with priority contaminants and indicators on a randomized grid with 30 stations in the lagoon and 30 in the linked nearshore coastal system.

Critical questions concern contaminant levels, sea grass distribution, mangrove distribution and restoration, and use of the lagoon and nearshore waters as pink and white shrimp recruitment habitats. The assessment of nutrient over-enrichment, eutrophication, harmful algal blooms, and hypoxia along the Mexican coast of the Gulf of Mexico will be coordinated by Jorge Herrera of CINVESTAV-IPN, Unidad Mérida, with the help of Nancy Rabalais, LUMCON, and combined with information from the U.S. portion of the Gulf.

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Eight Volunteers from LUMCON Judge Terrebonne Parish Science and Engineering Fair

"There were lots of interesting and innovative projects this year," said LUMCON University Education Coordiator Nicole Cotten as she prepared to judge another table of science fair projects. Cotten joined Jennifer Robinson, Jenn Lasseigne, Lora Pride, Carrie Semmler, Danielle Richardi, Wendy

Headlines

Seasons Greetings and best wishes for a safe, healthy and peaceful New Year!

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LUMCON Receives Outstanding Resource Award

Barataria-Terrebonne National Estuary Program 50th Anniversary for Management Conference

Pelican Prepared for New Skills

Reminder: LUMCON Annual Photography Contest

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Morrison and Assistant Professor Brian Roberts in judging the 34th Terrebonne Parish Science and Engineering Fair, which was held in the Houma Municipal Auditorium. One hundred-thirty students in grades six through twelve participated in the fair. Two grand prize winners will move on to the international science fair competition.



LUMCON's Lora Pride (in orange) evaluates a project.

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LUMCON Receives Outstanding Resource Award

The Southern Association of Marine Educators (SAME) awarded LUMCON the 2009 Outstanding Resource award. The Southern Association of Marine Educators (SAME) is a regional branch of the National Marine Educators Association. SAME is made up of members from Louisiana, Mississippi, Alabama, and northwest Florida. The award was presented at the annual meeting of SAME in November.

LUMCON is the first institution to ever receive the honor. In the past, the award has always been given to individuals that provide services, resources, or support to teachers and students wanting to learn more about water.

LUMCON was nominated for the award for the excellent support and resources it provides to the people of Louisiana interested in marine science.

Special mention was made in the nomination about the efforts made by the library and support teams at LUMCON that make marine science assessable to all Louisiana teachers and students. Also sited were achievements by LUMCON staff members whose hard work put LUMCON at the forefront of marine science research and education.

Congratulations to everyone for their commitment to LUMCON and support of its mission. Any group that visits LUMCON knows that they are special and are provided a unique experience at all levels from cafeteria and security to educators and boat operations.

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Barataria-Terrebonne National Estuary Program 50th Anniversary for Management Conference

December 8th marked the 50th meeting of the BTNEP Management Conference, which was held at the Nicholls State University campus. During this meeting, BTNEP personnel discussed their involvement in activities related to coastal restoration, invasive species, volunteer efforts and public relations initiatives to increase awareness of the issues relevant to Barataria-Terrebonne estuary system.

Program Director Kerry St. Pé mentioned BTNEP's participation in a meeting that was organized by the White House Council on Environmental Quality. The meeting brought together several federal agencies, including the EPA's Gulf of Mexico Program and NOAA to allow local interest groups to voice concerns related to coastal restoration efforts.

Richard DeMay, Senior Scientist, spoke of the Ridge Restoration Symposium that was organized by the Army Corps of Engineers and the Lake Pontchartrain Basin Foundation. BTNEP was directly involved in presentations and panel discussions to highlight the work that has been done on the Fourchon Maritime Forest Ridge. Federal officials from the Army Corps of Engineers are interested in BTNEP's efforts, as the work and research done at Fourchon might be a model for restoration within the former Mississippi River-Gulf Outlet canal.

Invasive Species Coordinator Michael Massimi spoke about his involvement in recent work done to stop the westward movement of the South American Cactus Moth (*Cactoblastis cactorum*). A joint partnership between the USDA and the government of Mexico is focusing on

eliminating the moth's presence in coastal southeastern Louisiana before it is able to spread into Texas and points beyond. Prickly Pear Cactus is found throughout the coastal areas of Terrebonne parish (including the LUMCON grounds), generally located in thick understory along firm ground. Cacti of the prickly pear family (genus *Opuntia*) are especially vulnerable to this invasive moth, as larvae effectively destroy plants by feeding within the "paddles" of the plant once eggs have hatched on the outer surface.

BTNEP also announced the recent resignation of Formal Education Coordinator Susan Testroet-Bergeron. Susan has taken a position with the US Geological Survey in Lafayette. Her replacement is expected to join BTNEP in January 2010.

Presentations brought the Management Conference up to date on work targeting the dredging of Bayou Lafourche, flood control options being discussed by the Corps of Engineers, and the potential of using renewable sands from the Mississippi River in barrier island restoration (Scofield Island) instead of dwindling sand deposits along the edges of the Gulf of Mexico.

Finally, Water Quality Coordinator Andrew Barron showed excerpts from a water quality instructional DVD starring Andrew and LUMCON's Murt Conover. The DVD was created to aid BTNEP's Citizen Monitoring efforts, as well as Bayouside Classroom projects initiated at LUMCON. Each section of the DVD details proper methods of sampling to get accurate readings of temperature, salinity, dissolved oxygen, and other parameters.

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Pelican Prepared for New Skills

The R/V *Pelican* is on schedule to be dry-docked at Quality Shipyard of Houma this winter. There she will receive several major upgrades and modification to some of her systems. This shipyard period will focus mainly on anchoring, maneuvering and data collection systems, while also addressing the ship's general maintenance and over all preservation.

Since the *Pelican* 's christening in 1985, navigation has become much more precise, and research programs require precise positioning above equipment. One way to achieve positioning is by anchoring, but the *Pelican* 's current (and original) anchoring system is difficult to deploy and recover and is unsafe in rough conditions. A new anchor handling system is being installed that will correct the current problems and give the vessel greater holding capabilities. The new system will also provide the crew a way to handle heavy mooring lines with the anchors windless capstan.

Another shipyard modification will give the *Pelican* greater positioning skills and the ability to maneuver in close quarters. The tool is a new drop down 360 degree azimuth bow thruster. *Pelican* science crew members who have berthed in the bow with the existing thruster system know what it sounds like. The new system will allow the thruster to be used in higher sea conditions and provide for low speed transits along precise navigation lines. In the unlikely event that it will ever be used as a propeller, the new thruster can also be used to propel the ship.

The *Pelican* carries three acoustic doppler under water current profilers that track the speed and direction of currents at different depths while the ship is underway. The *Pelican* also carries several other underwater devices that use sound to measure vessel speed, depth and fish communities and an ultrasonic base line transducer for tracking equipment. Static among all these sound-producers will be corrected by installing a portside well for instrumentation, and a mounting system will built between the two wells to allow greater flexibility in mounting arrangements.

Keep your eye on the profile of the *Pelican*, as a new aft steering and winch control station will be place on the aft 01 deck of the vessel. The weather tight compartment will give the winch operators better observations of activities on deck, while the science crew works in the sun and the RAIN! The Captain will also have a better maneuvering platform with increased electronics for precise ship handling. In case you did not notice, the *Pelican*'s profile changed earlier this year with a new mast configuration.

Routine maintenance will be addressed in this shipyard visit with main shaft, rudder, and propeller inspections. The engine room bilges will be mechanically cleaned and painted, and the hull will be inspected and repaired as needed.

Because of LUMCON's continued commitment to maintaining safe, efficient and scientifically relevant vessels, the R/V *Pelican* will remain an important asset to marine researchers for many years to come.

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Reminder: LUMCON Annual Photography Contest



Calling all amateur photographers! Submit your high-quality original color or black and white photographs in either print or digital formats to enter LUMCON's 2010 Photography Contest. The theme is "Louisiana's Coastal Culture." Each participant can enter up to five photographs. Photographs will be judged by category: Kids (12 and under), Teens (13 – 18), Adults (18 +), and a separate category for LUMCON employees. A panel of

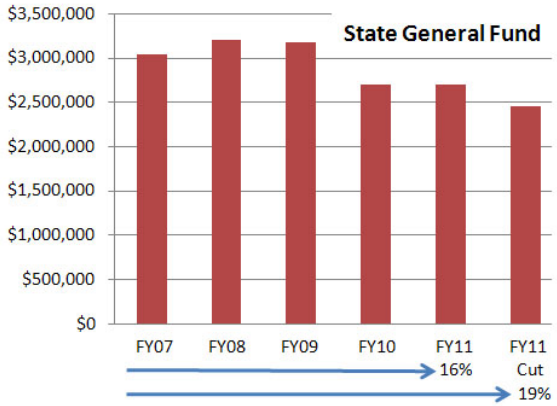
judges will choose three winning entries from each category, and will also select an overall winner. LUMCON employees are not eligible for the Grand Prize. Submissions must be received by April 2, 2010. LUMCON will send an email confirmation only to entries that include a valid email address. Photographs will not be returned.

For complete contest rules and entry form, visit http://www.lumcon.edu/lagniappe/photocontest or pick up a brochure in LUMCON's Marine Center lobby.

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And, the research community sprang into extra action with development of rapid response experiments and observations. The vessels responded as possible to the increased demand on an already busy schedule. The LUMCON staff also provided information for the ravenous media in a thoughtful and tempered manner. At a time when the Marine Center could have been more helpful, we were still hampered by having only a half of our dormitories and apartments available to house researchers, emergency wildlife responders, and state and federal agency employees.

The research and education mission of LUMCON prevailed within the oil spill context, a mid-year budget cut in January 2010 and a second mid-year cut in October 2010. This meant furloughs in FY10 and FY11, no salary increases, 9 unfilled positions, lay-offs, closure of the Fourchon Lab, and no summer school. The Fourchon Lab was able to reopen in summer 2010 with support from the U.S. Environmental Protection Agency that used the lab as a sample processing site. We will have summer school in 2011. At the beginning of FY11 the State General Fund was down by 16% from FY07, and by mid-year it will be down 19%. It remains a challenge to continue the level of services in which LUMCON excels - research and education that serve the important needs of Louisiana and support of research and education. The remainder of this fiscal year continues to be a challenge, and the predictions for budget shortfalls for Louisiana remain grim.

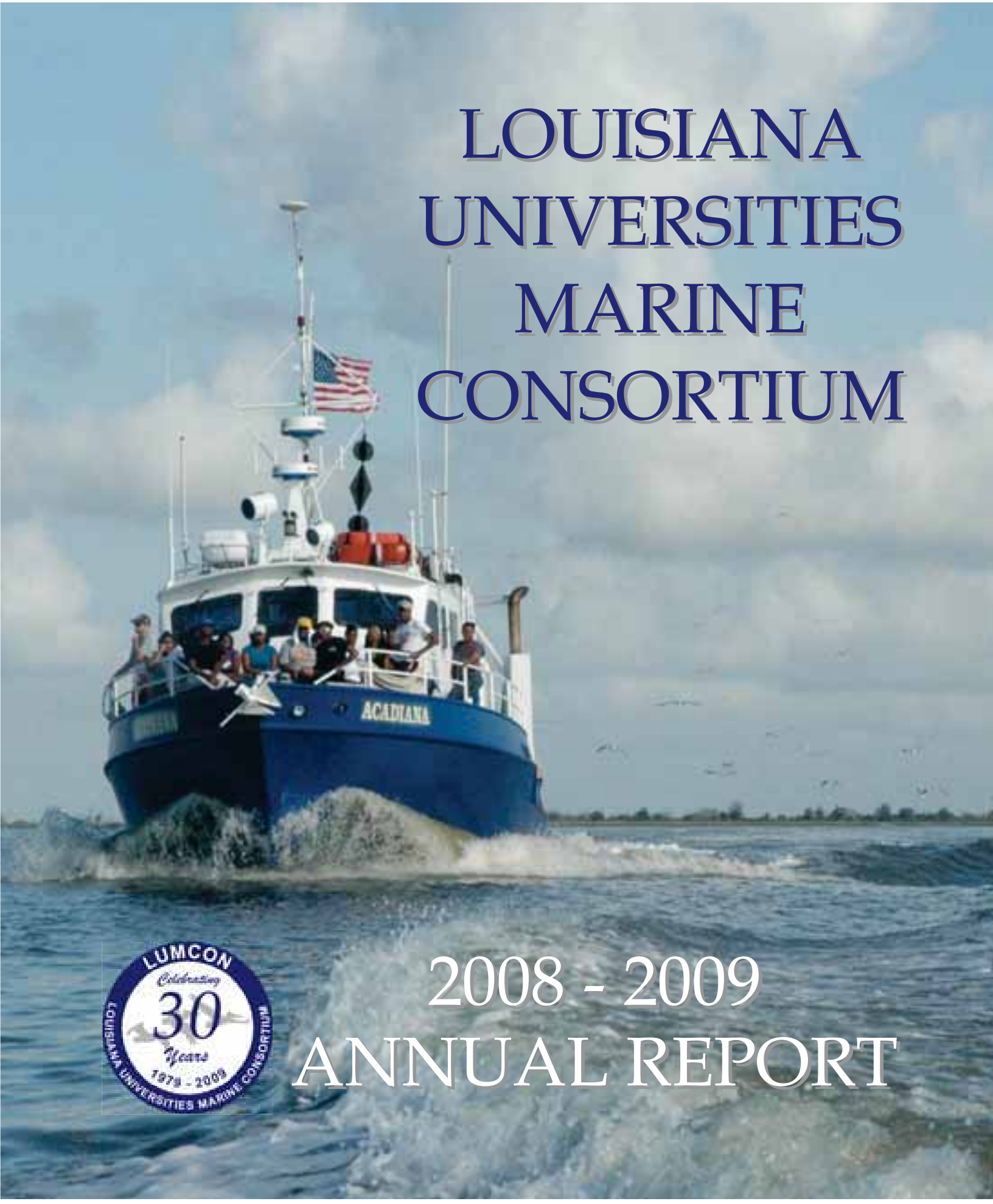


One of the wonderful news items to report for this year is the completion of repairs and reoccupation of the remainder of the dormitories and apartments damaged in Hurricane Katrina in 2005. Yes, 5+ years. The downstairs lobby and display area damaged in Hurricanes Rita (2005) and Ike (2008) were not mitigated as preferred, so we opted for a complete gutting of the downstairs. The feeling is now open and airy, rather than damaged and sodden. We will approach displays and educational materials for a flood-friendly space. And, we have three new, shiny aluminum outside stairwells that are safe!

The other good news is that LUMCON remains open to researchers, students, educators, visiting school groups, university field trips, summer camp, adult education programs, and local, state and federal agency staff in the follow-up to the BP Deepwater Horizon oil spill. We have a calendar-filled spring and summer to come.

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Annual Reports



LOUISIANA UNIVERSITIES MARINE CONSORTIUM

LUMCON
Celebrating
30
Years
1979 - 2009
LOUISIANA UNIVERSITIES MARINE CONSORTIUM

2008 - 2009 ANNUAL REPORT

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

As I worked with the LUMCON staff in the preparation of this report, I continued to reflect on LUMCON's great performance in research and education in the past year, despite dwindling resources and a difficult 2008 hurricane season.

Hurricanes Gustav and Ike ravaged the northwestern coastal Gulf of Mexico. The eye wall of Gustav crossed the Cocodrie Marine Center with 157 mph wind gusts, and Ike brought the highest flooding and worst inundation of mud since the completion of the Marine Center in 1986. The Marine Center was closed from August 30 to September 24, 2008, because of lack of water and electricity. The hurricanes exacerbated facility damages from Hurricanes Katrina and Rita in 2005. As a result, many research projects suffered setbacks and required time to recuperate and rebuild, but the excellent work continues.

LUMCON's research projects continue to serve Louisiana in its need for science that supports sound resource decisions, such as those required for guiding coastal restoration. The research conducted at LUMCON serves the public in many areas, including human health, sustainable living resources, water quality conditions, and ecosystem health.

Much of the altered coastal landscape and changes in Louisiana's coastal ecosystem derive directly from human activities in the coastal zone or farther afield from the Mississippi River watershed. Less direct impacts result from human activities that lead to global climate change, including increasing temperatures, changes in precipitation patterns, sea level rise and changes in intensity and severity of North Atlantic Ocean tropical storms. Humans are part of the coastal ecosystem, depend on it, and mold it with their activities. Many of the LUMCON research programs described in this report develop within the interaction of scientific curiosity, hypothesis testing, management needs and sound policy decisions. Our goal is to continue research programs that are directly relevant to Louisiana's needs in marine science and coastal resources.

Our education programs complement our research (and vice versa), by providing the public with meaningful and useful information concerning our coastal landscape and our interactions with it. LUMCON continues to serve higher education by offering formal university courses, with 37 students enrolled for 127 credits during the 2008-2009 Fiscal Year, and an additional 35 students participating in our faculty's research programs. A total of 181 college students participated in field trips (19 universities, 8 from Louisiana). K-12 education contact hours for field trips, outreach, Bayouside Classroom, and special activities approached 18,500, with over 2000 students participating in field trips. Almost 700 teachers participated in LUMCON/BTNEP workshops.



In reading the details of LUMCON's Annual Report for Fiscal Year 2008-2009, I think you will agree that LUMCON remains a unique and remarkable asset for the State of Louisiana and its higher education imperative.

Nancy Rabalais

The W. J. DeFelice Marine Center



- September 2008 — Hurricanes Gustav and Ike ravaged the northwest coastal Gulf of Mexico. The eye wall of Gustav crossed Cocodrie with 157 mph wind gusts, and Ike brought the highest and most mud-laden flooding since the end of Marine Center construction in 1986. The effects of the two storms—wind and water, respectively—were similar to a single Hurricane Andrew in 1992. The Marine Center was closed from August 30 to September 24 because of lack of water and electricity. The damages complicated and added to damages from Hurricanes Katrina and Rita in 2005.
- September 2008 — LUMCON added two new faculty members. Alexander Kolker from the Department of Earth and Environmental Sciences at Tulane University's School of Science and Engineering brings his expertise in coastal sediment dynamics and wetland processes. Geoff Sinclair from the Department of Marine, Earth and Atmospheric Sciences at North Carolina State University (NCSU) is a specialist in phytoplankton ecology.
- December 2008 — Water quality managers from several midwestern states and regional offices of the U.S. Environmental Protection Agency gathered in Cocodrie for a first-hand look at what causes the low oxygen area in the Gulf of Mexico, commonly called the 'Dead Zone.'



- January 2009 — LUMCON's Marine Center was home for Science Application International Corporation (SAIC) work for NOAA with computerized survey data for debris funded by FEMA. The three survey segments covered the area from Caillou Bay to Belle Pass, Louisiana.
- February 2009—Volunteers from America's Wetland Conservation Corps, an AmeriCorp program, gathered at LUMCON for three days of training and the opportunity to mingle with their counterparts from other areas of the state. The workshop featured talks from professionals from state agencies, Louisiana Sea Grant and BTNEP.
- March 2009 — LUMCON and BTNEP provide strong support for South Louisiana's Wetland Discovery Center. Nancy Rabalais and Susan Testroet-Bergeron serve on the Advisory Board; Brenda Babin, Nicole Cotten and Paul Sammarco serve on the State Commission for the oversight of the Center. Wayne Simoneaux serves on the advisory committee for building design.
- June 2009 — LUMCON's R/V *Acadiana* joined scores of boats that gathered for the America's Wetland Foundation's (AWF) Storm Warning: Last Stand for America's Wetland boat rally held at the Houma Downtown Marina. LUMCON staff provided tours of the R/V *Acadiana* and answered rally goers' questions about the scientific equipment onboard.



- July 2009—A Canadian documentary film producer and videophotographer visited LUMCON to complete segments for an environmental education film on eutrophication and hypoxia (low oxygen).

Sign up to receive LUMCON's E-news and bi-annual newsletter by contacting (985) 851- 2842 or infotech@lumcon.edu

Research

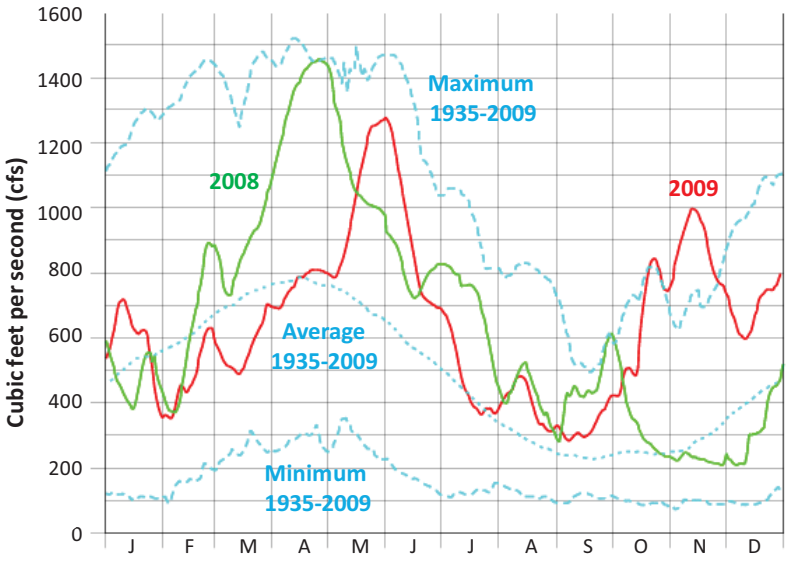
The location of the LUMCON Marine Center on the upper end of Terrebonne Bay and its proximity to the Mississippi River delta, large estuaries and expansive coastal wetlands, makes it an ideal venue for the study of coastal Louisiana. LUMCON's research portfolio expands our knowledge of estuaries, coastal waters and open ocean ecosystems and supports issues of importance to both Louisiana's needs in marine science and coastal resources and those of the global ocean. Many research projects this fiscal year suffered setbacks from Marine Center damage following Hurricanes Gustav and Ike, but the excellent work continues.

THE MISSISSIPPI RIVER

The economy, culture and environmental landscape and ecology of coastal Louisiana and the nearshore Gulf of Mexico are driven by the Mississippi River (the "Big Muddy") and its distributary to the west, the Atchafalaya River.



The massive quantities of fresh water, sediments, nutrients and chemicals brought from the watershed that encompasses 40 percent of the lower 48 United States dictate the physical, geological and biological processes of the coastal zone. For example, molecular genetics of corals studied by Dr. **Paul Sammarco** and collaborators indicate that the river is acting as a formidable biogeographic barrier, genetically isolating coral populations that occur on either side of the delta. High coastal productivity, including fisheries, results but the coastal system also suffers from too much nitrogen and phosphorus with the formation of a 'dead zone' (low dissolved oxygen) each spring and summer across the Louisiana shore along with noxious and toxic algal blooms. Knowledge of coastal processes and the influence of the river is critical for sustainable coastal resource management now and into the rapidly changing future.

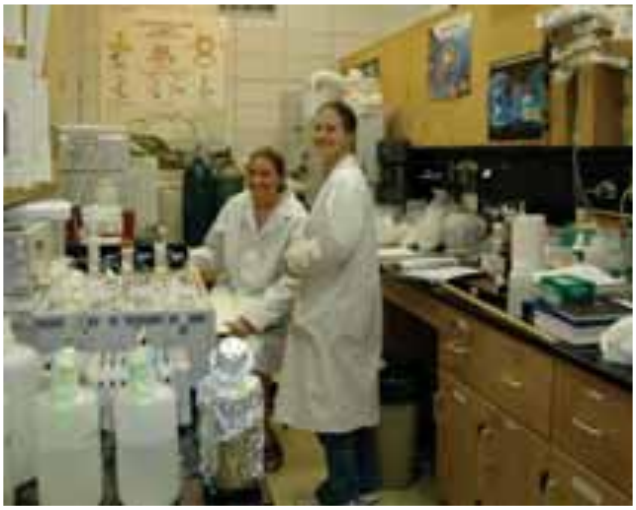


RIVER/OCEAN INTERACTIONS

Research programs focus on aspects of the river-shelf mixing zones and human alterations of the river and its constituents that modify the coastal zone and ocean.

The Mississippi River behaved aberrantly to the long-term average (since 1935) for two successive years. The maximal flood stage occurred in spring 2008, and several researchers were able to secure NSF SGER (Small Grants for Environmental Research) awards to study this and the extensive floods in the mid-west in summer 2008. However, 2009 continued as abnormally high peak flow occurred in late spring and the all-time fall maximum was exceeded providing further opportunities. Dr. Alex **Kolker** focused on the dynamics of sediment and carbon in the Mississippi River with collaborators from Tulane University and the University of Texas, and Dr. Nancy **Rabalais** focused on the coastal ocean response to the increased flows along with researchers from Louisiana State University and the University of Iowa who calculated nutrient fluxes from multiple watersheds.

Peak flows of the Mississippi River in spring 2008 and subsequent summer floods in the mid-west delivered more than average fresh water, nitrogen and phosphorus to the Gulf of Mexico where hypoxia forms in the spring and summer. The area of low oxygen mapped by Dr. **Nancy Rabalais** and her colleagues from Louisiana State University was one of the largest to date. A similar situation was expected in 2009 following record flow again in spring, but the area covered by the low oxygen during the mapping cruise was much smaller (NOAA, NGOMEX, **Rabalais** and Turner, LSU), because of unusual wind and current conditions that pushed the low oxygen water into a smaller area, but thicker volume on the southeastern shelf. Dr. **Robert**'s research group provided further support for this phenomenon by demonstrating that extensive hypoxia was found at the edge of the Atchafalaya and Wax Lake Outlet deltas during the days immediately preceding the mapping cruise. SEAMAP (Southeast Area Monitoring and Assessment Program) ground fish surveys in June to early July 2009, however, documented a larger area. Two LSU Ph.D. students, **Melissa Baustian** and **Jenn Lasseigne**, work with Dr. **Rabalais** on benthic microalgae and oxygen dynamics, and foraminiferans as indicators of historical hypoxia, respectively. A new round of hypoxia studies were funded with Drs. **Rabalais**, **Roberts** and **Sinclair** and collaborators from LSU and University of Michigan and Dr. Mike **Dagg** with collaborators at Texas A&M University will begin in 2010 with a focus on modeling the causes of hypoxia, relationships with river discharge and constituents, and experimental process work to support coupled physical-biological models.



Dr. **Brian Roberts** leads a collaborative research project (Nancy **Rabalais** (LUMCON) and Gene Turner (LSU) are co-PIs and Geoff **Sinclair** (LUMCON), Brad Rosenheim (Tulane), and Alex **Kolker** (LUMCON) are other collaborators), funded by the Louisiana Board of Regents Support Fund, that is examining biogeochemical processing in the Atchafalaya River Delta

Research



Estuary Ecosystem. The Atchafalaya River transports about a third of the Mississippi system total discharge and empties into a shallow bay before entering the Gulf of Mexico. The physical and biological characteristics of the two deltas provide a unique opportunity for comparative river/ocean studies. Important rates of nutrient and organic matter loading and processing over multiple scales in water and sediments are documented along the continuum from the Atchafalaya River to the adjoining Gulf of Mexico where the oxygen-depleted 'dead zone' develops annually. **Susan Doty**, a Nicholls State University masters student, is studying the importance of the Atchafalaya River delta estuary sediments as sites of nutrient and organic matter transformations prior to delivery to the "dead zone" for her thesis project under the direction of Dr. **Roberts**.

COASTAL PRODUCTIVITY

The estuaries and coastal waters of Louisiana combine with their living resources to contribute significantly to wildlife populations, commercial and recreational fisheries, and a Louisiana way of life.

The success of these resources depends on an infrastructure of healthy, functioning ecosystems, such as salt marshes, open bay bottoms, barrier island shores, and the coastal ocean. Several research programs focus on food webs, trophic structure, and interacting biological, chemical and physical processes that support Louisiana's high biological productivity. Phytoplankton, as the base of the food web, are a critical component that receives the attention of several research programs.



The LUMCON phytoplankton group (including Dr. **Geoff Sinclair**, **Wendy Morrison**, **Nancy Rabalais** and **Danielle Richardi**) continue several projects. Data from the phytoplankton communities and HAB (harmful algal bloom) species in the area of hypoxia ('dead zone') and the Barataria Bay estuary (**Morrison, Richardi**) represent periods of two decades and one-plus decade, respectively, and provide critical information on current status and comparisons for altered inputs of nutrients—nitrogen, phosphorus and silica. The web-based taxonomic guide to phytoplankton of the Louisiana coastal area (**Morrison, Babin, Rabalais**) has been completed, offering search capabilities for information on the different phytoplankton and their associated ecological parameters (http://phytoplanktonguide.lumcon.edu). Work on phytoplankton toxins continued with Dr. Sibel Bargu of LSU, focusing on the toxic diatom *Pseudo-nitzschia* spp. in offshore waters (**Rabalais**) and on toxins from cyanobacteria in the upper part of the Barataria estuary that accumulate in higher organisms, such as blue

crabs (**Rabalais, Morrison,** Bargu). Nicholls State masters student, **Danielle Richardi**, is investigating the phytoplankton communities, including cyanobacteria, on a Bayou Lafourche transect from its start in the upper Barataria basin near the Mississippi River to saline waters nearing the Gulf of Mexico. Dr. **Roberts** and **Sinclair** are investigating seasonal patterns in phytoplankton abundance and community composition as water flows from the lower Atchafalaya River to the northern Gulf of Mexico.

Dr. **Sinclair** is expanding his graduate research on migration behavior and physiology of toxic dinoflagellates with collaborators from North Carolina State University, NOAA and the University of Southern Mississippi. Their work includes environmental and metabolic control of the diel vertical migration of *Karenia brevis* and *Karlodinium micrum*, as well as modeling the initiation of red tides off the west coast of Florida. Dr. **Sinclair** is collaborating with Dr. Blake Schaeffer at the U.S. Environmental Protection Agency Gulf Breeze Laboratory to examine phytoplankton dynamics in coastal Gulf of Mexico waters using satellite imagery.



Drs. **Mike Dagg**, **Rodney Powell** and **Brian Roberts** completed their study of the temporal and spatial distribution of dissolved organic carbon (DOC) in Terrebonne Bay and nearshore coastal waters, the potential for DOC released from Louisiana's coastal marshes during periods of flooding to be transported to the bay and coastal waters, and the relative contribution of bacteria and phytoplankton to ecosystem respiration. Dr. **Roberts**, working with McNeese State University undergraduate student **Lindsey Marcantel**, expanded his component of the study to determine how the bioavailability of DOC and nitrogen varied along the Terrebonne Bay transect. Dr. **Roberts**, with Dr. Pat Mulholland of Oak Ridge National Laboratory and Dr. Walter Hill of the University of Illinois, maintains his continuous record of daily rates of primary production and ecosystem respiration in Walker Branch, a forested stream in eastern Tennessee. Dr. **Dagg** studies food web structures on the continental shelf of the Gulf of Alaska where he generates data on controls of copepod production, and how their productivity and trophic interactions might be modified by climate change.

LIVING RESOURCES

Commercial and recreational fisheries are a key component of Louisiana's environmental and economic resources.

Management of these fisheries and the food webs and habitats that support them is essential in the presence of environmental deterioration, including coastal land loss and the detrimental effects of noxious and toxic algal blooms and hypoxia. Research focuses on the early stages of fish larvae, their culture and potential for aquaculture (**Dr. Ed Chesney**). Related studies include the dynamics of benthic organisms as prey in oxygen-depleted waters (**Baustian** and **Rabalais**), mechanisms affecting the growth and health of coral reefs and the characterization of similar 'hard substrate' coral communities on offshore oil and gas platforms (**Sammarco**), and the cycling of mercury in water, sediments, and fish and effects on human consumers of seafood (**Chesney** and **Rabalais**).

Research

Fisheries scientist 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. One of the coastal productivity responses to the nutrient-enriched waters of the Mississippi River is resulting high phytoplankton biomass in coastal waters. Further industrial ties with a private California company (**Chesney)** lie in the potential for harvesting of microalgae from these rich areas and their conversion to biofuels.



Dr. **Chesney** has been working with researchers from the Harvard School of Public Health and the University of Michigan on a NOAA Oceans and Human Health Initiative funded project studying the sources and fate of mercury within marine food webs. The group developed a unique understanding of the pathways and sources of mercury in fishes of the Gulf of Mexico. The project surveyed local fishermen to understand their fish eating habits and tested fishermen for accumulation of mercury in their hair.

Dr. **Chesney** serves as a science advisor to Louisiana's Marine Recreational Fisheries Task Force. This task force considers local problems and issues relevant to Louisiana's recreational fisheries and offers possible solutions to be considered by state regulators. As part of this service Dr. **Chesney** is helping the task force to develop catch and release guidelines that can be used by fishermen to better conserve coastal fisheries resources.

Dr. **Paul Sammarco**'s research focuses on coral ecology and distribution on natural coral reefs, the Flower Gardens in the Gulf of Mexico, Bahamas and the Florida Keys, and artificial habitats offered by oil and gas platforms in the northern Gulf of Mexico. The results of the deep-water surveys of platforms indicated that some ahermatypic (non-reef-building) corals have a depth distribution to about 130 m. Other species, particularly *Tubastraea coccinea*, a highly successful invasive Indo-Pacific species, appears to be limited to 40 m depth. With Dr. Daniel Brazeau (University of Buffalo), he has applied molecular genetic techniques to determine the affinities of the most abundant corals in the northern Gulf of Mexico to natural reefs versus artificial habitats (oil platforms). The Flower Garden Banks are generally self-seeded and thus fragile and vulnerable to environmental perturbations. The reef-building corals on the platforms appear to be seeded by the Flower Garden Banks. Most non-reef building corals exhibit no affinity to the Flower Garden Banks but are generally related to each other across the Gulf. This indicates that either they are being seeded from some distant source elsewhere in the Gulf or the Caribbean, or that the populations are so old (in ecological time) that they have come to equilibrium in terms of cross-seeding. The results of his research are particularly relevant as coral reefs are threatened by increasing ocean temperatures. **Jeremy Dunn**, Nicholls State University masters student, works with Dr. **Sammarco**.

Dr. **Sammarco** and Dr. Amos Winter (University of Puerto Rico at Mayaguez) documented

and quantified micro-banding patterns in the skeletons of *Montastraea faveolata*, a Caribbean coral, that are deposited in association with the lunar period and record the number of months that occur between annual spawnings. Counts of these morphological features under-estimate the number of lunar cycles in years with cooler-than-average winters. These features may offer a new set of proxies for environmental temperatures, particularly below-average ones. In other climate change research with corals, Dr. **Sammarco** and Dr. Kevin Strychar (Texas A&M University – Corpus Christi) reviewed the effects of global warming on coral reefs, focusing on the bleaching of zooxanthellae from corals, their resultant mass mortality, and effects on coral cover. They predicted patterns of biogeographic expansion of corals into higher latitudes and the extinction of corals, both locally and globally, at the heart of the oceanic tropical zone (*versus* the continental tropics).



Dr. **Sammarco**, as Executive Director of the Association of Marine Laboratories of the Caribbean (AMLC), is initiating the AMLC "Caribbean Oceanic Governance Initiative" (COGI). COGI will draw upon the collective expertise of the 30 labs in the Association (encompassing 20 countries, from Bermuda to Venezuela) and offer scientific information and recommendations to governments regarding environmental issues that are being faced by member neighboring countries.

COASTAL CHANGE AND RELATED PROCESSES

Wetland loss and barrier island erosion continue to be major problems in the Louisiana coastal zone.

The importance of these natural lines of protection against flooding and storms was dramatically demonstrated during the 2005 hurricane season with Katrina and Rita, and were further demonstrated with Hurricanes Gustav and Ike in 2008. Better understanding of coastal processes is essential to making sound policy decisions regarding habitat protection, mitigation or restoration in an eroding landscape increasingly threatened by global change, particularly sea level rise.

Sedimentary processes are the focus of Dr. **Alex Kolker**'s research program. With collaborators from the University of Texas, the U.S. Army Corps of Engineers and the University of New Orleans, he is examining sediment dynamics of the West Bay diversion of the Mississippi River. West Bay is the largest operational diversion, and Dr. **Kolker** is quantifying patterns of seasonal and historical sediment deposition in the receiving basin. Collaborators are examining the impacts of the diversion on the hydrodynamics and morphology of the Mississippi River. Further work with University of New Orleans collaborators examines the hydrodynamics and sediment processes in river-dominated wetlands near the mouth of the Mississippi River. This work uses a suite of hydroacoustic instruments and sediment ^{7}Be analyses. Along similar lines of research, Dr. **Kolker** is examining (with University of Texas collaborators) the relationship between subsidence and sediment deposition in Barataria Bay. This work involves developing two-dimensional profiles of the shallow (<20 m) stratigraphy of the bay using CHIRP sonar and developing records of sediment accretion using the naturally abundant radioisotopes ^{210}Pb and ^{137}Cs. Other research with LSU and Tulane University employing CHIRP sonar technology for sub-bottom



profiles, *in situ* measurements of sediment resistivity, sediment grain size and salinity will examine the potential for groundwater discharge into the coastal bays of the Mississippi River deltaic plain

Dr. **Kolker**'s research in other coastal landscapes includes the changing history of hurricane impacts in Louisiana's chenier plain. With collaborators from the Woods Hole Oceanographic Institution, he is employing sediment grain size analysis and geochemical markers for *in situ* data and comparing these results with proxies of regional and global climate. He is working with University of New Orleans researchers to examine the response of the Chandeleur Islands, Breton Sound and Barataria Bay to storms. Farther afield but related to erosion studies, Dr. **Kolker** is engaged with colleagues from Tulane University to examine sediment dynamics and geomorphology on the Hawaiian Island of Lana'I where sediments accumulate along the Keomuku coastal plain. **Kristen Butcher**, a masters student at Tulane University, is focusing on how sea level changes will affect the biogeochemistry of salt marshes.

HUMAN AND INDUSTRIAL IMPACTS

Much of the altered coastal landscape and changes in the coastal ecosystem derive directly from human activities in the coastal zone or farther afield from nitrogen and phosphorus from the mid-west to the coastal waters of the Gulf.

Some of the most intense oil and gas extraction activities in the world occur within Louisiana's wetland, coastal and offshore environments. Less direct impacts result from human activities that lead to global climate change, including increasing temperatures, changes in precipitation patterns, sea level rise and changes in intensity and severity of North Atlantic Ocean tropical storms. Humans are part of the coastal ecosystem, depend on it, and mold it with their activities. Many of the LUMCON research programs described above develop within the interaction of scientific curiosity, hypothesis testing, management needs and sound policy decisions. Our goal is to continue research programs that are directly relevant to Louisiana's needs in marine science and coastal resources.



Marine Education

K-12, Teacher



- Ms. Jennifer Robinson joined marine education in January, enabling us to accommodate more and larger groups.
- The From H-2-O water quality teacher workshop program continues to be successful. In weekend-long workshops, we train Louisiana teachers to use the Bayouside Classroom program within their curricula. The popularity of this workshop and the Bayouside Classroom program continues to grow, as teachers are encouraged to utilize resources that stress science education and environmental stewardship.
- Going Beyond the Bayou is the newest extension of the Bayouside Classroom program and was funded by a grant from the Gulf of Mexico Alliance Program and the Dauphin Island Sea Lab. LUMCON was awarded over $15,000 to bring environmental education and stewardship to students in Cameron Parish using Bayouside Classroom.
- Wetland Ambassador Day was held at the DeFelice Marine Center to celebrate National Wetlands Month. Wetland Ambassador Day brought together the participants of the LSU Coastal Roots program and the Bayouside Classroom program. The day's activities included a cruise aboard the R/V *Acadiana*, water sampling, introduction to the salt marsh, and a lesson on the plight and recovery of the Louisiana's Brown Pelican population.



- LUMCON's Estuary and Discovery Camp (LEAD Camp) is held each summer and is designed to allow highly qualified high school students to experience science and develop as environmental stewards.
- We participated in the Terrebonne Aquatic Clinic, which was held at the Lumen Christi Retreat Center.

University Education



- The number of participants in field trips and courses were up slightly compared to last year; however, field trip numbers are still limited by reduced dorm space due to hurricane damage.
- Nine students participated in our spring 2009 video distance learning Changing Coastal Oceans course.
- Moodle, a course management program, was implemented to enable instructors to post messages, schedule, syllabus, exams, grades and course notes online.
- Summer courses hosted 33 students for 99 earned credits. Courses taught were Bottle Nose Dolphin Biology, Marine Invertebrate Ecology, Marine Fish Ecology, Wetland Vegetation and Coastal Landscape Photography. Introduction to Marine Zoology was not taught due to lack of enrollment.
- Students from nine Louisiana universities participated in this year's university curriculum.

Vessel Operations



R/V *PELICAN*

The R/V *Pelican* continues to be the State of Louisiana's premier oceanographic research vessel as well as the busiest vessel in the Universities National Oceanographic Laboratory System (UNOLS) fleet for its size. The vessel completed 262 days in FY08-09. The current 2009 schedule is 264 chartered sea days during 44 separate cruises. The R/V *Pelican* has averaged 251 chartered days over the past four years and will continue to operate as the workhorse of the UNOLS fleet. The R/V *Pelican* is the only UNOLS vessel operating full time in the Gulf of Mexico.

The R/V *Pelican* continued to conduct mooring operations to collect a wide variety of weather, current and bottom data from buoys for the following: Fugros/Geos, NOAA's National Data Buoy Center, Woods Hole Group, Ocean Data Technology, BMT Scientific and University of Southern Mississippi. Dr. Nancy **Rabalais** continues to conduct hypoxia surveys of the "Dead Zone." Carol Lutken, in memory of Dr. Woolsey of the University of Mississippi, continues operations for a unique ROV designed to study gas hydrates off of the Mississippi River. Louisiana Wildlife and Fisheries performed two four-day cruises in the first and second quarter of 2009 and will conduct two more cruises in the third and fourth quarters conducting trawls, plankton tows and water quality samples in support of inshore SEAMAP cruises. The R/V *Pelican* successfully conducted ROV operations using LUMCON's Phantom H2D remotely operated vessel to video the sunken SS *Virginia* during a cruise by Anna Garcia. Jim Singer with SAIC chartered the R/V *Pelican* for a 30 day Loop Current study of the southeastern Gulf of Mexico that was funded by Minerals Management Service.



In June, the vessel completed a two-day educational cruise offered to a Marine Invertebrate Ecology class taught at LUMCON by Dr. Earl Melancon of Nicholls State University. Eleven students and three instructors participated in this cruise, which allowed students to experience first-hand a fully functional oceanographic research vessel. The students conducted

CTD casts, dredging for animals on the bottom, trawls, sediment box cores and mapped the cruise with the vessel's MIDAS system.

In July the R/V *Pelican* supported two National Science Foundation funded trips, which included Dr. Alan Shiller's collaborative research project of elemental tracer distributions, chemical fluxes, and distributary comparisons in the mixing zone of the Mississippi River and Dr. Dan Kamykowski's research on benthic dinoflagellate migrations off the Florida panhandle.

In 2009 several major projects were started on the R/V *Pelican*. These include relocating the winch operator's house to the aft steering station on the 01 deck, replacing the deteriorated Interoceans winch and updating the mast of the ship with an aluminum folding mast.

R/V *ACADIANA*

For FY08-09, the R/V *Acadiana* supported a total of 115 trips. Forty eight of these cruises were to support scientists with coastal and inshore research projects. The R/V *Acadiana* has been used multiple times to deploy and recover Woods Hole Oceanographic Institution's Spray AUV glider. This instrument is completely automated and can survey the Gulf of Mexico for up to 6 months in a single deployment. The *Acadiana* has proven to be a perfect fit for this high-tech oceanographic tool.



The R/V *Acadiana*'s new conductivity, temperature and depth (CTD) water sampling system was utilized to support local researchers' studies of sediment movements along the Louisiana coastline. To enhance the CTD system, a new winch has been added to the vessel that will allow researchers to do deeper and faster casts. Plans for the *Acadiana* include a flow-through system similar to the R/V *Pelican*'s. The R/V *Acadiana* has a dual role at LUMCON when not on research cruises. She is used as an education platform, teaching Louisiana's children and their instructors about the wonders of Terrebonne Bay. To further the public's education about LUMCON and the *Acadiana*, the vessel and LUMCON's staff were on hand at the America's Wetland Foundation's Rally in Houma, Louisiana. The general public and state and local officials were given tours of the R/V *Acadiana* and answered questions about the scientific equipment onboard. The R/V *Acadiana* continues to prove to be a very productive asset for the State of Louisiana.

SMALL BOATS

The LUMCON Small Boat Fleet includes an airboat, a pontoon boat, a couple of vessels suitable for bay and offshore trips, and smaller john boats and dinghies for local trips. For FY08-09, vessel operations' ten small vessels have been utilized a total of 159 days conducting educational trips and 67 days in support of funded research. The dozen canoes served the Marine Education program throughout the year.

Barataria-Terrebonne National Estuary Program



- BTNEP staff produced, printed and distributed the **2009 Tidal Graph Calendar** that focuses on invasive species. Thirty thousand copies of this calendar were produced and distributed across the state.
- BTNEP produced the **2009 Bird Calendar** that focuses on wood warblers. This calendar was distributed to various birding organizations throughout the country to educate people about the Louisiana wetland loss crisis by connecting the importance of chenier forests for the millions of birds that utilize them.
- BTNEP entered into an agreement with Geaux Web Technology Group to continue providing program internet and email services, continuing the annual maintenance and support from an email and web-based perspective for the program.
- BTNEP played a critical role as an organizer and participant of the **Third Annual Eagle Expo** held in Morgan City in February 2009. Since its inception, BTNEP has been a lead co-sponsor of this very successful festival.
- BTNEP played the lead role again in the coordination of the **2009 Annual Grand Isle Migratory Bird Celebration**. This highly successful event brings awareness to locals and others about the importance of maritime forests (chenier forests) to the many neotropical migrant birds that utilize them.



- BTNEP partially funded four events during Nicholls State University **Annual Jubilee**. On March 15, 2009, BTNEP sponsored a concert performance by Spencer Bohre, who's music resonates with the ambience of the rivers, roads and bayous of the American South.
- BTNEP sponsored several performances by **Singers of United Lands (S.O.U.L.).** S.O.U.L. consists of four singers from Kenya, South Korea, Latvia and Chile who perform throughout the United States. They offered workshops and presentations featuring their native cultures, languages and songs to local students and community guests.
- March 20-21, 2009, BTNEP co-sponsored the **Swamp Stomp Festival**. This festival celebrates Cajun and Creole culture at Nicholls State University with Cajun and Zydeco music, artisans displaying and selling their crafts, and Cajun and Creole food. There were approximately 800 in attendance.

- The **Folk Art Festival** and the **Blessing of the Fleet** attracted approximately 400 people to this music and art filled celebration at the Chauvin Sculpture Garden.



- BTNEP produced, reproduced and distributed "**Down the Bayou,**" a 52 minute film that documents the shrimping industry in Louisiana. "Down the Bayou" presents an accurate account of a unique and endangered livelihood through the language, dialect, food, music and tradition of a truly singular culture.

- BTNEP funded the second of a three year study to **evaluate Wilson's Plover** and certain aspects of their life history. This effort took place along the ridge restoration area just north of Fourchon, LA and the beaches that front the Fourchon area.



- BTNEP **volunteer program** has held 19 events, hosting 343 volunteers. Volunteers have logged over 2010 work hours and produced over $47,000 in matching funds.

- BTNEP hosted its annual **La Fete d'Ecologie**. This one day festival is a traditional celebration of the ecology, culture and economy of the Barataria-Terrebonne National Estuary. The festival's goal is to educate participants and encourage conservation of estuary resources. Over 3000 people attended the event, held on the grounds of Jean Lafitte National Historical Park & Preserve in Thibodaux, LA.

- BTNEP hosted its annual **Paddle Bayou Lafourche** to highlight Bayou Lafourche as a recreational, cultural and economic resource to both visitors and residents of the bayou's reaches while highlighting the importance of the BTNEP in connecting the bayou's human inhabitants with its natural resources. Over 150 paddlers participated in the four day trip.

BTNEP
BARATARIA-TERREBONNE
NATIONAL ESTUARY PROGRAM

Publications

Boesch, D. F., W. R. Boynton, L. B. Crowder, R. J. Diaz, R. W. Howarth, L. D. Mee, S. W. Nixon, **N. N. Rabalais,** R. Rosenberg, J. G. Sanders, D. Scavia and R. E. Turner. 2009. Nutrient enrichment drives Gulf of Mexico hypoxia. *Eos, Transactions of the American Geophysical Union* 90(14): 117-118.

Conley, D. J., S. Björck, E. Bonsdorff, G. Destouni, B. Gustafsson, S. Hietanen, M. Kortekaas, H. Kuosa, M. Meier, B. Müller-Karulis, K. Nordberg, G. Nürnberg, A. Norkko, H. Pitkänen, **N. N. Rabalais**, R. Rosenberg, O. Savchuk, C. P. Slomp, M. Voss, F. Wulff and L. Zillén. 2009. Critical Review. Hypoxia-related processes in the Baltic Sea. *Environmental Science and Technology* 43: 3407-3411.

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Reports, Articles

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Governance

The LUMCON Executive Board

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The next rotation of the Executive Board will occur in January, 2010.

Grants

Chesney, E., Principal Investigator, Intensive propagation of marine finfish in recirculating systems: Improving survival and grow-out efficiency during the larval stage. Louisiana Sea Grant College Program, $109,548, Feb 06 – Dec 08.

Chesney, E., Propagation of marine finfish: Commercial scale performance and economics for profitable grow-out in recirculating systems. Louisiana Sea Grant College Program, $160,000, Feb 08 – Jan 10.

Chesney, E., Principal Investigator, Assist in the Environmental Impact Determination at the MC-20 Site in the Gulf of Mexico, Waldemar S. Nelson, $51,000, Apr 08 – Dec 08.

Conover, J., Principal Investigator, Promoting awareness of innovative education strategies and published research to educators of the BTES, BTNEP-EPA Mini-grant Program, $2,500, Jun 08 – Jun 09.

Conover, M., Principal Investigator, **N. N. Rabalais**, Co-Principal Investigator, Bay-Watershed Education and Training (B-WET), National Oceanic and Atmospheric Administration, $10,000, Oct 08 – Sep 09.

Dagg, M. J., Principal Investigator, U.S. GLOBEC: NEP Phase IIIb-CGOA: Links between climate and planktonic food web dynamics, NSF Biological Oceanography, $116,194. Sep 06 – Aug 10.

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 05 – Aug 08.

Dagg, M. J., Principal Investigator, PICES North Pacific Ecosystem Status Report, 2nd edition, NOAA, North Pacific Research Board, $15,701, Apr 09 – Mar 10.

Kolker, A. S., J. P. Donnely and L. Giosan, Co-Investigators, The changing history of hurricanes along Louisiana's coast and their implications to coastal restoration and revitalization, NOAA, Coastal Restoration and Enhancement through Science and Technology Program, $148,004, $74,241 to LUMCON, Sep 08 – Aug 10.

Kolker, A. S. and B. Rosenheim, Co-Investigators, Fate and transport of carbon and sediments during a Mississippi high water event, National Science Foundation, SGER, $34,095, Feb 09 – Nov 09.

Kolker, A. S. and B. Rosenheim, Co-Investigators, Sediment and carbon dynamics during the Mississippi River flood of 2008, $20,000, $12,000 to LUMCON for vessel rental, Jul 08 – Jun 09.

Malbrough, J., Principal Investigator, Ship operations, National Science Foundation, $32,220, $30,000, $264,247, $110,810, $48,330, Mar 05 – Feb 10.

Malbrough, J., Principal Investigator, Oceanographic instrumentation, National Science Foundation, $7098, $27,000, Aug 08 – Jul 09.

Malbrough, J., Principal Investigator, Ship time for Navy projects, Office of Naval Research, $632,549, ext through Dec 08, $114,015 ext through Dec 09.

Malbrough, J., Principal Investigator, Oceanographic technical services, National Science Foundation, $30,208, $17,602, ext through Apr 10.

Rabalais, N. N., Principal Investigator, Clarke Prize, National Water Research Institute, $50,000, Jul 08 – Dec 20.

Rabalais, N. N., Principal Investigator, **W. Morrison**, Project Manager, 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 06 – Dec 09.

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, Aug 06 – Jul 10.

Rabalais, N. N., Principal Investigator, **W. Morrison**, Project Manager, Guide to phytoplankton (including harmful algae) from Louisiana estuarine and coastal waters, EPA Gulf of Mexico Program, $91,400, Dec 05 – Sep 09.

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 02 – May 09.

Rabalais, N. N., Principal Investigator, **M. Conover**, Co-Investigator, Gulf of Mexico literacy project: Louisiana component, State of Florida Department of Environmental Protection, $20,860, Sep 07 – Mar 09.

Rabalais, N. N., Principal Investigator, with S. Bargu, LSU, The potential effects of environmental stressors on the diatom *Psuedo-nitzchia pseudodelicatissima* and Cyanobacteria – Common HAB Species in Louisi-

ana, Louisiana Sea Grant College Program, $26,454, Nov 07 – Oct 09.

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, $21,547, Jan 08 – Dec 10.

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 07 – Oct 09.

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 06 – Apr 11.

Rabalais, N. N., PI/PD, Iowa floods, Nitrate and hypoxia cycling in a river-dominated continental margin, with J. Schnoor, R. E. Turner, National Science Foundation, SGER, $26,409 to LUMCON, Aug 08 – Jul 09.

Rabalais, N. N., PI/PD, Refining knowledge of hypoxia dynamics: Physics and biology, with G. A. Stone, LSU, EPA, Gulf of Mexico Program, $154,165, Dec 05 – Dec 08.

Rabalais, N. N., Principal Investigator, and **J. Malbrough**, Co-Investigator, Oceanographic instrumentation, NSF, $96,400, May 06 – Apr 08.

Rabalais, N. N., Principal Investigator, and **J. Malbrough**, National Science Foundation, Oceanographic instrumentation, $31,612; $27,000, Aug 07– July 09.

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 08– Jun 11.

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, $351,723, Sep 06 – Dec 10.

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, extension $49,000, Oct 06 – Sep 10.

Sinclair, G., Principal Investigator, **N. N. Rabalais**, **B. J. Roberts**, **P. Sammarco** and **M. Dagg**, Enhancement of phytoplankton surveys in Louisiana waters, Louisiana Board of Regents Support Fund Traditional Enhancement Program; $126,000 (equipment only), 2009.

Sparks, S., Principal Investigator, The Gulf of Mexico Program 2008, EPA/Gulf of Mexico Program, $78,950. Oct 07– Dec 09.

St. Pé, K., Principal Investigator, BTNEP, Effects of stormwater discharge at Pointe aux Chenes pumping station, EPA, Gulf of Mexico Program, $214,200, Sep 02 – Dec 09.

St. Pé, K., Principal Investigator, BTNEP, Barataria Basin marine debris removal project. EPA, Gulf of Mexico Program, $121,331, Jun 06 – Aug 09.

St. Pé, K., Principal Investigator, BTNEP, Louisiana exotic invasive species symposium, US EPA, $27,000, Jul 05 – Sep 09.

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 03 – Sep 10.

St. Pé, K., Principal Investigator, BTNEP, Maritime forest ridge restoration at Fourchon, Louisiana, La-Fourche Parish Council Government, U.S. Minerals Management Service, $700,000, Jan 09 – Dec 12.

Visser, J., Principal Investigator, Coastal Wetlands Planning, Protection, and Restoration Act (CWPPRA), Priority Project List Number 18, Dept. of Defense, Army Corps of Engineers, $113,835, Jan 09 – Dec 09.

Awards/ Honors

Dr. Nancy Rabalais, Clarke Prize, National Water Resources Institute

Dr. Brian Roberts, Hynes Award for New Investigators, North American Benthological Society



Community Contributions

Brenda Babin
Member, Gulf of Mexico Hypoxia Monitoring Technical Committee
Member, GCOOS-RA Data Management and Communication Committee
Consultant, Nicholls State University, Computer Science and Computer Information Systems Curriculum Advisory Board
Nicholls State University Career Day
Quality Assurance of Real-time Oceanographic Data , Oxygen sensor technical lead
Grand Caillou Middle School Career Day

Mike Dagg
Chairman, Biological Oceanography Committee - North Pacific Marine Science Organization (PICES)
Member, North Pacific Research Board (NPRB) Science Advisory Panel
Associate Editor, Continental Shelf Research (appointed June 2009)

John Conover
LALINC Grants Committee
BTNEP Bird Action Team
BTNEP Management Conference Alternate

Alex Kolker
Panel Member, Greater New Orleans Foundation, Environmental Fund
Member, US Coastal Change Research Program: Coastal Wetlands Group

Joe Malbrough
Vice Chair, Research Vessel Operators Committee, University Naval Oceanographic Laboratory System (UNOLS)

Nancy Rabalais
Member, American Geophysical Union, Books Board, 2008 – present
Member, National Sea Grant Advisory Board, 2008 – present
President- Elect, former Member-at-Large, Executive Board, Southern Association of Marine Laboratories, 2007 – present
Member-at-Large for UNOLS Council, University-Naval Oceanographic Laboratory System, 2007 – present
Inside Trustee, Consortium for Ocean Leadership, 2008 – present
Member, Advisory Committee, NSF Environmental Research and Education directorate, 2007 – present
Member, Board of Directors, GCOOS, Gulf of Mexico Regional Association, 2005 – present
Co-Chair, Gulf of Mexico Coastal Ocean Observing System-RA, HABIOS working group, 2007 – present
Representative, National Federation of Regional Associations, IOOS, 2008 – present
Member, National Research Council, Committee on Applying the Clean Water Act across the Mississippi River Basin, 2009 – present
Member, National Research Council, Committee on The Mississippi River and the Clean Water Act: Scientific, Modeling, and Technical Aspects of Nutrient Pollutant Load Allocation and Implementation, 2008 – 2009
Member, National Research Council, Review of Water and Environmental Research Systems (WATERS) Network Committee, 2007 – present
Member, National Research Council, Evolution of the National Oceanographic Research Fleet, 2008 – 2009
Chair, Executive Board, NOAA's CREST program, Coastal Restoration and Enhancement through Science and Technology, 2007 – present
Member, Advisory Board, College of Math and Science, Baton Rouge Community College, 2007 – present
Co-Chair, with Jack Middelburg, Continental Margins Task Team, IMBER/LOICZ Continental Margins, 2007 – 2009
Co-Chair, Scientific Steering Committee, Land Ocean Interactions in the Coastal Zone, International Geosphere Biosphere Programme, 2006 – 2009, member SSC since 2004
Member, SCOR Working Group #128 on Natural and Human-Induced Hypoxia and Consequences for Coastal Areas, 2006 – 2009
Co-Chair, Steering Committee, Gulf of Mexico Hypoxia Monitoring Implementation plan, 2006 – present

Brian Roberts
ASLO Early Career Committee Member, Co-organized 2 workshops and early career mixer at ASLO Aquatic Sciences Meeting in Nice, France in January 2009, Co-planning workshop activities for 2010 ASLO Meetings
Member of NSF funded Metabolic Theory of Ecology in Stream Ecosystems Working Group, Spring 2007-present

Paul Sammarco
Associate Editor, *Aquatic Biology*
Co-Editor, *Environmental BioIndicators,* Special Issue on Environmental BioIndicators of Climate Change
Associate Editor, *Marine Biology*
Member, Advisory Committee, Coral Reef Conservation Program, Performance Measures Working Group
Executive Director, Association of Marine Laboratories of the Caribbean

South Louisiana Wetlands Discovery Center:
Brenda Babin, Commissioner
Nicole Cotten, Commissioner
Nancy Rabalais, Member Advisory Board
Paul Sammarco, President and Commissioner
Wayne Simoneaux, Member Building Steering Committee
Susan Testroet-Bergeron, Member Advisory Board

Terrebonne Parish Science Fair Judges:
Dr. Rodney Powell, Dr. Brian Roberts, Brenda Babin, Murt Conover, Nicole Cotten, Trudy Hebert, Wendy Morrison, Lora Pride, Danielle Richardi, and Kristen Sinclair, and LUMCON students, Melissa Baustian and Jenn Lasseigne

2008—2009 Employees

Brenda Babin, Information and Technology Manager
Andrew Barron, BTNEP Water Quality Coordinator
Bruce Benoit, Information and Technology Specialist
Matthew Benoit, BTNEP Plant Materials Coordinator
Susan Testroet-Bergeron, BTNEP Education Coordinator
Tad Berkey, Able-Bodied Seaman R/V *Pelican*
Dean Blanchard, BTNEP Habitat Enhancement Coordinator
Shanna Bonvillain, Assistant Librarian
Michael Bordelon, Deckhand R/V *Pelican*
Heidi Boudreaux, Finance Manager/Human Resources
Ivy Boudreaux, Facility Technician
Beth Bourge, Purchasing/Accounts Payable
Nicole Broussard, Student Laboratory Assistant
Edward Chesney, Jr., Associate Professor
Debra Cologne, Cafeteria/Dormitories
Jennifer Conover, Marine Education Associate/Aquarist
John Conover, Librarian
Nicole Cotten, University Education Coordinator/Instructor
Valerie Cruz, Research Assistant
Michael Dagg, Professor
Dinah Daigle, Cafeteria/Dormitories
Nina DeLuca, Senior Research Associate
Wilton Delaune Jr., Facility Technician, Fourchon
Richard DeMay, BTNEP Senior Scientist
Van Domangue, Captain R/V *Acadiana*
Quay Dortch, Adjunct Professor
Gwendolyn Duplantis, Cafeteria/Dormitories
Reid Endsley, Facility Technician
Kai-Felix Fiand, Instrument Technician
Roseline Foret, Cafeteria/Dormitories
Daniel Guidry, Administrative Assistant, Vessel Operations
Holly Hebert, Public Information Specialist
Jaimee Hebert, Personnel/Payroll Officer
Trudy Hebert, Public Information Specialist
Sandra Helmuth, BTNEP Office Manager
Joseph Hughes, Relief Mate R/V *Pelican*
Randal Hughes, Chef R/V *Pelican*
Carolyn Johnson, Cafeteria/Dormitories
Steven Joltki, Chef R/V *Pelican*
Alexander Kolker, Assistant Professor
Melvin Landry, BTNEP Public Involvement Coordinator
Owen Langman, Information and Technology Specialist
Craig Leboeuf, Captain R/V Pelican
Samuel Lebouef, Vessel Technician R/V *Pelican*
Kenneth Lecompte, Security Guard
Charo Luke, Grants/Contracts Officer
Joseph Malbrough, Jr., Marine Superintendent
Russell Martin, Jr., Facility Technician
Michael Massimi, BTNEP Invasive Species Coordinator
Jeremy Miller, Research Assistant
Wendy Morrison, Senior Research Associate
Jack Pennington, Chief Engineer R/V *Pelican*
Gene Pontiff, Security Guard
Rodney Powell, Associate Professor
Lora Pride, Research Associate
Nancy Rabalais, Executive Director & Professor
Danielle Richardi, Research Assistant
Brian Roberts, Assistant Professor
Richard Robichaux, Facility Technician
Jennifer Robinson, Marine Education Assistant
John Rolison, Marine Technician R/V *Pelican*
Paul Sammarco, Professor
Carrie Semmler, Research Assistant
Carl Sevin, Vessel Technician
Cindy Sevin, Receptionist
Wayne Simoneaux, Marine Center Superintendent
Geoffrey Sinclair, Assistant Professor
Kristen Sinclair, Research Associate
Shelley Sparks, BTNEP Media Relations Coordinator
Kerry St. Pé, BTNEP Program Director
Maria Suarez Baltodano, Information and Technology Specialist
Keith Thibodeaux, Security Guard
Joseph Thomas, Jr., First Mate R/V *Pelican*
Yahsuan Tung, Research Assistant
Gerald Walker, Facility Technician
Jordan Westmoreland, Marine Technician R/V *Pelican*
Tanya Whatley, Cafeteria/Dormitories
Lillian Wicher, Administrative Assistant
Thomas Widgeon, Research Assistant
Max Wike, Relief Crew R/V *Pelican*

Financial Report

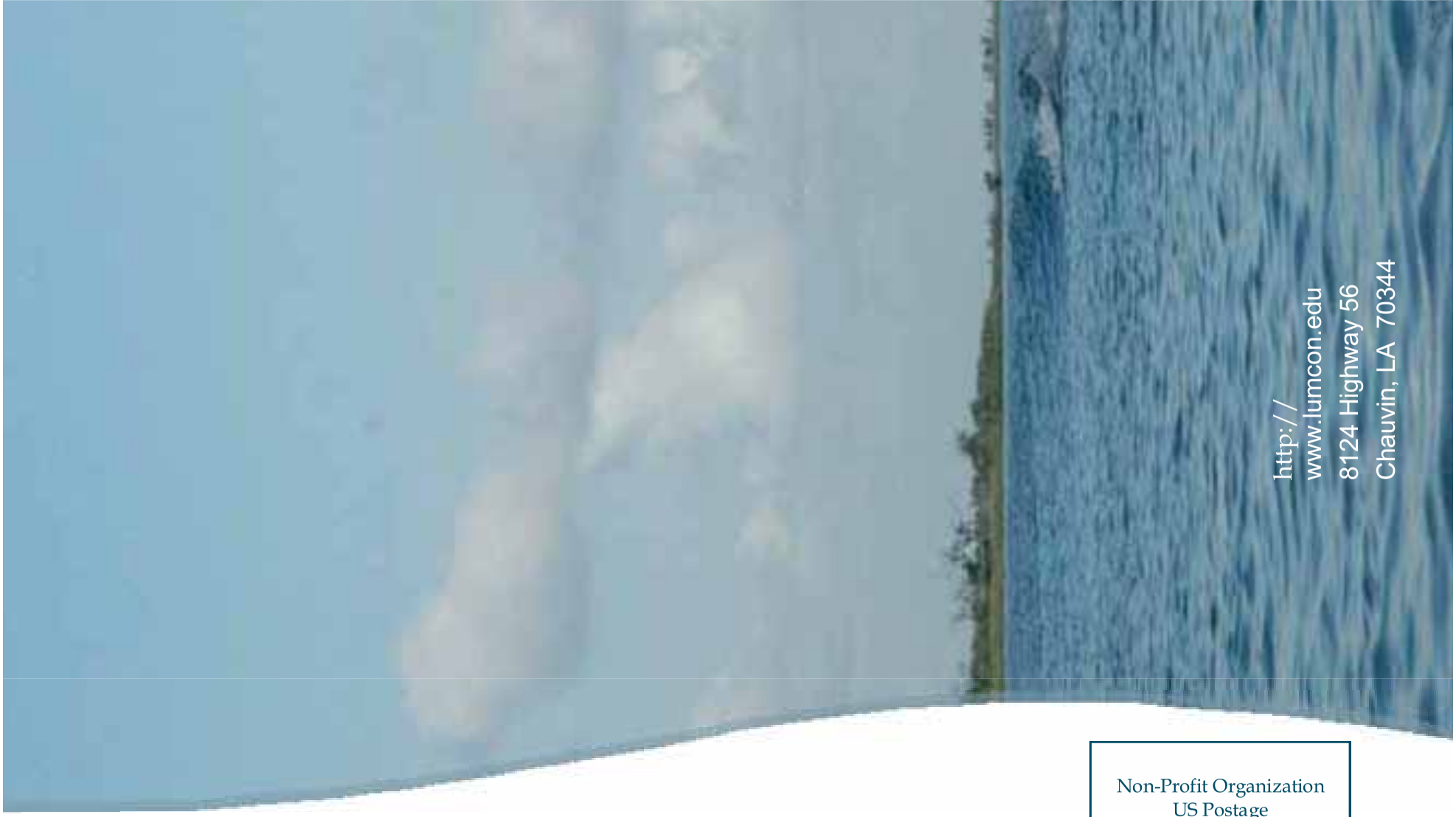
EXPENDITURES				
STATE FUNDS	**FY 2008-09 BUDGET**	**FY 2008-09 ACTUAL EXPENDITURES THROUGH 6/30/2009**	**FY 2008-09 BUDGET BALANCE - 6/30/2009**	**REMAINING FUNDS**
Salaries and Wages	1,811,083	1,811,083	0	0.0%
Student Wages	15,000	15,000	0	0.0%
Fringe Benefits	491,105	491,105	0	0.0%
Travel	15,500	15,500	0	0.0%
Operating Services	261,655	261,655	0	0.0%
Supplies	101,863	101,863	0	0.0%
Professional Services	0	0	0	
Acquisitions:				
Library	152,464	144,541	7923	5.2%
Scientific	0	0	0	0.0%
Other	59,526	67,449	-7,923	-13.3%
IAT-UPS TRANSFERS, OTM Charges	341,734	341,734	0	0.0%
STATE FUNDS EXPENDITURES*	3,249,930	3,249,930	0	0.0%
*With Statutory Dedication Funds				
OTHER FUNDS				
Barataria-Terrebonne National Estuary	1,030,134	961,110	69,024	
Restricted Fund (Research,IDC,FEMA)	2,830,511	1,860,289	970,222	
Vessel Operations	2,000,000	1,905,906	94,094	
Cafeteria / Dormitory	130,000	114,602	15,398	
TOTAL EXPENDITURES	$9,110,575	$14,736,238	$1,156,661	

SOURCE OF REVENUE:	FY09 BUDGET	FUNDS DRAWN OR COLLECTED	FY09 BUDGET BALANCE
State General Fund	3,202,071	3,202,071	0
Restricted Fund: (Research,IDC,FEMA)			
Federal Funds	2,940,645	2,562,826	377,819
Self Generated Fees	70,000	70,000	0
Interagency Trans.	850,000	190,019	659,981
Ancillary Funds:			
Vessel Operations	2,000,000	1,943,998	56,002
Cafeteria Dormitory	130,000	76,511	53,489
Statutory Dedications:Fac.Pay	47,859	46,412	1,447
Statutory Dedications:Higher Ed Init	0	0	0
TOTAL REVENUE	$9,240,575	$8,091,837	$1,148,738

Prior Year-End Fund Balances:

Restricted Fund: (Research)	
Federal/Self-Gen. Fees, IAT,IDC Funds	539,999
Ancillary Funds:	
Vessel Operations w/IDC	800,899
Cafeteria / Dormitory	94,474
Act 971 Carryover (Prev. Maint.)	0
	1,435,372





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LOUISIANA UNIVERSITIES MARINE CONSORTIUM
LUMCON

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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.

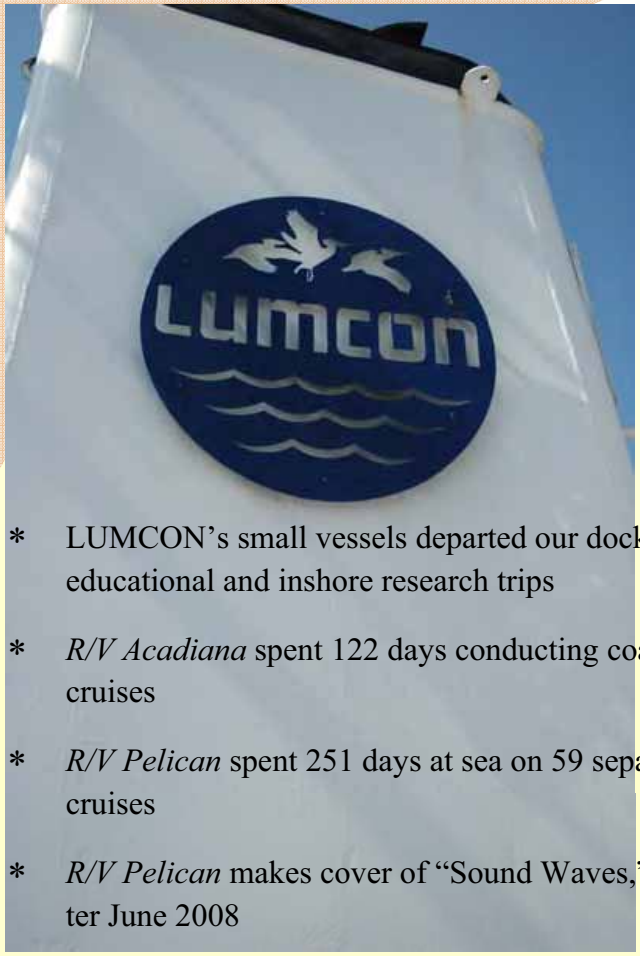
The LUMCON Marine Center serves as a perfect location for groups that need meeting facilities, with the added advantage of location in the expansive coastal marshes of south Louisiana where the environment and environmental concerns are so obvious. Groups meeting at LUMCON were the National Wildlife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

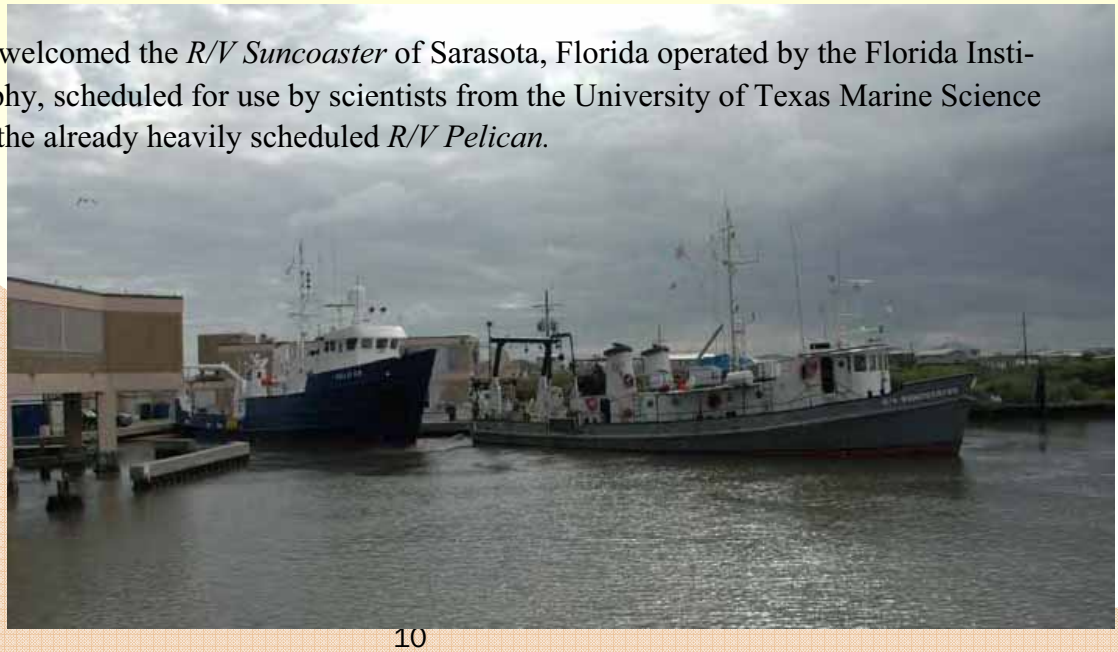
Vessel Operations







* 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

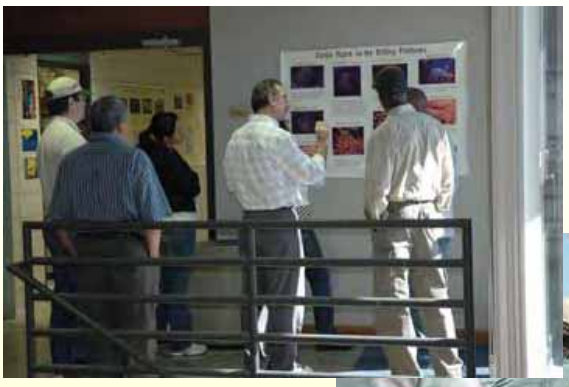
Andrews, John, *Able-bodied Seaman*
Babin, Brenda Leroux, *Information and Technology Manager*
Benoit, Bruce Wayne, *Information Technology Specialist*
Bonvillain, Shanna, *Assistant Librarian*
Bordelon, Michael, *Deckhand R/V Pelican*
Boudreaux, Heidi, *Finance Manager*
Bourge, Beth, *Purchasing/Accounts 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 Education 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 plank tonic 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 *Psuedo-nitzchia 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			
	OTHER FUNDS			
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
Ancillary Funds:	
Vessel Operations w/IDC	806,094
Cafeteria / Dormitory	136,959
Act 971 Carryover (Prev. Maint.)	0
	726,942

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.

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Louisiana Universities Marine Consortium

2006-2007 Annual Report

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

Two fiscal years at the helm. The first started with Hurricanes Katrina and Rita, their devastation and subsequent recovery. The second continued with hurricane recovery and a State of Louisiana budget left reeling from business and financial losses across the southern part of the state. Coastal natural resources, business and financial infrastructure, communities and individuals still bear the scars of these storms. Several of LUMCON's structural wounds still require mending. Recovery has been slow but is now showing visible improvements in the coastal zone and in the state's finances. And, the need for thoughtful, balanced and effective coastal restoration, flood control, and social support remains a foremost concern for Louisiana. LUMCON continues to focus its education and research programs on valuable coastal resources, dissemination of accumulated knowledge of coastal processes, and improved social literacy of the environmental, economic and cultural value of Louisiana's coastal and marine environments. The Woody J. DeFelice Marine Center in Cocodrie, the Fourchon field camp, the research vessels and boats, the laboratories and educational facilities, and the LUMCON staff remain critical components for reaching these goals.

LUMCON has much to offer locally, nationally and globally for marine science and education. Researchers are addressing environmental issues of importance to Louisiana—hypoxia, harmful algal blooms, overenrichment of nutrients, invasive species, coastal landscape processes, fisheries, offshore oil and gas platforms as refuges for coral communities, the biological and chemical components of the Mississippi River and many Louisiana estuaries. The LUMCON staff has been active and productive.

I proudly bring you some of our accomplishments for the 2006—2007 fiscal year.

Nancy Rabalais

Governance

Leadership of the LUMCON Executive Board was transferred from Dr. Ray Authement, of the University of Louisiana at Lafayette, to Dr. Stephen Hulbert, of Nicholls State University. Louisiana State University, under the leadership of Chancellor Sean O'Keefe, is also a governing university.

Research



- Collaborative work with David Senn, Mike Bank, Rebecca Lincoln and Jim Shine of the Harvard School of Public Health on mercury methylation and mercury accumulation in fishes and coastal fishers, along with Ed Chesney (fishes, fishers) and Nancy Rabalais (sediments) is coming to fruition. Surveys of mercury concentrations in the hair of coastal fishers (Lincoln, Senn, Chesney) showed a median concentration of 0.81 μg/g and a range of 0.1 - 10.7 μg/g. Forty percent of the participants in the survey had intake levels above the EPA reference dose for mercury intake of 1 μg/g. Published work (Bank et al. 2007) on the mercury accumulation by red snapper and gray snapper showed that mercury concentration was 23% higher in gray snapper compared to red. Stable nitrogen and carbon isotope studies showed that the gray snapper occupied a higher trophic position. This result demonstrates that even modest differences in trophic position and food habits in sympatric species can create relatively large differences in bioaccumulation and underscores the importance of characterizing trophic structure in marine methylated-mercury bioaccumulation studies. The Harvard/LUMCON research group also followed the consequences of Hurricanes Katrina and Rita on mercury methylation in Louisiana continental shelf sediments. [Support from NOAA's Human Health Initiative and the Center for Sponsored Coastal Ocean Research]

- The LUMCON phytoplankton group continues to document the phytoplankton communities and HAB (harmful algal bloom) species in the area of hypoxia ('Dead Zone') as well as the Barataria Bay estuary and contributes the information on HAB events for international compilation. In 2007, the group was contacted by outside researchers and agencies seeking information on possible bloom events, confirmation of taxonomic identifications, and in one instance for species abundance data to investigate causes of dolphin mortalities in Texas. The group is working closely with Dr. Sibel Bargu of Louisiana State University on the development of toxin identification and the occurrence of HAB toxins in offshore and inshore waters. High numbers of the potentially toxic diatom *Pseudo-nitzschia* spp. identified by Wendy Morrison in the spring were found by Dr. Bargu to contain high levels of the toxin domoic acid. Within the Barataria Bay estuary, the mycrocystin toxins of cyanobacteria, which can occur in explosive numbers, were detected in tissues of blue crabs collected from the upper basin. [Support from NOAA's Center for Sponsored Coastal Ocean Research, the Gulf of Mexico Program, and the Louisiana Board of Regents Education Support Fund]

- Wendy Morrison, research associate, continues progress in the documentation of the phytoplankton species likely to occur in Louisiana coastal waters. With the help of Brenda Leroux Babin, IT Manager, this compilation will become a searchable CD and web-based taxonomic guide with ancillary environmental information. [Support from the Gulf of Mexico Program]

- Once again, the area of oxygen depletion on the Louisiana/Texas shelf (known as hypoxia, or more commonly as the 'Dead Zone') was near its maximal size at 17,280 square kilometers (or 6,662 square miles), similar to the size of Connecticut and Rhode Island combined. The real-time monitoring of oxygen conditions offshore was expanded to a new station off Caminada Pass in 15 m of water. The effort joins the hypoxia research of Nancy Rabalais (LUMCON) and Greg Stone (LSU) in the WAVCIS/BIO2 efforts. http://www.gulfhypoxia.net [Support from NOAA's Center for Sponsored Coastal Ocean Research and the Gulf of Mexico Program]

- The hypoxia phenomenon in the Gulf of Mexico was scrutinized as part of a 5-year reassessment of the science and management progress towards reducing the size of the zone. The Environmental Protection Agency (EPA) Science Advisory Board convened a Hypoxia Assessment Panel (HAP) that spent more than a year reviewing the science completed since the initial Integrated Assessment (2000) and the Action Plan (2001). The HAP process was paralleled by the Mississippi River/Gulf of Mexico Nutrient Task Force in their development of a new Action Plan. The EPA HAP supported the existing science and called for strong controls on non-point source nitrogen and phosphorus inputs to the Mississippi River that targeted the highest sources. The draft Action Plan supported the 2001 ecological goal of a reduced size of hypoxia, but was weaker in its resolve.

- The Flower Garden Banks in the northern Gulf of Mexico are the Gulf's only true coral reefs. There are, however, about 3,600 oil/gas platforms in the northern Gulf of Mexico that provide hard substrates and facilitate the biogeographic spread of Caribbean reef animals. Paul Sammarco and colleagues recently completed studies of the distribution and abundance of hard corals on 13 platforms near the Flower Garden Banks and 35 other platforms off Corpus Christi, TX, Sabine Lake, TX, Terrebonne Bay, LA, and Mobile, AL. The three most abundant reef-building corals were *Madracis decactis*, *Diploria strigosa*, and *Montastraea cavernosa*. Most reef-building corals were found on platforms at the shelf edge off Sabine Lake and Terrebonne Bay, but they did occur on platforms off Corpus Christi and Mobile. Genetic analyses of a common reef-building coral, *Madracis decactis*, on either side of the Mississippi River delta indicated a high degree of isolation of populations and site fidelity, while the genetic composition of the non-reef building invasive coral, *Tubastraea coccinea*, indicated much less isolation. The Mississippi River and associated physical and hydrographic conditions appear to be effective biogeographic barriers to coral dispersal, even with the successful invasion of *Tubastraea* larvae. Corals that brood larvae, such as *M. decactis* and *T. coccinea*, and release them when they are fully developed are much more effective colonizers over the same geographic range than corals that broadcast egg and sperm for external fertilization. [Support from Minerals Management Service]



Research assistant, Carrie Semmler, assists Dr. Brian Roberts in preparing his new laboratory.



Left, Science team deploys an instrument package to study optics in the Gulf of Mexico. Right, Dr. Ed Chesney collects fish for his research.



- Nutrients from the Mississippi/Atchafalaya Rivers stimulate biological production in the 'classical' food web (nutrients to phytoplankton to multicellular zooplankton) in the northern Gulf of Mexico. Portions of this production, especially large phytoplankton and zooplankton fecal pellets, sink and decompose, consuming oxygen and contributing to the annual development of bottom water hypoxia. The 'microbial' food web (dissolved organic matter to bacteria to unicellular zooplankton) is also active but is generally not considered a significant contributor to sinking organic matter because it consists of small organisms and particles that do not sink. However, gelatinous zooplankton, such as appendicularians, directly consume particles as small as bacteria. They are abundant in coastal waters and produce copious amounts of fast sinking waste particles. Recent studies by Mike Dagg and collaborators show that appendicularian populations often provide more than 1 g m^{-2} d^{-1} of organic carbon to bottom water, thereby making a significant contribution to the establishment and maintenance of hypoxia during the periods they are present. For comparison, summertime phytoplankton production in Louisiana coastal waters is about 1 g C m^{-2} d^{-1}. Possible sources of dissolved organic matter for support of this 'microbial' food web include: excretion and leakage from the 'classical' food web, direct inputs from the Mississippi/Atchafalaya rivers, and washout from Louisiana's eroding coastal marshes. [Support from NOAA]

- LUMCON administers the NOAA CREST program (Coastal Restoration through Enhanced Science and Technology). The CREST program received no additional funding in the federal FY06 but was able to fund five grants for about $400,000 total in a continuation of its research program. CREST also provided $10,000 each to each of the member institutions to fund graduate and, in some cases, undergraduate students for projects specific to coastal restoration.

- John Conover, Librarian, along with software development by Brenda Leroux Babin, have been compiling, editing, and creating a database of citations related to oil spill dispersants with over 2000 citations ranging from the mid-1960s through 2008. [Support from Louisiana Oil Spill Research and Development Program]

Education



- World Water Monitoring Day at the Marine Center brought together Terrebonne Parish students, Taiwanese students, and educators.
- A dynamic week of teachers and researchers completed the LUMCON NSF-sponsored Center for Ocean Sciences Education Excellence program. (COSEE)
- The Southern Association of Marine Educators met at LUMCON's Woody J. DeFelice Marine Center.
- LUMCON courses and graduate education activities registered 75 individual students and approached 6,000 contact hours. The contact hours with K-12, teacher and public groups approached 30,000, and over 7,000 students participated in field trips. LUMCON hosted 450 public groups and interacted with 550 teachers.
- Two LUMCON/LSU graduate students, Melissa Baustian and Jennifer Lasseigne, teamed with two more LSU students and Dr. R. Eugene Turner for a study of historic wetland use and current reclamation in old Acadie in Nova Scotia. The study results formed the basis for a museum display that has been on tour across the state.
- Three other LUMCON graduate students continue in pursuit of degrees—Julie Prerost, LSU Department of Biological Sciences; Danielle Richardi, Nicholls State University, Marine and Environmental Biology; and Brenda Leroux Babin, LSU Department of Oceanography and Coastal Sciences
- LUMCON educators and researchers conducted 33 workshops and outreach activities.





Bottom left, Students row pirogues to location of field study and perform samplings. Bottom right, Dr. Earl Melancon of Nicholls State University instructs his class on the parts of an oyster.



Soldiers stationed at Fort Polk enjoyed a day aboard the *R/V Acadiana* before deployment to Iraq.



Forty-three students from nine universities enrolled in our 2007 summer courses—Coastal Landscape Photography, Introduction to Marine Zoology, Marine Invertebrate Ecology, Marine Fish Ecology and COSEE (teacher/researcher course).



LUMCON's education program continues to reach teachers, K-12 students, university students, and the public.

Facilities

- The post-Katrina roof of the Marine Center is officially finished, but work remains on the dormitories, the downstairs lobby, and the Fourchon field camp bulkhead and dock. Architectural drawings for a renovated (flood friendly) downstairs lobby were completed by the University of Louisiana at Lafayette, School of Architecture and Design. LUMCON eagerly awaits the resolution of the lobby design with the Office of Facility and Planning Control and FEMA and continues to push for the completion of the dormitories and the Fourchon field camp.
- Following damage from the 2005 hurricanes, five environmental monitoring stations were all back on line and progress was made toward replacing the Terrebonne Bay station. The Terrebonne Bay structure was once again run over by a barge and rebuilt with the help of Hilcorp Energy Company. Work is underway to replace the instrument packages. LUMCON renewed its cooperation with the Audubon Nature Institute for the station at Audubon Zoo on the Mississippi River. Southeastern Louisiana University continues to provide assistance in accessing the southwestern Lake Pontchartrain station.
- LUMCON continues the operation of a lower atmosphere Doppler profiler and radio acoustic sounding system to collect meteorological data. [Support from Minerals Management Service.]
- A HiSeasNet communication system was installed on the *R/V Pelican* for connection to the Internet while at sea, allowing for access to weather forecasting networks, remote sensing imagery, and communications with onshore research teams.







Top left, *R/V Acadiana* docking after a cruise in area waters. Bottom left, Doppler system located in LUMCON's backyard. Bottom right, Kai Fiand calibrates backyard equipment.

Vessels

- The *R/V Pelican* successfully completed its NSF ship inspection.
- The *R/V Acadiana*, besides the many educational field trips, served as a research platform for archeological surveys, benthic and fisheries studies, and hypoxia research.
- Tulane University's *R/V Eugenie* sailed away from the Marine Center for the last time, ending its bare boat charter agreement with LUMCON.
- The *R/V Pelican* spent 242 days at sea, the *R/V Acadiana* spent 147 more, and our small boat fleet accumulated 214 days 'at sea.'
- The *R/V Pelican* spent 2½ months with researchers studying Caribbean mesoscale eddy currents (University of Puerto Rico), North American-Caribbean tectonic plate boundaries (U.S. Navy and University of North Carolina), and acoustic sub-seafloor mapping for earthquake and tsunami hazards (NOAA and USGS).
- The *R/V Pelican* remains a research platform for numerous mooring operations such as, state-of-the-art technical instrumentation testing, and multiple research programs on Gulf of Mexico hypoxia ('Dead Zone'), offshore benthic and fisheries resources, paleoclimate, and ocean color remote sensing imagery. The *R/V Pelican* also participated in marine archeology with soundings for the *SS Virginia* sunk in World War II by a German U-507; the *SS Virginia* was transported 600 m to the southeast during Hurricane Katrina.





Top left, *R/V Pelican* and crew heading for LUMCON's marina. Bottom right, DNR and many agencies use landing at LUMCON.

Barataria-Terrebonne National Estuary Program

- LUMCON administers the Barataria-Terrebonne National Estuary Program (BTNEP), which is funded by the U.S. Environmental Protection Agency and other sources and is directed by Kerry St. Pé.
- BTNEP led several highly successful activities that centered on bird populations: the second annual Eagle Expo in Morgan City, the 10th annual Grand Isle Migratory Bird Celebration that focuses on the importance of maritime forest (cheniers) for neo-tropical migrant birds, a continued study of Wilson's plover community distribution and ecology on a ridge restoration area, and the distribution of numerous products that link Louisiana's birds with critical coastal landscapes.
- BTNEP continues to work with the Louisiana Department of Natural Resources on the coastal restoration project, The Mississippi River Water Reintroduction into Bayou Lafourche, particularly in aspects of public outreach to inform legislative delegates, citizens and multiple stakeholder groups.
- BTNEP completed the series of activities called "From H-2-O – A Water Quality Workshop for Teachers, in which teachers and students collect and post water quality data on the LUMCON Bayouside Classroom web site (http://www.lumcon.edu/education/StudentDatabase/). Additional workshops were held for K-4, middle school and high school teachers. (http://educators/btnep.org/default.asp?id=68)
- The BTNEP Volunteer Program organized and hosted several vegetation plantings in support of habitat restoration. For example:

  * Pinecrest Middle School students (Monroe, LA), partners and sponsors planted 5,000 wetland plants along the shoreline of east Lake Boudreaux.
  * Students from Riverside-Brookfield High School (Illinois) and foreign exchange students from Nicholls State University (Japan) planted 4,000 plugs of smooth cord grass in wetlands of Plaquemines Parish.
  * Volunteers planted 20,000 marsh grass plants on newly constructed wetland terraces in a deteriorating marsh. The project was co-sponsored with Ducks Unlimited in Lafitte, LA.
  * Volunteers from Dickenson College (Pennsylvania) participated in a community-based habitat restoration project near Chauvin to help restore natural habitat areas damaged by on-going coastal land loss.

BTNEP
BARATARIA-TERREBONNE
NATIONAL ESTUARY PROGRAM

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*

Publications

Dagg, M. J., H. Liu, and A. C. Thomas. 2006. Effects of mesoscale phytoplankton variability on the copepods *Neocalanus flemingeri* and *N. plumchrus* in the coastal Gulf of Alaska. *Deep-Sea Research* I 53:321-332.

Fleury, B. G., J. C. Coll, and **P. W. Sammarco**. 2006. Complementary (secondary) metabolites in a soft coral: Preliminary data on sex-specific variability, inter-clonal variability, and competition. *Marine Ecology* 303:115-131.

Green, R. E., T. S. Bianchi, **M. J. Dagg**, N. D. Walker, and G. A. Breed. 2006. An organic carbon budget for the Mississippi River turbidity plume, and plume contributions to air-sea CO_2 fluxes and bottom-water hypoxia. *Estuaries* 29:579-597.

Maida, M., **P. W. Sammarco,** and J. C. Coll. 2006. A diffusion chamber for assessing efficacy of marine antifouling agents. *Journal of Experimental Marine Biology and Ecology* 337:59-64.

Mason, R. P., J. M. Benoit, and **R. T. Powell**. 2006. 8th International Estuarine Biogeochemistry Symposium: Introduction. *Marine Chemistry* 102:1.

Rabalais, N. N., R. E. Turner, B. K. Sen Gupta, E. Platon, and M. L. Parsons. 2007. Sediments tell the history of eutrophication and hypoxia in the northern Gulf of Mexico. *Ecological Applications*, 17(5) Supplement:S129-S143. [Special Issue, Nutrient Enrichment of Estuarine and Coastal Marine Environments]

Rinker, K. R. and **R. T. Powell**. 2006. Seasonal and spatial distribution of dissolved organic phosphorus in the Mississippi River plume. *Marine Chemistry* 102:170-179.

Sammarco, P. W., P. Hallock, J. C. Lang, and R. S. LeGore. 2007. Environmental bio-indicators in coral reef ecosystems: The need to align research, monitoring, and environmental regulation. *Environmental Bioindicators* 2:35-46.

Sammarco, P. W., A. Winter, and C. Stewart. 2006. Coefficient of variation (CV) of sea surface temperature (SST) as an indicator of bleaching in Caribbean corals. *Marine Biology* 149:1337-1344.

Sammarco, P. W. and J. Wheaton. 2006. Coral reefs as indicators of long-term ecosystem change at the regional and global scales. *Environmental Bioindicators* 1:12-14.

Turner, R. E., **N. N. Rabalais**, D. Scavia, and G. F. McIsaac. 2007. Corn Belt landscapes and hypoxia of the Gulf of Mexico. In J. I. Nassauer, M. V. Santelmann and D. Scavia (eds.) *From the Corn Belt to the Gulf. Ecological and Societal Implications of Alternative Agricultural Futures*, Resources for the Future Press, Baltimore, Maryland.

Walker, N. D. and **N. N. Rabalais**. 2006. Relationships among satellite chlorophyll *a*, river inputs and hypoxia on the Louisiana continental shelf, Gulf of Mexico. *Estuaries and Coasts* 29(6B):1081-1093.

Weirich, C. R., D. R. Groat, R. C. Reigh, **E. J. Chesney**, and R. F. Malone. 2006. Effect of feeding strategies on production characteristics and body composition of Florida pompano *Trachinotus carolinus* reared in closed marine recirculating systems. *North American Journal of Aquaculture* 68:330–338.

Wysocki, L., T. Bianchi, **R. T. Powell** and N. Reuss. 2006. Spatial variability in the coupling of organic carbon, nutrients and phytoplankton pigments in surface waters and sediments of the Mississippi River plume. *Estuarine, Coastal and Shelf Science* 69:47-63.

Yuan, J., L. Hayden, and **M. Dagg**. 2007. Temporal variation of remotely sensed sea surface chlorophyll *a* and the effect of the Sanxia Dam on the East China Sea, a comment on Gwo-Ching Gong et al. *Geophysical Research Letters* 34:L14609, doi:10.1029/2006GL029036.

Reports, Articles

Switzer, T. S., E. J. Chesney and D. M. Baltz. 2006. Exploring temporal and spatial variability in nekton community structure in the northern Gulf of Mexico: Unraveling the potential influence of hypoxia. Proceedings of the Gulf and Caribbean Fisheries Institute 57:699-716

Atchison, A. D., P. W. Sammarco, and D. A. Brazeau. 2006. Genetic affinities of coral populations between the Flower Garden Banks and oil and gas platforms in the northern Gulf of Mexico: Preliminary data. Proceedings 10th International Coral Reef Symposium, Okinawa, Japan, 2004.

Sammarco, P. W., **A. D. Atchison**, and G.S. Boland. 2006. Geographic expansion and limits of corals in the NW Gulf of Mexico: Colonization of offshore oil and gas platforms. Proceedings 10th International Coral Reef Symposium, Okinawa, Japan, 2004.

Community Contributions

Brenda Leroux Babin

- Member, Data Mgmt and Communication Committee, Gulf Coast Ocean Observing System Regional Assn
- Member, Advisory Committee, Nicholls State University, Computer Science and Computer Information Systems Curriculum

Ed Chesney

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

John Conover

- Chair, LALINC Grant Committee (Louisiana Academic Library Information Network Consortium)
- LUMCON alternate representative, BTNEP Mgmt Conf.
- 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
- Alt. Representative, Executive Board, South Louisiana Children's Discovery Ctr (Wild in the Wetlands Planning Group)
- Judge, Terrebonne Parish Science Fair

Nicole Cotton

- Judge, Terrebonne Parish Science Fair

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, and Co-Editor, 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*

Jessica Kastler

- LUMCON alternate representative, BTNEP Management Conference
- Chair-elect, Education and Outreach Committee, Gulf Coast Ocean Observation System
- Member, Outreach Committee, Nat'l Marine Educators Assn
- Region 3 director, Louisiana Assn of Science Leaders
- Member, Education Action Plan Team, Education Committee, Citizens Monitoring Advisory Committee, and Water Quality Action Plan Team, BTNEP
- Member, Executive Board, South Louisiana Children's Discovery Center (Wild in the Wetlands Planning Group)

Rodney Powell

- Panel, NOAA CICEET Proposal Review
- Workshop, Alliance for Coastal Technologies Nutrient Sensors

Nancy Rabalais

- Member, National Research Council Committee on the Mississippi River and the Clean Water Act
- Vice chair and member, Scientific Steering Committee, 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, National Research Council, Committee on the Review of Water and Environmental Systems (WATERS) Network
- Member, Advisory Committee, NSF Environmental Research and Education Directorate
- LUMCON representative, BTNEP Mgmt Conference
- Member, Advisory Committee, Nicholls State University, Masters Program in Marine and Environmental Biology
- Chair and Member, Executive Board, NOAA CREST, Coastal Restoration and Enhancement through Science and Technology
- Member, Louisiana Hypoxia Working Group
- Member, Board of Directors, GCOOS, Gulf of Mexico Coastal Observing System Regional Assn
- Co-Chair, with Jack Middelburg, Continental Margins Task Team, LOICZ and IMBER Continental Margins Open Science Mtg, Shanghai, September 17-22, 2007
- Science Advisor, Björn Carlson Fdn for the Baltic Sea

Paul Sammarco

- Regional Editor, *Marine Biology*
- Chair and Organizer, Environmental Bio-Indicators - Coral Reef Roundtable, 14th Int'l Conference on Environmental Bioindicators
- Member, Organizing Committee, 2nd Annual Conference, Int'l Society of Environmental Bioindicators, Hong Kong.

Wayne Simoneaux

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

Grants

Chesney, E. J.

- Captive spawning of marine fishes as a stimulus to research and industry development, LA Sea Grant, $104,322, 2004-2007.
- Intensive propagation of marine finfish in recirculating systems: Improving survival and growout efficiency during the larval stage, LA Sea Grant, $109,548, 2006-2008.
- Development of formulated diets for pompano, Part II: Replacement of fishmeal with plant proteins, LA Sea Grant, $26,320, 2006-2008.

Chesney, E. J. and N. N. Rabalais

- 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 to LUMCON, 2004-2007.

Conover, J.

- Louisiana Oil Spill Research and Development Program (OSRADP), Dispersants: an electronic bibliography on effectiveness, technological advances and toxicological effects, $72,622, 2006-2008.

Dagg, M. J.

- Responses of *Neocalanus* spp. – microplankton community to physical forcing in the coastal Gulf of Alaska, NSF – Biological Oceanography, $590,460, 2001-2007.
- U.S. GLOBEC: NEP Phase IIIb-CGOA: Links between climate and planktonic food web dynamics. NSF – Biological Oceanography ($116,194, Dagg component), 2006-2009.

Dagg, M. J. and R. T. Powell

- Long-term estuary assessment group (LEAG): River and estuarine contributions to coastal hypoxia in the northern Gulf of Mexico, NOAA (through Tulane University), 2006-2008.

Finelli, C.

- Supplement to career development plan: Interdisciplinary research and education in marine habitats, NSF, $20,948, 2007.
- Expanding and enhancing the Bayouside Classroom science & stewardship program, Entergy, $22,257, 2006-2007.

Kastler, J.

- Regional Center for Ocean Science Education Excellence (COSEE)-Central Gulf of Mexico, $38,264, 2006-2007.

Rabalais, N. N.

- Together with Sibel Bargu, LSU, Distribution and potential toxicity of the diatom *Pseudo-nitzschia* spp. in Mississippi River influenced Louisiana coastal waters, Louisiana Board of Regents Quality Support Fund, 2007-2009.
- Toxin detection in potentially harmful algae and their consumers in the Barataria Bay system: Implications for humans, EPA, Gulf of Mexico Program, $193,063, 2006-2008.
- 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, 2006-2009.
- Refining knowledge of hypoxia dynamics: The interaction of physics and biology, EPA Gulf of Mexico Program, $300,000, subcontract of $56,376 to LSU, 2005-2008.
- Guide to phytoplankton (including harmful algae) from Louisiana estuarine and coastal waters, EPA Gulf of Mexico Program, $101,000, 2005-2008.
- 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, 2002-2008.
- NOAA Coastal Restoration and Enhancement through Science and Technology (CREST), $909,686 through 2007, 2006-2012.

Rabalais, N. N., J. Malbrough

- Oceanographic Instrumentation, NSF, $96,400, 2006-2008.
- Oceanographic Technical Services, NSF, *R/V Pelican*, $44,395, 2006–2007.
- Ship Operations, NSF, $144,210, days on the *R/V Pelican.*
- Office of Naval Research, $619,288, *R/V Pelican.*
- NSF, Oceanographic Instrumentation, $31,612, 2007-2008.

Sammarco, P. W.

- 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, $351,723, 2006-2008.
- 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, $369,104, 2004-2007.

Finances

LUMCON FY 2006-2007 BUDGET

EXPENDITURES	BUDGET	ACTUAL EXPENDITURES	BUDGET BALANCE
STATE FUNDS			
Salaries and Wages	1,657,068	1,657,068	0
Student Wages	15,000	15,000	0
Fringe Benefits	430,855	430,855	0
Travel	14,050	14,050	0
Operating Services	323,110	323,110	0
Supplies	114,513	114,513	0
Professional Services	0	0	0
Acquisitions: Library	117,414	117,414	0
Other Acquisitions	13,687	13,687	0
IAT- TRANSFERS, OTM Charges	404,457	404,457	0
STATE FUNDS EXPENDITURES*	3,090,154	3,090,154	0
*With Statutory Dedication Funds			
LIBRARY ACQUISITIONS WILL BE SUPPLANTED WITH OTHER FUNDS			
OTHER FUNDS			
Barataria-Terrebonne National Estuary	1,030,134	594,212	435,922
Restricted Fund (Research, IDC, FEMA)	2,827,003	2,365,624	461,379
Vessel Operations	2,000,000	2,007,803	-7,803
Cafeteria/Dormitory	130,000	121,771	8,229
TOTAL EXPENDITURES	$9,074,821	$8,179,564	$897,727

SOURCE OF REVENUE:	FY07 BUDGET	FUNDS DRAWN	BUDGET BAL
State General Fund	3,037,933	3,037,933	0
Restricted Fund: (Research, IDC, FEMA)			
Federal Funds	2,934,667	2,586,419	348,248
Self Generated Fees	70,000	70,000	0
Interagency Transfers	850,000	303,418	546,582
Ancillary Funds:		0	
Vessel Operations	2,000,000	2,007,803	-7,803
Cafeteria/Dormitory	130,000	121,770	8,230
Statutory Dedications: Faculty Pay	41,509	41,509	0
Statutory Dedications: Library	10,712	10,712	0
TOTAL REVENUE	$9,074,821	$8,179,564	$895,257
Prior Year-End Fund Balances:			
Restricted Fund: (Research)			
Federal/Self-Gen. Fees, IAT, IDC Funds		501,135	
Ancillary Funds:			
Vessel Operations w/IDC		671,014	
Cafeteria / Dormitory		150,449	
Act 971 Carryover (Prev. Maint.)		0	
		1,322,598	

- LUMCON researchers, educators, and vessel operations carried a total of 46 grants and increased grant expenditures to $4.3 million, which is 46% over the previous fiscal year.
- The proceeds from the sale of three donated SES (Surface Effect Ships) LaCrosse ships have been cleared by the Internal Revenue Service, after many years, so that funds of approximately $400,000 (less legal fees) can now be expended through the LUMCON Foundation Account.
- LUMCON started the next fiscal year (’08) in better than usual shape when the Louisiana Board of Regents worked to bring the non-formula institutions under their funding increase umbrella (LUMCON and the LSU Pennington Biomedical Research Center) and more in line with the formula funded universities that were raised as appropriate to reach the southern standard.

2006-07 Employees

Atilla, Nazan, *Senior Research Associate*
Authement, Michael, *Security Guard*
Babin, Brenda Leroux, *I&T Manager*
Boudreaux, Heidi, *Finance Manager*
Boudreaux, Ivy, *Facility Technician*
Bourge, Beth, *Purchasing/Accounts Payable*
Burnett, Gary, *Part-time Captain*
Chauvin, Christian, *Instrument Technician*
Chesney, Ed, *Associate Professor*
Conover, John, *Librarian*
Conover, Murt, *Marine Education Associate*
Cotten, Nicole, *Marine Education Associate*
Crochet, Beau, *Information Technology Specialist*
Dagg, Mike, *Professor*
Delatte, Michael, *Marine Technician*
Delaune, Wilton, *Facility Technician, Fourchon*
DeLuca, Nina, *Senior Research Associate*
Dietlein, Mary Beth, *Public Information Specialist*
Dortch, Quay, *Adjunct Professor*
Duhon, Shanna, *Assistant Librarian*
Duplantis, Gwen, *Cafeteria/Dormitories*
Endsley, Reid, *Facility Technician*
Faulkner, Louis, *Captain & 2nd Captain*
Feigler, Bruce, *Security Guard*
Finelli, Chris, *Associate Professor*
Foret, Poule, *Cafeteria/Dormitories*
Guidry, Chuck, *Administrative Assistant*
Hebert, Jaimee, *Personnel/Payroll Officer*
Hebert, Holly, *Database Specialist*
Hebert, Bill, *Finance Operations Manager*
Johnson, Carolyn, *Cafeteria/Dormitories*
Kastler, Jessica, *Marine Education 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, *Research Associate*
Pennington, Jack, *Chief Engineer*
Pontiff, Gene, *Security Guard*
Powell, Rodney, *Associate Professor*
Pride, Lora, *Research Associate*
Rabalais, Nancy, *Executive Director & Professor*
Reed, Denise, *Adjunct Professor*
Ren, Ling, *Postdoctoral Research Associate*
Richardi, Danielle, *Research Assistant*
Roberts, Brian, *Assistant Professor*
Robichaux, Richard, *Facility Technician*
Rodriguez, Stephen, *Captain R/V Eugenie*
Sammarco, Paul, *Professor*
Sapp, Adam, *Research Associate*
Semmler, Carrie, *Research Assistant*
Sevin, Carl, *Vessel Technician*
Sevin, Cindy, *Receptionist*
Simoneaux, Wayne, *Marine Center Superintendent*
Thomas, Joseph, *First Mate R/V Pelican*
Walker, Jerry, *Facility Technician*
Westmoreland, Jordan, *Marine Technician*
Whatley, Tanya, *Cafeteria/Dormitories*
Wicher, Lillie, *Administrative Assistant*
Wilson-Finelli, Amy, *Research Associate*

- LUMCON hired a new faculty member, Dr. Brian Roberts, *Assistant Professor.*
- A search continues for two *Assistant Professor* positions in Plankton Ecology (Phytoplankton or Microbial) and Wetland Science (Ecology, Processes or Restoration).
- Wayne Simoneaux took full responsibility as the *Marine Center Superintendent.*
- Joe Malbrough was promoted to *Marine Superintendent.*
- Heidi V. Boudreaux was promoted to *Finance Manager.*
- Lora Pride was appointed *Dive Safety Officer.*

Environmental, Economic, and Social Livelihood

Understanding and Conserving Marine Life



Pelicans Hanging Out original photograph by Thomas Fett -2006 LUMCON Photography Contest 3rd Place Winner, Teen Wildlife -Digitally enhanced. Cover cropped and waterpaint filter applied using a mirror image.

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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

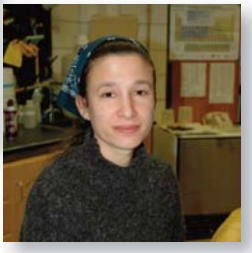
Jean Rabalais
Research Assistant
Dagg Lab





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.

Coral Reef Ecology



Dr. Paul Sammarco
Professor

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.

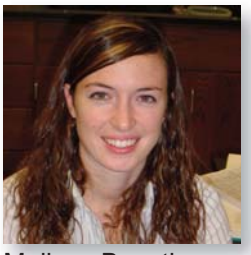
One of the manifestations of excess nutrient loading combined with a stratified coastal ecosystem is hypoxia, or low oxygen, which was first documented in the northern Gulf of Mexico off the Louisiana coast in 1972. Sporadic occurrences were observed in subsequent years, but the first concerted, continuous 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.

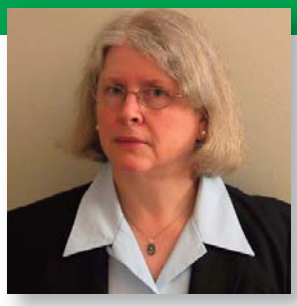
Associated modeling studies with R. E. Turner of LSU showed that while freshwater inflows and their influence on density stratification are important determinants of bottom oxygen depletion in the Gulf of Mexico, nitrogen (specifically nitrate + nitrite) more so than phosphorus, dissolved silicate, or 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.

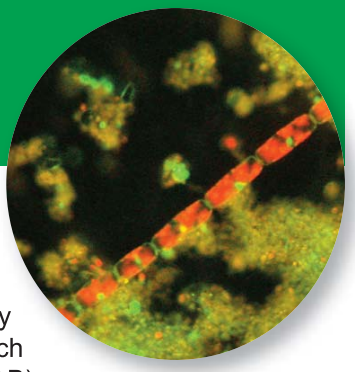


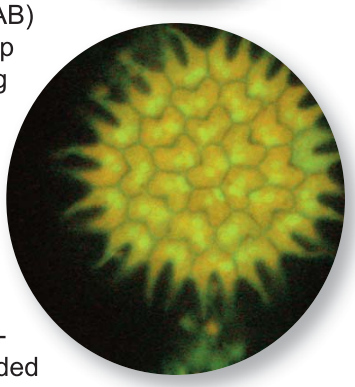
Melissa Baustian
Grauduate Student
Louisiana State University

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).

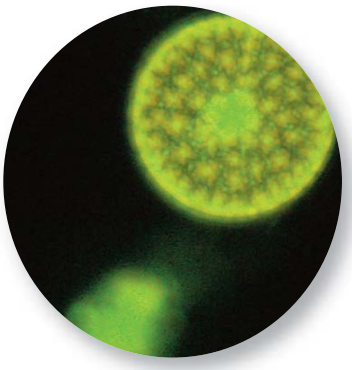


Dr. Quay Dortch
Adjunct Professor
NOAA ECOHAB





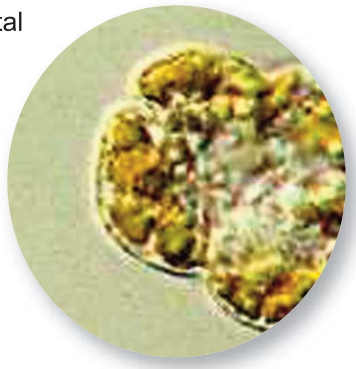
The phytoplankton group, trained and mentored by Quay Dortch, LUMCON adjunct faculty member, continues to enumerate the various forms of phytoplankton collected in the offshore Gulf of Mexico waters and throughout the Barataria Bay estuary (funded by NOAA's Center for Sponsored Coastal Ocean Research). 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).



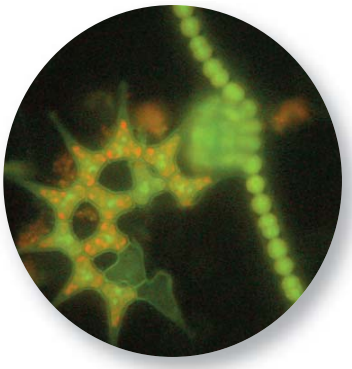
Postdoctoral Research Associate, Ling Ren, completed her microcosm experiments on nutrient limitation within the upper Barataria Bay system. The most northern three lakes range from oligotrophic to hypereutrophic and receive nutrient inputs from the atmosphere and surrounding landscape. Two of these 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



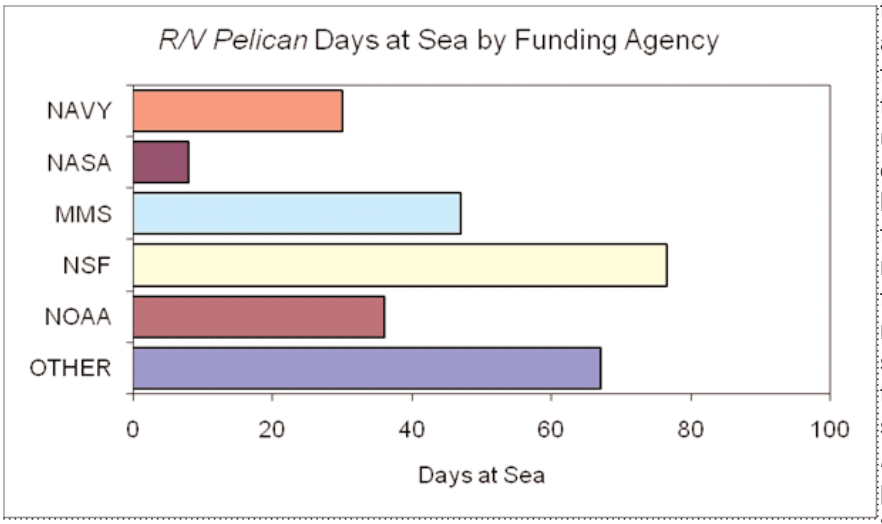
LUMCON owns and operates the *R/V Pelican*, a 116 ft University-National Oceanographic Laboratory System (UNOLS) vessel. The *R/V Pelican* was built in 1985 at Allied Shipyard in Larose, Louisiana, with funding provided by the State of Louisiana. It was designated as a University-National Oceanographic 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

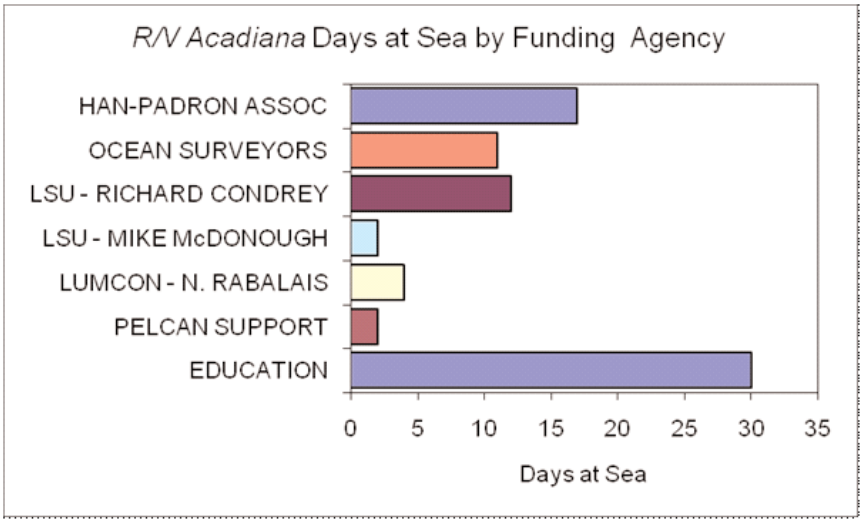
In August, the ship went online with HiSeasNet utilizing a SeaTel 4006 1, Ku-band antenna, which gives its crew the ability to check email and connect to the Internet while at sea. The National Science Foundation (NSF) funded the hardware, the installation of the system, and the first year's charges. 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

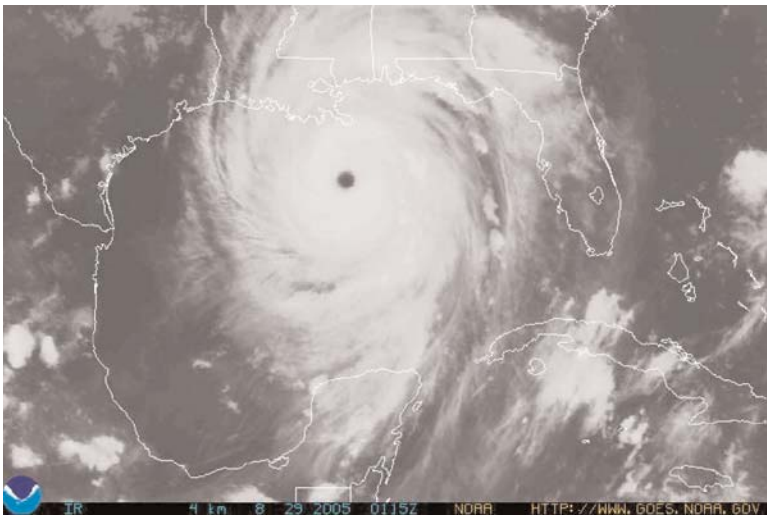
Four events in summer 2005—two practice and two real—forged the near- and long-term prospects of LUMCON and south Louisiana. Tropical Storm Cindy came ashore on July 6 in the same location as her evil step sister, Katrina. Cindy was not upgraded to a hurricane until the end of the 2005 season, but we 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.

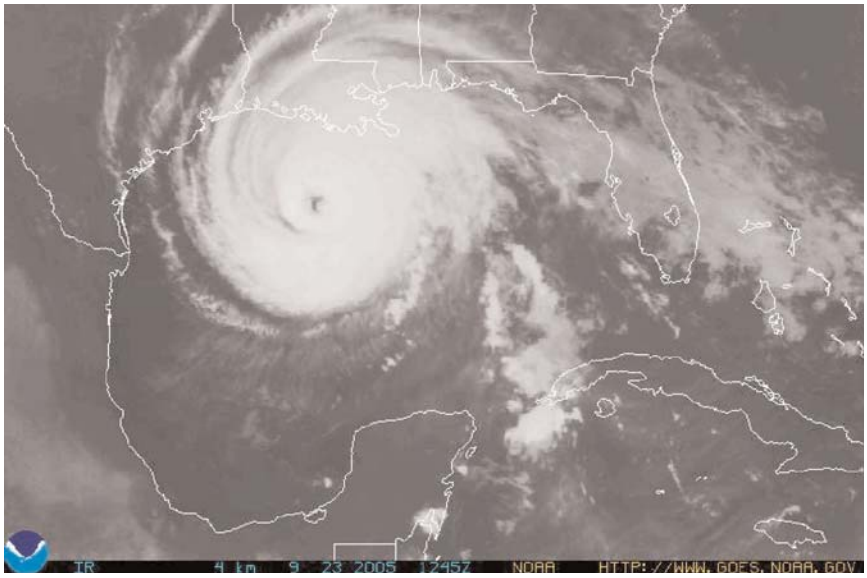
Hurricane Rita bore down on Louisiana as a Category 5 then passed the shoreline as a Category 3. But the damage was well underway before the eye crossed the southwestern Louisiana shore with tidal surges of 20 feet or more. The flood water came along its eastern wall and affected most of the Louisiana 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.

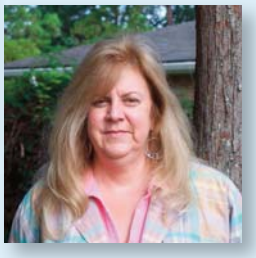
Hurricanes Katrina and Rita reminded us of the power of hurricanes, what we already knew about the fragility of Louisiana's coastal defenses, and how these wetlands and barrier islands have been lost over decades of interacting human and natural forces. Business as usual can no longer be Louisiana's 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,

Publications

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Atilla, N., J.W. Fleeger and **C.M. Finelli**. 2005. Effects of habitat complexity and hydrodynamics on the abundance and diversity of small invertebrates colonizing artificial substrates. Journal of Marine Research 63: 1151-1172.

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Boesch, D. F. (Chair), L. Shabman (Vice Chair), L. G. Antle, J. W. Day, Jr., R. G. Dean, G. E. Galloway, C. G. Groat, S. B. Laska, Richard A. Luettich, Jr., W. J. Mitsch, **N. N. Rabalais**, D. J. Reed, C. A. Simenstad, W. J. Streever, R. B. Taylor, R. R. Twilley, C. C. Watson, J. T. Wells, and D. F. Whigham. 2006. A New Framework for Planning the Future of Coastal Louisiana after the Hurricanes of 2005. Draft Final Report to Institute of Water Resources, U.S. Army Corps of Engineers, Washington, D.C.

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Rabalais, N.N. 2005. Relative Contribution of Produced Water Discharge in the Development of Hypoxia. U.S. Dept. of the Interior, Minerals Management Service, Gulf of Mexico OCS Region, New Orleans, Louisiana. OCS Study MMS 2005-044. 56 pp.

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Turner, R. E., **N. N. Rabalais** and D. Justić. 2006. Predicting summer hypoxia in the northern Gulf of Mexico: riverine N, P and Si loading. Marine Pollution Bulletin 52: 139–148.

Turner, R.E., **N.N. Rabalais**, B. Fry, **N. Atilla**, C.S. Milan, J.M. Lee, C. Normandeau, T.A. Oswald, E.M. Swenson and D.A. Tomasko. 2006. Paleo-indicators and water quality change in the Charlotte Harbor Estuary (Florida). Limnology and Oceanography 51: 518-533.

Yuan, J., **M.J. Dagg** and C.E. Del Castillo. 2005. In pixel variations of chl a fluorescence in the northern Gulf of Mexico and their importance for calibrating remotely sensed chl a and other products. Continental Shelf Research 25: 1894-1904.

Current Grants

Chesney, E.J., Principal Investigator, Captive Spawning of Marine fishes as a Stimulus to Research and Industry Development, Louisiana Sea Grant, $104,322, 02/2004 – 07/2007.

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.

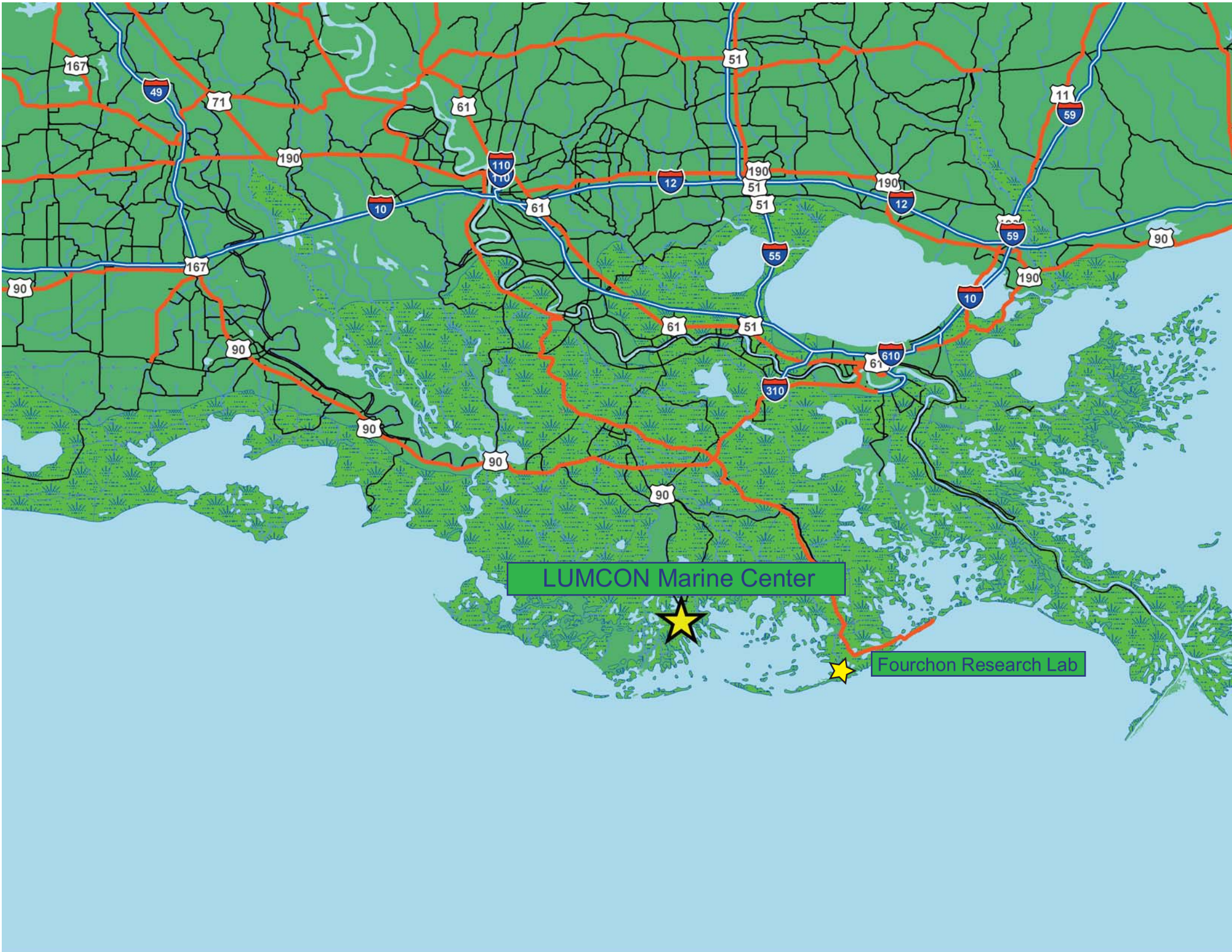
Jessica Kastler, LUMCON representative, Barataria-Terrebonne Estuary Management Conference; chair-elect (member since 2004), Education and Outreach Committee, Gulf Coast Ocean Observation System; member, Outreach Committee, National Marine Educators Association; Region 3 director, Louisiana Association 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




LUMCON Marine Center
Fourchon Research Lab



Louisiana Universities Marine Consortium
W. J. DeFelice Marine Center
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Louisiana Universities Marine Consortium

Annual Report Summary
FY 2001–FY 2005

Louisiana Universities Marine Consortium
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LUMCON's 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 serving as a facility for all Louisiana schools interested in marine research and education

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Message from LUMCON's Executive Director

Dr. Nancy N. Rabalais

September 18, 2006

It is an honor to bring you LUMCON's accomplishments for fiscal years 2001–2005. You might ask, "What took you so long?" There is a good answer: transition. Dr. Michael Dagg stepped down as Executive Director of LUMCON in 2002, and Mr. Kerry St. Pé, Director of the Barataria-Terrebonne National Estuary Program, stepped up to serve as LUMCON's Interim Administrator for the next three years. I was appointed LUMCON Executive Director in June 2005. It will become obvious in this report that LUMCON has been following its tradition of excellence, increasing its programs and activities, and continuing to serve the citizens of Louisiana, the United States and the world. I am proud to have been part of it all as a faculty member and researcher, and I look forward to LUMCON's continued achievements.

LUMCON's research portfolio expands 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. The Marine Education group relates our research programs and the issues that affect Louisiana to society at many age and education levels. LUMCON's Information Technology (IT) group has likewise expanded its responsibilities and skills in advanced computing and network systems, electronic communications and successful public information activities. IT and Marine Operations also worked diligently to involve LUMCON in the development of a national coastal environmental data acquisition and sharing network. LUMCON's Environmental Monitoring System added four monitoring stations in coastal Louisiana between FY 01–05.

LUMCON's research vessels continue to provide excellent services to the research and education community. The *R/V Pelican*'s role in the Nation's university research vessel fleet has been outstanding, and it continues to maintain a high standard of performance and service. The *R/V Acadiana* serves both research and educational missions of LUMCON, working the coastal waters of the northern Gulf of Mexico and hosting numerous K–12, university, and public educational groups. We also operate Tulane University's *R/V Eugenie* in the Mississippi River and coastal waters.

The Barataria-Terrebonne National Estuary Program (BTNEP) became part of LUMCON on July 1, 2001. The State of Louisiana, through the Board of Regents and a supplement to the LUMCON budget, helped to make this a reality. We welcome our new partners as we join forces in coastal restoration and environmental education. LUMCON remains the mechanism for the transfer of funds for restoration projects funded by the Coastal Wetlands Planning, Protection and Restoration Act (CWPPRA), which is commonly and fondly known as the Breaux Act. LUMCON also serves as the fiscal agent for CREST, Coastal Restoration and Enhancement through Science and Technology, located at Louisiana State University, Baton Rouge, and funded by the National Oceanic and Atmospheric Administration.

The progress and successes of LUMCON are proudly presented in this five-year report, with more to come in the future.

Governance and Organizational Structure

LUMCON operates under the authority of a six-member Executive Board comprised of chief executive officers of Louisiana State University and A&M College, Nicholls State University, and the University of Louisiana at Lafayette. The Executive Board reports to the Louisiana Board of Regents.

LUMCON Executive Board Members for FY 2005

Dr. Ray Authement, Chairman
President, University of Louisiana at Lafayette

Dr. Stephen Hulbert, 1st Vice Chairman
President, Nicholls State University

Chancellor Sean O'Keefe, 2nd Vice Chairman
Chancellor, Louisiana State University and Agricultural and Mechanical College

Dr. David Boudreaux
Vice President for Institutional Advancement, Nicholls State University

Dr. Harold Silverman
Interim Vice Chancellor/Dean of the Graduate School, Louisiana State University and Agricultural and Mechanical College

Dr. Robert Stewart
Vice President of Research & Graduate Studies, University of Louisiana at Lafayette

Executive Director

Dr. Nancy N. Rabalais
June 14, 2005–present

The Executive Board appointed LUMCON Professor Dr. Nancy Rabalais as LUMCON Executive Director on June 14, 2005. Barataria-Terrebonne National Estuary Program Director Mr. Kerry St. Pé served as Interim Administrator of LUMCON from June 1, 2002 to June 14, 2005. His leadership followed the resignation of LUMCON Professor Dr. Michael Dagg as Executive Director on June 30, 2002.

LUMCON Members

LUMCON's W. J. DeFelice Marine Center and Port Fourchon Laboratory serve as marine science research and education facilities for the following higher education institutions in Louisiana:

- Centenary College of Louisiana
- Dillard University
- Grambling State University
- Louisiana Association of Independent Colleges and Universities
- Louisiana College
- Louisiana State University and A&M College
- Louisiana State University in Shreveport
- Louisiana Tech University
- Loyola University
- McNeese State University



- Nicholls State University
- Northwestern State University
- Our Lady of Holy Cross College
- Southeastern Louisiana University
- Southern University in Baton Rouge
- Southern University in New Orleans
- Tulane University
- University of Louisiana at Lafayette
- University of Louisiana at Monroe
- University of New Orleans
- Xavier University

Students in LUMCON's 2005 summer university course *Marine Field Ecology* identify fish and invertebrates they collected in a seine.

Facilities

W. J. DeFelice Marine Center



LUMCON's primary facilities are located at the W. J. DeFelice Marine Center in Cocodrie, approximately 85 miles southwest of New Orleans. Situated within the estuarine wetland complex of the Mississippi River deltaic plain between the Atchafalaya and Mississippi rivers, the Marine Center provides researchers, educators and students with access to the Gulf of Mexico and the most productive estuaries in the United States.

The Marine Center's 26,000 square-feet 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 tanks, environmental chambers and many types of scientific equipment. A large wet lab houses several fish holding tanks, live food culture facilities, and a racetrack flume that researchers use to study the effects of water movement on geological, biological, and chemical processes. Dormitories and apartments can accommodate up to 80 people. A cafeteria/general meeting room, a 99-seat auditorium, and a distance learning classroom can be utilized for teaching activities, seminars, and conferences.

Library

Between 2001 and 2005, the library added approximately 3,700 titles to its collection. Acquisitions included conference proceedings, books, technical reports, federal documents, and U.N.-related publications. Arrangements with publishing companies have enabled the library to make nearly 75% of its journals available online. Through the use of private and public donations, the library has replaced its microfiche reader/printer and has added missing journal issues and volumes to its historical collection. Current holdings include approximately 4,000 monographs, 5,800 bound volumes, 200 journal titles, 128 current journal subscriptions, 850 maps, 35 atlases, 3,600 government documents, and 3,200 reprints.

Information and Technology

LUMCON's computer network provides wireless access to the Marine Center, the *R/V Pelican* (when in port) and much of the grounds. Between 2004–05, the Information and Technology Department upgraded the network to Windows 2003 with Active Directory, upgraded the mail server to Exchange 2003, and added anti-spam software to the email system. Each of these advances increased the network's security and efficiency. The distance learning classroom was upgraded to provide video conferencing over the Internet, as well as through the Bell South system. *LUMCON News*, the Consortium's quarterly newsletter covering LUMCON's research and education activities, expanded its readership to over 1500 subscribers. LUMCON's website (*www.lumcon.edu*) was redesigned in stages during 2004 and 2005 to provide the public with easily-accessed, up-to-date information.



Port Fourchon Laboratory

LUMCON's Port Fourchon Laboratory, located near the mouth of Bayou Lafourche, provides field access to vast salt and brackish marshes, barrier islands and offshore environments of the northern Gulf of Mexico. Its laboratory and housing facilities are frequently used by researchers, educators and students throughout the state.

LUMCON's Research Program

The location of LUMCON's DeFelice Marine Center on the upper end of Terrebonne Bay makes it an ideal venue for the study of coastal Louisiana. Five general themes form the basis of research by resident faculty and staff: river/ocean interactions, productivity, living resources, human and industrial impacts, and coastal change. Many of our research programs focus on restoring coastal habitats, enhancing fish populations and fisheries, understanding the Mississippi River and its influence on the Gulf of Mexico and 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. The Marine Center's resident faculty and their research programs include:



Dr. Edward J. Chesney, Associate Professor, University of Rhode Island, 1984

Expansion of the mariculture industry is currently limited by the technical knowledge needed to efficiently and cost-effectively propagate marine finfish. Many tropical and subtropical marine fish species are difficult to spawn and propagate in captivity due of their small larvae, their need for live food as larvae, and complicated spawning cycles and behaviors as adults. With Sea Grant funding, Dr. Chesney and his collaborators are improving the spawning and rearing of commercially important Gulf coast marine fishes for use in aquaculture. Topics of study include the cryopreservation and refrigerated storage of sperm for larval production, larval feeding behavior, live food production, and the development and identification of optimum feeds to improve larval survival and growth. Dr. Chesney's team has been actively engaged in outreach, working with commercial partners to transfer this knowledge directly to the mariculture industry.



Dr. Chesney works to improve the rearing of larval fish, such as this cobia that hatched at the Marine Center.



Dr. Michael J. Dagg, Professor, University of Washington, 1975

Dr. Dagg and his collaborators have been examining the extent to which bacterial-based food webs contribute to hypoxia in the northern Gulf of Mexico (NGOM). Nutrients from the Mississippi and Atchafalaya Rivers stimulate biological production in the NGOM. Some of this production sinks and decomposes near the bottom, contributing to hypoxia. Bacteria and other small organisms are not usually considered important contributors to hypoxia, however, some zooplankton stimulate the transfer of microbial productivity to bottom waters. In August 2004, gelatinous plankton provided > 1 g m^{-2} d^{-1} of organic carbon for the development and maintenance of hypoxia in the NGOM. For comparison, phytoplankton production is about 0.5 g C m^{-2} d^{-1}. Dissolved organic carbon supporting this bacterial-based food web may in part originate from Louisiana's coastal wetlands, providing an important link between our eroding wetlands and coastal hypoxia.



Zooplankton, such as this larvacean, may contribute to hypoxia formation by transferring carbon to bottom waters.



Dr. Quay Dortch, Associate Professor, University of Washington, 1970

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.



Research associate Wendy Morrison identifies algae in a sample of water collected from Lake Salvador.



Dr. Christopher M. Finelli, Associate Professor, University of South Carolina, 1997

Dr. Finelli's lab is interested in the effects of water flow on ecological processes. Recently, they completed a water quality study 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 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 may mitigate the effects of poor water quality and hurricanes by flushing the bayou with fresh water.



Graduate student Laurie Rodrigue deploys a meter that will measure the dissolved oxygen in Bayou Terrebonne.



Dr. Rodney T. Powell, Associate Professor, Florida State University, 1995

Dr. Powell's lab is interested in macronutrient biogeochemistry in the Mississippi River and its coastal plume and trace element chemistry in the open ocean. His laboratory is currently conducting research into the nitrate supply to the coastal zone of the Gulf of Mexico. This supply of nitrogen has been linked to the annual hypoxic zone, which occurs in bottom waters of the Louisiana continental shelf. As part of this research, Dr. Powell maintains an in situ nitrate meter that is moored in the Mississippi River near Audubon Park in New Orleans. This instrument conducts hourly measurements of nitrate, allowing us to better observe the short-term changes in nitrate concentrations in the River. As a result, we may be able to better understand the relationship between nutrient supply and hypoxia in the Gulf of Mexico.



Research associate Amy Wilson-Finelli adjusts a meter that records nitrate levels in the Mississippi River in New Orleans.



Dr. Nancy N. Rabalais, Professor, University of Texas, 1983

The occurrence and frequency of oxygen deficiency in aquatic systems has increased exponentially since the 1960s. The second largest zone of coastal hypoxia in the world's ocean is on the Louisiana coast, stretching from the Mississippi River past the Louisiana/Texas border. The oxygen is low enough in this area that fish, shrimp and crabs must migrate away or perish, while sediment-dwelling organisms eventually succumb to the suffocating conditions in the region thus popularized as "The Dead Zone." We have studied the distribution and dynamics of Louisiana's hypoxic area since 1985, and have generated a better understanding of those aspects, the relationships with physical, chemical, and biological parameters, and the influence of the Mississippi River, particularly nutrient flux, which has tripled over the last 50 years. We also employ historical indicators of enhanced coastal productivity and worsening oxygen conditions in estuaries (Louisiana and Florida) and in the nearshore Gulf of Mexico.



An oceanographic instrument called a CTD is lowered into the Gulf of Mexico during a research cruise.



Dr. Paul Sammarco, Professor, State University of New York, 1977

Dr. Sammarco's research projects include his examination of Louisiana's offshore oil and gas platforms for coral recruitment and diversity. His research has shown that these platforms have been colonized by Caribbean reef-building corals and other reef organisms, expanding their biogeographic range throughout the Gulf. He has also shown that these coral populations are relatively isolated genetically from those on other reefs in this part of the Atlantic. The results of these recent studies have modified our perspective on how these structures are viewed by the public, industry, and federal and state government. Legislation has recently been passed to change how these structures will be regulated in the future, allowing some to be preserved as artificial reefs and others to be potentially utilized for alternate purposes such as mariculture and wind and thermal energy generation.



Dr. Sammarco surveys a platform in the Gulf that is populated by a variety of coral species and tropical fish.

Adjunct Faculty



Dr. Brent A. McKee

Adjunct Professor
North Carolina State University, 1986

Dr. McKee's research focuses on the sedimentary and geochemical processes in coastal environments influenced by major rivers. Much of his work involves the study of the fate of trace elements and radionuclides.

Dr. Denise J. Reed

Adjunct Professor
University of Cambridge, England, 1986

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. Quay Dortch, listed under LUMCON faculty, became an adjunct faculty member in 2005.*

Post-Doctoral Associates

Dr. Nazan Atilla (2001–03): Dr. Atilla studied the relationships of phytoplankton pigments, phytoplankton cell counts and volumes, and chemical signatures of specific phytoplankton as part of the project *Refining Chloropigment Data for Estuarine Phytoplankton Community Composition,* which was funded by Louisiana Sea Grant. (N. Rabalais, advisor).

Dr. Sarah Frias Torres (2002–03): Dr. Frias Torres worked on a retrospective statistical and modeling analysis of fishery data to understand the effects of hypoxia and other coastal stresses on coastal fishes and their habitats in the northern Gulf of Mexico. (E. Chesney, advisor).

Dr. Rebecca Green (2003–05): Dr. Green worked on the modeling of water column processes in the Mississippi River plume. (M. Dagg, advisor).

Dr. Grady Hanrahan: (2002–03): Dr. Hanrahan's research focused on nutrient cycling. He oversaw two projects: the determination of the importance of sediment re-suspension in Lake Pontchartrain and the initial use of in situ nitrate sensors in the Mississippi River. (R. Powell, advisor).

Dr. Hongbin Liu (2000–02): Dr. Liu worked on microzooplankton and mesozooplankton processes in the northern Gulf of Mexico and the Gulf of Alaska. (M. Dagg, advisor).

Dr. Steve Money (2000–02): Dr. Money's research centered around the optimization of an electrochemical technique for the determination of organic complexation of mercury. (R. Powell, advisor).

Dr. Ling Ren (2003–present): Dr. Ren examined nutrient limitations and effects of Mississippi River diversions on the phytoplankton communities of the upper Barataria estuary, a component of the NOAA-funded project *Multistress: Coastal Stressors in the Northern Gulf of Mexico*. (N. Rabalais, advisor).

Dr. Riki Sato (2002–04): Dr. Sato worked on larvacean population dynamics in the Gulf of Mexico and Gulf of Alaska. (M. Dagg, advisor).

Dr. Malinda Sutor (2004–06): Dr. Sutor worked on fine scale vertical distribution of plankton in the Mississippi River plume and northern Gulf of Mexico. (M. Dagg, advisor).

Dr. Ted Switzer (2003–04): Dr. Switzer worked on a retrospective statistical and modeling analysis of fishery data to understand the effects of hypoxia and other coastal stresses on coastal fishes and their habitats in the northern Gulf of Mexico. (E. Chesney, advisor).

Dr. Juanita Urban-Rich (1997–2000): Dr. Urban-Rich worked on zooplankton population dynamics in the Southern Ocean, zooplankton production of colored dissolved organic matter in the Mississippi River plume and northern Gulf of Mexico. (M. Dagg, advisor).

Dr. Wai Hing "David" Wong (2003–05): Dr. Wong worked on the top down control of phytoplankton biomass by pelagic and benthic grazers in the upper Barataria estuary, a component of the NOAA-funded project *Multistress: Coastal Stressors in the Northern Gulf of Mexico*. (N. Rabalais, advisor).

Dr. Jinchun Yuan (2002–03): Dr. Yuan worked on satellite remote sensing in the northern Gulf of Mexico. (M. Dagg, advisor).

LUMCON's University Education Program

University Courses

LUMCON's University Education Program offers undergraduate and graduate students a variety of marine science courses for credit through member and affiliate universities and colleges. In 2002, LUMCON changed its core course curriculum to better meet the needs of Louisiana students and to improve student enrollment by offering alternating sets of courses that complement LUMCON's location, facilities and areas of faculty expertise. The new courses were taught mainly by LUMCON faculty, but some were taught by faculty from Louisiana universities. Some summer instructors were supported by teaching assistants, an arrangement that gave graduate students experience teaching at the college level. The LUMCON Foundation provided highly qualified LUMCON summer students with scholarships to cover room and board expenses.

University Courses Offered During FY 01–FY 05*

Aquatic Chemistry
Biogeochemical Field Methods
Cetacean Field Studies
Changing Coastal Oceans
Coastal Habitat Loss
Coastal Landscape Photography
Coral Reef Ecology
Introduction to Marine Environmental Chemistry
Introduction to Marine Zoology
Marine Field Ecology
Marine Fish Ecology
Marine Field Geology
Marine Invertebrates in their Environment
Marine Plankton
Special Problems in Marine Science
Wetland Biogeochemisty
Wetland Vegetation

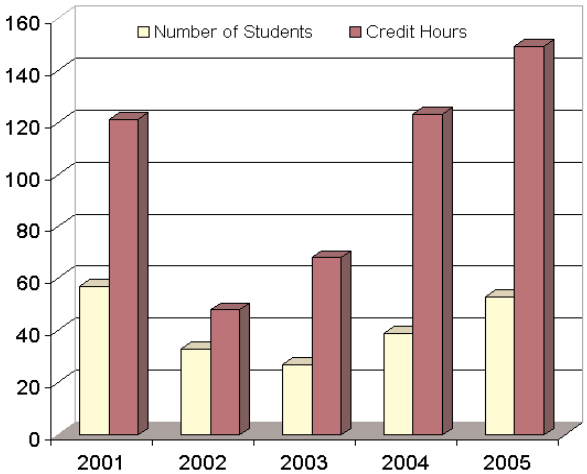
** All courses are not offered every year*

Internship Program

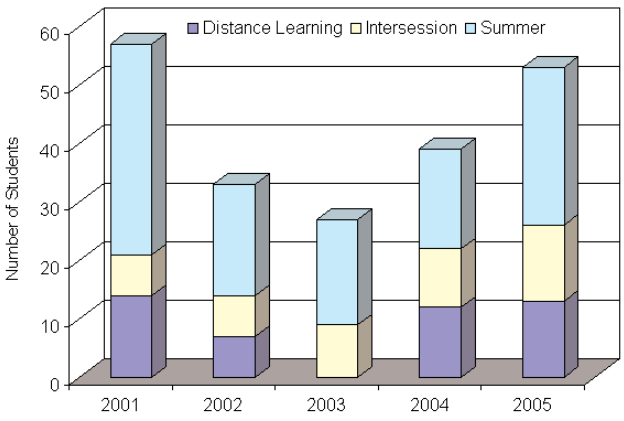
In 2001, LUMCON's summer internship opportunities were expanded into a formal program thanks to support from the LUMCON Foundation. The Foundation provided money for student stipends, room and board expenses, research supplies, a symposium social, and a field day. From 2001 through 2005, the Foundation supported 25 interns, five of which registered for and earned a total of 15 university credit hours. The internships were available in marine science research, information technology, marine education and library science.

LAMP Program

The LUMCON-Louis Stokes-Louisiana Alliance for Minority Participation (LS-LAMP) program was one of eleven LAMP programs in Louisiana. Phase I was initiated in 1995 by LUMCON professor Dr. Paul Sammarco and continued through the completion of Phase II in 2004. The program's purpose was to increase representation of undergraduate minority students in the fields of science, mathematics, engineering and technology, and to encourage them to pursue graduate degrees in those fields. LUMCON was the sole representative for marine science within the state. The program was co-funded by the National Science Foundation and the Louisiana Education Quality Support Fund. LAMP offered students research fellowships and educational scholarships, provided room and board at the Marine Center, and supported participation in national and international conferences. LUMCON sponsored 25 LAMP students between FY 01–05, many of whom were supervised by members of the LUMCON faculty and conducted research projects while in residence at the Marine Center.



Number of students and credit hours earned in LUMCON university courses. Students who took multiple classes count once.



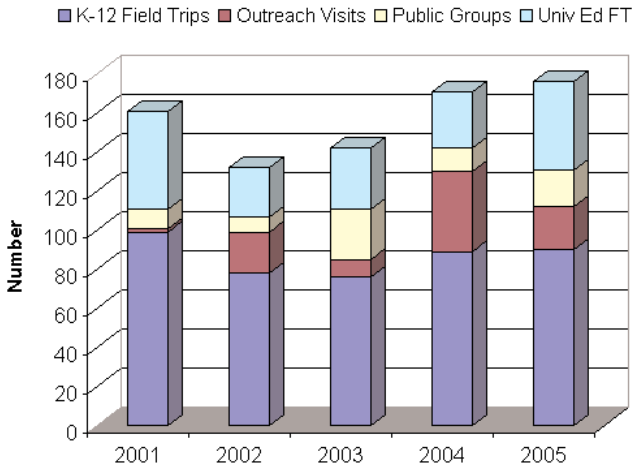
Number of students enrolled in a LUMCON university course by category.

LUMCON's Marine Education Program

From FY 2001–05, LUMCON's Marine Education Department diversified its programs and increased its offerings for K–12, university, teacher, and public groups. All programs address one or more of the Department's goals: 1) inform LUMCON visitors of the research activities of LUMCON scientists, 2) promote awareness of marine environments and their connection to land, and 3) clarify the scientific process and how it is used to make environmental decisions.

Bayouside Classroom

In 2001, Marine Education Instructor Dr. Jessica Kastler and Associate Professor Dr. Chris Finelli collaborated to develop a water sampling program for students in grades 7–10. Students involved in this program learn to test the water quality of their local waterways and enter their data into an online database. While initially focused on schools in Terrebonne Parish, the success of the program has resulted in its expansion to 27 additional schools outside of the Parish. The program has been funded by the National Science Foundation, the Barataria-Terrebonne National Estuary Program and the Terrebonne Parish Public School District.



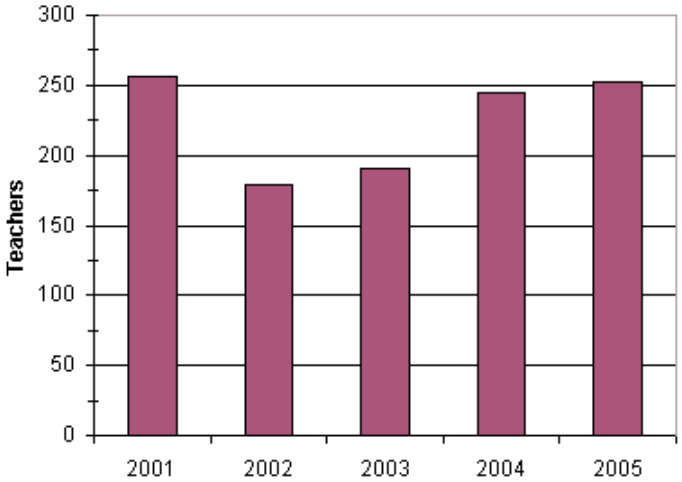
Number of LUMCON field trips and outreach visits.

Wetland Education Through Maps And Aerial Photography (WETMAAP) Workshop

LUMCON hosted three WETMAAP teacher workshops at the DeFelice Marine Center in 2001. The workshops, sponsored by the Barataria-Terrebonne National Estuary Program, provided educators and students with an introductory lesson in wetland ecology and land-loss issues through hands-on applications such as wetland mapping and the utilization of digital databases and GIS technology.

Students and Teachers as Educational Partners (STEPS)

Since 2002, the STEPS workshop has been held annually at the Marine Center as a way of providing Louisiana teachers with the training necessary to involve their students in LUMCON's Bayouside Classroom. In addition to this training, teachers are given a thorough lesson in the challenges facing the Barataria-Terrebonne Estuary.



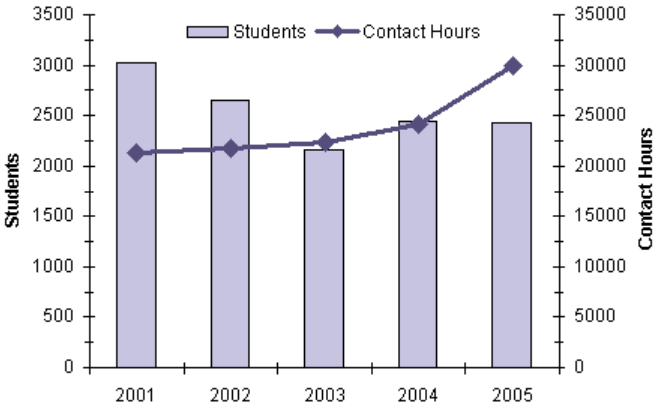
Number of teachers participating in LUMCON workshops.

Centers for Ocean Sciences Education Excellence (COSEE): Central Gulf of Mexico

LUMCON hosted the annual COSEE summer institute at the Marine Center for 2003–05. The central Gulf of Mexico COSEE program brings together K–12 teachers and research scientists from the Gulf coast states for an intense week-long educational experience. Teachers learn about marine science through lectures and field and laboratory work, and scientists learn new methods of relating their work to the public. The program was initiated in 2003 with funding from the National Science Foundation to the University of Southern Mississippi (lead institute), and renewed for five years in 2005.

Faculty Institutes Reforming Science Teaching II (FIRST II):

FIRST II is a National Science Foundation collaboration between Michigan State University and the University of Oregon that provides opportunities for faculty to improve their science teaching. Focused at eight biological field stations and marine laboratories across the country, teams of scientists interact in a supportive environment where teaching and learning can be fully integrated into their professional culture. Drs. Christopher Finelli, Jessica Kastler and Rodney Powell hosted FIRST II at LUMCON's Marine Center in 2002, recruiting teams of faculty from Louisiana State University (Baton Rouge and Shreveport campuses), Nicholls State University, Northwestern State University, and the University of New Orleans. After a series of professional development workshops, the field stations and teams continue to work together, providing a reinforcement of university education and Consortium goals.



Number of K-12 students visiting LUMCON's Marine Center on field trips and student contact hours generated during their visits.

LUMCON Estuarine Awareness and Diversity Camp (LEAD):

Since 2001, LEAD Camp has annually provided a powerful, residential field experience for a select group of 10–15 high school students. To be considered for the program, campers need only express a sincere desire to spend a week learning Louisiana coastal ecosystem science and stewardship. Participants conduct field work, laboratory assignments, and class work in pursuit of a greater understanding of how this part of the world functions.

Education Event Highlight: *JASON Expedition Films at DeFelice Marine Center*

The JASON Foundation for Education focused on Louisiana's *Disappearing Wetlands* for its 2004–05 JASON Expedition. JASON Expeditions filmed 30 live interactive broadcasts January 31–February 5, 2005, at LUMCON's DeFelice Marine Center, LUMCON's Port Fourchon Laboratory, and the Jean Lafitte National Historic Park and Preserve, Barataria Preserve. The broadcasts brought the importance, complexity and fragility of south Louisiana's wetlands to over 33,000 teachers and 1.7 million students worldwide. Included in this audience were students from Montegut Middle School and Houma Junior High School, who visited LUMCON's Marine Center to watch the broadcasts and meet the production team. Live transmissions are just one part of JASON's hands-on standards-based science curriculum for fourth–ninth grade teachers and students, which has focused on a different scientific location annually for the past sixteen years. The JASON Program was developed by Dr. Robert Ballard, discoverer of the *H.M.S. Titanic*.

The four Host Researchers for this Expedition were Dr. Denise Reed, a geology professor at the University of New Orleans and an adjunct professor at LUMCON, Dr. Earl Melancon, a marine science professor at Nicholls State University, Dr. Jacoby Carter, an ecologist with the United States Geological Survey National Wetlands Research Center and Mark Schexnayder, a marine biologist with Louisiana State University AgCenter. In addition to participating in the broadcasts, the researchers helped to develop the *Disappearing Wetlands* curriculum and scheduled live online question and answer sessions with students across the globe.


JASON student scientists (called Argonauts) film a segment of the JASON Expedition with Dr. Denise Reed in the marsh behind LUMCON's Marine Center.

Vessel Operations

LUMCON's Research Vessels

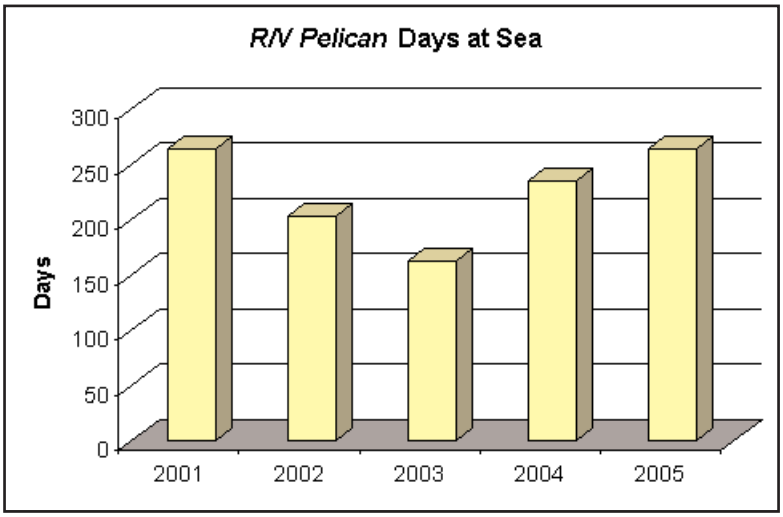
R/V Pelican

The *R/V Pelican* was built in 1985 at Allied Shipyard in Larose, LA, with funding provided by the State of Louisiana. It was designated a Universities National Oceanographic Laboratories System (UNOLS) vessel in 1986, and is now one of three UNOLS vessels home-ported in the Gulf of Mexico (GOM). The *Pelican* is an important asset to researchers in the Gulf, accommodating approximately 80% of the UNOLS-GOM vessel days at sea in this region.



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, increasing her length from 106 to 116 feet. 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. Bilge, 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 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.

During the 2001–05 operating period the *Pelican* continued its role as the most utilized small/medium UNOLS vessel in the fleet, with an average of 230 days at sea/year (exclusive of the 2003–04 season, which was shortened by the refit). The 2004 operating year extended the *Pelican's* normal operating range from the northern GOM to the Caribbean and Gulf waters off the northwestern tip of the Yucatan Peninsula. For two research cruises, the ship operated off Jamaica, the Dominican Republic, Haiti, Puerto Rico, Trinidad and Tobago, St. Vincente, and the Grenadines, in support of programs sponsored by the U.S. Office of Naval Research, U.S. Department of Energy, and U.S. National Oceanographic and Atmospheric Administration. In June 2004, the *Pelican* traveled to Progresso, Mexico, with scientists from the University of Louisiana at Lafayette to conduct NSF-funded science in the Gulf of Campeche.

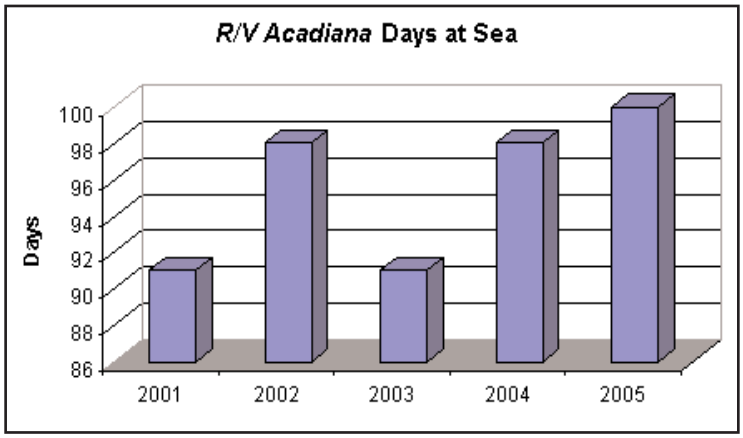


The *Pelican* will continue to serve science in this region of the world's ocean and provide opportunities for ocean scientists in the GOM and Caribbean Sea.

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 sponsored 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 at sea annually in support of sponsored 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 sponsored 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 Bay, Alabama.

SMALL BOATS

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

LUMCON's Small Boats



Dos Gris–30' aluminum pontoon
Whiskey Pass–23' aluminum V hull
Grey Goose–22' aluminum hull with cabin
Coli–21' aluminum hull, partial cabin
Fearman–19' aluminum tri-hull work boat
Big Al–17' aluminum tri-hull work boat
Silver Bullet–17' aluminum flat boat
Marsh Bug–16' aluminum air boat
Swamp Thing–14' aluminum flat boat
Dinghy–14' aluminum flat boat
Odie–14' aluminum flat boat



LUMCON's Environmental Monitoring System

LUMCON's Environmental Monitoring System collects and archives real-time meteorological and hydrographic data to provide a broad community of scientists, educators, students, and the public with quality-controlled environmental data from Louisiana's Gulf coast. In the last five years, LUMCON's monitoring system has expanded from two stations, one located at the DeFelice Marine Center and one in Terrebonne Bay (destroyed in 2004, but destined for reconstruction), to six stations spanning the southeastern Louisiana coastline.

LUMCON's monitoring stations were created primarily to support research programs. The Lake Pontchartrain station was constructed in 2000 to study sediment re-suspension during storm events. The Tambour Bay station was added shortly afterwards to complement Nicholls State University professor Dr. Tom Soniat's oyster research. The Audubon-Mississippi River station in New Orleans was brought online in 2003 to support the study of nutrient loading in the River. In 2005, LUMCON installed monitoring instruments at the Branch Pilot's station at Southwest Pass to record environmental conditions near the mouth of the Mississippi River.

Meteorological and hydrographic instruments installed at the stations record wind speed and direction, air temperature, relative humidity, precipitation, barometric pressure, solar radiation, quantum radiation, water temperature, water height, salinity, conductivity, turbidity and chlorophyll concentration. These data are utilized for many purposes, including research, weather forecasting, commercial fishing, resource management, habitat restoration, public health, and education.



LUMCON's DeFelice Marine Center monitoring station.

Funding for station construction and for the purchase of instrumentation was obtained through grants from NOAA, EPA, NASA, USGS, and the State of Louisiana. Maintenance and operation costs have been borne by various grants and LUMCON. Archived and current meteorological and hydrographic data from LUMCON's stations are available at *weather.lumcon.edu*.

LUMCON installed a Vaisala 915 mega-hertz LAP®-3000 Lower Atmosphere Profiler and a radio acoustic sounding system at its DeFelice Marine Center in 2004. This equipment collects meteorological data as part of a three-year Minerals Management Services environmental studies program that is examining the effects of meteorological conditions and industry emissions on visibility within Breton National Wilderness Area. Data collected from these instruments will also be used in other regional studies that address ozone, particulate matter and regional haze.

The Barataria-Terrebonne National Estuary Program

The Barataria-Terrebonne National Estuary Program (BTNEP), one of 28 National Estuary Programs in the United States, works to coordinate agency and stakeholder efforts related to restoration in the Barataria-Terrebonne system and to create a sense of environmental stewardship for the natural resources of the 4.2 million-acre estuarine system. The BTNEP, previously under the administration of the Louisiana Department of Environmental Quality, came under the administration of LUMCON in July 2001.

The BTNEP works towards meeting the objectives of its 51 action plans outlined in its Comprehensive Conservation and Management Plan, in ways ranging from facilitating coastal restoration projects like the Fourchon Maritime Forest Ridge and Marsh Restoration project, to outstanding education and outreach initiatives. These initiatives foster a greater understanding and appreciation of the estuary system by connecting estuary residents, visitors and policymakers to the natural, cultural and historic resources of these two basins in tangible ways. Popular outreach programs include the annual La Fête d'Ecologie festival and Paddle Bayou Lafourche. BTNEP's volunteer program provides multiple ways for citizens to become involved in restoration and monitoring activities in the estuary, including vegetative plantings, invasive species removals and water quality monitoring. In 2005, the BTNEP introduced its competitive Mini-Grants Program. This program funds selected community-based restoration, outreach and education projects designed to increase awareness of the issues facing the estuary, while working with the BTNEP towards creating effective solutions.



BTNEP volunteers learn how to plant *Spartina alterniflora*, a common wetland plant used in coastal restoration projects.

LUMCON Events Spotlight

LUMCON Reinstates Marine Center Open House

On April 12, 2003, LUMCON welcomed visitors to explore its DeFelice Marine Center with an open house that marked the first such activity since 1996. An estimated 600 visitors received behind-the-scenes tours of LUMCON's research labs, spoke one-on-one with scientists, participated in a host of educational activities, and joined in educator-led cruises aboard LUMCON's *R/V Acadiana*. Based on the great success of this open house and strong public interest in the event, the Marine Center again opened its doors in May 2005, with an open house that celebrated the Consortium's 25-year anniversary. Over 1000 people attended this day-long event. LUMCON will continue to host open houses biennially to showcase the research and education activities of its employees and members.



Visitors at the 2003 open house used microscopes to look at live phytoplankton.



Visitors tested the water quality of LUMCON's front pond by following Bayouside Classroom protocols.

Local Students Connect With Discoverer of H.M.S. Titanic

On June 7, 2004, students from Terrebonne Parish schools assembled at LUMCON's DeFelice Marine Center for a rare opportunity to participate in an exclusive live web interaction with Dr. Robert Ballard, the esteemed scientist who discovered the *R.M.S. Titanic* in 1985. Ballard answered students' questions from aboard the National Oceanic and Atmospheric Administration research vessel *Ronald H. Brown* that sat off the Grand Banks of Newfoundland, positioned 12,000 feet above the remains of the *Titanic,* which sank after hitting an iceberg on April 14, 1912.

LUMCON's webcast was one of only five *ultimate* fieldtrips that occurred nationwide through the JASON Foundation for Education, a leading provider of experience-based science and math curriculum supplements and professional learning for grades four–nine that was founded by Ballard in 1989. The webcasts coincided with the May 30–June 9, 2004, *Return to Titanic* expedition that marked Ballard's second return to the *Titanic* since he discovered the ship. The crew's primary mission was to document the extent of the ship's deterioration over the past 19 years and determine the natural and anthropogenic factors that are contributing to its decline.

Graduate Student Symposium Draws Students to Cocodrie from Across the South

Seventy marine science graduate students from ten universities across the southern United States converged at LUMCON's DeFelice Marine Center January 28–30, 2005, to participate in the sixth annual Graduate Student Symposium. Many of the students were returning for their second or third time to participate in this intensive weekend event that aims to provide graduate students with a supportive environment for presenting their research, sharing information and ideas, and building relationships among their peers.

The Symposium was held at the Marine Center for the first time in 2005, which also marks the first time it was organized by the Marine Environmental Researchers (MER) graduate student organization at Louisiana State University. In previous years, the Symposium was organized by marine science graduate students at the University of Southern Mississippi or the University of South Alabama. After the highly-successful symposium, MER and LUMCON's Marine Center will likely be added to the rotation as symposium organizer and hosting facility.



Lindsey Kramer, Melissa Baustian, Jennifer Spicer, and Ryan Eytan (left to right) received awards for their presentations at the Symposium.

LUMCON's Financial Report

LUMCON as a state agency has a yearly appropriation that is supported by House Bill 1 (HB1), which sets LUMCON's operating and ancillary budgets. HB1 specifies the amount of money LUMCON receives from state general direct funding, self-generated funding, statutory dedicated funding, interagency funding, and federal funding. State general funds provide 40% or less of LUMCON's overall budget.

Significant State Budgetary Items:

- **FY 01–02:** LUMCON received a transfer of $305,243 in state general funding due to the Barataria-Terrebonne National Estuary Program being moved from the Louisiana Department of Environmental Quality to LUMCON.
- **FY 02–03:** LUMCON received a $200,000 state general enhancement to fund additional research faculty and support LUMCON's environmental monitoring program.
- **FY 03–04:** LUMCON received a $250,000 state general enhancement for the Barataria-Terrebonne National Estuary Program to help restore previously-cut funding and meet EPA federal funding match requirements.

All other adjustments to state general funding have been due to changes in fringe benefits or insurance premiums or budget cuts resulting from limited state general funds.

Self-generated funds are derived from billings for cafeteria, dorms, public customers of vessels, and grants from private entities. Statutory dedicated funds are from the Support Education in Louisiana First fund, which is dedicated towards faculty pay increases. The interagency funds are received from other state agencies such as the Louisiana Board of Regents and Facility Planning and Control. Federal funding is from federal agency grants or from federal customers of LUMCON's research vessels.

LUMCON Total Funding for FY 01–05

	Fiscal Year					
Funding Source	**00–01**	**01–02**	**02–03**	**03–04**	**04–05**	**TOTAL**
State Appropriation	1,808,571	2,192,697	2,462,568	2,800,728	2,879,517	**12,144,081**
Statutory Dedication	0	110,060	58,516	31,290	31,335	**231,201**
Federal	2,256,072	3,024,944	3,271,773	3,254,775	4,534,667	**16,342,231**
Interagency	315,994	731,578	641,390	626,303	1,174,259	**3,489,524**
Self-Generated	475,670	193,588	337,486	697,789	1,200,000	**2,904,533**
TOTAL	4,856,307	6,252,867	6,771,733	7,410,885	9,819,778	**35,111,570**

LUMCON Grant Funding for FY 01–05

	Fiscal Year					
Funding Source	**00–01**	**01–02**	**02–03**	**03–04**	**04–05**	**TOTAL**
NOAA	182,635	3,211,586	1,914,208	196,662	0	**5,505,091**
National Science Foundation	1,341,487	1,407,400	488,775	63,519	329,580	**3,630,761**
Environmental Protection Agency	0	436,278	384,143	428,802	516,887	**1,766,110**
Louisiana Board of Regents	1,530,320	185,250	0	0	0	**1,715,570**
U.S. Office of Naval Research	0	417,804	662,491	0	0	**1,080,295**
U.S. Army Corps of Engineers	359,450	100,000	99,000	0	99,000	**657,450**
Minerals Management Service	90,896	0	0	311,350	0	**402,246**
National Marine Fisheries Service	0	0	0	266,416	0	**266,416**
Dixie Fish Farm	0	0	0	25,446	0	**25,446**
Texas A&M University	0	25,000	0	0	0	**25,000**
La. Dept. of Environmental Quality	0	23,104	0	0	0	**23,104**
U.S. Geological Survey	5,996	0	0	14,956	0	**20,952**
NASA	0	0	20,030	0	0	**20,030**
TOTAL	**3,510,784**	**5,806,422**	**3,568,647**	**1,307,151**	**945,467**	**15,138,471**

Appendix A: LUMCON Graduate Students for FY 2001–05

Atchison, Amy, M.S. 2005. Dept. of Oceanography and Coastal Sciences, Louisiana State University (LSU). *Offshore oil and gas platforms as stepping stones for expansion of coral communities: A molecular genetic analysis.* (P. Sammarco, advisor).

Atilla, Nazan, Ph.D. 2001. Dept. of Zoology & Physiology, LSU. *Colonization of meiofauna on artificial substrates*. (N. Rabalais, committee member).

Baustian, Melissa M., M.S. 2005. Dept. of Oceanography and Coastal Sciences, LSU. *Benthic communities in the northern Gulf of Mexico hypoxic area: Potential prey for demersal fish.* (N. Rabalais, advisor).

Das, Anandita, Ph.D. 2004–present. Dept. of Oceanography and Coastal Science, LSU. (N. Rabalais, committee member).

Flanagan, Sharon, Ph.D. 2000. Dept. of Curriculum and Instruction, LSU. *Regional differences in understanding between two groups of high school science students of a complex environmental science concept know as the dead zone of the Gulf of Mexico: A web-based approach*. (N. Rabalais, committee member).

Fontenot, Jacques, M.S. 2004–present. Dept. of Biology, Nicholls State University (NSU). *Behavioral responses of coral planulae to critical temperature thermoclines*. (P. Sammarco, advisor).

Gavio, Brigitte, Ph.D. 2002. Dept. of Biology, University of Louisiana at Lafayette (ULL). *Systematics of the Rhodymeniales-Cryptonemiales complex (Rhodophyta), with emphasis on taxa from the Western Atlantic*. (P. Sammarco, committee member).

Gothreaux, Craig, M.S. 2003–present. School of Renewable Natural Resources, LSU. (E. Chesney, committee member).

Grace, Bryan, Ph.D. 2003–present. Dept. of Earth and Environmental Science, Tulane University. (R. Powell, committee member).

Groat, Derrick, M.S. 2002. School of Renewable Natural Resources, LSU. *Effects of feeding strategies on the growth of Florida pompano* (*Trachinotus carolinus*) *in closed recirculating systems*. (E. Chesney, committee member).

Guo, Tianpeng, Ph.D. 2005. Dept. of Civil and Environmental Engineering, LSU. *Speciation, equilibria and kinetics for rainfall runoff metals in adsorptive-filtration unit operations and processes*. (R. Powell, committee member).

Harris, Roger, M.S. 2003–present. Dept. of Biology, ULL. *Chemical composition of Didemnum perlucidum (Ascidacea): Its variance in the northern Gulf of Mexico, potential biomedical applications, and ecological implications.* (P. Sammarco, advisor).

Knight, Christie, M.S. 2003. Dept. of Biology, ULL. *The influence of temperature and salinity on burrow ventilation rates in Lepidopthalmus louisianensis (Schmitt) and Callichirus islagrande (Schmitt) Crustacea: Decapoda: Thalassinidea.* (C. Finelli, advisor.)

Kozlowski, Greg, Ph.D. 2000–present. Dept. of Earth and Environmental Science, Tulane University. (R. Powell, committee member).

Maier Brown, Alisa, Ph.D. 2000–present. Dept. of Oceanography and Coastal Sciences, LSU. (Q. Dortch, advisor).

Platon, Emil, Ph.D. 2001. Dept. of Geology, LSU. *Effect of seasonal hypoxia on the benthic foraminiferal community of the Louisiana inner continental shelf: The 20th century record*. (N. Rabalais, committee member).

Prerost, Julie, Ph.D. 2004–present. Dept. of Biological Sciences, LSU. *Chemosensory abilities of three species of infaunal ghost shrimp (Crustacea: Decapoda: Thalassinidea).* (C. Finelli, advisor).

Quiñones, Zoraida, Ph.D. 2002–present. Dept. of Oceanography and Coastal Science, LSU (N. Rabalais, committee member).

Riley, Ken, M.S. 2003. School of Renewable Natural Resources, LSU. *Refrigerated Storage and Cryopreservation of Sperm for the Production of Red Snapper and Snapper Hybrids*. (E. Chesney, co-advisor with T. Tiersch).

Rinker, Katherine, M.S. 2005. Dept. of Earth and Environmental Science, Tulane University. *Distribution of dissolved organic phosphorus and nitrogen in the Mississippi River plume*. (R. Powell, advisor).

Robinson, Eve, M.S. 2004–present. Dept. of Marine Science, University of Texas at Austin. *The turbulent lives of copepods: How flow over a coral reef affects their ability to detect and avoid predators.* (C. Finelli, committee member).

Rodrigue, Laurie, M.S. 2004–present. Dept. of Biology, NSU. *Characterization of summertime water quality along the Bayou Lafourche, Bayou Terrebonne, and Bayou Petit Caillou Complex, Louisiana.* (C. Finelli, advisor).

Rouse, Mary-Anne, M.S. 2001. Dept. of Oceanography and Coastal Sciences, LSU. *The effects of metal and diesel contamination on copper speciation in salt marsh pore waters*. (R. Powell, advisor).

Satterwhite, Michelle, M.S. 2004–present. Dept. of Oceanography and Coastal Sciences, LSU. (E. Chesney, committee member).

Savage, Candida, Ph.D. 2004. Dept. of Systems Ecology, Stockholm University. *Effects and indicators of increased nutrients in Himmerfjärden Bay, Sweden*. (N. Rabalais, external opponent).

Stake, Joel, M.S. 2002. Dept. of Biology, ULL. *Effects of pressure on the swimming behavior of planula larvae from the hermatypic coral Porites astreoides Lamarck*. (P. Sammaro, advisor).

Stake, Joel, Ph.D. 2003–present. Dept. of Biology, ULL. *New genetic markers for studies in scleractinian corals: Systematic studies of the genera Porites and Agaricia from the Caribbean*. (P. Sammarco, committee member).

Stead, Mark A., M.S. 2002. Dept. of Oceanography and Coastal Sciences, LSU. *Swimming performance of juvenile Florida pompano (Trachinotus carolinus) and Atlantic Spadefish (Chaetodipterus faber) exposed to sublethal concentrations of ethylene glycol and methanol: Individual and synergistic effects.* (E. Chesney, committee member).

Strychar, Kevin, Ph.D. 2001. Dept. of Biology, Central Queensland University, Rockhampton, Qld., Australia. *Bleaching in soft and scleractinian corals: Comparison of the physiology, genetics, and biochemistry of Symbiodinium*. (P. Sammarco, advisor).

Switzer, Ted, Ph.D. 2003. Dept. of Oceanography and Coastal Sciences, LSU. *The ecology of two estuarine dependent tonguefishes, the blackcheek tonguefish (Symphurus plagiusa) and the offshore tonguefish (S. Cavitatium), in coastal Louisiana.* (E. Chesney, committee member).

Vavrinec, John III, Ph.D. 2004. Dept. of Biology, Darling Marine Center, University of Maine at Orono. *Resilience of green sea urchin (Strongylocentrotus droebachniensis) populations following fishing mortality: Marine protected areas, alternate stable states, and larval ecology*. (P. Sammarco, committee member).

Wortham-Neal, Jennifer, Ph.D. 2001. Dept. of Biology, ULL. *The social interactions and reproductive morphology of a spearer mantis shrimp, Squilla empusa*. (N. Rabalais, committee member).

Zhang, Zhengzhong, Ph.D. 2002–present. Dept. of Civil and Environmental Engineering, LSU. (E. Chesney, committee member).

Appendix B: LUMCON Publications From FY 2001–05

2005

Acosta, A., **P. W. Sammarco,** and L. F. Duarte. 2005. New fission processes in the zoanthid *Palythoa caribaeorum*: description and quantitative aspects. *Bull. Mar. Sci.* 76(1): 1–26.

Atilla, N., J. W. Fleeger, and **C. M. Finelli**. 2005. Effects of habitat complexity and hydrodynamics on the abundance and diversity of small invertebrates colonizing artificial substrates. *J. Mar. Res.* 63: 1151–1172.

Chesney, E. J. 2005. Copepods as live prey: a review of factors that influence the feeding success of marine fish larvae, p. 133–150. *In* C. S. Lee, P. O'Bryen, and N. Marcus (eds.), *Copepods in aquaculture*. Blackwell Publishing, Ames, Iowa.

Conover, J. and **S. Duhon**. 2005. *Effects of oil and gas development: a current awareness bibliography, 2000–2004*. OCS study MMS 2005-019. Minerals Management Service, New Orleans.

Dagg, M. J. and S. L. Brown. 2005. The potential contribution of fecal pellets from the larvacean *Oikopleura dioica* to vertical flux of carbon in a river dominated coastal margin, p. 293–307. *In* G. Gorsky, M. J. Youngbluth, and D. Deibel (eds.), *Response of marine ecosystems to global change: ecological impact of appendicularians.* Gordon and Breach.

Finelli, C. M. 2005. Bioirrigation as a source of nutrients for benthic algae: a study of burrow ventilation by ghost shrimp (Thalassinidea) from the northern Gulf of Mexico. *Geochim. Cosmochim. Acta*. 69 (10 Suppl) A114.

Finelli, C. M., D. Ebert-May, and J. Hodder. 2005. Collaborative learning: a jigsaw. *Front. Ecol. Environ.* 3(4): 220–22.

Kolian, S. and **P. W. Sammarco**. 2005. *Mariculture and other uses for offshore oil and gas platforms: rationale for retaining infrastructure*. Technical Report No.1. Eco-Rigs of Eco-Endurance Center, Baton Rouge, Louisiana.

Liu, H., **M. J. Dagg**, C. J. Wu, and K. P. Chiang. 2005. Mesozooplankton consumption of microplankton in the Mississippi River plume, with special emphasis on planktonic ciliates. *Mar. Ecol. Prog. Ser.* 286: 133–144.

Platon, E., B. K. Sen Gupta, **N. N. Rabalais**, and R. E. Turner. 2005. Effect of seasonal hypoxia on the benthic foraminiferal community of the Louisiana inner continental shelf: the 20th century record. *Mar. Micropaleontology* 54: 263–283.

Rabalais, N. N. 2005. *Relative contribution of produced water discharge in the development of hypoxia*. U.S. Department of the Interior, Minerals Management Service, Gulf of Mexico OCS Region, New Orleans, Louisiana. OCS Study MMS 2005–044.

Rabalais, N. N. 2005. The potential for nutrient overenrichment to diminish marine biodiversity, p. 109–122. *In* E.A. Norse and L.B. Crowder (eds.), *Marine conservation biology: the science of maintaining the sea's biodiversity.* Island Press. Washington, D.C.

Rabalais, N. N. and R. E. Turner. 2005. Oxygen depletion in the Gulf of Mexico adjacent to the Mississippi River. *In* B. B. Jørgensen, J. W. Murray, and L. N. Neretin (eds.), *Past and present marine water column anoxia*. NATO Science Series: IV-Earth and Environmental Sciences.

Strychar, K. B., M. Coates, **P. W. Sammarco**, T. J. Piva, and P. T. Scott. 2005. Loss of *Symbiodinium* from bleached Australian soft corals *Sarcophyton ehrenbergi*, *Sinularia* sp., and *Xenia* sp. *J. Exp. Mar. Biol. Ecol.* 320: 159–177.

Suzuki, K., A. Hinuma, H. Saito, H. Kiyosawa, **H. Liu**, T. Saino, and A. Tsuda. 2005. Response of phytoplankton and heterotrophic bacteria in the northwest subarctic Pacific to in situ iron fertilization as estimated by HPLC pigment analysis and flow cytometry. *Prog. Oceanogr.* 64: 167–187.

Thessen, A. E., **Q. Dortch**, M. L. Parsons, and **W. Morrison**. 2005. Effect of salinity on *Pseudo-nitzschia* species (Bacillariophyceae) growth and distribution. *J. Phycol.* 41: 21–29.

2004

Dagg, M. J., R. Benner, S. Lohrenz, and **D. Lawrence**. 2004. Transformation of dissolved and particulate materials on continental shelves influenced by large rivers: plume processes. *Cont. Shelf Res.* 24: 833–858.

Fleury, B. G., J. C. Coll, **P. W. Sammarco**, E. Tentori, and S. W. Duquesne. 2004. Variability in complementary (secondary) metabolites related to interspecific competition between a soft and hard coral on the Great Barrier Reef. *J. Exp. Mar. Biol. Ecol.* 303: 115–131.

Justic, D., R. E. Turner, and **N. N. Rabalais**. 2004. Perspectives for coastal marine hypoxia in a warmer world, p. 57–72. *In* G. L. Rupp and M. D. White (eds.), *Proceedings of the 7th International Symposium on Fish Physiology, Toxicology and Water Quality*, Tallinn, Estonia. May 12–15, 2003. U.S. Environmental Protection Agency, Ecosystems Research Division, Athens, Georgia. USA. EPA/600/R-04/049.

Lawrence, D., **M. J. Dagg**, **H. Liu**, S. R. Cummings, P. B. Ortner, and C. Kelble. 2004. Wind events and benthic-pelagic coupling in a shallow subtropical bay in Florida. *Mar. Ecol. Prog. Ser.* 266: 1–13.

Liu, H., **M. J. Dagg**, L. Campbell, and J. Urban-Rich. 2004. Pico-phytoplankton and bacterioplankton in the Mississippi River plume and adjacent waters in the Gulf of Mexico. *Estuaries* 27(1): 147–156.

Liu, H., K. Suzuki, and H. Saito. 2004. Community structure and dynamics of phytoplankton in the western subarctic Pacific Ocean—a synthesis. *J. Oceanogr.* 60: 119–137.

Rabalais, N. N. 2004. Hipoxia en el Golfo de México. *In* M. Caso, I. Pisanty y E. Excurra (compiladores), Diagnóstico Ambiental del Golfo de México Vol. II, Instituto Nacional de Ecología, Mexico, D.F.

Rabalais, N. N. 2004. Chapter 21: Eutrophication, p. 819–865. *In* A. R. Robinson, J. McCarthy, and B. J. Rothschild (eds.), *The global coastal ocean: multiscale interdisciplinary processes, the sea.* Vol. 13, Harvard University Press.

Rabalais, N. N. (ed.). 2004. Proceedings from Alliance for Coastal Technologies Workshop: State of Technology in the Development and Application of Dissolved Oxygen Sensors. UMCES Technical Report Series: TS-444-04-CBL. Ref No. [UMCES]CBL 04-089. ACT Indexing No. ACT-04-01.

Rabalais, N. N., **N. Atilla,** C. Normandeau, and R. E. Turner. 2004. Ecosystem history of Mississippi River-influenced continental shelf revealed through preserved phytoplankton pigments. *Mar. Pollut. Bull.* 49: 537–547.

Riley, K. L., C. G. Holladay, **E. J. Chesney**, and T. R. Tiersch. 2004. Cryopreservation of sperm of red snapper, *Lutjanus campechanus*. *J. Aquac.* 238: 183–194.

Sammarco, P. W., **A. Atchison**, and G. L. Boland. 2004. Expansion of coral communities within the northern Gulf of Mexico via offshore oil and gas platforms. *Mar. Ecol. Prog. Ser*. 280: 129–143.

Strychar, K. B., M. Coates, and **P. W. Sammarco**. 2004. Loss of *Symbiodinium* from bleached Australian scleractinian corals (*Acropora hyacinthus*, *Favites complanata*, and *Porites solida*). *Mar. Freshw. Res.* 55: 135–144.

Strychar, K. B., M. Coates, **P. W. Sammarco**, and T. J. Piva. 2004. Bleaching as a pathogenic response in scleractinian corals: evidence by concentrations of apoptotic and necrotic zooxanthellae. *J. Exp. Mar. Biol. Ecol.* 304: 91–121.

Strychar, K.B., **P. W. Sammarco,** and T. J. Piva. 2004. Apoptotic and necrotic stages of *Symbiodinium* (Dinophyceae) cell death activity: bleaching of soft and scleractinian corals. *Phycologia* 43: 768–777.

Soniat, T. M., **C. M. Finelli**, and **J. T. Ruiz**. 2004. Vertical structure and predator refuge mediate oyster reef development and community dynamics. *J. Exp. Mar. Biol. Ecol.* 310: 163–182.

Stanzel, C. D. and **C. M. Finelli**. 2004. The effects of temperature and salinity on ventilation behavior of two species of ghost shrimp (Thalassinidea) from the northern Gulf of Mexico: a laboratory study. *J. Exp. Mar. Biol. Ecol.* 312: 19–41.

Turner, R. E., **Q. Dortch**, and **N. N. Rabalais**. 2004. Inorganic nitrogen transformations at high loading rates in an oligohaline estuary. *Biogeochemistry* 68: 411–422.

Turner, R. E., C. S. Milan, and **N. N. Rabalais**. 2004. A retrospective analysis of trace metals, C, N and diatom remnants in sediments from the Mississippi River delta shelf. *Mar. Pollut. Bull.* 49: 548–556.

Turner, R. E. and **N. N. Rabalais**. 2004. Suspended sediment, C, N, P, and Si yields from the Mississippi River Basin. *Hydrobiologia* 511: 79–89.

Turner, R. E., **N. N. Rabalais**, E. M. Swenson, M. Kasprzak, and T. Romaire. 2004. Summer hypoxia in the northern Gulf of Mexico and its prediction from 1978 to 1995. *Mar. Environ. Res.* 59: 65–77.

Wiseman, Jr., W. J., **N. N. Rabalais**, R. E. Turner, and D. Justic. 2004. Hypoxia and the physics of the Louisiana coastal current, p. 359–372. *In* J. C. J. Nihoul, P. O. Zavialov, and P. P. Micklin (eds.), Dying and Dead Seas, NATO Advanced Research Workshop, Liège, Belgium. May 7–10, 2003. NATO ASI Series. Netherlands: Kluwer Academic Publishers.

Wong, W. H. and J. S. Levinton. 2004. Culture of the blue mussel *Mytilus edulis* fed both phytoplankton and zooplankton: a microcosm experiment. Aquaculture Research 35: 965–969.

Yuan, J., R. L. Miller, **R. T. Powell,** and **M. J. Dagg**. 2004. Storm-induced injection of the Mississippi River plume into the open Gulf of Mexico. Geophysical Research Letters 31: L09312, doi:10.1029/2003GL019335.

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Atilla, N., M. A. Wetzel, J. W. Fleeger. 2003. Abundance and colonization potential of artificial hard-substrate associated meiofauna. *J. Exp. Mar. Biol. Ecol.* 287(2): 273–287.

Baltz, D. M., R. G. Thomas, and **E. J. Chesney**. 2003. Spotted seatrout habitat affinities in Louisiana, p. 147–175. *In* S. A. Bortone (ed.), Biology of the spotted seatrout. Boca Raton, Florida: CRC Press.

Bassim, K. M. and **P. W. Sammarco**. 2003. Effects of temperature and ammonium on larval development and survivorship in a scleractinian coral. *Mar. Biol.* 142: 241–252.

Dagg, M. J. and **G. A. Breed**. 2003. Biological effects of Mississippi River nitrogen on the northern Gulf of Mexico–A review and synthesis. *J. Mar. Syst.* 43: 133–152.

Dagg, M. J., **J. Urban-Rich** and J. O. Peterson. 2003. The potential contribution of fecal pellets from large copepods to the flux of biogenic silica and particulate organic carbon in the Antarctic Polar Front region near 170ºW. *Deep Sea Res. II* 50:675-691.

Justic, D., **N. N. Rabalais**, and R. E. Turner. 2003. Simulated responses of the Gulf of Mexico hypoxia to variations in climate and anthropogenic nutrient loading. *J. Mar. Syst.* 42: 115–126.

Justic, D., R. E. Turner, and **N. N. Rabalais**. 2003. Climatic influences on riverine nitrate flux: Implications for coastal marine eutrophication and hypoxia. *Estuaries* 26: 1–11.

Kelaher, B. P., J. S. Levinton, J. Oomen, B. J. Allen, and **W. H. Wong**. 2003. Changes in benthos following the clean-up of a severely metal-polluted cove in the Hudson River estuary: environmental restoration or ecological disturbance? *Estuaries* 26: 1505–1516.

Liu, H. and E. Buskey. 2003. Effects of media N:P ratio on extracellular polymeric substances (EPS) production of the brown tide-forming alga, *Aureoumbra lagunensis*. *Plankton Biol. Ecol.* 50(2): 55–60.

Liu, H. and **M. Dagg**. 2003. Interactions between nutrients, phytoplankton growth, and micro– and mesozooplankton grazing in the plume of the Mississippi River. *Mar. Ecol. Prog. Ser.* 258: 31–42.

Powell, R. T. and M. R. Alexander. 2003. Trace metal contamination in sediments of Barataria Bay, Louisiana. *Bull. Environ. Contam. and Toxicol.* 71(2): 308–314.

Powell, R. T. and **A. Wilson-Finelli.** 2003. Importance of organic Fe complexing ligands in a buoyant river plume. *Estuar. Coast. Shelf Sci.* 58(4): 757–764.

Powell, R. T. and **A. Wilson-Finelli.** 2003. Photochemical degradation of organic Fe complexing ligands. *Aquat. Sci.* 65(4): 367–374.

Rabalais, N. N. 2003. Oil in the sea. *Issues Sci. Technol.* 20: 74–78.

Scavia, D., **N. N. Rabalais**, R. E. Turner, D. Justic, and W. J. Wiseman, Jr. 2003. Predicting the response of Gulf of Mexico hypoxia to variations in Mississippi River nitrogen load. *Limnol. & Oceanogr.* 48: 951–956.

Stake, J. L. and **P. W. Sammarco**. 2003. Effects of pressure on swimming behavior in planula larvae of the coral Porites astreoides (Coelenterata, Scleractinia). *J. Exp. Mar. Biol. Ecol.* 288: 181–201.

Turner, R. E., **Q. Dortch**, D. Justic, and E. M. Swenson. 2003. Nitrogen loading into an urban estuary: Lake Pontchartrain (Louisiana, USA). *Hydrobiologia* 487: 137–152.

Turner, R. E. and **N. N. Rabalais**. 2003. Linking landscape and water quality in the Mississippi River basin for 200 years. *BioScience* 53: 563–572.

Turner, R. E., **N. N. Rabalais**, D. Justic, and **Q. Dortch**. 2003. Future aquatic nutrient limitations. *Mar. Pollut. Bull.* 46: 1032–1034.

Turner, R. E., **N. N. Rabalais**, D. Justic and **Q. Dortch**. 2003. Global patterns of dissolved N, P and Si in large rivers. *Biogeochemistry* 64: 297–317.

Woodall, D. W., R. P. Gambrell, **N. N. Rabalais**, and R. D. DeLaune. 2003. Comparing methods and sediment contaminant indicators for produced water fates in a Louisiana estuary. *Mar. Pollut. Bull.* 46: 731–740.

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Bassim, K. M., **P. W. Sammarco**, and T. Snell. 2002. Effects of temperature on fertilization success and embryogenesis in *Diploria strigosa* (Coelenterata, Scleractinia). *Mar. Biol.* 140(3): 479–488.

Childs, C. R., **N. N. Rabalais**, R. E. Turner, and L. M. Proctor. 2002. Sediment denitrification in the Gulf of Mexico zone of hypoxia. *Mar. Ecol. Prog. Ser.* 240: 285–290. (Erratum, 2003. 247: 310).

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Justic, D., **N. N. Rabalais**, and R. E. Turner. 2002. Modeling the impacts of decadal changes in riverine nutrient fluxes on coastal eutrophication near the Mississippi River Delta. *Ecol. Model.* 152: 33–46.

Liu, H., K. Imai, K. Suzuki, Y. Nojiri, N. Tsurushima, and T. Saino. 2002. Seasonal variability of picophytoplankton and bacteria in the western subarctic Pacific Ocean at Station KNOT. *Deep-Sea Res. II* 49: 5409–5420.

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Parsons, M. L., **Q. Dortch**, and R. E. Turner. 2002. Sedimentological evidence of an increase in *Pseudo-nitzschia* (Bacillariophyceae) abundance in response to coastal eutrophication. *Limnol. Oceanogr.* 47: 551–558.

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Rabalais, N. N. and S. W. Nixon (eds.). 2002. Preface: Nutrient Over-enrichment of the Coastal Zone. *Estuaries* 25(4b): 497.

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Dortch, Q., T. D. Peterson, S. Achee, and K. L. Furr. 2001. Phytoplankton, cyanobacterial blooms, and N fixation in years with and without Mississippi River diversions, p. 4.1-4.26. *In* R. E. Turner, **Q. Dortch**, and **N. N. Rabalais** (eds.), *Nitrogen loading into Lake Pontchartrain*, Report to the Lake Pontchartrain Basin Foundation.

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Appendix C: LUMCON Grants for FY 2001–05

Research and Education

2004

Coastal Eutrophication and Hypoxia: Implications for Mercury Methylation, Mercury Biomagnification and Human Health. NOAA, Oceans and Human Health Initiative. PI: David Senn, Harvard School of Public Health. Co-PIs: **Edward Chesney** and **Nancy Rabalais**. $44,190 (yr 1); $35,857 (yr 2). Start: 09/01/04 (3 yrs).

Determining the Geographical Distribution, Maximum Depth and Genetic Affinities of Corals on Offshore Platforms, Northern Gulf of Mexico. Minerals Management Service, Louisiana State University (LSU) Coastal Marine Institute. PI: **Paul Sammarco**. $352,304. Start: 09/01/04 (2 yrs).

Captive Spawning of Marine Fishes as a Stimulus to Research and Industry Development. Louisiana Sea Grant College Program. PI: **Edward Chesney**. $104,322. Start: 02/01/04 (3 yrs).

A Proposal to Assist Commercial Aquaculture Development at Dixie Fish Farm, LLC. Dixie Fish Farm, LLC. PI: **Edward Chesney**. $25,456. Start: 01/19/04 (2 yrs).

2003

The Effects of Water Movement and Zooplankton Escape Behavior on Planktivory by Coral Reef Fishes in Different Microhabitats, Collaborative Research and RUI. National Science Foundation. PI: **Chris Finelli**. Co-PIs: Ed Buskey, University of Texas Marine Science Institute and Ray Clarke, Sarah Lawrence College. $81,243,25. Start: 10/01/03 (3 yrs).

N-GOMEX 2003, Hypoxia Studies in the Northern Gulf of Mexico. NOAA. PI: **Nancy Rabalais**. $1,656,205. Start: 05/01/03 (3 yrs).

Regional Center for Ocean Science Education Excellence (COSEE)-Central Gulf of Mexico. National Science Foundation. PI: Sharon Walker, University of Southern Mississippi. Co-PI: **Jessica Kastler**. $129,198. Start: 01/01/03 (2 yrs).

2002

Multistress: Cumulative Coastal Stressors: Northern Gulf of Mexico. NOAA. PI: **Nancy Rabalais**. Co-PIs: **Quay Dortch** and R. E. Turner, LSU. $1,123,700. Start: 09/01/02 (5 yrs).

Education Program for Nonpoint Source Pollution in the Barataria and Terrebonne Watersheds. Louisiana Dept. of Environmental Quality. PI: **Jessica Kastler**. $23,104.30. Start: 04/15/02 (2 yrs).

FIRST II Field Station Team (Collaborator), National Science Foundation. PI: **Christopher Finelli**. $33,660. Start: 01/04/02 (4 yrs).

Collaborative Research: Interactive Influences of Atmospheric Deposition and Phytoplankton on Trace Metal Speciation. National Science Foundation; LUMCON. PI: **Rodney Powell**. Co-PI: John Donat, Old Dominion University. $177,275. Start: 03/15/02 (4 yrs).

Optimizing Methods for Captive Spawning of Marine Fish and Mass Rearing of Their Larvae. Louisiana Sea Grant College Program. PI: **Edward Chesney**. $69,222. Start: 02/01/02 (2 yrs).

Human Activities and a Changing Climate in Louisiana–Strategic Improvement Plan. Environmental Protection Agency. PI: **Michael Dagg**. $185,250. Start: 06/10/02 (4 yrs).

Decoupling the Effects of Mass Transfer, Water Motion and Temperature in Reef Health. NOAA, National Undersea Research Program. PI: **Christopher Finelli**. $17,318. Start: 06/01/02 (1 yr).

Refining Chloropigment Data for an Accurate Determination of Estuarine Phytoplankton Community Composition. Louisiana Sea Grant College Program. PI: **Nancy Rabalais**. Co-PI: **Quay Dortch**. $161,551. Start: 02/01/02 (3 yrs).

Long-Term Estuary Assessment Group (LEAG): Science in Service of Policy in the Mississippi River/Gulf of Mexico Estuary. NOAA. PI: J. McLachlan, Tulane University. Co-PIs: **Michael Dagg** and **Rodney Powell**. $151,585, 2002; $259,003, 2003–2005; $14,956 (suppl.) 2004–2005.

2001

LUMCON Enhancement for FY 2001–2002, Faculty and Monitoring Support. Louisiana Board of Regents. PI: **Michael Dagg**. $200,000. Start: 10/15/01 (2 yrs).

Effects of Offshore Oil and Gas Development: Continuation of a Printed and Web-Based Current Awareness Bibliography. Minerals Management Service. PI: **Michael Dagg**. $90,896. Start: 09/30/04 (4 yrs).

Hypoxia, Nekton and Habitat in the NGOM: Modeling and Retrospective Analyses. NOAA. PI: **Edward Chesney**. $87,299. Start: 09/01/01 (3 yrs).

Controls on the Optical Properties of Coastal Waters in the Northern Gulf of Mexico. NASA-EPSCoR; Louisiana Board of Regents. PI: **Michael Dagg**. $1,240,320. Start: 09/01/01 (4 yrs).

A Regional Framework for Interconnectivity of Coastal Observing Systems. National Science Foundation; SURA. $166,579. Start: 09/01/01 (2 yrs).

N-GOMEX 2001: Retrospective Analysis and Modeling of Food Web Dynamics in the Mississippi River Plume. NOAA. PI: **Michael Dagg**. $65,336. Start: 09/01/01 (3 yrs).

Metadata Creation and Implementation Assistance. USGS. PI: **Ben Cole.** $5,996. Start: 08/01/01 (1 yr).

Captive Spawning and Larval Rearing of Cobia, Rachycentron canadum, to Support LA Mariculture Development. Louisiana Sea Grant College Program. PI: **Edward Chesney**. $10,000. Start: 06/01/01 (2 yrs).

CAREER: Career Development Plan: Interdisciplinary Research and Education in Marine Habitats. National Science Foundation. PI: **Christopher Finelli**. $551,755. Start: 04/02/01 (6 yrs).

GLOBEC 2000: Responses of the Neocalanus spp. Microplankton Community to Physical Forcing in the Coastal Gulf of Alaska. National Science Foundation. PI: **Michael Dagg.** Co-PI: S. Strom, University of Washington. $604,458. Start: 02/15/01 (6 yrs).

Documentation of Hypoxia Effects on Living Resources. NOAA, National Undersea Research Program. PI: **Nancy Rabalais**. $20,000. Start: 01/01/01 (2 yrs).

2000

Gulf Drilling Platforms as an Environmental Asset: Long-Term Artificial Reefs and Sites for Coral Recruitment. Minerals Management Service. PI: **Paul Sammarco**. $337,960. 10/01/00 (3 yrs).

Enhancement of Minority Participation in Marine Science in Louisiana, Louis Stokes Louisiana Alliance for Minorities Program (LAMP), Phase II. Louisiana Board of Regents, NSF EPSCoR. PI: **Paul Sammarco**. $120,000. Start: 09/01/00 (4 yrs).

Picoplankton and Optical Characterization of Surface Waters in the Northern Gulf of Mexico. Louisiana Board of Regents. NASA EPSCoR. PI: **Michael Dagg**. $29,197. Start: 08/01/00 (1 yr).

Environmental Research in Coastal Louisiana. Louisiana Board of Regents; EPA EPSCoR. PI: **Michael Dagg**. Co-PIs: **Brent McKee** and **Nancy Rabalais**. $350,000. Start: 08/15/00 (3 yrs).

Wind Events and Benthic-Pelagic Coupling in Western Florida Bay. NOAA. PI: **Michael Dagg**. $112,240. Start: 08/01/00 (2 yrs).

NGOMEX 2002, What Nutrients Really Determine C Flux and Hypoxia? NOAA. PI: **Quay Dortch**. $85,699. Start: 08/01/00 (3 yrs).

N-GOMEX 2000, Hypoxia Studies in the Northern Gulf of Mexico. NOAA, Coastal Ocean Program. PI: **Nancy Rabalais** Co-PIs: **Quay Dortch**, R. E. Turner, LSU, W. J. Wiseman, Jr., LSU, and D Justic, LSU. $920,295. 08/01/00 (3 yrs).

Impacts of Climate Variability on Coastal Fisheries in Low Oxygen Environments. U.S. Department of Energy, NIGEC. Co-PIs: **Nancy Rabalais**, D. Justic, LSU, and R. E. Turner, LSU. $94,290. Start: 07/01/00 (3 yrs).

Transport and Transformation of Dissolved and Particulate Materials on Continental Shelves Influenced by Large Rivers. Office of Naval Research. PI: **Michael Dagg**. $26,250. 07/01/00 (2 yrs).

Physical and Biological Processes Affecting the Distribution of Hypoxia on the Louisiana Continental Shelf. Louisiana Board of Regents; EPA EPSCoR Program. PI: **Nancy Rabalais**. Co-PIs: R. E. Turner, LSU, W. J. Wiseman, Jr., LSU, D. Justic, LSU. $320,000. Start: 03/01/00 (3 yrs).

LUMCON Fiscal Agent

2005

Coastal Wetlands, Planning, Protection and Restoration Act (CWPPRA), Academic Assistance. U.S. Army Corps of Engineers. PI: Jenneke Visser, LSU. $239,450. 2001; $100,000, 2002; $99,000 2003–2004; $99,000, 2005.

2002

Coastal Restoration and Enhancement Through Science and Technology (CREST). NOAA. $2,109,568. Start: 02/02/02 (6 yrs).

Barataria Terrebonne National Estuary Program

Base funding. U.S. EPA. PI: **Kerry M. St. Pé**. $436,273. FY01–02; $510,000, FY02–03; $506,685, FY03–04; $506,984, FY04–05.

2003

Public Outreach Services for the Mississippi River Water Reintroduction into Bayou Lafourche. Louisiana Department of Natural Resources. PI: **Leslie McVeigh**. $205,000. Start: 04/01/03 (2 yrs).

Gulf Shoreline Restoration Science Advisory Report. University of New Orleans Research & Technology Foundation, Louisiana Department of Natural Resources. PI: **Richard DeMay.** $40,000. Start: 02/01/03 (1 yr).

Maritime Forest Ridge and Marsh Restoration at Port Fourchon, Louisiana. Gulf of Mexico Foundation, U.S. EPA. PI: **Richard Demay**. $101,700. Start: 01/01/03 (3 yrs).

Maritime Forest Ridge and Marsh Restoration at Port Fourchon, Louisiana. NOAA. PI: **Richard Demay**. $90,000. Start: 01/01/03 (3 yrs).

2002

Monitor the Effects of Stormwater Discharge at the Proposed Pointe Aux Chenes Pumping Station. Gulf of Mexico Program. PI: **Andrew Barron**. $212,500. Start: 09/01/0202 (5 yrs).
Educational Publications-State CIAP Implementation. Louisiana Department of Natural Resources, NOAA. PI: **Kerry M. St. Pé**. $100,000. Start: 08/01/02 (2 yrs).

2001

Assessment Status of Non–Indigenous Invasive Species of Plants in the Barataria–Terrebonne Estuary. U.S. EPA, Gulf of Mexico Program. PI: **Michael Massimi**. $54,000. Start: 08/01/02 (2 yrs).

Implement a Vegetative Model for Restoration, Conservation, and Habitat Enhancement on Beneficial use Dredge Sediments. Gulf of Mexico Program, U.S. EPA. PI: **Richard DeMay**. $179,750. Start: 08/01/02 (3yrs).

Facilities and Marine Operations

Long Distance Learning T-1 Line. Board of Regents Long Distance Learning Initiative Through the Office of Telecommunications. $8,100, 2003; $8,100, 2004; $8,100, 2005.

2004

Simultaneous Measurements of Atmospheric Visibility, Particulate Matter and Mixing Height at the Breton Area IMPROVE Site, Louisiana. Minerals Management Service; LSU Coastal Marine Institute. PI: **Steven Rabalais**. $17,438. Start: 07/01/04 (1 yr).

Restructuring and Automating LUMCON's Environmental Monitoring System (LEMS). NOAA. PI: **Michael Dagg**. $48,150. Start: 03/01/04 (2 yrs).

Ship Time. NOAA National Marine Fisheries Service, Northeastern Cruise. PI: **Steven Rabalais**. $266,416. 03/01/04 (3 yrs).

2003

Building of a Boardwalk on LUMCON Property, Terrebonne Parish, Protection of Habitat for Migratory and Resident Birds. Collaborative LUMCON & BTNEP. $8,000. Start: 10/01/03 (2 yrs).

Fabrication and Deployment of an Environmental Station to be Located at the Mississippi River Lighthouse, Southwest Pass, LA. NASA. PI: **Michael Dagg**. $20,030. Start: 09/12/03 (2 yrs).

Oceanographic Technical Services. National Science Foundation. PI: **Steven Rabalais**. $130,000. Start: 04/01/03 (2yrs).

2002

Ship Operations. National Science Foundation. PI: **Steven Rabalais**. $898,778. Start: 03/01/02 (4 yrs).

2001

Enhancement of the Basic Oceanographic Analytical Capabilities at LUMCON. Louisiana Board of Regents Enhancement Fund. PI: **Rodney Powell**. $110,000. Start: 07/01/2001 (1 yr).

Ship Time, Office of Naval Research. PI: **Steven Rabalais.** $417,804, 2002; $113,520, 4 years; $662,491, 3 years; $329,589, 03/1/05–2/28/10.

Oceanographic Instrumentation. National Science Foundation. PI: **Steven Rabalais**. $48,526, 2001; $91,800, 2002; $212,887, 2003; $34,719, 2003; $43,000, 2004.

Shipboard Scientific Support Equipment. National Science Foundation. PI: **Steven Rabalais**. $136,748, 2001–02; $113,520, 2003–05; $126,734, 2004–06.







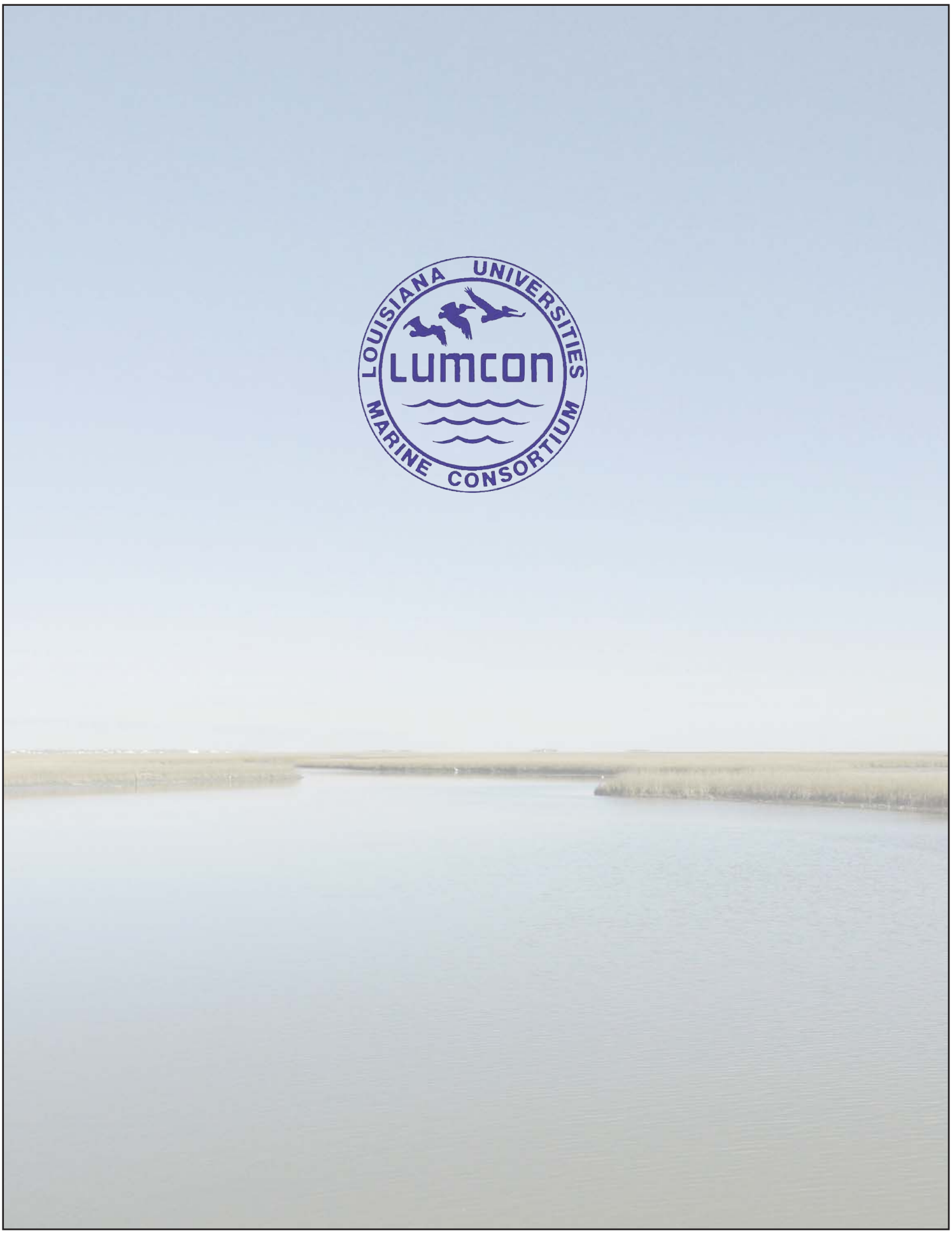











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