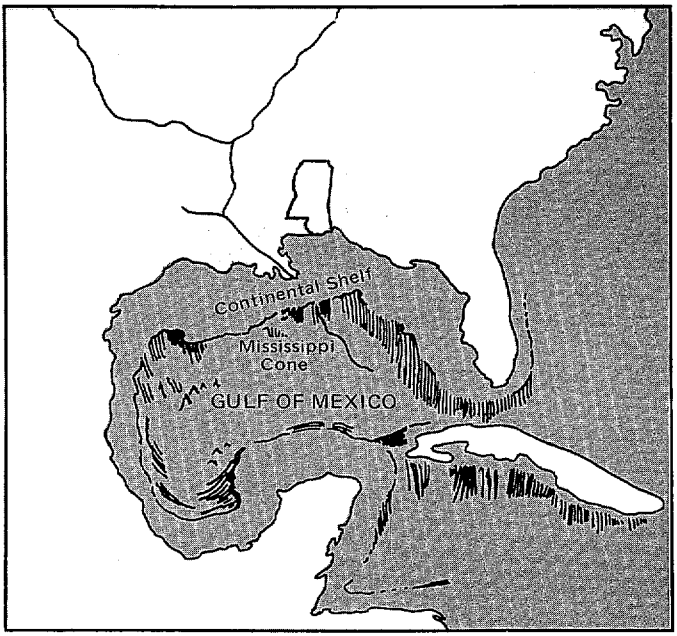
MISSISSIPPI and the SEA

A REPORT OF THE MISSISSIPPI MARINE RESOURCES COUNCIL.

NOVEMBER 1971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From the days of discovery and colonization, America has looked to the sea. In times of stress the sea has been our ally, and in times of peace, a source of our prosperity. Sometimes hostile and sometimes generous in its moods, the ocean has always offered its abundant resources in countless ways. But only recently have we begun to perceive its true potential.

Foreword: Our Nation and the Sea

The driving force and urgency of our new concern for the sea stems from the changing character of the world itself - from mounting economic needs, from congested population, from our own deteriorating shores. As the result of a two-year study by the Congressional concern, there has come a conviction that the time has arrived for this country to give serious and systematic attention to our marine environment and the potential resources of the oceans. A determination to take the steps necessary to stimulate marine exploration, science, technology and financial investment on a vastly augmented scale is absolutely necessary.

In a relatively short time deep submersible capability had been extended beyond a nautical mile in depth. "Man-in-the-Sea" projects are measured in days instead of weeks. Off-shore petroleum exploration is being carried out in 1,000 feet of water to a depth of 25,000 feet. Progress in the field of fish protein concentrate has raised hopes that an extremely low-cost product can be produced which will save millions of children from actually dying or being subjected to a short life of miserable existence.

At present, fish provide about 3 percent of man's direct protein consumption; but because fish meal is fed to land animals, fish are the basis for about 10 percent of all animal protein food produced.

Dramatic changes have marked the world's fisheries in recent years. New fleets range all over the world, developing stocks heretofore not considered economically feasible. The exploitation of fisheries has assumed new dimensions of activity of international interest and concern. With Russian and Japanese trawlers at our very doorstep, cooperation with other nations and an agreement spelling out in definite terms the limits of our country's sea boundaries must be established. At this moment, other nations take more fish from traditional U.S. fishing grounds than we do. While we consume about 12 percent of the total catch, we harvest only 4 percent!

WHAT WERE WE DOING HERE IN MISSISSIPPI?

While all of this was developing, Mississippi had taken no steps in a positive direction until 1969. Florida, Louisiana and Texas had ongoing programs and have now fully established themselves in this field.

When Governor John Bell Williams realized the importance of marine development, he created by executive order the Council for the Development of Marine Resources on April 10, 1969. During the legislative session of 1970, H.B. 294 was enacted into law, creating (from the Governor's Council) the Mississippi Marine Resources Council. The Council was funded during the same session for $242,232, for operations in 1971 fiscal year. Its purpose as set out in the act was "To have the general purpose and policy of studying and developing plans, proposals, reports and recommendations for the development and utilization of the coastal and offshore lands, waters, and marine resources of the State."

WHAT HAS THE COUNCIL DONE?

In the months following its creation, the Council devoted its efforts to a survey of the strengths and needs of the State of Mississippi in areas related to the development and utilization of marine resources. This first, cursory survey indicated that while Mississippi occupies an enviable geographic position on the Gulf of Mexico and has excellent rail and highway connections to Middle America, it was not adequately prepared to move to take advantage of its opportunities.

The Council determined that the long-term position of the State could be most greatly enhanced by taking advantage of the provisions of the Federal "Sea Grant Act." This act, in broad terms, is intended to lead to the development of marine resources as the Morrill Act did in funding Land Grant Institutions. Thus, the Sea Grant Act provides for support for education, applied research, technology and advisory services (similar in principle to the work of the Agricultural Extension Service). To support its work the Sea Grant Act provides for "two-to-one" funding for approved projects and programs.

The intent and desire of the Council was facilitated by the organization of the Universities Marine Center, a consortium comprised of Mississippi State University, the University of Southern Mississippi, the University of Mississippi and the Gulf Coast Research Laboratory. Drawing on the strengths of the four institutions, the Universities Marine Center serves as the research and education arm of the Mississippi Marine Resources Council. The Center through its director coordinates the

marine projects into an effective, comprehensive program; it is anticipated that the Center will be designated as a Sea Grant Institute at an early date.

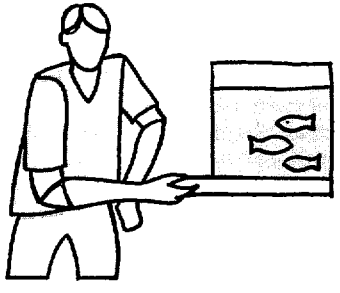
Thus, during the initial two-year period, the Council will have provided monies and matching funds for the Sea Grant and other marine related projects for a total program of over $1,034,500, enabling the Center to initiate those programs and projects which would have both immediate short-term pay-off and provide continued information and direction for the State's marine effort over an extended period of time. At the same time, the expertise of members of the educational community is being used to help solve some of the problems in the marine environment.

The ongoing State Marine and Sea Grant Programs are:

IN EDUCATION

1. A two-year curriculum in Marine Engineering Technology, leading to a bachelor's degree from Mississippi State University, which prepares technologists to work in those industries concerned with ship construction, ship repair and ship service.

The first class of seven graduates of this curriculum accepted jobs with four major shipyards. The 1971 class, also of seven graduates, received a total of 21 job offers averaging $872 per month to start! It is significant that every company which hired the first graduates made an offer to the 1971 class. According to Robert Abel, Administrator of the Sea Grant Program, "There is unargumentable evidence that this program is really producing." Mr. Jay Thomas, who heads the program, deserves much praise for this outstanding accomplishment.



2. The Advanced degree of Master of Marine Law and Sciences will soon be granted by the University of Mississippi, providing the State with well-educated marine attorneys. An undergraduate course, Law of the Coastal Zone, has been most successful.

3. In the beginning stages at the Universities Marine Center and the Mississippi Cooperative Extension Service is a program of Advisory and Information Services for the public. Their first efforts include the publication of:

A brochure providing location of and information on 62 fishing camps in the Mississippi Coastal area.

In addition, progress is being made to provide:

a. A "key" giving a picture and description of various fish found in Mississippi coastal waters. While this is primarily for sports and commercial fishermen, it will be of value to teachers and students.

b. Mass media seafood preservation and cooking schools. More than half of all the requests for information on food preservation, preparation and cooking received by home economists is for information on some form of seafood, illustrating the need for such a program. Coincident with this will be the distribution of seafood brochures.

c. The identification of the "marine resources" audience: at this time, there is limited information showing the actual number and location of people involved in shrimping, harvesting oysters, crabbing, and other types of commercial fishing. Before advisory services can be effectively provided, it is necessary to identify the clientele who would profit most from advances in techniques and methods developed through research.

d. A Public Awareness Program, with an emphasis to the education of Coastal and State leaders: accented will be how the program can result in greater productivity of our marine resources when balanced with wiser conservation practices. News releases, television, radio and lectures will be used; this

will be supported by a semiannual newsletter designed to inform the leaders and policymakers of the State regarding the Sea Grant and the State and federal marine activities.

e. Marine Conservation Seminars, with special attention to maintaining a balanced ecology, will be conducted for the training of extension agents located in the twenty-one southeast Mississippi counties. Similar seminars will then be designed for the decision makers and educators of the area.

f. Youth Fishing Schools and Youth Outdoor Clinics will be conducted to develop in the young people of the State 1) the desire and skills necessary for enjoyment of available recreational activity and 2) a more comprehensive understanding of the world in which they live.

4. For the executive and legislative arms of the State, and for all of its agencies, a beginning of a program of marine resources development which has as its objectives the intelligent use of these resources, balanced by the conservation of the marine environment.

IN RESEARCH – FOR INDUSTRY AND THE STATE

1. A survey, analysis and categorization of the legal framework of coastal laws is being prepared by the University of Mississippi. This research will have a profound effect on the framing of future laws. The existing laws and regulations are frequently in conflict and are often referred to as a "jurisdictional jungle."

2. **The Prediction of Ecological Alterations Caused by Pollutants** (Gulf Coast Research Laboratory, Mississippi State University, University of Mississippi, and University of Southern Mississippi)

Results of this project will give the State the ability to predict the effect of various effluents on the quality of waters of the Bay of St. Louis. This information will be invaluable in helping the State establish realistic regulations governing new industry with regard to the type and amount of effluent they could release in state waters.

3. **Selective Algal Inhibition by Aquatic Angiosperms** (University of Southern Mississippi)

This project is designed to find a solution for the natural control of algae in ponds. It is an established fact that when nutrients, primarily nitrogen and phosphorous, are added to a stream, algal blooms result. This is often undesirable, as they are not readily utilized by fish and also cause odor problems. The decay of algae can also create an excessive biological oxygen demand and so reduce or eliminate the dissolved oxygen in the water; this loss of oxygen is the most critical problem of the catfish farmer. Since

the catfish industry is fast becoming an important segment of our economy, this research is most important.

4. **Oyster Column Design** (Mississippi State University)

This involves the design of a submersible vessel capable of off-bottom support of growing oysters on a large scale. When this project is completed, it will be of particular interest and value to the seafood industry, in that it will provide a practical, low cost method of cultivating and harvesting oysters.

5. **Anadromous Fish Project** (Gulf Coast Research Laboratory)

In March of this year (1971), 500,000 striped bass fry were obtained from a South Carolina hatchery. These fish are being used in rearing studies in a controlled environment and utlimately will be stocked in south Mississippi streams. This experimental stocking of striped bass into coastal streams, estuaries and the open Gulf will enhance both the sport fishing and tourist industries.

6. A survey is being conducted by the University of Mississippi to identify the estuaries of the Gulf Coast which serve as nursery areas for shrimp, fish, and other commercial seafoods. This information will be helpful in the development of land use regulations which will protect these areas from the encroachment of incompatible development.

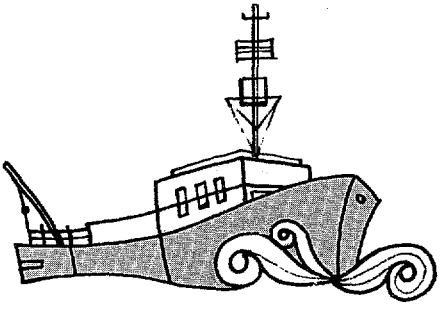
7. **Sports Fishing Survey** (Gulf Coast Research Laboratory and Mississippi State University)

The Mississippi Gulf Coast has for many years had a very active commercial and sports fishing industry. Interest in sports fishing has increased over the last several years due primarily to an expanding coastal population and in an increased emphasis on the tourist industry along the coast. The same species of fish are sought by sports and commercial fishermen; however, catch data is recorded only on those fish harvested by the commercial fishermen. In a recent survey made in the coastal regions of a southeastern state, it was shown that the catch of the sports fishermen was twice that of the commercial fishermen. Since no data is recorded on the sports fish catch in the State, it is impossible to assess the total fishery of the Mississippi Gulf Coast. A study is in progress to provide this data which, when integrated with that of the commercial fishing catch, will provide a complete picture of the total fishery of the Mississippi Gulf Coast, making it possible to initiate sound management practices and to enable the Legislature and local authorities to pass laws to insure full and continued utilization of Mississippi's fishing resources.

The present landings of commercial fish generate a wage and salary disbursement in excess of $7,000,000.

8. **RUFAS II**
(Mississippi State University)

The development and construction of a more sophisticated Remote Underwater Fisheries Assessment System (RUFAS) sled, equipped with underwater lights, a motion picture



camera, a TV camera with videotape recorder, and a sonar system, will help commercial fishermen to locate new deepwater fisheries and sea-bottom (shellfish and other) resources. It will be capable of being towed either in shallow water or to a depth of 400 fathoms (2,400 feet). RUFAS is being developed in conjunction with the National Marine Fisheries Service.

9. The shipbuilding industry has benefitted and will continue to benefit from the new talent available to them. This is a direct result of the curriculum in marine engineering technology previously described under "Education."

LONGER RANGE INTERESTS

1. The Gulf Coast is the fastest growing region in Mississippi, not only for rate of economic growth, but of population growth as well. Its contribution to the economy of the state is greater than its proportionate share of the population. However, the rapid development is not the result of any balanced plan for the region. Consequently, while the aggregate effect of recent growth is positive, there are wide variations in economic and social impact among the municipalities and counties of the coastal region.

Methods of improving industries already established and of attracting new ocean-oriented industry cover such a wide range of areas of overlapping interest that it is vital that an overall program be established in sociology, political science, economics, education and applied research, which will aid in the development of the coastal region and at the same time protect the desirable natural environment.

A list of problems of the coastal region is being established and priorities determined by the Universities Marine Center; this much needed information will be provided to State and local agencies. As a future component of this project, the Sea Grant Program will direct its energies toward trying to find solutions to these problems. These results, too, will be in the intent of enabling the authorities to better help their constituency, This project is interdisciplinary and involves all institutions of the consortium.

2. The Council is now starting a program of contacting several hundred "ocean-oriented" companies, bringing to their attention the advantages of the Mississippi Gulf Coast.

In long-range planning there is a need to establish on the Coast an acquarium such as the one developed by the State of Oregon at Newport. This has been a great source of education for the youth of that state and has been visited by many thousands of students. The State of California has a similar facility which conducts classes for those interested in this environment. This would probably be the responsibility of the Gulf Coast Research Laboratory.

Officials of the Sea Grant Program suggested two years ago that as Mississippi is geographically the center of the Gulf, we should become the Oceanographic Center of the Gulf of Mexico. This title is now claimed by Galveston and Panama City. Both Texas and Florida have made tremendous strides in marine development and both have established Sea Grant Institutes.

SUPPORT TO SEA GRANT AND OTHER MARINE RELATED PROJECTS

Distribution of MMRC and Federal funds
by Project and Institution:
September, 1970 through
October 31, 1971

	MMRC	Federal	Total
University of Mississippi			
Marine Coastal Law (Sea Grant)	20,016.31	17,600.00	37,616.31
Pollution Prediction (Sea Grant)	8,048.35	7,570.00	15,618.35
Estuarine Survey	14,253.00	-0-	14,253.00
Totals	42,317.66	25,170.00	67,487.66
Mississippi State University			
RUFAS (Sea Grant Program)	18,556.64	17,400.00	35,956.64
Sportsfishing Survey (Sea Grant)	2,113.00	2,106.50	4,219.50
Pollution Prediction (Sea Grant)	13,267.60	12,045.00	25,312.60
Oyster Column Design	13,053.00	-0-	13,053.00
Totals	46,990.24	31,551.50	78,541.74
Curriculum in Marine Technology			
(Sea Grant Other)	40,203.00	80,406.00	120,609.00
Totals	87,193.24	111,957.50	199,150.74
University of Southern Mississippi			
Pollution Prediction (Sea Grant	21,300.39	20,520.00	41,820.39
Algal Inhibition	14,254.00	-0-	14,285.00
Totals	35,554.39	20,520.00	56,105.39
Gulf Coast Research Laboratory			
Pollution Prediction (Sea Grant)	16,694.25	16,190.00	32,884.25
Sportsfishing Survey (Sea Grant)	5,145.00	895.00	6,040.00
Anadromous Fish-Striped Bass (Dept. of Interior)	35,000.00	35,000.00	70,000.00
Oyster Column Design	1,200.00	-0-	1,200.00
Totals	58,039.25	52,085.00	110,124.25
Universities Marine Center			
Industrial/Socio-Political Develop Administration (Sea Grant	600.00	670.00	1,270.00
GRAND TOTALS	$223,704.54	$210,402.50	$434,138.04

*All funds except those designated by * were administered by Universities Marine Center

WHAT MISSISSIPPI PLANS FOR THE FUTURE

A. First, complete the Coastal Zone Management plan. Based on S.B. 582, on which hearings are now being held, there could be $1,200,000 per year available to Mississippi on a two-to-one matching basis. We do not feel that this would require the maximum amount.

B. **Deep Sea Seaport Study**

The advent of the super tankers of 200,000 tons, and more, has created an enormous problem for the United States. There are only 50 harbors in the world which can accommodate their deep draft. The present tankers of this type draw about 65 feet. Japan is now building tankers of 300,000 tons, requiring a depth of approximately 85 feet.

At the present time, crude oil shipments to the Gulf area are mainly from Central and South America and arrive by standard tankers which can navigate the Mississippi River to Baton Rouge and to the refinery at Pascagoula. The latter refinery is also served by pipeline from the offshore wells in the Gulf near Chandeleur Island and the Mississippi River outlets.

If a deep sea offshore facility were built at any point in the Gulf, the super tankers, of necessity, would unload at that point. Their cargo would be pumped through pipelines to the various refineries.

Marine Programs Associates, under contract with the Council for Coastal Zone Management planning, has suggested an area approximately 30 miles south of the Biloxi-Pascagoula apex, where there is a charted depth of about 100 feet and a soft bottom. At this depth, and with the proper

precautions, the danger of pollution through oil spills could be minimized appreciably.

At this point the facility is only in a "feasibility" stage. Both Louisiana and Alabama have expressed an interest in this type of facility and have been approached relative to a joint effort. A port of this type would be of enormous benefit to our coast.

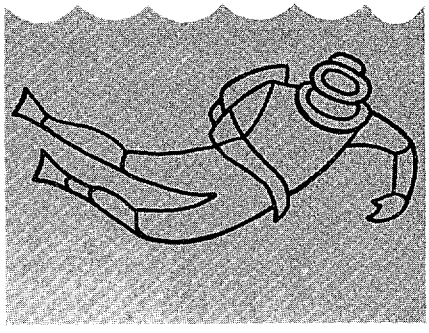
The cost of such a facility would be over half a billion dollars and would have to be borne by both private industry and the Government.

C. Because the mission and authority of the Mississippi Marine Resources Council, as presently stated, will not permit the Council to participate in the Federal programs currently being planned, the enabling act needs clarification by the Legislature as to the exact resources which are under the control of the Council.

The emphasis of the act is on planning and coordinating plans for economic development of marine and water resources. The emphasis of the Federal bills is on conservation, restoration and development. The Federal bills also point out the requirement for a single state agency to be responsible for and capable of carrying out approved programs. This is to avoid the uncoordinated efforts now evident.

To qualify for Federal assistance, it is necessary to amend state legislation to provide a central planning and coordinating agency with authority to develop and implement a comprehensive statewide Coastal Zone Management Program.

Evidence shows that the actions taken by the MMRC have made a substantial impact on the broadening economic base of Mississippi . . . "The State of the Future."



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