Sea Grant
Auburn University

Sea Grant
Mississippi State University

Sea Grant
The University of Mississippi

Sea Grant
Dauphin Island Sea Lab

Sea Grant
Mississippi-Alabama

Sea Grant
The University of Alabama

Sea Grant
The University of
Southern Mississippi

Sea Grant
The University of Alabama
at Birmingham

Sea Grant
University of South Alabama

Mississippi-Alabama Sea Grant Consortium
Implementation Plan 2000-2002

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The Mississippi-Alabama Sea Grant Consortium published its Strategic Plan for 2000-2005 earlier this year. This Implementation Plan describes the goals we expect to accomplish during the first two years of the Strategic Plan.

Strategic Goals in Program Management

Establish an Office of Alabama Programs

Similarities of terrain, hydrography, population, coastal industries, and a common sociological heritage were the basis in forming the nation's first bi-state Sea Grant program in Mississippi and Alabama. As a bi-state Sea Grant program the Consortium can draw from the resources of both Mississippi and Alabama to identify and solve problems common to both states.

The consortium concept has distinct advantages and disadvantages. Coordinating such a diverse group is a major challenge; however, as the focus of marine science has changed in recent years toward the examination of environmental threats to large marine ecosystems such as the Gulf of Mexico, the consortium model offers unique opportunities. However, there are many collaborative opportunities with federal, state and local agencies in Alabama that a Sea Grant program based in Mississippi has been unable to successfully incorporate due to the lack of senior management staff in Alabama.

Projections: MASGC will hire a senior manager to be based full time at a Consortium member institution in Alabama. The Consortium will administratively create an "Office of Alabama Programs," and start new initiatives in Alabama to forge innovative linkages between its Alabama Sea Grant Consortium members and Alabama agencies.

Facilitate New "Sea Grant Centers of Excellence" at Consortium Member Institutions

MASGC proposes a reorganization process whereby the "ownership" of Sea Grant is decentralized and tied more closely to each Sea Grant Consortium member institution. This strategic goal represents a focused effort to create an organized presence of Sea Grant research, education, and outreach as an integral part of each institutional member, creating "Sea Grant Centers of Excellence." Designation of centers at each member institution will allow

MASGC to catalyze new marine research, education, and outreach activities.

Projections: MASGC will develop and market proposals for two new Sea Grant Centers of Excellence in 2000-2002: (1) A Center for Marine Biotechnology at The University of Mississippi, and (2) a Center for Offshore Aquaculture Research and Development (COARD) at The University of Southern Mississippi.

Create a Not-For-Profit MASGC Foundation

MASGC is funded primarily by NOAA, with matching funds provided by member institutions in both states. There is a $175,000 annual state appropriation in Mississippi used as match for Mississippi members; however, there is no state appropriation in Alabama.

Projections: In 2000-2002, MASGC will review the pioneering activities of Louisiana State University Sea Grant College Program which led to the establishment of its own not-for-profit Sea Grant Foundation. The Consortium will also investigate the legal and administrative challenges in creating a MASGC Foundation.

Build an Award-Winning Communications Program

The communicator position at MASGC was vacant for approximately two years. A Communications Advisory Committee (CAC), comprised of representatives from each Consortium member institution, was created in 1999. The CAC determined the need to hire a new Communicator based on 1) the importance of having a centralized communications program at the MASGC administrative office and 2) the workload that Sea Grant places on the communications program which could not be accomplished by delegating the duties and responsibilities to individual members. A new Communications Coordinator was hired in November 1999 to re-establish the MASGC Communications Program.

Projections: In 2000-2002, the Communications Program will:

- Develop communication ties with 1) each of the eight MASGC member institutions and their CAC representative, university public relations offices, local media outlets, Sea Grant researchers, and relevant faculty and staff; 2) local media outlets in the coastal areas of Mississippi and Alabama; and 3) Sea Grant extension offices in Mississippi and Alabama as well as local stakeholder groups, government organizations, academia, and the general public;
- Redesign MASGC's newsletter to reflect the needs of stakeholders interested in the Consortium's activities. The new format will be smaller, published more frequently, and complement the MASGC Web Site;
- Several new products will be developed: Press kits and promotional materials; a CD-ROM documenting the spotted jellyfish invasion in the Gulf of Mexico; an official Sea Grant state license plate; MASGC's Strategic Plan, Implementation Plan, Annual Report and Program Directory; and program related materials for events that MASGC sponsors and co-sponsors;
- Investigate extramural funding for the Communications Program through writing new grants, special projects, and partnerships with other groups.

MASGC Priority Program Areas

1. Marine Biotechnology and Industrial Ecology
2. Sustainable Fisheries
3. Coastal Ecosystems and Habitats
4. Marine Education and Outreach

1

Strategic Goals in Marine Biotechnology

1. Marine natural products chemistry and product development, especially innovative university-industry linkages

The ocean holds the largest proportion of the world's biodiversity. Of the 27 diverse phyla of life, only 17 occur on land, but all 27 phyla occur in the ocean. The sessile nature of many marine organisms has allowed them to evolve a unique repertoire of chemicals for their defense, communication, and reproduction. Many ocean creatures have developed novel metabolites with potent pharmacological properties. There are unique molecular structures not duplicated anywhere else, a potential treasure-trove for new drug discovery. While marine natural products have provided a number of very important biochemical reagents that are used in cell biology, neurosciences, and almost every facet of modern biology, few have become major drugs or natural products of importance to human welfare.

Projections: MASGC will fund new marine natural products chemistry and product development, and develop innovative linkages with industry through two of its long-term investments in this area with the University of South Alabama and The University of Mississippi. MASGC will participate actively in the National Sea Grant Marine Biotechnology Theme Team.

2. Innovative approaches to prevention and control of marine invasive species from ballast water

MASGC has been actively involved in aquatic nuisance species (ANS) research, education, and outreach through its two extension units in Mississippi and Alabama, especially in zebra mussel initiatives. MASGC was a co-sponsor of MIT Sea Grant College Program's first national conference on marine bioinvasions and is an active participant in the EPA Gulf of Mexico Program's ANS focus team and other regional ANS efforts on impacts from ballast waters.

Projections: MASGC will fund a collaborative program development proposal with Virginia Sea Grant on ballast water treatment and management using an innovative acoustic screen filter for control of aquatic nuisance species. MASGC will also co-sponsor the Second Annual National Conference on Marine Bioinvasions in collaboration with MIT and Louisiana Sea Grant College Programs.

Strategic Goals in Industrial Ecology

Industrial ecology is a new approach that analyzes the entire industrial process for product development and incorporates environmental concerns, leading to improved environmental sustainability, business strategies, operational practices, and cost savings. The goal is to establish an integrated framework for industrial environmental management that coordinates energy and material flows and life cycle assessments into product and process development and project planning.

Industrial Ecology is a new programmatic focus area for MASGC. In 2000-2002, the Consortium will look for opportunities to fund new program development proposals in the following four areas of Industrial Ecology:

- Ecological analyses of industrial material flows and new coastal pollution prevention processes or strategies with emphasis on curbing pollutant flows from seafood processing operations located on the Mississippi-Alabama coast;
- Models/methods for a quantification of solid, liquid, gaseous, and energy flows in industrial activities in order to manage these flows within ecologically sustainable limits;
- "Green" oceanic transportation systems, especially "green" ships that travel in and out of Mobile, Gulfport, and Pascagoula ports. MASGC will seek opportunities to

partner with the Army Corps of Engineers and other Federal and State agencies as part of its plan to promote sustainable coastal zone management in Mississippi and Alabama;

- "Green" industrial processes in seafood processing and other coastal industries with emphases on new methods and best management strategies for non-polluting seafood processing and pollution prevention methods with its extension service and processors in Mississippi and Alabama.

2

Strategic Goals in Sustainable Fisheries

The Gulf of Mexico has been called the "fertile crescent." In 1999, about 1.5 billion pounds of fish and shellfish were harvested from the Gulf, valued at approximately $700 million. Most of the Gulf of Mexico's heavily exploited, economically important fish and invertebrate species are under significant pressure and are reliant upon estuarine and nearshore habitats and ecosystems.

1. Roles and impacts of restocking and artificial reefs on capture fisheries

Fisheries management is still an inexact science unable to explain stock declines throughout the world. There is an urgent need for interdisciplinary fisheries science to determine the contributions and roles of: the (1) loss of essential fish habitats and impacts of artificial reefs; (2) impacts of natural, seasonal, and climatic fluctuations; and (3) increased fishing efforts on economically important fish and invertebrates in the northern Gulf of Mexico.

Projections: MASGC will fund research to investigate the "production" vs. "aggregation" debate raging in the scientific community on the subject of artificial reefs. The Consortium also will participate in a technical, legal, research, and management workshop with the National Marine Fisheries Service on essential fish habitats.

2. Oyster habitats and fisheries, and sustainable methods of oyster aquaculture

Oyster fisheries in the northern Gulf of Mexico are important to the lives of hundreds of fishermen in Mississippi and Alabama. The Alabama oyster processing industry is the largest in the USA.

Projections: MASGC has four on-going National Strategic Initiatives (NSIs) in the national Gulf Oyster Program. MASGC and Auburn University will develop new linkages between oyster researchers, industry and government. Sea Grant will also encourage new program development proposals on oyster drills and *Vibrio*.

3. Development of marine aquaculture species

For aquaculture development to proceed to the point where it will be recognized as a major contributor to new fisheries production, clear, unambiguous linkages between aquaculture and the environment must be created and fostered. It is important that the complementary roles of aquaculture in contributing to environmental sustainability, rehabilitation, and enhancement be articulated to a highly concerned, increasingly educated and involved public.

Projections: MASGC will support research, extension, and education efforts to develop sustainable red snapper and cobia hatcheries, nurseries, and grow-out systems at member institutions and will develop new educational initiatives at the Alma Bryant High School aquaculture program. MASGC will co-sponsor with Virginia Sea Grant a national workshop, and create a species research and development plan for cobia.

4. Development of sustainable offshore aquaculture systems, and land-based hatchery and nursery support systems

In 1999, MASGC formed the Sea Grant Gulf of Mexico Offshore Aquaculture Consortium to create a collaborative Gulf-wide, university-based interdisciplinary research program that addresses social, environmental and technological

MASGC Strategic Planning Process for 2000-2005

A strategic plan is a "living document" to be revisited and revised on a regular basis throughout the planning period. MASGC has initiated a "seamless" planning process where the overall goals of its strategic plan are divided into priorities in a series of biannual Implementation Plans. Future reports will track the Consortium's progress in meeting both the biannual priorities and strategic goals outlined in the planning documents. The MASGC Strategic Plan for the 2000-2005 planning period outlines the priority focus areas in program management, research, education, and outreach.

Background

The Mississippi-Alabama Sea Grant Consortium (MASGC) was created as the first bi-state Sea Grant program in the nation on June 29, 1972. MASGC is unique in being the largest "membership" Sea Grant Program in the country. Coordinated by an administrative unit in Ocean Springs, Mississippi, the Consortium's eight marine science institutions serve a two-state region of over 100,000 square miles.

issues concerning offshore aquaculture in a comprehensive manner. By developing university/industry partnerships and seeking broad public/commercial input the Consortium's goal is to develop socially and environmentally acceptable offshore aquaculture models appropriate to all stakeholders in the region. MASGC contends university-based interdisciplinary research on ocean engineering, environmental impacts, and legal and regulatory structure, using the best available technologies, are the appropriate first steps to initiate offshore aquaculture in the Gulf of Mexico. Results of Consortium research will be disseminated using the most effective up-to-date education and outreach methods to provide guidance and training for sustainable offshore aquaculture enterprises.

Projections: In 2000, MASGC will deploy the best available cage technology, an Ocean Spar Sea Station, at a Chevron lease site 25 miles off the Mississippi coast and conduct research on the engineering, biological and environmental aspects and impacts of the technology. In 2001 MASGC will be the U.S. national coordinator of the Fourth International Open Ocean Aquaculture Symposium in St. Andrews, New Brunswick, Canada.

5. Seafood safety and public health, especially seafood pathogen detection and seafood processing

MASGC has funded pioneering and innovative marine biotechnology proposals for the detection of marine pathogens during the last two Omnibus cycles.

Projections: MASGC will work with Sea Grant investigators to extend their results relative to new pathogen detection methods for seafood safety laboratories in Mississippi and Alabama. Sea Grant will encourage program development proposals to design new methods to decrease operating and energy costs in seafood processing while maintaining product production efficiency.

3

Strategic Goals in Coastal Ecosystems and Habitats

The MASGC geographic area includes many estuarine river systems and a complex barrier island network. The Pascagoula River Estuary, the Mobile Bay Watershed, and the Grand Bay Savanna Bioreserve represent key water systems to our coastal constituencies, and are critical to MASGC's research, education, and outreach mission. The 480 square mile Mobile Bay estuary contains 337 documented species of fish, more species per area than any other region of North America. Of the 74 major river estuaries in North America, the Pascagoula is the only one in the United States unaffected by river channel fragmentation and flow regulation along its entire length. The Pascagoula is a vital center of biodiversity and essential fish habitats and has a viable Gulf sturgeon population reproducing near Hattiesburg, Mississippi. The Grand Bay Bioreserve is the best example of the wet pine savanna ecosystem in one of the last remaining large tracts of undeveloped coastal land in the USA. Grand Bay has a very high diversity, with 20 different natural communities, 40 species per square meter, and 31 rare species in the reserve.

1. Conserve, recreate and rehabilitate damaged wetlands, oyster reefs, and seagrass ecosystems

Projections: The Consortium will fund research at the Pascagoula, Grand Bay and Mobile Bay ecosystems with a focus on conservation and restoration of damaged wetlands, oyster reefs, and seagrass ecosystems. MASGC will propose new partnerships with the EPA Gulf of Mexico Program in seagrass restoration; The Grand Bay National Estuarine Research Reserve (NERR) in wetlands restoration; and the Mobile Bay National Estuary Program (NEP) in flow restoration and ecosystem change. MASGC will explore the development of new partnerships

to investigate innovative means to use dredge spoils for wetlands restoration and erosion control.

2. **Sustain beach and barrier beach island ecosystems; understand and prevent beach erosion; develop alternatives to coastal armaments; restore damaged beaches; and develop beach and sand research and management plans**

Projections: Innovative ecological engineering research and public outreach activities on the Biloxi-Gulfport beaches will be funded by the Consortium. MASGC will organize and lead the National Workshop on the Use of Dredge Materials for Erosion Control and Wetlands Creation hosted by MIT Sea Grant, in December 2000. MASGC will be a member of the Steering Committee at the National Beach Restoration Conference in Florida, 2001. MASGC will initiate with the Dauphin Island Sea Lab and Auburn University a new "Sustainable Dauphin Island Initiative" for community, research, and education stakeholders.

3. **Conserve water quality and understand the impacts of eutrophication and development on living marine resources of Mississippi Sound and Mobile Bay**

Projections: MASGC will explore new collaborative programs on water quality with the Mobile Bay National Estuary Program. MASGC will also investigate new opportunities to work with the Grand Bay NERR, the Weeks Bay NERR, the Mississippi Department of Environmental Quality and the Alabama Department of Environmental Management on public education programs in nonpoint pollution.

4. **Investigate impacts of non-native species on biodiversity, trophic ecology, community structure and function**

Projections: MASGC will co-sponsor with Louisiana State University and Massachusetts Institute of Technology Sea Grant College Programs the Second National Marine Bioinvasions Conference in New Orleans, LA. MASGC will develop a new initiative with the EPA Gulf of Mexico Program to fund innovative education and outreach activities in aquatic nuisance species. The Consortium will become a member of the non-indigenous focus team of the EPA Gulf of Mexico Program.

5. **Understand nonpoint source pollution and coordinate economic development with Gulf of Mexico ecosystem sustainability efforts**

Projections: MASGC will work with the Alabama Sea Grant Extension Program to develop new research opportunities and educational materials in nonpoint pollution and watershed management, transfer advances to Mississippi, and widely publicize previous accomplishments. The Consortium will work to develop new relationships with the Nonpoint Education for Municipal and Elected Officials (NEMO).

4

Strategic Goals in Marine Education and Outreach

1. **Enhance marine environmental education at the K-12 levels in Mississippi and Alabama schools**

Projections: MASGC will work with Auburn University and the Alma Bryant High School in Bayou La Batre (AL) to develop innovative means of infusing aquaculture and other Sea Grant marine activities into science curricula. MASGC will continue to support K-12 teachers' efforts at the Environmental Studies Center for Mobile County, the largest school district in the state of Alabama and the J.L. Scott Marine Education Center and Aquarium in Biloxi, MS.

MASGC Mission Statement

MASGC is committed to interdisciplinary environmental scholarship and community-based natural resources management. The Consortium supports applied, interdisciplinary marine science research, education, and outreach efforts using both targeted and cross-cutting approaches to foster the sustainable development and management of the Mississippi and Alabama coasts and nearshore ecosystems of the Gulf of Mexico.

Consortium Members

Current composition of the Mississippi-Alabama Sea Grant Consortium includes:

Auburn University

Dauphin Island Sea Lab

Mississippi State University

The University of Alabama

The University of Alabama at Birmingham

The University of Mississippi

The University of Southern Mississippi

University of South Alabama

2. **Encourage volunteer efforts, public engagement and activism in coastal and marine issues**

Projections: MASGC will take a leadership role in coastal clean-up efforts and investigate methods for greater public involvement in the mitigation of nonpoint pollution, coastal pollution, and marine debris.

3. **Support economically disadvantaged students to obtain undergraduate summer experiences at marine science institutions in Mississippi and Alabama**

Projections: Enhancing ethnic diversity has always been a priority for MASGC. The Consortium will investigate a mechanism to offer scholarships to meritorious undergraduates at its member institutions to attend the marine science summer programs at the DISL and GCRL beginning in the summer of 2001.

4. **Establish connections with minority-serving institutions to encourage the development of future marine science professionals**

Projections: MASGC will conduct campus visits and establish new relationships with scholars and students at Jackson State University (MS), Alcorn State University (MS), Bishop State College (AL), and Tuskeegee University (AL). MASGC will encourage Jackson State University and Tuskeegee University to rejoin the Consortium.

5. **Educate the Gulf of Mexico recreational fishermen on the impacts and dangers associated with this sport**

Projections: The Alabama Deep Sea Fishing Rodeo surpassed the Jacksonville, FL Rodeo as the nation's largest recreational fishing tournament. MASGC will coordinate with the U.S. Coast Guard, Dauphin Island Sea Lab, and the Food and Drug Administration to provide educational programs at the 2001 Alabama Deep Sea Fishing Rodeo to increase awareness in the areas of boater safety, food safety, marine debris reduction, and coastal fisheries ecology.

6. **Support for visiting post-doctoral scholars in residence at member institutions**

Projections: This is a new area for MASGC. MASGC will investigate a mechanism to fund from outside sources a competitive post-doctoral scholarship at a Consortium member institution in 2000-2002.

7. **Work with aquariums and science centers to form synergies**

Projections: MASGC will initiate discussions with The University of Southern Mississippi's J.L. Scott Marine Education Center and Aquarium, and the Estuarium at the Dauphin Island Sea Lab to involve Sea Grant in new collaborative programs and displays.

8. **Facilitate marine education outreach to inland areas of Mississippi and Alabama**

Projections: MASGC will encourage program development proposals to create innovative traveling displays and staff visits to inland schools in Mississippi and Alabama, especially in minority and underprivileged regions of each state. The Consortium will seek methods to involve role models for students in these areas.

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