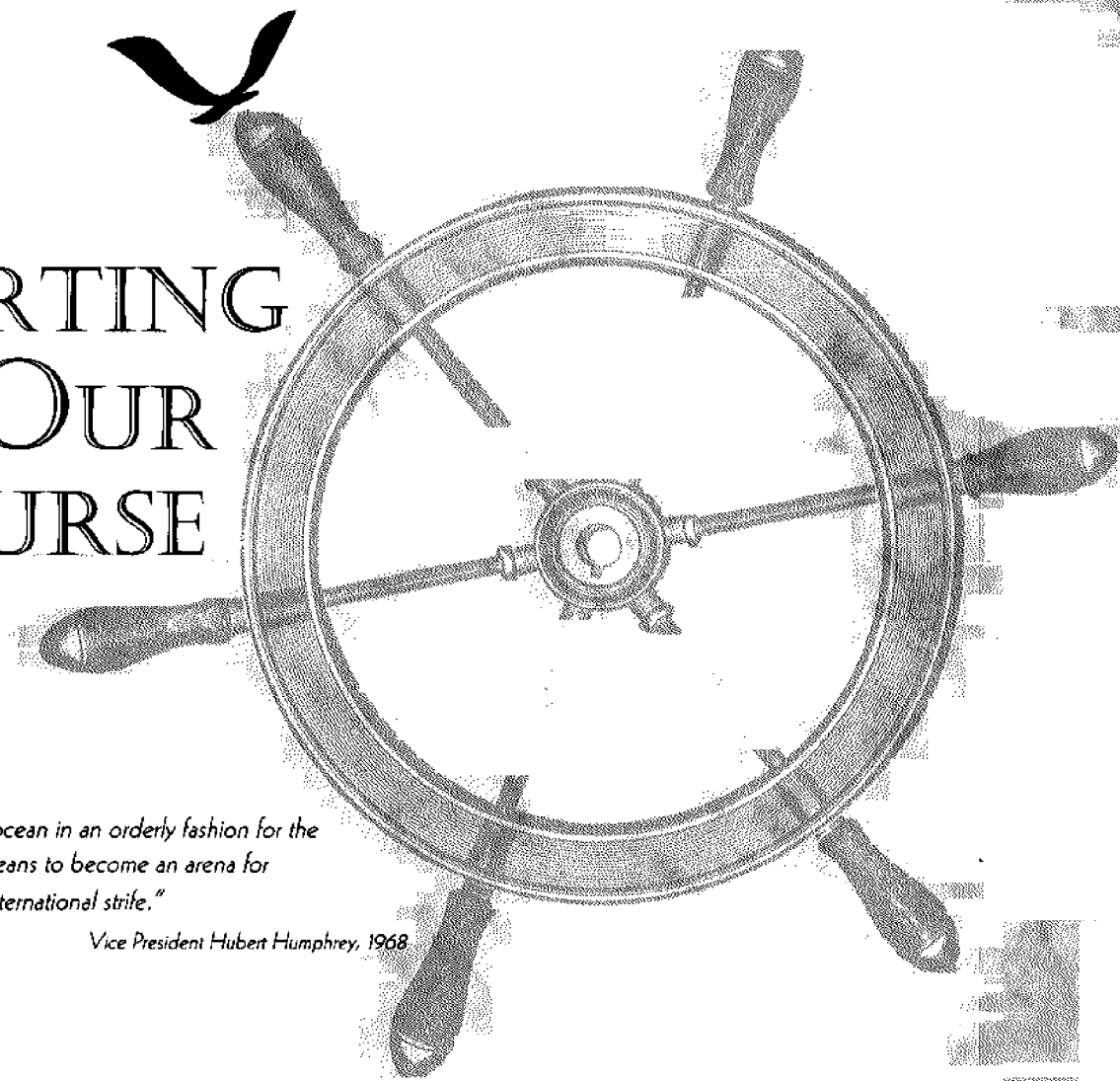


# CHARTING OUR COURSE



*"Either we develop the resources of the ocean in an orderly fashion for the benefit of all men ... or we permit the oceans to become an arena for exploitation, wasteful competition, and international strife."*

*Vice President Hubert Humphrey, 1968*

This is what Texas Sea Grant is all about — the wise use and conservation of marine resources along the Texas coast through research, education and outreach activities and the sharing of this expertise on a regional, national and international basis as appropriate.

How we do this ... with whom we work ... where we focus our research dollars is the theme of this special report —

## A STRATEGIC PLAN FOR THE TEXAS SEA GRANT COLLEGE PROGRAM

## History and Structure

Five years after passage of the National Sea Grant College and Program Act of 1966, Texas A&M University was officially designated as the State's Sea Grant College Program under the U.S. Department of Commerce through the National Oceanic and Atmospheric Administration. Patterned after the Land Grant Act of the mid-1800s, Sea Grant is a constituency-driven, broad-based, coastal program. Funding comes from a shared partnership among the federal government, the state government and the various participating county commissioners' courts in Texas coastal counties.

Sea Grant is a matching program — each two dollars of federal funding requires one dollar of state match. The majority of these state matching funds come from a special item designation in the Texas A&M budget request to the state legislature. Other monies come from the counties or from cooperating agencies, such as the Texas Agricultural Extension Service.

## Research

Approximately 50 percent of Texas Sea Grant's funds are spent for coastal and marine-related problem-oriented research. Sea Grant advisory committees, with members selected from state and federal agencies, marine-related industries, academia, and the Texas Marine Advisory Service, help identify priority research areas. Requests for proposals delineating these priorities are then distributed among all Texas colleges and universities with representative expertise in marine science.

A three-step proposal process follows, which includes peer review at both the preproposal and final submission stages and prioritization according to research priority by a panel of experts convened specifically for that task. Ultimately, proposals are funded on the basis of how the research addresses a priority need, on the quality of the science, the background and experience of the investigator, and the suitability of the budget.

## Education

Education may begin in the classroom, but good education involves all ages in all locales in all aspects of life. Texas Sea Grant's educational program includes organizing and sponsoring workshops, conducting field trips, making classroom presentations, sponsoring special events, conducting annual symposia and camps, and developing curricula for use in primary and secondary classrooms. Both students and teachers are involved in these activities. Programs also are conducted for adults and senior citizens through community education and elderhostel events.

## Technology Transfer

The Texas Marine Advisory Service (MAS), with six county agents, seven specialists and a program coordinator, is the primary conduit between Sea Grant's research findings and the general public. The MAS staff interacts with Sea Grant's constituents daily, responding to requests for information, solving specific problems, applying research results in the field, assisting trade and environmental organizations, and participating in various state and federal agency programs, initiatives and other marine-related activities.

Many of the Texas Marine Advisory Service's activities are oriented toward improving the economic viability of coastal-related industries and helping resolve conflicts among the diverse, and often competing, coastal interests and users.

## Information Transfer

Sea Grant's Marine Information Service (MIS) is responsible for conveying research results and educational and advisory activities to user groups, constituents and the general public. *Texas Shores*, an award-winning quarterly magazine published continuously in some form since 1969, is the primary information vehicle. It is supplemented by weekly news releases to coastal communities, electronic transfer via the worldwide web, staff-produced brochures, fact sheets and books, and special projects jointly produced with other agencies, organizations or various components of The Texas A&M University System.



## Planning for the Millennium

The Texas Sea Grant College Program is one of 29 such programs established in the coastal and Great Lakes states as well as Hawaii, Puerto Rico and the U.S. Virgin Islands. The original federal legislation in 1966 called for a network of colleges and universities that would develop research, education and outreach programs in all areas of marine science. Today's 29 programs represent that network.

The Texas Sea Grant College Program has found its niche by funding primarily targeted research — research aimed at providing information that can be used to address real world problems of interest to government, industry and the public at large. While most of this research can be categorized as "applied," basic research is also supported when it provides information and technology that ultimately can be used for a real-world need. Due in large part to the specific clientele, Texas Sea Grant programs frequently emphasize commercial fisheries, aquaculture, environmental quality, seafood safety, and the development of new products from marine resources:

Texas Sea Grant celebrated its silver anniversary in 1996. The program accomplished a great deal in those first 25 years, but much remains to be done, and the problems being faced today are often significantly more complex than those addressed in previous decades. The growing U.S. population, with nearly half living within a few miles of the coast, imposes constantly increasing demands on such natural resources as food and hydrocarbons, much of which comes from the marine environment. Human use, whether for commercial gain or recreational satisfaction, is also placing increasing stresses on the coastal environment, a situation that has led to habitat loss and, in some regions, a general lowering of the quality of life.

Many of Sea Grant's educational and outreach efforts are designed to make the public increasingly aware of these problems and have taught both the public and industry a great deal about environmental issues, safety and the wise use of available natural resources. While progress has been made, the gains may be quickly overwhelmed as the

population and the concomitant utilization of coastal resources expand.

Those who comprise the Texas Sea Grant College Program recognize that humankind is an important part of the coastal ecosystem. We also recognize that humankind can disrupt portions of the natural system in ways that are detrimental to long-term health or even survival. The challenge is to rebuild and maintain a stable and healthy marine environment (sustainability) while using the marine resources wisely and while being stewards of a healthy marine environment for the enjoyment of and use by future generations (conservation).

Texas Sea Grant cannot address, let alone solve, all the problems that currently exist within the State's coastal waters. Emphasis is, and will continue to be, given to those activities and subjects that are of interest and importance to our recognized constituencies. It is obvious the Sea Grant program can only be effective if it focuses its activities within the scope of its limited human, and more importantly financial, resources. These limitations demand that program activities avoid duplication of effort and focus on research and outreach efforts with achievable objectives and programmatic cohesiveness. The strategic plan outlined in this document provides a blueprint for research, education and outreach activities that should receive attention through fiscal 2002.<sup>1</sup>

This plan was developed with input from Sea Grant program personnel, researchers who have been actively involved with the Texas Sea Grant College Program, state and federal agency personnel, and members of Sea Grant's advisory committees. The plan is designed to be dynamic. It will be revisited frequently to determine if the emphases continue to be in the right places. The plan will be updated and extended periodically to ensure flexibility. Mid-course corrections, including moving in entirely new directions as new problems arise and additional resources become available, will be made as appropriate.

Priorities and goals have also been set at the national level.<sup>2</sup> The Texas Sea Grant College Program strategic plan is designed to interface with and respond to the national plan. While the Texas plan focuses on issues and opportunities of importance to the State and the Gulf of Mexico, it does

so while recognizing that various regional and national partnerships impact Texas and more human and financial resources can be focused through development of cooperative programs than would be available within an individual program.

We recognize that many, if not most, of the researchable problems that we will be attempting to resolve in the future will involve questions that cannot be addressed effectively by individual researchers working alone. Implicit throughout this document is the concept of developing interdisciplinary teams to foster effectiveness. Such teams may be formed within a single college or university although in most instances they will involve researchers from two or more institutions, those from state or federal agencies and/or industry, and, occasionally, those from two or more states.

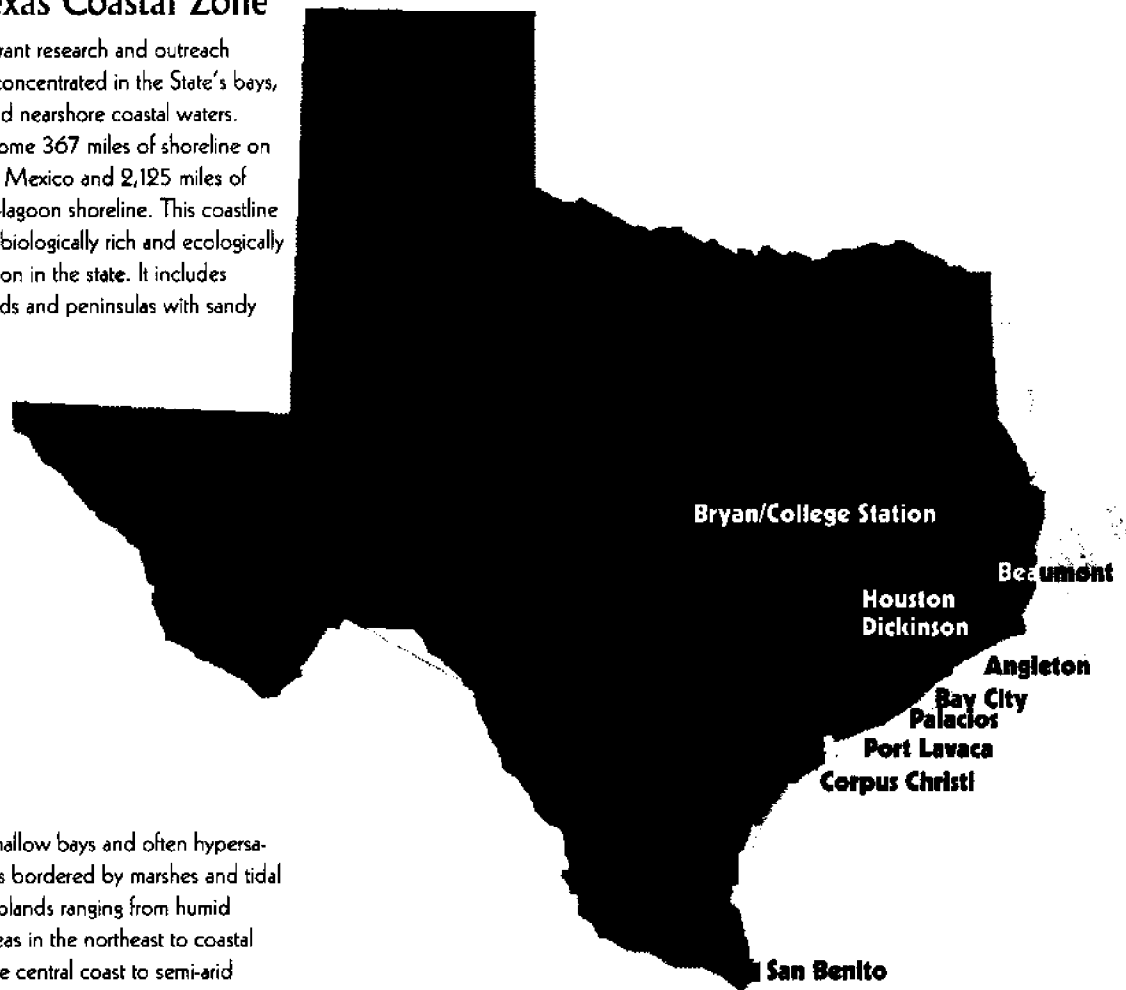
Research and outreach programs involving two or more Sea Grant programs or individual programs in collaboration with other NOAA line offices or federal agencies other than NOAA were developed in 1996. Each Sea Grant program received special funding for regional research projects (those involving two or more programs). National Strategic Investments were also initiated that involve several Sea Grant programs, and further initiatives were proposed to seek direct Congressional funding for new activities involving partnerships among NOAA agencies. One such initiative now being considered involves a nationwide program focused on marine aquaculture and enhancement.

The federal fiscal year, which begins on October 1, is used in conjunction with this plan. The Texas Sea Grant Program funding cycle has a March 1 annual start date.

<sup>1</sup>The overarching strategic plan within which the Texas Sea Grant College Program fits is the NOAA Strategic Plan (National Oceanic and Atmospheric Administration, 1966. NOAA strategic plan, a vision for 2005. U.S. Department of Commerce, Washington, D.C. 210 p.) The National Sea Grant Office took the NOAA plan and focused specifically on areas in which Sea Grant will be active (National Sea Grant College Program, 1995. Coastal and marine resources for a sustainable economy and environment: Sea Grant network plan 1995-2005. U.S. Department of Commerce, Washington, D.C. 19 p.).

## The Texas Coastal Zone

Sea Grant research and outreach efforts are concentrated in the State's bays, estuaries and nearshore coastal waters. Texas has some 367 miles of shoreline on the Gulf of Mexico and 2,125 miles of bay-estuary-lagoon shoreline. This coastline is the most biologically rich and ecologically diverse region in the state. It includes barrier islands and peninsulas with sandy



4

beaches, shallow bays and often hypersaline lagoons bordered by marshes and tidal flats, and uplands ranging from humid forested areas in the northeast to coastal prairie in the central coast to semi-arid brush country at the southwestern extreme.

More than one-third of Texas' permanent residents, or about 4.5 million people, live within the 18 counties that lie adjacent to the Gulf of Mexico. People are drawn to the coast because of its wealth of natural resources, employment opportunities and climate. This burgeoning population has intensified competition for coastal resources. Development has claimed a considerable amount of what was once agricultural land and has impacted shorelines, sparking new debates on beach and dune protection, wetland impingement and open space preservation. Coastal fisheries are affected when freshwater inflow is restricted or curtailed through activities upstream of the estuaries.

Compounding the demands on the Texas coastal zone are the numerous industries, municipalities, processing plants, marinas, ports and recreational facilities that have been built over the past century. Half of the nation's petrochemical industry and more than a quarter of its refining capacity exist within the state. Texas can claim 10 deep-draft ports, extensive barge facilities

and 426 miles of the Gulf Intracoastal Waterway. Large commercial and recreational fisheries compete with one another and with other users of the coastal zone. There is also competition among users and those interested in establishing aquaculture ventures in the coastal zone. The Texas coast is a major overwintering ground for migratory waterfowl, including the endangered whooping crane.

The stakeholders in the Texas coastal zone are many and varied. Balancing the pressures for increasing population density against the desire to maintain the quality of the coastal environment is not an easy task. Suspicion surrounds most stakeholders because, whether someone represents an environmental group, a fishing association, a regulatory agency or a heavy industry, there will always be a general feeling that self-interest is playing a role in how any particular issue is viewed. A primary role of the Texas Sea Grant College Program is to be a reliable source of timely, factual

information. One major goal of the program is to remain neutral when surrounded by conflict so that Sea Grant's objectivity is never questioned.

Although the Texas Sea Grant College Program focuses its activities in the coastal regions and nearshore waters of the state, the influences of both inland and offshore regions on the Texas coastal zone are not ignored. Such things as the effects of runoff from land, inflow from rivers, storms generated in the Gulf of Mexico, and various activities of humankind must be considered. As a corollary, some activities that normally can be expected to occur in the coastal zone might also be conducted far from the marine waters of the state. An example is the culture of marine shrimp and finfish in the saline waters of west Texas or in recirculating water systems that employ artificial seawater or natural seawater that has been transported to an inland site.

## NOAA Strategic Plan Emphases

The NOAA strategic plan (see footnote 2) involves two broad missions—Environmental Assessment and Prediction and Environmental Stewardship. In turn, the first mission has four objectives: (1) advance short-term warning and forecast services; (2) implement seasonal to interannual climate forecasts; (3) predict and assess decadal to centennial change; and (4) promote safe navigation.

The Environmental Stewardship objectives are to: (1) build sustainable fisheries; (2) recover protected species; and (3) sustain healthy coasts. Texas Sea Grant's activities, both current and planned, fall primarily in the Environmental Stewardship arena. We are also involved in coastal hazards and navigational safety, both of which are associated with the Environmental Assessment and Prediction mission of NOAA.

## Strategic Goals for the Texas Sea Grant College Program

It is seldom possible to plan for the future without fully considering the past. Past and present programs and activities were evaluated and compared with the National Sea Grant Network Plan (NSGNP) before work began on the specific Texas Sea Grant plan. It became apparent that the Texas Sea Grant College Program addresses many, but not all, of the categories in the NSGNP, which is a predictable result given the diversity that exists across the Sea Grant network. The Texas Sea Grant Strategic Plan was developed to assist in structuring a more focused program within the constraints of limited resources that addresses the unique needs of Texas constituents.

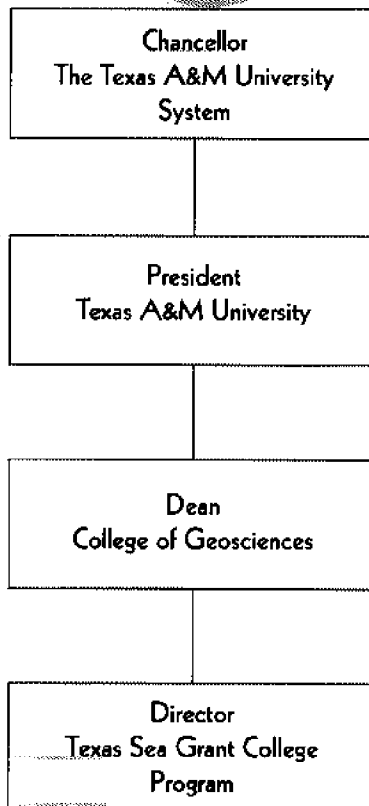
The Texas Sea Grant Strategic Plan integrates components from the NSGNP,

the Texas Agricultural Extension Service Long Range Plan, Advisory Committee priorities, the Texas A&M University College of Geosciences Strategic Plan and the Texas Legislature's guidance for special item funding, which provides much of the state match for the Texas Sea Grant College Program.

The strategic goals for the Texas Sea Grant College Program are few in number and broad in scope. They revolve around a continuing effort to perform the mission of the program satisfactorily and to strive for continued improvement in the performance of our research, education and outreach activities. Specific programmatic goals are to:

- Maintain Texas Sea Grant's research, educational and/or outreach niche while identifying additional areas where the program's unique abilities can be beneficial.
- Expand the program's activities by participating in National Strategic Initiatives, National Strategic Investments, and Regional Research.
- Continue to maintain and improve existing alliances with stakeholders while developing new ones to best serve the needs of the state of Texas.
- Improve the integration of the three parts of the program (research, MAS, MIS)
- Identify and develop focused, user-relevant research programs and activities such as the recruitment initiative that was launched in 1997.
- Continue to search out qualified researchers from the academic community in Texas and improve the proposal development process.
- Improve the ability of the program and staff to meet new challenges and opportunities in a timely and effective manner.

### TEXAS SEA GRANT ADMINISTRATIVE STRUCTURE



## Sea Grant Niche

When the National Sea Grant Program began, its role in serving stakeholders in the marine environment was quite clear. In the intervening 30 years, many organizations, foundations, programs and other entities have developed and moved into some areas traditionally served by Sea Grant. Complimentary or competing groups can be found in the private sector (e.g., environmental organizations, recreational and commercial fishing organizations) and in both state and local government (e.g., the Gulf of Mexico Program, Galveston Bay National Estuary Program, Corpus Christi Bay National Estuary Program, Flower Garden Banks Marine Sanctuary). Various state and federal agencies have developed educational programs and many support or compete for research dollars and publish marine-oriented information. Thus, increasingly, Sea Grant's visibility and uniqueness have been diluted.

To continue being effective and efficient, the Texas Sea Grant College Program needs to maintain the unique niche structure that has been developed and has worked well over the years. Sea Grant also continually needs to assess the marine problem-oriented research needs that can best be addressed by academic scientists, develop demonstration projects to show stakeholders how to put the results of research into practice and publish timely information.

The rapid development of the information age has been responded to in a limited fashion by the Texas Sea Grant College Program, but that effort will be expanded in the coming years. A web site was created in 1996. Further development in the appearance and features of the web site are needed (complete text of many of the program's publications, with updates as new material is produced, adding graphics and motion to enhance the appearance and utility of the web site and adding additional links to related web sites are among the upgrades needed). There is a need for interactive CD-ROMs for use in the classroom, on shipboard and by industry and such development fits within the strategic plan of the Texas Sea Grant College Program.

## Expanding Activities

### Situation

The Texas Sea Grant College Program approved two regional projects for initial funding in fiscal 1997, one on ecophysiology in collaboration with North Carolina and Florida and a second involving ornamental fish culture with Florida.

The program is actively involved in the development of an Offshore Aquaculture and Marine Fish Enhancement Initiative that has won NOAA backing and is receiving attention and interest in Congress. A limited aquaculture program (less than \$2 million) is expected to be approved by Congress and will be available to Sea Grant programs in fiscal 1999. Considerable expansion of that program will be requested beginning with the fiscal 2000 budget. A second initiative involving offshore engineering is in the early stages of development.

Texas Sea Grant also is leading two national outreach initiatives, a seafood safety project involving reduction of shrinkage at the retail level and completion of the MarinaNet project, and is involved in two others as a collaborator (nonindigenous species and HazNet). A NOAA partnership grant has also been approved for the only Texas applicant to that program.

### Vision

Many of today's problems that are within Sea Grant's personnel and funding range are beyond the scope of individual researchers and, thus, are best served by multi-disciplinary teams. Effective multi-disciplinary teams cannot be put together without the enthusiastic willingness of all team members. Sea Grant cannot force individuals to form teams, although the program can provide some impetus for teamwork at the grass roots level by earmarking specific funding for such projects.

The National Strategic Investments and National Strategic Initiatives efforts, as well as regional research projects, aid development of multi-disciplinary teams. It is important, however, for potential researchers to be part of any planning process from the inception if such initiatives, investments or projects are to succeed. The offshore engineering initiative is one such example. The concept originated at the researcher level, became a topic of interest that spread among several Sea Grant programs and may soon be

discussed at a workshop during which development of a formal initiative will be considered. Texas Sea Grant is dedicated to this approach and will aggressively seek out collaborative opportunities for interested university researchers within the state.

## Alliances with Stakeholders

### Situation

The primary contacts with stakeholders in Texas and across the nation are made by MAS personnel. Agents and specialists are constantly in contact with their local communities, industry, government at various levels, educators, researchers, civic groups and the public-at-large. Advisory committees formed by agents assist those individuals in developing their programs and becoming aware of problems and opportunities as they arise. Sea Grant administrative personnel gather input from agents and specialists within the state and also monitor the national scene. Through its advisory committees, the Texas Sea Grant College Program obtains recommendations on research needs that address problems of importance to the stakeholders.

### Vision

The importance of constant day-to-day interactions between MAS personnel and the various user groups is critical if the goals contained in the Texas Sea Grant College Program Strategic Plan are to be achieved. Each county served by an MAS agent has a unique set of opportunities and problems to be addressed. Finding the proper agent to serve the needs of each county has been critical for success of the program. The Sea Grant administration is dedicated to finding and retaining those individuals who can be most effective and providing them with the resources, training and support required to ensure their success.

The Texas Marine Advisory Service currently includes specialists in aquaculture, business management, education, environmental quality, fisheries and seafood technology. Some of the current specialists have been in their positions for more than 20 years. Retirements are expected in the next few years. As these vacancies occur, priorities will be carefully examined to determine if replacements within the same discipline are required or if resources might better serve a new discipline or, as was recently the case, reinforce an existing expertise.



## Program Integration

### Situation

The Texas Sea Grant College program resembles a three-legged stool, with each leg dependent upon the strength of the others to ensure that the stool will not collapse. Mission-oriented research is one of the more highly visible activities of Sea Grant in the academic community, although Sea Grant's MAS and MIS activities are more widely recognized by the public-at-large.

County marine agents receive joint funding from, and thus are jointly responsible to, the Texas Sea Grant College Program, the Texas Agricultural Extension Service (TAEX) and the county commissioners' court in their home counties. Agents must be generalists in that they may be asked about shrimp diseases one minute, how to stabilize a beach from erosion the next, and the status of bycatch reduction device regulations and the shrimp fleet the third. MAS specialists support the marine agents in their various areas of expertise. Five of the current seven MAS specialists are jointly funded by Sea Grant and TAEX.

Lines of communication among Sea Grant administration, MAS and MIS are well established with various stakeholders. An important aspect of the routine activities of MAS agents and specialists is to respond to stakeholder questions and respond to issues and opportunities that fall within the Sea Grant mission. While those relationships are strong, there is always room for improvement.

### Vision

Recipients of Sea Grant research funds should not consider publication of their work in the scientific literature as an endpoint. From the Sea Grant perspective, a research project is not complete until the results are translated into lay terminology, made available to user groups (the outreach component) and incorporated into the body of knowledge that makes up marine science programs and curricula (the educational component). Education is broader than merely getting marine-related information into classrooms. It means one-on-one contacts and training programs for small groups in a non-academic setting (e.g., 4-H, elderhostel). It also involves professional training, particularly at the

graduate level. Most Sea Grant-funded research projects support one or more graduate students and there will be continued emphasis on graduate training as a part of most Sea Grant supported projects.

## Research Foci

### Situation

During the fiscal 1997 proposal cycle (March 1, 1997 through February 28, 1998), many of the projects related to fisheries recruitment, which created a natural focus area. Sea Grant administration, with advisory committee support, chose to continue this recruitment initiative into the 1998-2000 funding cycle. This does not mean all grants in the three-year cycle deal with recruitment, but many of the funded projects do fit within that focus area.

Before developing the 1998-2000 Request for Proposals (RFP), a list of previous Texas Sea Grant research priorities was sent to all Advisory Committee members, MAS staff and more than 600 researchers at Texas academic institutions for ranking and comment. Survey results were then used as guidelines for the RFP.

The priority research areas from the survey that relate to recruitment are shown in italics in the table on the next page.

They tend to be among the highest priorities in several discipline areas, which, in turn, were stressed in the RFP. The recruitment initiative clearly relates to the NOAA Strategic Plan's emphasis on Building Sustainable Fisheries. Environmental studies, including those involving aquaculture pond effluent, which relate to the Sustain Healthy Coasts emphasis within NOAA, can also be related to the recruitment initiative. For example, studies aimed at determining the impacts of dredging of soft bottoms or the relationship between noxious algal blooms and the shading out and loss of submerged seagrass beds relate to changes in habitat that can have a severe impact on recruitment of fishes and shellfishes.

Another focus area that has long been a part of the Texas Sea Grant College Program involves research in marine education. A continuous goal is to support research that leads to the incorporation of marine-related concepts and principles into K-12 classrooms and using marine examples as learning tools in conjunction with various science and liberal arts courses. A

secondary goal is to develop interactive CD-ROMs and other teaching aids that stimulate learning while maintaining student interest and enthusiasm. The Texas Sea Grant Program philosophy includes the belief that every student in the state has a stake in the health and sustainability of the marine environment and that through education, each student can become a better environmental steward.

### Vision

The focus on recruitment will continue through fiscal 2000 and will then be re-examined by Sea Grant administrators and the Advisory Committee to determine if this remains a high priority or if there are areas requiring additional study or new issues that need to be addressed under the recruitment initiative umbrella. Other needs that develop in the interim will also be examined and prioritized before future RFPs are developed. Marine Education will continue to be a subject of interest in the future, with at least one or two projects being incorporated into omnibus proposals so long as quality is maintained.

## Researcher Identification and the Proposal Process

### Situation

While MAS specialists and agents are often involved in demonstration projects that represent the extreme applied end of the research spectrum, Sea Grant does its cutting-edge research through principal investigators (PIs) who are housed at various campuses across the state. The numbers of institutions funded within a given cycle varies, but any faculty member with suitable credentials is eligible to respond to the RFPs.

The Texas Sea Grant College Program maintains and is continually updating its list of eligible scientists. E-mail listings are also maintained so information can be transmitted rapidly. RFPs from Sea Grant and other marine-related programs, final proposal guidelines, and various other types of information of use to PIs are also available on the Texas Sea Grant College Program web site.

The peer review system of proposal evaluation is designed to determine the quality of the proposed science, the competence of the proposer(s), the fit of

**Table 1. Discipline areas and priority research topics within discipline as developed by the Texas Sea Grant College Program Advisory Committees in 1996. (Priorities within discipline are presented in descending order.)**

### **Aquaculture**

- Improve the scientific and technological basis for culture of finfish and shellfish to reduce environmental impacts, particularly those from pond effluents, and minimize facility dependence on natural resources
- Develop production technology, such as species selection, genetics, life cycle research, nutrition and pathogen remediation
- Develop management technology that will improve the economic viability of aquaculture
- Develop systems that provide economic development opportunities for rural communities

### **Environmental Studies**

- Develop innovative tools and concepts to measure ecosystem health and anthropogenic impacts
- Study the effects of turbidity on coastal ecosystems, including, specifically, effects of dredging on re-suspension of material on habitats and organisms
- Identify nonpoint source pollution affecting the coastal and marine environment
- Develop more cost effective marshes through use of dredge materials
- Identify potentially toxic "hot spots" in Galveston Bay and their relevance to seafood safety
- Study the dynamics and physical, chemical and biological pathways of toxicants in the coastal and marine environment, and related toxic accumulations in sediments, marine organisms and the food chain in general
- Study habitat alterations, including those extending from the coastline through the estuarine-oceanic interface, that impact wetlands, seagrasses or marine species in general
- Inventory suitable seagrass restoration areas, and develop new methods to use vegetation for erosion control
- Use retrospective studies to understand linkages of the Texas coastal environment to global climate change
- Determine the effects of water hyacinths on Clear Lake

### **Fisheries**

- Assess population dynamics as related to recruitment of larvae and juveniles to estuarine nursery grounds, larval transport and mortality (either natural or human-induced)
- Determine the impacts of stock enhancement efforts in terms of modification to the natural ecosystem
- Update fisheries bioeconomic models
- Assess options such as fish reserves, seasonal restrictions or offshore zones or corridors and their potential long-term impacts on the resource
- Determine the extent and impact of bay bottom or seabed disturbance from shrimp trawling activities
- Determine the extent of fisheries habitat loss associated with removal of oil and gas platforms in the Gulf of Mexico



the proposed research into the priorities established for the Texas Sea Grant College Program by its Advisory Committee and the appropriateness of the budget. Maintenance of a current list of reviewers who are highly qualified, fair and who meet the deadlines imposed in the review process is an ongoing job.

Most preproposals and virtually all full proposals received in recent grant cycles have been highly meritorious and deserving of funding. Final proposals have been prioritized with assistance from peer review panels and funding has been allocated as far down the list as possible. Projects deserving support but not funded due to a lack of resources have recently amounted to

from one-third to one-half of the full proposals received.

### **Vision**

It is perhaps the nature of competitive research that some PIs who are not funded feel that they have been unfairly discriminated against due to a preference that exists within Sea Grant for certain types of research or individual researchers. The charge has also been levied that MAS agents and specialists are intimately involved with the final decisions. While the process is designed to be eminently fair and unbiased, constant vigilance will be required to ensure that favoritism charges have no credence.

Some Sea Grant programs evaluate

preproposals internally; that is, the Sea Grant administrators, usually with input from MAS, determine whether a PI should be encouraged to submit a full proposal. The Texas Sea Grant College Program relies on peer reviews of two-page preproposals and will continue using that approach as it is deemed the least biased. The written review process will be modified, however. Preproposals will be evaluated primarily for relevance to Texas' needs by Sea Grant's Advisory Committee members or their designees. Full proposal recommendations will be based on a minimum of three such evaluations and on input from MAS. Full proposals will then be reviewed by a minimum of three experts in the subject area of each



- Correlate the impact of impingement and entrainment of marine species resulting from industrial cooling and process water use with that of bycatch of nontargeted species in fisheries activities
- Quantify sea turtle populations through size and distribution studies and accurate mortality studies by age class and from all causes

#### **Marine Biotechnology**

- Manipulate the genome of marine plants, animals and microorganisms to produce useful products, e.g. those associated with disease, detoxifying waste or enhancing organism growth
- Identify new sources of drugs by determining biosynthetic pathways, structure of marine-derived drugs, characterizing drug-receptor interactions and molecular mechanisms

#### **Marine Education**

- Survey community education programs for youth groups, elderhostels, chambers of commerce or service organizations, and develop materials based on survey results
- Develop, field test and evaluate marine education curricula that offer an integrated approach to science education as defined by the Texas Education Agency

#### **Marine Engineering**

- Conduct studies to improve the efficiency of fisheries harvesting operations and bycatch reduction
- Apply remote sensing data to fisheries recruitment, shoreline erosion and current patterns
- Study inactive oil and gas platforms to find ways to extend their useful lives whenever environmentally compatible

#### **Seafood Science, Technology and Safety**

- Develop effective methods to detect toxic contamination of seafood and understand the processes and causes of the contamination
- Develop food, agricultural or industrial use of materials currently wasted in processing and harvesting activities
- Identify new products that could create new domestic markets, including underutilized domestic species for traditional foreign markets
- Improve handling, processing, transporting and storing practices to increase product appeal, wholesomeness and safety
- Develop techniques to improve processing efficiency

#### **Social, Economic, Legal and Policy Studies**

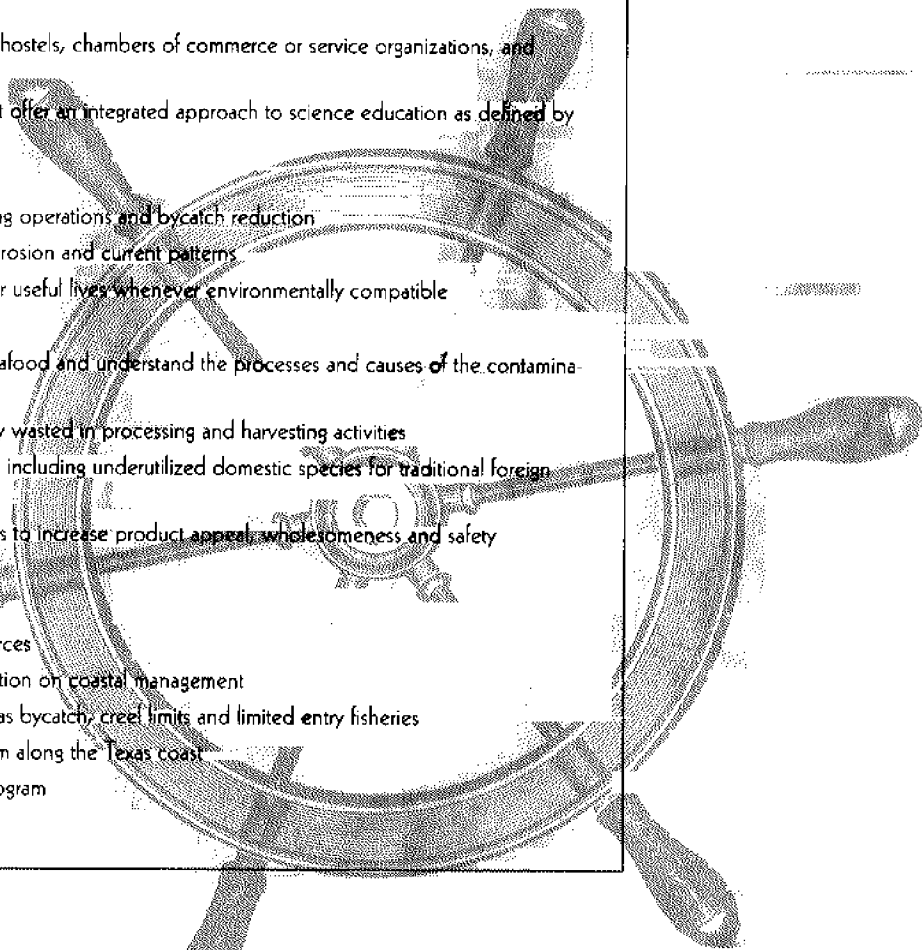
- Develop methods to quantify the value of natural coastal resources
- Determine the implications of nonpoint source pollution legislation on coastal management
- Determine the socio-economic impacts of such fisheries issues as bycatch, creel limits and limited entry fisheries
- Assess the impacts of nature based or non-consumptive tourism along the Texas coast
- Examine the legal incentives/constraints to the Rigs to Reefs program
- Assess the viability of coastwide container transport

proposal, with at least two of these experts being from outside the state of Texas.

Under the previous procedure, full proposals have not been revised after peer review before being prioritized by a peer review panel. This has led some prospective project investigators to object to the lack of opportunity for rebuttal before submission to the full panel. Texas Sea Grant intends to allow such revision in future funding cycles, which will add a few weeks to the process but should help obviate some of the criticism of the process.

The Texas Sea Grant College Program scrupulously avoids conflicts of interest with respect to the people solicited to provide written peer reviews and in the selection of experts asked to serve on the peer review

panel. Criticisms are still sometimes heard. Since even the appearance of a conflict of interest reflects negatively on the program, future peer review panels will be comprised exclusively of individuals from out-of-state.



## Responding to New Challenges and Opportunities

The situation along the Texas coast is in constant flux. Predicting when or where the next challenge or opportunity will arise is not possible, but it is possible for Sea Grant to mobilize scientists and others to meet those challenges and take advantage of opportunities. No one predicted the brown mussel invasion or the development and persistence of the brown tide in the Laguna Madre. The red tide event of 1997, which led to significant mortality of marine life and sickened several people, was not predicted. Such events require immediate attention by researchers. By the time proposals are written, reviewed and go through the normal process, the phenomenon to be studied will often have run its course.

### Vision

It is vital that Sea Grant have the interest and resources to respond rapidly, to be able to form interdisciplinary teams and to find ways to work with agencies, industry and the private sector to marshal resources quickly. While Sea Grant is proactive in providing safety training, developing materials to assist the public in preparing for and weathering severe storms, and in conducting visionary research, we must be equally adept at responding to unanticipated situations. A small percentage of the annual allocation of funds will be kept in reserve, whenever possible, to provide rapid response funding or seed money from which full-blown research projects can be developed to address important emerging problems.

## Implementing the Texas Sea Grant Strategic Plan

Implementation of any plan is an ongoing process. In the case of the Texas Sea Grant College Program, the omnibus proposals that are prepared periodically (the most recent covers fiscal 1998-2000) represent implementation plans. That is, the omnibus proposal outlines programmatic goals and objectives, thereby providing baselines from which performance can be measured.

Under recently adopted guidelines

from the National Sea Grant Office (NSGO), omnibus proposals, insofar as their budgets fall within the allotted available funds, are being supported without significant modification.<sup>3</sup> Thus, the quality of individual Sea Grant programs can be evaluated strictly upon the content of the individual omnibus proposals and the degree to which the projected objectives have been achieved and how well the research, education and outreach components of each program address state, regional and national needs. Annual progress reports and completion reports associated with the termination of each funded project detailed in the omnibus report will provide additional information for program evaluation.



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<sup>3</sup>Specific projects are not subject to being added or removed by the NSGO, as was the case in the past.

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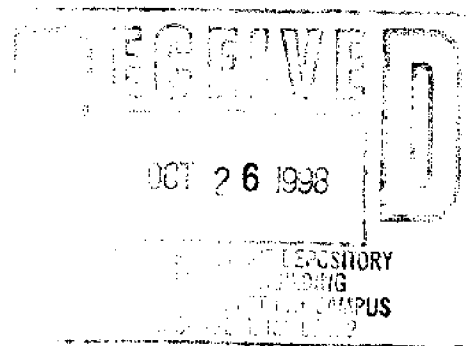
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