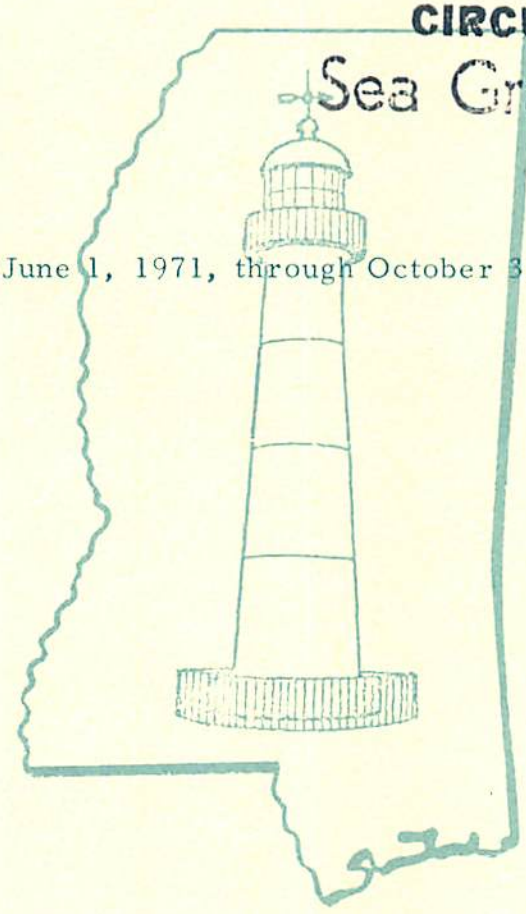
PROGRESS REPORT

of the

MISSISSIPPI SEA GRANT PROGRAM



(June 1, 1971, through October 31, 1971)

Submitted to:

Office of Sea Grant Programs
National Oceanic and Atmospheric Administration
U. S. Department of Commerce
Washington, D. C. 20550

PROGRESS REPORT

of the

MISSISSIPPI SEA GRANT PROGRAM
(June 1, 1971 through October 31, 1971)

Submitted by:

Universities Marine Center
Ocean Springs, Mississippi 39564

to:

Office of Sea Grant Programs
National Oceanic and Atmospheric Administration
U. S. Department of Commerce
Washington, D. C.

Amount Awarded:

Sea Grant No. 1-36113	$ 95,000
Matching Support	105,774
Total Program	$200,774

"I certify that all expenditures reported are for appropriate purposes and in accordance with the agreements set forth in the grant."

Sidney D. Upham

Sidney D. Upham, Ph.D., 024-01-9412
Director
Universities Marine Center
and Mississippi Sea Grant Program
P.O. Drawer AG
Ocean Springs, Mississippi 39564
Telephone Number: (601) 875-9341

JANUARY, 1973

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INTRODUCTION

The National Sea Grant Program created under The National Sea Grant College and Program Act of 1966 has provided a new means by which Mississippi, as well as other coastal states, can focus additional attention upon its needs for implementation of a program of marine resources management and development.

The broad objective of the Mississippi Sea Grant Program is to develop a comprehensive program for university research, education and advisory services addressed to a marine program for the State of Mississippi whereby the intelligent exploitation of marine resources is balanced with the conservation of the environment.

The activities of this initial Sea Grant effort reflect the unbiased collaboration of some 55 faculty and staff members from Mississippi's Institutions of Higher Learning, as well as the collective efforts of some 125 local citizens, politicians, and friends of the marine world in planning and working to make Sea Grant a reality.

Inasmuch as the duration of this program is a mere five months (June 1, 1971 through October 31, 1971) and the $95,000 funding was received in late June the progress as could be expected has been delayed. Many projects have been limited to hiring of personnel, establishing facilities and supplies, and implementing preliminary surveys during this period of performance. Thus many areas could not be completed and have been extended into the next funding period. This progress report will, therefore,

reflect only progress achieved through October 31, 1971. The same format of introduction of each area is being utilized as in the original program proposal.

Though the Mississippi Sea Grant Program is in its infancy, initial stages for a viable marine program have been executed.

Sidney D. Upham, Ph. D.
Director
Universities Marine Center

PROGRAM MANAGEMENT AND DEVELOPMENT

PROJECT INDEX

The Program Management and Development Program is comprised of the following project:

Project No.	Project Title
M/M-1	Program Direction and Development

NOAA FORM 90-2
(5-71)

U.S. DEPARTMENT OF COMMERCE
NATIONAL OCEANIC AND ATMOSPHERIC ADMINISTRATION

FORM APPROVED.
DECEMBER 31, 1972
OMB NO. 41 – R2600

SEA GRANT PROJECT SUMMARY
(Limit all information to this page)

PROJECT NO.	PROJECT TITLE ☒ NEW ☐ CONTINUING ☐ CHECK IF SEPARATE PROJECT GRANT	DATE INITIATED. IF CONTINUING
M/M 1	Program Direction and Development	June 1, 1971
GRANT NO. *(Office)*	OLD TITLE *(If different)*	DATE OF THIS FORM
1-36113		January, 1973
INSTITUTION		ESTIMATED COMPLETION DATE
UMC-Miss		Indefinite

PRINCIPAL INVESTIGATOR AND COLLEGE OR DEPARTMENTAL AFFILIATION	% TIME	ASSOCIATE INVESTIGATOR	% TIME
Upham, Director, U.M.C.	60		

FUNDS EXPENDED TO DATE		LAST YEARS FUNDING		PROPOSED FUNDING		RELATED PROJECTS *(By numbers)*
FED.-SEA GRANT	MATCHING	FED.-SEA GRANT	MATCHING	FED.-SEA GRANT	MATCHING	
$ -0-	$ -0-	$ -0-	$ -0-	$ -0-	$ -0-	All

PART OF UNIVERSITY PROGRAM	OFFICE OF SEA GRANT CLASSIFICATION
Program Administration & Development	Program Management & Development

OBJECTIVES:

The objectives of this project are to establish a viable Sea Grant Program for Mississippi and to develop a regional program for intelligent utilization, conservation, and restoration of the marine environment. These objectives will be achieved through support of the marine program of the state of Mississippi, the National Sea Grant Program of research, education, and advisory services, and local and federal marine programs.

HOW INFORMATION WILL BE APPLIED *(Be specific)*:

ACCOMPLISHMENTS DURING PAST TWELVE MONTHS *(Not more than one sentence per accomplishment)*:

(Do not use more space.)

NOAA FORM 90-2

Extent to which objectives have been accomplished:

Program Direction and Development

With the initiation of this project the total Mississippi Sea Grant Program has been introduced into the National Sea Grant Program concept.

The Universities Marine Center in the capacity of coordinating center to the total program effort has provided expertise in directing and collaborating both research and vital support areas so as to achieve overall program goals in the endeavor to develop a regional program for intelligent utilization, conservation, and restoration of the marine environment.

L E G A L

PROJECT INDEX

The Legal Program is comprised of the following projects:

Project No.	Project Title
R/P(1)-1	Legal Problems of the Gulf Coast Region

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(Limit all information to this page)

PROJECT NO.	PROJECT TITLE ☒ NEW ☐ CONTINUING ☐ CHECK IF SEPARATE PROJECT GRANT	DATE INITIATED, IF CONTINUING
R/P (1)-1	Legal Problems of the Gulf Coast Region	June 1, 1971
GRANT NO. (Office)	OLD TITLE (If different)	DATE OF THIS FORM
1-36113		January, 1973
INSTITUTION		ESTIMATED COMPLETION DATE
UMC-Miss.		June, 1973

PRINCIPAL INVESTIGATOR AND COLLEGE OR DEPARTMENTAL AFFILIATION	% TIME	ASSOCIATE INVESTIGATOR	% TIME
Maraist - Law School - University of Miss.	15	Gorove	7½

FUNDS EXPENDED TO DATE		LAST YEARS FUNDING		PROPOSED FUNDING		RELATED PROJECTS (By numbers)
FED.-SEA GRANT	MATCHING	FED.-SEA GRANT	MATCHING	FED.-SEA GRANT	MATCHING	
$ 17,600	$20,016	$ -0-	$ -0-	$ -0-	$ -0-	

PART OF UNIVERSITY PROGRAM	OFFICE OF SEA GRANT CLASSIFICATION
Marine Law	Research: Ocean Law (Coastal)

OBJECTIVES:

The objective of this project is to develop a comprehensive code of marine law and science for the regulation of Mississippi's coastal zone. This code will eliminate conflicts and deficiencies in the laws upon which future legislation must be built to deal effectively with utilization, development, and conservation of marine resources.

HOW INFORMATION WILL BE APPLIED (Be specific):

ACCOMPLISHMENTS DURING PAST TWELVE MONTHS (Not more than one sentence per accomplishment):

(Do not use more space.)

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Extent to which objectives have been accomplished:

In the area of legal research, various reports and memoranda on the current state of laws affecting the marine and coastal zone have been prepared at the request of the Gulf Coast Research Laboratory (Ocean Springs, Mississippi), the Mississippi Marine Resources Council (Jackson, Mississippi), and the Universities Marine Center (Ocean Springs, Mississippi). The main focus of the work, as can be seen, has been directed to the state and local level; work in the federal area will follow.

In the area of education, the course of Law of the Coastal Zone has been taught at the law school to a total of thirty-five students.

The graduate course leading to the degree of Master of Marine Law and Science has been approved by the Faculty of the School of Law and by the Graduate and Academic Councils of the University.

Additional materials which aid in the research into laws affecting the marine and coastal zone have been added to the collection of the Law School Library.

POLLUTION

PROJECT INDEX

The Pollution Program is comprised of the following projects:

Project No.	
R/S(4)	The Prediction of Ecological Alterations Caused by Pollutants
	Component Projects:
R/S(4)-1	- Collection and Study of Bottom, Detritus and Filter Feeding Vertebrate and Invertebrate Animals from the Bay of St. Louis
R/S(4)-2	- Organic Detritus Food Chain in Bay of St. Louis and Neighboring Estuaries
R/S(4)-3	- Detritus Feeding in Fishes of Bay of St. Louis
R/S(4)-4	- Survey of Plankton and Benthic Microorganisms of the Bay of St. Louis
R/S(4)-5	- Study of Benthonic Organisms
R/S(4)-6	- The Microflora of the Bay of St. Louis and its Relationship to the Food Web
R/S(4)-7	- Preliminary Survey of Certain Microbiological Organisms in the Bay of St. Louis
R/S(4)-8	- An Ecological, Distributional, and Taxonomic Survey of the Fishes of the Bay of St. Louis Drainage Area
R/S(4)-9	- Liver Enzymes as Pollution Indicators
R/S(4)-10	- The Chemical Definition of an Ecosystem, the Bay of St. Louis, Mississippi
R/S(4)-11	- Distribution and Significance of Copper, Zinc, and Lead in Oyster Reef and Surrounding Sediments in the Bay of St. Louis, Mississippi

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SEA GRANT PROJECT SUMMARY
(Limit all information to this page)

PROJECT NO.	PROJECT TITLE ☒ NEW ☐ CONTINUING ☐ CHECK IF SEPARATE PROJECT GRANT	DATE INITIATED, IF CONTINUING
R/S (4)	The Prediction of Ecological Alterations Caused by Pollutants	June 1, 1971
GRANT NO. (Office) 1-36113	OLD TITLE (If different)	DATE OF THIS FORM January, 1973
INSTITUTION UMC-Miss.		ESTIMATED COMPLETION DATE June, 1975

PRINCIPAL INVESTIGATOR AND COLLEGE OR DEPARTMENTAL AFFILIATION	% TIME	ASSOCIATE INVESTIGATOR	% TIME
Lew Brown, Miss. State University	7.5	*See listing below	

FUNDS EXPENDED TO DATE		LAST YEARS FUNDING		PROPOSED FUNDING		RELATED PROJECTS (By numbers)
FED.-SEA GRANT	MATCHING	FED.-SEA GRANT	MATCHING	FED.-SEA GRANT	MATCHING	
$56,455	$59,217	$ -0-	$ -0-	$	$	

PART OF UNIVERSITY PROGRAM	OFFICE OF SEA GRANT CLASSIFICATION
Prediction of Ecological Alterations Caused by Pollutants	Research: Pollution (Prediction)

OBJECTIVES:

The objective of this project is to formulate a model for predicting ecological changes that may be expected to occur as a result of the introduction of heavy metal pollutants into the estuarine environment, even though these pollutants would be introduced at extremely low levels. The ultimate objective is to prevent or abate pollution in the estuarine environment.

William J. Demoran, G.C.R.L.-41.8%
A.A. de la Cruz, M.S.U. - 20%
Glenn H. Clemmer, M.S.U. -20%
George F. Pessoney and Billy Joe Grantham, U.S.M. -14.71% avg.
Arthur G. Fish, U.S.M. -6.15%
David W. Cook, G.C.R.L. -11.6%
Lyman A. Magee, U.M. -2.857%
J. William Cliburn, U.S.M.-3.85%
John P. Hickenbottom, U.M.-25%
Charles R. Brent, U.S.M. -23%
B. W. Brown, U.S.M. -3.85%
Ervin G. Otvos, G.C.R.L. -2.54%

HOW INFORMATION WILL BE APPLIED *(Be specific)*:

ACCOMPLISHMENTS DURING PAST TWELVE MONTHS *(Not more than one sentence per accomplishment)*:

(Do not use more space.)

NOAA FORM 90-2

Extent to which objectives have been accomplished:

The Prediction of Ecological Alterations Caused by Pollutants:

Introduction

The Bay of St. Louis typifies the estuarine environment found along the northern shore of the Gulf Coast. The area immediately surrounding this bay is underdeveloped industrially and both the Jordan and Wolf Rivers which discharge into the bay flow primarily through unpopulated areas and subsequently would not be expected to contribute significant amounts of man-made pollutants. Therefore, this area was selected for a coordinated multidisciplinary research program aimed at establishing "baseline" conditions of a relatively unpolluted estuarine environment by investigating the three main food chains of the area, those ending with oysters, mullet, and flounders; gaining some knowledge as to the nutrient input into the system and generating a sufficient amount of information concerning the estuarine ecosystem to enable the construction of simulated ecosystems for use in future pollution investigations.

This program has not been underway for a sufficient length of time to allow for any detailed analyses of the data. This phase of the operation is planned to commence during the summer of 1972. Under the circumstances, none of the specifics regarding methodology or detailed results will be included herein. What will be described in general terms are the kinds of data being collected, and some comments concerning the possible significance of individual portions of the program.

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SEA GRANT PROJECT SUMMARY
(Limit all information to this page)

PROJECT NO.	PROJECT TITLE ☒ NEW ☐ CONTINUING ☐ CHECK IF SEPARATE PROJECT GRANT	DATE INITIATED, IF CONTINUING
R/S (4)-1	Collection & Study of Bottom, Detritus & Filter Feeding Vertebrate & Invertebrate Animals from the Bay of St. Louis	June 1, 1971
GRANT NO. (Office) 1-36113	OLD TITLE (If different)	DATE OF THIS FORM January, 1973
INSTITUTION UMC-Miss		ESTIMATED COMPLETION DATE June, 1975

PRINCIPAL INVESTIGATOR AND COLLEGE OR DEPARTMENTAL AFFILIATION	% TIME	ASSOCIATE INVESTIGATOR	% TIME
W. Demoran-Gulf Coast Research Laboratory	41.8		

FUNDS EXPENDED TO DATE		LAST YEARS FUNDING		PROPOSED FUNDING		RELATED PROJECTS (If, numbers)
FED.-SEA GRANT	MATCHING	FED.-SEA GRANT	MATCHING	FED.-SEA GRANT	MATCHING	R/S (4)-2 thru R/S (4)-11
$5,094	$6,659	$ -0-	$ -0-	$ -0-	$ -0-	

PART OF UNIVERSITY PROGRAM	OFFICE OF SEA GRANT CLASSIFICATION
The Prediction of Ecological Alterations Caused by Pollutants	Research: Pollution (Prediction)

OBJECTIVES:

The objective of this project is to formulate a model for predicting ecological changes that may be expected to occur as a result of the introduction of heavy metal pollutants into the estuarine environment, even though these pollutants would be introduced at extremely low levels. The ultimate objective is to prevent or abate pollution in the estuarine environment.

HOW INFORMATION WILL BE APPLIED *(Be specific)*:

ACCOMPLISHMENTS DURING PAST TWELVE MONTHS *(Not more than one sentence per accomplishment)*:

(Do not use more space.)

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(Limit all information to this page)

PROJECT NO.	PROJECT TITLE	DATE INITIATED. IF CONTINUING
R/S (4)-2	☒ NEW ☐ CONTINUING ☐ CHECK IF SEPARATE PROJECT GRANT Detritus Food Chain in Bay of St. Louis and Neighboring Estuaries	June 1, 1971
GRANT NO. (Office)	OLD TITLE (If different)	DATE OF THIS FORM
1-36113		January, 1973
INSTITUTION		ESTIMATED COMPLETION DATE
UMC-Miss		June, 1975

PRINCIPAL INVESTIGATOR AND COLLEGE OR DEPARTMENTAL AFFILIATION	% TIME	ASSOCIATE INVESTIGATOR	% TIME
de la Cruz-Zoology-Mississippi State Univ.	20		

FUNDS EXPENDED TO DATE		LAST YEARS FUNDING		PROPOSED FUNDING		RELATED PROJECTS (By numbers)
FED.-SEA GRANT	MATCHING	FED.-SEA GRANT	MATCHING	FED.-SEA GRANT	MATCHING	R/S (4)-1 R/S (4)-3 thru 11
$5,024	$5,487	$ -0-	$ -0-	$ -0-	$ -0-	

PART OF UNIVERSITY PROGRAM	OFFICE OF SEA GRANT CLASSIFICATION
The Prediction of Ecological Alterations Caused by Pollutants	Research: Pollution (Prediction)

OBJECTIVES:

The objective of this project is to formulate a model for predicting ecological changes that may be expected to occur as a result of the introduction of heavy metal pollutants into the estuarine environment, even though these pollutants would be introduced at extremely low levels. The ultimate objective is to prevent or abate pollution in the estuarine environment.

HOW INFORMATION WILL BE APPLIED *(Be specific)*:

ACCOMPLISHMENTS DURING PAST TWELVE MONTHS *(Not more than one sentence per accomplishment)*:

(Do not use more space.)

NOAA FORM 90-2

Extent to which objectives have been accomplished:

Component Project of The Prediction of Ecological Alterations Caused by Pollutant

Detritus Food Chain in Bay of St. Louis and Neighboring Estuaries

Investigation of vascular vegetation of the St. Louis Bay salt marshes has identified Juncus romerianus as the dominant species. Five prominent and fifteen minor species have also been recognized.

A study of the organic production on the marsh has revealed the quantity and distribution of the various species. Monthly rates of conversions of marsh grass material to particulate detritus through decomposition studies have revealed the nutritive values of the common marsh plants, alive and dead.

The importance of detritus to the food web in estuarine waters has been well documented. Originally, it was proposed to emphasize the feeding of the striped mullet and the southern flounder. These studies have been expanded to include various representative species from the collections of fishes, particularly smaller specimens which might be expected to be dependent on detritus as a food item and which have been occurring with regularity in the samples.

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PROJECT NO.	PROJECT TITLE ☒ NEW ☐ CONTINUING ☐ CHECK IF SEPARATE PROJECT GRANT	DATE INITIATED, IF CONTINUING
R/S (4)-3	Detritus Feeding in Fishes of Bay of St. Louis	June 1, 1971
GRANT NO. (Office)	OLD TITLE (If different)	DATE OF THIS FORM
1-36113		January, 1973
INSTITUTION		ESTIMATED COMPLETION DATE
UMC-Miss.		June, 1975

PRINCIPAL INVESTIGATOR AND COLLEGE OR DEPARTMENTAL AFFILIATION	% TIME	ASSOCIATE INVESTIGATOR	% TIME
Clemmer - Zoology - Miss. State University	20		

FUNDS EXPENDED TO DATE		LAST YEARS FUNDING		PROPOSED FUNDING		RELATED PROJECTS (By numbers)
FED.-SEA GRANT	MATCHING	FED.-SEA GRANT	MATCHING	FED.-SEA GRANT	MATCHING	R/S (4)-1 and 2
$ 3,882	$ 4,471	$ -0-	$ -- 0-	$ -0-	$ -0-	R/S (4)-4 thru 11

PART OF UNIVERSITY PROGRAM	OFFICE OF SEA GRANT CLASSIFICATION
The Prediction of Ecological Alterations Caused by Pollutants	Research: Pollution(Prediction)

OBJECTIVES:

The objective of the project is to formulate a model for predicting ecological changes that may be expected to occur as a result of the introduction of heavy metal pollutants into the estuarine environment, even though these pollutants would be introduced at extremely low levels. The ultimate objective is to prevent or abate pollution in the estuarine environment.

HOW INFORMATION WILL BE APPLIED *(Be specific)*:

ACCOMPLISHMENTS DURING PAST TWELVE MONTHS *(Not more than one sentence per accomplishment)*:

(Do not use more space.)

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(Limit all information to this page)

PROJECT NO.	PROJECT TITLE ☒ NEW ☐ CONTINUING ☐ CHECK IF SEPARATE PROJECT GRANT	DATE INITIATED, IF CONTINUING
R/S (4)-4	Survey of Plankton and Benthic Microorganisms of the Bay of St. Louis	June 1, 1971
GRANT NO. (Office)	OLD TITLE (if different)	DATE OF THIS FORM
1-36113		January, 1973
INSTITUTION		ESTIMATED COMPLETION DATE
UMC-Miss		June, 1975

PRINCIPAL INVESTIGATOR AND COLLEGE OR DEPARTMENTAL AFFILIATION	% TIME	ASSOCIATE INVESTIGATOR	% TIME
Pessoney - Biology - Univ. of Southern Miss.	15.55	Grantham-U.S.M.	13.88

FUNDS EXPENDED TO DATE		LAST YEARS FUNDING		PROPOSED FUNDING		RELATED PROJECTS (By numbers)
FED.-SEA GRANT	MATCHING	FED.-SEA GRANT	MATCHING	FED.-SEA GRANT	MATCHING	R/S (4)-1 thru 3
$3,275	$3,993	$-0-	$ -0-	$ -0-	$ -0-	R/S (4)-5 thru 11

PART OF UNIVERSITY PROGRAM	OFFICE OF SEA GRANT CLASSIFICATION
The Prediction of Ecological Alterations Caused by Pollutants	Research: Pollution (Prediction)

OBJECTIVES:

The objective of this project is to formulate a model for predicting ecological changes that may be expected to occur as a result of the introduction of heavy metal pollutants into the estuarine environment, even though these pollutants would be introduced at extremely low levels. The ultimate objective is to prevent or abate pollution in the estuarine environment.

HOW INFORMATION WILL BE APPLIED *(Be specific)*:

ACCOMPLISHMENTS DURING PAST TWELVE MONTHS *(Not more than one sentence per accomplishment)*:

(Do not use more space.)

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PROJECT NO.	PROJECT TITLE ☒ NEW ☐ CONTINUING ☐ CHECK IF SEPARATE PROJECT GRANT	DATE INITIATED, IF CONTINUING
R/S (4)-5	Study of Benthonic Organisms	June 1, 1971
GRANT NO. (Office)	OLD TITLE (If different)	DATE OF THIS FORM
1-36113		January, 1973
INSTITUTION		ESTIMATED COMPLETION DATE
UMC-Miss		June, 1975

PRINCIPAL INVESTIGATOR AND COLLEGE OR DEPARTMENTAL AFFILIATION	% TIME	ASSOCIATE INVESTIGATOR	% TIME
Fish - Biology - University of Southern Miss.	6.15		

FUNDS EXPENDED TO DATE		LAST YEARS FUNDING		PROPOSED FUNDING		RELATED PROJECTS (By numbers)
FED.-SEA GRANT	MATCHING	FED.-SEA GRANT	MATCHING	FED.-SEA GRANT	MATCHING	R/S (4)-1 thru 4
$ 2,339	$ 2,408	$ -0-	$ -0-	$ -0-	$ -0-	R/S (4)-6 thru 11

PART OF UNIVERSITY PROGRAM	OFFICE OF SEA GRANT CLASSIFICATION
The Prediction of Ecological Alterations Caused by Pollutants	Research: Pollution(prediction)

OBJECTIVES:

The objective of this project is to formulate a model for predicting ecological changes that may be expected to occur as a result of the introduction of heavy metal pollutants into the estuarine environment, even though these pollutants would be introduced at extremely low levels. The ultimate objective is to prevent or abate pollution in the estuarine environment.

HOW INFORMATION WILL BE APPLIED (*Be specific*):

ACCOMPLISHMENTS DURING PAST TWELVE MONTHS (*Not more than one sentence per accomplishment*):

(*Do not use more space.*)

NOAA FORM 90-2

Extent to which objectives have been accomplished:

Component Projects of The Prediction of Ecological Alterations Caused by Pollutan

Survey of Plankton and Benthic Microorganisms of the Bay of St. Louis

Study of Benthonic Organisms

Plankton collections were made at the four stations designated by personnel of the Gulf Coast Research Laboratory. Data on plankton collections in this progress report are from settled total plankton samples and are therefore predominately restricted to phytoplankton forms. Thirty-two samples from eight collection trips have been analyzed.

One hundred and sixty different plankters have been found in the above samples. These forms are in eleven major groups, and if the total numbers of planktonic forms per sampling date are compared it is readily apparent that the plankton community is quite similar at all stations.

Total plankton levels dropped during cool weather with decreasing salinities. Seasonal parameters of decreased temperatures and reduced salinities no doubt interact to result in the reductions that have been observed. The effects of the influx of fresh water is evident upon analyzing the species of organisms, in that several forms characteristically are fresh water.

Net plankton samples also have been obtained on all collection dates. These samples are primarily for zooplankton determinations and are being analyzed.

In addition to the plankton samples mentioned above, Peterson dredge collections have been made at each station of the benthic deposits. These samples have revealed that the bottom type at each station is a soft mud that is virtually devoid of macroscopic invertibrates.

The preparation of permanent microscopic and photographic slides could lead to a very meaningful publication on brackish water forms of the Mississippi Coast.

Another benthonic investigation is concerned with the benthonic environment including a study of the interstitial organisms. Of the samples collected all those collected by oyster dredge and by trawl have been sorted and the organisms identified. Those collected by Peterson dredge, however, are as yet incomplete.

Data on temperature distribution, salinity, and oxygen solubility have been collected simultaneously with the biological collections for all stations.

Another benthonic investigation is concerned with the study of interstitial organisms. Of the samples collected all those collected by oyster dredge and by trawl have been sorted and the organisms identified. Those collected by Peterson dredge, however, are as yet incomplete. Identification is proceeding slowly, particularly with regards to annelid worms, since taxonomic keys are old and inadequate for this region. Data on temperature distribution, salinity, and oxygen solubility have been collected simultaneously with the biological collections for all stations.

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15-711

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NATIONAL OCEANIC AND ATMOSPHERIC ADMINISTRATION

FORM APPROVED.
DECEMBER 31, 1972
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SEA GRANT PROJECT SUMMARY
(Limit all information to this page)

PROJECT NO.	PROJECT TITLE ☒ NEW ☐ CONTINUING ☐ CHECK IF SEPARATE PROJECT GRANT	DATE INITIATED, IF CONTINUING
R/S (4)-6	The Microflora of the Bay of St. Louis and its Relationship to the Food Web	June 1, 1971
GRANT NO. *(Office)* 1-36113	OLD TITLE *(If changed)*	DATE OF THIS FORM January, 1973
INSTITUTION UMC-Miss.		ESTIMATED COMPLETION DATE June, 1975

PRINCIPAL INVESTIGATOR AND COLLEGE OR DEPARTMENTAL AFFILIATION	% TIME	ASSOCIATE INVESTIGATOR	% TIME
Lew Brown-Microbiology-Miss. State Univ.	7.5	Cook-G.C.R.L.	11.6

FUNDS EXPENDED TO DATE		LAST YEARS FUNDING		PROPOSED FUNDING		RELATED PROJECTS *(By numbers)*
FED.-SEA GRANT	MATCHING	FED.-SEA GRANT	MATCHING	FED.-SEA GRANT	MATCHING	R/S (4)-1 thru 5 R/S (4)-7 thru 1
$ 11,206	$ 8,365	$ -0-	$ -0-	$ -0-	$ -0-	

PART OF UNIVERSITY PROGRAM	OFFICE OF SEA GRANT CLASSIFICATION
The Prediction of Ecological Alterations Caused by Pollutants	Research: Pollution(Prediction)

OBJECTIVES:

The objective of this project is to formulate a model for predicting ecological changes that may be expected to occur as a result of the introduction of heavy metal pollutants into the estuarine environment, even though these pollutants would be introduced at extremely low levels. The ultimate objective is to prevent or abate pollution in the estuarine environment.

HOW INFORMATION WILL BE APPLIED *(Be specific)*:

ACCOMPLISHMENTS DURING PAST TWELVE MONTHS *(Not more than one sentence per accomplishment)*:

(Do not use more space.)

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(Limit all information to this page)

PROJECT NO.	PROJECT TITLE ☒ NEW ☐ CONTINUING ☐ CHECK IF SEPARATE PROJECT GRANT	DATE INITIATED, IF CONTINUING
R/S (4)-7	Preliminary Survey of Certain Microbiological Organisms in the Bay of St. Louis	June 1, 1971
GRANT NO. *(Office)* 1-36113	OLD TITLE *(If different)*	DATE OF THIS FORM January, 1973
INSTITUTION UMC-Miss.		ESTIMATED COMPLETION DATE June, 1975

PRINCIPAL INVESTIGATOR AND COLLEGE OR DEPARTMENTAL AFFILIATION	% TIME	ASSOCIATE INVESTIGATOR	% TIME
Magee - Biology - University of Mississippi	2.857		

FUNDS EXPENDED TO DATE		LAST YEARS FUNDING		PROPOSED FUNDING		RELATED PROJECTS *(By numbers)*
FED.-SEA GRANT	MATCHING	FED.-SEA GRANT	MATCHING	FED.-SEA GRANT	MATCHING	R/S (4) - 1 thru 6
$ 3,580	$ 2,974	$ -0-	$ -0-	$ -0-	$ -0-	R/S (4)-8 thru 11

PART OF UNIVERSITY PROGRAM	OFFICE OF SEA GRANT CLASSIFICATION
The Prediction of Ecological Alterations Caused by Pollutants	Research: Pollution (Prediction)

OBJECTIVES:

The objective of this project is to formulate a model for predicting ecological changes that may be expected to occur as a result of the introduction of heavy metal pollutants into the estuarine environment, even though these pollutants would be introduced at extremely low levels. The ultimate objective is to prevent or abate pollution in the estuarine environment.

HOW INFORMATION WILL BE APPLIED *(Be specific)*:

ACCOMPLISHMENTS DURING PAST TWELVE MONTHS *(Not more than one sentence per accomplishment)*:

(Do not use more space.)

NOAA FORM 90-2

Extent to which objectives have been accomplished:

Component Projects of The Prediction of Ecological Alterations Caused by Pollutants

The Microflora of the Bay of St. Louis and its Relationship to the Food Web

Preliminary Survey of Certain Microbiological Organisms in the Bay of St. Louis

Much time has been spent in establishing and testing the bacteriological procedures to be employed, in determining the sampling procedures, and in training laboratory personnel to perform and interpret the bacteriological tests.

Sampling is presently being conducted at nine stations in St. Louis Bay. Five of these stations are in addition to the four stations set up by the Pollution Committee and are for the purpose of better determining the distribution of pollution indicator bacteria throughout the bay.

The number of coliform, fecal coliform and enterococci bacteria present in the waters and sediments of St. Louis Bay are being monitored on a regular basis as an indicator of fecal pollution. Sampling is being conducted at four stations from which surface water, bottom water, and sediment samples are collected and at five additional stations where only surface water samples are collected. All water samples are collected on a biweekly basis and sediment samples on a monthly basis. Temperature, salinity, PH, and turbidity measurements are being made on all water samples.

The results obtained to date indicate:

1. Enterococci are a poor indicator for fecal pollution.

2. The numbers of coliform bacteria vary in inverse proportion to salinity of the water.

3. Coliform population within the sediment varies directly with the population in the overlying waters.

The total bacterial population within the sediment is quite large, averaging in excess of 1,000,000 bacteria per gram. Representatives of the following physiological groups have been found in all sediment samples: ammonifiers, nitrifiers, denitrifers, sulfate reducers, sulfur oxidizers, organic sulfur reducers, lipolytic, cellulytic, chininoclastic, and proteolytic.

Because of the importance of marsh grass in the estuarine ecosystem, studies have been initiated to determine the kinds of organisms responsible for degradation of the marsh grass. Attempts to make quantitative estimates of the number of organisms capable of degrading marsh grass in the various samples have proved largely unsuccessful. Considerable effort is being devoted to developing a quantitative method for estimating marsh grass decomposing microorganisms.

NOAA FORM 90-2 (5-71)

U.S. DEPARTMENT OF COMMERCE
NATIONAL OCEANIC AND ATMOSPHERIC ADMINISTRATION

FORM APPROVED.
DECEMBER 31, 1972
OMB NO. 41 – R2600

SEA GRANT PROJECT SUMMARY

(Limit all information to this page)

PROJECT NO.	PROJECT TITLE ☒ NEW ☐ CONTINUING ☐ CHECK IF SEPARATE PROJECT GRANT	DATE INITIATED, IF CONTINUING
R/S (4)-8	An Ecological, Distributional, and Taxonomic Survey of the fishes of the Bay of St. Louis	June 1, 1971
GRANT NO. *(Office)*	OLD TITLE *(If different)*	DATE OF THIS FORM
1-36113	Drainage Area	January, 1973
INSTITUTION		ESTIMATED COMPLETION DATE
UMC-Miss.		June, 1975

PRINCIPAL INVESTIGATOR AND COLLEGE OR DEPARTMENTAL AFFILIATION	% TIME	ASSOCIATE INVESTIGATOR	% TIME
Cliburn - Biology - University of Southern Miss	3.85		

FUNDS EXPENDED TO DATE		LAST YEARS FUNDING		PROPOSED FUNDING		RELATED PROJECTS *(By numbers)*
FED.-SEA GRANT	MATCHING	FED.-SEA GRANT	MATCHING	FED.-SEA GRANT	MATCHING	R/S (4)-1 thru 7
$2,018	$ 3,038	$ -0-	$ -0-	$ -0-	$ -0-	R/S (4)-9 thru 11

PART OF UNIVERSITY PROGRAM	OFFICE OF SEA GRANT CLASSIFICATION
The Prediction of Ecological Alterations Caused by Pollutants	Research: Pollution (Prediction)

OBJECTIVES:

The objective of this project is to formulate a model for predicting ecological changes that may be expected to occur as a result of the introduction of heavy metal pollutants into the estuarine environment, even though these pollutants would be introduced at extremely low levels. The ultimate objective is to prevent or abate pollution in the estuarine environment.

HOW INFORMATION WILL BE APPLIED *(Be specific)*:

ACCOMPLISHMENTS DURING PAST TWELVE MONTHS *(Not more than one sentence per accomplishment)*:

(Do not use more space.)

NOAA FORM 90-2

Extent to which objectives have been accomplished:

Component Project of The Prediction of Ecological Alterations Caused by Pollutants:

An Ecological, Distributional, and Taxonomic Survey of the fishes of the Bay of St. Louis Drainage Area

Sampling was begun in the Bay of St. Louis in August, 1971, using trawls, and has continued roughly on a monthly basis, utilizing four stations set up for investigation by the total Sea Grant project. Other collections have been made in the St. Louis Bay drainages using rotenone in areas where the use of seines is not practical or possible.

A summary of fish species collected at each station on specified dates has been found and is in fair agreement with the expected. However, unusually low numbers were observed during cooler days. Temperature no doubt is a significant factor, but it is doubtful that temperature offers an explanation for the low catches.

Salinity is a more variable environmental characteristic in the bay than is temperature, due primarily to the influx of fresh water following rains. No correlation is seen between salinity and the total numbers of fish collected at each station. In the final analysis, salinity may be an important factor which determines the dominant species composition of the fauna.

NOAA FORM 90-2
(5-71)

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PROJECT NO.	PROJECT TITLE ☒ NEW ☐ CONTINUING ☐ CHECK IF SEPARATE PROJECT GRANT	DATE INITIATED, IF CONTINUING
R/S (4)-9	Liver Enzymes as Pollution Indicators	June 1, 1971
GRANT NO. (Office)	OLD TITLE (If different)	DATE OF THIS FORM
1-36113		January, 1973
INSTITUTION		ESTIMATED COMPLETION DATE
UMC-Miss		June, 1975

PRINCIPAL INVESTIGATOR AND COLLEGE OR DEPARTMENTAL AFFILIATION	% TIME	ASSOCIATE INVESTIGATOR	% TIME
Hickenbottom-Pharmacology-Univ. of Miss.	25		

FUNDS EXPENDED TO DATE		LAST YEARS FUNDING		PROPOSED FUNDING		RELATED PROJECTS (By numbers)
FED.-SEA GRANT	MATCHING	FED.-SEA GRANT	MATCHING	FED.-SEA GRANT	MATCHING	R/S (4)-1 thru 8
$4,368	$ 4,634	$ -0-	$ -0-	$ -0-	$ -0-	R/S (4)-10 & 11

PART OF UNIVERSITY PROGRAM The Prediction of Ecological Alterations Caused by Pollutants

OFFICE OF SEA GRANT CLASSIFICATION: Research: Pollution(Prediction)

OBJECTIVES:

The objective of this project is to formulate a model for predicting ecological changes that may be expected to occur as a result of the introduction of heavy metal pollutants into the estuarine environment, even though these pollutants would be introduced at extremely low levels. The ultimate objective is to prevent or abate pollution in the estuarine environment.

HOW INFORMATION WILL BE APPLIED *(Be specific)*:

ACCOMPLISHMENTS DURING PAST TWELVE MONTHS *(Not more than one sentence per accomplishment)*:

(Do not use more space.)

NOAA FORM 90-2

Extent to which objectives have been accomplished:

Component Project of The Prediction of Ecological Alterations Caused by Pollutants

Liver Enzymes as Pollution Indicators

Collection of fish liver samples has been limited to one satisfactory set as a result of weather and other factors. Of this set, analysis has indicated a greater variability within a species than expected. This variability possibly results from the short time the fish is allowed to equilibrate with the anesthetic. Analyses of oyster samples indicate some deterioration resulting in the delay in freezing the samples after dredging. Comparison with analyses of other samples will determine if meaningful data can be derived.

NOAA FORM 90-2
15-711

U.S. DEPARTMENT OF COMMERCE
NATIONAL OCEANIC AND ATMOSPHERIC ADMINISTRATION

FORM APPROVED.
DECEMBER 31, 1972
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SEA GRANT PROJECT SUMMARY
(Limit all information to this page)

PROJECT NO.	PROJECT TITLE ☒ NEW ☐ CONTINUING ☐ CHECK IF SEPARATE PROJECT GRANT	DATE INITIATED, IF CONTINUING
R/S (4)-10	The Chemical Definition of an Ecosystem, The Bay of St. Louis, Mississippi	June 1, 1971
GRANT NO. (Office) 1-36113	OLD TITLE (If different)	DATE OF THIS FORM January, 1973
INSTITUTION UMC-Miss		ESTIMATED COMPLETION DATE June, 1975

PRINCIPAL INVESTIGATOR AND COLLEGE OR DEPARTMENTAL AFFILIATION	% TIME	ASSOCIATE INVESTIGATOR	% TIME
Brent - Chemistry - Univ. of Southern Miss	23		

FUNDS EXPENDED TO DATE		LAST YEARS FUNDING		PROPOSED FUNDING		RELATED PROJECTS (By numbers)
FED.-SEA GRANT	MATCHING	FED.-SEA GRANT	MATCHING	FED.-SEA GRANT	MATCHING	R/S (4)-1 thru 9
$10,626	$11,535	$ -0-	$ -0-	$ -0-	$ -0-	R/S (4)-11

PART OF UNIVERSITY PROGRAM The Prediction of Ecological Alterations Caused by Pollutants

OFFICE OF SEA GRANT CLASSIFICATION Research: Pollution (Prediction)

OBJECTIVES:

The objective of this project is to formulate a model for predicting ecological changes that may be expected to occur as a result of the introduction of heavy metal pollutants into the estuarine environment, even though these pollutants would be introduced at extremely low levels. The ultimate objective is to prevent or abate pollution in the estuarine environment.

HOW INFORMATION WILL BE APPLIED *(Be specific)*:

ACCOMPLISHMENTS DURING PAST TWELVE MONTHS *(Not more than one sentence per accomplishment)*:

(Do not use more space.)

NOAA FORM 90-2

Extent to which objectives have been accomplished:

Component Project of The Prediction of Ecological Alterations Caused by Pollutants:

The Chemical Definition of an Ecosystem, The Bay of St. Louis, Mississippi

The pollution study relative to chemical analyses of the St. Louis Bay ecosystem was begun in July, 1971. The month of July was devoted to hiring of personnel, collection of existing laboratory supplies into a designated laboratory and standardization of procedures for analysis of bay water samples. Most chemical variables could not be measured in July because equipment and supplies ordered in June had not yet arrived. The samples were too old to analyze in August when the first real effort at analyses was possible.

Since August, the number of variables measured has increased to a level of effort equivalent to that proposed in the original proposal.

A Total Organic Carbon Analyzer arrived in October, 1971, and the Atomic Absorption Unit, needed for detection of trace quantities of heavy metals is expected in 1972. A large backlog of samples awaits its installation.

A brief set of observations on various aspects of sample collections and analyses of samples and trends in the data have been observed and recorded.

NOAA FORM 90-2
(5-71)

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PROJECT NO.	PROJECT TITLE ☒ NEW ☐ CONTINUING ☐ CHECK IF SEPARATE PROJECT GRANT	DATE INITIATED, IF CONTINUING
R/S (4)-11	Distribution and Significance of Copper, Zinc, and Lead in Oyster Reef and Surrounding Sediments in the Bay of St. Louis, Mississippi	June 1, 1971
GRANT NO. (Office) 1-36113	OLD TITLE (if different)	DATE OF THIS FORM January, 1973
INSTITUTION UMC-Miss		ESTIMATED COMPLETION DATE June, 1975

PRINCIPAL INVESTIGATOR AND COLLEGE OR DEPARTMENTAL AFFILIATION	% TIME	ASSOCIATE INVESTIGATOR	% TIME
Otvos - Geology - Gulf Coast Research Lab.	2.54	B.W. Brown-U.S.M.	3.85

FUNDS EXPENDED TO DATE		LAST YEARS FUNDING		PROPOSED FUNDING		RELATED PROJECTS (By numbers)
FED.-SEA GRANT	MATCHING	FED.-SEA GRANT	MATCHING	FED.-SEA GRANT	MATCHING	R/S (4)-1 thru 10
$ 5,043	$ 5,653	$ -0-	$ -0-	$ -0-	$ -0-	

PART OF UNIVERSITY PROGRAM	OFFICE OF SEA GRANT CLASSIFICATION
The Prediction of Ecological Alterations Caused by Pollutants	Research: Pollution (Prediction)

OBJECTIVES:

The objective of this project is to formulate a model for predicting ecological changes that may be expected to occur as a result of the introduction of heavy metal pollutants into the estuarine environment, even though these pollutants would be introduced at extremely low levels. The ultimate objective is to prevent or abate pollution in the estuarine environment.

HOW INFORMATION WILL BE APPLIED *(Be specific)*:

ACCOMPLISHMENTS DURING PAST TWELVE MONTHS *(Not more than one sentence per accomplishment)*:

(Do not use more space.)

NOAA FORM 90-2

Extent to which objectives have been accomplished:

Component Project of The Prediction of Ecological Alterations Caused by Pollutants

Distribution and Significance of Copper, Zinc, and Lead in Oyster Reef and Surrounding Sediments in the Bay of St. Louis, Mississippi

Twenty-two samples were taken from the area of the small oyster reef between Highway 90 and the railroad bridge in the eastern portion of the bay entrance. Nine of these were taken from silty sandy sediments surrounding the reef and were core samples. The rest were Peterson dredge samples as coring was not feasible from the reef itself. Measurements of PH and EH were taken where possible to study the oxidizing and acidity conditions of the sediments. Live oyster samples for the project also were taken at the same time. The samples are being analyzed at the Chemistry Department of the University of Southern Mississippi. Grain size analyses of the sediment samples have been undertaken by the sieve-and-hydrometer method by the Geology Division of the Gulf Coast Research Laboratory.

A drilling project was initiated to establish the geological framework of the bay and surrounding areas and identify those sediments which are primarily involved with water turbidity and pollution. Thus far the only wells were drilled in the periphery of the bay at Divine Word Seminary and Henderson Point. Both wells have a depth of 100 feet. Additional drilling operations should start up soon in the area and the work on the drilling material should keep pace with the drilling activities.

FISHERIES DEVELOPMENT

PROJECT INDEX

The Fisheries Development Program is comprised of the following projects:

Project No.	Project Title
R/O-1	Underwater Reconnaissance Vehicle Design
R/T(1)-1	Sportsfishing Survey of Biloxi Bay and Mississippi Sound

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(5-71)

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(Limit all information to this page)

PROJECT NO.	PROJECT TITLE ☒ NEW ☐ CONTINUING ☐ CHECK IF SEPARATE PROJECT GRANT	DATE INITIATED, IF CONTINUING
R/O-1	Underwater Reconnaissance Vehicle Design	June 1, 1971
GRANT NO. *(Office)*	OLD TITLE *(If different)*	DATE OF THIS FORM
1-36113		January, 1973
INSTITUTION		ESTIMATED COMPLETION DATE
UMC-Miss		June, 1973

PRINCIPAL INVESTIGATOR AND COLLEGE OR DEPARTMENTAL AFFILIATION	% TIME	ASSOCIATE INVESTIGATOR	% TIME
J. Thomas - Engineering Technology-M.S.U.	17.1	Benton-Miss. State U.	54.3

FUNDS EXPENDED TO DATE		LAST YEARS FUNDING		PROPOSED FUNDING		RELATED PROJECTS *(By numbers)*
FED.-SEA GRANT	MATCHING	FED.-SEA GRANT	MATCHING	FED.-SEA GRANT	MATCHING	
$ 17,254	$18,702	$ -0-	$ -0-	$ -0-	$ -0-	

PART OF UNIVERSITY PROGRAM	OFFICE OF SEA GRANT CLASSIFICATION
Engineering in the Ocean (RUFAS)	Research: Ocean Engineering

OBJECTIVES:

The objective of this project is to design and construct for the National Marine Fisheries Service an underwater reconnaissance vehicle with a depth capacity of 400 fathoms.

HOW INFORMATION WILL BE APPLIED *(Be specific)*:

ACCOMPLISHMENTS DURING PAST TWELVE MONTHS *(Not more than one sentence per accomplishment)*:

(Do not use more space.)

NOAA FORM 90-2

Extent to which objectives have been accomplished:

Underwater Reconnaissance Vehicle Design (RUFAS II)

RUFAS II is considered an extension of RUFAS I with increased depth capacity: 400 fathoms, necessitating stronger pressure vessels and a much more complete towing system. The value of an operational RUFAS II in gathering data required for better definition of resources of the continental shelf and slope out to 2,400 feet is not difficult to visualize. The amount of information that could be gathered may well be useful to more segments of the marine community than those merely associated with biological resources. Geology and mineral resources could be revealed as well as various physical oceanography phenomena.

The chief difference between RUFAS I and RUFAS II is in the deeper operating capability and increased flexibility of the latter. The 400 fathom depth requirement demands stronger pressure vessels and a much longer cable presenting critical design requirements around which the whole vehicle-cable-winch system must be designed.

The preliminary work accomplished on RUFAS II has been confined to technological and design problems and may be summarized as follows:

1. The gathering of technical data on available instrumentation suitable for the RUFAS II system.

2. Scale model testing to determine the suitability of proposed RUFAS II Mechanical Configurations.

3. An extensive study of the tow cable dynamics to determine type and length of cable required for the RUFAS II system and the limitations to the system imposed by the cable.

4. System design of an altitude control loop to automatically maintain a preset height above the sea bed.

5. System design of a telemetry system to carry data and commands between RUFAS II and the towing vehicle.

6. Study of operational procedures, deck handling equipment, requirements for the towing vessel, operator's controls and console and related studies.

With this research accomplished, RUFAS II will be tested early in 1973.

NOAA FORM 90-2
(5-71)

U.S. DEPARTMENT OF COMMERCE
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PROJECT NO.	PROJECT TITLE ☒ NEW ☐ CONTINUING ☐ CHECK IF SEPARATE PROJECT GRANT	DATE INITIATED, IF CONTINUING
R/T (1)-1	Sportsfishing Survey of Biloxi Bay and Mississippi Sound	June 1, 1971
GRANT NO. (Office)	OLD TITLE (If different)	DATE OF THIS FORM
1-36113		January, 1973
INSTITUTION		ESTIMATED COMPLETION DATE
UMC-Miss		June, 1975

PRINCIPAL INVESTIGATOR AND COLLEGE OR DEPARTMENTAL AFFILIATION	% TIME	ASSOCIATE INVESTIGATOR	% TIME
McIlwain-Biologist-Gulf Coast Research Lab	4.0	Lorio-Miss. State U.	3.63

FUNDS EXPENDED TO DATE		LAST YEARS FUNDING		PROPOSED FUNDING		RELATED PROJECTS (By numbers)
FED.-SEA GRANT	MATCHING	FED.-SEA GRANT	MATCHING	FED.-SEA GRANT	MATCHING	
$ 3,021	$ 7,239	$ -0-	$ -0-	$ -0-	$ -0-	

PART OF UNIVERSITY PROGRAM	OFFICE OF SEA GRANT CLASSIFICATION
Fisheries Development	Research: Recreation (Sportsfishing)'

OBJECTIVES:

The objective of this project is to establish the impact of sportsfishing on the economy of Mississippi.

HOW INFORMATION WILL BE APPLIED *(Be specific)*:

ACCOMPLISHMENTS DURING PAST TWELVE MONTHS *(Not more than one sentence per accomplishment)*:

(Do not use more space.)

NOAA FORM 90-2

Extent to which objectives have been accomplished:

Sportsfishing Survey of Biloxi Bay and Mississippi Sound

The field survey for this program got underway on June 1, 1971, and was continued through January 15, 1972, at which time sampling was temporarily halted.

Although no definitive results have accrued from the field survey, the tangible benefit is that a system of sampling has been devised that promises to yield valuable information in the future.

INDUSTRIAL/SOCIO-POLITICAL DEVELOPMENT

PROJECT INDEX

The Industrial/Socio-Political Development Program is comprised of the following projects:

Project No.	Project Title
R/B-1	Establishment of an Ongoing Sea Grant Program in Marine Problems as they Relate to Industrial and Socio-Political Development of the Gulf Coast Region

NOAA FORM 90-2
(5-71)

U.S. DEPARTMENT OF COMMERCE
NATIONAL OCEANIC AND ATMOSPHERIC ADMINISTRATION

FORM APPROVED.
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SEA GRANT PROJECT SUMMARY

(Limit all information to this page)

PROJECT NO.	PROJECT TITLE ☒ NEW ☐ CONTINUING ☐ CHECK IF SEPARATE PROJECT GRANT	DATE INITIATED, IF CONTINUING
R/B-1	Establishment of an Ongoing Sea Grant Program in Marine Problems as they Relate to Industrial and	June 1, 1971
GRANT NO. (Office)	OLD TITLE (If different)	DATE OF THIS FORM
1-36113	Socio-Political Development of the Gulf Coast Region	January, 1973
INSTITUTION		ESTIMATED COMPLETION DATE
UMC-Miss		June 30, 1972

PRINCIPAL INVESTIGATOR AND COLLEGE OR DEPARTMENTAL AFFILIATION	% TIME	ASSOCIATE INVESTIGATOR	% TIME
Upham-Director-Universities Marine Center		*see listing below	

FUNDS EXPENDED TO DATE		LAST YEARS FUNDING		PROPOSED FUNDING		RELATED PROJECTS (By numbers)
FED.-SEA GRANT	MATCHING	FED.-SEA GRANT	MATCHING	FED.-SEA GRANT	MATCHING	
$ 670	$600	$	$	$	$	

PART OF UNIVERSITY PROGRAM	OFFICE OF SEA GRANT CLASSIFICATION
Industrial/Socio-Political Development	Research: Behavioral Sciences

OBJECTIVES:

The objective of this program is to establish a prioritized list of problems of the coastal region. From this would evolve projects designed to solve these problems.

*Thomas D. McIlwain, G. C. R. L.
Carlton R. Sollie, M. S. U.
Robert E. McArthur, U. M.
D. C. Williams, III, U. S. M.

HOW INFORMATION WILL BE APPLIED *(Be specific)*:

ACCOMPLISHMENTS DURING PAST TWELVE MONTHS *(Not more than one sentence per accomplishment)*:

(Do not use more space.)

NOAA FORM 90-2

Extent to which objectives have been accomplished:

Establishment of an Ongoing Sea Grant Program in Marine Problems as they Relate to Industrial and Socio-Political Development of the Gulf Coast Region

Steering Committees comprised of selected faculty members from the various disciplines of the four participating institutions were formed to assist in developing the format for initiating this project.

Local government and civic associations assisted in the compilation of a master listing of perspective leaders of the coastal community. Participation by these local leaders in developing a comprehensive Coastal Leaders Program would insure the representation of the people and thus, would both endorse and protect their interests.

BUDGET INFORMATION

BUDGET SUMMARY

ACTIVITY SHEET

RESEARCH GRANT BUDGET WORKSHEET	Name of Principal Investigator Sidney D. Upham	Duration 6-01-71 thru 6-30-72	Proposal Number
Institution Universities Marine Center	Program Name Sea Grant Pre-Institutional Program Proposal		Grant Number 1-36113

Mississippi Sea Grant Pre-Institutional Program Proposal Budget Repor

	Original Award (6-01-71 through 10-31-71)		Adjustments (6-01-71 through *)	
	Sea Grant	Grantee Share	Sea Grant	Grantee Share
A. SALARIES AND WAGES NUMBER OF PERSONS				
1. Senior Personnel				
a. (Co-)Principal Investigator(s)	$ 18,900	$ 19,305	$ 12,675	$ 12,874
b. Faculty Associates (Faculty Members)	10,925	12,090	7,150	9,199
Sub-Total	29,825	31,455	19,825	22,073
2. Other Personnel				
a. Research Associates (Post-Doctorals)			8,360	9,679
b. Non-Faculty Profes.-Doctorals	200	250		
c. Non-Faculty Profes.-Other			375	581
d. Grad. Students (Res. Asst.)	15,400	15,850	21,900	26,397
e. Prof. School Students				
f. Pre. Bac. Students				
g. Secretarial-Clerical	1,150	1,350	605	718
h. Technical-Shop			2,259	1,820
i. Laboratory technicians	950	1,000		
3. Special Allowances (Office of Antartic Programs)				
Total Salaries and Wages	47,525	49,905	53,324	61,268
B. FRINGE BENEFITS (When Charged as Direct Costs)	3,075	3,301	2,801	962
Total Salaries, Wages, & Fringe Benefits (A&B)	$ 50,600	$ 53,206	$ 56,125	$ 62,230
C. PERMANENT EQUIPMENT 1. (see individual projects	9,340	15,290	8,875	11,472
*. for equipment listings)				
Total Permanent Equipment	$ 9,340	$ 15,290	$ 8,875	$ 11,472
D. EXPENDABLE SUPPLIES AND EQUIPMENT	$ 7,576	$ 8,049	$ 7,926	$ 6,720
E. TRAVEL 1. Domestic-U.S. and its Possessions (incl. Puerto Rico), Canada, and Mexico	6,595	6,590	3,180	2,737
2. International				
Total Travel	$ 6,595	$ 6,590	$ 3,180	$ 2,737
F. PUBLICATION COSTS	$ 685	$ 685	$ 187	$ 307
G. OTHER COSTS 1. Computer Costs	4,340	4,310	180	471
2. Drilling				1,588
3. Boat rental				2,669
Total Other Costs	$ 4,340	$ 4,310	$ 180	$ 4,728
H. TOTAL DIRECT COSTS (A through G)	79,136	88,130	76,473	88,194
I. INDIRECT COSTS	15,864	17,644	18,527	17,580
Total Indirect Costs	$ 15,864	$ 17,644	$ 18,527	$ 17,580
J. TOTAL COSTS	$ 95,000	$ 105,774	$ 95,000	$ 105,774
*Project Termination Date (adjusted):				
K. AMOUNT OF THIS AWARD (Rounded)	$ 95,000		$ 105,774	

BUDGET SUMMARY

June 1, 1971 through June 30, 1972

	Sea Grant Funds	Matching Funds
Faculty & Professional	$19,825	$22,073
Non-Professional Staff	10,994	12,080
Secretarial	605	718
Graduate Students	21,900	26,397
Fringe Benefits	2,801	962
Equipment	8,875	11,472
Supplies	7,926	6,720
Travel	3,180	2,737
Publications/Duplication	187	307
Other: computer, boat rental drilling, telephone	180	4,728
Total Direct Costs	$76,473	$88,194
Indirect Costs	18,527	17,580
TOTAL Program Budget	$95,000	$105,774

ACTIVITY SHEET

Expenditures by Category of Effort

	Sea Grant Funds	Matching Funds	Total Funds
Legal	$17,600.00	$ 20,016.31	$ 37,616.31
Pollution	56,455.16	59,216.43	115,671.59
Fisheries	20,274.84	25,941.30	46,216.14
Industrial Development/ Socio-Political	670.00	600.00	1,270.00
Total	$95,000.00	$105,774.04	$200,774.04