# REPORT ON THE ROLE, MISSION, AND STRUCTURE OF THE LOUISIANA UNIVERSITIES MARINE CONSORTIUM

## RESPONSE TO HOUSE RESOLUTION 50 OF THE 2011 REGULAR SESSION OF THE LOUISIANA LEGISLATURE

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#### **EXECUTIVE SUMMARY**

The Louisiana House of Representatives, during the 2011 Regular Legislative Session, passed a resolution charging the Board of Regents "to study the role, scope, mission, and structure of the Louisiana Universities Marine Consortium" in a manner which "shall include an examination of the relation of LUMCON to other consortia to determine the appropriate authority and funding levels needed."

To address this request, the Board engaged a panel of three out-of-state consultants: Dr. George Crozier, Panel Chair, Executive Director, Dauphin Island Sea Lab; Dr. Bruce Corliss, Director, Duke/University of North Carolina Oceanographic Consortium; and Dr. John Wells, Dean and Director, Virginia Institute of Marine Science. This group has a combined total of 80 years of experience in managing and administering marine programs, including those that operate under consortial agreements.

The report of the External Review Team recognized the towering possibilities of the Louisiana Universities Marine Consortium (LUMCON) as well as its significant challenges of structure, resources, and internal relations. The panel concluded that the higher possibilities would be unattainable unless new arrangements were forged to address the multi-layered questions which LUMCON faces. While structural adjustments were considered essential, the panel was well aware that no organizational rearrangement alone would provide an immediate transformative elixir for LUMCON. Only wise and tempered collaborative leadership over time at the level of the Legislature, the Regents, the LUMCON Executive Director, and the campuses could ensure that LUMCON reaches its highest goals.

In consideration of the External Review Panel's assessments, the Board of Regents has developed recommendations that leave LUMCON governance structure largely intact, but with the addition of public and private research campuses to the Executive Board, and to provide LUMCON administrators appropriate oversight to foster an environment within which substantive issues affecting LUMCON can be more effectively addressed through a five-year comprehensive Master Plan. These recommendations reflect a synthesis of insights from the consultants and all affected parties.

#### INTRODUCTION AND BACKGROUND

#### **History & Governance**

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3 Currently a consortium of 20 public and private Louisiana universities and colleges, 4 LUMCON has been in existence for more than 30 years. During the late 1960s and early 1970s, 5 discussions among Louisiana universities, researchers, government representatives, and other 6 stakeholders, yielded a recommendation that funds be identified to build a marine research center 7 on the Louisiana coast. The proposal to form the Louisiana Universities Marine Consortium for 8 Research and Education (LUMCON) was endorsed by the Board of Regents and enacted into 9 law by the Louisiana Legislature in 1979; funding was identified to build a campus for the 10 Consortium on the central coast of Louisiana. After four years of operating out of trailers, 11 LUMCON began construction of its Marine Center in 1983 and moved into the finished structure 12 in 1986. 13 The DeFelice Marine Center, LUMCON's key field station, is strategically located in 14 Cocodrie, in the upper end of the Terrebonne-Timbalier Bay, one of Louisiana's larger estuaries. 15 The location stands amidst the dynamic landscape LUMCON studies, between two major rivers 16 (the Mississippi and the Atchafalaya), adjacent to both a new delta and a degrading delta, and in 17 an area of significant coastal erosion and wetland degradation. A second facility, the Fourchon 18 Lab near Grand Isle, provides Consortium members with an important research and education 19 base for trips to nearby beaches, lakes, bays, and the Gulf of Mexico. 20 In addition to the two principal facilities, LUMCON currently operates two vessels, the 21 R/V Pelican and the R/V Acadiana. These vessels host a wide variety of research and educational 22 activities for both Consortium members and other organizations. The *Pelican* repeatedly ranks as 23 one of the nation's top University-Oceanographic Laboratory System (UNOLS) vessels.

2 LUMCON is managed through a unique governance structure defined in statute. In founding 3 legislation, the Consortium was governed by a 13-campus LUMCON Council and Executive 4 Committee; this was superseded by a three-campus university governance structure established 5 in statute in 1995. Currently the Consortium is governed by this three-campus structure, through 6 a six-member Executive Board comprised of chief administrative officers of Louisiana State 7 University and A & M College, Nicholls State University, and the University of Louisiana at 8 Lafayette. LUMCON's Executive Director, selected by the Executive Board, manages day-to-9 day operations. Other campuses participate as LUMCON members but have no direct role in 10 governance or decision-making. A previous Board of Regents-sponsored external review 11 (November 2000) identified strengths and weaknesses of this governance arrangement (see 12 Appendix III). 13 Since the Gulf oil spill in 2010, multiple consortial arrangements have been established to 14 address marine and coastal research and educational issues, and to capitalize on BP and Federal 15 funding opportunities, including the Clean Water Act which requires collection of fines related to 16 the oil spill. These novel arrangements have been both independent of – and connected to – 17 LUMCON. The Coastal Sustainability Consortium (CSC) – a partnership among LSU, UL 18 Lafayette, UNO, Tulane, the Louisiana Office of Coastal Protection and Restoration, and the U.S. 19 Army Corps of Engineers – serves as a nexus joining university researchers in Louisiana and 20 government agencies and corporate partners in coastal restoration and protection efforts. 21 Members of the CSC also formed the ad hoc Gulf Research Institute for a Resilient Louisiana 22 (GRI-RL) to develop an inventory of capabilities and research hypotheses to respond to the 23 formation of BP-GRI. In addition, the four research universities partnering in the CSC, along

1 with LUMCON, signed a memorandum of understanding establishing the Louisiana Universities

Gulf Research Collaborative (LUGRC) to coordinate a university response to BP-GRI requests

for proposals.

LUMCON has recently been notified of a \$13 million, three-year BP-Gulf Research Institute (BP-GRI) research consortium grant to study the impact of the 2010 oil spill on dead zones in the Gulf of Mexico. The award involves 26 investigators from 12 institutions including LUMCON, LSU and A&M College, UL Lafayette, the LSU Agricultural Center, and 8 institutions outside of Louisiana. Part of BP's \$500 million post-oil spill research investment, the three-year award could yield opportunities through BP-GRI for additional funding. In addition, over the coming years, penalties assessed to BP under the Clean Water Act represent potentially billions of dollars in additional funding. An energized and productive LUMCON Consortium

#### **2011 External Review**

could serve as a leader in directing these efforts.

The Louisiana House of Representatives, during the 2011 Regular Legislative Session, adopted a resolution charging the Board of Regents "to study the role, scope, mission, and structure of the Louisiana Universities Marine Consortium" in a manner which "shall include an examination of the relation of LUMCON to other consortia to determine the appropriate authority and funding levels needed." Recommendations are to be submitted to the Legislature "not later than sixty days prior to the convening of the 2012 Regular Session." (See Appendix I.)

To conduct this wide-ranging study of LUMCON's role, mission and structure, the Board of Regents engaged a team of out-of-state experts with broad (cumulative 80 years) experience in consortia which engage in wide-ranging activities in the marine sciences: scholarly research,

1 education, monitoring, and community outreach. Members of the team included Dr. George

2 Crozier, Panel Chair, Executive Director, Dauphin Island Sea Lab; Dr. Bruce Corliss, Director,

3 Duke/University of North Carolina Oceanographic Consortium; and Dr. John Wells, Dean and

4 Director, Virginia Institute of Marine Science. On September 26, the panel conducted a site visit

of the DeFelice Marine Center, as well as interviews with the Executive Director, faculty, staff,

and campus representatives from the three Executive Committee member campuses, other key

institutions, and the Governor's Office of Coastal Protection and Restoration. Appendix II

provides a list of the consultants and interview attendees.

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9 The DeFelice Marine Center is an important component of marine research in Louisiana:

a key field station to help in the achievement of LUMCON's broader statewide research and

educational missions. The review focuses primarily on this broader mission, inclusive of the

function of the DeFelice Marine Center and the vessel operations.

#### OVERVIEW OF STUDY

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Prior to the site visit, the Board of Regents staff provided the External Review Team (ERT) with briefing materials, a report from Dr. Nancy Rabalais, Executive Director of LUMCON, and the final report of an ERT that conducted a similar review in 2000. These documents were of enormous value in assessing the status and trends throughout the threedecade existence of the Consortium. The 2000 report was of particular interest because it presented the Board of Regents and administration of LUMCON with critical observations and specific recommendations. Those afforded the current ERT with benchmarks which informed judgments and subsequent recommendations. Although a seemingly minor point, even the review 11 years ago consistently referred to the DeFelice Marine Center in Cocodrie as LUMCON. This confusion of the physical facilities with LUMCON the academic consortium envisioned by the Legislature and Board of Regents in 1979 appears to have contributed to the complexity of an inherently tangled academic construct. Every individual interviewed, at each level from faculty to upper administration, is convinced of and committed to the value and productivity of the Executive Director, the facilities and staff associated with the Marine Center, and the vessel operations based at the site. However, interviewees at every level expressed reservations regarding the effectiveness of LUMCON as a consortium. While all Consortium members may not have significant commitments in the research arena, Louisiana is a coastal state with a shoreline and coastal ocean that are simultaneously the "gas station and seafood market" of the nation. Thus, colleges and schools statewide have an obligation to engage in educational programs to be developed by LUMCON and implemented

- through the DeFelice Marine Center, as well as a variety of outreach efforts including the
- 2 Barataria-Terrebonne National Estuary Program (BTNEP).
- Within this context, the External Review Team was tasked by the Board of Regents to
- 4 address House Resolution 50 in a manner which promotes and facilitates, at high levels, research
- 5 and education in marine and coastal sciences for Louisiana.
- The External Review Team's final report was reviewed by key stakeholders, including
- 7 the LUMCON Executive Director and representatives of campuses on the existing and
- 8 prospective LUMCON Executive Board. The report and responses received were transmitted to
- 9 the Board in November, along with a summary matrix. The Board of Regents' recommendations
- reflect a synthesis of the External Review Team's report and all responses received from the
- 11 LUMCON Executive Director and affected campuses.

#### 1 **FINDINGS** 3 **Strengths** 1) The Woody J. DeFelice Marine Center is a facility of exceptional potential, generally well 4 5 managed and well equipped. 6 2) The staff is dedicated, competent, and critical to the continued success of the Center. 7 3) Infrastructure at the Marine Center is conducive to member institution utilization for both 8 research and education. 9 4) The vessel operations carried out by the staff are superb and recognized as such at local, 10 regional, and national levels. 11 5) The Executive Director has effectively represented the Consortium and its member 12 institutions within the State of Louisiana and at the national level. The scientific 13 achievements of the Executive Director are extraordinary and almost without parallel within 14 the Gulf of Mexico. 15 6) The resident faculty is motivated, enthusiastic and engaged to varying degrees with 16 institutional collaborators. The K-12 education program is well conceived and managed with 17 enthusiasm and great energy. 18 7) Elements of LUMCON have achieved national stature and recognition. 19 8) Existence of LUMCON was critical in attracting several Federal programs such as the

22 9) The successful development and subsequent award of the BP-GRI proposal are truly significant events in the history of the Consortium.

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Research Park in Lafayette.

National Wetlands Research Center and National Marine Fisheries Center at the University

#### Issues

- 2 1) Widespread failure to distinguish between the facility (DeFelice Marine Center) and the
- 3 Louisiana Universities Marine Consortium (LUMCON) has created confusion and has
- 4 inhibited the process of developing collaborative statewide programs in research and
- 5 education as originally envisioned.
- 6 2) The original mission statement contributes to this confusion in that it does not emphasize the
- 7 role and importance of LUMCON as a Marine Science consortium within the State of
- 8 Louisiana.
- 9 3) LUMCON thus does not effectively and consistently function as a true consortium and is not
- meeting its potential.
- 11 4) The funding base of LUMCON, as both an institution and a Marine Center, is indeed woefully
- inadequate and inherently unstable, in part because of the dependence on indirect cost
- recovery and its skewed distribution among faculty.
- 14 5) Budgetary advocacy for LUMCON by members of the Executive Board is conflicted by their
- primary obligations to their home institutions.
- 16 6) There is no effective advocate for LUMCON, the institution, for budget considerations on a
- year-to-year basis or on a longer-term strategic planning basis.
- 18 7) The Executive Board is neither particularly knowledgeable nor effectively engaged in marine
- issues and therefore the Consortium lacks adequate upper-level administrative attention.
- 20 8) Consortium faculty do not have input into governance or programmatic activities of either the
- 21 Consortium or the Marine Center.
- 22 9) The lack of tuition recovery is a legitimate concern given the potential education contributions
- of the LUMCON faculty.

- 1 10) Expansion of programs by LUMCON resident faculty have provided research opportunities
- 2 for some affiliated faculty but inadvertently excluded others largely due to space limitations or
- 3 inefficient use.
- 4 11) There is insufficient interaction of the resident faculty with the greater Louisiana academic
- 5 community, to the potential detriment of their own advancement.
- 6 12) There is an undesirable but explicable bimodal distribution of age and experience within the
- 7 resident faculty that reflects recent recruitment and senior faculty approaching retirement.
- 8 13) Resident faculty at the Marine Center are not engaged in suitable disciplines to address the
- 9 needs of the Governor's Office of Coastal Protection and Restoration, but there appears to be
- recognition of the potential of LUMCON as a functional and effective consortium to address
- important State problems.
- 12 14) Isolation of the resident facility remains a significant obstacle to recruiting and retention, as it
- does at some other marine stations.
- 14 15) The facility lacks critical mass in administrative support staff, education specialists, resident
- faculty, research scientists and graduate students.
- 16 16) The facility lies in a highly vulnerable location and at some point a "retreat" strategy may
- have to be incorporated into the planning process.
- 18 17) LUMCON has not taken full advantage of other available marine facilities in the State.
- 19 18) The educational potential at all levels, K-Ph.D., has not been realized.
- 20 19) The K-12 program falls far below its potential productivity because of inadequate staffing
- 21 levels, and there seems to be limited outreach of the Marine Center's educational staff to the
- larger education community across the State.

- 1 20) The plethora of consortia recently established in response to coastal restoration and oil spill
- events resulted from the perception of LUMCON as a dysfunctional consortium.
- 3 21) Neither research assets nor educational opportunities have been broadly disseminated and
- 4 marketed.
- 5 22) The relationship between the LUMCON administration and those of the member institutions
- 6 is strained, while relationships at the faculty level appear to be good and/or improving.
- 7 23) Given budgetary and governance constraints, together with repeated storm damage, the
- 8 modest progress since the 2000 external review is understandable but remains a concern.

#### SUMMARY AND CONCLUSIONS

#### Strengths

The strengths of LUMCON are extraordinarily obvious. The Executive Director has been among the most prolific, visible, and influential scientists managing research and educational programs in the Gulf of Mexico. Her achievements have lifted the image of the institution to the highest national levels and her dedication to the institution has carried it through the roughest of times. Under her tenure, the DeFelice Marine Center has become one of the premier field stations in the Gulf and the *R/V Pelican* is one of the most heavily utilized and appreciated vessels of the University-Oceanographic Laboratory System (UNOLS) fleet. The support staff is dedicated, engaged and competent. The existence of this institution and its considerable assets has been used to leverage Federal investments on member campuses and it has successfully competed for a major grant from the BP-Gulf Research Initiative (BP-GRI).

#### **Issues**

There is not widespread comprehension of the distinction between LUMCON, the Consortium, and the physical facilities that are associated with the Marine Center. The Marine Center in isolation cannot meet the definition of a consortium, but many have tied their interests to this Cocodrie entity and confounded it with the broader statewide purposes of a marine consortium. The External Review Team has concluded that a new and primary emphasis must be placed on the role and function of LUMCON, the Consortium, in facilitating both research and educational programs to be conducted at the member institutions, the DeFelice Marine Center, as well as a variety of public outreach endeavors.

success. Although LUMCON has been successful in development of the Marine Center as a facility, it has not succeeded as a consortium or in receiving adequate financial support from the State of Louisiana. The ERT attributes the lack of Consortium progress to a number of factors, including governance by an Executive Board that is neither knowledgeable about marine activities nor effectively engaged. The present Consortium structure does not provide a means for Consortium faculty to provide input to the programmatic development of the Consortium or

Structure and Governance. The structure and governance of LUMCON are critical to its

the Marine Center. Although relationships between LUMCON and membership institution faculty seem to be quite good, relationships between the administrations of LUMCON and member institutions are strained, partly as a result of the lack of input from member institutions.

The lack of a functional consortium is having a negative impact on developing a comprehensive and unified approach to marine issues of State and national importance. For example, the recent establishment of other consortia to address coastal restoration and oil spill events was a direct result of the perception that LUMCON is not functioning effectively as a statewide university consortium. Rather than being viewed as a unifying force, LUMCON is actually considered a competitor for grant funding. In spite of these concerns, member institutions believe that LUMCON can be an effective consortium and expressed strong support for collaborative relationships.

**Facilities.** It is clear that while the DeFelice Marine Center offers a valuable asset for marine research, education and outreach, it has and will continue to face problems associated with its isolated location. The most notable and significant challenge is attracting and retaining faculty. Although the general problem of isolation is shared with other marine laboratories throughout

1 the country, it is particularly severe at the Marine Center at Cocodrie because of traveling 2 difficulties and limitations on cultural activities. Moreover, there is the additional problem that 3 the Marine Center is essentially at sea-level elevation and is thus also highly vulnerable to winds 4 and storm surge from hurricanes and tropical storms, and in recent years even from flooding 5 during cold fronts and exceptionally high tides. This vulnerability requires additional 6 commitment of manpower and scarce budgetary resources as well as advanced planning which, 7 in the future, may even necessitate the unwelcome strategy of physical retreat from the coast. 8 Despite the dedicated and highly competent staff, the Marine Center also suffers from 9 insufficient administrative personnel to maintain an ideally managed facility to meet the needs of 10 resident faculty and visitors from a wide range of venues who travel to the Marine Center for 11 educational and research purposes. Resident faculty, research scientists and graduate students are 12 all far below critical mass and, as a result, the effectiveness of LUMCON as a consortium and a 13 marine facility is diminished. 14 15 **Budget.** LUMCON has never been adequately funded and recent budget cuts have placed the 16 Consortium and its Marine Center in the position of being (in the words of the external review 17 team more than a decade ago) in an "appallingly low" set of funding circumstances. This 18 problem is particularly troublesome because the heavy reliance on indirect cost recoveries has 19 created an inherent instability in the funding model, and a long-term issue of survivability should 20 one or more faculty members prove unable to generate significant grant support. The problem is

together with the fact that with so few faculty, an "averaging effect" that would be in play in a

compounded because there is an uneven distribution of indirect cost recoveries among faculty,

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larger marine program does not exist at LUMCON. Further, the Executive Board, which should

1 be the de facto advocate for the LUMCON budget, is in fact conflicted by having its members 2 necessarily aligned with their institutions' own initiatives as a first priority, thereby leaving 3 LUMCON without a clear and passionate advocate. It is unlikely that LUMCON can survive in 4 the medium to long term without a new financial model that a) holds LUMCON harmless in 5 future across-the-board budget cuts, b) allows generation of modest new income by recovery of 6 some tuition charged for courses taught at LUMCON, and c) relies on member institutions' 7 support for new faculty, post-doctoral fellow and research scientist lines. It is clear that 8 Louisiana is severely challenged by inadequate funding for higher education, but LUMCON 9 absolutely must be accorded special consideration because of its inability to implement increases 10 in undergraduate tuition to fill the budgetary gap. 11 12 **Faculty.** Limited resources and the emphasis to date on the physical facility have created a 13 situation in which the faculty residing at the Marine Center are perceived as failing to serve the 14 greater academic community and, in fact, as competing against at least some of that community. 15 The interaction of the resident faculty with their colleagues is limited by geography, the culture 16 of academia, and demands on their energy to support the facility through grantsmanship and 17 subsequent commitments. The Consortium members' faculties and administrations feel 18 disenfranchised from the activities at the Center to varying degrees, and some to significant 19 levels. The LUMCON faculty is self-propagating without real input from the participating 20 institutions. In some ways this has not served the broader needs of the State or the original vision 21 for LUMCON. The External Review Team (ERT) has concluded that the system of interactions

must be dramatically enhanced through primary faculty appointments at appropriate member

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campuses.

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marketing effort should be pursued.

2 **Education.** The quality of the educational program is high, but its production and impact are 3 relatively low compared to other marine institutions. This obviously diminishes the value-added 4 component that is provided to member campuses and lessens their advocacy on behalf of the 5 Consortium at all levels. The capacity of the Marine Center for educational programs remains 6 unstressed and the ERT has concluded that this unfulfilled potential needs considerable 7 investment of resources – resources that will build political capital as well as enhance the 8 revenue stream. Otherwise the investment in the facility is unwarranted. A significant percentage 9 of the Executive Director's considerable energy needs to be redirected to this end, and a real

#### RECOMMENDATIONS

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#### **Revised Mission and Governance Structure**

- 3 The recommended revised governance structure for LUMCON is depicted in the
- 4 following graphic. Numbers on the graphic correspond to the narrative which follows.

Louisiana Universities Marine Consortium\* Mission: (The LUMCON mission will be addressed in the LUMCON Master Plan.) Louisiana Board of Regents **Executive Board** Science/Education ULL LSU-BR LA Tech Nicholls UNO Tulane **Advisory Committee Executive Director** Consortium Membership University of Louisiana System Louisiana State University System Southern University System Louisiana Private Institutions Grambling State University Louisiana State University in Baton Rouge Southern University in Baton Rouge Centenary College of Louisiana Louisiana Tech University Louisiana State University in Shreveport Southern University in New Orleans Dillard University McNeese State University Louisiana State University in Alexandria Louisiana College Nicholls State University Loyola University Northwestern State University Our Lady of Holy Cross College Louisiana Community and Technical College System Southeastern Louisiana University Tulane University University of Louisiana at Lafayette Xavier University University of Louisiana at Monroe University of New Orleans

<sup>\*</sup> The Louisiana Universities Marine Consortium (LUMCON) is inclusive of LUMCON-managed facilities, vessels, staff, and faculty with part- and full-time assignments to LUMCON.

1 2 1. Board of Regents Recommended: The Board of Regents shall consider and act on reports and 3 4 recommendations of the Executive Board pertaining to all fiscal and programmatic matters. 5 The Executive Director of LUMCON shall report to the Executive Board and the Board of 6 Regents. The Board of Regents shall conduct regular external reviews of LUMCON to 7 determine the extent to which LUMCON is achieving its mission and serving the needs of 8 its member campuses and the State. 9 10 Rationale: The relationship between the Board of Regents, the Executive Board, and the 11 Executive Director remains fundamentally the same as in current statute. This arrangement 12 reflects the view of the Executive Director and the six-campus response that the current structure, 13 with modifications, can be made to operate more effectively. 14 15 2. Executive Board Recommended: The membership of the Executive Board shall be altered and expanded to 16 17 include representatives at the level of Vice-Chancellor/Vice-President for Research or 18 academic dean from LSU-Baton Rouge, Louisiana Tech, Nicholls, Tulane, UL Lafayette 19 and UNO. The Executive Board shall include two representatives from each governing

campus and the Chair of the to-be-established Science/Education Advisory Committee.

Only the Vice-Chancellor/Vice-President for Research or his/her designee from each governing campus, along with the Chair of the Science/Education Advisory Committee, shall serve as voting members of the Executive Board. One or more representatives from

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1 the Board of Regents staff shall participate as a non-voting member(s). The process for 2 selection and tenure of a Board Chair shall be specified in the Executive Board's bylaws. 3 4 The Executive Board shall select the Executive Director, serve as LUMCON's fiscal 5 agent, submit budgetary requests to the Board of Regents, approve personnel, and 6 establish compensation levels. In addition, the Executive Board, in collaboration with the 7 Executive Director, shall develop plans for the staffing of LUMCON; operation of the 8 UNOLS vessel program and DeFelice Marine Center; and location of the Executive 9 Director's office. The Executive Board shall meet at least three times per year, a minimum 10 of twice at respective member campuses and once at the DeFelice Marine Center. 11 12 Through consultation with the Science/Education Advisory Committee, and after approval by the Executive Board, the Executive Director shall submit to the Board of 13 14 Regents a five-year Master Plan for LUMCON at least sixty (60) days prior to the 15 beginning of the 2013 Regular Session of the Legislature. The Master Plan shall include 16 strategies to: 17 • Define and clarify LUMCON's mission • Define and clarify the role and functions of the Science/Education Advisory 18 Committee 19 20 Promote collaboration among member campuses and faculty, including interaction

of Marine Center in-residence faculty with the greater Louisiana academic

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community

1	•	Develop policies for LUMCON's share of indirect cost recovery on grants and
2		contracts including LUMCON faculty (in-residence Marine Center faculty and
3		campus-based faculty with LUMCON assignments) and use of LUMCON-managed
4		facilities
5	•	Define the status and function of LUMCON-managed vessels (RV Pelican, RV
6		Acadiana and small boats), DeFelice Marine Center, Port Fourchon Laboratory,
7		and Barataria-Terrebonne National Estuary Program
8	•	Establish a table of organization for LUMCON, including the number and
9		distribution of Marine Center in-residence faculty positions
10	•	Establish policies and procedures for development of Marine Center in-residence
11		faculty, including tenure at member institutions, participation in education and
12		graduate training programs, and access to member campus resources
13	•	Afford opportunities for all LUMCON-assigned faculty to provide regular
14		programmatic input
15	•	Expand K-Ph.D. educational programs and establish policies regarding tuition and
16		fee recovery for courses taught by Marine Center in-residence faculty at the Marine
17		Center, on member campuses, and via distance learning
18	•	Determine policies and plans for sharing LUMCON-managed and campus-based
19		facilities for coastal and marine research
20	•	Explore mechanisms to create and sustain post-doctoral fellowship and faculty

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• Create policies governing provision of space for visiting researchers at the Marine

2 Support State needs through collaboration with relevant State agencies, including 3 the Governor's Office of Coastal Protection and Restoration, Department of 4 Wildlife and Fisheries, Department of Health and Human Services, Department of 5 **Environmental Quality, and the Department of Natural Resources** 6 7 Following review and adoption of this Master Plan by the Board of Regents, the Executive 8 Director, Chair of the Executive Board, and Chair of the Science/Education Advisory 9 Committee shall jointly report to the Board of Regents annually on LUMCON's efficacy in 10 achieving its overall mission through implementation of the Master Plan. 11 12 **Rationale:** An expanded Executive Board, with new membership, retains its traditional authority. 13 The staff accepts the Executive Director's suggestion that a five-year Master Plan be developed. 14 An annual joint reporting requirement from the Executive Director, Chair of the Executive 15 Board, and Chair of the Science/Education Advisory Committee to the Board of Regents is added to ensure continuing interaction, currency, and transparency regarding the efficacy with which 16 17 LUMCON is addressing its redefined mission. 18 19 3. Executive Director 20 21 Recommended: The Executive Director's primary role shall be to exercise leadership in 22 developing collaborative activities among LUMCON member institutions, including 23 research, educational and outreach programs.

• Address LUMCON's long-term financial and other resource needs

research and educational benefits, valuable advice and insights for the Executive Director and

1 Executive Board, and increase the commitment of member institutions to LUMCON. Under the 2 recommended organization, the Science/Education Advisory Committee would have a more 3 elevated profile, increased responsibility, and greater authority than does the Advisory Council 4 under the existing structure. 5 6 5. Consortium Membership 7 8 Recommended: LUMCON shall continue to include all public and private four-year 9 campuses in its membership, to ensure that coastal and marine research and education 10 continue to be engaged in a statewide forum. 11 12 Rationale: While the statewide membership remains technically unchanged, the depth and 13 breadth of member campuses' participation will be strengthened by the renewed focus on 14 LUMCON as a statewide consortium. In addition, a heightened focus on K-Ph.D. education will 15 attract faculty, teachers, and students at all levels to engage more meaningfully with LUMCON. 16 The staff agrees with the Executive Director that LSU-Alexandria and the Louisiana Community 17 and Technical College System (LCTCS) should be included in the membership of LUMCON. 18

#### 1 **APPENDICES** 2 3 APPENDIX I: House Resolution 50 4 5 APPENDIX II: List of External Consultants and Interview Participants 6 7 APPENDIX III: Report of the External Review of the Louisiana Universities Marine 8 Consortium, November 13, 2000

### **APPENDIX I**

Regular Session, 2011

HOUSE RESOLUTION NO. 50

BY REPRESENTATIVE HARRISON

#### A RESOLUTION

To urge and request the Board of Regents to study the role, mission, and structure of the Louisiana Universities Marine Consortium and report its findings to the House Committee on Education not later than sixty days prior to the convening of the 2012 Regular Session of the Legislature of Louisiana.

WHEREAS, the Louisiana Universities Marine Consortium (LUMCON) was formed to coordinate and stimulate Louisiana's public postsecondary education activities in marine research and education through an executive board that reports to the Board of Regents; and

WHEREAS, 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; and

WHEREAS, LUMCON provides marine education programs to educators and students from early childhood to the universities, as well as adult education courses to the general public; and

WHEREAS, LUMCON has vessels, facilities, and researchers that enable quick responses in cases of coastal and gulf emergencies and provide scientific expertise in both short-term and long-term response to such events; and

WHEREAS, LUMCON oversees the Barataria-Terrebonne National Estuary Program, one of twenty-eight national estuary programs in the United States; and

WHEREAS, the Coastal Restoration and Enhancement through Science and Technology program is an alliance of eleven academic institutions within southern Louisiana and Mississippi, and LUMCON serves as the administrative and financial agent for the program; and

WHEREAS, the Gulf Sustainability Consortium and the Gulf Research Initiative for Resilient Louisiana Consortia have been created to consider the broader issue of coastal needs; and

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WHEREAS, a strong unified consortium is needed at this time, and LUMCON has great potential as a leader in this field; and

WHEREAS, the role, mission, and structure of LUMCON in relation to these and other entities should be evaluated with an eye toward creating a strong, collaborative relationship with all existing consortia working in the coastal, wetlands, and marine education areas; and

WHEREAS, state budget reductions have put the sustainability and faculty productivity of LUMCON at risk; and

WHEREAS, a specific plan to maximize research coordination, faculty, and facilities is needed to expand the successful reach of this institution; and

WHEREAS, the legislature recognizes the value of LUMCON as well as the need to assess the current fiscal strength and long-term support needed for the facility; and

WHEREAS, currently, the executive board is working diligently to develop a comprehensive plan to address and support the future of LUMCON with the support of the Board of Regents; and

WHEREAS, coastal and marine research and education are paramount not only to Louisiana's economic viability but to its very existence.

THEREFORE, BE IT RESOLVED that the House of Representatives of the Legislature of Louisiana does hereby urge and request the Board of Regents to study the role, mission, and structure of the Louisiana Universities Marine Consortium and report its findings to the House Committee on Education not later than sixty days prior to the convening of the 2012 Regular Session of the Legislature of Louisiana.

BE IT FURTHER RESOLVED that the study also shall include an examination of the relation of LUMCON to other consortia to determine the appropriate authority and funding levels needed.

BE IT FURTHER RESOLVED that a copy of this Resolution be transmitted to the chairman of the Board of Regents and the executive director of the Louisiana Universities Marine Consortium.

### **APPENDIX II**

#### Louisiana Universities Marine Consortium Review Interviews List of External Consultants and Interview Participants

#### September 26-27, 2011

#### I. REVIEW PANEL

George Crozier, Panel Chair, Executive Director, Dauphin Island Sea Lab Bruce Corliss, Director, Duke/University of North Carolina Oceanographic Consortium

John Wells, Dean and Director, Virginia Institute of Marine Science

#### II. DEFELICE MARINE CENTER SITE VISIT

Monday, September 26, 2011

#### A. Meeting with LUMCON Executive Director

Nancy Rabalais, Executive Director

#### B. Interviews with LUMCON Research Faculty

Edward Chesney, Professor

M. J. Dagg, Professor

Alex Kolker, Professor

Brian Roberts, Professor

Paul Sammarco, Professor

### C. Interview with the Barataria-Terrebonne National Estuary Program (BTNEP)

Kerry St. Pé, Program Director

#### D. Interviews with Senior Staff

Wayne Simoneaux, Marine Center Superintendent Joe Malbrough, Marine Superintendent Heidi Boudreaux, Finance Manager John Conover, Librarian

#### **E.** Marine Education Interviews

Jennifer Conover, Marine Education Associate Nicole Cotten, Marine Education Associate Jennifer Robinson, Education Assistant

### INTERVIEWS WITH CAMPUSES AND GOVERNMENT AGENCIES Tuesday, September 27, 2011

#### A. Louisiana State University and A&M College

Michael Martin, Chancellor

Chuck Wilson, Executive Director, Louisiana Sea Grant

T. R. Klei, Interim Vice Chancellor, Office of Research and Economic Development

Richard Shaw, Associate Dean, School of the Coast and Environment

#### B. University of Louisiana at Lafayette

Robert Twilley, Vice President for Research

Darryl Felder, Professor, Department of Biology

Suzanne Fredericq, Professor, Department of Biology

Mark Hester, Professor, Department of Biology

Jenneke Visser, Professor, Department of Environmental Sciences

#### C. Nicholls State University

Stephen Hulbert, President

David Boudreaux, Vice President for Institutional Advancement

Earl Melancon, Professor, Biological Sciences

Quenton Fontenot, Associate Professor, Biological Sciences

Gary LaFleur, Associate Professor, Biological Sciences

#### **D.** Tulane University

Laura Levy, Vice President for Research

Sharon Courtney, Vice President for Government Affairs

Michael Blum, Professor of Ecology and Evolutionary Biology

#### E. University of New Orleans

Joe King, Interim Chancellor

Scott Whittenburg, Vice Chancellor, Office of Research and Sponsored Programs

#### F. Governor's Office of Coastal Protection and Restoration

Kyle Graham, Deputy Executive Director

### **APPENDIX III**

#### REPORT OF THE EXTERNAL REVIEW OF THE LOUISIANA UNIVERSITIES MARINE CONSORTIUM (LUMCON)

### Submitted to Louisiana Board of Regents

By the Peer Review Team

Peter R. Betzer, Ph.D. Acting Dean College of Marine Science University of South Florida St. Petersburg, FL 33701

Wayne S. Gardner, Ph.D.
Director, Marine Science Institute,
Chairman, Dept. of Marine Science
The University of Texas at Austin
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Herbert Windom, Ph.D.
Director
Skidaway Institute of Oceanography
University System of Georgia
10 Ocean Science Circle
Savannah, GA 31406

L. Donelson Wright, Ph.D.
Dean, School of Marine Science,
Director, Virginia Institute of Marine Science
Chancellor Professor
College of William and Mary
Gloucester Point, VA 23062
(Review committee chair)

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Date: November 13, 2000

### REPORT OF THE EXTERNAL REVIEW OF THE LOUISIANA UNIVERSITIES MARINE CONSORTIUM

#### I. EXECUTIVE SUMMARY

A team consisting of Drs. Peter Betzer, Wayne Gardner, Herb Windom and Don Wright conducted the review of The Louisiana Universities Marine Consortium (LUMCON). The review team visited LUMCON October 4-7, 2000. During this time we had discussions with the administration, faculty, staff and students. Our conclusions are summarized as follows:

- The program is valuable, productive, enjoys a good reputation and should be preserved and enhanced.
- LUMCON is viewed in the State as a unique and valuable resource.
- The faculty and staff are talented and committed.
- Students appreciate the LUMCON environment.
- LUMCON's K-12 outreach program is well conceived and executed.
- LUMCON's location is ideal to support field research in coastal Louisiana; however its isolation is probably a detractor to those interested in global studies.
- The R/V Pelican operations are excellent and recognized as such nationally.
- Lab facilities are adequate to support resident LUMCON faculty and ongoing educational activities; however serious concerns were expressed about support for visiting scientists from consortium universities.
- More state support is needed and justified.
- Additional resident faculty members are needed.
- For the graduate education program to function effectively, LUMCON will need to establish firmer and more formal partnerships with participating universities.
- There is dissatisfaction among the faculty of consortium universities with the quality of LUMCON's service; however, without additional state support, external expectations for extensive support from LUMCON are unrealistic.
- Poor internal communications within LUMCON are contributing to low morale; regular town meetings of all staff could help remedy this situation.
- The faculty and staff of LUMCON feel that their groups lack strong and focused leadership.
- LUMCON suffers from not having a strong advocacy to the Board of Regents (BOR) and legislature.
- Although the executive board members that oversee LUMCON's operations are interested in promoting LUMCON's activities, they are disengaged from marine science.
- Collaborations between LUMCON faculty and faculty in Oceanography at LSU and other
  universities are hampered by several factors; explicit agreements to remove these obstacles
  need to be brokered by senior administrators.
- The faculty at LUMCON and at stakeholder universities should hold a retreat away from LUMCON to identify and recommend the future focus and missions of LUMCON. This retreat should be implemented before more faculty or research scientists are recruited and before future administrative changes are implemented.
- LUMCON's funding base should be expanded and diversified to include industrial and private development sources.

#### II. REVIEW PROCESS

The external review team consisted of Peter Betzer, Wayne Gardner, Herb Windom and Don Wright. A detailed and informative document describing the program and its history was provided to each of our team members before the visit. The review team visited LUMCON over the period 4-7 October 2000. During this time we had discussions with the administration, each faculty member, and groups of staff and students. We also had compressed videoconferences with groups of faculty at Nichols State College, University of Louisiana-Lafayette and Louisiana State University. These discussions included group meetings as well as one-on-one exchanges. The meetings were informative; most contributors were objective and candid. It was also apparent from their respective responses that all individuals and groups appreciated the opportunity to express their opinions. The schedule of meetings, attached as Appendix I, was followed closely. This report synthesizes the responses and comments of those we interviewed and considers the written material provided to our team as well as our own familiarity with LUMCON.

#### III. GENERAL OVERVIEW

Depending upon one's views and expectations of LUMCON, the location may be regarded as the lab's greatest strength or as one of its most serious handicaps. As a coastal field station, LUMCON is ideally situated in the midst of one the world's most important and complex coastal/estuarine realms. It provides outstanding access for scientists interested in wetlands processes, coastal ocean eutrophication, coastal land loss, river-sea interactions, coastal fisheries and mariculture and other "brown-water" coastal topics. Its functioning in this context is best defined as a supporting component of a consortium of universities with research and educational foci on coastal processes. This is the concept that underpinned LUMCON at its inception and it still seems to be the most appropriate view, especially considering the distributed (as opposed to centralized) nature of Louisiana's marine science talent and resources. To be successful in this function, LUMCON must strive toward internal excellence in all of the endeavors that support these activities. It must provide coordinating leadership for these multidisciplinary efforts.

For those who wish for LUMCON to be a "stand alone" marine institute or a "Woods Hole of the South", its location and organizational situation are wrong. It cannot grant degrees on its own without partnering affiliations with universities. Its isolated location is attractive for scientists seeking to immerse themselves in a rich coastal environment, but unattractive to global oceanographers who seek a stimulating base of operations. LUMCON occupies a special niche in marine sciences and can serve the world well by emphasizing and strengthening that special coastal role. It would be a mistake for it to aim to become a general oceanographic center. As the center of mass for a consortium, it should be a strong, dynamic and excellent hub for distributed university-based marine scientists with a variety of research specialties. The core of excellence that

already exists at LUMCON should be expanded so that it can serve as a magnet to link and focus talents that are distributed throughout the state. LUMCON, as a multi university consortium, needs to develop a vision for itself, focusing on strengths. It must not try to be all things to all people or it will diffuse its resources and become ineffectual.

Unfortunately, the spirit of the "consortium" appears to have eroded over the years, due, in part, to lack of nurturing and centralized advocacy. The dynamic that now exists between LUMCON and its stakeholders seems mired in competing for limited resources and arguing over disciplinary turf. This situation represents a significant impediment to collegial partnerships and is contrary to the best interests of Marine Science in the state. The most straightforward way to fix this flaw is to make more state resources available for marine science in Louisiana and to assign a significant share of those new resources to LUMCON. A mechanism is needed to nurture the feeling of "joint ownership" in LUMCON. The Board of Regents should encourage the development of a system that promotes and rewards collaborations. The original idea of this consortium should be revived and nurtured. Louisiana's coastal marine scientists rank among the best in the world and its coastal problems are formidable. With the necessary focus and support, Louisiana could address its own highly compelling coastal issues and, at the same time, help the rest of the nation and world understand and solve some of their coastal problems. LUMCON is a key element in this search for understandings and solutions.

#### IV. STATUS OF THE PROGRAM

#### a. Strengths

- Reputation- LUMCON enjoys respect among marine scientists nationally as an eclectic center of coastal marine science. Work by several LUMCON scientists, notably Rabalais and her colleagues, on the Gulf Coast "dead zone", has earned international recognition and has contributed to important legislation (e.g. Snowe-Breaux Bill). LUMCON's focus on river-ocean interactions has also brought it recognition, which places it well for upcoming new initiatives.
- Quality of Faculty- The LUMCON faculty is small but talented and reasonably diverse. Several of the faculty are productive with respect to peer-reviewed publications and grant activity. There appears to be a strong commitment to education at all levels (K-12, undergraduate, graduate). Some faculty members are proactive in seeking teaching opportunities on various university campuses and are to be commended for this effort. The quality of faculty members is high. They are self-motivated and meet the standards of respected institutions. All of the faculty members are well connected within the marine science community.
- Quality of Staff- The dedicated and skilled support staff of LUMCON are the backbone of the lab. These individuals provide LUMCON faculty as well as visiting scientists with the essential logistic and analytical support that make the lab function effectively. The fact that many of these employees have been at LUMCON for over 10 years speaks well for the staff commitment. Members of this review team who

- have utilized LUMCON's field support in the past can attest to the excellence of the vessel operations and field logistics staff.
- Field location and environment- LUMCON's location, at Cocodrie, LA in the midst of Louisiana's coastal marsh and near the continental shelf makes it an ideal base or jumping off point for a host of coastal and wetlands studies. It also provides a unique setting for certain types of research that have economic development possibilities (eg. mariculture, natural products, pharmaceuticals).
- Education Program LUMCON has an active and vibrant K-12 outreach program. The graduate students at LUMCON are appreciative of the LUMCON experience and facilities. Through its distance learning capabilities, LUMCON is able to offer high-quality marine science courses to undergraduate students elsewhere in the state. Its location also provides unique opportunities for educational experiences, especially for K-12 programs.
- Interdisciplinary Approach- A strength of LUMCON is its interdisciplinary approach to complex, issue-driven questions such as coastal eutrophication and river impacts on coastal seas.
- *R/V Pelican* The R/V Pelican is recognized as one of LUMCON's most valuable assets. Individuals and institutions conducting coastal marine research in the Gulf of Mexico seek ship time aboard this vessel. The excellence of this platform is attributed to the dedication and competence of the vessel manager, captain, crew and support staff.

#### b. Issues and Threats

- Faculty Retention and Morale- The uncertainty of the future of LUMCON and its eroding relationships with other State institutions affects the morale of the faculty and administration. A flat budget from the State is discouraging and conveys a sense of disinterest in LUMCON.
- Morale of Research Staff-The morale of the faculty filters down to the technical staff. In addition there appears to be little interaction and minimal camaraderie between staff and faculty. This is surprising given LUMCON's small size and gives a sense of isolation to the technicians. There are few formal "get-togethers" among staff and faculty, sanctioned and supported by the administration.
- External expectations and concerns- Some of the faculty at other institutions expressed the feeling that they should receive more facilities support when they come to LUMCON, such as lab and office space. One faculty member expressed dismay that he and other visitors from consortium universities were unable to have lab or office access during their visits because offices had been assigned to technicians.
- Funding Level- State funding makes it increasingly difficult to maintain support functions without diminishing research capability. This, in turn, affects the ability of faculty to attract external support. The "hard-money" state support for LUMCON is appallingly low and this is surely a primary cause of LUMCON's morale and other problems. The level of state funding for LUMCON should be increased.
- Administration-The administration does not appear to be engaged in the State budgetary process or to be proactive in seeking new resources. This may be attributable to the dysfunctional nature of the present Executive Board. Further, the

- administration has not focused on improving communication among members of the institution, as judged by the faculty and staff.
- A dysfunctional consortium-The consortium is not "glued together" by a shared vision or by an engaged Board. Disillusionment with LUMCON on the part of faculty at consortium universities is one side of the problem. On the other side, some LUMCON-based faculty members have difficulty being accepted as teachers or research partners at the universities. This problem appears most acute in cases where LUMCON faculty seek closer ties with LSU.
- Engagement of Executive Board and Advisory Committee- The Executive Board is composed of members who are too far removed from the enterprise of marine science. They consist of high-level University Administrators with very limited time and a general lack of appreciation of marine science. The composition of this board should be changed to include LUMCON stakeholders and advocates such as Department Chairs of programs associated with the consortium. The board needs members closer to the action, but with a more global view than individual scientists.
- Faculty size The small size of the faculty at LUMCON limits the critical mass to one person in each general field of expertise and leaves several disciplines critical to coastal science in Louisiana without representation. This situation is undesirable. LUMCON would benefit from having a larger scientific staff to provide a critical mass of colleagues in disciplines relative to the Louisiana coastal environment.
- Student Concerns-Because of the lack of communication among researchers within LUMCON, graduate students feel isolated. Also, their remoteness from parent institutions prevents graduate students from having access to student support facilities such as infirmaries, student centers, recreational facilities, etc. For undergraduate students, timing of course offerings at LUMCON in relation to on-campus curricula is of concern as is receiving appropriate credit for courses taken at LUMCON.
- Support Facilities and Infrastructure-Access to online journals and literature searches is not available at the LUMCON campus. The LUMCON grounds have the appearance of an unkempt industrial site with little attempt at landscaping. Improving the appearance of the facility would improve the public's impression of LUMCON and enhance its appeal to potential private benefactors.
- Additional vessel to R/V Pelican- The Pelican is heavily booked. Several people expressed the view that LUMCON should build another vessel. There is concern regarding how ship needs will be met during the period that the Pelican will be subjected to a needed mid-life refit.

#### V. RECOMMENDATIONS

At the outset, we emphasize that the LUMCON program at Cocodrie is a viable and important component of the national coastal marine science complex. It is imperative to the state of Louisiana that this laboratory and consortium be maintained and strengthened. We believe that the original idea of the consortium was well conceived and should be preserved. To help the consortium and the Cocodrie program realize their high potential, we offer the following set of recommendations.

#### a. Strategic Planning and Vision Development

A LUMCON retreat for all LUMCON faculty plus members of the Executive Board and selected faculty from stakeholder universities is needed to set future directions. A scientific vision should be articulated to bring cohesion to the diverse interdisciplinary activities. The retreat should be the first step in the preparation of a strategic plan that will outline educational and research goals for the next decade. A document that describes LUMCON's goals for the next decade, and identifies the resources required to achieve those goals, will serve a variety of purposes, including the recruitment of faculty and students, negotiations with the Board of Regents about resources for the program, and redefinition of the role and purpose of the multi-institutional consortium. This retreat will provide an opportunity for LUMCON (the consortium, not just the lab) to reinvent itself.

#### b. Identifying Research Foci

Focusing on a few key interdisciplinary topics, such as coastal processes in the Gulf of Mexico, eutrophication, and coastal land loss, could guide planning at the retreat. The Director of LUMCON has identified river-coastal ocean interactions as a potential thrust for future research. This research direction is appropriate considering LUMCON's situation. By establishing such special thrusts, LUMCON could better delineate its particular niches within ocean sciences. The coastal foci have the potential to attract additional initiative funding from the state as well as private contributors. Identification of foci should be an important part of the strategic planning process. It is important that these research foci be developed in collaboration among representatives of the entire consortium with a view toward identifying opportunities for cooperation and needed expertise.

#### c. Leadership models

LUMCON (the lab) is in need of strong, inspired and altruistic leadership in the form of an executive director who will: 1) aggressively seek and obtain new resources; 2) provide a clear, focused but evolving, and compelling vision of the lab's direction; 3) inspire and motivate the LUMCON faculty and staff; and 4) be proactive in encouraging participation

of other institutions in the consortium in the use of LUMCON facilities. LUMCON (the consortium) is in urgent need of a caring and engaged Executive Board (or Advisory Committee). The director and committee must establish rapport and easy and regular communication. And this administrative structure must enjoy the support of, and a clear line of communication with, The Board of Regents. Chairpersons of departments involved with coastal or marine science programs would be ideal candidates for the Executive Board because they have a strong understanding of marine science issues and also have positions in the administrative structures of the Universities. The board should address structuring such a model in the near future. The Executive Board must act as a strong advocate for LUMCON. This may mean that, from time to time, the interests of ones own institution may be second to the good of the consortium. The committee should also conduct regular performance evaluations of the executive director.

#### d. Faculty guidance and faculty development

Faculty based at LUMCON must enjoy the same quality of direction, guidance and mentoring as their university-based colleagues. The LUMCON administration must council faculty on a regular basis, must set clear expectations at the start of each annual performance cycle and must provide faculty with substantive and helpful feedback at the ends of such cycles.

#### e. Funding models

If LUMCON is to remain viable, it is imperative that it receive significant increases in state funding. LUMCON and The Board of Regents should work together to seek appropriate models for funding allocations. Proposals for improved funding should be carefully formulated and then promoted within the Louisiana Legislature. The budgets of the universities of the consortium are largely driven by instructional formulae, which legislatures tend to understand. LUMCON's budget, however, is related to research and its applications, which are more difficult to sell. Linking budget to potential for economic growth, or to the sustainability of existing economies may help. At the same time, LUMCON must diversify its funding base to include industry and private philanthropy as well as new federal sources. Proactive leadership will be essential to reach the new funding goals.

#### f. Development

Large segments of the general public share a fascination and love for coasts and the oceans. Among these are individuals and corporations with considerable philanthropic potential. However, reaching such benefactors and making the LUMCON efforts known to them will require a deliberate and well-orchestrated development campaign as well as public outreach. A development effort, assisted by a volunteer development advisory council should begin soon to seek private expendable and endowment funds. The generation of private funds could provide LUMCON with more fiscal flexibility.

The LUMCON director, with the help of the established volunteer council and selected staff members, should develop a ten-year plan for development that addresses priorities and goals for: (1) an annual fund; (2) endowments; (3) graduate student fellowships; (4) capital and equipment needs; (5) support for faculty development (i.e., research leaves, advanced training, special assignments or projects); and (6) support for international programs and exchanges. It will also be important to enhance individual donor identification, solicitation and stewardship, and improve access to corporate and foundation giving/grants.

#### g. Links with the Universities: The Consortium

Establishing positive interactions and links among universities involved with LUMCON should be a major task of the Director in collaboration with the Executive Board. The Director will need to "recruit" participation of programs in the consortium into the strategic plan of LUMCON. An atmosphere of trust must be created whereby it is understood that all participants share LUMCON successes.

#### h. Planning for Facilities and Long-Term Capital Outlay

The strategic planning exercise should help in identifying future facility needs. The process of planning for a new research vessel or building renovations should begin soon so that a capital- outlay proposal to the Board of Regents can be developed with sufficient lead-time.

#### i. System-wide Communications

LUMCON is probably not known to a large part of the academic community outside the consortium. The State, and therefore other institutions, should view LUMCON as a State resource, available to all, within physical and fiscal constraints. This will require outreach efforts on the part of the LUMCON Director and the Executive Board, but should have a significant political return.

#### j. Regular Reviews

The Board of Regents should monitor future progress on the part of LUMCON and its administration. This should include substantive annual reviews of the administration by the Executive Board as well as more comprehensive program reviews at three to four year intervals.