



Texas Sea Grant
College Program

Implementation Plan

2009 - 2013

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Coastal Science Serving Texans

Introduction

The Texas Sea Grant College Program undertook development of a new strategic plan in 2006 and published the completed plan in June 2008. The process by which the 2009-2013 Texas Sea Grant Strategic Plan was developed is detailed in the new plan and is not repeated here. The purpose of this document is to provide information as to how the new strategic plan will be implemented and to provide performance benchmarks. The strategic plan and this implementation plan can be found on our website: <http://texas-sea-grant.tamu.edu>.



Guidance for the general research priorities for the next two funding cycles (February 1, 2010, through January 31, 2012, and February 1, 2012, through January 31, 2014) was provided by the Texas Sea Grant Advisory Committee, which is made up of individuals from state and federal agencies, the private sector and academia. Participants in the discussion included agents and specialists from Texas Sea Grant Extension and staff from the Marine Information Service. As a result of the discussion, which took place on June 28, 2006, the Advisory Committee recommended two research priority areas:

- Coastal Communities and Economies
- Coastal Ecosystem Health

Those priorities carried forward from previous cycles and were considered by the committee to continue to be areas where Texas Sea Grant should

focus its research. The committee approved the concept of funding at least one marine education proposal each cycle and repeated its desire to have a study conducted to determine the value of the Texas coast to the economy of the state and the influence Texas Sea Grant may have had on contributing to the coastal economy of Texas.

The strategic plan for 2009-2013 is comprised of four major strategic objectives, each of which contains a series of goals. The strategic objectives are:

- Addressing Critical Issues,
- Enhancing Products and Resources,
- Engaging Stakeholders, and
- Extending Our Reach.

Each of the strategies under the major objectives contains a list of topics that are of interest to Texas Sea Grant. Those topics include recommended research and extension activities mentioned by the Advisory Committee as well as topics that ranked high in surveys conducted by Texas Sea Grant. The lists of topics often include a combination of elements that involve research, extension, education and communications.

Development of the Texas Sea Grant Strategic Plan also took into consideration the strategic plans of Texas A&M University, the National Oceanic and Atmospheric Administration (NOAA), The Office of Ocean and Atmospheric Research, the National Sea Grant Office, and various reports and recommendations from commissions such as the U.S. Commission on Ocean Policy and the President's U.S. Ocean Action Plan. The relationships between Texas Sea Grant's priorities and those other sources of input are outlined in the new Texas Sea Grant College Program Strategic Plan.

This implementation plan follows the format of the strategic plan by going through the

strategies under each of the four objectives and discussing the topics that are of particular interest. Approaches for measuring success are presented. Priority levels have been assigned to the various strategies and as proposals are solicited and evaluated, some consideration of the importance of each proposed activity to the priority assigned in the strategic plan may be used to assist finalization of funding decisions. Outstanding proposal ideas that are not encompassed in the strategic plan may be funded if their content convinces reviewers that the research is sufficiently important to warrant special consideration.

Objective 1. Addressing Critical Issues

Strategy 1. Aquaculture

(Priority = Low)

There is a well-established mariculture industry in Texas that involves production of penaeid shrimp, red drum and striped bass. That industry is not growing to any extent, but it is stable and assisted by the Sea Grant Aquaculture Specialist. There have not been many issues raised by the industry in recent years that have led to development of research proposals from the academic community within Texas. Interest in aquaculture by researchers is generally associated with assisting enhancement activities conducted by the Texas Parks and Wildlife Department (TPWD) and in the development of offshore aquaculture.

Goal 1. Develop the technology required to produce additional species for enhancement stocking in coastal waters.

Rationale: TPWD has been stocking red drum to enhance the recreational fishery for more than 20 years, and that fishery appears to be healthy and productive. TPWD is now looking at other species,

such as spotted seatrout and flounder, as species of interest for new enhancement programs. The life cycle of both types of fishes have been closed, but additional research to enhance larval survival, develop prepared feeds, determine optimum size at stocking and other studies are needed.

Performance metrics: The recreational fisheries of Texas support a multi-billion dollar annual revenue stream. Enhancing the marine recreational fisheries will provide sport fishermen with additional opportunities to catch fish and further enhance the economy of the state. Performance can be measured, in part, through determination of additional fishing licenses sold as new species are added to the enhancement list in the state.

Time frame: Impacts from enhancement stocking of new species should be seen within about five years after enhancement efforts are initiated.

Goal 2. Develop technology in support of open ocean aquaculture in the Gulf of Mexico.

Rationale: The offshore waters of Texas may be suitable for open ocean aquaculture, particularly if companies can utilize out-of-service oil and gas platforms as support facilities. Legislation in support of aquaculture development in the Exclusive Economic Zone (EEZ) of the United States was put before Congress in 2007 but did not come up for a vote. By June of 2008 there had been no additional activity on that front, but should such a measure pass, NOAA will most likely be charged with developing the regulatory and permitting structure associated with development of an offshore aquaculture industry. The Gulf of Mexico Fisheries Management Council has been working on an amendment to their management plan that would provide a mechanism for permitting aquaculture in the Gulf of Mexico EEZ. After receiving input from an ad hoc advisory committee (chaired by the Director of the Texas

Sea Grant College Program), a public hearing and approval by NOAA legal counsel, the Gulf Council approved the amendment in early June of 2008. The procedure by which interested parties can apply for permits and lease space for open ocean aquaculture is currently under development. The development of an offshore aquaculture industry depends upon two factors of interest to Texas Sea Grant: development of culture technology for high-value species that can be profitably reared offshore and development of hatchery technology to produce the needed fingerlings for stocking.

Performance metrics: The establishment of offshore facilities, development of the species necessary to make the ventures profitable and development of the hatchery technology to produce fingerlings of such species as cobia and tuna will be indicators of success. Sea Grant's contribution will be measured in terms of successful research supported by the program and efforts in outreach to those interested in establishing commercial aquaculture in the offshore environment.

Time frame: Given that no industry currently exists in the offshore waters of Texas, the minimum time frame for evaluation of even movement toward success will be about five years.

Goal 3. Ensure that the technologies are developed with the objective of producing aquatic organisms in a manner that imposes the least possible environmental impact.

Rationale: It is virtually impossible to develop aquaculture facilities adjacent to or in the marine environment without producing some measurable level of environmental change, whether positive or negative. To be sustainable, aquaculture needs to focus on developing technologies and approaches that are as environmentally friendly as possible. Texas Sea Grant will consider research proposals that address this issue in relation to the

development of new species as well as expansion of the culture of current species.

Performance metrics: Comparison of environmental conditions before and after establishment or expansion of facilities will provide a measurable effect of the change on the local environment. If that change is negligible, the approaches developed can be said to approach, if not reach, sustainability.

Time frame: Success in achieving the desired results should be apparent within one year after a facility is stocked to permitted capacity.

Strategy 2. Resilient Coastal Communities (Priority = High)

In recent years, tropical storms have caused extensive flooding in the greater Houston area, Hurricane Katrina veered away from the Texas coast not many hours before predicted landfall in 2005, and Hurricane Rita struck a portion of the upper Texas coast in the same year. A relatively minor hurricane early in the current decade hit between Corpus Christi and Brownsville, causing significant crop damage but sparing high-density population areas. Those events have clearly demonstrated the vulnerability of the Texas coast to nature's wrath. The attempted evacuation of the Houston/Galveston area in advance of Rita in 2005 clearly demonstrated the inability of the highway system to accommodate the process in a timely manner. The population along the Texas coast has



increased dramatically since the last time a major hurricane struck, and continued development on the coast is, if anything, occurring at an accelerated rate. Development of coastal communities often occurs without regard to location relative to river flood plains or susceptibility to storm surge. In some areas zoning is not only non-existent but is a bad word. Texas Sea Grant is heavily involved in research and outreach through our Coastal Community Development program, which is headed by an extension specialist in the Houston/Galveston area. Clearly, much more activity to develop awareness of the vulnerability of the Texas coast to storms and research to create more resilient coastal communities are needed if Texans are to come through the next hurricane without unnecessary and tragic loss of lives and property. In addition, Texas is home to much of the nation's petrochemical industry. Catastrophic impacts on that industry may be felt as a result of storms, but the industry could also be the target of terrorists.

Goal. Determine the economic and ecological value of the Texas coastal region to the state's economy and provide an indication as to the impact that Sea Grant programs have made on that portion of the state's economy.

Rationale: It was recommended by the 2004 Program Assessment Team (PAT) that a proposal should be solicited to determine the impact of Texas Sea Grant on the coastal economy of Texas. The request for preproposals for the funding cycles beginning in 2006 and 2008 contained such a solicitation; however, no preproposals on the topic were received for the 2006 cycle and only one, which was not competitive, was received in conjunction with the 2008 cycle. Reviewers of that proposal indicated that trying to place such a value on Texas Sea Grant's work would be tenuous at best and recommended against using limited program

resources for such an activity. Thus, the approach has been modified to evaluate the outcomes of Texas Sea Grant research and outreach activities by discussing potential economic impacts with the researchers and with user groups through the extension agents and specialists.

Performance metrics: The program has already seen substantial positive economic impacts on the shrimp fishing fleet due to changes in trawl webbing and door design that were developed by a commercial fishing company and extended to a considerable portion of the Texas shrimp industry by the Texas Sea Grant Fisheries Specialist; this activity is discussed in more detail elsewhere in this implementation plan. Utilization of the Texas Sea Grant-funded Coastal Communities Planning Atlas by community planners will provide an indication of how local communities are incorporating information provided by Sea Grant as they develop their future development plans. Feedback on that can be obtained through the Texas Sea Grant Coastal Community Development Specialist. As other opportunities to assess economic impacts arise, they will be pursued.

Time frame: This will be an ongoing activity.

Strategy 3. Ocean Observing
(Priority = Low)

Texas Sea Grant is involved with the Gulf of Mexico Coastal Ocean Observing System (GCOOS) program primarily through outreach and education. The Director of Texas Sea Grant is the chair of the Stakeholder Council, which attempts to bring in representatives from all groups and industries that have an interest in observing systems and works with GCOOS administration in developing topics and planning meetings of various stakeholder groups to gather information on the types of information those groups would like to obtain through an observing system.

Goal: Assist GCOOS with obtaining user input to the process of developing an ocean observing system for the Gulf of Mexico and disseminate information on GCOOS and its products to user groups and the public.

Rationale: Sea Grant is in the information development and transfer business and there is a significant need to inform potential user groups and the general public why ocean observing systems are important to them. The extension of such information is often not done well by the scientific community, but it can be and is done well through Sea Grant outreach and communication pathways. All four Gulf of Mexico Sea Grant programs are involved with GCOOS.

Performance metrics: Success in supporting this goal can be measured in terms of the numbers of groups and individuals reached with GCOOS programs and informational materials and collaborative activities established by Sea Grant with other agencies at the state, regional and national levels.

Time frame: GCOOS is a long-term program and Texas Sea Grant is committed to continuous involvement.

Strategy 4. Coastal Ecosystems and Fisheries (Priority = High)

Research and outreach on this strategy have been the foci of Texas Sea Grant since its inception and continue to be a high priority. It has become increasingly apparent that as people continue to move to the coast, the anthropogenic pressures on natural resources has increased at a rapid and often alarming rate. As a result, Texas Sea Grant has been attempting to solicit input from social scientists in helping address coastal issues that were once focused on only by the more traditional marine scientists. While involving

social scientists and, as importantly, getting them to work collaboratively with their counterparts in the biological and physical sciences, has developed slowly, it will continue to be emphasized by the program.

Goal 1. Develop a partnership with the Mission-Aransas National Estuary Research Reserve and promote development of research proposals that will be conducted in the MANERR.

Rationale: The MANERR is the most recent of the nation's estuarine research reserves and its establishment was strongly supported by Texas Sea Grant. The site provides an extensive field laboratory site (it is the second largest NERR in the nation) at which longitudinal ecological studies can be conducted that will be important in monitoring the long-term health of our state's estuaries.

Performance metrics: Performance can be measured in terms of the number of successful proposals that are funded in the MANERR over the course of this implementation planning period and by the formal relationships established between Sea Grant, the MANERR and users of the MANERR.

Time frame: The relationship between Sea Grant and the MANERR is planned to extend well into the future. No termination of the relationship is planned or anticipated.

Goal 2. Support wetland restoration projects and monitoring.

Rationale: In recent years, Texas Sea Grant has, largely through the involvement of the Cameron County Coastal and Marine Resources Agent, been involved in the restoration of the 4,500 ha Bahia Grande project in South Texas, which is aimed at changing what had become a dry salt pan area back into a productive estuary by reestablishing pathways that allow tidal water flow. By June of 2008, some pathways had been reopened to water

flow, thus eliminating the necessity of removing blown sand from areas that had been previously impacted, but circulation levels were not yet at a level to support a sustained wetlands ecosystem. When completed, the Bahia Grande can serve as a model for other marsh restoration projects. The majority of the Sea Grant involvement in this activity will be through outreach and extension efforts, though some research will also be appropriate.

Performance metrics: Performance will be measured by the documented evidence of a standing stock of appropriate marine species within the restored estuary.

Time frame: The establishment of a standing stock of appropriate marine species will be dependent on refinement to the project such that tidal flushing of the area will be enhanced, a funding-critical effort.

Goal 3. Continue the certification activity with Texas marinas under the Clean Marina program.

Rationale: The Clean Texas Marina Program (CTMP) is administered by the Texas Sea Grant Marine Business Specialist with support from the Marina Association of Texas (MAT). During its formative years, the Texas Commission on Environmental Quality (TCEQ) (then Texas Natural Resource Conservation Commission (TNRCC)), Texas General Land Office (GLO) and the Texas Parks and Wildlife Department (TPWD) provided the program with funding and legitimacy. During 2006, the program was shifted from TCEQ oversight with administration by the Sea Grant program to MAT oversight and continued administration by Sea Grant. By June of 2008, the program consisted of 72 certified marinas and 45 pledged to become certified out of a marina population in the state of 371. The Clean Texas Marina Program is integrated into the Texas Coastal Non-Point Source Management Plan,

required under provisions of the Coastal Zone Management Program, and plays a significant role in managing water quality in coastal as well as inland water bodies.

Performance metrics: Performance will be measured in the number of marinas becoming certified as a Clean Texas Marina as well as the number of marinas pledging to become certified.

Time frame: The program is ongoing for certification of marinas new to the program and for the required periodic recertification of participating marinas.

Goal 4. Address issues related to protection of non-jurisdictional wetlands through improved land use planning or decision support methods.

Rationale: Wetlands are a critical part of the coastal-marine ecosystem. Both so-called “isolated” freshwater and estuarine brackish wetlands are under threat from rapid urbanization and other changes in land use patterns. Local citizens and elected officials are becoming more aware of the value of these wetlands and the role they play in the long-term sustainability of the region. Ecotourism, for example, is widely recognized as a pillar of the coastal economy, with wetlands being recognized as important to sustaining the bird and fish populations that draw many tourists to the area. Some local officials and citizens have recently expressed a strong interest in exploring growth patterns that would help save much of the remaining habitat and the coveted “coastal charm.”

Performance metrics: Examples of measurable elements of this goal include the number of workshops and number of planning charrettes conducted, number and extent of projects started that could be attributable to this goal, and number of policies changed to facilitate sound growth, as well as the number and quality of urban and open space plans developed.

Time frame: This is a long-term effort, so the estimated time frame is the next 20-30 years.

Strategy 5. Marine Education (Priority = High)

Goal. Employ a marine educator.

Rationale: Texas Sea Grant took over coordination of the northern Texas regional competition of the National Ocean Sciences Bowl (NOSB) in the fall of 2005 and has used a graduate student to oversee the activity during the first three years of Sea Grant involvement. Texas Sea Grant also has a need, however, for a permanent educator on staff to work closely with K-12 educators and conduct educational research; this staff member could also coordinate the NOSB competition once the position becomes vacant. Thus within two years it is expected that Texas Sea Grant will hire a professional educator with teaching credentials to handle these projects.



Performance metrics: Productivity in producing curricular materials for the K-12 level and the extent of their adoption in Texas schools will be a primary measure of success. Continuation of a successful series of NOSB competitions will be another benchmark.

Time frame: Hiring is expected within two years; performance will be based on ongoing activities.

Strategy 6. Invasive Species (Priority = Medium)

Goal. Remain vigilant with respect to identifying problems associated with the appearance or recurrence of marine invasive species or harmful algal blooms (HABs) and support innovative research on the topic.

Rationale: Texas Sea Grant extension staff continues to monitor the situation with respect to problems such as brown tide, red tide and brown mussels, which were problems in the past that are currently abated but could recur. Extension staff also works with agencies, including the Texas Parks and Wildlife Department, on issues dealing with aquatic invasive species and HABs. A volunteer organization coordinated by some members of the extension staff have developed the "Red Tide Rangers" to serve as a monitoring and sample collecting service for state agencies and local governments. Expansion of this program is seen as advisable by various entities with oversight in the HAB area. Through the Marine Information Service, publications on invasive species have been produced in the past and additional publications, including news releases, will be prepared and distributed as appropriate. Sea Grant will remain open to competitive research proposals on this topic.

Performance metrics: While outbreaks of aquatic nuisance species and HABs are often not predictable with any degree of accuracy, the response to such problems can be determined and documented in the form of performance measures (e.g., number of news releases and public information publications developed and placed in media outlets). Performance on funded research will be measured through advancement of the science and its adoption by agencies as well as numbers of publications produced. Development of

an ocean observing system to enhance monitoring of parameters critical to invasive species or HAB “blooms” as well as the success of geographical expansion of the “Red Tide Rangers” program may also be useful elements to evaluate performance.

Time frame: This will be an ongoing activity.

Strategy 7. Seafood Safety and Quality (Priority = Medium)

The shrimp fishing industry in Texas is in a severe economic situation due to high fuel prices and, very importantly, the importation of large quantities of marine shrimp that are available at prices that depress what can be paid to fishermen.

Goal 1. Assist the fishing industry in implementing harvest and handling practices that lead to enhanced product quality.

Rationale: To compete profitably with large quantities of imported shrimp, domestic harvesters must continue to develop harvesting and handling techniques that ensure shrimp quality, enhance flavor and minimize product defects. To this end, Sea Grant extension staff members continue to engage in result demonstrations, workshops and individual instructions as well as the development of quality certification procedures and beneficial on-board handling techniques. Initial support for these effort are from the USDA Intensive Technical Assistance program and state and shrimp industry organizations.

Performance metrics: Performance will be measured by monitoring the level of quality and defects of domestically harvested shrimp and any preferential value given to these shrimp at the first point of sale.

Time frame: Based on the condition of the domestic shrimp industry, this effort will be long-term.

Goal 2. Help the fishing industry improve fuel efficiency in conjunction with seafood harvesting and processing.

Rationale: Long the major commercial fishery in the western Gulf of Mexico, the shrimp fishery is a typical fuel-intensive trawl fishery. Recent history has shown that the per gallon cost of the principal fuel, diesel, went from between \$.60 and \$.80 to between \$4.05 and \$4.15 as of June 2008, with the possibility of additional price increases. With the larger vessels using from 20 to 30 gallons per hour, fuel has become the major expense for the domestic industry, and any opportunity to be more efficient with fuel will have a significant positive impact on sustaining the fishery. Discovering technology that can be made applicable to the Gulf shrimp industry and working with industry innovators to incorporate appropriate items is at the heart of Sea Grant. The Marine Fisheries Specialist has begun working with shrimp fishery captains to test new trawl doors for shrimp boats that decrease fuel consumption without significantly decreasing the catch. Reports show savings in fuel consumption ranging from 19 to 27 percent. Given that the median offshore Texas trawler uses between 60,000 and 80,000 gallons per year, the annual savings range from 11,400 to 22,000 gallons. It is estimated that half of the active shrimp vessels in the ports of Brownsville and Port Isabel in South Texas will have converted to the new gear prior to the opening of the Texas Shrimp Season on July 15, 2008, and extrapolations of fuel savings from just these two ports, based on historical consumption averages, could approach two million gallons.

Performance metrics: Success on this goal will be measured by the level of industry adoption of the new technology throughout Texas and the rest of the Gulf of Mexico states.

Time frame: While the process of technology discovery, demonstration and adoption will be ongoing to ensure the long-term sustainability of the Texas shrimp fishery, based on the current and near-term prognosis for survival of the current industry, successful accomplishment of this goal throughout Texas will be required within two to three years.

Goal 3. Help the fishing industry develop niche or value-added products.

Rationale: As transportation, communications and sourcing of products have improved, seafood has truly become a world commodity. Domestic seafood harvesters who have relied on seasonality, supply cycles and tradition to receive a favorable market are faced with the reality of the global marketplace. Advantages such as aquaculture development, low labor costs and reduced regulatory frameworks have, in many cases, given market advantage to imported seafood products. While trade acts have been enacted to mitigate any real or perceived foreign advantage, these are generally short-lived, prejudicial and subject to political uncertainties. It is generally assumed that to remain relevant to the domestic seafood supply, domestic harvested products must find elements of the market in which they would have an advantage. Identification and implementation of a plan to accommodate these niche markets appears to be critical for the sustainability of a domestic seafood harvesting/producing industry.

Performance metrics: Success of this goal will be realized in the identification and accommodation of niche markets for domestic seafood products. Ultimately the final analysis will be the quantification of increased product value at first point of sale into a niche market.

Time frame: While global variations in specific or general seafood supplies often mitigate the critical nature of this goal, normalization of the

issue yields an urgency for the next five years and an ongoing effort to ensure sustainability.

Objective 2. Enhancing Products and Resources

Strategy 1. Texas Shores

(Priority = High)

Texas Shores magazine is the flagship publication of the Texas Sea Grant College Program and is widely considered one of the best Sea Grant publications in the nation. The magazine's ability to deliver essential information in plain language to the citizens of Texas is critical to their ability to make wise decisions about the conservation and use of the state's marine resources.

Goal 1. Strive to obtain a long-term financial commitment from private entities for support of *Texas Shores*.

Rationale: As far as can be determined, *Texas Shores* is the only fact-based news magazine devoted exclusively to issues facing the Texas marine environment. As such, it is a much-desired resource. The magazine's subscribers comprise the general public, marine businesses, academicians, regulators, legislators, secondary schools and institutions of higher education. Obtaining long-term financial support will allow the magazine to expand its staff, its content and grow its subscriber base.

Performance metrics: Success on this goal will be measured by the number of donors found and the amount of support received.

Time frame: This will be an ongoing activity.



Goal 2. Conduct a readership survey.

Rationale: The content and form of a magazine like *Texas Shores* are necessarily driven by the informational needs and aesthetic tastes of its readers. The magazine must change over time as its readership demographic evolves. Periodic readership surveys are the most effective tools for determining subscribers' preferences.

For most of its history, *Texas Shores* has been mailed free of charge to Texas addresses. The federal Program Assessment Team that reviewed Texas Sea Grant in 2004 suggested charging a modest subscription fee to both defray the cost of production and give the magazine a heightened sense of value in the eyes of its readers. The readership survey will ask subscribers if they are willing to pay for the magazine.

Performance metrics: Performance will be demonstrated by positive reader feedback.

Time frame: This will be an ongoing activity, with the next survey being completed within 18 months. Further surveys will be conducted every five years.

Goal 3. Change the magazine's format.

Rationale: Since its inception, *Texas Shores* has employed a thematic approach to the content of each issue. Every magazine dedicates the majority of print space to a single subject involving Texas' marine environment. Currently, *Texas Shores* comprises a lengthy feature article, a column focusing on Texas Sea Grant-supported research, a periodic personality profile and several news briefs. This format has been acceptable to subscribers thus far, but the trend with other news magazines has been toward more diverse and shorter articles that readers can enjoy during brief breaks in their increasingly hectic lives.

For the past 20 years, the magazine has been 32 pages, including covers, in size. The issues facing the state's marine environment continue to grow

in number and complexity, straining *Texas Shores'* ability to cover them adequately within the allotted space. More pages must be added if the magazine is to adequately serve its readers. The physical mechanics of the printing process used to publish *Texas Shores* dictate that space increase in eight-page increments.

Performance metrics: Success in this goal will be measured by positive reader feedback as gauged through readership surveys.

Time frame: Initial format changes will occur within two years and will be determined by responses from the readership survey.

Goal 4. Modernize the magazine's layout.

Rationale: Texans are constantly exposed to the increasingly slick multi-media images of the visual technology revolution. Computer-enabled special effects in movies, cyberspace and print media have raised the bar for what consumers expect to see in top-flight media products. To keep pace with subscribers' expectations, *Texas Shores* will modernize its layout and employ more eye-catching graphics.

Performance metrics: Success will be demonstrated by positive reader feedback, both anecdotal and as gauged by periodic readership surveys.

Time frame: Some changes have already been made, but the evolution of the magazine's design will be an ongoing activity.

Strategy 2. Sea Grant Chair (Priority = Medium)

The Texas Sea Grant College Program Director has long held a highly visible position within the College of Geosciences at Texas A&M University and among his peers in the National Sea Grant Network. The Director is often called upon to represent the program on various committees and councils and to give testimony or advice at the

local, state and national levels. Adding increased emphasis to the Director's position will greatly benefit the Texas Sea Grant Program, the College of Geosciences and the university.

Goal. Create an endowed Sea Grant Chair within the College of Geosciences.

Rationale: Endowed chairs are evidence that an academic institution has committed an increased amount of resources, given higher priority and assigned heightened status to a specific area of study or research. The enhanced prestige for both the holder and the academic organization associated with an endowed chair can translate into additional influence when the individual and the organization press their needs with legislators, donors and the general public. Funding from an endowment also greatly increases the potential for required matching support.

Performance metrics: Performance will be demonstrated by the ability to establish and build the endowment.

Time frame: This will be an ongoing activity until the endowment is fulfilled, but the immediate target is to obtain one-quarter of the funding by the end of 2013.

Strategy 3. Additional Support (Priority = High)

Goal. Further expand the sources and amounts of funding from NOAA and other sources.

Rationale: Sea Grant funding at the national level has been reduced for the past three fiscal years and the outlook for FY2009 remains in question. Reauthorization of the Sea Grant Program by Congress is anticipated during 2008 and may bring about increased funding, which will benefit the core program of each of the 31 Sea Grant programs. If annual increases do occur as

outlined in reauthorization, this goal will be easily realized. However, Texas Sea Grant also intends to look at other avenues to increase support. This will be in the form of soliciting grants and contracts, soliciting support from private industry for certain Sea Grant activities, and, if possible, establishing an endowment. Some successes have already been achieved. The Coastal Communities Extension Specialist has developed sufficient soft money funding to support five staff members, the Floating Classroom Program has obtained donations from private sources and support from the state's Coastal Management Program, and increased funding for MarinaNet and other programs has been obtained. The Director and Associate Director also have participated on various grants as co-investigators, bringing in some additional funds.

Performance metrics: Performance will be based on the continued success of expanding Sea Grant support by Congress and by the entrepreneurial activities of the Texas Sea Grant staff. By moving the Floating Classroom Program to a metropolitan area, additional funding should become available. The overriding metric will be how much funding above the current core budget of Texas Sea Grant is obtained.

Time frame: This will be an ongoing activity.

Objective 3. Engaging Stakeholders

Strategy 1. University Linkages (Priority = High)

The research community with capabilities to conduct research in the areas of interest to Texas Sea Grant is robust and widely distributed among a number of universities across the state. Over the past several years, Texas Sea Grant has developed a list of potential principal investigators in Texas and maintains contact with them via email. While a small number of those individuals receive funding through Sea Grant in any given year, there are

other opportunities for them to obtain research grants and contracts. Sea Grant makes every effort to apprise the research community of such opportunities.

Goal. Demonstrate the effectiveness of linking university researchers with state agencies.

Rationale: By holding positions on the Coastal Coordination Council (CCC) and its Executive Committee, Texas Sea Grant has the opportunity to keep the research community informed about funding opportunities through the state's Coastal Management Program (CMP) and other sources. The Coastal Applied Research Review Team (CARRT), a Sea Grant-initiated group representing natural resource agencies on the CCC and 17 universities with marine research portfolios or interest, will provide additional input to the CMP review process while also helping establish linkages between state government and the university research community.

Performance metrics: The degree to which the CMP grants program employs the CARRT and the success rate of university researchers proposing and obtaining CMP grants on projects responsive to critical coastal issues will be reviewed annually to track progress.

Time frame: Ongoing.

Strategy 2. Engaging Weather and Emergency Management Personnel **(Priority = High)**

It is anticipated that during the period from 2009-2013, the storm surge model being developed at North Carolina State University and the rainfall model available through the National Severe Storms Laboratory (NSSL) will be combined and can be introduced to the Gulf coast, first in the Houston/Galveston area. In the meantime, bathymetric and elevation maps of the continental shelf and coastal region of Texas and Louisiana,

developed through Sea Grant funding, can help weather forecasters, emergency managers and others predict storm surges.

Goal. Develop relationships with appropriate Weather Service and emergency management personnel.

Rationale: Texas Sea Grant is committed to providing information and assistance to coastal communities in relation to coastal hazards. Texas Sea Grant has been working with the NSSL to establish a Sea Grant extension specialist position and will work with that individual to incorporate the storm surge and rainfall models into the Houston/Galveston area once those models are integrated and become available. In the meantime, Sea Grant will establish relationships with Weather Service and emergency management personnel, beginning in Houston/Galveston and extending along the coast, by introducing them to the maps that are currently available.

Performance metrics: The number of individuals who are contacted and through whom relationships with Sea Grant are established will be one form of performance that can be determined. The extent to which first the available maps and later the models actually are predictive of storm surge and flooding can only be determined when a storm event occurs.

Time frame: Three to five years may be required before the models are in place. The maps have been incorporated into the Texas Sea Grant-sponsored Coastal Communities Planning Atlas, which has been funded for further development in the 2008-2010 cycle, for use by emergency management and community planning officials. Additionally, a more comprehensive set of maps tied to GIS will be developed under a grant beginning in 2008. Development of relationships with Weather Service and emergency management personnel will be ongoing.

Strategy 3. New and Expanded Programs (Priority = High)

Efforts are continually made to position Sea Grant for opportunities that may develop at the local, state, regional or national level. Challenges occur as competition for these opportunities is encountered. Success of opportunistic efforts is often problematic; however, to the extent that resources will allow, opportunities should be pursued to fruition or extinction.

Goal 1. Expand the impact of the Floating Classroom Program.

Rationale: In the six years of its fully operational status, the Floating Classroom Program (FCP) has served approximately 17,000 students, teachers and other adults. Primarily operating from its homeport of Matagorda, budgets, time constraints, prioritization and restrictions on external educational events by public school districts have limited the growth of the FCP. Locating the marine education vessel, *KARMA*, and its associated education program in the Houston-Galveston area for short periods in spring 2007 and 2008 have re-energized the use of the program by school districts in that area. With the anticipated retirement in 2008 of the current Marine Education Specialist, who manages the FCP, plans to hire a new specialist will be coordinated with plans to move the *KARMA* closer to a large urban center, either to the Houston-Galveston area or to Corpus Christi. The relocation is expected to increase the use of the *KARMA* by school and other groups and provide the opportunity for additional private support via donations.

Performance metrics: The success of the FCP and of the move of the *KARMA* to a new homeport can be determined by increases in the use of the vessel by school groups and other youth organizations, and by increased private support.

Time frame: The vessel and its associated

education program is expected to be moved to a more metropolitan setting by 2009, and any changes in use patterns or support would be expected to begin within a year after the move. Growth of the FCP is expected to be ongoing.

Goal 2. Expand the impact of the Coastal and Marine Resource Agents.

Rationale: In 2006, working closely with Texas Cooperative Extension, the Sea Grant-supported county agents' title was changed from "Marine" to "Coastal and Marine Resources" for a full title of "County Extension Agent – Coastal and Marine Resources." The concept behind the change was to recognize the expanded venue of the agents and the various initiatives they conduct through the full range of the coastal and marine environments. The timing of this change reflected the enhanced considerations given to the coastal and oceanic arenas by such documents as *An Ocean Blueprint for the 21st Century* produced by the U.S. Commission on Ocean Policy and the *U.S. Ocean Action Plan* produced by President George W. Bush's administration. Furthermore, as Sea Grant's standing on the CCC continues to develop, more opportunities for agents to become higher profile and be the "go to" people in the county for coastal and marine issues should materialize.

Performance metrics: Success in achieving this goal will be quantified by improved communications between Coastal and Marine Resources Agents and coastal management resources staff at the state, regional and national levels. A measure of this will be the engagement of the agents as conduits for technical assistance on coastal and marine issues provided to county leadership.

Time frame: As this is an evolving mode of operation for the Coastal and Marine Resources Agents, it will be an ongoing effort.

Objective 4. Extending Our Reach

Strategy 1. Gulf Regional Programs (Priority = High)

Many of the issues and problems that exist along the Texas coast also exist throughout the Gulf of Mexico. Texas Sea Grant and the other three Sea Grant programs in the Gulf have worked collaboratively in the past and strengthened that collaboration for the 2008-2010 proposal cycle by developing a regional research program in coastal resiliency. Each program agreed to provide \$50,000 annually during the cycle in support of regional research, with successful proposals needing to involve researchers from at least two of the four Gulf Sea Grant programs. The first funded project, which is using the recovery of New Orleans after Hurricane Katrina as a model to be applied to post-hurricane recovery of infrastructure and economy anywhere in the Gulf of Mexico region, began in 2008. The regional research program will also solicit proposals for the 2010-2012 funding cycle.

Goal. Participate in the Gulf Regional Research Program.

Rationale: Texas Sea Grant is participating in the program during the 2008-2010 funding cycle and has agreed to participate during the 2010-2012 cycle. Texas Sea Grant will continue to assist in the review process and provide the requisite funding for each of the two years. It is anticipated that any proposal funded will produce results that are relevant to all states that border the Gulf of Mexico.

Performance metrics: The performance of the program will be judged on the applicability of the 2008-2010 research project to Texas and the program's continued success in generating high-quality research proposals for future projects.

Time frame: Through January 31, 2010, for the current funding cycle and through January 31, 2012, for the next funding cycle.

Strategy 2. Broader Collaborative Programs

(Priority = Moderate)

Goal. Engage regional expertise in coastal and marine law and policy.

Rationale: With studies and reports recommending development of regional governance over coastal and marine issues as well as management on an ecosystem basis, Sea Grant, along with researchers from the Harte Research Institute for Gulf of Mexico Studies and Texas A&M University at Galveston, has received funding from the Sea Grant Law Center to initiate a Gulf of Mexico marine law and policy consortium for evaluation of the current and needed infrastructure to advance ecosystem-based management in the region. Since these are only start-up funds, efforts will be needed to continue the consortium and find alternative funding sources.

Performance metrics: Evaluation of this goal will depend upon the success of the initial activities of the consortium funded through the Sea Grant Law Center. Such aspects as participation, successful completion of the consortium with adequate proceedings for guidance in continuing the venue, and successful acquisition of additional funding will be quantifiable.

Time frame: The consortium first received a modest amount of funding in the fall of 2007. Because of the death of the Associate Director, who was Texas Sea Grant's lead on this project, the continuation of Texas Sea Grant's involvement will be dependent upon the hiring of a new Associate Director sometime in 2008. If successful and a need recognized, the project will continue.



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