

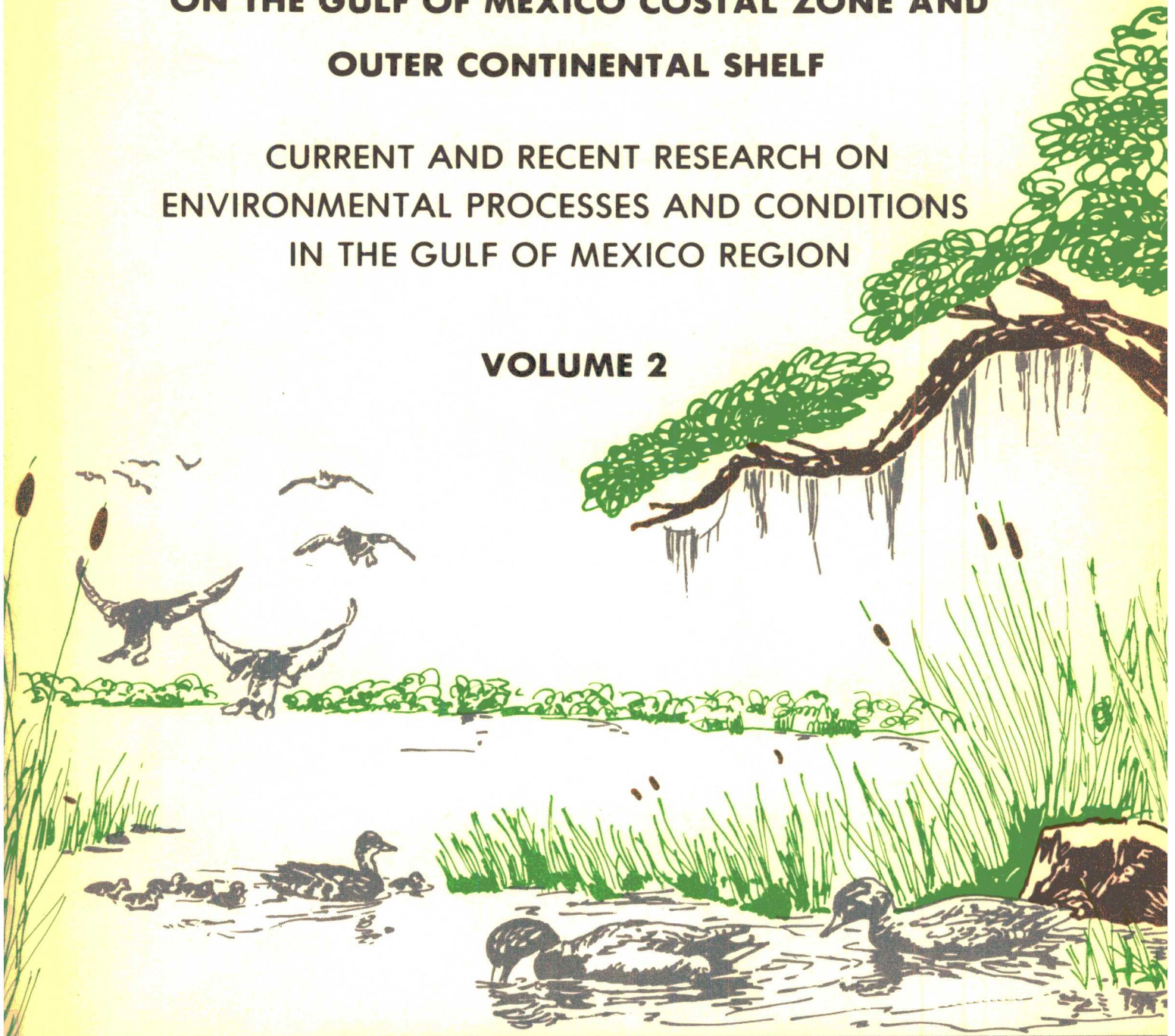
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1974 - 3

**ENVIRONMENTAL AND SOCIO ECONOMIC BASELINE  
ON THE GULF OF MEXICO COSTAL ZONE AND  
OUTER CONTINENTAL SHELF**

**CURRENT AND RECENT RESEARCH ON  
ENVIRONMENTAL PROCESSES AND CONDITIONS  
IN THE GULF OF MEXICO REGION**

**VOLUME 2**



**DEPARTMENT OF THE INTERIOR  
Bureau of Land Management**

CURRENT AND RECENT RESEARCH  
on  
ENVIRONMENT PROCESSES AND CONDITIONS  
in  
THE GULF OF MEXICO REGION

VOLUME II OF III

Prepared for:  
U. S. DEPARTMENT OF THE INTERIOR  
Bureau of Land Management  
1974

by  
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## FOREWORD

This is Volume II of a three-volume report prepared under the sponsorship of the Bureau of Land Management, U. S. Department of the Interior, by Environment Consultants, Inc. As a complement to the annotated bibliography presented in Volume I of this report, this volume is a compilation of recent and current research in progress concerning the Gulf of Mexico. Information provided herein will enable researchers to locate very recent resources in various fields of study with relevance to the Gulf coastal region. The research subjects included were selected because of their probable relevance to environmental assessment with respect to oil exploration and development activities in the Gulf coastal region. The subjects included are:

- Archaeological and Historical Sites
- Commercial Activities
- Commercial Fishing
- Commercial Shipping
- Demography
- Land Use
- Marine Biology
- Marine, general
- Marine Geology
- Meteorology
- Miscellaneous
- Oceanography
- Petroleum Industry
- Pollution
- Rare and Endangered Species
- Recreational Sites and Opportunities
- Sport Fishing
- Transport Systems

Every effort was made to list all pertinent very recent and current research by soliciting such information from all public and private institutions, agencies and organizations likely to be engaged in such studies. Even so, this must be viewed as an exhaustive compilation, rather than an all-inclusive one. Without the cooperation of hundreds of researchers concerned with the Gulf of Mexico and the coastal region, this compilation would not have been possible.

Volume III of this report, Socio-Economic Inventory and Analysis of the Gulf of Mexico Region, utilizes completed research to present a socio-economic environmental baseline, including a number of distribution maps.

## INTRODUCTION

This compilation of current and recent research in selected fields of study is intended to provide the reader with information regarding those fields of current major research interest with respect to the Gulf of Mexico and adjacent regions. Generic studies not limited to this geographic area have not been included.

### ACCESSIONS FOR RECENT AND CURRENT RESEARCH

Ongoing and recently completed research projects have been grouped into the general topics of:

- Archaeological and Historic Sites
- Commercial Activities
- Commercial Fishing
- Commercial Shipping
- Demography
- Land Use
- Marine Biology
- Marine, General
- Marine Geology
- Meteorology
- Miscellaneous
- Oceanography
- Petroleum Industry
- Pollution
- Rare and Endangered Species
- Recreational Sites and Opportunities
- Sport Fishing
- Transport Systems

Each citation presents the following information (when available):

- a. Name of study project
- b. Subject of study
- c. Abstract of study project
- d. Agency conducting study
- e. Funding agency
- f. Estimated completion date
- g. Principal investigators
- h. Publications resulting from study

The recent and current research references are listed alphabetically by agency conducting the research and are numbered consecutively.

## HOW TO USE THE INDICES

Four indices for each general topic have been prepared to assist the user in locating references:

1. Subject Index
2. Geographical Index
3. Research Agency Index
4. Funding Agency Index

These four indices for each general topic precede the references for that topic. Each reference is numbered, and by its number may be retrieved from each of the indices for that general topic.

Those entries pertinent to more than one general topic will appear in the reference section and in the indices for each relevant general topic.

## SUBJECT INDEX

A hierarchical subject index has been compiled using the information found in the citation and/or the abstract for each entry. An alphabetical listing of specific topics indented beneath the sub-general topic to which they pertain is the format used in the index. Indented specific topics are given the same weight as the terms under which they appear. Redundancy is eliminated by indexing an entry only under the most specific terms applicable in the hierarchy.

An entry may be found under any number of categories within the Subject Index for a particular general topic. Example:

A research project entitled "Biology, Population Dynamics - Shrimp" is pertinent to both Marine Biology and Commercial Fishing.

The entry (for illustrative purposes numbered 00000) would be classified in the Marine Biology Subject Index under:

Ecology  
Population dynamics 00000

Taxa  
Crustacea 00000

Under the Commercial Fishing Index as:

Ecology  
Population dynamics 00000

Fisheries  
Shellfish  
Penaeid shrimp 00000



## GEOGRAPHICAL INDEX

The index is arranged as an alphabetic-classed system, i.e., by major regions ordered in a pattern of indentations indicating geographic subordination. Geographic subordinate headings and their subordinate geographic units are also arranged alphabetically. To avoid redundancy, an entry is indexed only under the most specific location applicable in the hierarchy. This arrangement enables the user to find all specific geographic references in a broad geographic region. Example:

Entry 00000 describes research conducted in Atchafalaya Bay, Louisiana. The entry would be indexed as:

- Gulf/Caribbean
  - Gulf Coastal States
    - Louisiana
      - Bays
        - Atchafalaya Bay 00000
        - Barataria Bay
      - Lakes
        - Calcasieu Lake
        - Lake Maurepas
      - Parishes
        - Ascension
        - Assumption
    - Mississippi
  - Gulf of Mexico, general
    - Eastern Gulf of Mexico
    - Western Gulf of Mexico

## RESEARCH AGENCY INDEX

This index also is an alphabetic-classed system with major institutions ordered in a pattern of indentations indicating divisional or departmental subordination. The major agencies and their composite divisions are arranged alphabetically. As in both the Subject and Geographical Indices, an entry is indexed only under the most specific term applicable--in this case the agency most directly involved in the research. Example:

Gulf Coastal Fisheries Center is conducting research presented as entry 00000. This entry would appear as follows:

- U. S. Dept. of Commerce
  - Maritime Administration
  - National Oceanic and Atmospheric Administration
    - National Marine Fisheries Service
      - Gulf Coastal Fisheries Center 00000

FUNDING AGENCY INDEX

This index is identical in use and in structure to the Research Agency Index described above.

ARCHAEOLOGICAL AND HISTORICAL SITES  
CURRENT AND RECENT RESEARCH

CURRENT AND RECENT RESEARCH  
ARCHAEOLOGICAL/HISTORICAL  
SUBJECT INDEX

ARCHAEOLOGY

Prehistoric archaeology 00004 00006

Underwater archaeology 00002

CULTURAL MANIFESTATIONS

Archaeological cultures 00006

Prehistoric 00006

GENERAL METHODOLOGY

Excavation records 00006

HISTORIC SITES

Feasibility studies 00001 00003

Preservation 00005

Studies 00002

SITE TYPES AND LOCATIONS

Shipwrecks 00002



CURRENT AND RECENT RESEARCH  
ARCHAEOLOGY AND HISTORY  
RESEARCH AGENCY INDEX

Louisiana State Park and Recreation Commission	00001
U. S. Dept. of Interior	
National Park Service (NPS)	00003
University of Florida	00004
University of Mississippi	00005
University of Southwest Louisiana	00006
University of Texas	
Archaeological Research Lab.	00002

CURRENT AND RECENT RESEARCH  
ARCHAEOLOGY AND HISTORY  
FUNDING AGENCY INDEX

Amelia Island Co.	00004	
U. S. Dept. of Interior		
National Park Service (NPS)	00002	00003
University of Mississippi	00005	
University of Southwest Louisiana	00006	

CURRENT AND RECENT RESEARCH  
ARCHAEOLOGICAL/HISTORICAL SITES  
GEOGRAPHICAL INDEX

GULF COASTAL STATES

Florida

Islands

Amelia 00004

Louisiana 00006

Parishes

Cameron 00001

Plaquimines 00003

Mississippi 00005

Texas

Coastal

Padre 00002

Islands

Padre 00002

00001

Feasibility study to establish a 45 acre historical State Park in Cameron Parish on the Sabine Pass Lighthouse site.

Louisiana State Park and Recreation Commission.

00002

Underwater archeological recovery project and study of Padre Island National Seashore and location of possible 300 Spanish Galleon wreck survivors camp.

Locate and retrieve feasible articles from sunken Spanish 1553 Galleons off the coast of the National seashore. These will be preserved and studied at the Balcones Laboratory. These articles represent the only period materials of that age found in the new world. The study represents only initial attempts to determine age, type of ship, number of ships, and locations. No full-fledged salvage is planned. No reports have come in on these studies.

Texas State Historical Survey Committee, University of Texas Archeological Research Lab. Funded by: U. S. Department of Interior, National Park Service, Texas State Historical Survey Committee. 6/72-8/73.

Dr. Carl J. Clausen. Dr. D. Story and Dr. Carl Clausen of Balcones Laboratory will publish research findings of these ships.

00003

Feasibility study on a proposal to establish a Jean Lafitte National Historical Park in Plaquemines Parish.

U. S. Department of Interior, National Park Service.

00004

Excavations on Amelia Island and Northeast Florida.

University of Florida. Funded by: Amelia Island Co. 1/73-1/74. E. T. Hemmings.

00005

Saving the Vieux Carre: A case study in historical preservation.

University of Mississippi. Funded by: University of Mississippi 8/71.

Paul M. Wilson, III and Clyde Cook.



00006

Archeological survey of South Central Louisiana.

Discovery and systematic excavation of prehistoric and historic Indian Sites.

University of Southwest Louisiana, Department of Anthropology and Sociology.

Funded by: University of Southwest Louisiana, 6/70-?.

Dr. Jon L. Gibson. Publications: 1970 The Paleo-Indian Era in Louisiana. Louisiana Heritage 2 (3): 18-19, 38. 1970 Bayou Tortue and the Lafayette Phase of Tchefuncte Culture. Unpublished paper read at the Conference on Gulf Coastal Archeology, Beaumont, Texas (with L. J. Miller) 1973. The Trappey Mastodon, Lafayette Parish, South Central, Louisiana. USL Research Series, No. 27.

COMMERCIAL ACTIVITIES  
CURRENT AND RECENT RESEARCH

CURRENT AND RECENT RESEARCH  
COMMERCIAL ACTIVITIES  
SUBJECT INDEX

EDUCATION	00011					
Economic	00002	00011	00012	00015	00018	00019
Retail	00001					
EFFECTS						
Economic	00002	00014	00015	00016	00018	00019
Environmental	00003 00010 00018	00004 00012	00005 00013	00006 00014	00008 00016	00009 00017
MANAGEMENT						
Development	00019					
Planning	00016	00019				
RESOURCES						
Facilities	00003					
Forests	00004	00005	00006	00007	00008	
Land	00014	00015	00016			
Natural	00012	00013	00014	00016	00017	00018

## COMMERCIAL ACTIYITIES SUBJECT INDEX

### TYPES

Agricultural	00004	00015	00016	
Industrial	00011	00019		
Location	00003			
Marine	00002			
Resource Production	00005	00007	00016	00018
Retail	00001			
Shipping	00011	00017		
Cargo	00011			
Trade				
Goods	00011			

CURRENT AND RECENT RESEARCH  
COMMERCIAL ACTIVITIES  
RESEARCH AGENCY INDEX

Texas A & M University

Office of University Research	00001	00002			
Sea Grant Program Office	00003				

Texas State Water Development Board

00004

U. S. Dept. of Agriculture

Forest Service

Southeastern Forest Experiment Station

00005	00006	00007	00008	00009
00010				

U. S. Dept. of Commerce

Maritime Administration	00014
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U. S. Dept. of Interior

Bureau of Mines

Albany Metallurgy Research Center

00012

Tuscaloosa Metallurgy Research Lab.

00013

U. S. Geological Survey (USGS)	00014
--------------------------------	-------

University of Florida

00015	00016	00017
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University of South Florida

Center for Research and Development

00018

University of Southern Mississippi

00019

CURRENT AND RECENT RESEARCH  
 COMMERCIAL ACTIVITIES  
 FUNDING AGENCY INDEX

Mississippi Universities Marine Center	00019				
St. Lucie Inlet Farms	00017				
Texas State Government	00004				
U. S. Dept. of Agriculture					
Forest Service Research Appropriations	00005 00010	00006	00007	00008	00009
U. S. Dept. of Commerce					
National Oceanic and Atmospheric Administration (NOAA)	00001	00002	00003		
Office Sea Grant	00011	00018			
U. S. Dept. of Interior					
Bureau of Mines	00012	00013			
U. S. Geological Survey (USGS)					
Geologic Division	00014				
University of Florida					
IFAS Experiment Station	00015	00016			

CURRENT AND RECENT RESEARCH  
 COMMERCIAL ACTIVITIES  
 GEOGRAPHICAL INDEX

GULF OF MEXICO, GENERAL	00006	00007	00013		
Coast	00014				
Southern	00008	00010			
GULF COASTAL STATES					
Florida	00005	00012	00015	00016	00018
St. Lucie R.	00017				
Mississippi	00009				
Coastal	00019				
Texas					
Ports	00011				
Coastal	00003	00004			

00001

Workshop. Retail seafood merchandizing.

Texas A & M University, Office of University Research, College Station, Texas 77843. Funded by; U. S. Department of Commerce, National Oceanic and Atmospheric Administration.

S. M. Gillespie.

00002

Marine industry analyses.

Texas A & M University, Office of University Research, College Station, Texas 77843. Funded by: U. S. Department of Commerce. National Oceanic and Atmospheric Administration.

M. Whitehorn.

00003

Factors affecting industrial location on the Texas Gulf Coast.

The purpose of this research activity is to assess the influence of marine-related activities and resources on industrial locations along the Texas coastal zone. An analysis will be made of the impact of expansions of marine-related facilities including an evaluation of industrial location factors arising from discoveries of new marine resources, future effects of desalination and implications of growth related to secondary service industries. Traditional industrial location factors such as markets, labor, raw materials, transportation climate, fuel and water will be included in the analysis of factors affecting industrial location in the coastal area.

Texas A & M University System, Sea Grant Program Office, College Station, Texas 77843. Funded by: Commerce Department, National Oceanic and Atmospheric Administration, Sea Grant Office. 7/71 - 6/72.

J. Miloy.

00004

Investigation of rice irrigation return flows - Texas coastal prairie region.

The quantity and quality of irrigation return flow water from rice culture is being investigated for future planning of the return flows available for reuse in the Texas Coastal Prairie Region. There are 2 sample study areas in the project. One area uses a ground water supply and is instrumented for continuous operation. The other area uses a surface water supply and is being studied on a reconnaissance level.



The quantity of return flows will be obtained on a percent basis and/or on an acre-feet/acre basis from the records of water diversions, rainfall and volume of drainage that are collected. The quality of these return flows are analyzed from samples taken to investigate the possible change in water quality due to fertilizers and pesticides used in the culture of rice farming.

State Water Development Board, Capital Station, Austin, Texas 78711. Funded by: Texas State Government.

C. Tuck. B. Ashworth.

00005

Multiresources management - pine ranges.

Develop principles and guides for multiresource management for optimum, sustained production of cattle forage, timber and game.

Saw-palmetto is one of the more troublesome plants growing in south Florida, and its control is often desirable in programs of range and timber management. Both cross-chopping and webbing (root plowing) proved to be effective control measures, but weeding appeared to be less effective on a moist site. Many other shrubs were also effectively reduced by these treatments. Site preparation improved height and diameter growth but did not improve survival in plantations of typical slash pine (Pinus elliotti var. elliottii) and South Florida slash pine (Pinus elliottii var. densa Little and Dorman) established in South Florida. Bedding provided the most favorable site for early growth (through 5 years), whereas clearing appears to have provided the most favorable environment for growth from the fifth through tenth years. Although South Florida slash pine showed the most marked response to site preparation, typical slash pine exhibited superior survival and height growth relative to the performance of the South Florida variety.

U. S. Department of Agriculture, Forest Service, Southeastern Forest Experiment Station, Lehigh Acres, Florida 33936. Funded by: U. S. Department of Agriculture, Forest Service Research Appropriations.

W. H. Moore.

00006

Protection of wood from deterioration.

The sapwood of all species of trees is susceptible to decay. Materials made of sapwood may be protected from decay by using building designs which keep untreated wood dry, avoid ground contact with non-pressure treated wood and utilize preservative treated wood in contact with soil. Results from field service treatment combination providing the longest service life. Growth of Trichoderma viride, Lenzities saepiaria and Schizophyllum commune was inhibited more than 50 percent in saturated atmospheres of l-a-Pinene, d-a-pinene, l-b-pinene, l-Limonene, d-limonene, differences were detected

between terpenes in ability to suppress growth, but relative toxicity of each terpene varied with fungus. Actively growing culture of Streptomyces sp. inhibited linear growth of decay fungi, Lenzites saepiaria, L. Trabea, Peniopher, Gigantea, Lentinus lepideus, Polyporus versicolor, and Poria placenta on buffered and unbuffered malt agar, but when cultured with the basiomycetes in pine sapwood, the antagonist did not materially suppress rate of decay.

U. S. Department of Agriculture, Forest Service, Southern Forest Experimental Station, Gulfport, Mississippi 39501. Funded by: U. S. Department of Agriculture, Forest Service Research Appropriations.

R. C. DeGroot.

00007

Genetics of Southern Pines and Hardwoods.

To determine for important pines and hardwoods of the south the degree of genetic control over phenotypic characters and to develop methods of applying such control for the improvement of forest trees.

Strong genetic relationships were found in cottonwood between height and diameter growth and between performance at ages 1 and 6 years. Increased volume productivity can be obtained at low cost by early screening of numerous candidate clones for height or diameter growth.

Cultivation and fertilization caused early and prolific production of male and female strobili in young loblolly pines. Appropriate treatment can reduce time to seed production in seedling seed orchards. Inbreeding depression of nursery and early field growth caused by selfing in slash pine was 21 and 34 percent, respectively. Selfing is therefore, useful only as a genetics research tool and should be avoided in seed orchards. Heritabilities for brownspot resistance and early growth of longleaf pines was substantial. Resistance varied with seed source as well as degree of parental exposure to disease and was not associated with early growth. A seedling seed orchard incorporating progenies selected for both resistance and early growth potential has been established.

U. S. Department of Agriculture, Forest Service, Southern Forest Experimental Station, Gulfport, Mississippi 39501. Funded by: U. S. Department of Agriculture, Forest Service Research Appropriations.

R. J. Dinus. Publications: Mohn, C. A. and Randall, W. K. 1971. Inheritance and correlation of growth characters in Populus deltoides. Silvae Genet. 29(5-6): 182-184.

Schmidtling, R. C. 1971. Cultivating and fertilizing stimulate precocious flowering in loblolly pines. Silvae Genet. 20(5-6): 220-221.

Snyder, E. B. 1972. Five-year performance of self-pollinated slash pines. For. Sci. 18: 246.

Snyder, E. B., and Derr, H. J. 1972. Breeding longleaf pines for resistance to brown spot needle blight. Phytopathology 62: 325-329.

00008

Diseases of Southern Pines.

Determine the biological and environmental factors involved in disease cycles of fusiform rust and brown-spot needle blight and to develop therefrom, economically feasible and ecologically acceptable controls for these diseases.

U. S. Department of Agriculture, Forest Service, Southern Forest Experimental Station, Gulfport, Mississippi 39501. Funded by: U. S. Department of Agriculture. Forest Service Research Appropriations.

G. A. Snow.

00009

Preventing and minimizing damage by wood products insects.

Improving chemical or develop biological or utilization methods for prevention and control of termites and powder-post beetles.

Bursban at 1 and 2% has given 100% control of subterranean termites for 6 years in modified ground-board tests in Mississippi. One percent is less effective when exposed to weathering. Baygon at 1 and 2 percent is also effective when covered. Of the numerous insecticides under study in soils of southern Mississippi for evaluation against subterranean termites, aldrin, chlordane, dieldrin, and heptochlor, applied at various concentrations and rates, are still 100 percent effective after 20-24 years. The most termite resistant electrical cable covering material exposed in field tests in Mississippi and Panama Canal Zone are ethylene propylene rubber, chlorosulfonated polyethylene, and rigid polyvinyl chloride. Insecticide incorporated into polyvinyl chloride at time of fabrication prevented subterranean termite attack on this material in both Mississippi and Panama field studies.

U. S. Department of Agriculture, Forest Service, Southern Forest Experiment Station, Gulfport, Mississippi 39501. Funded by: U. S. Department of Agriculture, Forest Service Research Appropriations.

V. K. Smith, Jr.

Publications: Beal, R. H. and V. K. Smith, 1972. Carbamate or Phosphate insecticides for subterranean termite control? Pest Contr. 40(7): 20, 22, 43.

Bultman, J. D., C. R. Southwell, and R. H. Beal. Termite resistance of polyvinyl chloride plastics in southern temperate and tropical environment. Final report of Phase I--effect of plasticizers and insecticides. U. S. Nav. Res. Lab. Rep. 7417, 20 p.

Smith, V. K., R. H. Beal, and H. R. Johnston. Twenty-seven years of termite control tests. Pest Contr. 40(6): 28, 42, 44.

Southwell, C. R., J. D. Bultman, and R. H. Beal, 1972. Termite Resistance of polymeric materials: Phase 2--nontoxic polymers. U. S. Nav. Res. Lab. Rep. 7418, 22 p.

Williams, L. H. and H. R. Johnston, 1972. Controlling wood-destroying beetles in buildings and furniture. USDA Leaflet No. 558, 8 p.

00010

Biology of wood products insects.

Primarily under southern conditions, study wood deterioration from time of harvesting through manufacturing processes, storage, and ultimate use. Normally faunated (NF) C. formosanus workers fed more and survived better than partially defaunated (PD--lacking only the protozoan P. grassii) or completely defaunated (CD) termites. Defaunation influenced soldier production and survival differently than it influenced overall termite feeding and survival. Incorporation of  $^{14}\text{C}$  into lipids from labelled cellulose occurred readily in NF termites and to a much lesser extent in PD and CD termites. P. grassii appears to be necessary for normal cellulose catabolism, lipid synthesis, and survival in C. formosanus termites. Fatty acid composition differed for field-collected R. flavipes and for termites fed either sound or trabea-decayed wood, but did not reflect the fatty acid composition of the diet woods. Survival varied by wood species and solvent system when R. flavipes was fed extracted sawdusts and corresponding extracts on filter paper. Although anobiids are the most common wood-destroying beetles attacking structures, the prevention or control of infestations is often ignored because damage occurs slowly and buildings are 10-30 years old or older when attacks are discovered. Studies are in progress to determine the effect of beetle feeding on the structural strength of wood and to assess the utility of exit hole counts/square foot as a survey tool for estimating larval populations and strength.

U. S. Department of Agriculture, Forest Service, Southern Forest Experiment Station, Gulfport, Mississippi 39501. U. S. Department of Agriculture, Forest Service Research Appropriations.

R. V. Smythe. Publications:

Carter, F. L., L. A. Dinus, R. V. Smythe, 1972. Effect of wood decayed by Lenzites trabea on the fatty acid composition of the eastern subterranean termite, Reticulitermes flavipes. J. Insect Physiol. 18: 1387-1393.

Carter, F. L., L. A. Dinus, R. V. Smythe, 1972. Fatty acids of the eastern subterranean termite, Reticulitermes flavipes (Isoptera: Rhinotermitidae). Ann. Entomol. Soc. Amer. 65: 655-658. Mauldin, J. K., R. V. Smythe, and C. C. Baxter. Cellulose catabolism and lipid synthesis by the subterranean termite, Coptotermes formosanus. Insect. Biochem. 2: 209-217.

Smythe, R. V. and J. K. Mauldin. Soldier differentiation, survival, and wood consumption by normally and abnormally faunated workers in the Formosa termite, Coptotermes formosanus. Ann. Entomol. Soc. Amer. 65: 1001-1004.

Williams, L. H. and H. R. Johnston, 1972. Controlling wood-destroying beetles in buildings and furniture. USDA Leaflet No. 558, 8 p.

00011

Commodity flow study for Texas Gulf ports.

U. S. Department of Commerce, Maritime Administration, Washington, D. C. 20235. Funded by: Commerce Department, National Oceanic and Atmospheric Administration, Sea Grant Office. 7/72 - 6/73 Multiple support funds.

Unknown.

00012

Acidulation of Florida Land Pebble Matrix. Fluorine Recovery Technology.

Demonstrate production of phosphoric acid for representative Florida samples by direct sulfuric acid digestion and determine economics of the process.

U. S. Department of Interior, Bureau of Mines, Albany Metallurgy Research Center, Albany, Oregon. Funded by: U. S. Department of Interior, Bureau of Mines, July 1972 - June 1974.

J. C. White, H. E. Blakes, Jr., H. O. Poppleton.

00013

Upgrading waste gypsum from phosphate processing.

Waste gypsum from phosphoric acid plants.

Objective to develop techniques for upgrading waste gypsum from phosphoric acid plants to be suitable for making plasters.

U. S. Department of Interior, Bureau of Mines, Tuscaloosa Metallurgy Research Lab, Tuscaloosa, Alabama. Funded by: U. S. Department of Interior, Bureau of Mines, July 73 - June 1976.

T. O. Llewellyn.

00014

Sulphur deposits in the Gulf Coast region.

To study and prepare a report on the geology and geochemistry of cap rock sulfur deposits and of the stratigraphy and structure of the Gulf Coast geosyncline and its contained salt diapirs. To review the technology of sulfur mining and the economics and commercial developments of the sulfur industry.

U. S. Department of the Interior, Geological Survey, 18th and F Station, N. W. Washington, D. C. 20242. Funded by: Interior Department, Geological Survey, Geologic Division. 7/72 - 6/73.

A. J. Bodenlos.

00015

Costs and returns analysis for major crop and livestock enterprises in north and west Florida.

The purposes of this project are 1) to determine labor and material requirements used in producing specified crops and livestock products and 2) to apply cost rates and prices to the data collected to estimate costs of production and returns.

University of Florida, Gainesville, Florida 32601. Funded by: University of Florida, Institute of Food and Agricultural Sciences. 1971 - ?.

R. E. L. Greene.

00016

Planning for economic development in north and west Florida.

Completed manuscript of crop, livestock, and machinery budget study for small farms in 29 county study area of North and West Florida. In publication process. Obtained additional results from linear programming study for \$3-6-9,000 income levels. Results reported in Master's thesis and also in process of publication as departmental Agricultural Economics Report. Completed study of educational expenditures for primary and secondary schools in Florida. Economics of size analysis expressed per pupil expenditures as function of county enrollment. Multiple regression analysis considered numerous explanatory variables as well as factor adjusting for quality of education. Average cost coefficients from economics of size analysis were used as costs in a linear programming model to determine the optimum grouping of counties in 29 county study areas for minimization of in-school and administrative expenditures. Feasible county combinations were based on continuity, configuration, and distance criteria.

University of Florida, Gainesville, Florida 32601. Funded by: University of Florida, Institute of Food and Agricultural Sciences.

F. H. Tyner, C. Davis.

00017

Hydrographic study on the proposed dredging adjacent to the south fork of the St. Lucie River.

University of Florida. Funded by: St. Lucie Inlet Farms, Subdivision, Martin Co. 11/72 - 2/73.

O. Shemdin.

00018

Experimental cultivation of red algae of economic value in Florida Marine Waters.

The objectives of this project are to learn basic ecology of marine benthic algae of Florida of known or potential economic value that will permit development of techniques for their cultivation.

Progress reports of this work have been periodically submitted to industry involved in producing seaweed extractives, in particular, Marine Colloids, Inc., of Springfield, N. J. and Rockland, Maine. The industry has realized in recent years that natural stock of their raw material are inadequate for future requirements, and that cultivation must be done. This project contributes toward the satisfaction of this need. A comprehensive final report is in preparation that will be widely distributed. The most desired genus (by the industry), Eucheuma, can be transplanted from the deep, offshore waters where it grows naturally into shallow (less than 6 feet) inshore waters where cultivation is feasible. Several techniques for cultivation of these seaweeds that may be adaptable to large-scale seaweed farming along the Florida Gulf coast have been developed. Growth rates of a number of species of economic value near a variety of environmental conditions have been determined.

University of South Florida Center for Res. and Development. Tampa, Florida, 33701. Funded by: Commerce Department, National Oceanic and Atmospheric Administration, Sea Grant Office. 8/72-7/73.

H. J. Humm.

00019

Industry and business problems.

An identification and analysis of problems and research related to the Mississippi Gulf Coast.

University of Southern Mississippi. Funded by: Mississippi Universities  
Marine Center.

D. C. Williams, Jr., N. O. Murray.



COMMERCIAL FISHING  
CURRENT AND RECENT RESEARCH

CURRENT AND RECENT RESEARCH  
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00119

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00001

Survey of 16 foot trawl fishery in Alabama.

To determine the use of Alabama estuaries by 16 foot trawlers and to evaluate their annual catch.

Alabama Department of Conservation and Natural Resources (Marine Research Division). Funded by: U. S. Department of Commerce, National Oceanic and Atmospheric Administration, NMFS. Completion September 1974.

A. Swingle. W. M. Totem.

00002

Study of oyster reef cultivation.

Oysters.

To compare oyster production and cost on cultivated reef plots versus plots which have been planted with shell. To determine the concentration of various hormones required to induce molting of blue crabs, to determine the economic feasibility of producing soft shell crabs by hormone injection.

Alabama Department of Conservation and Natural Resources. Funded by: U. S. Department of Commerce, National Oceanic and Atmospheric Administration, National Marine Fisheries Service. Completion: July 31, 1974.

E. A. Hughes.

00003

Study of artificially inducing crab molting.

Crabs.

Crabs will be tested in compartmentalized tanks supplied with continuously flowing sea water. To determine the economic feasibility of producing soft shell crabs by hormone injection, production costs will be determined and weighed against costs of producing soft shell crabs by conventional methods.

Alabama Department of Conservation and Natural Resources. Funded by: U. S. Department of Commerce, National Oceanic and Atmospheric Administration, National Marine Fisheries Service. Completion: July 31, 1974.

E. A. Hughes.



00004

Mariculture project.

Florida Department of Natural Resources Marine Research Lab, St. Petersburg, Florida. Primarily state funds with limited matching federal funds for 3 projects (mariculture, rock shrimp, anadromous fish). Average length of project: 2 years. Some ongoing: life history of fishes, Hourglass cruise materials, marine pathology and red tide.

E. A. Joyce, Jr., D. S. Beaumariage, F. H. Hoff.

00005

Rock shrimp project.

Florida Department of Natural Resources Marine Research Lab, St. Petersburg, Florida. Primarily state funds with limited matching federal funds for 3 projects (mariculture, rock shrimp, anadromous fish). Average length of project: 2 years. Some ongoing: life history of fishes, Hourglass cruise materials, marine pathology and red tide.

E. A. Joyce, Jr., D. S. Beaumariage, S. F. Kennedy, Jr.

00006

Shallow water organisms taken by hydraulic dredge - special emphasis on location and delineation of commercial clam populations. The objectives of this study are to determine what species are taken by this type harvesting gear to locate and delineate commercial population of clams. Data obtained on the location and nature of clam populations with commercial potential will be prepared for periodic distribution by the Florida Board of Conservation. These preliminary reports will be available to any interested persons, and should aid and encourage the development of commercial enterprise based on previously unknown and unexploited clam resources in Florida waters.

Florida State Board of Conservation, P. O. Drawer F, St. Petersburg, Florida 33731. Funded by: Commerce Department, National Oceanic and Atmospheric Administration, National Marine Fisheries Services. 7/71-6/72.

E. A. Joyce.

00007

Rock shrimp life history studies and exploratory fishing survey.

The technical objectives are to 1) survey stocks of rock shrimp, Sicyonia brevirostris Stimpson, and define (geographically and seasonally) those with economic potential; 2) develop information on the life history, reproductive cycle, and population ecology of the rock shrimp with emphasis on delineating spawning times and loci, and nursery grounds.

Trawling will be conducted along transects on the northeast Florida shelf to define the distributional pattern of rock shrimp. Areas yielding substantial catches will be sampled intensely to obtain information on the life history and ecology of the species. Collection will be correlated with water quality and benthos sampling.

Florida State Department of Natural Resources, Larson Building, Tallahassee, Florida 32304. Funded by: Commerce Department, National Oceanic and Atmospheric Administration, National Marine Fisheries Service. 7/72-6/73.

F. Kennedy.

00008

Investigations of commercially important penaeid shrimp in Mississippi.

Determination of environmental requirements and relationships of penaeid shrimp as factors in prediction of availability and resource management.

Gulf Coast Research Lab. Funded by: G.C.R.L., U. S. Department of Commerce, National Oceanic and Atmospheric Administration. 7/70-6/73.

J. Y. Christmas, W. Langley.

00009

A study of the blue crab industry in Mississippi.

Provide data on life history, population dynamics, ecology, and fisheries to improve management for optimum production.

Gulf Coast Research Lab. Funded by: U. S. Department of Commerce. National Oceanic and Atmospheric Administration. 7/70-9/73.

J. Y. Christmas, H. M. Perry.

00010

Studies on the salinity temperature relations of the commercial penaeid shrimp.

Study the osmotic and ionic problems and the survival limits in varying salinity temperature conditions, and define the salinity temperature optima for growth and food conversion efficiency of shrimp (Penaeus aztecus).

Gulf Coast Research Lab. Funded by: U. S. Army, Corps of Engineers. 8/70-7/72.

A. V. Rhmaiah.

00011

Parasites, diseases and control of diseases of commercially important finfishes and shellfishes from the northern Gulf of Mexico.

Parasites of commercial fishes including aquaculture.

Gulf Coast Research Laboratory. Funded by: U. S. Department of Commerce, National Oceanic and Atmospheric Administration, National Marine Fisheries Service. June 1972-June 1975.

R. M. Overstreet, D. W. Cook. 13 publications from this or a preceding related project available from Gulf Coast Research Laboratory.

00012

Shell planting.

The objectives are 1) replenishing of cultch on oyster reefs and 2) follow-up on success of planting.

Gulf Coast Research Lab. Funded by: Mississippi Marine Conservation Commission. 8/71-6/72.

N. J. Bemoran.

00013

Investigations of coastal pelagic fishes.

The objective is development of information for exploitation and management of coastal pelagic fish stocks on waters off the Mississippi Gulf Coast.

J. Y. Christmas; A. Perry.

00014

A study of the parasites and diseases of fishes, molluscs, and crustaceans utilized in mariculture.

The purpose is to identify the parasites and diseases found in species important in mariculture and to seek methods of controlling them.

Gulf Coast Research Lab. Funded by: U. S. Department of Commerce, National Oceanic and Atmospheric Administration, 7/69-6/72.

R. M. Overstreet, D. W. Cook.

00015

Effects of iron and steel on the survival and growth of the commercial penaeid shrimp.

The purpose is to understand the hazards of creating artificial fishing reefs by sinking old ships and automobiles on the coastal fauna, experiments were duplicated in the laboratory regarding the effects of iron and steel on the survival and growth rates of shrimp Penaeus aztecus.

Gulf Coast Research Lab. Funded by; Gulf Coast Research Lab. 5/72 - 8/72.

G. Gunter.

00016

Survival and growth of various fishes with varying salinities culture of various fishes from eggs.

Gulf Coast Research Lab, Section of Parasitology, P. O. Box AG, Ocean Springs, Mississippi 39564. Funded by: U. S. Department of Commerce, National Oceanic and Atmospheric Administration, National Marine Fisheries Service, G.C.R.L. Began January 1972.

A. R. Lawler.

00017

A study of the parasites and disease of fish, mollusks and crustacea utilized in mariculture.

The technical objectives are: 1) to identify parasites and diseases infecting selected species intentionally and unintentionally grown in mariculture facilities, 2) to study the infectivity and pathogenicity of selected disease causing organisms in relation to specific environmental factors with special attention paid to chemical means of controlling the disease; and 3) to compare the parasites and diseases found in individuals collected from their natural habitats with those found in individuals from artificial ones.

Gulf Coast Research Laboratory, Ocean Springs, Mississippi 39564. Funded by: Commerce Department, National Oceanic and Atmospheric Administration, National Marine Fisheries Service. 7/72 - 6/73.

D. W. Cook.

00018

Investigations of commercially important penaeid shrimp in Mississippi estuaries.

The technical objectives are: 1) to collect representative samples of postlarval, juvenile and adult penaeid shrimp in Mississippi estuarine waters, 2) to identify, measure and count collected samples of penaeid shrimp or aliquots thereof; 3) to determine the species composition and productivity of marsh and grass bed flora associated with penaeid shrimp populations in Mississippi, 4) to make estimates of the annual value of these habitats; to

tabulate and summarize data at monthly intervals 5) to develop and apply programs that will produce improved predictions of shrimp availability to the commercial shrimp fishery, 6) to develop and apply programs that will provide better data for management of shrimp resources, 7) to prepare and submit the completion report for this project and manuscripts for submission to appropriate media for publication.

Brown shrimp predominated in the samples and peak catches of juveniles occurred in March. Population density was greatest in "grass bed" areas. Statistical data indicated that the value of bait shrimp exceeded the food market price by 3 times. Formats were developed for the computer analysis of data.

Gulf Coast Research Laboratory, Ocean Springs, Mississippi 39564. Funded by: Department of Commerce, National Oceanic and Atmospheric Administration, National Marine Fisheries. 7/72 - 6/73.

J. Y. Christmas, W. Langley, T. Vanevender.

00019

Study of the blue crab industry in Mississippi.

Marine biology oceanography.

Gulf Coast Research Laboratory. Funded by: U. S. Department of Commerce, National Oceanic and Atmospheric Administration, National Marine Fisheries Service. July 1970 - September 1973.

J. Y. Christmas. H. M. Perry. Publications: Study of blue crab industry in Mississippi by Harriet M. Perry. Crabs for fun and food by Ron Herring and J. Y. Christmas. Manuscripts submitted for publication.

00020

Investigations of commercially important penaeid shrimp in Mississippi.

Marine biology, commercial and sport fishing, oceanography.

Gulf Coast Research Lab. Funded by: U. S. Department of Commerce, National Oceanic and Atmospheric Administration, National Marine Fisheries Service. July 1970 - September 1973.

J. Y. Christmas. Walter Langley.

00021

Oyster reef survey.

Survey of the amounts of oysters in areas closed to harvesting due to excessive contamination from human waste sources, and plans for relaying same for ultimate marketing.

Gulf coast Research Lab. Funded by: Mississippi Marine Conservation Commission. 9/71 - 6/72.

W. J. Demoran.

00022

Fisheries Resources assessment and monitoring.

Marine biology, commercial fishing, oceanography, sport fishing.

Gulf Coast research laboratory. Funded by: U. S. Department of Commerce, National Marine Fisheries Service. October 1973 - September - 1976.

J. Y. Christmas. H. M. Perry.

00023

Menhaden resources study, shrimp resources study.

L.M.R., Inc. 11339 Sorrento Valley Road, San Diego, California 92121. Funded by: Commercial clients in seafood business. Continuing study.

J. DeBeer, G. Broadherd, C. Peckham, B. Lanier. Proprietary reports.

00024

Development of Gulf fisheries products.

The objectives of this project are to develop the production and processing facilities of Gulf Fisheries by: 1) collection and assimilation of information on the biochemical and nutritional composition of selected species of Gulf industrial fish for protein concentrate development; 2) analysis of biological properties and development of new products and markets for shrimp meal and utilization of "wastes" from shrimp cannery operations; 3) examination of the nutritional value of the dominant species of Gulf squid to include proximate analysis, amino acid determinations, protein efficiency and toxicological evaluations. New food applications and products will be examined for industrial fish protein concentrate, squid, oysters, and shrimp processing byproducts.

These areas of seafood processing using the information include: 1) use of liquid nitrogen for preservation; 2) analyses of thermal properties of seafoods, relations between characteristics of the seafood harvesting area and the quality of final frozen products; 3) determination of allied

technological problems in measuring degree of freshness and quality control of seafood. Accomplishments include: 2) developed method for decalcification of crustacean meals, 2) isolated cause of rancidity in frozen crawfish, 3) developed feasible method for recombining mechanically picked, shredded crab meat, 4) assessed protein and amino acid composition of several Gulf industrial (trash) fish having potential value for production of fish protein concentrate, 5) produced high-quality protein concentrate from Gulf squid in pilot plant test runs, 6) continued cooperative efforts with industry to create new products.

For additional information pertaining to this project contact Dr. Jack R. Van Lopik, Director, Sea Grant Program, Louisiana State University, Baton Rouge, Louisiana 70803.

Louisiana State University, School of Agriculture, University Station, Baton Rouge, Louisiana 70803. Funded by: Commerce Department, National Oceanic and Atmospheric Administration, Sea Grant Office.

R. F. Novak, S. P. Meyers, Hoskins, Rad, Liuzzo.

00025

Migration and distribution of fisheries resources.

The objectives of this study are the assessment of following: 1) daily and seasonal distribution of zooplankton in the vicinity of Caminada Pass; 2) recruitment periods and relative abundance of post-larval penaeid shrimp at the pass and within the estuary; 3) seasonal distribution and biomass of fishes in the stuary; 4) season, lunar phase, time of day, and rates of brown shrimp out-migration from the estuary; 5) seasonal abundance, distribution and relation to hydrographic conditions of oyster larvae and spat on bottom and suspended cultch materials in a seed oyster producing area; 6) fauna types and hydrographic conditions along the Mississippi River Gulf Outlet channel and comparison with survey results prior to construction of the ship channel. Information on movement of organisms through Caminada Pass is essential to understanding of the Barataria Bay ecosystem. These inputs are needed for the Synthesis -- Modeling and Simulation project and for understanding of life habits of species being studies in the Aquaculture project. Postlarval shrimp surveys are recognized as management tools for setting length and opening data of the season. Similar monitoring of outward bound adult shrimp is a potential management tool for allocation of effort to inshore vs. offshore fishing.

Accomplishments during the past 12 months: 1) 104 fish species have been taken in the estuary; 12 larval fish forms have been identified. 2) peak larval and postlarval recruitment were detected for menhaden, redfish, speckled trout, white shrimp and blue crabs. Equipment for sampling estuarine macroplankton from a small boat has been developed and successfully operated. Production of fish from monthly biomass data has been estimated to be about .11 percent of net primary production. A taxonomic survey of the copepods of Airplane Lake has been completed.

For additional information pertaining to this project contact Dr. Jack R. Van Lopik, Director, Sea Grant Program, Louisiana State University, Baton Rouge, Louisiana 70803.

Louisiana State University, School of Agriculture, University Station, Baton Rouge, Louisiana 70803. Funded by: Commerce Department. National Oceanic and Atmospheric Administration. Sea Grant Office.

00026

Commercial production of fish in brackish water ponds.

The objective of this study is to determine production, disease susceptibility, food conversion, and desirability of several fish species for commercial production in brackish water ponds; spawning requirements and fingerling production methods. Develop management methods for commercial species in impounded, coastal, brackish waters.

Louisiana State University, Agricultural Experiment Station, University Station, Baton Rouge, Louisiana 70803. Funded by: Louisiana State Government. 7/72 - 6/73.

J. V. Avault.

00027

Commercial production of fish in brackish water ponds.

The objective of this study is to determine production, disease susceptibility, food conversion, and desirability of several fish species for commercial production in brackish water ponds; spawning requirements and fingerling production methods. Develop management methods for commercial species in impounded, coastal, brackish waters.

Louisiana State University, Agricultural Experiment Station, University Station, Baton Rouge, Louisiana 70803. Funded by: Louisiana State Government. 7/72 - 6/73.

J. V. Avault.

00028

Crawfish culture.

Research/aquaculture; crustaceans.

The objectives of this project are: 1) to develop efficient methods for commercial production of edible crustaceans in ponds, raceways, and tanks; 2) to determine the biology of commercial species as related to culture.



Immediate goals, related to commercial culturing of shrimp and crawfish, are the following: (a) shrimp breeding and production of postlarval stocks in impoundments; (b) determine effective methods for controlling wild fish in crawfish ponds. The latter goal is the initial task in a longer-range research project crawfish culture to be given primary emphasis in succeeding years. Information will create new venture opportunities and improve profitability of existing operations. Control of predatory wild fish in crawfish ponds should increase per acre crawfish yields. This may also be useful in shrimp culture.

Louisiana State University, Center for Wetland Resources, Baton Rouge, Louisiana 70803. Funded by: U. S. Department of Commerce, NOAA, Office of Sea Grant. 8/75.

J. W. Avault, Jr. "Crayfish Farming in U. S." for delivery at 1st International Crayfish Symposium in Austria.

00029

Advisory and liaison services to the Louisiana Wildlife and Fisheries Commission and other groups involved in the coastal zone.

Advisory services - other regional coord.

The purpose of this study is 1) to develop cooperative arrangements with the Louisiana Wild Life and Fisheries Commission, combining Univeristy research staff capabilities with field logistical and support facilities of LWLFC. This would enable comprehensive environmental inventory and ecosystem studies of regional scope to be undertaken and insure that methodology which evolves from the Systems Ecology program is assimilated into the operational program of a major state resource agency. Coordination of Sea Grant biological studies and LWLFC hydrologic data collection will maximize impact of these efforts.

2) to establish and strengthen liaison with other state, federal and private groups involved in coastal zone planning and development, as well as resource utilization. Immediate application is by LWLFC in fisheries resources, conservation, development. Future information needs by other state and federal agencies for comprehensive planning activities are anticipated. Assisting marine fisheries industry in developing rational solutions to resource management and technical or scientific problems.

Louisiana State University. Center for Wetland Resources, Baton Rouge, Louisiana 70803. Funded by: U. S. Department of Commerce, NOAA, Office of Sea Grant. Continuing research.

T. B. Ford (Center for Wetland Resources). Publications: 1) Participated in liaison, review, coordination, and planning activities involving LWLFC, Corps of Engineers, La. Menhaden Council, State Board of Health, EDA, Legislative Council on Environmental Quality, LSU Cooperative Extension Service, La. Shrimp Association, Gulf States Marine Fisheries Commission,

National Marine Fisheries Service, World Mariculture Society, Louisiana Advisory Commission on Coastal and Marine Resources, Mississippi Marine Conservation Commission, Indo-Pacific Fisheries Council sponsored by FAO. Gulf and Caribbean Fisheries Institute, Louisiana Wildlife Federation and Affiliates, National Shellfisheries Assn., American Shrimp Cannery Assn., Shellfisheries Institute of North America, National Shrimp Breeders Assn., etc. 2) served a lead role in organizing the Louisiana Menhaden Council.

00030

Advisory services to Gulf seafood industries.

Advisory services/other - plant troubleshooting.

The composite objectives of this project are to offer services in order to prevent or to solve problems in the following areas: 1) plant sanitation, 2) products from polluted areas, 3) product labeling, 4) prevention of contamination 5) decomposition control, 6) packaging, 7) proper use of additive and disinfectants, 8) food poisons and toxins, 9) how to cooperate and work with regulatory personnel to the advantage of both parties, and 10) disposal and effective utilization of byproducts and plant waste materials. Also included are provision for graduate student training in quality control in the aforementioned areas with in-house work in processing plants and federal and state quality monitoring laboratories.

Louisiana State University, Center for Wetland Resources, Baton Rouge, Louisiana 70803. Funded by: U. S. Department of Commerce, NOAA, Office of Sea Grant. Continuing research.

A. F. Novak, R. M. Grodner - Food Science.

00031

Migration and distribution of fisheries resources.

Research/commercial fisheries - biology.

The purpose of the study is an assessment of following: 1) diet and seasonal distribution of zooplankton in the vicinity of Caminada Pass; 2) recruitment periods and relative abundance of postlarval penaeid shrimp at the pass and within the estuary; 3) seasonal distribution and biomass of fishes in the estuary; 4) season, lunar phase, time of day, and rates of brown shrimp out migration from the estuary; 5) seasonal abundance, distribution and relation to hydrographic conditions of oyster larvae and spat on bottom and suspended cultch materials in a seed oyster producing area; 6) fauna types and hydrographic conditions along the Mississippi River Gulf Outlet channel and comparison with survey results prior to construction of the ship channel.

1) Information on movement of organisms through Caminada Pass is essential to understanding of the Barataria Bay ecosystem. 2) These inputs are needed for the Synthesis -- Modeling and simulation project and for understanding of life habits of species being studied in the Aquaculture project. 3) Postlarval shrimp surveys are recognized as management tools for setting length and opening date of the season. Similar monitoring of outward bound adult shrimp is a potential management tool for allocation of effort to inshore vs. offshore fishing.

Louisiana State University, Center for Wetland Resources, Baton Rouge, Louisiana 70803. Funded by: U. S. Department of Commerce, National Oceanic and Atmospheric Administration. Office of Sea Grant. 8/74.

H. C. Loesch. Publications; Rekas, A. M. The immigration of postlarval brown shrimp (Penaeus aztecus Ives) into Airplane Lake, Louisiana. M. S.

Sabins, D. S. Diel studies of larval and juvenile fishes of the Caminada Pass area, Louisiana. M. S.

Crowe, A. L. Seasonal abundance and biomass distribution of Penaeus aztecus and Penaeus setiferus in Caminada Bay, Louisiana. M. S.

Wagner, P. R., Seasonal biomass, abundance, and distribution of estuarine dependent fishes in the Caminada Bay system of Louisiana. Ph. D.

00032

Nutrition of Penaeid Shrimp and invertebrate rations development.

Research/aquaculture (Crustaceans).

The objectives of this project are (1) to develop dietary formulations for larval and adult marine invertebrates with particular attention to penaeid shrimp; (2) to evaluate utilization of byproducts of the food and seafood processing industry; including such material as shrimp meal and "waste" products; (3) to analyze ration binders and processing methodology to achieve maximal water stability of the feed as well as use of attractants to stimulate food consumption and to obtain maximal conversion rates.

Project is designed to develop information needed for commercially successful raising of invertebrate animals under controlled conditions, and to reveal aspects of shrimp food requirements pertinent to understanding shrimp productivity in estuarine nursery regions. Use of shrimp meal and byproducts of the shrimp processing and fisheries industries will permit greater economic utilization of such material by the various industries concerned.

Louisiana St. University, Center for Wetland Resources, Baton Rouge, Louisiana 70803. Funded by: U. S. Department of Commerce, National Oceanic and Atmospheric Administration, Office of Sea Grant. 8/74.

J. P. Meyers (Department of Food Science).

00033

Infection of the blue crab with Loxothylacus texanus (in four different salinity environment of SE Louisiana).

Research/pathology of marine organisms.

The objectives of this project are to determine 1) the seasonal incidence and intensity of Loxothylacus texanus externae on blue crabs from different salinity environments; 2) the relationships between this infestation and the size and sex of hosts, and 3) the spawning periods of the parasite. A second objective is to determine the extent of endoparasitism so that this figure can be included in projecting the actual incidence of infection. Laboratory holding experiments to be used for this purpose are designed to provide information on various other aspects of infection including the effect of parasitism on crab mortality and growth.

Additionally, an effort will be made to determine the geographic distribution of L. texanus through correspondence with workers at other Gulf and South Atlantic regions. The parasite appears to be a common source of natural mortality (in effect) among commercial populations of Louisiana blue crabs. Hence, a knowledge of its incidence and ecological requirements are essential to the effective management of our crab resource. Because of the parasite's apparent abundance in more saline waters, production of commercial crabs in southeastern Louisiana may depend mainly on low salinity bays. Such information could prove useful in the effort to legally forestall activities that would modify these vital habitats.

A knowledge of the parasite's salinity requirements would be of vital importance in selecting a site for crab mariculture. Moreover, L. texanus may serve as a biological control for crabs that as adults are efficient predators of other cultivated species.

Louisiana State University, Center for Wetland Resources, Baton Rouge, Louisiana 70803. Funded by: U. S. Department of Commerce, National Oceanic and Atmospheric Administration, Office of Sea Grant. Completed 7/26/73.

J. G. Ragan, (Nicholls St. University, Biological Sciences).

00034

The impact of microorganisms on oil handling and processing of fish and shellfish (Gulf).

Biochemical and microbiological problems associated with the Gulf Fishing industries, including environment, available food, use of trash fish, etc. (includes regulatory problems).

Objective is to identify and solve industrial fishery problems as they arise, and to monitor the safety of the products removed from the Gulf.

Louisiana State University, Agricultural Experiment Station, Baton Rouge, Louisiana. Funded by: Louisiana State University, Agricultural Experiment Station, Sea Grant Program 1954 - Continuing.

A. F. Novak, S. P. Meyers, U.S.D.A. Annual - Research work unit/project description progress report (reviews listing publication with possible applications).

00035

Utilization and management of coastal marshes and resources.

The objective of this program is aimed at developing knowledge of the physical and biological processes involved in shrimp production of the Barataria Bay region off the coast of Louisiana in order to improve management of the coastal marshes. In addition, aquaculture of shrimp, and other species including nutrition and disease studies will be pursued.

Mathematical models will be developed, economic baseline studies will be prepared and legal aspects pertinent to management of the coastal zone will be documented. Several courses relevant to this work will be conducted for graduate students.

Louisiana State University, School of Arts, University Station, Baton Rouge, Louisiana 70803. Funded by: Commerce Department. National Oceanic and Atmospheric Administration, Sea Grant Office. 7/71 - 6/72.

J. R. Van Lopik.

00036

Mathematical ecology.

The objectives are to: 1) a descriptive model of community structure and energy flow giving ranges of variation of biomass, production, respiration, and food conversion will be drawn, 2) to use the first model in developing a mathematical model that may be used in simulated study of the system over the full ranges of known variables, 3) to develop from physical considerations and field data a transport model for the system, 4) to develop population models for individual components of the system initially with shrimp.

The mathematical models will be applied as planning tools to evaluate methods to improve the marine resources of the region. Specific applications include: 1) management of the shrimp fishery with the shrimp distribution model in conjunction with the transport phenomena models by Louisiana Wildlife and Fisheries Commission, 2) use of the transport phenomena models to evaluate salinity control methods for improved estuary fisheries by LWFC and U.S. Army Corps of Engineers, 3) use of all biological and transport phenomena models in environmental impact studies for major engineering projects such as the proposed New Orleans airport.

Accomplishments during the past 12 months: 1) a descriptive model of community structure and energy flow of the more saline marsh-estuarine system has been made and is now ready for publication in the form of a comprehensive monograph, 2) development of efficient, easy-to-use computer programs and management guidelines for use as predictive tools for management of the estuarine fisheries, 3) development of an economic model which includes values for fisheries, recreation, petroleum and other marine-related industries and is used with the systems analyses to develop management policies for improving the marine resources of the region.

For additional information pertaining to this project contact Dr. Jack R. Van Lopik, Director, Sea Grant Program, Louisiana State University, Baton Rouge, La. 70803. Funded by: Commerce Department, National Oceanic and Atmospheric Administration, Sea Grant Office. 8/72 - 7/73.

00037

Semi-impounded tidal marshes as nursery areas for fishes, shrimps, and crabs.

The objective is to determine for natural tidal marshes and nearby semi-impounded areas: Lake Borgne and on Marsh Island, abundance, ingress, and egress of juvenile fishes, shrimps, and crabs; growth of fish and shrimp; water characteristics; correlations among ecological factors.

Conclusions reached indicate current concepts about juvenile life histories of many estuarine-dependent motile species should be re-evaluated. Factors stimulating juvenile emigration and their interactions were examined, length-frequencies of the major species taken were analyzed in relation to these factors, and susceptibility to the trawls used. Size, salinity, and their interaction seemed the most important stimulants to juvenile emigration. Emigration of a number of species is believed to occur over an extended period, and to be a "bleeding off" process involving primarily the larger individuals in the nursery at any particular time. For several species, previous juvenile growth rate estimates from openwater length-frequency samples are believed far too low and to have resulted in much misinterpretation of life history facets such as age at first spawning. Use of the Marsh as a nursery is documented for many species. Catch rates for major species taken indicate the marsh is more heavily used than bays and other openwater areas. Effects of semi-impoundment on a number of species were analyzed. With adequate research on the marsh ecosystem, management manipulations along such "natural" lines are judged to have more potential for generating a stable increase in world food production than the presently popular idea of "farming" the sea.

Louisiana State University, Agricultural Experiment Station, University Station, Baton Rouge, Louisiana 70803. Funded by: Louisiana State Government.

W. S. Herke.

00038

Abundance and distribution of crustaceans and fishes in the vicinity of Caminada Pass.

The objective of this study is to 1) determine abundance and distribution of fishes, blue crabs, and zooplankton in the vicinity of Caminada Pass, southern Louisiana, 2) determine time-spatial correlation between penaeid shrimp and other organisms, 3) correlate ecological factors with distribution and abundance of marine organisms.

Louisiana State University, Agricultural Experiment Station, University Station, Baton Rouge, Louisiana 70803. Funded by: Louisiana State Government. 7/72 - 6/73.

F. M. Truesdale.

00039

Experimental ecology.

The objectives of this study are 1) to collect basic ecological data on Barataria Bay and its offshore interaction in terms of important biological and chemical attributes of the system, 2) through analysis, discern meaningful dynamic relationships between energy and nutrient inputs and productivity of economically important organisms, 3) to investigate sensitivity of biological resource production to changes in system parameters and condition of human use, 4) to understand microbiology of detritus formation from *Spartina*, 5) evaluate rates of chitin production and decomposition, 6) explain utilization of lipids from *Spartina* by dominant marsh yeasts, 7) determine relative food importance of different materials in shrimp diets, 8) ascertain seasonal and diurnal rhythms in salinity tolerance of fish and relate to hormones cortisol and prolactin.

Information will be applied: 1) to set harvest seasons, maximize returns to shrimpers, 2) establish realistic bases for economic appraisal of estuarine lands in terms of biological productivity 3) establish realistic criteria for regulation and management of viable estuarine habitat, 4) support dietary studies in the seafood industries program, 5) establish baseline criteria for assessing detrimental impacts of drainage, oil spills, transportation systems, and otherland use practices.

Accomplishments include: 1) completed biomass estimates for chitoniclastic bacteria and enzymatic activity, 2) isolated molds and yeasts by species dominance, seasonal abundance, 3) identified bacterial biota of shrimp digestive tract and found detritus to be an inadequate shrimp diet.

For additional information pertaining to this project contact Dr. Jack R. Van Lopik, Director, Sea Grant Program, Louisiana State University, Baton Rouge, Louisiana 70803.

Louisiana State University, Center for Wetland Resources, University Station, Baton Rouge, Louisiana 70803. Funded by: Commerce Department, National Oceanic and Atmospheric Administration, Sea Grant Office. 8/72 - 7/73.

W. G. Smith, Gosselink, Day, Ho, Allen.

00040

Comparative value of semi-impounded Louisiana tidal marshes as nursery areas for fishes, shrimps, and crabs (This is official tital-actual coverage is broader).

Nursery use of Louisiana coastal marshes and estuaries; life history aspects of various juvenile fishes and crustaceans in this area.

Louisiana State University, Louisiana Cooperative Fishery Unit, Baton Rouge, Louisiana. Funded by: U. S. Department of Interior, U. S. Bureau of Sport Fisheries and Wildlife, Louisiana Wildlife and Fisheries Commission, Louisiana State University, U. S. Department of Commerce, National Oceanic and Atmospheric Administration, Office of Sea Grant, 1965 - ?.

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Weaver, James Edwin, 1969. Otter trawl and benthic studies in an estuary at Marsh Island, Louisiana. Unpublished M.S. Thesis, La. State University, Baton Rouge, 80 p.

Holloway, Luther Floyd, 1969. Surface trawl and plankton studies in an estuary at Marsh Island, Louisiana. Unpublished M.S. Thesis; La. State University, Baton Rouge, 52 p.

00041

Development of an areal management concept for Gulf penaeid shrimp.

Penaeid shrimp research.

Louisiana Wildlife and Fisheries Commission. Funded by same. 7/72 - 12/75.

Charles White.

00042

A study of commercially important estuarine dependent industrial fishes.

Technical objective of this study is to investigate the industrial fish populations of coastal Louisiana for the purpose of developing new management practices and to provide existing and new industry with information to best utilize these resources. Regular sampling of industrial fish populations is conducted in selected representative coastal waters with 16 trawls. Weekly plankton samples with plankton nets are collected at selected passes into the estuaries to determine influx of larval fishes. Salinity, water temperature and tidal movements are recorded at all sampling stations. Monthly random samples are collected from industrial fish vessels for species composition.

Seasonal and areal distribution patterns have been developed for juvenile fish from the Louisiana estuaries. Studies indicate that the industrial fish catch for food consists primarily of croaker.

Louisiana State Wildlife and Fish Commission, 400 Royal St. Wildlife and Fisheries Building, New Orleans, Louisiana 70130. Funded by: Commerce Department, National Oceanic and Atmospheric Administration, National Marine Fisheries Service. 7/72 - 6/73.

F. O. Dunham.

00043

Survey stations for oyster leases.

To establish survey stations for locating oyster leases.

Louisiana Wildlife and Fisheries Comm. Funded by: Louisiana Wildlife and Fisheries Comm. U. S. Department of Commerce, National Oceanic and Atmospheric Administration, Natural Marine Fisheries Service.

J. Lay.

00044

Investigations of commercially important penaeid shrimp in Louisiana's estuaries.

The technical objectives are 1) to study factors that cause seasonal fluctuations and abundances in white and brown shrimp populations, 2) to determine how changes in the estuarine environment affect continued production, 3) to determine environmental conditions affecting annual shrimp production, and 4) to improve management programs and the regulation of this resource.

Seasonal and real distribution patterns have been developed for brown and white shrimp. Management procedures have been implemented in the way of special seasons to properly utilize the resource.

Louisiana State Wildlife and Fish Comm., 400 Royal St., Wildlife and Fisheries Building, New Orleans, Louisiana 70130. Funded by: Commerce Department, National Oceanic and Atmospheric Administration, National Marine Fisheries Service. 7/72 - 6/73.

W. J. Gaidry.

00045

Experiments to re-establish historical oyster seed grounds and to control the southern oyster grill.

The objectives are: 1) to determine through cultch plantings which areas are suitable for re-establishing pre-existing oyster seed grounds, 2) to determine a feasible method of controlling the intrusion of the southern oyster drill in areas east of the Mississippi River.

Seasonal salinity data has been developed for most of the oyster producing areas east of the Mississippi River. Clam shells have been found to be the most economical known cultch material for oyster production in Louisiana. Butler plates have proven very efficient in the determination of periods of greatest spat fall. Louisiana State Wildlife and Fish Comm. 400 Royal St. Wildlife and Fisheries Building, New Orleans, Louisiana 70130. Funded by:

Commerce Department, National Oceanic and Atmospheric Administration National Marine Fisheries Service. 7/72 - 6/73.

J. F. Polland.

00046

An inventory and study of the Vermilion Bay - Atchafalaya Bay Estuarine Complex.

The technical objectives are to determine: 1) the species composition, distribution, and relative abundance of commercially important organisms; 2) the relations between fauna and the environment; and 3) the distribution pattern of sediments in the Vermilion-Atchafalaya Bay estuarine system.

Louisiana State Wildlife and Fish Comm., 400 Royal St., Wildlife and Fisheries Building, New Orleans, Louisiana 70130. Funded by: U. S. Department of Commerce, National Oceanic and Atmospheric Administration, National Marine Fisheries Service. 7/72 - 6/73.

D. A. Neal.

00047

Biology of Louisiana's estuaries.

The objectives are: 1) to determine the major commercial species of aquatic fauna and their respective nursery areas, seasonal distribution and utilization, 2) to determine the postlarval, juvenile and overwintering populations of shrimp as related to seasonal and environmental conditions, 3) to determine the value of harvested species in or resulting from estuaries, 4) to determine the correlation between hydrological characteristics and relative abundance of primary commercial organisms, 5) to determine the type and distribution of aquatic vegetation, 6) to develop data for the biology of estuaries of Louisiana to be available for inclusion in an atlas of the Gulf of Mexico estuaries in cooperation with the other states of the Gulf States Marine Fisheries Commission and the Bureau of Commercial Fisheries.

Louisiana Wildlife and Fish Comm., 400 Royal Street, New Orleans, Louisiana 70130. Funded by: Commerce Department, National Oceanic and Atmospheric Administration, National Marine Fisheries Service.

W. S. Perret.

00048

A study of coliform bacteria and Escherichia coli on polluted and unpolluted oyster bottoms of Mississippi.

The objectives of this study are: 1) to establish a regular sampling program on transects across Mississippi Sound and extending from fresh water to the Gulf of Mexico and on selected polluted and unpolluted oyster reefs, 2) to perfect technique for collecting comparable samples, 3) to complete bacterial analyses of collected samples, 4) to compare the bacterial flora from polluted and unpolluted areas of Mississippi Sound and adjacent waters, especially as it related to sewage polluted oyster beds.

Mississippi State Marine Conserv. Comm., Ocean Springs, Mississippi 39564.  
Funded by: Commerce Department, National Oceanic and Atmospheric Administration, National Marine Fisheries Service.

G. Gunter.

00049

Underwater reconnaissance vehicle design.

The objective of this study is to develop a remote underwater fisheries assessment system capable of locating new sea bottom (shellfish and other) resources at depths up to 400 fathoms. 2) to develop seafood and other marine industries as they relate to the economy of the Gulf Coast region. Also, information will be used by the National Marine Fisheries Service in their comprehensive program to assess the living marine resources of the Continental Shelf and Slope of the Gulf of Mexico, Southwestern North Atlantic, and Caribbean Sea.

For additional information pertaining to this project contact Drawer, AG, Ocean Springs, Mississippi 39564.

Mississippi State University, School of Engineering, Site 101, Engineering Building, State College, Mississippi 39762. Funded by: Commerce Department, National Oceanic and Atmospheric Administration, Sea Grant Office.

J. Thomas, Benton.

00050

Utilization of conservation of the Mississippi coastal zone.

The objective of this program is its intelligent exploitation of marine resources in equipoise with conservation of the environment; to provide technical data and recommendations based on this data to Mississippi agencies and officials of Mississippi to enable intelligent use of that state's marine resources.

The four part theme includes marine and coastal law; prediction of ecological alterations caused by pollutants; fisheries development; and marine problems as they relate to industrial, social, and political development of the Gulf Coast Region.

Mississippi State University, Graduate School, 113 Hilbun Hall, State College, Mississippi 39762. Funded by: Commerce Department, National Oceanic and Atmospheric Administration, Sea Grant Office. 7/71-6/72.

S. Upham.

00051

Estuarine pipeline canals.

The objectives of this project are (1) to determine the suitability of estuarine pipeline canals as impoundments for culture of channel catfish, pompano, and shrimp and (2) to identify environmental management practices that can increase biological productivity of estuarine pipeline canals, thus compensating for productive marshlands destroyed when canals are dug. Approximately 4,000 acres of Louisiana's estuarine marshes are destroyed annually by canal dredging activities. Biological data, production statistics, and management practices resulting from this study will enable assessment of risks and benefits associated with similar ventures on a larger scale. At the conclusion of the 2 year study, a detailed ecological management plan will be developed for the network of closed canals located on property of the Louisiana Land and Exploration Company, a participating commercial sponsor, which will enable this organization to implement a pilot demonstration project. Features of this plan will probably include water control structures and operating guidelines that respond to the physiological needs of natural species as those to be cultured. Plans for the future contemplate follow-up liason with the landowner and open dissemination of demonstration project results to other operators with similar resource problems.

Nicholls State University, Graduate School, Thibodaux, Louisiana 70301. Funded by: Commerce Department, National Oceanic and Atmospheric Administration, Sea Grant Office. 8/72 - 7/73.

A. Harris. R. Kilgen.

00052

Aquaculture and resource utilization studies in estuarine oil pipeline canals in Louisiana.

Mariculture of shrimp and catfish in brackish water pipeline canals. Management of pipeline canals in estuarine marshes for greatest biological productivity.

Nicholls State University, Department of Biological Sciences, Thibodaux Louisiana 70301. U. S. Department of Commerce, National Sea Grant Program, National Oceanic and Atmospheric Administration.

A. H. Harris. R. Kilgen.

00053

Experimental production and control of microsporidiosis in commercial shrimp.

The objective is biological understanding of microsporidiosis, or "cotton shrimp," a lethal epidemic disease of commercial shrimp in the Gulf of Mexico and southeastern Atlantic Ocean. It is presumably transmitted directly from shrimp to shrimp and thus could be a devastating disease under crowded conditions of pond culture.

Previous work encompassed 4 major areas: (1) the biology of the parasite; 2) histo-pathological effect of the parasite on shrimp; 3) quantitative measurements of the effects of parasitism on the physiology, behavior, and longevity of shrimp and 4) the nature, cause, and function of the abnormal production of intense blue-black pigment by parasitized shrimp. Results of these studies dictate that the objectives of the proposed project will be to determine conclusively the method of transmission of microsporidiosis in commercial shrimp, to produce large numbers of infected shrimp, and to subsequently develop methods to control the disease.

Accomplishments during past 12 months: 1) screening of brown and white shrimp (Penaeus aztecus and P. setiferus) for incidence of microsporidiosis revealed infections by 3 other parasites; Plistophora penaei, Nemotopsis sp., and Thelohania penaei. 2) conditions under which microsporidiosis can be produced experimentally were identified.

For additional information pertaining to this project contact Dr. Jack R. Van Lopik, Director, Sea Grant Program, Louisiana State University, Baton Rouge, Louisiana 70803.

Northwestern State College of Louisiana, School of Sciences, Natchitoches, Louisiana 71457. Funded by: Commerce Department.

00054

Structure and development of oyster reefs off the Suwanee River Delta, Florida.

State University of New York, Graduate School, Vestal Parkway, Binghamton, N. Y. 13901. Funded by: Society of the Sigma XI. 7/72 - 6/73.

R. S. Ginnell.

00055

Effects of packaging on fresh fish.

Texas A & M University, Office of University Research, College Station, Texas 77843. Funded by: U. S. Department of Commerce, National Oceanic and Atmospheric Administration.

B. F. Cobb.

00056

Evaluation potential: Fisheries of underutilized finfish species.

Texas A & M University, Office of University Research, College Station, Texas 77843. Funded by: U. S. Department of Commerce. National Oceanic and Atmospheric Administration.

J. G. Teer.

00057

Market evaluation of selected species of the western Gulf of Mexico.

Economic and marketing problems in the shrimp and finfish industry.

The objective is to evaluate the potential for economic utilization of finfish species caught incident to shrimp trawling. Research is being conducted in 2 areas; 1) an evaluation of markets available for utilization of these fish, and 2) an evaluation of the cost structure of proposed systems for storing, handling and delivering these fish to a demand point. Research completed on 1) above and publication in progress.

Texas A & M University, Department of Agricultural Economics, Sea Grant Program. Funded by: U. S. Department of Commerce, National Oceanic and Atmospheric Administration, Office of Sea Grant. Spetember 1972 - August 1974.

Dr. John Nichols.

Publications: Blomo, V. J. and J. P. Nichols. Utilization of finfishes caught incidental to shrimp trawling in the Western Gulf of Mexico. Part I: Evaluation of Markets. Publication in progress. Texas A & M University, College Station, Texas.

Blomo, V. J. and J. P. Nichols. Price - landings relationships for Texas finfish: An Harmonic Analysis. Paper presented at 1974 annual meeting. Southern Agricultural Economics Assoc. Memphis, Tennessee. February 1974.

00058

An economic appraisal of the Gulf of Mexico Shrimp Fishery.

Technical objective: to analyze available shrimp data from the period 1956 - 1971 to ascertain: (a) a meaningful index of fishing effort to include a consideration of number of vessels and various measures of vessel fishing power (horsepower, length, tonnage, number of nets) as well as days fished, (b) if possible, geographic parameters of biological autonomous grounds, (c) the relationship of inshore commercial shrimping to offshore commercial shrimping grounds over time, (d) time-series (trend, cycle, seasonal and unexplained) relationships for the grounds with regard to: (1) number of vessels, (2) fishing power of vessels, (3) time spent on grounds, (4) total effort, (5) catch by size, (6) catch by species, (7) total catch, (8) catch per unit of effort (abundance); to identify a current optimum vessel configuration for the firm and test the sensitivity of the current optimum vessel to alternative fishery, institutional and pricing conditions.

Approach is initially the data will be analyzed to obtain a measure of shrimping effort. Using the maximum likelihood method for estimating "days on grounds" and an index of fishing power, an index of effort will be developed and catch per unit of effort will be used as an indication of abundance. Tagging data will be examined to determine migration patterns. The delphi method will be used to identify major shrimp grounds and the nursery areas where shrimp on the grounds are generated. Cost and return data used in conjunction with catch per unit of effort will be organized to evaluate returns above costs by vessel classification.

Texas A & M University System, Agricultural Experiment Station, College Station, Texas 77843. Funded by: U. S. Department of Commerce, National Oceanic and Atmospheric Administration, National Marine Fisheries Service. 7/72 - 6/73.

R. Lacewell.

00059

Fisheries products and pond reared shrimp -- processing, sanitary quality, shelf life, new product development.

Texas A & M University, Office of University Research, College Station, Texas 77843. Funded by: U. S. Department of Commerce, National Oceanic and Atmospheric Administration.

C. Vanderzant.

00060

Market evaluation of selected finfish species.



Texas A & M University, Office of University Research, College Station, Texas 77843. Funded by: U. S. Department of Commerce, National Oceanic and Atmospheric Administration.

J. R. Nichols.

00061

Factors affecting at-sea storage and subsequent utilization of fishery products.

Texas A & M University, Office of University Research, College Station, Texas 77843. Funded by: U. S. Department of Commerce, National Oceanic and Atmospheric Administration.

B. F. Cobb.

00062

Teaching and course development in fisheries.

Texas A & M University, Office of University Research, College Station, Texas 77843. Funded by: U. S. Department of Commerce. National Oceanic and Atmospheric Administration.

R. L. Noble.

00063

An economic appraisal of the Gulf of Mexico shrimp.

Texas A & M University, Office of University Research, College Station, Texas 77843. Funded by: U. S. Department of Commerce, National Oceanic and Atmospheric Administration.

R. Lacewell.

00064

Selected market evaluation for Texas underutilized fish species.

Texas A & M University, Office of University Research, College Station, Texas 77843. Funded by: U. S. Department of Commerce, National Oceanic and Atmospheric Administration.

J. R. Nichols.

00065

Fishery product processing.

Texas A & M University, Office of University Research, College Station, Texas 77843. Funded by: U. S. Department of Commerce, National Oceanic and Atmospheric Administration.

C. Vanderzant.

00066

Estimation of Texas underutilized fish species resource.

Texas A & M University, Office of University Research, College Station, Texas 77843. Funded by: U. S. Department of Commerce, National Oceanic and Atmospheric Administration.

J. G. Teer.

00067

Marine Fisheries and seafood tech.

Texas A & M University, Office of University Research, College Station, Texas 77843. Funded by: U. S. Department of Commerce, National Oceanic and Atmospheric Administration.

W. G. Klussman.

00068

H.E.W. *Vibrio parahaemolyticus* and shellfish sanitation.

Texas A & M University, Office of University Research, College Station, Texas 77843. Funded by: U. S. Department of Health, Education and Welfare.

E. Vanderzant.

00069

Diagnosis and treatment of shrimp/diseases/ponds.

Texas A & M University, Office of University Research, College Station, Texas 77843. Funded by: U. S. Department of Commerce, National Oceanic and Atmospheric Administration.

S. K. Johnson.

00070

Microbial diseases of pond reared shrimp.

Texas A & M University, Office of University Research, College Station, Texas 77843. Funded by: U. S. Department of Commerce, National Oceanic and Atmospheric Administration.

D. H. Lewis.

00071

Shrimp pond culture.

Texas A & M University, Office of University Research, College Station, Texas 77843. Funded by: U. S. Department of Commerce, National Oceanic and Atmospheric Administration.

J. C. Parker.

00072

Diagnosis and treatment of shrimp diseases in ponds.

Texas A & M University, Office of University Research, College Station, Texas 77843. Funded by: U. S. Department of Commerce. National Oceanic and Atmospheric Administration.

S. Johnson.

00073

Sanitary quality and shelf life.

Texas A & M University, Office of University Research, College Station, Texas 77843. Funded by: U. S. Department of Commerce, National Oceanic and Atmospheric Administration.

C. Vanderzant.

00074

American Petroleum Institute. Oyster field study.

Texas A & M University, Office of University Research, College Station, Texas 77843. Funded by: American Petroleum Institute.

Jack Anderson.

00075

Postmortem characteristics and biochemical properties affecting organoleptic quality of fish muscle.

The objective of this study is to determine the physical historical, biochemical and organoleptic properties of fish and shellfish from the Gulf of Mexico as influenced by ante-mortem handling, storage and environmental variations. Fish samples will be obtained for establishment of normal conditions of muscle tissue. Findings will influence new methods of handling for possible preservation of desirable organoleptic properties. A procedure for making a hot solvent extracted fish protein concentrate with functional properties has been developed. Trimethylamine oxide content of many Gulf fishes have been developed. Trimethylamine oxide content of many Gulf fishes have been measured. Biochemical changes in shrimp caused by different microorganisms have been measured, (joint project on 4012 and 4013). The usefulness of total volatile nitrogen as a spoilage indicator has been determined. The effects of feeding mercury-contaminated fish to rats have been investigated. Losses during processing of nitrogenous compounds from shrimp in various stages of preservation are being measured. The enzyme system responsible for organoleptic quality deterioration in shrimp has been found.

Texas A & M University System, Agricultural Experiment Station. College Station, Texas 77843. Funded by: Texas State Government.

B. F. Cobb, Z. L. Carpenter.

00076

Investment - financial analysis for the shrimp fishing firm.

The objectives of this study are to design optimal strategies for capital investments by shrimp fishing firms, including the acquisition of fishing vessels; to refine these strategies to the point that they have broad applicability to shrimp fishing firms in the Texas Gulf Coast: to demonstrate the profitability of such strategies to shrimp fishing firms and suppliers of equipment and to make the strategies available to the shrimp firms based on their individual situations as an advisory service on a continuing basis.

Accomplishments include: implementation of economical computer methods for determining optimal investment and financial strategies when only integral boats of any one type may be purchased. Demonstrations of the profitability of such strategies to shrimp firms and fishing equipment suppliers through a number of individual and group meetings with shrimpers, mostly through local, state, and national shrimp associations. Acquisition of performance data on vessels of different types and sizes and determination of optimal strategies for shrimpers using equipment.

For additional information pertaining to this project contact Dr. Robert C. Stephenson, Director, Center for Marine Resources, Texas A & M University, College Station, Texas 77843.

Texas A & M University System, Institute of Statistics, College Station, Texas 77843. Funded by: Commerce Department, National Oceanic and Atmospheric Administration, Sea Grant Office. 6/72 - 5/73.

R. Wilson.

00077

Pilot study of distribution activities and merchandising practices of the seafood industry in the Texas Gulf Coast region.

The objectives of this study are to assess the attitudes of retail meat cutters toward fresh seafood products, to evaluate and suggest remedies to problem areas affecting trade channels of fresh finfish taken from Texas Gulf Coast, to determine feasibility of promoting fresh seafood in a retail seafood market.

This information has direct application 1) Texas Parks and Wildlife Dept.; 2) National Marine Fisheries Service - Marketing Research Division; and 3) State and National seafood trade associations (e.g. National Marine Fisheries) for assessment and development of policies and strategies to foster and maintain positive attributes of the marketing of seafood and to improve upon problem areas currently afflicting the marketing of these commodities.

Accomplishments include 1) completion of initial investigation of trade channels utilized in the marketing of fresh finfish taken from Gulf Coast. 2) Completion of pilot study with local supermarket chain in merchandising fresh seafood 3) presentations on retail merchandising study to: (a) Sept. 1971 - National Fisheries Institute, Chicago, Ill. (b) Feb. 1972 - Association of Southern Agricultural Worker, Food Technology Section, Richmond, Virginia (c) April 1972 - Southwestern Social Science Association, Marketing Section, San Antonio, Texas. For additional information pertaining to this project contact Dr. Robert C. Stephenson, Director, Center for Marine Resources, Texas A & M University, College Station, Texas 77843.

Texas A & M University System, School of Business Administration, College Station, Texas 77843. Funded by: Commerce Department, National Oceanic and Atmospheric Administration, Sea Grant Office.

S. M. Gillespie.

00078

Engineering design of mariculture products units.

Texas A & M University, Office of University Research, College Station, Texas 77843. Funded by: U. S. Department of Commerce, National Oceanic and Atmospheric Administration.

C. G. Goble.

00079

Estimating the impact of commercial shrimp landings on the economy of Texas and selected coastal counties.

The local and statewide impact from shrimp production will be estimated through multipliers analysis. The objectives are to: 1) estimate the total value of commercial shrimp landed in Texas and within each Gulf coast county in Texas, 2) estimate the income generated from commercial shrimp landings in Texas and within each Gulf Coast county in Texas. Results will be published in the latter part of 1974.

Texas A & M University, Texas Agricultural Experiment Station. Funded by: U. S. Department of Commerce, National Oceanic and Atmospheric Administration, Sea Grant Program. November 1973 - August 1974.

W. Griffin, J. Adams.

00080

Mariculture of commercial crustaceans and fishes on the upper Texas coast.

The objective of this study is to determine the potential for use of waste heat from power plants to maximize growth, food-conversion, and survival rates of commercially valuable fishery species in mariculture. Brown and white shrimp, blue crabs, striped mullet, and pompano examined in various salinities and temperatures with controlled photoperiods. Results will suggest conditions to be tested further under semi-controlled conditions in experimental ponds utilizing waste heat from a power plant.

Texas A & M University System, Agricultural Experiment Station, College Station, Texas 77843. Funded by: Texas State Government. 7/72 - 6/73.

R. K. Strawn, D. V. Aldrich.

00081

Mariculture of commercial crustaceans and fishes on the upper Texas coast.

The objective of this study is to provide data for the commercial culture of marine organisms at electric generating stations on the Texas coast. Most of our research results also will be valuable to mariculturalists not using heated water in areas other than Texas.

Determinations made were: 1) growth rate of juvenile blue crabs was highest at 29 - 30 degrees C, 2) summer temperatures of power plant discharges are too high for blue crab cultures, 3) a salinity of 1 percent proved lethal to small blue crabs indicating that caution should be exercised when stocking at low salinities, 4) Pompano (*Oachinotus carelinus*) and finfish (*Lagoden rhomboides*) prospered in cage culture experiments in power plant intake canal. For additional information pertaining to this project contact Dr. Robert C. Stephenson, Director, Center for Marine Resources, Texas A & M University, College Station, Texas 77843.

Texas A & M University System, School of Agriculture, College Station, Texas 77843. Funded by: Commerce Department, National Oceanic and Atmospheric Administration, Sea Grant Office. 6/72 - 5/73.

R. K. Strawn, D. V. Aldrich.

00082

Acoustical detection of marine organisms.

Objectives are to: 1) produce a library of marine animal sounds from the Texas Coast, 2) pursue and perfect techniques for utilizing underwater habitats as based for bio-acoustical investigations, 3) define aspects of the acoustical behavior of certain dominant sound producers (particularly members of the family Holocentridae), 4) define relationship of sound production to feeding behavior of certain predaceous and grazing fishes.

Information will be used: 1) ultimately, in the production of an instructive bulletin for laymen which will enable them to interpret sounds detected on reefs and other fishing grounds; 2) in relating sound production patterns to distribution and behavior of sport and commercial fishes frequenting hard bottom marine habitats.

For additional information pertaining to this project contact Dr. Robert C. Stephenson, Director, Center for Marine Resources, Texas A & M University, College Station, Texas 77843.

Texas A & M University System, School of Science, College Station, Texas 77843. Funded by: Commerce Department, National Oceanic and Atmospheric Administration, Sea Grant Office. 6/72 - 5/73.

T. J. Bright.

00083

Techniques for evaluating the effects of water resources development on estuarine environments.

This research project is designed to develop and test quantitative techniques (comprised of manual and computerized methods) for identifying and evaluating the effects of single basin, or multibasin, water resources development and management on the associated estuarine ecosystem. A major river-estuary system of the State of Texas will be used as an example problem to assess the utility and veracity of the techniques developed.

The methodology to be used will consist of adapting and refining existing systems deration and ecological models for application to an entire river basin-estuary system in an integrated and interactive mode. The development, management, and operation of alternative water resources system plans can

be simulated to determine the effects of changing the quantity and seasonal distribution of fresh water inflows and associated nutrients on an estuarine ecosystem. The ecological models used will be "key" species models that will not attempt to model all of the myriad ecological interactions, but rather will simulate the activities of important links in the food chain and the commercially and recreationally important estuarine species. These efforts on these organisms can then be analyzed and grossly categorized as beneficial, detrimental, or of no significance.

The planning technique is accomplished in 3 steps: 1) simulation of the river basin or multi-river basin system to determine the quantity, quality, and seasonal distribution of estuarine inflows, 2) simulation of the response of the estuarine hydrodynamics, water quality, and ecology to these inflows; and 3) evaluation and analysis of the simulation results followed by additional simulations of alternative development and management policies, as required.

Texas State Water Development Board, Capital Station, Austin, Texas 78711.  
Funded by: Interior Department, Office of Water Resources Res.

W. A. White, J. C. Nelson, L. F. Tischler.

00084

Northwestern Gulf of Mexico Marine Fisheries investigation Study No.

The technical objective is 1) to determine the seasonal, location, population and size composition and abundance of the commercial species of reef fish along the Texas Gulf Coast; 2) to determine the seasonal location, population and size composition and abundance of the commercial and potentially commercial species of midwater fish along the Texas Gulf Coast; 3) to determine the seasonal location, population and size composition and abundance of the commercial shrimp along the Texas coast; 4) to work up all field data and prepare a final report covering all 3 segments of the 3-year project.

Texas State Parks and Wildlife Department, John H. Reagan State Office, Austin, Texas 78701. Funded by: Commerce Department, National Oceanic and Atmospheric Administration, National Marine Fisheries Service. 7/72 - 6/73.

E. Bradley.

00085

Ecological changes associated with the industrialization of Cedar Bayou and Trinity Bay, Texas.



Work will consist of ecological surveys of 2 estuaries of the Galveston Bay System where industrial habitat modifications have occurred. Location of the study is Cedar Bayou, a brackish stream which empties into upper Galveston Bay near Baytown, and Trinity Bay in the vicinity of Point Barrow, approximately 7 miles northeast from Baytown. The objectives of the study are to determine what effects various projects involving environmental alterations have on the fishery ecology of the estuaries, and to determine and recommend procedures to minimize harmful effects for the purpose of maintaining suitable fisheries habitat.

Samples of aquatic organisms and associated water quality will be evaluated before and after environmental alterations resulting from the construction of a steel plant, power generating station, and stream channelization.

Texas State Parks and Wildlife Department, John H. Reagan, State Office, Austin, Texas 78701. Funded by: Commerce Department, National Oceanic and Atmospheric Administration, National Marine Fisheries Service. 7/72 - 6/73.

R. B. Johnson.

00086

Salt water pond research study No. 2.

Technical objectives are to evaluate experimental feeds and determine the optimum feed levels for shrimp reared in salt water ponds; to establish a method of estimating population numbers of shrimp after stocking; to establish managerial techniques for raising shrimp in ponds; to study the feasibility of stocking shrimp in ponds during fall and winter for off season sale as bait shrimp; to evaluate disease resistance of oyster (Crassostrea virginica) stocks collected from several Texas bays, to develop techniques essential for the propagation of redfish (Sciaenops ocellatus) and spotted seatrout (Cynoscion nebulosus); to determine survival of spotted seatrout (C. nebulosus) and black drum (Pogonias cromis) released after capture with various types of fishing gear; to determine relationship between species mortality and seasonal changes.

Texas State Parks and Wildlife Department, John H. Reagan State Office, Austin, Texas 78701. Funded by: Commerce Department, National Oceanic and Atmospheric Administration, National Marine Fisheries Service. 7/72 - 6/73.

L. L. Elam.

00087

Fishery survey of Cedar Lakes and the Brazos and San Bernard estuaries Texas.

Technical objective: investigate the biota of the estuaries under study; determine the map nursery habitat; determine the effects of man-made changes on fisheries habitat.

Texas State Parks and Wildlife Department, John H. Reagan State Office, Austin, Texas 78701. Funded by; Commerce Department, National Oceanic and Atmospheric Administration, National Marine Fisheries Service. 7/72 - 6/73.

R. Johnson.

00088

Northwestern Gulf of Mexico Marine Fisheries investigation study No.

The technical objective is 1) to determine the seasonal, location, population and size composition and abundance of the commercial species of reef fish along the Texas Gulf Coast; 2) to determine the seasonal location, population and size composition and abundance of the commercial and potentially commercial species of midwater fish along the Texas Gulf Coast; 3) to determine the seasonal location, population and size composition and abundance of the commercial shrimp along the Texas coast; 4) to work up all field data and prepare a final report covering all 3 segments of the 3-year project.

Texas State Parks and Wildlife Department, John H. Reagan State Office, Austin, Texas 78701. Funded by: Commerce Department, National Oceanic and Atmospheric Administration, National Marine Fisheries Service. 7/72 - 6/73.

E. Bradley.

00089

Project CE 1-5. A fishery evaluation of the Aransas Bay Area.

Fin fish populations and environmental conditions of the Aransas Bay system.

This survey will provide information on population structures and catch statistics which can be used to estimate the influence of commercial and sport fisheries on the populations of finfish in the Aransas Bay system. The general objectives are to determine the ratio of fish species, relative abundance and size structure of resident populations; to survey the commercial fish catch for the species, size and method of catch and catch per effort; to survey the sport fishery catch for same; to formulate and prepare management recommendations; and to evaluate sampling methods for juvenile and adult fish species.

Texas Parks and Wildlife Department. Funded by: Texas Parks and Wildlife State. Fund #9. January 1974 - December 1974.

Project report - Texas Parks and Wildlife Department. Coastal Fisheries 1974. T. L. Heffernan.

00090

Study of commercial shrimp rock shrimp, and potential commercial finfish of the shallow Gulf of Mexico off the State of Texas.

Commercial shrimp (Penaeus aztecus and P. setiferus), rock shrimp (Sicyonia brevirostris), and potentially commercial finfish off the Texas coast.

The purpose of this study is to:

- 1) determine the extent of the white shrimp (Penaeus setiferus) spawning grounds and percentage of gravid shrimp within the population.
- 2) document shrimp sizes, the percentage of undercount individuals and the amount and types of fish captured by the commercial shrimping fleet on the brown shrimp (Penaeus aztecus) fishing grounds.
- 3) obtain and compare catch ratios of fish and shrimp caught by different types of trawls.
- 4) delineate the areas of abundance of the rock shrimp (Sicyonia brevirostris), and evaluate their fishery potential.

Texas Parks and Wildlife Department. Funded by: State of Texas, U. S. Department of Commerce, National Oceanic and Atmospheric Administration, NMFS, Division of Federal Aid. 4/73 - 3/75.

C. E. Bryan III, T. J. Cody.

00091

Study of commercial shrimp, rock shrimp and potential commercial finfish.

The technical objective of this study: to determine the extent of white shrimp (Penaeus setiferus) spawning grounds and percentage of gravid shrimp within the population, study movements and growth rates of young shrimp after they enter the Gulf of Mexico from the estuaries, document shrimp sizes, and percentage of undercount individuals and the amount and types of fish captured by the commercial shrimping fleet on the brown shrimp (Penaeus aztecus) fishing grounds, obtain and compare catch ratios of fish and shrimp caught by different types of trawls in the brown shrimp fishery, delineate the areas of abundance of the rock shrimp (Sicyonia brevirostris) and evaluate their fishery potential.

Texas State Parks and Wildlife Department. John H. Reagan State Office, Austin, Texas 78701. Funded by: Commerce Department, National Oceanic and Atmospheric Administration, National Marine Fisheries Service. 7/72 - 6/73.

C. E. Bryan.

00092

Biology and ecology of estuaries.

Objective is to obtain an understanding of the effects of coastal development on marine fisheries resources by the following studies:

1) benthic study includes analyses of the sediments and descriptions of benthos. 2) inventory includes maps, tables, and text-figures on dimensions of estuaries, pollution, hydrology, all living resources and sediments; 3) eggs and larvae obtained monthly to 15 miles offshore and in Tampa Bay, and quarterly to 100 miles offshore from Clearwater to Naples, about 150 miles; 4) colonization studies for 1 year by monthly sampling of benthos, fishes, and water quality, and semiannual sampling of sediments.

U. S. Department of Commerce, National Oceanic and Atmospheric Administration, Marine Fisheries Service, Biological Laboratory, 75 33 Ave., Saint Petersburg, Florida. 33706. Self funding.

J. L. Taylor.

00093

GC-03 shrimp.

U. S. Department of Commerce, National Oceanic and Atmospheric Administration, National Marine Fisheries Center. Southeast Fisheries Center, Miami, Florida, Gulf Coastal Fisheries Center, Galveston, Texas. Federal funds to National Marine Fisheries Service.

H. Bullis, (Southeast Fisheries Center). R. F. Temple, (Gulf Coastal Fisheries Center).

00094

Impact of environmental changes, Gulf Coastal Fisheries Center.

Environmental changes and their effects.

U. S. Department of Commerce, National Oceanic and Atmospheric Administration, National Marine Fisheries Center. Gulf Coastal Fisheries Center, Panama City Laboratory, Panama City, Florida. Self funded.

J. K. McNulty.

00095

GC-04 Impact of environmental changes, Gulf of Mexico.

U. S. Department of Commerce, National Oceanic and Atmospheric Administration, National Marine Fisheries Center, Southeast Fisheries Center, Miami, Florida. Gulf Coastal Fisheries Center, Galveston, Texas. Self funded.

H. Bullis, (Southeast Fisheries Center). R. F. Temple, (Gulf Coastal Fisheries Center).

00096

SE-05 Fishery technology: data analysis systems development.

U. S. Department of Commerce, National Oceanic and Atmospheric Administration, National Marine Fisheries Service. Funded by: U. S. Department of Commerce, National Oceanic and Atmospheric Administration, NMFS.

H. Bullis, (Southeast Fisheries Center). F. Temple, (Gulf Coastal Fisheries Center).

00097

Adult Atlantic and Gulf menhaden abundance and migrations.

Technical objective: to analyze and evaluate the procedures and factors affecting tagging of adult menhaden along the Atlantic and Gulf of Mexico coasts to determine which tags can be used to give the best estimates of survival, exploitation and mortality rates.

Using a discriminant function computer program, factors such as tagging area, tagger, holding time, water temperature, and condition of fish are being analyzed to determine the level of significance each of these factors has on the percentage of tag returns.

U. S. Department of Commerce, National Oceanic and Atmospheric Administration, National Marine Fisheries Service, Mid Atlantic menhaden migrations, population structure, availability and survival and exploitation rates as indicated from tag returns through 1969 has been accomplished.

00098

Juvenile Atlantic and Gulf menhaden abundance and migration.

Technical objective is to define the established methods of estimating juvenile abundance indexes of Atlantic and Gulf menhaden in estuaries so as to 1) determine the production of juveniles in large estuaries and their recruitment in later years to purse seine fishery and 2) determine migrations of tagged juvenile menhaden.

Results indicate that 1) juvenile fish from New England and mid-Atlantic waters migrate in the fall and early winter southward to the South Atlantic area where they overwinter 2) in the spring these plus fish from the South Atlantic, now 1-year-old, distribute themselves in the waters from Florida to Delaware and contribute to purse seine landings. In the Gulf menhaden fishery, recovery of tags during the 1971 - 1972 fishery season reveals 1) tags recovered at all reduction plants 2) most recoveries are from fish marked from estuaries within the fishing grounds off Ala., Miss., Texas and La. and 3) marked fish from as far as Brownsville, Texas have been recovered in the catches made off Western Louisiana.

U. S. Department of Commerce, National Oceanic and Atmospheric Administration, National Marine Fisheries Service, Mid-Atlantic Ctl. Fish Res. Ctr. Beaufort, North Carolina 28516. 7/72 - 6/73. Self funding.

R. L. Kroger, J. F. Guthrie, R. L. Whitfield.

00099

Biology, population dynamics-shrimp.

Technical objective is to develop systems models of Gulf of Mexico shrimp population dynamics for use in prediction and resource management. Determine stock identities, population densities, and rates of survival, growth, and migration in estuarine areas and offshore grounds. Obtain environmental data essential to development of the models.

U. S. Department of Commerce, National Oceanic and Atmospheric Administration, National Marine Fisheries Service, Galveston Laboratory, 4700 Avenue U., Galveston, Texas 77550. Self funding. 7/72 - 6/73.

C. W. Caillouet, J. R. Grady, K. T. Marvin, K. N. Baxter.

00100

Biology and ecology of estuaries.

Technical objectives are to describe effects of man-made changes in the coastal zone on marine fisheries resources by studying and comparing the biology, sedimentology, and water chemistry of altered and unaltered coastal aquatic environments.

Progress includes 1) prepared for publication descriptions of dimensions, hydrology, vegetation, oystering, dredging and filling, and other features of the Gulf of Mexico estuaries of Florida and Texas, 2) described warm-weather depletion of dissolved oxygen in bottom water of newly-dredged canals off Tampa Bay, correlating the depletion with paucity of fishes, 3) water quality monitoring provided the only existing long-term data of its kind demonstrating eutrophication of Tampa Bay, 4) discovery of abundance of mollusks of Old Tampa Bay provided new evidence of eutrophy there, 5) pioneer studies demonstrated seasonal and geographical

features of fish spawning in coastal areas of central and south Florida. 6) collected base line data on the biology and physical environment of the inshore Gulf of Mexico with which to evaluate effects of offshore dredging for restoration of beaches in Pinellas County, Florida, 7) evaluated the effects of fresh-water supply on marine fisheries of south Florida.

U. S. Department of Commerce, National Oceanic and Atmospheric Administration, National Marine Fisheries Service, St. Petersburg Beach Lab., 73 33rd Avenue, St. Petersburg, Florida 33706. Self funded.

J. H. Finucane.

00101

Shrimp aquaculture.

U. S. Department of Commerce, National Oceanic and Atmospheric Administration, National Marine Fisheries Service, Gulf Coastal Fisheries Center. Funded by: U. S. Department of Commerce, National Oceanic and Atmospheric Administration. Through 1975.

R. A. Neal.

00102

GC-02 Fishery analysis, shrimp, Northern Gulf of Mexico.

Shrimp population dynamics.

NMFS Southeast Fisheries Center, Miami, Florida. Funded by: Gulf Coastal Fisheries Center, Galveston, Texas. Federal funds to NMFS.

Mr. Harvey Bullis, Director Southeast Fisheries Center. Mr. Robert F. Temple, Acting Director, Gulf Coastal Fisheries Center. Dr. Charles W. Caillouet, Gulf Coastal Fisheries Center.

00103

Striped bass rearing and stocking program - Mississippi.

Feasibility of rearing striped bass in an artificial environment for stocking into local waters to rebuild a striped bass fishery for both sports and commercial fishermen.

U. S. Department of Commerce, National Oceanic and Atmospheric Administration, National Marine Fisheries Service, U. S. Department of Interior, Bureau of Sport Fisheries and Wildlife. State of Mississippi. No funding agency.

Annual completion reports of project activity. NMFS Regional office, St. Petersburg Florida. McIlwain, T. D. 1967. Distribution of the Striped Bass, Roccus saxatilis, in Mississippi waters. Proc. 21st Ann. Conf. S.E. Assoc. Game and Fish Comm. p, 254-257.

00104

Contaminants and fishery products.

Fish and fish products are being analyzed for trace metals; measuring of mercury, lead, arsenic, etc.; determining the amount and form of contaminants; determine what process can be used for contaminants removal; central geographical location for data bank is being determined.

U. S. Department of Commerce, Fish Product Technical Lab., Regents Drive, College Park, Maryland 20740. Funded by: Commerce Department, National Oceanic and Atmospheric Administration National Marine Fisheries Service. 7/72 - 6/73.

G. M. Knobl, D. L. Dubrow, E. G. Zook.

00105

SE-13. Fishery technology: Data acquisition systems development.

U. S. Department of Commerce, National Oceanic and Atmospheric Administration, National Marine Fisheries Service, Southeast Fisheries Center, Miami, Florida. Gulf Coastal Fisheries Center, Galveston, Texas. Funded by: U. S. Department of Commerce, National Oceanic and Atmospheric Administration. NMFS.

H. Bullis, (Southeast Fisheries Center).  
F. Temple, (Gulf Coastal Fisheries Center).

00106

AE-01. Fisher Analysis: Menhaden, Gulf of Mexico.

U. S. Department of Commerce, National Oceanic and Atmospheric Administration, National Marine Fisheries Service, Southeast Fisheries Center, Miami, Florida. Gulf Coastal Fisheries Center, Galveston, Texas. Funded by; U. S. Department of Commerce, National Oceanic and Atmospheric Administration, NMFS.

H. Bullis (Southeast Fisheries Center), F. Temple (Gulf Coastal Fisheries Center).

00107

Fishery technology: sampling and harvesting systems development.



U. S. Department of Commerce, National Oceanic and Atmospheric Administration, National Marine Fisheries Service. Southeast Fisheries Center, Miami, Florida, Gulf Coastal Fisheries Center, Galveston, Texas. Funded by: U. S. Department of Commerce, National and Atmospheric Administration, NMFS.

Mr. Harvey Bullis, Director Southeast Fisheries Center. Mr. Robert F. Temple, Acting Director, Gulf Coastal Fisheries Center.

00108

SE-02 Fishery Analysis: shrimp, Gulf and Carribean.

U. S. Department of Commerce, National Oceanic and Atmospheric Administration, National Marine Fisheries Service. Southeast Fisheries Center, Miami, Florida. Gulf Coastal Fisheries Center, Galveston, Texas. Funded by: U. S. Department of Commerce, National Oceanic and Atmospheric Administration. NMFS.

H. Bullis (Southeast Fisheries Center). R. F. Temple, (Gulf Coastal Fisheries Center).

00109

Evaluation of engineering projects and estuarine data (estuarine program).

Estuarine-dependent species of the Gulf of Mexico coast comprise several of the nation's most valuable fishery resources. If the nursery grounds in the estuaries are to be preserved, it is essential that the estuarine habitat of these species be protected during and following construction of water-development projects in upland basins, estuarine systems, and coastal marshes. The increasing number, as well as complexity, of construction projects require a detailed understanding of estuaries. It is the purpose of this project to (1) assist the branch of river basin studies (BSFW) by reviewing all proposed construction and water development projects affecting western Gulf estuaries and, when warranted, recommended remedial measures to reduce adverse project effects; (2) where practical, recommended changes in water-development projects whereby the habitat would be enhanced for the fishery resources; (3) inventory, organize and keep current and published and unpublished data related to western Gulf estuaries; and (4) recommend basic research needed for protecting estuarine fishery resources.

U. S. Department of Commerce, National Oceanic and Atmospheric Administration, Biological Laboratory, Galveston, Texas 77552. Funded by: Commerce Department, National Oceanic and Atmospheric Administration. National Marine Fisheries Service.

R. J. Hoogland.

00110

Artificial propagation - shrimp.

U. S. Department of Commerce, Biological Laboratory, Galveston, Texas 77550. Funded by: Commerce Department, National Oceanic and Atmospheric Administration, National Marine Fisheries Service.

R. J. Berry.

00111

Shrimp (aquaculture)

Objectives of the study are to: 1) develop methods whereby penaeid shrimp can be brought to sexual maturity, bred and spawned in captivity, 2) isolate and identify specific shrimp hormones and describe their roles in sexual maturation, 3) describe the normal histology of penaeid shrimp, 4) describe the normal rates and patterns of postmortem changes and determine the acute inflammatory responses to injury, 5) investigate the causes and histopathology of diseases in shrimp and test methods for their treatment and prevention, 6) define the nutritional requirements of penaeid shrimp, 7) develop low-cost compounded foods which will supply the nutrients essential to shrimp, 8) develop techniques and equipment needed to make the larval culture of shrimp economically feasible, 9) demonstrate modern larval culture techniques to visitors from industry and research agencies, 10) produce postlarval shrimp for experimental work which are vigorous and uniformly healthy from hatch to hatch, 11) develop more economical methods of culturing algal foods and test mass culture methods for new species, 12) study methods of removing undesirable wastes from seawater biologically with algal cultures.

U. S. Department of Commerce, National Oceanic and Atmospheric Administration, National Marine Fisheries Service, Gulf Coastal Fisheries Center, Galveston Laboratory. Funded by: U. S. Department of Commerce, National Oceanic and Atmospheric Administration. July 1973 - June 1974.

R. A. Neal.

00112

Fishery analyses, shrimp, Northern Gulf of Mexico.

Objectives of this study are: 1) to predict relative annual abundance of shrimp and annual shrimping success by monitoring abundance of postlarval, juvenile and subadult shrimp in estuarine areas, 2) to obtain biological and ecological information useful in formulating management recommendations, 3) to evaluate the status of the fishery, using catch and effort statistics and other pertinent data. Findings will be used to formulate management recommendations and to develop a mathematical model of the fishery, 4) to obtain estimate of rates of growth mortality, exploitation and migration of shrimp in the northern Gulf of Mexico. This work will involve both analysis of past mark-recapture data and short-term mark-recapture fishing success

experiments in estuarine and offshore situations, 5) to determine if species (Penaeus) of northern Gulf shrimp are composed of more than one stock each, and if so, 6) to determine the degree of association of various stocks with their respective nursery grounds.

U. S. Department of Commerce (NOAA), National Marine Fisheries Service, Gulf Coastal Fisheries Center, Galveston Laboratory. Funded by; U. S. Department of Commerce, National Oceanic and Atmospheric Administration. July 1973 - June 1974.

C. W. Caillouet.

00113

Menhaden tagging.

Tag and recover adult menhaden along each coast.

U. S. Department of Commerce, National Oceanic and Atmospheric Administration, National Marine Fisheries Service, Mid Atlantic Coastal Fisheries Research Center, Beaufort, North Carolina 28516. Funded by: Commerce Department, National Oceanic and Atmospheric Administration, National Marine Fisheries Service.

R. P. Cheek.

00114

Monitoring Menhaden recruitment.

The technical objective of this study is to annually predict incoming juvenile menhaden year-class strength on the Atlantic and Gulf coasts. This is accomplished by determining abundance of juveniles in the estuaries and which fisheries they contribute to, annual indexes of importance of the incoming year class can be made. To do this we are tagging juvenile menhaden in the estuaries and determining what fisheries they occur in the following years and we are estimating annual indexes of juvenile abundance in the estuaries by aerial and trawl surveys. Progress: annual estimates of juvenile abundance and tagging of juvenile menhaden in the estuaries for 1971 will be completed in October.

U. S. Department of Commerce, National Oceanic and Atmospheric Administration, National Marine Fisheries Service, Mid Atlantic Coastal Fisheries Research Center, Beaufort, North Carolina 28516. Funded by: Commerce Department, National Oceanic and Atmospheric Administration, National Marine Fisheries Service.

R. L. Kroger, G. B. Sekanee, P. J. Pristas.

00115

Design construction and longevity of artificial fishing reefs.

Objectives of this study are to: 1) design and install artificial fishing reefs of junk cars, concrete materials and scrap tires on approved reef sites off Monmouth Beach, N. J., Atlantic Beach, N. Y., Charleston, S. C., Jacksonville, Fla., Palm Beach, Florida and in Biscayne Bay, Miami, Florida, 2) arrange these to provide comparative data on the design and type of materials used in relation to the effectiveness and longevity of fishing reefs, 3) make periodic underwater observations on condition of materials, encrusting organisms and population of fish attracted to reefs, 4) conduct laboratory tests on reef models of the action of currents, tides and other environmental factors.

U. S. Department of Commerce, National Marine Fisheries Service, P. O. Box 428, Highlands, New Jersey 07732. Funded by: Commerce Department, National Oceanic and Atmospheric Administration, National Marine Fisheries Service.

R. B. Stone.

00116

Florida Bay Fisheries Research Project.

An exploratory ecological survey in Florida Bay will be conducted in order to most effectively describe the ichthyofauna and invertebrates occupying representative habitats within the confines of the Park. This will be carried out by collecting and analyzing data on absolute abundance (Biomass), relative abundance, seasonal occurrence and life history aspects with emphasis on trophic relationships on the biota in the Bay. Samples will be taken with quantitative and qualitative gear and standardized collecting procedures based on tidal and lunar periodicity will be established. Hydrographic observations will be made on biological sampling stations to include salinity, temperature, conductivity, dissolved O<sub>2</sub>, pH, and turbidity.

U. S. Department of Interior, National Park Service, Everglades National Park Service, Everglades National Park. Funded by: U. S. Department of Interior, National Park Service.

The resultant findings will enable realistic evaluations of management programs and provide additional bases to monitor the effects of environmental changes in Florida Bay.

00117

Florida Bay Fisheries Research Project.

An ecological investigation of the ichthyofauna and invertebrates inhabiting specific habitat types in relation to the sport and commercial fishery population patterns.

An exploratory ecological survey in Florida Bay will be conducted in order to most effectively describe the ichthyofauna and invertebrates occupying representative habitats within the confines of the Park. This will be carried out by collecting and analyzing data on absolute abundance (Biomass), relative abundance, seasonal occurrence and life history aspects with emphasis on trophic relationships on the biota in the Bay. Samples will be taken with quantitative and qualitative gear and standardized collecting procedures based on tidal and lunar periodicity will be established. Hydrographic observations will be made on biological sampling stations to include salinity, temperature, conductivity, dissolved O<sub>2</sub>, pH, and turbidity.

The resultant findings will enable realistic evaluations of management programs and provide additional bases to monitor the effects of environmental changes in Florida Bay.

U. S. Department of Interior, National Park Service, Everglades National Park, Homestead, Florida. Funded by: U. S. Department of Interior, National Park Service. June 1973 - 1978.

T. W. Schmidt.

00118

Commercial fishing in Everglades National Park, Florida.

Population dynamics and human harvest of commercial fishery resources, primarily Mullet, Mugil curema, M. cephalis, Spotted Seatrout, Cynoscion nebulosus, and crab Menippe mercenaria.

The estuaries and open marine waters of Everglades National Park support several small, but historical, commercial fisheries. The National Park Service manages them on a sustained yield basis, while attempting to maintain the ecological integrity of the ecosystems effected. Catch and effort data are collected from daily catch reports submitted monthly by the fishermen. Field contacts and aerial surveys are used to verify these catch reports. A serious decline in stone crab catch per unit of fishing effort has been observed since January 1972 through the end of the season in May 1973. The 0.08 lbs/trapnight catch rate reached in May 1973 appears to be the lowest level at which the fishery can economically exist. Other commercially exploited fishery resources appear to be relatively stable over the time period for which data are available.

U. S. Department of Interior, National Parks Service, Everglades National Park. Funded by: U. S. Department of Interior, National Park Service. 1964 -

G. E. Davis.

Annual aquatic resources reports for Everglades National Park, 1964 - 1972 as open file reports, National Park Service.

00119

Florida Commercial Fishermen - Economics of production enterprises and employment.

Economics status of commercial fisherman costs and returns of fishing enterprises.

University of Florida, Food and Resource Economics Department, Gainesville, Florida 32611. Funded by: University of Florida, Food and Resources Economics, Sea Grant Program. January 1974 - January 1975.

F. J. Prochasha, J. C. Cato.

00120

The role of the mangrove ecosystem in the maintenance of environmental quality and a high productivity of desirable fisheries.

University of Florida. Funded by: U. S. Department of Interior, 7/72 - 6/73.

S. Snedaker.

00121

Characterization of muscle proteins from Florida shellfish in relation to quality evaluation.

The objective is to determine the effect of postmortem handling and storage practices on changes in the chemical and physical properties of muscle proteins; and develop a rapid and reliable method for quality evaluation of shellfish based on degradation of muscle proteins.

Proteins were extracted from shrimp muscle and separated into water-soluble and salt-soluble fractions. Protein bands were separated from the extracts and the individual bands were recovered using an elution convention cell. Characterization of the protein bands has been initiated.

University of Florida, Agricultural Experiment Station, Gainesville, Florida 32601. Multiple Support Funds: Agricultural Department, Florida Cooperative State Res. Service. 7/72 - 6/73.

F. T. Orthoefer.

00122

Systems analysis of U. S. Management strategies in the Gulf of Mexico shrimp industry.

The purpose of this research is to develop a theory of a fishery, an abstract model of the Gulf of Mexico shrimp industry and, based on this theory and

model, a simulation model of the industry. The simulation model is used to determine the impact of policy variable changes on the following key output variables: 1) the wholesale value of the catch, 2) the exceded value of the catch, 3) total production costs associated with the catch and; 4) total revenue to the management authority from entry and landings fees. The policy variable examined are: 1) age of shrimp at first capture; 2) an annual license fee levied on each vessel entering the industry, 3) a per pound landings fee by shrimp size class levied on Gulf of Mexico shrimp landings. The objectives of manipulating the policy variables are to reduce the adverse effects of industry over-investment and sub-optimal husbandry practices attributal to the open recess stakes of the resource.

University of Florida, Gainesville, Florida 32601. Funded by: University of Florida, Institute of Food and Agricultural Sciences. 1971 - ?

L. Popopolus.

00123

Systems analysis of U. S. Management strategies in the Gulf of Mexico shrimp industry.

The objective of this study is to determine the responses of individual fishing firms in the Gulf of Mexico shrimp industry and the resultant aggregate effect for the industry, to changes in the shrimp population in the Gulf of Mexico. Technological conditions of harvesting and processing and demand conditions. Determine whether alternative management strategies exist which will improve industry efficiency in a social sense, reducing any over-investment and/or the extent of nonoptimal husbandry practices that occur as a result of the free use of a common property resource.

A fishing model will be developed for the individual firm and aggregate firms to form a simulation model (incorporating simultaneous subsets) of the shrimp industry to relate to industry in a setting of environmental "control" variables corresponding to arbitrary management strategies. Temporal and spatial parameters will be added to determine effect of proposed strategies on selected system performance indicators. A theory of an open access resource was developed to describe the behavior of a particular year-class in a fishery over time in terms of growth in weight, recruitment patterns, and natural and fishing mortality rates. An economic theory of exploitation of an open access resource was developed and the divergency between behavior that is optimal for the industry as a whole and the behavior resulting from uncoordinated individual actions derived. The basic resource and economic theories were then synthetized into a bioeconomic theory of an exploited fishery and the on-vessel entry and fish landing charges needed to manage the fishery in an efficient manner were specified as theoretical aggregates. An abstract model of the Gulf shrimp industry was constructed based on the developed theory. The industry model took the form of 3 sub-models, 1 each for the basic resource, harvesting, and demand sectors. The model provided policy variables in the age (size) at which shrimp first become subject to capture, the barriers to vessel entry into the fleet as expressed in annual

license fees, and per pound taxes charged the fleet members on the shrimp landed as expressed in reduced ex-vessel prices. The empirical model of the Gulf shrimp industry was developed as a simulation model and a computer program was developed to generate model behavior over time.

University of Florida, Agricultural Experiment Station, Gainesville, Florida 32601. Funded by: Florida State Government. 7/72 - 6/73.

L. Popopolus.

00124

Effect of postmortem treatment on the quality of fresh and processed mullet, (Mugil cephalus).

University of Florida. Funded by: State of Florida. 1/73 - 12/73.

P. T. Orthoefer.

00125

Effect of temperature and salinity on shrimp and oysters.

University of Houston. Funded by: U. S. Department of Health, Education, and Welfare, Food and Drug Administration.

L. Lawrence. A. L. Lawrence, F. Castille.

00126

Shrimp and oyster mariculture.

University of Houston. Funded by: U. S. Department of Health, Education and Welfare, U. S. Public Health Service.

A. L. Lawrence.

00127

Shrimp and oyster nutrition.

University of Houston. Funded by: U. S. Department of Health, Education, and Welfare, Food and Drug Administration.

A. L. Lawrence.



00128

Abundance and distribution of eggs and larvae of commercial fishes on the continental shelf off western Florida.

Estimate abundance and distribution of clupeid fishes of possible commercial potential from the distribution and abundance of their early life stages.

University of Miami, Rosentiel School of Marine and Atmospheric Science,  
Funded by: U. S. Department of Commerce, National Oceanic and Atmospheric Administration, Office of Sea Grant. 1971- 1975?

E. D. Houde.

00129

Distribution and relative abundance of the spiny lobster, Panulirus guttatus, in southeastern Florida.

The objectives are 1) to conduct a survey of distribution and relative abundance of the spiny lobster, Panulirus guttatus, along the southeastern coast of Florida and into the Florida Keys to determine whether or not this species occurs in commercial quantity 2) to obtain the biological data necessary to evaluate the need for regulation of fishing.

How information will be applied: information concerning distribution and abundance of this presently unexploited (in Florida) species of spiny lobster will be made available to the commercial lobster fishing industry of Florida. Through publications, responses to inquiries, etc., information concerning methods of capture, lobster habitat, seasonal fluctuations in abundance, and reproductive cycle will also be made available to individuals and organizations within the Caribbean and South American regions where P. guttatus is known to occur. Such information would be applied toward development of more effective sport and commercial fisheries of this species. For additional information pertaining to this project contact Dr. Richard G. Bader, Director, Sea Grant Programs. University of Miami, Coral Gables; Florida 33146.

University of Miami, Rosentiel School of Marine and Atmospheric Science,  
1 Rickenbacker Causeway, Miami, Fla. 33149. Funded by: Commerce Department, National Oceanic and Atmospheric Administration, Office of Sea Grant.

00130

The abundance of eggs and larvae of commercial fishes off western Florida.

Objectives of this project are to estimate the annual and seasonal distribution and abundance of both fish eggs and larvae on the Florida west coast to:  
1) obtain information on population size and fluctuations of little exploited fish stocks, particularly clupeids, 2) examine seasonal and areal distribution

of under-utilized stocks of fishes, and attempt to predict the size and location of these stocks for use by commercial fishermen, 3) study the early life history particularly growth and mortality of important commercial fishes.

Information will be used to: 1) develop new fisheries in the Gulf of Mexico, 2) provide the necessary research so that fishery resources can be managed to obtain maximum sustainable yields, 3) improve methods to predict the location of commercial quantities of fish to aid Gulf fishermen. Information will be of direct use to commercial fishermen in their search for exploitable stocks. The National Marine Fisheries Service MARMAP program will utilize some of the biological data, as will the Florida State University System Institute of Oceanography in its ongoing studies of biological and physical oceanography in the Gulf of Mexico.

Accomplishments are: 1) five sampling cruises were carried out in the study area, 2) depth distribution of fish eggs was analyzed from plankton collections made in the Eastern Gulf, 3) fish eggs and larvae are being sorted from plankton samples, 4) preliminary data on distribution of eggs and larvae of thread herring, round herring and Spanish sardines have been derived from collections, 5) keys and guides to identifying clupeid eggs and larvae have been prepared.

For additional information pertaining to this project contact Dr. Richard G. Bader, Director, Sea Grant Programs, University of Miami, Coral Gables, Florida 33146.

University of Miami, Rosentiel School of Marine and Atmospheric Science, 1 Rickenbacker Causeway, Miami, Fla. 33149, Funded by: Commerce Department, National Oceanic and Atmospheric Administration, Office of Sea Grant.

R. D. Houde.

00131

The biological and economic feasibility of supplementing fished stocks of sponges by cuttings.

There is some evidence that the stocks of sponges are being depleted by fishing and that recruitment into the sponge population is small, due in part to the lack of clean suitable substrate for the larvae to settle. This proposal would investigate the biological information available on sponges, the economic aspects of sponge farming and the status of the fishery in South Florida to determine the feasibility of supplementing the wild stocks of commercial sponges by cuttings. 1. If the results of the study suggest that cuttings could help to maintain or increase the sponge production, a formal plan for such a program will be prepared and concluded in the report. 2. The results of the study could be of value in answering inquiries or in advisory services sections of the Small Business Administration, Florida Department of Natural Resources,

National Marine Fisheries Service and private fishermen. Since early 1969 we have collected ecological data on the area where the present fishery is being conducted. For many areas of the Keys and Florida Bay we have background ecological data that will permit evaluation of suitability of the area for sponge farming. Growth studies are being conducted in the vicinity of Turkey point that will provide valuable up-to-date growth data. For additional information pertaining to this project contact Dr. Richard G. Bader, Director, Sea Grant Programs, University of Miami, Coral Gables, Florida 33146.

University of Miami, Rosentiel School of Marine and Atmospheric Science, 1 Rickenbacker Causeway, Miami, Fla. 33149. Funded by: Commerce Department, National Oceanic and Atmospheric Administration, Office of Sea Grant.

E. S. Iversen.

00132

Parasites diseases and control of diseases of commercially important fin fishes and shellfishes of the northern Gulf of Mexico.

University of Mississippi, Department of Biology. Funded by: University of Mississippi, September 1972 - ?

R. M. Overstreets.

00133

Trace metals in oysters.

University of Mississippi, Biology Department. Funded by: University of Mississippi. September 1972 - ?

L. A. Knight, Jr.

00134

Shrimp mariculture.

University of Texas, Marine Science Institute at Port Aransas, Texas 78373. Funded by: Armour and United Fruit Cos. Completed or underway 1972 - 1973.

00135

Trawl sorting contract-striped bass project.

University of West Florida. Funded by: U. S. Department of Interior,  
U. S. Bureau of Sport Fish and Wildlife. 6/73 - 5/74.

T. S. Hopkins.

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CURRENT AND RECENT RESEARCH  
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Economic and environmental assessments of Ameraport development.

Social, economic and environmental consequences of land development resulting from the development of a deep water port off the Alabama shoreline.

This study was a part of a larger study conducted by Battelle for the Ameraport Corporation, which included a feasibility analysis concerning markets, competitive position, available supporting facilities, etc.

Battelle's Columbus Laboratories, Columbus, Ohio. Funded by: The Ameraport Corporation, Montgomery, Alabama. January 1973-August 1973.

W. Sheppard, H. Gorman, D. Hessel, R. Mendelsohn. Project reports: Volume I. Preliminary assessment of Ameraport configuration. Volume II. Economic assessment of Ameraport Development. Volume III. Environmental Assessment of Ameraport Development. Volume IV. Assessment of Ameraport Organizational and Financial Requirements.

00002

Environmental assessment of Ameraport development.

Feasibility of a deep water terminal in the Eastern Gulf of Mexico.

Provide offshore environmental impact assessment, economic feasibility, and on-shore environmental assessment, including economic and socio-economic effects of a deep water terminal.

Ameraport Corp., Montgomery, Alabama. 10/72-10/73.

Battelle Columbus Labs, Alabama Geological Survey, Marine Environmental Sciences Consortium. University of Alabama. University of Southern Alabama. Southern Alabama Regional Planning Commission. "Ameraport Council Preliminary Report," "Environmental Assessment of Ameraport Development."

00003

Louisiana superport studies.

Research/ports, harbors and offshore terminals.

Project provides an administrative mechanism through which the university's Sea Grant capabilities can be marshalled to assist several state and private interests in developing a "superport" facility in Louisiana offshore waters. Particular emphasis is devoted to environmental safeguards, economic justification, legal questions, and engineering data needs. Superport development represents a major opportunity for application of new knowledge and methodology produced in the Systems Ecology, Coastal Zone Planning and

Development, and Law and Socio-Economics program areas of the LSU Sea Grant program.

The project has made a quick-response multidisciplinary capability available to the State Planning Office and the Louisiana Deep Draft Harbor and Terminal Authority for assessment of problems associated with deep draft port construction, and continues to support these efforts through formulation of environmental protection plans and conducting of baseline environmental studies. Information provides a technical basis for promulgation of Louisiana's Deep Draft Harbor and Terminal Act, as well as to aid private interests in complying with provisions of the act relative to environmental impacts.

Louisiana State University, Center for Wetland Resources, Baton Rouge, Louisiana 70803. Funded by: U. S. Department of Commerce, National Oceanic and Atmospheric Administration, Office of Sea Grant. August 1974.

J. H. Stone (Department of Marine Sciences). Publications: Completed first-phase study on Louisiana Superport Development. Report includes initial data analysis and preliminary recommendation to the Deep Draft Harbor and Terminal Authority on topics including law, engineering, economics and environment. Completed report of Sea Grant/ECQ sponsored study on "Environmental Impact of a Superport off the South Central Louisiana Coast." Completed first draft of "Environmental Protection Plan" for Louisiana Deep Draft Harbor and Terminal Authority. Initiated environmental assessment study for Louisiana Offshore Oil Port, Inc. (LOOP).

00004

Factors affecting vessel storage.

Texas A & M University, Office of University Research, College Station, Texas 77043. Funded by: Department of Commerce, National Oceanic and Atmospheric Administration. B. F. Cobb.

00005

Financial planning for Texas waterways and harbors.

Texas A & M University, Office of University Research, College Station, Texas 77043. Funded by: National Oceanic and Atmospheric Administration. G. S. Bridges.

00006

Gulf intracoastal waterway of Texas.

Texas A & M University, Office of University Research, College Station, Texas 77043. Funded by: National Oceanic and Atmospheric Administration. J. Miloy.

00007

Harbor and waterway study.

Texas A & M University, Office of University Research, College Station, Texas 77043. Funded by: Division of planning. Coordination - Governor's office. G. S. Bridges.

00008

Marine related transportation.

Texas A & M University Research, College Station, Texas 77043. Funded by: Texas Governor's Office, Council on Marine Related Affairs. Ronald Holder.

00009

Offshore terminal for unloading crude oil.

H. B. J2 created the Texas Offshore Terminal Commission to study the feasibility of building an offshore terminal.

Texas Offshore Terminal Commission, 302 Congress Avenue, Austin, Texas 78701. Funded by: Texas State Government. 5/1/73-

00010

New barge and ship lock, Mississippi River Gulf outlet.

Intakes and outlets will be required to operate as intake and outlet ports due to reverse as well as direct heads. The efficiency of the manifolds under reverse heads cannot be computed. Magnitude of canal surges and velocities will be studied in this model and a mathematical model. Determination will be made of whether slide gates or culvert tainter valves should be used under these unique flow conditions.

A 1:25-scale model reproduces the entire filling and emptying system, the 110-by-1200 ft. lock chamber and portions of the approaches.

Design was completed and construction was about 60 percent complete when all work on the model was suspended. This was done in view of the serious questions concerning the efficacy of the 110-ft. width and the probability that a lock substantially wider than 110 ft. will be ultimately planned and constructed. Work on the model will be suspended until the question of lock width is resolved.

U. S. Army Corps of Engineers, Waterways Experiment Station, P. O. Box 631, Vicksburg, Mississippi 39180. Funded by: Department of Defense, Army Corps of Engineers. J. H. Ables.

00011

NOS CONMARGIN GEOPHYSICAL MAP INDEX: The bathymetric map of the Gulf of Mexico area.

The National ocean survey produces a series of nautical charts, of varying scale, per accompanying nautical chart catalog 1, designed to meet commercial shipping requirements. These charts are compiled from detailed hydrographic surveys conducted by NOS. These surveys, though designed primarily for nautical chart construction, may be utilized to produce detailed contoured bathymetric maps of the sea floor for use in marine geology, oceanographic and related studies. The accompanying NOS CONMARGIN GEOPHYSICAL MAP INDEX indicates the one bathymetric map available in the Gulf area.

U. S. Department of Commerce, National Oceanic and Atmospheric Administration, National Ocean Survey.

00012

Estimation of shipping characteristics at the site of an offshore power plant.

University of Florida. Funded by: Offshore Power System. 4/73-6/73.  
R. Schaeffer.

00013

A survey of the port resources of Mississippi.

University of Mississippi. Bureau of Business and Econ. Research. Funded by: University of Mississippi. September 1972-? K. W. Hollman.

00014

Cargoes for LASH/SEABEE vessels.

Investigating ways of increasing the market for ship-barge transportation systems.

A general project giving considerable attention to transportation in and out of the Gulf ports, and to feeder barge services on rivers and intercoastal waterways.

Webb Institute of Naval Architecture, Center for Maritime Studies. Funded by: U. S. Department of Commerce, Maritime Administration, National Maritime Research Center. 3/73-3/75. J. Binkley.

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00001

Human factors in wetland resource development.

Objectives are to provide background information about residents of coastal areas specifically and the state generally which will be useful in the development of wetland resources. Three specific goals are planned: determine and analyze the demographic characteristics of residents in the coastal parishes, determine knowledge and attitudes of local influentials and assess their potential role in wetland resources development and ascertain level of knowledge and attitudes of Louisianians generally towards wetland resources development.

Approach is to develop as much information as possible on coastal persons through use of secondary source materials and present these materials in a form usable to those charged with programs and policy responsibilities: conduct personal interviews with a representative group of inhabitants of coastal areas and of the state to determine their knowledge and attitudes toward the development of coastal zones.

Louisiana State University, Agricultural Experiment Station, University Station, Baton Rouge, Louisiana 70803. Funded by: Louisiana State Government. 7/72-6/73.

A. L. Bertrand, G. W. Ohlendorf, K. W. Paterson.

00002

Human factors in wetland resources development.

Demographic characteristics of residents of coastal parishes and attitudes of coastal residents and state toward the conservation and development of the coastal area.

The objectives of the overall project are to provide background information about residents of coastal areas specifically and the state generally which will be useful in the development of wetland resources. Three specific goals are planned as follows: 1) to determine and analyze the demographic characteristics of residents in the coastal parishes, 2) to determine the knowledge and attitudes of local influentials and to assess their potential role in wetland resource development, and 3) to ascertain the level of knowledge and attitudes of Louisianians, generally toward wetland resources development. The approach of this study will be: 1) to develop as much information as possible on coastal persons through use of secondary source materials and to present these materials in a form usable to those charged with programs and policy responsibilities; 2) to conduct personal interviews with a representative group of inhabitants of coastal areas and of the state in an effort to determine their knowledge and attitudes toward the development of coastal zones.

Louisiana State University, Department of Sociology and Rural Sociology, Baton Rouge, Louisiana 70803. Funded by : U. S. Department of Commerce,

National Oceanic and Atmospheric Administration, Office of Sea Grant.  
9/72-8/75.

A. L. Bertrand, K. W. Paterson. Human Dimension of Coastal Development,  
La. Agri. Experiment Station Bulletin (forthcoming).

00003

Human factors in wetland resources development.

The objective of the overall project is to provide background information about residents of coastal areas specifically and the state generally which will be useful in the development of wetland resources. Three specific goals are planned as follows: 1) to determine and analyze the demographic characteristics of residents in the coastal parishes, 2) to determine the knowledge and attitudes of local influentials and to assess their potential roles in wetland resources development and 3) to ascertain the level of knowledge and attitudes of Louisianians generally towards wetland resources development. The results of the study will be useful to state agencies concerned with wetland resources development in that a better understanding of the characteristics of coastal residents will be available. In addition, local planners will be provided with data for their particular area. Also, Center for Wetland Resources personnel will be better able to plan their programs of education, research and advisory services.

For additional information pertaining to this project contact Dr. Jack R. Van Lopik, Director, Sea Grant Program, Louisiana State University, Baton Rouge, Louisiana 70803.

Louisiana State University, School of Arts, University Station, Baton Rouge, Louisiana 70803. Funded by: Commerce Department, National Oceanic and Atmospheric Administration, Sea Grant Office. 8/72-7/73.

A. L. Bertrand, G. W. Ohlendorf, K. W. Patterson.

00004

Coastal Resources Management Program.

Objectives of this study are: 1) to delineate significant economic trends in the 36-county coastal zone of Texas including industry patterns, population changes and employment levels, 2) to analyze the economic contribution of industries in the coastal zone to the total economy of Texas, 3) to identify and summarize renewable and non-renewable resources, 4) to provide future assumptions regarding economic development in the coastal zone. Projections to the year 2000 will be prepared on anticipated population changes, estimated availability of natural resources and industrial shifts by activity and location. Emphasis will be placed on the development and significance of tourism and recreation potentials.

The 130-page study, "Economic Development Study of the Texas Coastal Zone," was completed and delivered for review and comment to the Interagency Council on Natural Resources and the Environment of the Governor's Office.

This research study is one of six being developed on different aspects of the coastal zone. The individual studies are to be used as an informational resource base in the development of specific recommendations for action by Texas Legislators who bear the responsibility for enactment of a coastal resources management program for Texas.

For additional information pertaining to this project contact Dr. Robert C. Stephenson, Director, Center for Marine Resources, Texas A & M University, College Station, Texas 77843.

Texas A & M University System, Graduate School, College Station, Texas 77843  
Funded by: Commerce Department, National Oceanic and Atmospheric Administration  
Sea Grant Office. 6/72-5/73,

J. R. Bradley, D. M. French.

00005

Southwest Louisiana River Basin Study.

The need for land and water development. Economic Research Service responsibility is to develop and communicate information describing the need for and value of resource development.

U. S. Soil Conservation Service Department of Agriculture.

J. B. Earle, Neil R. Cook, Carl Hoover.

00006

Urban Hydrology Study, Houston, Texas.

Little data are available to determine the effect of urbanization on runoff and quality of water in gentle sloping coastal areas. The collection of basic data in urban areas of this type is necessary to provide for the most economic design of hydraulic structures and the delineation of flood-hazard areas.

Collect hydrologic data for studies to determine the effects of urbanization on flood discharge and total runoff with variation in rainfall patterns, rainfall intensity and drainage areas; delineate actual floods to determine flood-hazard areas; provide water-quality data for selected areas from water samples collected during runoff events which differ by person and magnitude.

Drainage basins with different hydrologic characteristics will be instrumented to collect simultaneous rainfall-runoff data. Field surveys will be run to

determine areas flooded by unusual flood events. Water-quality samples will be collected in selected areas to reflect the relation between water quality, season and magnitude of peak.

Basin models were prepared to predict peak discharge from 28 basins. Long-term rainfall data were applied to the basin models to simulate annual peaks. Step-backward multiple regression was used to determine the relationship between the T-year events and basin characteristics. Those parameters determined to be useful in estimating T-year peaks were drainage area and percent impervious area. Standard error of the estimate ranged from plus or minus 25 percent for the 100-year recurrence interval.

Compilation and analysis of basic data will continue and an annual basic-data report will be published. Long-term storm rainfall at the Houston Weather Bureau Station will be examined and selected watersheds will be modeled to simulate rainfall-runoff events.

U. S. Department of Interior, Geological Survey, Houston, Texas 77004. Funded by: Interior Department, Geological Survey, Water Resources Division. 7/72-6/73.

S. L. Johnson.

00007

An appraisal of plans to meet the fresh water requirements of the Mississippi Gulf Coast area.

Compilation of plans to meet the fresh water needs on the Gulf Coast.

University of Southern Mississippi. Funded by: U. S. Dept. of Interior, Office of Water Resource Research.

D. C. Williams, Jr.; Charles Cartee; and Mary Molchow. (Water Resources: needs, plans, management).

00008

Socio-political profiling in the coastal zone.

The objectives of this project are to establish the tolerable limits of regulation and change among decision-makers and the general populace of the Fort Myers, Florida area. Proven techniques of survey research, including the careful design, administration and evaluation of interview schedules, will describe the political and social climate of the area. The characteristics of governmental bodies invested with regulatory power will be indicated by issue area analysis of their decisions over the last five years. The formal and informal leadership structure of the area will be identified by a combination of the positional and reputational approaches to leadership

identification used successfully by psychologists over the last ten years.

The information generated may be used in the investigative phase of the project as useful pieces of environmental knowledge, often known only to the local populace, are uncovered. In addition unknown provisions of local ordinances may significantly influence the project's development. The process of opinion elicitation itself will create public support for the study, because average citizens will feel consulted, their names having been drawn in a statistical sample. Governmental bodies which ultimately will ignore or implement the results of the study will be better understood by the investigative team. Strategies acceptable both to local leaders and the investigators can thus be constructed to maximize the project's impact.

For additional information pertaining to this project contact Dr. Hugh L. Popenoe, Acting Director, Center for Aquatic Sciences University of Florida, Gainesville, Florida.

University of West Florida, Graduate School, Pensacola, Florida, 32504.  
Funded by: Commerce Department, National Oceanic and Atmospheric Administration,  
Sea Grant Office. 7/72-6/73.

Dr. R. C. Chandler, D. M. Freeman. (Regulation: Socio-political baseline Survey).



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00001

Regulation of coastal zone development for fisheries management.

Development within the coastal zone under U. S. Corps of Engineers permit system.

To review coastal zone development projects and determine their effect on fisheries resources and to develop guidelines for coastal zone development in Alabama.

Alabama Marine Resources Division, Alabama Department Conservation and Natural Resources. Funded by: U. S. Department of Commerce, National Oceanic and Atmospheric Administration, National Marine Fisheries Service. 30 June, 1976.

Hugh A. Swingle.

00002

Water cycles, water resources planning, and urban development at Rookery Bay, Florida.

Centering on a watershed, estuary and bay located near Naples, Florida, the project is intended to study means of reconciling the pressures of urban development with the necessity for preserving the quality of environment. There are two aspects of the study. One, under the direction of the Institute of Marine Science, will investigate the hydrology, oceanography, water quality and ecology of the Rookery Bay system as it is subjected to the urban development. Hopefully, the development will proceed in accordance with a plan previously designed by the Foundation and the Institute. This plan is intended to protect the natural environment of the Rookery Bay system while permitting urban development to take place. Even in the event that this plan is not followed and development proceeds along other lines, the project will provide measures of the changes that take place. The second aspect of the project is intended to study the politics, economics and social attitudes involved in the decision-making process in the Rookery Bay region in order to develop information useful to other areas where urban development takes place in a similar water-oriented environment. This aspect of the study will be conducted by the Conservation Foundation.

Conservation Foundation, Inc., 1717 Massachusetts Ave. N. W., Washington, D. C. 20036. Funded by Department of Interior, Office of Water Resources.

A. A. Davis, D. Tabb, B. J. Yokel, D. W. Walker.

00003

Coastal zone management program for the Florida Keys.

Coastal zone management in the Florida Keys.

Florida Coastal Coordinating Council; DNR. Funded by: State of Florida funds. 8/73-1/74.

Mr. Bruce Johnson, Director, Florida Coastal Coordinating Council.

00004

Planning and management in Louisiana's coastal zone.

#### Research/Ocean Law-Coastal

Objectives are: (1) to analyze proposed and needed changes in state legislative and/or regulatory articles for land and water use controls appropriate to the marsh and estuarine environment of coastal Louisiana; (2) to evaluate state agency structure and authority as it affects Louisiana's coastal zone, and identify changes in enabling laws and administrative regulations that will achieve more efficient administration of the laws and better realization of the objectives of the law; (3) to evaluate Louisiana's legal/administrative practices in the coastal zone in light of specific requirements of federal Coastal Zone Management Act; (4) to analyze Louisiana's fiscal powers and practices as a method of control over resource use in coastal zones, with recommendations for change in tax structure where appropriate.

Materials developed will be used in the formulation and refinement of the Coastal Zone management plan being prepared by the Louisiana Advisory Commission on Coastal and Marine Resources or its successor group. Materials are presented to numerous executive and legislative study agencies considering governmental reform through legislative or administrative action: Jt. Legislative Committee on Environmental Quality; Jt. Legislative Committee on Reorg. of Levee Boards; State Planning Office; La. Constitutional Convention, etc. Projects currently in progress have been requested by: State Land Office; Attorney General's Office; La. Wild Life and Fisheries Commission; LACCMR: Louisiana Wildlife Federation.

Louisiana State University, Center for Wetland Resources, Baton Rouge, Louisiana 70803. Funded by: U. S. Department of Commerce, National Oceanic and Atmospheric Administration, Office of Sea Grant. 8/74 completed.

Hershman, M. J. (Law Center) and H. G. Knight (Law Center). Continued work on environmental protection plan for the deep draft harbor and terminal authority.

Recommendations on reorganization of state natural resource agencies for Louisiana Constitutional Convention.

Legal study of land use regulations in Louisiana coastal zone.

Study on operations of levee boards.

Study concerning ownership of water bottoms.

Draft administrative regulations for administering La. Scenic Rivers Act.  
Study of laws affecting mariculture operations in Louisiana.

00005

Planning and management in Louisiana's coastal zone.

Objectives of this project are: (1) to develop new concepts and prepare implementing legislation for land use controls, water use and water quality laws appropriate to the marsh and estuarine environment of coastal Louisiana; (2) to evaluate state-agency structure and authority as it affects Louisiana's coastal zone, and recommend amendments to enabling laws and administrative regulations that will achieve more efficient administration of the laws and better realization of the objectives of the law; (3) to evaluate major land and water use projects proposed for Louisiana's coastal zone (when requested) in order to prevent subsequent legal difficulties and to propose alternative approaches which will serve all the interests involved in the project consistent with broader coastal zone management planning.

Materials developed will be incorporated in the Coastal Zone Management Plan being prepared by the Louisiana Advisory Commission on Coastal and Marine Resources. The Louisiana Joint Legislative Committee on Environmental Quality will receive materials on state reorganization for inclusion with their work on overall environmental matters. Information generated will be supplied to other state agencies as well. Projects currently in progress have been requested by the Bayou Lafourche Fresh Water District and the State Planning Agency.

Accomplishments during past twelve months: (1) submitted a draft water quality ordinance to the Bayou Lafourche Fresh Water District at the request of their staff attorney. (2) Presented research on "Dynamic Water Quality Laws" to the annual meeting of the OSG and the World Mariculture Society. (3) Performed a comprehensive study of the Levee Boards of coastal Louisiana and their role in coastal zone management. (4) Researched the legal aspects of siting a superport in Louisiana's coastal waters. (5) Analyzed legal aspects of proposal to fill twenty-five square miles of Lake Pontchartrain, at request of State Land Office.

For additional information pertaining to this project contact Dr. Jack R. Van Lopik, Director, Sea Grant Program, Louisiana State University, Baton Rouge, Louisiana 70803.

Louisiana State University, School of Law, University Station, Baton Rouge, Louisiana 70803. Funded by: Commerce Department National Oceanic and Atmospheric Administration, Sea Grant Office. 8/72-7/73.

M. J. Hershman. H. G. Knight.

00006

Environmental Analysis for Coastal Zone Planning.

The objectives of this project are: (1) Compilation of historical data from diverse sources and inductive analysis of these data to identify trends associated with man-induced modification of the environmental fabrics of the Barataria Bay system. (2) Summarization of relevant environmental data in suitable, e.g., atlas, format for immediate use in ongoing planning activities of state administrative agencies presently involved in management and preservation of Louisiana's coastal zone. (3) Investigation of user needs and conflicts associated with water management in the Barataria system. (4) Development of guidelines for regional management of an estuarine system.

Products of research, including atlas sheets, planning studies and engineering reports, will be assimilated into more detailed planning efforts of public works agencies. Data also provides physical parameter inputs to other Sea Grant projects. The Louisiana Advisory Commission on Coastal and Marine Resources had immediate need for project materials and results.

Accomplishments during the past twelve months: Developed methodology for identifying, measuring, and illustrating dynamic trends in various environmental factors that serve as surrogates for estuarine viability. Supported data needs of Superport feasibility study and Louisiana Advisory Commission on Coastal and Marine Resources, State Highway Department. Supported data needs of other Sea Grant projects. Twelve atlas sheets (in parish, state and federal agencies, petroleum companies, conservation groups, property owners.

For additional information pertaining to this project contact Dr. Jack R. Van Lopik, Director, Sea Grant Program, Louisiana State University, Baton Rouge, Louisiana 70803.

Louisiana State University, Center for Wetlands Resources, University Station, Baton Rouge, Louisiana 70803. Funded by: Commerce Department, National Oceanic and Atmospheric Administration, Sea Grant Office, 8/72-7/63.

S. M. Gagliano; R. Shleman; H. Vanbeek.

00007

Advisory Service (Legal) to Louisiana Legislative and Administrative Bodies.

Public Agency Assistance.

Publish the bi-monthly report series "Louisiana Coastal Law." Respond to specific requests for legal news information from LCL readers and others in the coastal area of the state. Represent the state's interests to the Coastal States Organization; assist that organization in analyzing and understanding developments in coastal zone management legal problems. Respond to inquiries concerning developments in the field of coastal zone management and environmental law, and report on research findings before user-groups, governmental bodies or private associations.

Louisiana Coastal Law Report series is distributed to over 1,000 persons, mostly consisting of elected officials, industry spokesmen and opinion

readers in the coastal region of Louisiana.

Comments and reports regarding Congressional developments prepared for the Coastal States Organization are distributed to all interest groups and parties concerned.

Presentations and panel discussions are of direct benefit to those requesting the presentation and normally generate considerable follow-up discussion and result in greater awareness of coastal zone problems.

Louisiana State University, Center for Wetland Resources, Baton Rouge, Louisiana 70803. Funded by: Department of Commerce, National Oceanic and Atmospheric Administration, Office of Sea Grant. 8/74.

M. J. Hershman (Law Center), Knight. Published: 6 issues of Louisiana Coastal Law. Memos on federal coastal zone management law and related developments. Drafted administrative procedures for Louisiana Wildlife and Fisheries: Commission to promulgate Scenic Rivers Act.

00008

Environmental Analysis for Coastal Zone Planning.

The objectives of this project are: (1) Compilation of historical data from diverse sources and inductive analysis of these data to identify trends associated with man-induced modification of the environmental fabric of the Barataria Bay system. (2) Summarization of relevant environmental data in suitable, e.g., atlas, format for immediate use in ongoing planning activities of state administrative agencies presently involved in management and preservation of Louisiana's coastal zone. (3) Investigation of user needs and conflicts associated with water management in the Barataria system. (4) Development of guidelines for regional management of an estuarine system. Products of research, including atlas sheets, planning studies and engineering reports, will be assimilated into more detailed planning efforts of public works agencies. Data also provides physical parameter inputs to other Sea Grant projects. The Louisiana Advisory Commission on Coastal and Marine Resources had immediate need for project materials and results.

Louisiana State University, Center for Wetland Resources, Baton Rouge, Louisiana 70803. Funded by: Department of Commerce, National Oceanic and Atmospheric Administration, Office of Sea Grant. August 1973.

S. Gagliano; Center for Wetland Resources; Vanbeek.

Publications: (1) Developed methodology for identifying, measuring, and illustrating dynamic trends in various environmental factors that serve as surrogates for estuarine viability. (2) Supported data needs of Superport feasibility study, Louisiana Advisory Commission on Coastal and Marine Resources (LACCMR), State Highway Department, and other Sea Grant projects. (3) Prepared twelve atlas sheets (in manuscript form) for a region encompassing Terrebonne Parish and the Barataria basin. (4) Project review with representatives of various parish, state and federal agencies, petroleum companies, conservation groups, property owners. (5) Developed a preliminary coastal resource development scenario (in draft form) for presentation to LACCMR.

00009

Utilization and management of coastal marshes and resources.

The purpose of this study is to define the dynamics of the Barataria Bay marsh ecosystem as a precursor to management and utilization. A sub-project will involve the study of productivity and bid-degradation of marsh grass as these processes relate to estuarine food chains and to development of diet rations for the aquaculture of shellfish. A related aquaculture project will continue investigations into limiting factors, including nutrition, food habits, spawning cycles and parasitic enemies of pompano.

Legal studies will continue evaluation of legal regimes related to marsh and estuarine utilization, and a course for graduate degrees in marine law will be developed.

Economic research will be directed to a methodology whereby economic data can be reviewed and evaluated in terms of future planning and management for coastal resources.

An inventory and synthesis of environmental data will be conducted jointly with the U. S. Army Corps of Engineers and Sea Grantees.

Northwestern State University, in a sub-project, will investigate microsporidiosis, an epidemic disease of commercial shrimp.

Louisiana State University, Graduate School, University Station, Baton Rouge, Louisiana 70803. Funded by: National Science Foundation, Division of National and Interstate Progress. 7/71-6/72.

J. Vanlepek.

00010

Identification of estuaries of the Gulf Coast and development of land use regulations to protect these areas from incompatible development.

Objectives of this study are: (1) To identify and map the estuaries and marshlands along the Gulf Coast of Mississippi; these are used as nursery areas by a multiplicity of marine life; and (2) To then prepare a table of values of these areas as they apply to the economy of the region; and (3) To help prepare suggested land use controls and legislation and afford advice pertaining thereto. The third phase of this project will be conducted in conjunction with the School of Law at the University of Mississippi.

From this study will evolve a basis for preparing suggested legislation which may be adopted by state, county or municipal governments for establishing land use regulations designed to protect these estuarine and marshland areas from the encroachment of incompatible development. A true and realistic value of the land involved will be established. With the cooperation of the marine extension agents, a continuing program of education would be conducted to inform residents of all affected counties and communities of the necessity for continued refinement and enforcement of these regulations.



For additional amount of information pertaining to this project contact Dr. Sidney D. Upham, Director, Universities Marine Center, P. O. Drawer AG, Ocean Springs, Mississippi 39564.

Mississippi State University, Graduate School, 113 Hilbun Hall, State College, Mississippi 38762. Funded by: Commerce Department, National Oceanic and Atmospheric Administration, Sea Grant Office, 3/72-2/73.

C. Cook.

00011

Study of the application of remote sensing data to land use planning of the Mississippi Gulf Coast.

Land Use Inventory Using ERTS-1.

To determine the feasibility for land use analysis using Earth Resources Technological Satellite I.

Mississippi State University, Cooperative Extension Land Use Center. Mississippi Cooperative Extension, Land Use Center, Box 5405, Mississippi State M. S. 39762. Funded by: National Aeronautics and Space Administration.

Bob T. chapin; Frank Ingels.

00012

Earth Resources Laboratory at Mississippi Test Facility.

The objectives are to: (1) conduct research investigations in the Mississippi/Louisiana Gulf areas in the application of remote sensing, stressing the interests and needs of agencies in the area. (2) extend these research investigations into experimental demonstration projects in cooperation with local agencies where appropriate; (3) utilize existing aircraft and satellite programs as a primary source of remote sensing data, and collect and analyze surface data for correlation with these flight data; (4) conduct continuing studies of user requirements of potential applications in order to guide future research efforts. The projects planned for FY 73 are in three major categories; (1) automated land use system - develop and demonstrate remote sensing techniques for land use mapping and updating including the definition/development of a prototype automated system for land use classification and (2) wetlands characterization study - develop remote sensing techniques for making those environmental measurements necessary to manage the wetlands and coastal marshlands; (3) sea remote sensing study - develop/define remote sensing systems to measure coastal water characteristics necessary for the evaluation/management of physical and marine resources.

U. S. National Aero and Space Administration, Mississippi Test Facility, Bay St. Louis, Mississippi 39520. Funded by: National Aeronautics and Space Administration. Mississippi Testing Facility. 7/72-6/73.

R. O. Piland.

00013

Earth Resources Laboratory at Mississippi Test Facility.

Research investigations in the Mississippi/Louisiana Gulf areas in the application of remote sensing are conducted, stressing the interests and needs of agencies in the area. Existing aircraft and satellite programs are utilized as a primary source of remote sensing data, and surface data for correlation with these flight data are included. Studies of user requirements of potential applications are continued in order to guide future research efforts. The projects planned for FY 1973 are in three major categories: (1) automated land use system - Remote sensing techniques for land use mapping and updating are developed, including the definition/development of a prototype automated system for land use classification and update using the State of Mississippi as a demonstration area. (2) Wetlands characterization study - Remote sensing techniques are developed for making those environmental measurements necessary to manage the wetlands and coastal marshlands. (3) sea remote sensing study - Development/definition of remote sensing systems to measure coastal water characteristics necessary for the evaluation/management of physical and marine resources are also considered.

U. S. National Aero and Space Administration, Mississippi Test Facility, Bay St. Louis, Missouri, 39520. Funded by: National Aeronautics and Space Administration. Mississippi Test Facility. 7/72-6/73.

R. D. Piland.

00014

Brushland recovery at Sabal Palm Grove (Brownsville, Texas).

Investigate the possibility of re-establishing natural brushland on some of the agricultural land purchased with the palm grove.

National Audubon Society. Self-funded. 1973-1974.

David R. Blankinship.

00015

Landscape planning and management.

To develop criteria and methods for the aesthetic enhancement of Southern Coastal Plain forest lands.

Development activities superseded formal research. Plantings of Eucalyptus grandis and E. robusta were rogued to form seed production stands. Trees from these fellings were used for volume measurements, specific gravity determinations, and commercial pulping tests. These latest tests confirmed

previous work that Florida-grown eucalyptus can replace native hardwood pulps. A new wedgewall seedling container was designed and 300,000 units produced for trial in the 1973 nursery season in cooperation with the Florida Division of Forestry. Commercial and research seed was collected from seed production stands and enrichment trees to meet an anticipated 1973 planting goal of 600 acres of commercial plantations and species-progeny trials. Landowners were assisted in selection of planting sites and site preparation techniques.

Southeastern Forest Experimental Station, Lehigh Acres, Florida 33936.  
Funded by: Forest Service Research Appropriations.

T. F. Geary.

00016

Chambers County land-use study.

Land use control agencies in Texas and Chambers County. Present and pending federal legislation. Modification of state governmental systems. Computerized data gathering.

Southwest Center for Urban Research. Funded by: National Science Foundation. July 1973-December 1974.

John Mixon, Don Williams, Ralph Conant, John Bebout.

00017

Comprehensive land use analysis of the Texas Gulf Coast.

The objectives of this project are: (1) identification of existing land use patterns including emphasis on urban areas, agricultural interests and industrial uses in the 36-county coastal zone of Texas, (2) documentation and analyses of trends and shifts of land prices over various time periods in the coastal zone.

Statistical data will be used in the study to pinpoint potential problem areas and opportunities for growth, and to provide an information base to facilitate future land use planning in the coastal zone. Results of the study will be distributed to federal, state and local agencies, industrial firms and interested individuals responsible for economic planning.

Accomplishments during past twelve months: (1) an extensive literature search for published materials concerned with land use development has been completed, (2) communications and visits with appropriate federal and state agencies, business leaders and officials of universities involved in land use development have been made, (3) statistical information clarifying land use by municipalities, agriculture and industry has been collected, tabulated and is in the process of being analyzed.

For additional information pertaining to this project contact Dr. Robert C. Stephenson, Director, Center for Marine Resources, Texas A & M University, College Station, Texas 77843.

Texas A & M University System, Graduate School, College Station, Texas 77843. Funded by: Commerce Department, National Oceanic and Atmospheric Administration, Sea Grant Office. 6/72 - 5/73.

J. Mildy.

00018

Multi-use Management Plan for South-Central Louisiana and Environmental Atlas and Management Plan for South-Central Louisiana.

U.S. Army Corps of Engineers, P. O. Box 60267, New Orleans, Louisiana 70160. Self funding, completion date 1973.

00019

Southwest Louisiana river basin study.

The need for, or lack of need for, land and water development. Economic Research Service responsibility is to develop and communicate information describing the need for and value of resource development.

U.S. Soil Conservation Service, Department of Agriculture. 1969 - 1974.

J. B. Earle, Neil R. Cook, Carl Hoover.

00020

Ground water in relation to use and management of watersheds in the western Gulf Region.

The objective of this study is to determine effects of floodwater detention reservoirs on ground water recharge in the Edwards Plateau, ground water movement in the aquifer, channel abstractions of streamflow during flood periods, and water yield of range watersheds.

Study of rainfall and springflow data from the Edwards Plateau of Texas shows that natural recharge of the limestone aquifer can be estimated by a serpentine curve.

U. S. Department of Agriculture. Soil and Water Conservation Research Division, Temple, Texas 76501. Funded by: Agriculture Conservation Research Division.

W. G. Knisel, C. W. Richardson.

00021

Production of orthophoto maps of Florida coastal area: (1) Cape Kennedy to Miami, (2) Florida Keys, (3) Gulf Coast.

The Coastal Mapping Division of the National Ocean Survey is engaged in a cooperative project with the State of Florida producing a series of 1:1000 scale orthophoto maps of the coastal area. The first section of this project (Cape Kennedy to Miami) is near completion. The next section will cover the Florida Keys. Work will then begin on the Gulf Coast (in approximately 1 year). The entire project is scheduled for completion by 1978.

U.S. Dept. of Commerce, National Oceanic and Atmospheric Administration,  
National Ocean Survey, Coastal Mapping Division.

00022

Evaluation of engineering projects and estuarine data (estuarine program).

Estuarine-dependent species of the Gulf of Mexico coast comprise several of the nation's most valuable fishery resources. If the nursery grounds in the estuaries are to be preserved, it is essential that the estuarine habitat of these species be protected during and following construction of water-development projects in upland basins, estuarine systems, and coastal marshes. The increasing numbers, as well as complexity, of construction projects require a detailed understanding of estuaries.

It is the purpose of this project to (1) assist the Branch of River Basin Studies (BSFW) by reviewing all proposed construction and water development projects affecting western Gulf estuaries and, when warranted, recommend remedial measures to reduce adverse project effects; (2) where practical, recommend changes in water-development projects whereby the habitat would be enhanced for the fishery resources; (3) inventory, organize, and keep current all published and unpublished data related to western Gulf estuaries; and (4) recommend basic research needed for protecting estuarine fishery resources.

U.S. Dept. of Commerce, National Oceanic and Atmospheric Administration,  
National Marine Fisheries Service.  
R. J. Hoogland.

00023

Hydrograph model studies of the Hillsborough, Alafia, and Anclote River Basins, Florida.

The purposes of this study are: (1) To develop a mathematical (computer) model of the Hillsborough River that simulates the entire streamflow hydrograph. The model would allow maintenance of desired water levels in the urbanizing lower reaches of the Hillsborough River. Provisions would be included for operation of a proposed system of flood control structures.

(2) To develop mathematical (computer) models that simulate flood hydrographs at selected points on the Alafia and Anclote Rivers.

For the Hillsborough River, flood volume will be simulated in sub-basins by methods based on rainfall-runoff theory, accumulated at the main stream, and routed downstream through the flood control structures by use of energy and continuity equations governing flow in open channels. Base-flow component of the hydrograph will be approximated by empirical equations describing ground water discharge. Flow routing will be constrained by and dependent on desired water levels in lower regions of the basin. Flood hydrograph models based on rainfall-runoff theory will also be developed for the Alafia and Anclote rivers. Preliminary results indicate that the Hillsborough and Alafia River models simulate flood peaks with expected relative errors of less than 15 percent.

U.S. Department of the Interior, Geological Survey, Tampa, Florida. Funded by: Interior Dept., Geological Survey, Water Resources Division. 7/72 - 6/73.

J. F. Turner.

00024

Land - Surface Subsidence, Baytown Area, Texas

Land subsidence.

The objective of this study is to determine rates and amounts of subsidence and to predict the rate and amount of subsidence for planning, construction, and maintenance of the proposed levee or some other protective measure.

Data on the relation of pressure decline to compaction would be collected and form the basis for determining the amount and rates of subsidence. These data include inventories of ground-water pumpage and oil and gas production and delineation of pressure decline due to each. A study would be made of the sub-surface deposits with the use of drillers and electrical logs to determine clay and sand-bed thicknesses and composite clay thickness. Two wells would be drilled to obtain clay cores and to install pore pressure measuring devices. Water-level measurements would be obtained to relate with data from a releveling program initiated by the Corps of Engineers.

U. S. Geol. Survey, WRD, Texas Dist. Funded by: U. S. Army Corps of Engrs. 1/72-1/74. R. K. Gabrysch.

00025

Interdisciplinary Land-Use capability study of Alabama's Coastal zone.

Land Capability.

To use geological, geographical, marine science, botanical and archaeological data in development of land capability maps for a part of Alabama's coastal zone. Remote sensing will be used.

University of Alabama. Funded by: University of Alabama. 1/74 - 1/75.

S. H. Stow.

00026

Engineering geology study for a portion of Baldwin County, Alabama.

Soils engineering, environmental geology, land capability.

Objective is to provide (soils) engineering data in conjunction with basic geologic and hydrologic data in form usable by planners for land capability.

University of Alabama, Department of Geology and Geography. Funded by: University of Alabama. 10/72 - 6/74.

Mr. Alan Blake. Dr. S. H. Stow (University of Alabama, Box 194, University of Alabama 35486).

00027

Flood-prone area mapping in Mobile and Baldwin Counties using remote sensing.

Flood-prone area mapping.

Determine feasibility of using remote sensing (ERTS high level and low level) in flood-prone area mapping and the cost/benefit ratio.

University of Alabama, Department of Geology and Geography. Funded by NASA. 6/73 - 1/74.

S. H. Stow.

00028

Development of a hydrological concept for greater Mobile metropolitan-urban Environment (Phase II) Project B-038-Ala.

The extent of salt water encroachment in specific areas near bodies of salt water will be measured. A map of flood prone areas is being prepared. Work is in progress to predict effects on water levels in selected areas caused by substantial pumping of wells.

This project expanded on work done earlier in Project B-032-Ala. (Phase I). This second phase of the work included preparation of flood-plain maps; an in-depth investigation of the adequacy of existing water supplies, both ground water and surface water, to meet projected demands beyond the year 2000; and development of methodology using electrical-resistivity techniques to define the fresh water - salt water contact in areas subject to salt-water encroachment. The study revealed that water use in south Alabama has steadily increased during the past decade, but is still only a small fraction of the available

supply. It further revealed that electrical-resistivity techniques may aid in delineating the fresh water - salt water interface under favorable conditions in coastal areas.

Department of Geology and Geography, University of South Alabama, Geological Survey of Alabama. Funded by: Water Resources Research Institute, Dept. of the Interior. December 1971 - November 1972.

George M. Lamb and Dr. Philip E. LaMoreaux.

00029

Technical recommendations for establishment of a coastal construction set back line in Florida.

Coastal Engineering Laboratory, University of Florida. Gainesville, Florida 32611. Funded by: Department of Natural Resources Florida.

James Purpura, Chiu.

00030

Coastal engineering studies related to Florida's shoreline and beach erosion problems.

The primary objectives of the study are described in the following paragraphs:

**Inlets** - The role of inlets in contributing to the overall shoreline problems will be investigated. Special consideration will be given to the hydrographic features and sand bypassing processes at the various inlets.

**Nearshore Sand Resources** - A sub-bottom profile will be used to define near-shore sand resources suitable for beach nourishment purposes.

**Susceptibility of General Coastline to Wave Attack** - Wave refraction techniques will be employed to identify areas that are particularly vulnerable to storms originating from various directions. Erosion-deposition occurrences for particular storms will be correlated with these results.

**Coastal Construction** - The performances and effects of various types of coastal structures and practices will be assembled and interpreted in order to document the most effective solutions to Florida's coastal problems.

**Setback line** - to make the necessary technical investigations in order to recommend setback lines defining the seaward limit of coastal construction throughout the various coastal counties of Florida.

University of Florida, School of Engineering, Gainesville, Florida 32601.  
Funded by: Florida State Government. 7/72 - 6/73.

J. A. Purpura.



00031

The legal regulation of shoreline development.

The objectives of this project are to build upon the information developed by the study of the law of the Florida Coastal Region previously carried out, by selecting several coastal states representing different patterns of authority distribution, analyzing prior decisions, and identifying the more successful state and local patterns. The ultimate objective is to assist in the development of model authorities and model laws. Utilizers of the results include: Office of Sea Grant and Florida State Department of Natural Resources Shoreline Study Commission.

For additional information pertaining to this project contact Dr. Richard G. Bader, Director, Sea Grant Programs, University of Miami, Coral Gables, Florida 33146.

University of Miami, School of Business Administration, Miami Florida 33124.  
Funded by: Commerce Department, National Oceanic and Atmospheric Administration, Sea Grant Office, 7/72 - 6/73.

D. M. O'Connor.

00032

Documentation of Land-Surface subsidence in the Pascagoula-Bayou Cassotte area, Jackson County, Miss.

Department of Geological Engineering, University of Mississippi. Funded by: Office of Science and Technology of the Office of the Governor. 9/72 - ?

V. H. Minshew; T. H. Waller.

00033

Marine problems related to industrial and socio-political development of the Gulf Coast region.

Bureau of Governmental Research, University of Mississippi. Sea Grant Program and University of Mississippi. 1/73 - 12/73.

R. E. McArthur.

00034

The effect of urban land development on water quality.

The efficient management of water resources in a rapidly developing urban area requires concise and quantitative measurements of effects of changing land use. As regions are changed from a natural state to other acceptable

levels of population density, changes occur in water runoff both in quantity and quality.

A parcel of land (presently in a natural state but scheduled to be developed into a medium density populated area), has been selected for a study which will have the following objectives: 1. To establish quantitatively the original state of this land. This will include: (a) An inventory of existing flora and fauna and soil conditions. (b) The quantity of runoff. (c) A complete water balance and energy balance. (d) The magnitudes of each of the water quality parameters in the water runoff. 2. To evaluate at regular intervals the following: (a) Changes in the topography and flora and fauna (b) The quantity and quality of runoff (c) Changes in water balance and energy balance. (d) The magnitude of each of the water quality parameters. 3. To correlate the changes in evapotranspiration, percolation, and runoff as well as the the changes in amounts and characteristics of the water quality parameters as the land development proceeds.

University of South Florida, School of Engineering, Tampa, Florida 33620.  
Funded by: Interior Department, Office of Water Resources Research.  
7/72 - 6/73.

M. W. Anderson, B. E. Ross.

00035

Matagorda Bay and environs. A pilot study for land and water use management.

This project is designed as a baseline study for the Matagorda Bay System, the Texas Bay System which has been least affected by man's activities. The study entails (1) mapping of modern depositional environments and Pleistocene facies, (2) monitoring shoreline erosion and deposition, (3) sediment, fauna and flora sampling, (4) hydrography, and (5) sub-bottom seismic profiling. These data will provide information on the kinds and intensity of physical processes, bottom sediment distribution, distribution of plant and animal communities, geometry of bay-fill sediment, and the quantity of freshwater contributed to the bay system annually. Within the next decade most of the major fluvial systems that discharge into the Matagorda Bay System will have been dammed within 8 miles of the bay, virtually cutting off freshwater inflow. This study is designed to show how the bay system functioned in its near natural state, to show the effects of both natural processes and man's activities on the bay system, and to provide data requisite for land and water-use management.

University of Texas, Bureau of Economic Geology, University Station Box X, Austin, Texas 78712. Multiple support funds 7/71 - 6/72. University of Texas.

J. H. McGowen, J. L. Brewton, R. W. Nordquist, B. H. Wilkinson.

00036

Establishment of operational guidelines for Texas coastal zone management.

Development of operating criteria for management of the Texas Coastal Zone, and of a methodology for evaluating economic and environmental effects of alternative courses of action for coastal zone management.

The purpose of the study is the development and application of a methodology for evaluating the economic and environmental effects of proposed policies for the management of the Texas Coastal Zone. The specific goals of the study are: (1) The development of a systematic approach for evaluating the economic and environmental effects of alternative policies for Texas Coastal Zone management; (2) The establishment of operating criteria specific to the Texas Coastal Zone by which environmental and economic impact can be assessed; and (3) the testing of the proposed methodology through the application of several hypothetical management policies to a specific region of the Texas Coastal Zone.

The University of Texas at Austin. Funded by: National Science Foundation. Office of the Governor of Texas. June 1972 - May 1974.

Dr. E. Gus Fruh, Dr. F. D. Masch, Jr., Dr. J. F. Malina, Jr., Dr. W. L. Fisher, Dr. C. H. Oppenheimer, Dr. J. Hazleton, Dr. K. Haynes, Joe C. Moseley III. Publications: The Management of Bay & Estuarine Systems - Phase I dated March, 1972; The Management of Bay & Estuarine Systems in the Texas Coastal Zone Phase II, dated March 1973; Progress Report dated September, 1972; Progress Report dated December, 1972; Texas Coastal Zone Biotopes: An Ecography, dated November, 1972; Interim Reports dated May, 1973, as follows: Summary; Economics & Land Use; Resource Capability Units; Biological Uses Criteria; Estuarine Modeling; Water Needs & Residuals Management.

00037

Establishment of Operational Guidelines for Texas Coastal Zone Management.

Each policy decision in the Texas Coastal Zone produces economic and social as well as environmental impacts. In order to effectively evaluate alternative management policies, a mechanism for integrating these various types of impacts is necessary. This integration and synthesis can be accomplished through the development and application of a series of models, provided that the models are properly interfaced, the correct inputs are used, and the results are carefully interpreted. Several possible policies for management of the Coastal Zone will be selected and evaluated individually using the methodology and information developed in the project. This systematic process will be carried out for several policies, the first of which assumes no change in public policy in the Texas Coastal Zone. Population and economic activity will be assumed to increase, but present regulations, technology, and practices will be assumed to exist. The predicted economic and environmental effects for the years 1980 and 1990 will result. The other policies to be evaluated

have not yet been selected, but project participants have been in contact with the various planning agencies for the Coastal Bend region, and have received several suggestions of policies which are currently being considered by those agencies. Because of the time constraints, only two or three of the suggested policies can be analyzed during the second year. Each of the various public policies which are evaluated using the methodology developed in the project will be associated with a particular state of the economy of the region and a corresponding state of the Coastal Zone environment. A selection among the alternatives can then be made on the basis of a comparison of the economic and environmental states expected to result from each.

University of Texas, School of Engineering 200 W. 21, Austin, Texas 78712.  
Funded by National Science Foundation, Division of Environmental Systems and Resources. 4/73-3/74.

Dr. E. G. Fruh.

MARINE BIOLOGY  
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00001

Experiments in winter culture of rainbow trout.

Comparing growth of salmonids raised in fresh and brackish water environments.

Alabama Dept. of Conservation and Natural Resources (Marine Resources Division). Completion June 30/74. Funded: National Marine Fisheries Service.

Walter M. Tatum, Madison K. Powell.

00002

Experiments in over-wintering Florida Pompano.

Over-wintering a tropical species in temperate climate.

Alabama Dept. of Conservation and Natural Resources. (Marine Resources Division). Completion: June 30/74. Funded: National Marine Fisheries Service.

Walter M. Tatum, Madison K. Powell.

00003

Biology of Alabama's estuaries.

The objectives of this study are: 1) to determine the major commercial species appearing in or adjacent to Alabama's estuarine areas as immature and selected adult forms and the quantitative distribution of the species seasonally and areally for a minimum of 1 year, 2) to determine the value of harvested species in and resulting from Alabama's estuaries, 3) to determine the correlation between hydrological characteristics and relative abundance of selected organisms, mainly with respect to salinity and temperature, 4) to develop an atlas of the biological characteristics of Alabama's estuaries in cooperation with other states of the Gulf States Marine Fisheries Commission and the Bureau of Commercial Fisheries.

Alabama State Seafoods Division, Marine Research Lab, P. O. Box 188, Dauphin Island, Alabama 37528. Funded by: Commerce Department, National Oceanic and Atmospheric Administration, National Marine Fisheries Service.

H. A. Swingle.

00004

Distribution of the genus Ergasilus (parasitic copepod) in the southeastern United States.

The objectives of this study are to provide a better understanding of the distribution host-parasite relationships, and extent of infestation of the genus Ergasilus.

Auburn University, School of Agriculture, Zoology and Entomology, Auburn, Alabama 36830. Funded by: Interior Department, Bureau of Sport Fisheries and Wildlife. Federal Aid Division.

W. A. Rogers.

00005

Environmental studies relating to gas pipeline operations in coastal marshes.

Characterization of coastal zone marsh ecosystems in the Gulf of Mexico.

Coastal zones along the Gulf Coast are currently being characterized through overflight photography and specific field investigations including both aquatic and terrestrial aspects.

Battelle - Columbus Labs. Funded by: Offshore pipeline committee. 5/1/72-12/31/73.

Dr. Charles Willingham, Aquatic, Dr. David Engstrom, Aquatic. Dr. John McGinnis, Terrestrial, Mr. Barney Cornaby, Terrestrial.

00006

Water Management District #6.

This is a multi-disciplinary planning effort for coastal watershed, which feeds an elaborate estuarine system.

Collier County Conservancy, Black, Crow, and Eidsness. Funded by: Collier County Commission, Collier County Conservancy. Jan. 31, 1973-Jan. 31, 1974.

Ted Smallwood, N. Vines, E. T. Large.

00007

Methods of controlling marine fouling in desalination plants.

The program is designed to 1) identify principal marine fouling organisms along the Pacific, Atlantic and Gulf Coasts; 2) to assess and evaluate experimentally currently used control procedures and combination of procedures, including chlorination, toxic surfaces, heat and water velocity, 3) to make engineering and economic assessments of the several control procedures and combination of procedures, including chlorination, toxic surfaces, heat and



water velocity; 3) to make engineering and economic assessments of the several control procedures for which data are obtained. Comparisons of varying degrees of control for each type of fouling methods, as well as comparisons between different types of fouling control methods are to be made. On the basis of results obtained, methods of operation that will minimize cost of desalting due to the marine fouling will be recommended.

Dow Chemical Company, Freeport, Texas 77541. Funded by: Interior Department, Office of Saline Water. 7/72-2/73.

B. P. Sheperd, W. F. McIlhenny, B. L. Prows.

00008

A study of the effects of desalination plant effluents on marine benthic organisms.

The objectives of the research program were to determine the effects of increased salinities, temperatures, and copper concentrations on marine benthic organisms as a result of desalination brine disposal into coastal and estuarine environments. In order to evaluate the effects of the seawater-brine mixtures on typical benthic fauna, the American oyster, C. virginica and the penaeid shrimps, P. aztecus and P. duorarum were selected and long-term multivariate, seasonal experiments on juvenile and specimens were conducted. The effects of the mixtures of brine and seawater were also tested on the eggs and larval stages using short-term bioassay tests. Seawater-brine dilutions containing 0.02 ppm of total copper (with about 0.01 ppm present as ionic copper) had an acute toxic effect on C. virginica larvae. The mixture was also harmful to juvenile and adult specimens due to the copper accumulation in their tissues that impaired the metabolic function of the organisms and lowered the tolerance level to other environmental stresses. An increase of temperature and salinity to 10 percent above the environmental values enhanced the incidence level of the pathogenic fungus, Labyrinthomyxa marina. Penaeid shrimp exhibited a greater tolerance to the presence of the desalination brine in the coastal seawater. Larval stages of shrimp were able to develop normally in the presence of 0.025 ppm of dissolved copper, at salinities up to 5,000 ppm and temperature of 81.5 degrees F. A copper concentration of 0.05 ppm in the seawater-brine mixtures was lethal to the naupliar, protozoal and mysis stages of P. aztecus and P. duorarum.

Dow Chemical Company, Freeport, Texas 77541. Funded by: Interior Department, Office of Saline Water. 7/72-6/73.

E. F. Mandelli, W. F. McIlhenny.

00009

Fusion of cultured cell protoplasts by membrane specific antibody molecules coupled to membrane hytic aquils.

Florida Atlantic University. National Res. Council of Canada, 1973.

J. X. Hartmann.

00010

Shallow water organisms taken by hydraulic dredge-special emphasis on location and delineation of commercial clam populations.

The objective of this study is to determine what species are taken by this type harvesting gear and to locate and delineate commercial populations of clams.

Florida State Board of Conservation, P. O. Drawer F. St. Petersburg, Florida 33731. Funded by: Commerce Department, National Oceanic and Atmospheric Administration, National Marine Fisheries Services. 7/71-6/72.

E. A. Joyce.

00011

Investigations on American shad in the St. Johns River.

The objectives of this study are: 1) to delimit and characterize the spawning grounds of American shad in the St. Johns River, 2) to study the in-river movement and growth of juveniles and the in-river movement of adults, 3) to describe the fisheries and estimate the production of shad, 4) to consider and, when possible, recommend management programs that will perpetuate this resource in the event of environmental changes and increased fishing pressure.

Florida State Board of Conservation, Larson Building, Tallahassee, Florida 32304. Funded by: Commerce Department, National Science and Atmospheric Administration, National Marine Fisheries Service. 7/71-6/72.

M. H. Moe.

00012

Rock shrimp life history studies and exploratory fishing survey.

The technical objectives are to 1) survey stocks of rock shrimp, Sicyonia brevirostris stimpson, and define (geographically and seasonally) those with economic potential; 2) develop information on the life history, reproductive cycle, and population ecology of the rock shrimp with emphasis on delineating spawning times and loci, and nursery grounds. Trawling will be conducted along transects on the northeast Florida shelf to define the distributional pattern of rock shrimp. Areas yielding substantial catches will be sampled intensely to obtain information on the life history and ecology of the species. Collection will be correlated with water quality and benthos sampling.

Florida State Department of Natural Resources, Larson Building, Tallahassee, Florida 32304. Funded by: Commerce Department, National Oceanic and Atmospheric Administration, National Marine Fisheries Service. 7/72-6/73.

F. Kennedy.

00013

Red Tide Project.

Florida State Department of Natural Resources Marine Research Lab, St. Petersburg, Florida. Primarily State Funds w/limited matching federal funds for three projects (mariculture rock shrimp, anadromous fish). Average length of project: 2 years. Some ongoing: life history of fishes, Hourglass cruise materials, marine pathology, and red tide.

00014

Fauna of the Hourglass Cruises.

Florida Dept. of Natural Resources Marine Research Lab, St. Petersburg, Florida. Primarily state funds w/limited matching federal funds for three projects (mariculture, rock shrimp, anadromous fish). Average length of project: 2 years. Some ongoing: life history of fishes, Hourglass cruise materials, marine pathology, and red tide.

Joyce, E. A., Jr. Beaumariage, D. S.

00015

Marine Pathology Project.

Florida Dept. of Natural Resources Marine Research Lab, St. Petersburg, Florida. Primarily state funds w/limited matching federal funds for three projects (mariculture, rock shrimp, anadromous fish). Average length of project: 2 years. Some ongoing: life history of fishes, Hourglass cruise materials, marine pathology, and red tide.

Joyce, E. A., Jr. Beaumariage, D. S.; Quick, J. A. Jr.

00016

Life History of Marine Fishes (14 projects).

Florida Dept. of Natural Resources Marine Research Lab, St. Petersburg, Florida. Primarily state funds w/limited matching federal funds for three projects (mariculture, rock shrimp, anadromous fish). Average length of project: 2 years. Some ongoing: life history of fishes, Hourglass cruise materials, marine pathology, and red tide.

Joyce, E. A., Jr. Beaumariage, D. S., Futch, C. R.

00017

Coral Reef Project.

Florida Dept. of Natural Resources Marine Research Lab. St. Petersburg, Florida. Primarily state funds w/limited matching federal funds for three projects (mariculture, rock shrimp, anadromous fish). Average length of project: 2 years. Some ongoing: life history of fishes, Hourglass Cruise materials, marine pathology, and red tide.

Joyce, E. A., Jr., Beaumariage, D. S., Lyons, W. G.

00018

Mangrove, Seagrass, Marsh Grass Transplants.

Florida Dept. of Natural Resources Marine Research Lab, St. Petersburg, Florida; primarily state funds w/limited matching federal funds for three projects (mariculture, rock shrimp, anadromous fish). Average length of project: 2 years. Some ongoing: life history of fishes, Hourglass cruise materials, marine pathology, and red tide.

Joyce, E. A. Jr., Beaumariage, D. S., Steidinger, K. A.

00019

Survey of the distribution and abundance of the Portuguese man-o-war in waters adjacent to Florida.

The technique objectives are: 1) to establish the degrees to which Physalia is seeded in the Gulf of Mexico and Atlantic Coast from the Caribbean through the Straits of Yucatan, 2) to determine estimates of seasonal population density, and 3) to determine, where possible, area and periods of reduction and seasonal rate of development. Monthly aerial surveys are conducted of the waters along the coast of Florida, the northcentral Gulf of Mexico, the western Gulf Stream, Yucatan Straits and the western Caribbean for the distribution of Physalia. Physalia are maintained in the laboratory to study life history stages and growth rates. Age-size relationship information will be correlated with size-distribution data in an effort to determine possible spawning grounds. Seasonal abundance and size distribution patterns have been developed.

Florida State Department of Natural Resources, Marine Research Lab, P. O. Drawer F, St. Petersburg, Florida 33731. Funded by: Dept. of Commerce, National Oceanic and Atmospheric Administration. NMFS. 7/71-6/72.

F. S. Kennedy, E. J. Little.

00020

Rock shrimp life history studies and exploratory fishing survey.

The technical objectives to 1) survey stocks of rock shrimp, Sicyonia brevirostris stimpson and define (geographically and seasonally) those with economic potential; 2) develop information on the life history, reproductive cycle, and population ecology of the rock shrimp with emphasis on delineating spawning times and loci, and nursery grounds.

Trawling will be conducted along transects on the northeast Florida shelf to define the distributional pattern of rock shrimp. Areas yielding substantial catches will be sampled intensely to obtain information on the life history and ecology of the species. Collection will be correlated with water quality and benthos sampling.

State Marine Research Lab, P. O. Drawer F, St. Petersburg, Florida 33731.  
Funded by: Commerce Department, National Oceanic and Atmospheric Administration, National Marine Fisheries Service, 7/72-6/73.

S. Cobb, E. Girard.

00021

Mollusk systematics (brackish water Hydrobiidae).

Hydrobiid systemics.

Florida State Museum, Gainesville, Florida. Funded by: U. S. Department of the Interior. 1967-1974.

Fred G. Thompson.

00022

Chemistry of mercury in natural waters of the United States.

The major objectives of this project are to determine the abundance and distribution of mercury in Gulf Coast estuaries of the northeast section including part of the coasts of Florida, Alabama, Mississippi, Louisiana and Texas. An important phase will be to determine the relative concentration in various samples of sediments biological materials and water. This information should provide a picture of the dynamic partition of processes necessary to predict the fate of mercury in this environment.

Florida State University, School of Arts, Oceanography, Tallahassee, Florida 32306. Funded by: Environmental Protection Agency, Office of Water Programs.

R. C. Harriss.

00023

Insecticides on estuarine animals of the northern Gulf Coast of Florida.

The objectives of this project are: 1) a quantitative field survey of Appalachicola Bay will be continued with an emphasis on important commercial species that use the area as a nursery. A computer program will be developed to allow estimates of long-term changes in aquatic populations, 2) in conjunction with the field survey, a comprehensive pesticide residue analysis will be made to determine the extent of the biological concentration of chlorinated hydrocarbon pesticides in important aquatic food chains. This will be compared to sediment and animal samples taken from other parts of the drainage system (Lake Seminole) to determine the movement of such pesticides through the environment, 3) chronic laboratory tests will be conducted on the behavior of certain estuarine organisms to allow increased understanding of the field data with respect to avoidance of pesticides, seasonal fluctuations of pesticides susceptibility, etc. Accomplishments during past twelve months include: 1) a field program was initiated in Appalachicola Bay to make quantitative determinations of estuarine populations and to determine the levels of pesticide contamination in the area for comparison with upland portions of the drainage system (Lake Seminole), 2) computer programs were developed to determine species diversity, evenness, community interactions, etc., 3) laboratory systems were established for pesticide residue analysis and the development of a program to determine the chronic effects of pesticides on the behavior of various estuarine organisms. For additional information pertaining to this project contact Dr. Hugh L. Popenoe, Acting Director, Center for Aquatic Sciences University of Florida, Gainesville, Florida.

Florida State University, School of Arts, Tallahassee, Florida 32306. Funded by: Commerce Department, National Oceanic and Atmospheric Administration, Sea Grant Office. 7/72-6/73.

P. J. Livingston, N. P. Thompson.

00024

Pharmacology of molluscan hearts.

Florida State University. Funded by: U. S. Department of Health, Education and Welfare. 3/1/73-2/28/74.

M. Greenberg.

00025

Structure and metabolism of sea floor communities.

Florida State University. Funded by: National Science Foundation 10/72-3/74.

R. Y. George.

00026

Simulation of tidal hydrodynamics and salinity in Texas coast estuaries.

The objective of this study was to develop verified hydrodynamic and transport (salinity) simulation models to include all parts of the Arkansas-Copano and Corpus Christi-Nueces Bay Systems, Texas. A tidal hydrodynamic model and a salinity transport model are being developed for shallow irregular estuaries. The basis for the hydrodynamic model is the Navier-Stokes equations and the equation of continuity. The hydrodynamic model will be interfaced with a two-dimensional finite-difference salinity transport model assuming complete vertical mixing. These models will have the capability of accepting input data such as fresh-water inflow, return flows, precipitation at any geographic location, tidal action, and other hydrologic, hydraulic, or physiographic and geomorphic input data as may be required for input to the analysis. These models will be used to predict salinity distributions throughout a shallow irregular bay or estuary under different conditions of inflow, tidal action, etc. The salinity distribution will be used to locate biological sampling stations and to evaluate the amount of fresh-water inflow required to preserve the ecology of the estuary.

Frank D. Masch and Associates, 7108 Mesa Drive, Austin, Texas 78731. Funded by: Texas State Government. 9/72-8/73.

F. D. Masch, S. C. Burnitt, W. A. White, L. F. Tischler, D. R. Bauschuber.

00027

The persistence, degradation and toxicity of organophosphorus insecticides in the estuarine environment.

Decomposition of organophosphorus insecticides in estuarine water and sediment by chemical and microbiological mechanisms and the identification of insecticide breakdown products.

Gulf Coast Research Laboratory. Self funding. July 72-?

William W. Walker, Ph. D., Beryl, S. Goolsby.

00028

Investigations of coastal pelagic fishes.

Technical objectives are 1) to determine the seasonal and areal distribution and relative abundance of the larvae and juveniles of abundant coastal pelagic species; 2) to determine the relationship of major environmental factors to the occurrence of coastal pelagic fishes, 3) to determine the food preference of selected coastal pelagic species by stomach content studies, and 4) to determine the spawning cycle of selected coastal pelagic species by gonad studies in the study area.

Gulf Coast Research Laboratory, Ocean Springs, Mississippi 39564. Funded by: Commerce Department, National Oceanic and Atmospheric Administration, National Marine Fisheries Service.

J. Y. Christmas, J. S. Franks.

00029

Investigations of commercially important penaeid shrimp in Mississippi estuaries.

The technical objectives are: 1) to collect representative samples of postlarval, juvenile and adult penaeid shrimp in Mississippi estuarine waters; 2) to identify, measure and count collected samples of penaeid shrimp or aliquots thereof; 3) to determine the species composition and productivity of marsh and grass bed flora associated with penaeid shrimp in Mississippi; 4) to make estimates of the annual value of these habitats; to tabulate and summarize data at monthly intervals; 5) to develop and apply programs that will produce improved predictions of shrimp availability to the commercial shrimp fishery; 6) to develop and apply programs that will provide better data for management of shrimp resources; 7) to prepare and submit the completion report for this project and manuscripts for submission to appropriate media for publication.

Gulf Coast Research Laboratory, Ocean Springs Mississippi 39564. Funded by: Department of Commerce, National Oceanic and Atmospheric Administration. National Marine Fisheries Service.

J. Y. Christmas, W. Langley, T. Vandevender.

00030

A study of the parasites and diseases of fish, mollusks and crustacea utilized in mariculture.

The technical objectives are: 1) to identify parasites and diseases infecting selected species intentionally and unintentionally grown in maricultural facilities; 2) to study the infectivity and pathogenicity of selected disease causing organisms in relation to specific environmental factors with special attention paid to chemical means of controlling the disease; and 3) to compare the parasites and diseases found in individuals collected from their natural habitats with those found in individuals from artificial ones. Information has been developed relative to the degree of infestation of selected diseases in croaker, drum and blue crabs.

Gulf Coast Research Laboratory, Ocean Springs, Mississippi 39564. Funded by: Commerce Department, National Oceanic and Atmospheric Administration, National Marine Fisheries Service. 7/72-6/73.

D. W. Cook.



00031

Population studies of noxious coelenterates of Mississippi Sound.

The technical objectives of this study are 1) to determine the extent to which jellyfish infestations along the shores of these areas would pose hazards to a public engaged in water-based activities, 2) to monitor influxes of medusae and record corresponding physical parameters over a continuum in an attempt to explain the markedly impoverished populations encountered during the execution of the first segment of this project; 3) to determine if various species of noxious medusae enter Mississippi Sound as ephyrae or early post-ephyrae (although such sampling has been conducted during the past year, the coelenterate distribution was so peculiarly atypical as to preclude valid biological conclusions without benefit of consecutively sampled seasons. Continued sampling would serve to define the normal biological situation), 4) under laboratory conditions if planulae of various species of noxious medusae can settle and successfully develop on substrata characteristic of Mississippi Sound; 5) to obtain viable sessile stages of coelenterates by monitoring fouling of valves in small artificial reefs established in each of three passes into Mississippi Sound; 6) to culture the Gulf race of Chrysaora quinquecirrha under laboratory conditions 7) to determine the extent of jellyfish infestations in these areas and to monitor for possible production of coelenterate larvae; 8) to accumulate records of local coelenterate encounters severe enough to warrant medical attention.

Gulf Coast Research Laboratory, Ocean Springs, Mississippi 39564. Funded by: Commerce Department, National Oceanic and Atmospheric Administration, National Marine Fisheries Service. 7/72-6/73.

W. D. Burke.

00032

Experimental stocking of striped bass.

Technical objectives of the study include establishment of a population by stocking of artificially reared South Carolina striped bass; establishment of a population of striped bass which will utilize the coastal streams, the estuaries and open Gulf of Mexico by stocking striped bass reared from stocks known to migrate to the open sea; establishment of a source of fry from Mississippi, utilizing those striped bass for brood stock which have been stocked into the coastal streams and into the Ross Barnett Reservoir near Jackson, Mississippi. A sampling will be carried out to: 1) check for "natural reproduction as a result of previously stocked striped bass; 2) check for the occurrence of juvenile striped bass; and 3) to monitor previously stocked striped bass in order to continue to assess the results of those stocking programs.

Gulf Coast Research Laboratory, Ocean Springs, Mississippi 39564. Funded by: Commerce Department, National Oceanic and Atmospheric Administration, National Marine Fisheries Service. 7/72-6/73.

T. D. McIlwain.

00033

Parasites of Gulf of Mexico vertebrates: (fishes and amphibians).

Identification, incidence, experimental transmission, and control of various parasites and diseases, as: Amylcodinium ocellatum, monogenetic trematodes, leeches, blood flukes, lymphocystis, and various bacterial diseases.

Gulf Coast Research Lab., Section of Parasitology, P. O. Box AG. Ocean Springs, Mississippi 39564. Funded by: U. S. Dept. of Commerce, National Oceanic and Atmospheric Administration.

R. Lawler. Publications: Lom & Lawler. 1974. An ultrastructural study on the mode of attachment in dinoflagellates invading gills of Cyprinodontidae. Protistologica 9 (2): (in press).

Lawler, House and Cook, 1974. Silver perch, Bairdiella chrysura: New host for Lymphocystis. Copeia 1974, No. 2: (in press).

Lawler, 1973. A non-baited fish trap for shallow water. The Prog. Fish-Cult. 35 (4): 237-238.

Lawler & Dukes. 1973. Lymphocystis in the eye. The Veterinary Record 93 (10): 297.

Plus 5 more to be submitted in the near future.

00034

Investigations of pelagic fishes.

Marine Biology, Oceanography.

Gulf Coast Research Laboratory. Funded by: U. S. Department of Commerce, National Oceanic and Atmospheric Administration, National Marine Fisheries Service. July 70 - December 72.

J. Y. Christmas, R. S. Waller, A. M. Perry.

00035

Biloxi Bay Study.

Marine geology, marine biology and oceanography.

Gulf Coast Research Laboratory, National Aeronautics and Space Administration, Earth Resources Laboratory. Self funded. June 72-September 73.

J. Y. Christmas, C. Eleuterius, E. Otyos, T. Lytle, H. B. Atwood.

00036

Comparative histochemical and ultrastructural studies of the hearts of marine vertebrates and invertebrates.

Gulf Coast Research Laboratory, Section of Microscopy, Ocean Springs, Mississippi 39564. Funded by: State of Mississippi 1965-?

H. D. House, W. E. Hawkins, Ph. D. Publications: House, Harold D. 1967. A comparative histochemical and electron microscopic study of myocardial cell surface coatings. *Journal of Histochemistry and Cytochemistry*, 15:792.

House, Harold D., Victor J. Ferrans, and Richard G. Hibbs, 1969. Observations of the fine structure of the ventricular myocardium of a salamander, Ambystoma maculatum Shaw. *Herpetologica*, 25: 75-85.

House, Harold D., Victor J. Ferrans, and Richard G. Hibbs; 1970. A comparative histochemical and electron microscopic study of the surface coatings of cardiac muscle cells. *Journal of Molecular and Cellular Cardiology*, 1: 157-168.

House, Harold D., Victor J. Ferrans, Richard G. Hibbs, 1970. A light and electron microscopic study of the heart of a crayfish, Procambarus clarkii (Giraud). I. Histology and histochemistry. *Journal of Morphology*. 131:237-252.

House, Harold D., Victor J. Ferrans, and Richard G. Hibbs, 1971. A light and electron microscopic study of the heart of a crayfish, Procambarus clarkii (Giraud). II. Fine structure. *Journal of morphology*, 133: 33-374.

House, Harold D., and Robert F. Welford, 1972. A histochemical and ultrastructural study, especially of the lipofuscin in the endothelium of the toadfish endocardium. *Transactions of the American Microscopical Society*, 91:24-35.

House, H. D., U. J. Ferrans, R. G. Hibbs, 1972. Surface specialization of epicardial cells of a mollusk. *Anatomical Record*, 172: 44-455.

House, H. D., U. J. Ferrans, and R. G. Hibbs, 1972. Surface specializations of epicardial cells of a mollusk. *Anatomical Record*, 172:454-455.

(MS submitted) House, Harold D., Robert A. Woodmansee, W. E. Hawkins and Harriet M. Perry. Microstructure of the heart of the copepod, Anomalocera ornata.

00037

Pathology of marine vertebrates.

Histochemistry and ultrastructure of Lymphocystis in marine and brackish water fishes.

Section of Microscopy, Gulf Coast Research Laboratory, Ocean Springs, Mississippi 39564. Funded by: State of Mississippi, 1967-?

H. D. House, W. E. Hawkins.

Christmas, J. Y., and H. D. House, 1970. The occurrence of lymphocystis in Micropogon undulatus and Cynoscion arenarius from Mississippi estuaries. Gulf Research Reports, 3: 131-154. House, H. D., and J. Y. Christmas, 1970. Lymphocystis tumors: Histochemical identification of hyaline substances. Transactions of the American Microscopical Society, 89:276-282.

House, Harold D., and James Y. Christmas, 1971. Observations of the ultrastructure of lymphocystis virus in the Atlantic croaker, Micropogon undulatus (Linnaeus). Virology, 44: 211-214.

House, Harold D., 1972. Snook (Centropomus: Centropomidae): ultrastructure of the virus. American Midland naturalist, 88: 476-479.

(In Press) Lawler, Adrian R., Harold D. House, and David W. Cook, Silver perch, Bairdiella chrysura: New host for lymphocystis. Copeia.

00038

Damages to the marine environment in Louisiana and Mississippi with special regard to oysters and the opening of the Morganza Floodway and the Bonnet Carre Spillway.

Effect of floods upon estuarine organisms.

Gulf Coast Research Laboratory, U. S. Army Corps of Engineers. Funded by: U. S. Army Corps of Engineers. April 7 - November 21, 1973.

G. Gunter, W. E. Shell, Jr.

00039

Parasites of marine animals in the northern Gulf of Mexico.

Primarily a study of marine and estuarine parasites that affect the health of man or fishes being reared in culture.

Gulf Coast Research Lab. Funded by: Department of Commerce, National Oceanic and Atmospheric Administration, Mississippi - Alabama Sea Grant Program. January 73-December 75.

R. M. Overstreet.

00040

Harbor Survey.

Environmental impact statements on maintenance dredging of the Pascagoula and Gulfport harbor and channel systems.

Gulf Coast Research Laboratory, Ecology Section. Funded by: U. S. Army, Corps of Engineers. July 1-October 1973.

R. A. Woodmansee.

00041

A study of plant establishment on spoil areas in Mississippi Sound.

To develop methods of transplanting vascular plants to spoil islands that insure establishment. These plant communities would provide habitat for animals and stabilize spoil.

The purpose of this study is 1) to develop methods, define species and conditions suitable for plant establishment, 2) provide guidelines for engineering operations regarding plant establishment on submerged and emergent areas, reduce erosion and maintenance costs by stabilization of spoil along channels and other waterways, 4) provide productive habitat for marine and estuarine animals.

Gulf Coast Research Lab, Botany Section, Ocean Springs, Mississippi 39564. Funded by: U. S. Army, Corps of Engineers. July 71-July 74.

L. Eleuterius. Publications: Submergent vegetation for bottom stabilization. Establishment of vegetation on dredge materials in Mississippi Sound. I. Transplanting techniques. Comparative notes on the survival and growth of three transplanted marine angiosperms. Other papers to be published.

00042

Parasites diseases and control of diseases of commercially important finfishes and shellfishes from the northern Gulf of Mexico.

Parasites of commercial fishes including aquaculture.

Gulf Coast Research Laboratory. Funded by: U. S. Department of Commerce, National Oceanic and Atmospheric Administration, National Marine Fisheries Service. June 72-June 75.

R. M. Overstreet, D. W. Cook. Thirteen publications from this or a preceding related project available from Gulf Coast Research Laboratory.

00043

The effect of a mirex and carbofuran on estuarine micro-organisms.

Gulf Coast Research Laboratory, Microbiology Section, Ocean Springs, Mississippi 39564. Funded by: Environmental Protection Agency. July 73-Dec. 74.

D. W. Cook.

00044

Distribution of pollution indicator bacteria in the waters of Biloxi Bay, Mississippi and the adjacent Mississippi Sound.

Gulf Coast Research Laboratory, Microbiology Section, Ocean Springs, Mississippi 39564. Funded by: State of Mississippi. September 1972-continuous.

D. W. Cook. Report: Coliform and fecal coliform bacteria distribution in Biloxi Bay, Mississippi from September, 1972 through July 1973. David W. Cook Microbiology section Gulf Coast Research Lab. 1973.

00045

Studies on helminths of the northern Gulf of Mexico.

Primarily the taxonomy, life histories and ecology of Digenea, Nematoda, Cestoda and Sporozoa in the northern Gulf of Mexico.

A project to determine taxonomic and biological aspects of several selected helminths with emphasis placed on the Digenea and Nematoda.

Gulf Coast Research Lab. Funded by: State of Mississippi, Gulf Coast Research Lab. 7/70-?

R. M. Overstreet.

00046

Investigations of coastal pelagic fishes.

The objective is development of information required for exploitation and management of coastal pelagic fish stocks in waters off the Mississippi Gulf

Gulf Coast Reserach Lab. Funded by: U. S. Department of Commerce, National Oceanic and Atmospheric Administration 7/70-6/73.

J. Y. Christmas, A. Perry.

00047

Shell planting.

The objectives are 1) replenishing of cultch on oyster reefs and 2) follow-up studies on success of planting.

Gulf Coast Research Lab. Funded by: Mississippi Marine Conservation Commission, 8/71-6/72.

W. J. Demoran.

00048

Effects of iron and steel on the survival and growth of the commercial penaeid shrimp.

The purpose is to understand the hazards of creating artificial fishing reefs by sinking old ships and automobiles on the coastal fauna, experiments were duplicated in the laboratory regarding the effects of iron and steel on the survival and growth rates of shrimp Penaeus aztecus.

Gulf coast Research Lab. Funded by: Gulf Coast Research Lab. 5/72 - 8/72.

G. Gunter.

00049

A study of the parasites and diseases of fishes, molluscs, and crustaceans utilized in mariculture.

The purpose is to identify the parasites and diseases found in species important in mariculture and to seek methods of controlling them.

Gulf Coast Research Lab. Funded by: U. S. Department of Commerce, National Oceanic and Atmospheric Administration, 7/69 - 6/72.

R. M. Overstreet. D. W. Cook.

00050

Survival and growth of various fishes with varying salinities culture of various fishes from eggs.

Gulf Coast Research Lab, Section of Parasitology, P. O. Box AG, Ocean Springs, Mississippi 39564. Funded by: U. S. Department of Commerce, National Oceanic and Atmospheric Administration, National Marine Fisheries Service, Gulf Coast Research Lab. Began January 1972.

A. R. Lawler.

00051

Marine Biology - comparative physiology of invertebrates.

A study of the salinity-temperature relationships of the commercial shrimp (Family: Penaeidae) in estuarine waters with special regard to time-course adaptation and functional responses in deviated ion-ratios.

Project objectives are to determine the rate of adaptation of the juvenile brown shrimp Penaeus aztecus as a function of time in various salinity and temperature combinations. The test parameters are determined depending on the salinity-temperature conditions to which the shrimp are exposed in their natural estuarine habitats. The effects of deviations in the medium ion-ratios of Na, K, Ca and Mg will also be studied under the same salinity-temperature conditions. The lethal ion-ratio deviations will be determined for the survival of shrimp in the coastal waters.

Procedures include the behavioral and physiological responses of the shrimp to be studied under the various salinity-temperature conditions. Observations on the general state of the experimental animals, locomotory activity, feeding responses, reflex activity, heart beat, etc. are some of the proposed behavioral responses that will be studied. The physiological responses include the water and salt regulation followed by the corresponding metabolic rates under the same experimental conditions. With the standard analytical techniques the total blood osmoconcentration and blood ions Na, K, Mg, Ca and Cl will be analyzed. For the determination of the metabolic responses the flow type respirometry technique will be employed.

Gulf Coast Research Laboratory, Ocean Springs, Mississippi 39564. Funded by: U. S. Army, Corps of Engineers, Environmental Branch. July 1973 - 1975.

G. J. Lakshmi, A. Venkataramaiah.

00052

Offshore ecology investigation.

This laboratory's subproject: a bottom/surface trawl and bottom crab study of areas of oil production activities and areas of no activity in estuarine and offshore environments.

The objectives are to evaluate the effects of oil production activities on the bottom fishes and bottom-living invertebrates in an oil producing area. Bottom and surface trawls are towed around drilling rigs, production platforms, and in an area of no oil production activity in Timbalier Bay and offshore of Grande Isle, Louisiana. Bottom crabs using a Van Veen sampler are also taken at each site.

Gulf Universities Research Consortium. Funded by: Offshore Petroleum Industry. May 1972 - May 1974.

R. J. Menzies.

00053

Habitat utilization and selection by waterfowl in the coastal marshes of Louisiana.



Louisiana State University, Agricultural Experiment Station, Baton Rouge, Louisiana. Funded by: Louisiana State Government. 1970 - 1975.

R. H. Chabreck.

00054

Ecology and management of Scirpas olneyi and S. robustus in marshes.

Louisiana State University, Agricultural Experiment Station, Baton Rouge, Louisiana. Funded by: Louisiana State Government. 1965-1975.

R. H. Chabreck. Rose, W. M. Methods of establishing natural and artificial stands of Sci pusolneyi. Unpubl. Master's thesis, Louisiana State University, Baton Rouge, 100 p, 1972.

00055

The use of canal banks and other spoil areas by birds in the Louisiana coastal marsh.

Bird usage of spoil areas within the Louisiana coastal marsh.

This is a study of bird species that use spoil areas, and a determination, through nesting studies, of productivity by bird species for each major plant community that occurs on the spoil bank.

Louisiana State University, School of Forestry and Wildlife Mgt. Baton Rouge, Louisiana 70803. Funded by: Louisiana State University, Agricultural Experiment Station. 2/73 - 8/73.

R. E. Noble. R. B. Olsen.

00056

Growth and Physiology of Estuarine Organisms.

Research/Ecosystems Research.

The objectives of this project are (1) to examine the microbiology of detritus formation from intact Spartina, especially cellulase and B. glucosidase activities of dominant species of yeasts, molds and bacteria; (2) to evaluate rates of IN SITU chitin degradation in the salt marsh and factors affecting chitinoclastic processes; (3) to examine distribution of chitinoclasts with particular attention to the species, Vibrio parahaemolyticus; to analyze microbial biodegradation of recalcitrant compounds and the affect of biotic and abiotic factors on transformation activities. Project is designed to provide information on the initial process in the coastal Louisiana estuarine ecosystem, i.e., transformation of the primary producer, Spartina alterniflora, to detritus. Analysis of microbial

chitin decomposition and mineralization rates will facilitate understanding of substrate utilization by detrital feeders and herbivores of the estuarine food web. Studies of cellulose degradation by the composite Spartina microbiota are pertinent to elucidation of mutualistic microbial associations in turnover of cellulosic material, and the application of these processes to enhancement of substrate transformation.

Louisiana State University, Center for Wetland Resources, Baton Rouge, Louisiana 70803. Funded by: U. S. Dept. of Commerce, NOAA, Office of Sea Grant. Aug. 1974.

S. P. Meyers (Food Service), Ho, Allen, Gosselink, Srinivasan, Meier. Publications: Thesis and dissertations: Hood, M. A., Chitin degradation in the salt marsh environment. Ph. D. Goter, Carol J., Studies of utilization of Spartina and Spartina lipids by two species of yeasts isolated from the Barataria Bay region, M. S. Completed publication LSU-SG-73-01, Microbial degradation of oil pollutants, 322 p. Workshop proceedings sponsored by ONR, EPA, Coast Guard.

00057

Estuarine productivity.

Research/ecosystems research.

1) Measurement of the metabolism of marsh and estuarine sediments 2) Survey of standing biomass, chemical quality and flux of detritus at a marsh-bay interface and at Caminada Pass (a bay-gulf interface) 3) Analysis of major inorganic nutrients influencing biological productivity, with particular emphasis on the nitrogen budget and transformation within the system.

Rational management of coastal marshland requires objective criteria for decision making. In the past these criteria have been provided by a few individuals who could testify qualitatively to the probable effects of certain perturbations on limited aspects of the system. The complex system model is emerging as the only available tool by which to evaluate "system response"; that is, the response of the WHOLE system to perturbation. This kind of analysis is the object of the research of which this project forms a part.

Louisiana St. University, Center for Wetland Resources, Baton Rouge, Louisiana 70803. Funded: U. S. Dept. of Commerce, NOAA, Office of Sea Grant.

J. G. Gosselink, Ho, Day, Smith, Patrick.

00058

Aquaculture and Resource Utilization Studies in Pipeline Canals.

## Research/Aquaculture, Finfish-Crustaceans.

The objectives of this project are (1) to determine the suitability of estuarine pipeline canals as impoundments for culture of channel catfish, pompano, and shrimp and (2) to identify environmental management practices that can increase biological marshlands destroyed when canals are dug. Approximately 4,000 acres of Louisiana's estuarine marshes are destroyed annually by canal dredging activities. Biological data, production statistics, and management practices resulting from this study will enable assessment of risks and benefits associated with similar ventures on a larger scale. At the conclusion of the 2 year study, a detailed ecological management plan will be developed for the network of closed canals located on property of the Louisiana Land and Exploration Company, a participating commercial sponsor, which will enable this organization to implement a pilot demonstration project. Features of this plan will probably include water control structures and operating guidelines that respond to the physiological needs of natural species as those to be cultured. Plans for the future contemplate follow-up liaison with the landowner and open dissemination of demonstration project results to other operators with similar resource problems.

Louisiana State University, Center for Wetland Resources, Baton Rouge, Louisiana 70803. Funded: U. S. Dept. of Commerce, NOAA, Office of Sea Grant. 3/74 completed.

A. Harris (Nicholls St. Univ., Biological Sciences), Kilgen.

00059

Utilization and management of coastal marshes and resources.

The objective of this program is aimed at developing knowledge of the physical and biological processes involved in shrimp production of the Barataria Bay region off the coast of Louisiana in order to improve management of the coastal marshes. In addition, aquaculture of shrimp, and other species including nutrition and disease studies will be pursued. Mathematical models will be developed, economic baseline studies will be prepared and legal aspects pertinent to management of the coastal zone will be documented. Several courses relevant to this work will be conducted for graduate students.

Louisiana State University, School of Arts, University Station, Baton Rouge, Louisiana 70803. Funded by: Commerce Department, National Oceanic and Atmospheric Administration, Sea Grant Office. 7/71 - 6/72.

J. R. Vanlopik.

00060

Some aspects of the ecology of tidal marsh estuary at Marsh Island, Louisiana.

Water level fluctuations in Louisiana tidal marshes have been reduced mainly to increase waterfowl food production. The reduction has been accomplished by low-sill dams (weirs), which have a crest about 6 inches below marsh ground level, across mouths of tidal creeks, thus permitting inflow of water at high tides and outflow at low tides until the water level behind the weir reaches crest level, creating a semi-impounded area. The objective of the study is to determine the effects of weirs on certain aquatic organisms, fishes no Crustacea.

Louisiana State University, State Coop. Fishery Unit, Agricultural Center, Baton Rouge, Louisiana 70803. Funded by: Louisiana State Government. 7/72 - 6/73.

W. H. Herke, J. C. Tash, J. E. Weaver.

00061

Seasonal occurrence distribution and relative abundance of juvenile fishes at Marsh Island, Louisiana.

The objective is to determine the routes, timing, and rate of movement of juvenile fish from the Gulf of Mexico into the marsh at Marsh Island, Louisiana. Growth rates and environmental factors affecting movements will also be determined.

Louisiana State University, Agricultural Experiment Station, University Station, Baton Rouge, Louisiana 70803. Funded by: Louisiana State Government. 7/72 - 6/73.

C. F. Bryan.

00062

Geochemical cycle of cadmium and trace metals in a salt marsh ecosystem.

Trace metal geochemical cycles.

Louisiana State University. Funded by: U. S. Department of Commerce, National Oceanic and Atmospheric Administration, Office of Sea Grant. Open date.

C. A. Price, R. E. Ferrell.

00063

The chemical characteristics of the soils of the Louisiana Coastal marshes.

The objective is to determine the chemical characteristics of the soils in the marshes adjacent to the Louisiana Gulf Coast, relate these chemical characteristics to the natural vegetative cover, and determine the potentials of the soils for crop production and for production of plant species for food and cover for wildlife. Certain chemical properties of soil samples collected in the marshes adjacent to the Louisiana Gulf Coast have been determined. Water soluble and dilute-acid-extractable CA, MG, K and NA and organic carbon, total nitrogen, soluble salts and soil reaction were determined on all samples. Phosphorus was determined by extracting the samples with 0.1 n NCL containing 0.03 N NH<sub>4</sub>-F. The chemical data is being compiled for publication.

Louisiana State University, Agricultural Experiment Station Agronomy, University Station, Baton Rouge, Louisiana 70803. Funded by: Louisiana State Government.

J. E. Sedberry.

00064

Abundance and distribution of crustaceans and fishes in the vicinity of Caminada Pass.

The objective of this study is to 1) determine abundance and distribution of fishes, blue crabs, and zooplankton in the vicinity of Camina Pass, southern Louisiana, 2) determine the spatial correlation between penaeid shrimp and other organisms, 3) correlate ecological factors with distribution and abundance of marine organisms.

To date more than 12 species of larval fishes have been taken. Peak recruitment of larval and postlarval Gulf menhaden was noted in March and postlarval speckled trout were at peak abundance during early August. Postlarval redfish and croaker were abundant during November; croaker increased in abundance during December. Samples indicated low recruitment of white shrimp postlarvae through the Pass during summer. Blue crab Megalops were very abundant in August and September. A net flow of plant detrital material out (Gulfward) the pass was indicated from bottom (sled) plankton samples.

Louisiana State University, Agricultural Experiment Station, University Station, Baton Rouge, Louisiana 70803. Funded by: Louisiana State Government. 7/72 - 6/73.

F. M. Truesdale.

00065

Experimental ecology.

The objectives of this study are to collect basic ecological data on Barataria Bay and its offshore interaction in terms of important biological and chemical attributes of the system, 2) through analysis, discern meaningful dynamic relationships between energy and nutrient inputs and productivity of economically important organisms, 3) to investigate sensitivity of biological resource production to changes in system parameters and condition of human use, 4) to understand microbiology of detritus formation from Spartina, 5) evaluate rates of chitin production and decomposition, 6) explain utilization of lipids from Spartina by dominant marsh yeasts, 7) determine relative food importance of different materials in shrimp diets, 8) ascertain seasonal and diurnal rhythms in salinity tolerance of fish and relate to hormones cortisol and prolactin.

Information will be applied: 1) to set harvest seasons, maximize returns to shrimpers, 2) establish realistic bases for economic appraisal of estuarine lands in terms of biological productivity, 3) establish realistic criteria for regulation and management of viable estuarine habitat, 4) support dietary studies in the seafood industries program, 5) establish baseline criteria for assessing detrimental impacts of drainage, oil spills, transportation systems, and other land use practices. Accomplishments include: 1) completed biomass estimates for chitinoclastic bacteria and enzymatic activity, 2) isolated molds bacterial biota of shrimp digestive tract and found detritus to be an inadequate shrimp diet.

Louisiana State University, Center for Wetland Resources, University Station, Baton Rouge, Louisiana 70803. Funded by: Commerce Department, National Oceanic and Atmospheric Administration Sea Grant Office. 8/72 - 7/73.

W. G. Smith, Gosselink, Day, Ho, Allen.

Publications: Stone, W. C. 1972. "Community Structure and Production of the Epiphytic Algae in the Barataria Bay Area of Louisiana," Ph. D. dissertation, LSU, 85 p, (unpublished).

00066

Semi-impounded tidal marshes as nursery areas for fishes shrimps and crabs.

The objective is to determine for natural tidal marshes and nearby semi-impounded areas, Lake Borgne and on Marsh Island, abundance, ingress, and egress of juvenile fishes, shrimps, and crabs; growth of fish and shrimp; water characteristics; correlations among ecological factors. Conclusions reached indicate current concepts about juvenile life histories of many estuarine-dependent motile species should be re-evaluated. Factors stimulating juvenile emigration, and their interactions, were examined: length-frequencies of the major species taken were analyzed in relation to these factors and susceptibility to the trawls used. Size, salinity, and their interactions seemed the most important stimulants to juvenile emigration. Emigration of a number of species is believed to occur over an extended period, and to be a "bleeding off" process involving primarily the larger individuals in the nursery at any particular time. For several

species, previous juvenile growth rate estimates from openwater length-frequency samples are believed far too low and to have resulted in much misinterpretation of life history facets such as age at first spawning. Use of the marsh as a nursery is documented for many species. Catch rates for major species taken indicate the marsh is more heavily used than bays and other open-water areas. Effects of semi-impoundment on a number of species were analyzed. With adequate research on the marsh ecosystem, management manipulations along such "natural" lines are judged to have more potential for generating a stable increase in world food production than the presently popular idea of "farming" the sea.

Louisiana State University, Agricultural Experiment Station, University Station, Baton Rouge, Louisiana 70803. Funded by: Louisiana State Government.

W. S. Herke.

00067

Breton Sound-mouth of the Mississippi River system.

The objectives were to 1) determine the distribution and density of the fauna of the phase area, 2) determine the hydrography of the phase area, 3) process the data.

Louisiana State Wildlife and Fish Comm., 400 Royal St. Wildlife and Fisheries Building, New Orleans, Louisiana 70130. Funded by: Commerce Department, National Oceanic and Atmospheric Administration National Marine Fisheries Service, 7/71 - 6/72.

J. G. Broom.

00068

Vermilion-Calcasieu Sabine System.

The objectives were to 1) determine the distribution and density of the fauna of the phase area, 2) determine the hydrography of the phase area, 3) process the data.

Louisiana State Wildlife and Fish Comm., 400 Royal St. Wildlife and Fisheries Building, New Orleans, Louisiana 70130. Funded by: Commerce Department, National Oceanic and Atmospheric Administration, National Marine Fisheries Service, 7/71 - 6/72.

J. G. Broom.

00069

Timbalier-Terrebonne Bay System.

The objectives were to 1) determine the distribution and density of the fauna of the phase area, 2) determine the hydrography of the phase area, 3) process the data.

Louisiana State Wildlife and Fish Comm., 400 Royal St., Wildlife and Fisheries Building, New Orleans, Louisiana 70130. Funded by: Commerce Department, National Oceanic and Atmospheric Administration National Marine Fisheries Service. 7/71 - 6/72.

J. G. Broom.

00070

Biology of Louisiana's estuaries.

The objectives are 1) to determine the major commercial species of aquatic fauna and their respective nursery areas, seasonal distribution and utilization, 2) to determine the postlarval, juvenile and overwintering populations of shrimp as related to seasonal and environmental conditions, 3) to determine the value of harvested species in or resulting from estuaries, 4) to determine the correlation between hydrological characteristics and relative abundance of primary commercial organisms, 5) to determine the type and distribution of aquatic vegetation, 6) to develop data for the biology of estuaries of Louisiana to be available for inclusion in an atlas of the Gulf of Mexico estuaries in cooperation with the other states of the Gulf States Marine Fisheries Commission and the Bureau of Commercial Fisheries.

Louisiana State Wildlife and Fish Comm., 400 Royal St., New Orleans, Louisiana 70130. Funded by: Commerce Department, National Oceanic and Atmospheric Administration, National Marine Fisheries Service.

W. S. Perret.

00071

Area description of the estuaries of Louisiana.

The objectives are to 1) to determine the physical characteristics of the estuarine areas of Louisiana, 2) to develop the area description of the estuaries of Louisiana to be available for inclusion in an atlas of the Gulf of Mexico estuaries in cooperation with the other states of the Gulf States Marine Fisheries Commission and the Bureau of Commercial Fisheries. Data will be compiled with regard to acreage, depth, volume peripheral marsh area in acres, marsh type, channels, bottom features (reef, oyster bars, etc), area of drainage basins, listing of streams, seasonal and annual stream discharge, human population, industrial complex, geological history, and listing of water development projects completed, under construction and planned. Where possible these data will be collected from existing records.



Louisiana State Wildlife and Fish Comm., 400 Royal St. Wildlife and Fisheries Building, New Orleans, Louisiana 70130. Funded by: Commerce Department, National Oceanic and Atmospheric Administration National Marine Fisheries Service. 7/71 - 6/73.

W. S. Perret.

00072

An inventory and study of the Vermilion Bay-Atchafalaya Bay estuarine complex.

The technical objectives are to determine: 1) the species composition distribution, and relative abundance of commercially important organisms; 2) the relations between fauna and the environment; and 3) the distribution pattern of sediments in the Vermilion-Atchafalaya Bay estuarine system.

Louisiana State Wildlife and Fish Comm., 400 Royal St., Wildlife and Fisheries Building, New Orleans, Louisiana 70130. Funded by: U. S. Department of Commerce, National Oceanic and Atmospheric Administration, National Marine Fisheries Service. 7/72 - 6/73.

D. A. Neal.

00073

Investigations of commercially important penaeid shrimp in Louisiana estuaries.

The technical objectives are: 1) to study factors that cause seasonal fluctuations and abundances in white and brown shrimp populations, 2) to determine how changes in the estuarine environment affect contained production, 3) to determine environmental conditions affecting annual shrimp production, and 4) to improve management programs and the regulations of this resource.

Seasonal and areal distribution patterns have been developed for brown and white shrimp. Management procedures have been implemented in the way of special seasons to properly utilize the resource.

Louisiana State Wildlife and Fish Comm., 400 Royal St. Wildlife and Fisheries Building, New Orleans, Louisiana 70130. Funded by: Commerce Department, National Oceanic and Atmospheric Administration National Marine Fisheries Service. 7/72 - 6/73.

W. J. Gaidry.

00074

Experiments to re-establish historical oyster seed grounds and to control the southern oyster drill.

The objectives are: 1) to determine through cultch plantings which areas are suitable for re-establishing pre-existing oyster seed grounds; 2) to determine a feasible method of controlling the intrusion of the southern oyster drill in areas east of the Mississippi River.

Seasonal salinity data has been developed for most of the oyster producing areas east of the Mississippi River. Clam shells have been found to be the most economical known cultch material for oyster production in Louisiana. Butler plates have proven very efficient in the determination of periods of greatest spat fall.

State Wildlife and Fish Comm., 400 Royal St. Wildlife and Fisheries Building, New Orleans, Louisiana 70130. Funded by: Commerce Department, National Oceanic and Atmospheric Administration, National Marine Fisheries Service. 7/72 - 6/73.

J. F. Polland.

00075

Phase II - hydrology of Louisiana's estuaries.

Objectives are 1) to determine the physical and chemical characteristics of the waters of the estuaries of Louisiana, 2) to determine the tidal amplitudes and cycles of the respective estuaries of Louisiana, 3) to determine the correlation of physical and chemical characteristics with relation to abundance of primary and chemical characteristics with relation to abundance of primary organisms, 4) to develop data for the hydrology of the estuaries of Louisiana to be available for inclusion in an atlas of the Gulf of Mexico estuaries in cooperation with the other states of the Gulf States Marine Fisheries Commission and the Bureau of Commercial Fisheries.

Louisiana State Wildlife and Fish Comm. 400 Royal St., New Orleans, Louisiana 70130. Funded by: Commerce Department, National Oceanic and Atmospheric Administration, National Marine Fisheries Service.

W. S. Perret.

00076

A study of the fauna in dredged canals of coastal Louisiana.

Estuarine research.

Louisiana State Wildlife and Fisheries Commission. Funded by: Louisiana State Wildlife and Fisheries Commission. U. S. Department of Commerce, National Oceanic and Atmospheric Administration. 7/72 - 3/75.

Gerald Atkins.

00077

An inventory and study of the Vermilion Bay - Atchafalaya Bay estuarine complex.

Estuarine research.

Louisiana State Wildlife and Fisheries Commission. Oyster, Water Bottoms, and Seafoods Division. Funded by: Louisiana State Wildlife and Fisheries Commission and U. S. Department of Commerce, National Oceanic and Atmospheric Administration, National Marine Fisheries Service 1/72 - 12/74.

Conrad Juneau.

00078

An inventory and study of the Lake Pontchartrain - Lake Maurepas estuarine complex.

Estuarine research.

Louisiana State Wildlife and Fisheries Commission. Funded by: Louisiana Wildlife and Fisheries Commission and National Marine Fisheries Service. 7/72-3/75.

Johnnie M. Tarver.

00079

Biological control of mosquitoes in the U. S. Gulf Coast.

The objectives are to determine species and ecology of mosquitoes, seek out, culture and test efficacy of mosquito parasites and pathogens, and exploit potential biological control agents in the field in the U. S. Gulf Coast region. This will be accomplished by: 1) in the field and in the laboratory, by studying the ecological factors that promote production of mosquito parasites and pathogens, 2) in the laboratory, using standard and novel techniques, culture potentially effective biological control organisms, 3) testing effectiveness of potential organisms as biological control agents in laboratory and field.

In coastal water having a conductivity above  $16 \text{ EC} \times 10$ , only Aedes sollicitans and A. taeniorhynchus were present whereas only Psorophora confinnis occurred below  $2.9 \text{ EC} \times 10$ . P. horrida was naturally colonized. An undescribed species of Stempellia which is transmitted per osmosis was discovered in Culex P. quinque fasciatus. Weekly sampling of larval populations of Anopheles crucians in 2 ponds for 2 1/4 and 4 1/4 years showed infection levels of Coelomomyces dodgei and C. functatus averaged 48 percent and 33 percent. Lyophilized r-strain of MIV was still infective after 3 years. Child iridescent virus was transmitted to 13 species of mosquitoes in 4 genera. An epizootic of NPV and CPV in A. sollicitans peaked at 71 percent. An NFV was found in C. P. quinquefasciatus. Parasitism of Reesimermis nielseni romanomermis sp. in C. P. quinquefasciatus decreased as pH increased. No

significant reductions in parasitism were noted when larvae of C. P. quinquefasciatus were exposed to R. nielsenii in water volumes ranging from 21713 gallons. A 27 month survey of R. nielsenii in 5 ponds indicated the nematode infected 13 of each 19 mosquitoes. In rearing R. nielsenii in C. P. quinquefasciatus, a density of 0.5 sq. cm. of surface area per larva and a ratio of 7.5 to 10 preparasitics to each larva produced the most female nematodes. Procedures for rearing a million infected larvae each week were developed. Female nematodes oviposit more than 2,000 eggs. Preparasitic R. nielsenii in water can be disturbed with a compressed air sprayer.

McNeese State College, U. S. Department of Agriculture, Entomology Research Division, Lake Charles, Louisiana 70601. Funded by: U. S. D. A., Agricultural Research Service, Entomology Research Division. 7/72 - 6/73.

H. C. Chapman.

00080

Ecology of Marco Island.

Comparative ecology of natural and man-made systems.

Marco Applied Marine Ecology Station. Funded by: Deltona Corp. June 1971 - ?.

J. Harmic.

00081

Effects of dredging in D'Olive Bay, Alabama.

Marine Sciences Institute, Dauphin Island, Alabama. Funded by: U. S. Army, Corps of Engineers.

B. Vittor.

00082

Effects of dredging in Chickasaw Creek, Alabama.

Marine Sciences Institute, Dauphin Island, Alabama. Funded by: U. S. Army Corps of Engineers.

D. Vittor.

00083

A study of coliform bacteria and Escherichia coli on polluted and unpolluted oyster bottoms of Mississippi.

The objectives of this study are: 1) to establish a regular sampling program on transects across Mississippi sound and extending from fresh water to the Gulf of Mexico and on selected polluted and unpolluted oyster reefs, 2) to perfect technique for collecting comparable samples 2) to complete bacterial analyses of collected samples, 4) to compare the bacterial flora from polluted and unpolluted areas of Mississippi Sound and adjacent waters, especially as it relates to sewage polluted oyster beds.

Mississippi State Conserv. Comm., Ocean Springs, Mississippi 39564. Funded by: Commerce Department, National Oceanic and Atmospheric Administration, National Marine Fisheries Service.

G. Gunter.

00084

A seasonal study of the Nektonic and Benthic Faunas of the shallow Gulf off Mississippi out to the fifty fathom curve.

The objectives of this study are: to provide information on growth rates, morphological development and life histories of various species in the north-central Gulf and possibly leading to the development of methods for predicting year-class success of certain economically important species.

Location of work is - Outer estuarine limits of Mississippi waters beginning at Dog Keys Pass to the 50 fathom curve of the shallow Mississippi shelf.

Mississippi State Marine Conserv. Comm., Biloxi, Mississippi 35960. Funded by: Commerce Department, National Oceanic and Atmospheric Administration, National Marine Fisheries Service. 7/71 - 6/72.

J. Y. Christmas.

00085

Cooperative Gulf of Mexico inventory and study - biology of Mississippi's estuaries.

The objectives of this study are: 1) to determine the major commercial species of aquatic fauna and their respective nursery areas, seasonal distribution and utilization, 2) to determine or estimate, from the best available information, the value of harvested species in or resulting from Mississippi estuaries, 3) to determine the correlation between hydrological characteristics and relative abundance of selected organisms, 4) to determine the type and distribution of aquatic vegetation, 5) to make the Mississippi atlas available, in cooperation with other Gulf States and the Bureau of Commercial Fisheries, for inclusion in an atlas of Gulf of Mexico estuaries.

Mississippi State Marine Conserv. Comm., Biloxi, Mississippi 35930.  
Funded by: Commerce Department, National Oceanic and Atmospheric  
Administration, National Marine Fisheries Service. 7/71 - 6/72.

J. Y. Christmas.

00086

Investigations of coastal pelagic fishes.

The objectives are 1) to collect representative samples of coastal pelagic fishes and associated environmental data; 2) to estimate distribution, abundance and species composition of larval fishes and eggs collected in plankton samples; 3) to estimate distribution, abundance and species composition of juvenile fishes taken by nekton nets; 4) to measure and weigh fishes caught by gill nets, trawls and other fishing gear; 5) to examine gonads and stomach contents of aliquots of selected species; 6) to determine year class composition of abundant species by the best practicable means; 7) to tabulate and summarize data at monthly intervals; 8) to develop and apply programs that will provide analyses of data required to accomplish objectives; 9) to prepare and submit the completion report for this project and manuscripts for submission to appropriate media for publication.

Catches to date indicate that fewer pelagic fishes are present than was anticipated. Considerable information relative to life histories, seasonal and areal distributions of various species have been collected.

Mississippi State Marine Conserv. Comm., Ocean Springs, Mississippi 39564.  
Funded by: Commerce Department, National Oceanic and Atmospheric  
Administration, National Marine Fisheries Service. 7/72 - 6/73.

J. Y. Christmas, A. Perry, R. Waller.

00087

Fisheries engineering program, hydroacoustic system development and analysis.

The objectives are to: develop tools to efficiently locate, identify and quantify living marine resources; establish new techniques to effectively sample living marine resources; and develop systems for more efficient analysis and display of resource information.

The technical approach is to test the validity of the concept of using hydroacoustic methods to conduct biomass measurements. Non-biological target arrays were designed, constructed and installed for acoustical systems developmental tests conducted in conjunction with MIT and the Pascagoula Fisheries Laboratory. Fisheries Engineering Laboratory has provided all engineering and data analysis tasks associated with the facility and hardware systems for conducting the test. Test and data analysis requirements will continue through February.

Mississippi State University, School of Engineering, Ste 101 Engineering Building, State College, Mississippi 39762. Funded by: Commerce Department, National Oceanic and Atmospheric Administration, National Marine Fisheries Service. 7/72 - 6/73.

W. S. Shepard. E. A. Stevenson.

00088

Fate and effect of oil in the environment of the coastal Gulf of Mexico.

The project is a multidisciplinary study of the distribution and alterations of crude oil in marine systems of the coastal Gulf of Mexico. Biological uptake of and response to spilled, mechanically dispersed and absorbed oil is being followed. Studies include both laboratory and field systems and will be continued long enough to assess chronic effects and ecosystem recovery.

Mississippi St. University, School of Arts, 102 Experiment Station Building, State College, Mississippi 39762. Funded by: Environmental Protection Agency, Office of Research and Development 7/72 - 6/73.

L. R. Brown.

00089

Organic detritus in St. Louis Bay Marsh estuary.

This study deals primarily with factors affecting the nature and composition of the detritus entering the food chain of estuarine fishes and invertebrates. The rim of this investigation is to study the source, composition, transport, and nutritive value of marsh detritus; and to determine the role of organic detritus in the nutrition of estuarine fish and invertebrates.

Mississippi State University. Funded by: Mississippi State University, University of Mississippi Medical Center.

A. A. De La Cruz.

00090

Utilization of seafood processing waste to increase productivity of the estuarine area.

Mississippi State University, Funded by: Mississippi - Alabama Sea Grant Consortium. 1 May, 1973 - 31 December, 1974.

R. Brown, A. A. De La Cruz, W. Lorio, W. S. Wang, H. Robinette.

00091

Utilization of seafood processing waste to increase productivity.

Determine feasibility of utilizing shrimp processing wastes as a fish food or fish food supplement.

Mississippi State University. Funded by: U. S. Department of Commerce, National Oceanic and Atmospheric Administration, Office of Sea Grant. January 1974 - December 1975.

L. R. Brown, A. A. De La Cruz, H. R. Robinette, W. S. Wang, L. Knight.

00092

Structure, ecology, and degradation of the Florida Barrier Reef.

This research is directed toward a comprehensive investigation of a major Atlantic coral reef system. The study area will encompass 13 shallow reefs and intervening shelf margins which form a continuous barrier along the western Florida Keys. Sixteen months of on-site investigation will be carried out with the goals of determining the 1) reef structure, sedimentary facies and organisms assemblages; 2) relationships of biotic distribution and migration to static and dynamic environmental controls; 3) identity of symbiotic associations, feeding habits and habitat selectivity among member species; 4) processes and rates of biological and physical destruction of the reef framework, and effects of sediment smoothing and pollution upon epifaunal mortality and subsequent reef degradation. The synthesized ecological models and information on reef degradation which results from this study should furnish guidelines for management of established coral reef preserves and preservation of presently unprotected Florida reefs.

New York State University of, School of Arts, Vestal Parkway, Binghamton, N. Y. 13901. Funded by: National Science Foundation, Division of Environmental Sciences. 8/71 - 8/72.

D. L. Kissling.

00093

A study of the life history and ecology of the submersed aquatic plant Cabomba caroliniana Gray.

Northwestern State University of Louisiana, Department of Biological Sciences, Natchitoches, Louisiana. Funded by: U. S. Army Corps of Engineers, Aquatic Growth Control Section. June 72 - December 75.

D. R. Sanders, Sr. "Some aspects of the life history and ecology of Cabomba caroliniana Gray" IN: Hyacinth Control Journal.



00094

Biocide residues in a marshland-estuary ecosystem.

Distribution of pesticides in coastal ecosystem. The role of communities in contributing pesticides to the estuarine ecosystem.

Rice University, Biology Department, Wetland Studies Program. Funded by: Environmental Protection Agency. January 1973 - September 1975.

F. M. Fisher, Jr.

00095

Productivity of Texas coastal marshlands; faunal and floral analysis of east Texas wetlands and estuaries.

Rice University, Biology Department, Wetland Studies program, Houston, Texas 77001. Funded by: Environmental Protection Agency. January 1971 - ?.

F. M. Fisher, Jr.

00096

Investigation of changes in heavy metals concentrations resulting from maintenance dredging of Mobile Bay ship channel, Mobile Bay, Alabama.

Skidaway Institute of Oceanography, Savannah, Georgia. Funded by: U. S. Army, Corps of Engineers.

A. L. Windom.

00097

The taxonomy and zoogeography of the polychaetous annelids of the Gulf of Mexico and the Caribbean Sea.

The basic purpose of this project is to make a study of the polychaetous annelids of the Gulf of Mexico and the Caribbean Sea. Though widely distributed throughout this area and rather easily collected, it remains that the polychaetes of the Gulf and Caribbean are rather poorly known, and it is hoped that the present collections (approximately 450 localities from 17 general locations), as well as future collections, will when processed, shed more light on this relatively neglected group. Present collections come from or near Veracruz and Tuxpam, Mexico; Port Aransas, Texas; St. Andrew Bay, offshore at Panama City, Alligator Harbor, Apalachicola Bay, Cedar Key, Tampa Bay, Cape Haze, Naples, Tavernier Key, Key West, and Biscayne Bay, Florida; Bimini and Andros, Bahamas; Jamaica and Barbados, West Indies; Puerto Rico; and Margarita Island, Venezuela. In the future, further collections will be made along the Antillean chain, through the Bahamas, and along the Central and South American coasts.

Ultimately, comparisons will be made with the polychaete fauna of adjacent areas and those of other tropical and subtropical regions.

Smithsonian Institution, Washington, D. C. 20560. Funded by: Smithsonian Institution, Museum of Natural History. 7/72 - 6/73.

M. L. Jones.

00098

A study of the environmental conditions in La Quinta Channel of Corpus Christi Bay.

Southwest Research Institute, 406 Belton, Corpus Christi, Texas.

P. Cetking.

00099

Research project on 7 1/2 fathom reef - offshore Padre Island, National Seashore.

Study currents, water properties, and weather effects on the reef.

Texas A & I University. Funded by: Texas A & I University. 6/62 - 8/63.

Mr. Tom Shirley. Mr. Don McCarty. Mr. and Mrs. Steve Rabalais. Thesis will result.

00100

A survey of spoil banks in the Upper Laguna Madre in relation to island size and shape, vegetation distribution and bird habitat distribution.

Possible factors that relate island topography location and soil development to flora and fauna distribution and success.

Purpose is to survey the spoil banks in the study area, describing vegetation patterns, soil chemistry, plant communities. Using aerial photographs to correlate these patterns if possible and then see if birds nesting and types of birds are successful in these types also.

Texas A & I University. Funded by: Texas A & I University. 3/73 - 5/74.

C. H. Mendoza, R. R. Ortiz.

00101

Enhancement of Texas estuaries by aeration.

Texas A & M University, Office of University Research, College Station, Texas 77843. Funded by: U. S. Department of Commerce, National Oceanic and Atmospheric Administration.

Roy Hann.

00102

Kinetic isotopic effects.

Texas A & M University, Office of University Research, College Station, Texas 77843. Funded by: American Chemical Society.

W. Sackett.

00103

Simultaneous nutrient analysis of sea water with Technican Auto-AnalyzerII.

Texas A & M University, Office of University Research, College Station, Texas 77843. Funded by: National Science Foundation.

D. E. Letzring.

00104

Artificial reefs.

Texas A & M University, Office of University Research, College Station, Texas 77843. Funded by: Council on Marine Related Affairs.

J. Bradley.

00105

Sea Grant Matagorda Bay project.

Texas A & M University, Office of University Research, College Station, Texas 77843. Funded by: Sea Grant Program, Texas A & M University.

H. Harry.

00106

Photographic assessment of the standing stock and life habits of potentially important marine species in the Gulf of Mexico.

The objectives are: 1) to provide some critical, biological information that will aid in concluding whether or not selected deep-water animal species that offer some fisheries potential can in fact sustain an economically attractive new fishery. The photographic data input from this study will make it possible to estimate the population size of certain attractive deep-sea species, such as the giant red crab (Geryon quinquedens) and determine at what depths and where the center of population of this species is. This can also aid in predicting other geographic areas where the species may be harvested.

Favorable estimates based on deep-sea photography were made as to the value of creating commercial fisheries for 2 unexploited animal species in the Gulf of Mexico, references made to the giant red crab (Geryon quinquedens) and the giant isopod (Bathynon giganteus). Japanese commercial fishermen have recently instituted a fishery for the isopod in the western Pacific Ocean. Trapping of both species has been carried out recently in the Gulf waters by the National Marine Laboratory, Pascagoula. It is likely that trial fishery effort for the red crab will be undertaken in the Atlantic Ocean within the near future.

For additional information pertaining to this project contact Dr. Robert C. Stephenson, Director, Center for Marine Resources, Texas A & M University, College Station, Texas 77843.

Texas A & M University, School of Science, College Station, Texas 77843.  
Funded by: Commerce Department, National Oceanic and Atmospheric Administration, Sea Grant Office. 6/72 - 5/73.

W. E. Pequegnat. B. M. James.

00107

Isolation, characterization, quantitation and biological effects of phthalates and chlorinated hydrocarbons in biota from the Gulf of Mexico.

This study will initiate an analytical program for the detection of the various types of phthalates in marine organisms and will provide support for an ongoing effort in the detection of polychlorinated biphenyls (PCB) in marine organisms. The study site will be the northwestern Gulf of Mexico, a region in which a substantial part of these man-made chemicals are manufactured. Field and laboratory studies will be carried out to determine the effects of these materials on marine life. An evaluation of the impact of PCB's and phthalates on the northwestern Gulf of Mexico will be made.

Texas A & M University, School of Science, College Station, Texas 77843.  
Funded by: National Science Foundation, Division of National and International Program.

C. Giam.

00108

Acoustical detection of marine organisms.

Objectives are to 1) produce a library of marine animal sounds from the Texas coast, 2) pursue and perfect techniques for utilizing underwater habitats as bases for bio-acoustical investigations, 3) define aspects of the acoustical behavior of certain dominant sound producers (particularly members of the family Holocentridae, 4) define relationship of sound production to feeding behavior of certain predaceous and grazing fishes. Information will be used: 1) ultimately, in the production of an instructive bulletin for laymen which will enable them to interpret sounds detected on reefs and other fishing grounds; 2) in relating sound production patterns to distribution and behavior of sport and commercial fishes frequenting hard bottom marine habitats.

For additional information pertaining to this project contact Dr. Robert C. Stephenson, Director, Center for Marine Resources, Texas A & M University, College Station, Texas 77843.

Texas A & M University, School of Science, College Station, Texas 77843.  
Funded by: Commerce Department, National Oceanic and Atmospheric Administration, Sea Grant Office. 6/72 - 5/73.

T. J. Bright.

00109

The role of sea grasses and benthic algae in the Geochemistry of trace metals in Texas estuaries.

The proposed research involves field and laboratory investigations of trace metal concentrations in estuary waters and the effects of such concentrations on benthic algae and aquatic angiosperms. The metals to be analyzed include: aluminum, chromium, cobalt, copper, lead, manganese, mercury, nickel, and zinc.

Laboratory investigations include: 1) measurement of uptake of metals by cultured algae and sea grasses, 2) determination of the influence of temperature, light intensity, salinity, etc., on metal uptake by plants, 3) determination of the influence of elevated metal concentrations on growth, respiration, and photosynthesis.

Texas A & M University. Graduate School. College Station, Texas 77843.  
Funded by: Interior Department, Office of Water Resources, Res. 7/73 - 6/74.

B. N. Smith.

00110

Moody Marine Institute.

The objectives are to provide support for teaching and student/faculty research activities in the Moody Marine Institute of the newly created College of Marine Sciences and Maritime Resources in Galveston.

Accomplishments during the past 12 months include: 1) 1972 survey of widespread Conyalax monilata bloom off Galveston Island in response to request by Galveston officials, 2) continuation of an oil and tar beach deposit survey in Galveston area under Coast Guard contract conducted through Coastal Zone laboratory. For additional information pertaining to this project contact Dr. Robert C. Stephenson, Director, Center for Marine Resources, Texas A & M University, College Station, Texas 77843.

Texas A & M University, Sea Grant Program Office. College Station, Texas 77843. Funded by: Commerce Department, National Oceanic and Atmospheric Administration, Sea Grant Office. 6/72 - 5/73.

J. C. Calhoun. W. Clayton. W. H. Clark.

00111

Microbial diseases of marine organisms.

Texas A & M University, Office of University Research, College Station, Texas 77843. National Oceanic and Atmospheric Administration.

00112

Shell dredging project. San Antonio Bay.

Texas A & M University, Office of University Research, College Station, Texas 77843. Horton and Horton, Lone Star Cement and Parker Brothers.

A. H. Bouma.

00113

Shell dredging - San Antonio Bay.

Texas A & M University, Office of University Research, College Station,  
Texas 77843. Dept. of the Army Corps of Engineers.

00114

Studies on accoustical behavior of reef fishes using the hydrolab underwater habitat.

Texas A & M University, Office of University Research, College Station,  
Texas 77843. National Oceanic and Atmospheric Administration.

T. J. Bright.

00115

A.P.I. Research relating to oil and marine organisms.

Texas A & M University, Office of University Research, College Station,  
Texas 77843. American Petroleum Institute.

Jack Anderson.

00116

Offshore Ecology investigation.

Texas A & M University, Office of University Research, College Station,  
Texas 77843. Gulf Universities Research Consortium.

E. Sayed.

00117

Establishment and maintenance of vegetation for low-cost shoreline stabilization.

Texas A & M Univeristy, Office of University Research, College Station,  
Texas 77843. U. S. Army Corps of Engineers, Coastal Engineering Research  
Center.

Wayne G. McCully.

00118

Effects of salinity changes.

Texas A & M University, Office of University Research, College Station,  
Texas 77843. Funded by: U. S. Army.

S. H. Hopkins, J. W. Anderson, and K. Horvath.

00119

Faunal survey - west Flower Garden Reef.

Texas A & M University, Office of University Research, College Station, Texas 77843. University of Texas, Medical Branch, The Marine Biomedical Institute.

T. J. Bright.

00120

Enhancement of Texas estuaries.

Texas A & M University, Office of University Research, College Station, Texas 77843. National Oceanic and Atmospheric Administration (NOAA).

Roy Hann.

00121

A study of dredge spoil dispersion in Galveston Bay.

Texas A & M University, Office of University Research, College Station, Texas 77843. National Oceanic and Atmospheric Administration.

00122

Temperature tolerance and acclimation of shrimp.

Texas A & M University, Office of University Research, College Station, Texas 77843. National Oceanic and Atmospheric Administration.

D. V. Aldrich.

00123

Sub-lethal effects of heavy metals on organisms from the Gulf of Mexico.

Texas A & M University, Office of University Research, College Station, Texas 77843. National Science Foundation.

Bobby J. Presley.



00124

Toxicity of metals to marine phytoplankton cultures.

Texas A & M University, Office of University Research, College Station, 77843. Environmental Protection Agency.

W. B. Wilson.

00125

Ecological changes associated with the industrialization of Cedar Bayou and Trinity Bay, Texas.

Work will consist of ecological surveys of 2 estuaries of the Galveston Bay System where industrial habitat modifications have occurred. Location of the study is Cedar Bayou, a brackish stream which empties into upper Galveston Bay near Baytown, and Trinity Bay in the vicinity of Point Barrow, approximately 7 miles northeast from Baytown. The objectives of the study are to determine what effects various projects involving environmental alterations have on the fishery ecology of the estuaries, and to determine and recommend procedures to minimize harmful effects for the purpose of maintaining suitable fisheries habitat. Samples of aquatic organisms and associated water quality will be evaluated before and after environmental alterations resulting from the construction of a steel plant, power generating station, and stream channelization.

Texas State Parks and Wildlife Department, John H. Reagon State Office, Austin, Texas 78701. Funded by: Commerce Department, National Oceanic and Atmospheric Administration, National Marine Fisheries Service. 7/72 - 6/73.

R. B. Johnson.

00126

Study of migratory patterns of fish and shellfish through a natural pass.

The objectives are: 1) to determine the periods and nocturnal and diurnal sequences of juvenile shrimp movement from the coastal bays and estuaries into the Gulf of Mexico, 2) to determine the relative magnitude, size range, and species composition of successive waves of migrating shrimp, 3) to measure and evaluate factors which cause migrations or affect migrations of shrimp, fish and crabs. Factors to be evaluated include salinity, air temperature, water temperature, water transmissivity, tide stage, speed and direction, wind strength and direction, incident light levels, water, pH and phase of moon, 4) to determine the seasons, dates, and nocturnal and diurnal sequences of movement of adult and sub-adult blue crab from the coastal bays and estuaries into the Gulf of Mexico, 5) to investigate the movement of larval and postlarval shrimp, fish and commercial crabs from the Gulf of Mexico into the coastal bays and estuaries through passes.

Texas State Parks and Wildlife Dept. Funded by: Commerce Department, National Oceanic and Atmospheric Administration, NMFS.

B. D. King.

00127

The effects of engineering projects on the ecology of Jones Bay.

Objectives are to study the ecology of Jones Bay prior to alteration and to evaluate the effects of the proposed Hitchcock extension of the Texas City Hurricane Protection Levee. The study will include description of the area, an analysis of bottom sediments, chemical and physical water quality, and species composition and abundance. The extent and quality of nursery habitat will be evaluated.

Texas State Parks and Wildlife Department. John H. Reagan State Office, Austin, Texas 78701. Funded by: Commerce Department, National Oceanic and Atmospheric Administration, National Marine Fisheries Service. 7/71 - 6/72.

R. B. Johnson.

00128

Evaluation of effects of various coastal construction methods.

The objectives are: to determine the effect of construction work on the benthic organisms in spoil areas as compared to control areas. To evaluate the compliance of the construction company to Corps of Engineers permit specification; the study will be designed to determine the effects of marine construction work in a bayou and rapid water exchange present different problems than open bay construction. A benthic survey and bathymeter profile of the bottom will be made; this study is designed to determine the effects of construction equipment consisting of 2 backhoes mounted on a shallow draft barge. The bay bottom damaged by this type of equipment will be evaluated by studying the benthic organism in disturbed and undisturbed areas; study is designed to determine the effects of construction of a boat access channel through a shallow estuarine bayou to West Galveston Bay. Bottom samples, marsh net and trawl samples will be used to monitor biological changes that may result from channel construction; study will be designed to determine the best mode of construction of pipelines on and off of oyster reefs. The effects of construction on commercial oysters will be monitored by quarterly population samples. Bottom core samples will be utilized to determine the extent of siltation during jetting barge operations in the mud bottoms. Dragline and backhoe operations will be monitored by bathymeter on reef areas.

Texas State Parks and Wildlife Department, John H. Reagan State Office, Austin, Texas 78701. Funded by: Commerce Department, National Oceanic and Atmospheric Administration, National Marine Fisheries Service. 7/72 - 6/73.

R. L. Benefield.

00129

Movement of larval and postlarval forms through Cedar Bayou.

The objectives of this phase are to monitor the abundance of larval and postlarval forms entering the bays throughout the year, to determine the species composition and modes of migrating forms, to determine any hydrographic or meteorologic conditions which might be causative factors in the migratory patterns of the organisms under study, and to correlate results with existing bay and Gulf studies.

Texas State Parks and Wildlife Department, 715 S. Bronite St., Rockport, Texas 78382. Funded by: Commerce Department, National Oceanic and Atmospheric Administration, National Marine Fisheries Service. 7/71 - 6/72.

B. D. King.

00130

Special wildlife investigations.

Texas fish-eating bird conditions numbers, status etc. on coast. Determine movement of fish-eating birds in Texas or on Texas coast.

Texas State Parks and Wildlife Department, John H. Regan Building, Austin, Texas 78701. Funded by: State of Texas, U. S. Department of Interior, Bureau of Sport Fisheries and Wildlife. 1967 - continuing.

C. Frentess, D. Swepston, D. Boone, J. C. Smith, F. Porter.

00131

The use of grasses for dune stabilization along the Gulf Coast.

Studying the effects of certain beach grasses to grow and establish sand dunes.

Certain sections of level beach between dunes which had been broken by hurricanes were used as study plots. These were planted with sprigging of sea oats and bitter panicum. Various widths certain size grouping, fertilizers, irrigation, and various months of planting have been tried. Excellent results have been obtained with these grasses through the initial phases and dunes have developed over 10 feet high. An on-the-job professional has been working in the study plots since the project began.

Texas Tech. Univ., Gulf Universities Research Corp. Lubbock, Texas. Funded by: U. S. Army Corps of Engineers. 1967 - 1974.

00132

Techniques for evaluating the effects of water resources developing on estuarine environments.

This research project is designed to develop and test quantitative techniques (comprised of manual and computerized methods) for identifying and evaluating the effects of single basin, or multi-basin water resources development and management on the associated estuarine ecosystem. A major river-estuary system of the State of Texas will be used as an example problem to assess the utility and veracity of the techniques developed.

The methodology to be used will consist of adapting and refining existing systems operation and ecological models for application to an entire river basin-estuary system in an integrated and interactive mode. The development, management, and operation of alternative water resources system plans can be simulated to determine the effects of changing the quantity and seasonal distribution of fresh water inflows and associated nutrients on an estuarine ecosystem. The ecological models used will be "key" species models that will not attempt to model all of the myraid ecological interactions, but rather will simulate the activities of important links in the food chain and the commercially and recreationally important estuarine species. These efforts on these organisms can then be analyzed and grossly categorized as beneficial, detrimental, or of no significance.

The planning technique is accomplished in 3 steps: 1) simulation of the river basin of multi-river basin system to determine the quantity, quality, and seasonal distribution of estuarine inflows; 2) simulation of the response of the estuarine hydrodynamics, water quality, and ecology to these inflows; and 3) evaluation and analysis of the simulation results followed by additional simulations of alternative development and management policies, as required.

Texas Water Development Board, Capital Station, Austin, Texas 78711. Funded by: Interior Department, Office of Water Resources Research.

W. A. White, J. C. Nelson, L. F. Tischler.

00133

Light scattering and polarization.

U. S. Department of the Air Force, Cambridge Research Labs; Hanscom Field, Bedford, Mass. Self funding. 7/71 - 6/72.

R. W. Fenn.

00134

The shell dredging industry: Its impact on Louisiana (Final report in preparation).

U. S. Department of the Army, U. S. Army Corps of Engineers, P. O. Box 60267, New Orleans, Louisiana 70160. Self funding. Completion date 1973.

00135

Louisiana wildlife and fisheries water chemistry survey data, Louisiana estuaries, 1968 - 1969.

U. S. Department of the Army, U. S. Corps of Engineers, P. O. Box 60267, New Orleans, Louisiana 70160. Self funding. Completion data. 1973.

00136

Statistical model of salinity distributions, southeastern Louisiana estuaries.

U. S. Department of the Army, U. S. Army Corps of Engineers, P. O. Box 60267, New Orleans, Louisiana 70160. Self funding. Completion data 1973.

00137

Louisiana Coastal area.

The purpose is to determine the advisability of improvements or modifications to existing improvements in the coastal area of Louisiana in the interest of hurricane protection, prevention of saltwater intrusion, preservation of wildlife and fish, prevention of erosion and related water resource purposes. A fish and wildlife study of the Louisiana Coast and Atchafalaya Basin is being conducted by an interagency group chaired by the New Orleans District to determine the fresh water needed to maintain an optimum environment for fish and wildlife. Work is continuing on a plan to optimize fish and wildlife values in the coastal area. The findings are being applied in a pilot study essentially confined to the Terrebonne Parish area. The pilot study report will be followed by additional reports recommending projects in the Terrebonne area, or other areas of coastal Louisiana to which knowledge gained in the pilot study can be applied.

U. S. Department of the Army, U. S. Army Corps of Engineers, P. O. Box 60267, New Orleans, Louisiana 70160. Self funding. Started 1968 - ?

Publications: Mississippi River Flow Requirements for estuarine use in coastal Louisiana, U. S. Corps of Engineers.

00138

Canals, dredging and land reclamation in the Louisiana coastal zone.

U. S. Department of the Army, U. S. Army Corps of Engineers, P. O. Box 60267, New Orleans, Louisiana 70160. Self funding. Completion date 1973.

00139

Deterioration and restoration of coastal wetlands.

U. S. Department of the Army, U. S. Army Corps of Engineers P. O. Box 60267, New Orleans, Louisiana 70160. Self funding. Completion date 1973.

00140

Mathematical models in analytical and experimental hydraulics.

The purpose of this study is to conduct research and develop utilization of new, high-level, computer-based mathematical modeling and data handling techniques for hydraulic problems to be used in conjunction with and, in some cases, to replace hydraulic models.

Work was concentrated in the area of development of mathematical models for estuaries. A study of past and current literature has been made on various mathematical models previously developed for use in estuarine design. Work was continued on mathematical model development of one-dimensional salinity distributions for well-mixed estuaries. Work was completed on applications and extensions of Keulegan's lumped parameters approach to predict bay water heights and velocities in tidal inlets. A generalized numerical computational model to solve the nonlinear differential tidal hydraulic computational equations has been developed and programmed for the digital computer. The methodology includes the inertia effects, variable bay surface area, variable depth in the inlet, and mixed ocean tide. A method to compute an equivalent prismatic inlet for variable area inlet channels has been developed. The generalized model has been applied to Masonbord inlet. An earlier version without inertia effects was used to study the effects of adding a jetty at the Tillamock Bay entrance. Work has been started on mathematical modeling of thermal dispersion phenomena for large two-dimensional estuaries, such as Trinity Bay. Development effort was initiated including equation formation and a numerical computation scheme derived for studying salinity intrusion. The density coupled flow and salinity distribution equations will be used to study salinities and currents varying lengthwise and depthwise in estuaries.

U. S. Department of the Army, U. S. Army Corps of Engineers, Waterways Experiment Station, P. O. Box 631, Vicksburg, Mississippi 39180. Self funding 7/72 - 6/73.

C. J. Huval.

00141

Coastal ecology studies.

The presently recognized projects under the CERC coastal ecology program are: ecology research program development, ecological effects of offshore dredging, vegetation studies, ecological development, ecological effects of offshore dredging, vegetation studies, ecological effects of offshore construction, and ecological effects of dredge spoil disposition. Final report is in preparation on 1 of 3 field studies monitoring the ecological effects of beach nourishment utilizing offshore dredging. One contract is under negotiation for studies on ecology of live species of clams (one Atlantic, one Pacific) likely to be affected by dredging. Literature surveys and preparation of planning documents for the elements dealing with offshore dredging and construction were completed. The first 2 years of study on the stabilization and productive use of dredge spoil (establishment of salt marsh using marsh grass) were completed and indicated the feasibility of this type of activity, developed techniques, demonstrated that marsh grass has a long transplanting season, can be transported and successfully transplanted, and can be established by direct machine planting of seed. Study is to be continued and expanded to investigate the large-scale operational feasibility of the techniques. The Texas and Massachusetts dune studies were continued, as was monitoring of the North Carolina dunes. A report on Texas dune study is being reviewed, and a contract was negotiated for another year's work. A low level of coordination was maintained on studies by others on the ecological effects of dredge soil deposition but work on this element was suspended pending completion of WES efforts to develop a comprehensive program on dredge spoil deposition and subsequent assignment of specific items of research from the CERC program.

U. S. Department of the Army, U. S. Army Corps of Engineers, Coastal Engineers Res. Center, 5201 Little Falls Rd. N. W., Washington D. C. 20016. Self funding. 7/72 - 6/73.

Unknown.

00142

Fish and wildlife study of the Louisiana coastal area.

A study of the estuarine area of the State of Louisiana and with the following objectives: a. to identify and quantitatively evaluate the physical and chemical parameters which, in their totality, comprise the estuarine environment, to document historical changes in these parameters, and to project likely future change in them, b. to establish quantitative relationships between appropriate environmental parameters and estuarine productivity in the fish and wildlife resource, c. to identify the environmental changes required to effect optimum estuarine productivity in the fish and wildlife resources, d. to determine the fresh water required, both with and without structural improvements, to effect the environmental changes required, e. to develop a broad plan for achieving optimum estuarine productivity in the fish and wildlife resource.

U. S. Department of the Army, U. S. Army Corps of Engineers District, P. O. Box 60267. New Orleans, Louisiana 70160. Self-funding. 7/72 - 12/72.

R. L. Hunt, C. Chapman, R. Eichhorn, F. M. Chatry, H. D. Fields.

00143

SE-03 MARMAP II Multispecies, Gulf and Caribbean.

Commerce Department, National Oceanic and Atmospheric Administration, National Marine Fisheries Service, Southeast Fisheries Center, Miami, Florida; Gulf Coastal Fisheries Center, Galveston, Texas. Self funded.

Mr. Harvey Bullis, Director Southeast Fisheries Center. Mr. Robert F. Temple, Acting Director, Gulf Coastal Fisheries Center.

00144

GC-OJ Life studies: Gulf Coastal Marine Fish.

Commerce Department, National Oceanic and Atmospheric Administration, National Marine Fisheries Service, Southeast Fisheries Center, Miami, Florida; Gulf Coastal Fisheries Center, Galveston, Texas. Self funded.

Mr. Harvey Bullis, Director Southeast Fisheries Center; Mr. Robert F. Temple, Acting Director, Gulf Coastal Fisheries Center.

00145

SE-15 MARMAP II: Multispecies, invertebrates, Gulf and Caribbean.

Commerce Department, National Oceanic and Atmospheric Administration, National Marine Fisheries Service, Southeast Fisheries Center, Miami, Florida; Gulf Coastal Fisheries Center, Galveston, Texas. Self funded.

Mr. Harvey Bullis, Director Southeast Fisheries Center. Mr. Robert F. Temple, Acting Director, Gulf Coastal Fisheries Center.

00146

Evaluation of engineering projects and estuarine data (Estuarine Program).

It is the purpose of this project to 1) assist the Branch of River Basin Studies (BSFW) by reviewing all proposed construction and water development projects affecting western Gulf estuaries and, when warranted, recommended remedial measures to reduce adverse project effects; 2) where practical, recommend changes in water-development projects whereby the habitat would be enhanced for the fishery resources; 3) inventory, organize, and keep current and published and unpublished data related to western Gulf estuaries; and 4) recommend basic research needed for protecting estuarine fishery resources.

U. S. Department of Commerce, National Oceanic and Atmospheric Administration, National Marine Fisheries Service, Biological Laboratory, Galveston, Texas 77552. Self funding. 7/71 - 6/72.



R. J. Hoogland, R. A. Diener.

00147

Ecology of western Gulf estuaries.

Project objectives are to 1) compare the productivity of natural estuarine habitats with areas altered by dredging, spoiling, bulkheading and filling; 2) determine practical methods for rehabilitating altered habitats so that productivity can be reestablished; and 3) determine management procedures for monitoring or increasing the productivity of estuarine areas.

U. S. Department of Commerce, National Oceanic and Atmospheric Administration, National Marine Fisheries Service, Biological Laboratory, Galveston, Texas 77552. Self funding. 7/71 - 6/72.

W. L. Trent, D. Moore, C. R. Mock, E. G. Pullen, C. R. Chapman.

00148

Estuarine inventory (formerly chemical environment).

The purpose of this project is to prepare a description of physical characters, hydrology, sediments and biota in Florida estuaries of the Gulf through field study and consolidation of existing data; to work with other Gulf States through the Gulf State Marine Fisheries Commission in standardizing techniques and data assimilation in similar state projects; and to contribute jointly toward the formation of a Gulf of Mexico estuarine atlas. Hydro-chemical analysis will continue on allied laboratory projects as shown for the former Chemical Environment Project.

U. S. Department of Commerce, National Oceanic and Biological Administration, National Marine Fisheries Service, 75 33rd Ave. Laboratory, St. Petersburg, Florida 33706. Self funded. 7/71 - 6/72.

J. E. Sykes, J. K. McNulty, L. Johnson, W. M. Lindall.

00149

Impact of environmental change, Gulf of Mexico.

To conduct environmental studies of Tampa and St. Andrew Bays, Florida, and other estuaries of the Gulf of Mexico.

U. S. Department of Commerce, National Oceanic and Atmospheric Administration, National Marine Fisheries Service, Gulf Coastal Fisheries Center, Panama City Beach Laboratory. Self funding. 6/73 - 6/74.

J. K. McNulty.

00150

Evaluation of estuarine data.

Project objectives are to inventory and organize existing published and unpublished data and information describing and relating to Gulf Coast estuaries; make this data and information available in readily accessible or retrievable form; apply and include new data and information as it becomes available; and assist in establishing requirements for future estuarine research.

U. S. Department of Commerce, National Oceanic and Atmospheric Administration, National Marine Fisheries Service, Biological Laboratory, Galveston, Texas 77552. Self funding.

C. R. Chapman.

00151

Life studies: Gulf Coastal marine fish.

The objectives are to: 1) determine relative abundance, size, and distribution of fishes and crustacea in St. Andrew Bay, Florida, in relation to time and environmental parameters. Biological sampling will be conducted with bottom trawl and with gill nets, 2) classify and assess fishing efforts in work location; determine species composition and seasonal availability. Use enumeration surveys and creel censuses, 3) develop methods and techniques to capture, maintain, and induce spawning in sciaenid and bothid fishes, 4) determine physical and biological requirements for successful spawning, hatching, development, and growth in captivity, 5) develop rearing techniques and methods, use fishing gear, holding facilities, tanks and aquaria, and various culturing experiment.

U. S. Department of Commerce, National Oceanic and Atmospheric Administration, National Marine Fisheries Service, Gulf Coastal Fisheries Center, Panama City Beach Laboratory. Funded by: U. S. Department of Commerce, National Oceanic and Atmospheric Administration. 7/73 - 6/74.

E. L. Nakamura.

00152

South Florida environmental studies - Miami jetport.

Technical objective is to obtain an understanding of pertinent literature, quarterly sampling of juvenile fishes, fish eggs and larvae, and water for salinity, temperature, dissolved oxygen, light transmission and other measurements is complete along the entire western boundary of Everglades National Park 20 miles offshore.

U. S. Department of Commerce, National Oceanic and Atmospheric Administration, National Marine Fisheries Service, St. Petersburg Beach Lab. 75 33rd Avenue, St. Petersburg, Florida 33706. Self funding. 7/72 - 6/73.

W. N. Lindall.

00153

Plankton ecology.

U. S. Department of Commerce, National Oceanic and Atmospheric Administration, National Marine Fisheries Service, Biological Laboratory, 75 33rd Avenue, St. Petersburg, Florida 33706. Self funding.

J. K. McNulty.

00154

Biology, population dynamics, shrimp.

Technical objective is to develop systems models of Gulf of Mexico shrimp population dynamics for use in prediction and resource management. Determine stock identities, population densities, and rates of survival, growth, and migration in estuarine areas and offshore grounds. Obtain environmental data essential to development of the models.

U. S. Department of Commerce, National Oceanic and Atmospheric Administration, National Marine Fisheries Service, Galveston Laboratory, 4700 Avenue U. Galveston, Texas 77550. Self funding. 7/72 - 6/73.

C. W. Caillouet, J. R. Grady, K. T. Marvin, K. N. Baxter.

00155

Ecological effects of beach nourishment by offshore dredging (Sand Key and Treasure Island, Pinellas County, Florida).

Technical objective is to provide an understanding of the effects of offshore dredging of sand for beach nourishment on marine fishery resources.

Environmental and biological observations are in progress along 9 miles of beach to some 1,500 yards from shore. Measurements include particle size and organic content of sediments, currents, turbidity, nutrient content of water, salinity, temperature, pH, chlorophyll, zooplankton, benthos, and fishes including sport fishes caught at 3 fishing piers. Post-dredging observations were made along part of the beach; observations during and after dredging may be made in the future. Pronounced seasonality of biotic responses to environmental changes were observed.

U. S. Department of Commerce, National Oceanic and Atmospheric Administration, National Marine Fisheries Service, Biological Lab., 75 33rd Ave., St. Petersburg, Florida 33706. Self funded. 7/71 - 6/73.

C. H. Saldman.

00156

Biology and ecology of coastal marine fishes.

Technical objective is to answer the following: 1) what species occur in coastal and estuarine areas of the Gulf of Mexico? 2) How and in what stages of their life history are the species associated with our coastal and estuarine habitats? 3) What is the distribution and abundance of these species relative to geography, seasons, and environmental parameters? 4) What constraints affect or limit the distribution and abundance of these species?

U. S. Department of Commerce, National Oceanic and Atmospheric Administration, Panama City Laboratory, P. O. Box 4218, Panama City, Florida 32401. Self funding. 7/72 - 6/73.

W. L. Trent, D. F. Sutherland, L. H. Ogren.

00157

Biology and ecology of gillfishes in Gulf of Mexico.

Technical objective is to obtain answers to questions concerning food, growth, spawning, distribution, morphology, occurrence, and association with environmental factors of big game fishes in the Gulf of Mexico. Obtain data on catch and effort in the sport fishery for big game fishes in the Gulf. These data will be essential for making managerial decisions concerning big game fish resources.

U. S. Department of Commerce, National Oceanic and Atmospheric Administration, National Marine Fisheries Service, East Gulf Sp. Fish Mar. Lab, P. O. Box 4218, Panama City, Florida 32401. Self funding. 7/71 - 6/72.

E. L. Nakamura, L. A. Ogren, L. R. Rivas.

00158

Biology and ecology of estuaries.

Objectives is to obtain an understanding of the effects of coastal development on marine fisheries resources by the following studies 1) benthic study includes analyses of sediments and descriptions of benthos, 2) inventory includes maps, tables, and text-figures on dimensions of estuaries, pollution, hydrology, all living resources and sediments; 3) eggs and larvae obtained

monthly to 15 miles offshore and in Tampa Bay, and quarterly to 100 miles offshore from Clearwater to Naples, about 150 miles; 4) colonization studies for 1 year by monthly sampling of benthos; fishes, and water quality, and semiannual sampling of sediments.

U. S. Department of Commerce, National Oceanic and Atmospheric Administration, National Marine Fisheries Service, Biological Laboratory, 73 33rd Ave. St. Petersburg, Florida 33706. Self funding.

J. L. Taylor.

00159

Biology and ecology of estuaries.

Technical objectives are to describe effects of man-made changes in the coastal zone of marine fisheries resources by studying and comparing the biology, sedimentology, and water chemistry of altered and unaltered coastal aquatic environments. Progress includes 1) prepared for publication descriptions of dimensions, hydrology, vegetation, cysatering, dredging and filling, and other features of the Gulf of Mexico estuaries of Florida and Texas, 2) described warm-weather depletion of dissolved oxygen in bottom water of newly-dredged canals off Tampa Bay, correlating the depletion with paucity of fishes, 3) water quality monitoring provided the only existing long-term data of its kind demonstrating eutrophication of Tampa Bay, 4) discovery of increasing abundance of molluscs of Old Tampa Bay provided new evidence of eutrophy there, 5) pioneer studies demonstrated seasonal and geographical features of fish spawning in coastal areas of central and south Florida, 6) collected base line data on the biology and physical environment of the inshore Gulf of Mexico with which to evaluate effects of offshore dredging for restoration of beaches in Pinellas County, Florida, 7) evaluated the effects of fresh-water supply on marine fisheries on South Florida.

U. S. Department of Commerce, National Oceanic and Atmospheric Administration, National Marine Fisheries Service, St. Petersburg Beach Lab., 75 33rd Ave., St. Petersburg, Florida 33706. Self funding. 7/72 - 6/73.

J. H. Finucane.

00160

Water Quality Analysis of Florida Bay.

Water Quality measurements covering the entire Florida Bay ecosystem.

An extensive series of hydrographic measurements will be taken during the course of the investigation. These observations will supplement and complement previous work in Florida Bay and adjacent estuaries as well as correlate physical and biological findings. Salinity, temperature, conductivity, dissolved O<sub>2</sub>, pH and turbidity will be determined monthly at 30 or more sites along approximately 5 transects in Florida Bay.

U. S. Department of the Interior, National Park Service, Everglades National Park, Homestead, Florida. Self funded. 5/73 - continuous.

Thomas W. Schmidt.

00161

Benthic mapping of Florida Bay.

Florida Bay benthic features and biological communities will be characterized and mapped.

The habitat quantification program will consist of a series of field surveys to delineate habitat types and transitional zones encompassing certain reference transects through the utilization of aerial photography and charts.

U. S. Department of the Interior, National Park Service, Everglades National Park, Homestead, Florida. Self funded. 7/73 - 7/75.

Thomas W. Schmidt.

00162

Marine fouling and methods to prevent it in seawater intake systems.

Principal marine fouling organisms along the Pacific, Atlantic, and Gulf Coasts were identified. Experimental work was done to determine the optimum method for control of fouling by marine organisms.

U. S. Department of the Interior Office of Saline Water. Self funded.

00163

Selected pesticides vs. wildlife in aquatic environments. An evaluation of the potential hazards of insecticides to breeding populations of fish-eating birds on the Texas Coast.

Pesticide - Wildlife Research in wading-bird colonies on the Texas Coast.

U. S. Department of the Interior, U. S. Bureau of Sport Fisheries and Wildlife. Self funded.

Kirke A. King.

00164

Plant succession on the Lake Misere Marsh, Lacossine N. W. Refuge Louisiana.

Succession on a fresh water marsh after the die-off of sawgrass.

U. S. Department of the Interior, U. S. Bureau of Sport Fisheries and Wildlife. Self funded. 1958 - 1972.

J. M. Valentine, Jr.

00165

Research of Gulf transients through banding.

Study of migrating passerines over the Gulf of Mexico and coastal areas.

The objectives are the effects of weather disturbances and destruction of habitat in coastal areas on northerly nesting passerines. Netting and banding procedures are necessary to study the overall accumulation of the total number of individual birds using the coastal areas during disturbances in atmospheric conditions had also the stress placed on migrating birds due to destruction of coastal habitat where they must rest and refuel before continuing their flight to nesting grounds. The coastal areas including the barrier islands in the Gulf of Mexico are essential in sustaining the population of species of birds which nest from the Arctic Circle to the Gulf states. A great majority of these birds find the Gulf Coast their last area in southerly migration and first in northerly migration after and before a 400 - 500 mile flight across the Gulf of Mexico.

Department of the Interior. Funded by: Department of the Interior, National Fish and Wildlife Service. 1968 - ?.

J. R. Miller, A. Imhof, J. V. Peavy, Jr., R. E. Harward, Jr.

00166

Cape Sable sea turtle rookery study, Everglades National Park, Florida.

Population dynamics and nesting activity of sea turtles, primarily the Loggerhead, Caretta caretta.

Loggerhead sea turtles, Caretta caretta are stressed world wide by man's activities, primarily direct harvest and destruction of suitable nesting beaches by development. The wilderness beaches in Everglades National Park represent a large portion of the last undisturbed sea turtle rookeries in North America. The status of the turtle populations utilizing these rookeries have been investigated through nesting surveys and adult tagging programs. The egg predator, chiefly raccoon, turtle relationship has also been examined. A 2 fold increase in nesting activity has been observed over the past 10 years. This may be attributed to adult recruitment from adjacent disturbed rookeries and release from direct harvest pressure 20 years ago by establishment of Everglades National Park.

U. S. Department of Interior, National Park Service, Everglades National Park. Self funding. 1964 - ?.

G. E. Davis. Publications: Annual open file resource management reports for the Superintendent of Everglades National Park 1964 - 1970.

Davis, G. E. and M. C. Whiting. Ms. Loggerhead Sea Turtle nesting in Everglades National Park 1964 - 1973. To be submitted to Copeia.

00167

Shark Slough and Whitewater Bay estuary study.

The relationship between estuarine community structures, their seasonal fluctuations and water management practices that control freshwater flow into the estuaries are being identified both qualitatively and quantitatively.

The National Park Service is faced with the task of maintaining several large, complex, ecosystems in a "natural" state by manipulating water releases into the headwaters of the Shark Slough. Sensitive "indicator" species the freshwater reaches of the slough, principally Wood Storks, show that the ecosystem is failing, and the cause may be water management practices. Based on historical Wood Stork nesting successes, a water management program will be developed or implemented to simulate the water regimes of years with successful Wood Stork nesting. Seasonal timing is a critical factor in the proposed water management plan. This multidisciplinary study will seek to relate the hydrological, meteorological, and biological elements of the effected ecosystems, and evaluate the water management schedule in terms of ecological parameters in terrestrial, aquatic, and estuarine systems.

U. S. Department of Interior, National Park Service, Everglades National Park. Self funded. 10/73 - 7/84.

G. E. Davis, W. Schmidt.

00168

Estuarine hydrology of Tampa Bay.

A comprehensive hydrological investigation of Tampa Bay and its immediate surroundings is necessary to assess the probable effects of a proposed channel dredging project on the interacting hydraulic chemical and biological systems operating in the bay. Unanswered technical questions concerning possible ground-water contamination, modified flushing and circulation characteristics, and overall environmental impact; as well as operational needs, such as quantity and placement of dredged material, justify this project. The specific objectives of this study are: 1) Bathymetric definition of the bay bottom, 2) determination of depth to bedrock, 3) subsequent distribution, 4) development of a management tool to predict the response of the bay to natural and man-made changes, dredging, filling, floods, hurricanes, etc., 5) determination of optimum channel alignment, quantity of material to be removed, and optimum location and shape of disposal sites.



U. S. Department of the Interior, Geological Survey, Tallahassee Florida  
32304. Funded by: Interior Department, Geological Survey, Water Resources  
Division. 7/72 - 6/73.

C. R. Goodwin.

00169

Effects of toxic organics and heavy metals and the estuarine environment.

Objectives are to provide basic scientific data on (1) toxicity of pesticides to estuarine biota, particularly organisms used as food by man or organisms in food chains of animals used as human food and (2) to determine whether and how much of specific pesticides accumulate in estuarine organisms, the data being intended to provide a scientific basis for approval or disapproval of applications to register specific pesticides for use in or near estuaries. Procedures involve: (1) acute and chronic bioassay on algae, mangroves, ciliate protozoa, shrimps, blue crabs and several species of estuarine fishes; (2) enzymes studies (acetylcholine-acetylcholinesterase; (4) settling of oysters and other sedentary animals; and (5) egg-to-egg bioassays of sheepsherd minnows and palamonid shrimps. All are supported by a highly skilled chemical analysis team with gas chromatographs, mass spectrometer and flameless atomic absorption spectrometer.

Results since beginning pesticide investigation in 1958, this laboratory has tested most pesticides used in the U. S. To determine whether they would be likely to harm the estuarine environment.

U. S. Environmental Protection Agency, Gulf Breeze Research Laboratory, Gulf Breeze, Fla. Self funded. Continuing until at least 1984.

Dr. T. W. Duke, J. I. Lowe, Dr. G. E. Walsh, Dr. A. Dourquin, Dr. N. R. Cooley, M. E. Tagatz, D. B. Tyler-Schroeder, Dr. D. W. Nimme, Dr. W. P. Schoor, Dr. J. A. Couch, D. J. Hansen, D. L. Coppage, P. R. Parrish, A. J. Wilson, Jr., G. H. Cook.

00170

Fahkahatchee study.

Hydrology, biology and chemistry of Fahkahatchee Strand and Fahka - Union Canal.

U. S. Environmental Protection Agency. Funded by: U. S. Environmental Protection Agency, U. S. Department of Interior. 6/71 - 11/73.

M. Carter.

00171

Species diversity of phytoplankton, zooplankton and periphyton, and habitat location in the Mobile Bay and estuaries in relation to water quality parameters.

University of Alabama, Dept. of Biology. Funded by: University of Alabama.

Louis G. Williams.

00172

The role of the mangrove ecosystem in the maintenance of environmental quality and a high productivity of desirable fisheries.

University of Florida. Funded by: U. S. Department of Interior. 7/72 - 6/73.

S. Snedaker.

00173

Primary production and decomposition in estuarine water.

The objective of the proposed research is to contribute to an understanding of the synthesis and decomposition of organic matter by primary producers in an estuarine environment. Studies will be conducted to estimate the productivity of certain red and brown algae which are part of the benthic community in the Waccasassa Estuary. Appropriate methods for measuring fixation of isotopic carbon by attached plants were worked out under grant No. WP-00678-03 which will be completed by this investigator August 31, 1967.

In addition an attempt will be made to define more clearly the limiting factors for primary production in the Waccasassa Estuary. Emphasis will be directed toward the interaction of chemical and biological factors.

Efforts also will be made to follow the decomposition of organic matter under anoxic conditions in estuarine sediments. These studies will be directed mainly toward the characterization of substrates which are involved in methanogenesis. The pool size of volatile fatty acids resulting from the breakdown of algae will be determined and efforts made to establish metabolic turnover rates of these components.

University of Florida, School of Engineering, Gainesville, Florida 32601.  
Funded by: Environmental Protection Agency, Office of Water Programs.  
9/71 - 8/72.

H. D. Putnam.

00174

Aerobic, heterotrophic bacteria in estuaries.

Study characteristics of estuarine-marine bacteria to 1) establish baseline of normal econiche inhabitants, 2) possibly identify phenotypic clusters which portend pollution.

University of Florida. Department of Microbiology, Gainesville. Florida 32611. Funded by: Division of Sponsored Research, IFAS Experiment Station. 1971 - 1974.

M. E. Typer, P. H. Smith, E. R. Previc, J. M. Preston.

00175

Aerobic, heterotrophic bacteria in estuaries.

The objective is to characterize, systematically, the major bacterial types in estuaries, with particular attention to their biochemical activities and potential roles in turnover of organic matter.

University of Florida, Agricultural Experiment Station, Gainesville, Florida 32601. Funded by: Florida State Government. 7/72 - 6/73.

M. E. Tyler, P. H. Smith.

00176

Ecology and migrations of Atlantic sea turtles.

University of Florida. National Science Foundation. 7/73 - 6/75.

A. Carr.

00177

Ecology and migrations of Atlantic sea turtles.

University of Florida. Funded by: National Science Foundation. 9/72 - 2/73.

A. Carr.

00178

The pelagic ostracods of the western tropical Atlantic.

University of Florida. Funded by: National Science Foundation. 1/73 - 6/75.

G. Deevey.

00179

Biological control of water weeds with plant pathogens.

This report covers a wide variety of research performed and additional areas surveyed for diseases affecting water weeds. Some results are the following: 1) natural occurring pathogens of the Eurasian watermilfoil were unable to be isolated from this plant. However, certain fungal pathogens of terrestrial plants would affect milfoil. (See Publ. List: Hayelis, H. F.). 2) In addition to the Panama isolate Rhizocteria solani, several other native isolates of this fungus would also attack many floating water weeds (See Publ. List: Joyner, B. G.). 3) conclusions of work concerning characterization and cause of stunt disease in alligator weed are that a) the disease is apparently induced by a virus belonging to the beet yellows viruses and b) all attempts (by insect vectors and mechanical means) to transmit the causal agent from diseased to healthy plants were unsuccessful (See Publ. List: Hill, H. R.). 4) Surveys for disease of the water hyacinth were conducted through Florida, Louisiana, Puerto Rico, and the Canal Zone of Panama. Several unrecorded diseases were found, the most promising as a biological control agent being a zonal leaf spot caused by Cephalosporium zonatum (See Publ. List: Rintz, R. E.) 5) One hundred and eighty two fungal and bacterial isolates were obtained from diseases water weeds during a 90 day tour of India. These have been screened in an isolation facility at Gainesville (U. of Fla.) to determine pathogenicity and biocontrol potential. A toxic metabolite from Indiana species of Penicillium causing a lysis of Hydrilla seems promising as a biocontrol (See Publ. List: Charudattan, R.).

University of Florida, Gainesville, Florida. Funded by: U. S. Dept. of Interior, Office of Water Resources Research. 7/1/70 - 6/30/73.

Publications:

T. E. Freeman, F. W. Zettler, R. Charudattan. Charudattan, R. Pathogenicity of fungi and bacteria from India to hydrilla and water hyacinth. Hyacinth Contr. J., 11: (in press), 1973.

Freeman, T. E. and F. W. Zettler. A disease of water hyacinth with biological control potential. Abstr. of 1972 meeting of Weed Sci. American, 61, 1972.

Hayslip, Helen F. Evaluation of plant pathogens as biocontrols of Eurasian watermilfoil (Myriophyllum spicatum L.) M. S. Thesis, University of Florida, Gainesville, 1972.

Hayslip, Helen F. and F. W. Zettler. Past and current research on diseases of Eurasian watermilfoil (Myriophyllum spicatum L.) Hyacinth Contr. J., 11: (in press), 1973.

Hill, H. R. Survey and evaluation of plant pathogens of alligatorweed. M. S. Thesis, University of Florida, Gainesville, 1972.

Hill, H. R. and F. W. Zettler. A virus-like stunting disease of alligator weed from Florida. Phytopathology, 63: (in press), (Abstr.), 1973.

Hill, H. R., F. W. Zettler and T. E. Freeman. Plant pathogens with potential for biological control of aquatic weeds. Proc. Southern Weed Sci. Soc., 25: 388 (Abstr.), 1972.

Joyner, B. G. Characterization of a Rhizoctonia sp. pathogenic to aquatic plants. M. S. Thesis, University of Florida, Gainesville, 1972.

Joyner, B. G. and T. E. Freeman. Pathogenicity of Rhizoctonia solani to aquatic plants. Phytopathology: (in press), 1973. Rintz, R. E. Zonal leaf spot of water-hyacinths. Hyacinth Contr. J., 11: (in press), 1973.

Rintz, R. E. Location, identification and characterization of pathogens of the water hyacinth. Ph. D. Dissertation, University of Florida, Gainesville, 1973.

Freeman, T. E. Survival of sclerotia of Rhizoctonia solani in lake water. Plant Disease Reporter (in press), 1973.

00180

Coastal fishes of Florida Gulf Coast.

Coastal and marine fishes.

University of Florida, Sea Grant Program, Gainesville, Florida 32611.  
6/73 - 2/74.

W. Seaman, Jr., C. A. Adams.

00181

Vascular flora of Florida, preparation of papers and text.

University of Florida, Agricultural Experiment Station, Gainesville, Florida.  
Self funded.

D. B. Ward.

00182

Update of dissolved fatty acids by marine filter feeders.

Update and metabolism of dissolved fatty acid by marine molluscs.

University of Florida, Department of Biochemistry, Gainesville, Florida  
43710. Funded by: State of Florida. 7/71 - 6/75.

M. Fried, T. Bundi.

00183

Marine mammals of the Gulf of Mexico.

Primarily a study of the distribution of marine mammals in the Gulf and adjacent regions based on survey of the literature and new research.

A broad survey of the literature which is very scattered has been completed and is kept up to date. In addition, stranded animals are picked up, newspaper clippings examined in order to identify strandings not represented by specimens, museums are visited for unpublished specimens or to confirm published records, and any other sources of records are pursued (such as through colleagues, the National Marine Fisheries Service, etc.).

University of Florida, Communication Sciences Lab., St. Augustine, Florida 32084. Funded by: Biological Systems, Inc. Continuing and ongoing.

D. K. Caldwell, M. C. Caldwell.

00184

Effect of petroleum -- derived and chlorinated hydrocarbons on shrimp and oysters.

University of Houston. Funded by: U. S. Department of Health, Education and Welfare, Food and Drug Administration.

Addison Lee Lawrence

1973 - Absorption of Amino Acids and Monosaccharides by the Digestive Gland of the Shrimp, Penaeus aztecus. Texas Academy of Science. March, Houston, Texas. (with Barbara Carr).

1973 - Are Bacteria Nutritionally Important to Postlarvae of the Oyster, Crassostrea gigas? Texas Academy of Science. March, Houston, Texas. (with G. J. Schulte).

1973 - Effect of Salinity on Uptake of D-glucose and D-mannitol by Postlarvae of the Brown Shrimp, Penaeus aztecus. Texas Academy of Science, March, Houston, Texas (with F. Castille).

1973 - Effect of Antibiotics on the respiration of the postlarvae of the Brown Shrimp, Penaeus aztecus. Texas Academy of Science. March, Houston, Texas (with Eva Chan).

1973 - Contribution of D-glucose to respirations in postlarvae of the Brown Shrimp, Penaeus aztecus. Texas Academy of Science. March, Houston, Texas (with M. Hightower).

1973 - Absorption of amino acids by the mid-gut of the Brown Shrimp, Penaeus aztecus. Texas Academy of Science. March, Houston, Texas. (with P. Morgan).

1972 - Absorption of L-valine and D-glucose dissolved in sea water by larvae and postlarvae of the Brown Shrimp Penaeus aztecus. Texas Report Biology Medicine.

1972 - Active transport of D-glucose dissolved in sea water by the postlarvae of the oyster, Crassostrea gigas. Texas Report Biology Medicine (with G. J. Schulte and W. H. Clark).

1973 - Are bacteria nutritionally important to shrimp larvae and postlarvae? World Mariculture Society Meetings. January, Monterrey, Mexico.

00185

Effects of natural perturbations on the survivorship, fecundity, and behavior of nearshore marine invertebrates.

Behavioral and demographic responses (deviation from seasonal patterns) of several zooplanktors and littoral benthic macroinvertebrates to natural perturbations are observed. The objective is to determine whether responses to perturbations that occur at least once per generation tend to be behavioral while those that occur only once in 2 or more generations tend to be demographic.

University of Houston, Biology Department. Funded by: University of Houston, Coastal Center. 5/72 - mid 1975.

M. Fotheringham, S. Brunenmeister, R. A. Bagnall.

00186

Water cycles, Water Resources Planning, and Urban Development in Rookery Bay, Florida.

Baseline studies of hydrography, water quality and biology of Rookery Bay, Florida, as a natural example of a mangrove estuary.

Univesity of Miami, Rosenstiel School of Marine and Atmospheric Science. Funded by: National Audubon Society. Conservation Foundation, through grant from U. S. Department of the Interior, Office of Water Resources Research, 1970-73.

Dr. Bernard Yokel.

00187

Rookery Bay Project

Hydrology, chemistry and biology of Rookery Bay and environs.

A detailed baseline study of an estuarine sanctuary to provide management techniques.

University of Miami, Conservation Foundation, Collier County Conservancy.  
Funded by: U. S. Department of the Interior, Office of Water Resources  
Research. 1/70-11/73.

John Clark, B. Yockel.

00188

An ecological study of south Biscayne Bay and Card Sound, Florida.

This continuing program is designed to carry out an interdisciplinary study of the effects of a power plant discharge on the subtropical biota of South Biscayne Bay and Card Sound. Studies on the circulation and flushing time of the bays are continuing. The importance of organic chemicals on the grass community is beginning and nuclide measurements are continuing. Studies on the plankton of the Bay will be completed. The effect of temperature on the mangrove detritus formation will be continued. The effect of temperature and chemicals on the sea grasses, macro algae and animals both in the field and in the laboratory will be continued.

Results: Circulation in Biscayne Bay and Card Sound associated with the discharge have been determined. Preliminary data have been gathered on nutrient and trace metal chemistry. The effects of heat on the local biota have been investigated in the field and in the laboratory.

University of Miami, Rosenstiel School of Marine and Atmospheric Science,  
1 Rickenbacker Cswy. Miami, Florida 33149. Funded by: U. S. Atomic  
Energy Commission, Biomedical and Environmental Research Division.  
9/72 - 8/73.

R. G. Bader, M. A. Roessler, T. Lee, J. Michel, S. Gerchakov.

00189

Biological studies of coastal organisms.

Objectives of this project are: 1) to prepare a chart of the types of animal habitats and their area, 2) to describe the animals present in these various habitats, 3) to assign relative values to the habitat types to guide developers and county, state and federal agencies responsible for planning and permit granting. This is to be used by Dade County Planning Board, the State Planning Board (Secretary Stone) and county, state and federal pollution control agencies.



The data is designed to be used by the U. S. Corps of Engineers in deciding on permits for dredging and filling in the navigable wastes of Biscayne Bay.

Accomplishments during the past 12 months include models predicting the impact of thermal additions on the macro invertebrates and fishes were developed.

It was demonstrated that canal discharge changes the sea grass-macro-algae community and this in turn reduces the diversity of the animal community.

For additional information pertaining to this project contact Dr. Richard G. Bader, Director, Sea Grant Programs, University of Miami, Coral Gables, Florida 33146.

University of Miami, Rosenstiel School of Marine and Atmospheric Science, 1 Rickenbacker Cswy. Miami, Florida 33149. Funded by: Commerce Department, National Oceanic and Atmospheric Administration, Office of the Sea Grant. 7/72 - 6/73.

00190

Ecology and distribution of postlarval fishes of Biscayne Bay, Florida.

Work will entail the collection of plankton samples in Biscayne Bay and Card Sound and adjacent offshore waters. Temperature, salinity, oxygen, and turbidity are measured. Plankton samples are sorted for larval fishes at the laboratory and identifications made as knowledge of the larval fish fauna is accumulated and developed. A concomitant program of rearing fish eggs from the Bay and adjacent waters is supplying the investigators with taxonomic information to facilitate identification of larvae. Studies will be enlarged to include preliminary studies on the effects of various temperatures, salinities, and oxygen concentrations in the laboratory, and to relate these to data obtained from field collections. Stations are located in the southern part of South Biscayne Bay to obtain background information concerning present and future levels of thermal pollution. Station located elsewhere in the Bay and adjacent waters are designed to supply information on the larval fishes and their environment in areas which are threatened or may be threatened by industrial development, dredging, filling and other environmental alterations.

University of Miami, Rosenstiel School of Marine and Atmospheric Science, 1 Rickenbacker Cswy. Miami, Florida 33149. Funded by: U. S. Environmental Protection Agency, National Environmental Research Center. 7/72 - 6/73.

D. P. Desylva.

00191

A physiological investigation of coastal marine diatoms from point of view of their use in mariculture and pollution technology.

The objectives of this project are: to investigate biochemically and physiologically some examples of the diatom flora of Biscayne Bay and close subtropical area. In particular, to use those organisms which may, either by their local importance in the environment, or because of their particular physiology, be early warning indicators of chemical and physical pollution. Some of these organisms are of importance in the aquaculture industry. A knowledge of the physiology of the particular organisms will allow us to postulate which ones would be increased in numbers by a particular environmental stress, e.g.; organic enrichment (sewage). Physiological knowledge will allow the aquaculturists to grow diatoms for larval fish feeding in a more scientific way to that the nutritional requirements of the larvae that are satisfied by these diatoms may be examined.

For additional information pertaining to this project contact Dr. Richard G. Bader, Director, Sea Grant Program, University of Miami, Coral Gables, Florida 33146.

University of Miami, Rosenstiel School of Marine and Atmospheric Science, 1 Rickenbacker Cswy. Miami, Florida 33149. Funded by: Commerce Department, National Oceanic and Atmospheric Administration, Office of the Sea Grant. 7/72 - 6/73.

K. E. Cooksey.

00192

Actinomycetales isolated from Bay Saint Louis, Mississippi.

University of Mississippi, Biology Dept. Self funded. 9/72 - 6/73.

L. A. Magee, D. H. Roush.

00193

Secondary succession on severely eroded areas of coastal plain.

University of Mississippi, Biology Dept. Self Funded. 7/72 - ?.

T. M. Pullen.

00194

Preliminary survey of certain microbiological organisms in the Bay of St. Louis.

University of Mississippi. Funded by: Mississippi Universities Marine Center. 6/72.

L. A. Magee.

00195

Enteric bacteriophages in St. Louis Bay, Mississippi.

University of Mississippi. Self funded. 6/72.

J. O. Graves, L. A. Magee.

00196

Preliminary survey of certain microbiological organisms in the Bay of St. Louis.

University of Mississippi. Funded by: University of Mississippi, National Science Foundation. 6/71 - 10/71.

L. Magee.

00197

A survey of certain microbiological organisms in St. Louis Bay.

University of Mississippi. Self funded. 7/71 - 6/72.

L. A. Magee.

00198

A survey of the Protozoa of Mobile Bay, Alabama - Project A - 021 - Ala.

Samples were taken throughout the bay for 24 months for the purpose of identifying the protozoa which inhabit the estuary.

Samples of sand and water along with substrate samples were collected from designated sites in and around Mobile Bay for a period of 24 consecutive months. The specimens collected were made into prepared microscope slides and filed. This was followed by identification to species of the animals collected and the determination of their food requirements where possible. Data were collected on the temporal and spatial distribution of each species within the bay. The major contribution of this research will be in the form of a monograph which will list, describe and depict each species identified. This will constitute the first complete protozoan survey ever published on any body of water. As such, future investigators will be able to identify the protozoan species of the bay without undertaking the extensive search of the literature normally required. The specimens collected will provide a ready reference as a type of collection. The more than 500 photomicrographs taken of the 260 different species will also contribute.

University of South Alabama, Department of Biological Sciences, Mobile, Alabama. Funded by: Department of the Interior, Office of Water Resources Research.

E. E. Jones.

00199

An ecological study of the biota of the Anclote River estuary and adjacent Gulf of Mexico.

University of South Florida, Dept. of Marine Science, St. Petersburg, Florida 33701. Funded by: Florida Power Corp. 7/73 - 7/75.

T. L. Hopkins.

00200

Phytoplankton ecology in the vicinity of the Florida Power Plant at Crystal River, Florida.

University of South Florida, Dept. of Marine Science, St. Petersburg, Florida 33701. Funded by: Florida Power Corp. 1970 -

T. L. Hopkins, Norman Blake, R. C. Baird, Harold Humm.

00201

Estuarine and near-shore ecology of the Gulf Coast of Florida in the vicinity of Tampa.

Funds from this grant will allow investigators from the Marine Science Institute of the University of South Florida increased access to the rich and varied estuarine and near-shore waters along the west coast of Florida. The grant makes possible the use of a 36-foot Bosworth "Sea Rover" as a research platform by the institute and by other academic institutions as well. The "Sea Rover" is a more capable research vessel than the currently available 17-foot Boston Whaler. A variety of research programs will be enhanced by use of this new facility. These programs include studies on marine ichthyology, invertebrate physiology, benthic ecology, pollution, estuarine circulation, sedimentation, plankton ecology and sub-bottom profiling.

University of South Florida, Center for Research and Development.

Tampa, Florida 33701. Funded by: National Science Foundation, Division of Biological and Med. Sciences. 5/72 - 4/73.

H. J. Humm.

00202

Culture of marine polychaeta for species of eastern United States.

University of South Florida. Funded by: Environmental Protection Agency 4/11/73 - 1/11/75.

J. L. Simon, M. J. Lawrence.

00203

A study of benthic plants among the offshore oil wells of coastal Louisiana.

University of South Florida. Funded by: Gulf Universities Research Consortium. 7/73 - 5/74.

H. J. Humm.

00204

A study of the ecology, biology, extractions and economics of the red algae, Hypnea musciformis.

University of South Florida. Funded by: National Science Foundation. 3/73 - 1/74.

H. J. Humm.

00205

Cooperative study of the Florida red tide.

University of South Florida. Funded by: Mote Marine Lab. 6/73 - ?.

H. J. Humm.

00206

Chemistry and origin of marine algal toxins - career development award.

University of South Florida. Funded by: U. S. Department of Health, Education and Welfare, Public Health Service. 7/73 - 6/74.

D. F. Martin.

00207

Environmental interrelationship of detergent surfactants with Gynodium breve and associated organisms.

University of South Florida. Funded by: Proctor and Gamble Co. 5/73 - ?.

D. F. Martin.

00208

Computer analysis of selected red tide data.

University of South Florida. Funded by: Mote Marine Lab.

1/73 - ?.

D. F. Martin.

00209

Repopulation of an intertidal community following natural defaunations.

University of South Florida. Funded by: National Science Foundation.  
1/72 - 6/74.

J. L. Simons.

00210

Ecological impact of dredging and filling at Port Manatee, Tampa Bay.

University of South Florida, Department of Marine Science, St. Petersburg,  
Florida 33701. Funded by: State of Florida.

T. Pyle. H. J. Humm.

00211

Distribution, abundance and diversity of benthic plants among the offshore  
oil well platforms of Louisiana.

Objectives: to determine the effect of the routine operation of oil wells  
on the benthic plants of the area.

University of S. Florida, Department of Marine Science, St. Petersburg,  
Florida 33701. Funded by: Gulf Universities Research Consortium, petroleum  
industry. May 1972 - June 1974.

H. J. Humm.

Publications: Eiseman, N. J. and J. H. Humm. 1972. An annotated biblio-  
graphy of the seagrasses of the Gulf of Mexico. Tech. Report No. 14.  
Anclote Environmental Project. University of South Florida, St. Petersburg.  
21 pages. Mimeo. 1973. benthic plants. in: Characterization and  
documentation of dissimilar hydrobiological zones of the eastern Gulf of  
Mexico. Arthur D. Little, Inc. Cambridge, Mass. Pages 50-52.

00212

Techniques of cultivation of marine benthic algae of economic value.

The objective is to work out techniques adaptable to large-scale economically  
feasible cultivation of benthic algae of economic importance in the Gulf of  
Mexico.

University of South Florida, Dept. of Marine Science, St. Petersburg, Fla. 33701. Funded by: Commerce Department, National Oceanic and Atmospheric Administration, Office of the Sea Grant. 7/69 - continue indefinitely.

H. J. Humm.

00213

Diel and vertical distribution of micronekton in the eastern Gulf of Mexico.

Determine diel and vertical distribution patterns in deep sea micronekton.

University of South Florida, Dept. of Marine Science, St. Petersburg, Fla. 33701. Funded by: Florida State University System, Institute of Oceanography. U. S. Dept. of the Navy, Naval Research Laboratory. June 1971 - ?

Hopkins, Baird.

00214

Fate and effect of crude oil on the marine environment.

The fate of crude oil once it gets into the marine environment. The effect of crude oil on mullet, shrimp, and oysters. Investigations include LD50 acute testing, growth studies when exposed to chronic levels of crude oils, and rate of recovery from crude oil exposure.

The purpose of this study is to establish some criteria upon which to base legislative action on oil spills. The study is divided into 3 phases. The first phase is to establish the toxic levels of crude oil on mullet, shrimp and oysters. Complete historical, enzymatic, and chemical analyses of these organisms before and after exposure to crude oil has been made on these organisms. The second phase is to establish effects on growth rates, changes in enzyme response, and reproduction of these organisms after low-level exposure to crude oil over long periods of time. The third phase is to study the entire response of an environment after a simulated oil spill. These studies involve growth rates of marine grasses, total productivity in the water column, along with the response of the various animals under study.

University of Southern Mississippi, Gulf Coast Research Laboratory, Mississippi State University. Funded by: Environmental Protection Agency, September 1972 - September 1975.

S. Lyle, B. Demoran, T. McIlwain. Publication: Marine Briefs, Volume 2, No. 2, Gulf Coast Research Laboratory publication.

00215

Comparative cranial osteology of the western Atlantic fishes of the Lutjanus campechanus complex.

University of Southern Mississippi. Self funding. 8/70 - 8/72.

R. G. Jones.

00216

The development of an unstructured environmental curriculum model from investigations on the establishment of sessile marine communities in two Gulf estuaries.

University of Southern Mississippi. Self funded. 7/71 - 6/72.

I. L. Sonnier, J. K. Haburay.

00217

Jellyfish toxins - an in-depth chemical, biochemical, pharmacological, and toxicological investigation of toxin from the jellyfish Stomolophus meleagris.

Studies emphasize cause-effect relationships of the various components of the toxin with the ultimate objective being the development of effective treatment for persons stung by jellyfish.

University of Southern Mississippi. Self funded. 10/70 - ?

P. M. Toom.

00218

The chemistry of stingray venom.

A preliminary investigation into the chemical and biochemical composition of stingray venoms.

University of Southern Mississippi. Self funded. 4/71 - 12/72.

P. M. Toom.

00219

Bay and estuary management - biological use criteria.

U. of Texas, Marine Science Institute at Port Aransas, Texas. 78373.  
Funded by: NSF - RANN and Office of Governor of Texas. Completed or underway 1972 - 1973.

M. Isensee.



00220

The Texas Flower Garden Reef Survey.

The investigation of biological zonation and sampling of the west Flower Garden to depths of 500 feet utilizing the research submersible NEKTON. Also to investigate geological structures, heavy metal content and distribution and surface currents.

University of Texas Medical Branch, The Marine Biomedical Institute Galveston, Texas. Funded by: Commerce Department, National Oceanic and Atmospheric Administration. Phase I: June 5-12, 1972 using a submersible, continuing investigations from this date working from the surface.

Mr. Robert Alderdice - Marine Biomedical Institute, University of Texas Medical Branch, Galveston, Texas. T. Bright - Texas A & M. J. Urban - U.T.D. L. Land - U.T. R. Gooding - Smithsonian Institution.

00221

Biological inventory of Corpus Christi Bay.

University of Texas, Marine Science Institute at Port Aransas, Texas 78373. Funded by: City of Corpus Christi and Texas Water Development Board. Completed or underway 1972 - 1973.

Dr. Holland.

00222

Environmental data management - chemistry/biology.

University of Texas, Marine Science Institute at Port Aransas, Texas 78373. Funded by: Gulf University Research Cons. Completed or underway Consortium 1972 - 1973.

Brogden.

00223

Environmental data management - International Conference.

University of Texas, Marine Science Institute at Port Aransas, Texas 78373. Funded by: NATO, Eco-Sciences Panel. Completed or underway 1972 - 73.

Brogden.

00224

Environmental data bank - data accessions.

University of Texas, Marine Science Institute at Port Aransas, Texas 78373.  
Funded by: DuPont.

Brogden.

00225

Development of methodology for evaluation and prediction of the limnological aspects of Matagorda and San Antonio Bays.

The objective is to evaluate various techniques for estimating and predicting the primary biological productivity of two Texas bay systems, with the ultimate intent of providing information necessary for the management of these and similar estuarine systems. Most of the common methods used for assessing primary productivity of estuarine systems are being evaluated, including diurnal oxygen depletion and production, species diversity of the standing plankton crop and the benthic organisms, and chemical analyses of the bay waters. Data on the bacterial populations in the bays, total organic carbon and the biochemical oxygen demand of bay water also are being collected and correlated. Results of these investigations should show which types of data are most valuable for estimating productivity and which parameters are unreliable in estuarine systems.

The process of research has now been expanded to include the Aransas-Copano and Corpus Christi Bay systems of the Texas coast. Additionally, the program has been expanded to include definition of the nutrient budget of each of the four major estuarine systems.

University of Texas, School of Public Health, 6516 Freeman, Houston, Texas 77025. Funded by: Texas State Government. 7/72 - 6/73.

E. M. Davis, J. C. Nelson, S. C. Burnitt, L. B. Seward, L. F. Tischler.  
A progress report, to the Texas Water Development Board, titled "Development of Methodology for Evaluation and Prediction of the Limnological Aspects of Matagorda and San Antonio Bays" was completed November 1, 1971.

00226

General seasonal ecological studies on growth and metabolism of Gulf Coast fish with reference to sublethal natural and man-induced stresses.

In general the investigations deal with the depression of respiratory metabolism by thermal, salinity, dissolved oxygen, and pollutant effects. Fishes over a range of sizes and swimming velocities are used. Seasonal effects - aside from temperature are evaluated. The pinfish, striped mullet, midshipman and spotted sea trout have received special attention with respect to these variables.

University of Texas, Marine Science Institute, Department of Zoology,  
Funded by: The University of Texas, National Science Foundation, Texas  
Water Quality Board, Welder Wildlife Foundation.

W. L. Longley, Jr., F. R. Parker, Jr., J. H. Collins, D. E. Wohlschlag,  
J. J. Cech, Jr., and R. H. Moore.

Publications: Cameron, J. N. 1970. Blood characteristics of some marine  
fishes of the Texas Gulf coast. Texas J. Sci. 21: 275-283.

Cameron, N. J. and D. E. Wohlschlag, 1969. Respiratory response to  
experimentally induced anemia in the pinfish (Lagodon rhomboides) J.  
Biol. 50: 307-317.

Cameron, N. J. and J. J. Cech, Jr., 1970. Notes on energy cost of gill  
ventilation in teleosts. Comp. Biochem. Physiol. 30: 1-9.

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Mugil cephalus, to three environmental stresses. M. A. thesis, University  
of Texas, Austin, Texas.

Cech, J. J., Jr., and D. E. Wohlschlag, 1973. Respiratory response of the  
striped mullet, Mugil cephalus, to hypoxic conditions. J. Fish. Biol.  
5: 421-428.

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Water Resources Symposium, No. 1 XVIII + 513 p, Univ. of Texas Press, Austin.

Kloth, T. C. and D. E. Wohlschlag. 1972. Size-related metabolic responses  
of the pinfish, Lagodon rhomboides, to salinity variations and sublethal  
petrochemical pollution. Contr. Mar. Sci. 16:125-137.

Wohlschlag, D. E. 1972. Ecological constraints by stresses, p. 113-130.  
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problems in Antarctica. Allen Press, Lawrence, Kansas.

Wohlschlag, D. E. and J. N. Cameron, 1967. Assessment of a low level stress  
on the respiratory metabolism of the pinfish (Lagodon rhomboides). Contr.  
Mar. Sci. Univ. Tex. 12: 160-171.

Wohlschlag, D. E., J. N. Cameron and J. J. Cech, Jr. 1968. Seasonal changes  
in the respiratory metabolism of the pinfish (Lagodon rhomboides). Contr.  
Sci. Univ. Tex. 13: 89-104.

Wohlschlag, D. E. and B. J. Copeland, 1970. Fragile estuarine systems--  
ecological considerations. Water Resources Bull. 6: 94-105.

Wohlschlag, D. E. and J. N. Cameron, 1967. Assessment of a low level stress  
on the respiratory metabolism of the pinfish (Lagodon rhomboides). Contr.  
Mar. Sci. Univ. Tex. 12: 160-171.

Wohlschlag, D. E. 1972. Respiratory metabolism of the striped mullet as an assay of low level stresses in Galveston Bay. Part IV of Contract Report to Texas Water Quality Board. 77 p. processed.

00227

Photobiology.

Vision in fishes, including subaquatic illumination.

Measurements of submarine spectrum irradiance are being made.

University of Texas, Marine Science Institute at Port Aransas, Tex. Funded by: U. S. Dept. of Health, Education, and Welfare, National Institute of Health. 1975.

K. Winters, C. Van Bralen, S. Ito, and R. Wang.

Publications: Winters, K., C. Van Bralen, S. Ito, R. Wang, and E. S. Zyznar "The Tapetum Lucidum" in the eye of the Big-eye Priacanthus arneatus Cuvier." Journal of Fish Biology 5 (1973), 519.

Winters, K., C. J. Van Bralen, S. Ito, R. Wang, and H. J. Arnott. Studies on the eyes of Gars. (Lepisosteidae) with special reference to the "Tapetum Lucidum." Canadian Journal of Zoology 51 (1973), 501.

Winters, K., C. J. Van Bralen, S. Ito, R. Wang, H. J. Arnott and A. C. G. Best "Tapeta Lucida in bony fishes (Actinopterygii): A survey." Canadian Journal of Zoology 51 (1973), 69.

Winters, K., C. J. Van Bralen, S. Ito, R. Wang, and H. J. Arnott. Riboflavin in the eyes of Gars (Lepisosteidae). Canadian Journal of Zoology 50 (1972), 1211.

00228

Trawl sorting contract-striped bass project.

University of West Florida. Funded by: U. S. Department of Interior, U. S. Bureau of Sport Fisheries and Wildlife. 6/73 - 5/74.

T. S. Hopkins.

00229

Determination of a nitrogen-phosphorus budget for Bayou Texar, Pensacola, Florida - Phase I.

This is a study of nutrient contributions from various sources, including data from bayou nitrogen, phosphorus and carbon fixation levels, quantification of the extent of nitrogen and phosphorus inputs into the bayou amounts, types and periodicities of fertilizer application to lawn and gardens, rainwater nutrient levels, storm drain run-off and inflow from Pensacola Bay during times of high turbulence.

The University of West Florida, Pensacola, Florida. Funded by: Florida Water Resources, Research Center. July 1972 - June 1974.

G. A. Moshiri. Hannah, R. P., A. T. Simmons, and G. A. Moshiri. Certain nutrient - primary productivity relationships in a bayou estuary. J. Water Pollution Control Federation: (in press), 1973.

Moshiri, G. A. and P. J. Conklin. Certain aspects of spatial and temporal periodicities in phytoplankton populations in a bayou estuary (Abstract) Quarterly J. Florida Acad. Sci., 36 (1) Supp. 13, 1973.

00230

Determination of a nitrogen phosphorus budget from Bayou Texar, Pensacola, Florida, Phase II.

University of West Florida. Funded by: U. S. Department of Interior Office of Water Resources Research. 1/73 - 6/74.

G. A. Moshiri.

00231

Isolation and partial characterization of the toxin obtained from the marine polychaete Chloeia vordis.

University of West Florida. National Science Foundation. 3/73 - 12/73.

Riehm.

00232

Endocrine control of color changes in crustaceans.

University of West Florida. Funded by: National Science Foundation. 1973.

Rao.

00233

Association of macroplankton species with eastern Gulf of Mexico water-masses emphasizing isopods, chaetognaths, gastropods and hyperiid amphipods and the Florida loop current.

University of West Florida. Funded by: Florida State University System,  
Institute of Oceanography.

S. Collard.

00234

Systematic and ecological analysis of decapod crustaceans, echinoderms,  
and molluscs on the continental shelf of the northern Gulf of Mexico.

University of West Florida. Funded by: Gulf Universities Research Consortium.  
6/73 - 5/74.

S. Collard.

00235

Fish and egg larvae survey.

University of West Florida. Funded by: National Marine Fisheries Service.  
1972 - 1973.

S. Collard.

00236

Systematic and ecological analysis of decapod crustaceans, echinoderms  
and molluscs on the Continental shelf of the northern Gulf of Mexico.

University of West Florida, Pensacola, Florida 32504.

S. B. Collard.

00237

Mucus secretions of ophiuroids.

Isolation of marine natural products from ophiuroids testing for biological  
activity and structure determinations. September 73 - August 75.

University of West Florida, Pensacola, Florida 32504. Funded by: National  
Science Foundation, Ford Foundation Venture Fund.

C. W. J. Chang.

00238

Estimation of nitrogen and phosphorous inputs and the effects on the  
eutrophication time table of Bayou Texar, Pensacola, Florida.

The proposed research is part of a two-phase project. The first phase is aimed at the determination of a nitrogen and phosphorus budget for Bayou Texar, Pensacola, Florida. The second phase involves a continuation of phase one plus the delineation of the extent of the effects of these inputs on the primary productivity of this estuarine bayou. This inlet from Pensacola Bay is first becoming eutrophic; mostly from urban activities, and it is anticipated that determination of the extent of nitrogen and phosphorus inputs into this system will aid in the recommendation of measures for alleviation of this enrichment problem. The two-year proposed program involves qualitative and quantitative determinations of such inputs, the delineation of the sources, as well as the employment of field and laboratory studies, including culture work, in determining primary productivity trends in the bayou.

Finally, predictive theories will be derived and projections and recommendations will be made concerning approaches which would alleviate the problem of nutrient enrichment in Bayou Texar.

University of West Florida, Graduate School, Pensacola, Florida 32504.  
Funded by: Interior Department, Office of Water Resources Res. 7/73 - 7/74  
multiple support funds.

G . A. Moshiri.

00239

A study of the effects of maintenance dredging in Mobile Bay, Alabama, on selected biological parameters.

Water and Air Research Inc., Gainesville, Florida. Funded by: U. S. Army, Corps of Engineers.

J. B. Lackey.

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00001

Water cycles, water resources planning, and urban development at Rookery Bay, Florida.

Centering on a watershed, estuary and bay located near Naples, Florida, the project is intended to study means of reconciling the pressures of urban development with the necessity for preserving the quality of environment. There are two aspects of the study. One, under the direction of the Institute of Marine Science will investigate the hydrology, oceanography, water quality and ecology of the Rookery Bay system as it is subjected the urban development. Hopefully, the development will proceed in accordance with a plan previously designed by the foundation and the institute. This plan is intended to protect the natural environment of the Rookery Bay system while permitting urban development to take place. Even in the event that this plan is not followed and development proceeds along other lines, the project will provide measures of the changes that take place. The second aspect of the project is intended to study the politics, economics, and social attitudes involved in the decision-making process in the Rookery Bay region in order to develop information useful to other areas where urban development takes place in a similar water-oriented environment. This aspect of the study will be conducted by the Conservation Foundation.

Conservation Foundation, Inc., 1717 Massachusetts Ave. N.W., Washington, D.C. Funded by: Interior Department, Office of Water Resources Res. July 1969 - December 1973.

A. A. Davis.

00002

Chemistry of mercury in natural waters of the United States.

The major objectives of this project are to determine the abundance and distribution of mercury in Gulf Coast estuaries of the Northeast section including part of the coasts of Florida, Alabama, Mississippi, Louisiana and Texas. An important phase will be to determine the relative concentration in various samples of sediments, biological materials and water. This information should provide a picture of the dynamic partition of processes necessary to predict the fate of mercury in this environment.

Florida State University, School of Arts, Oceanography, Tallahassee, Florida 32306. Funded by: Environmental Protection Agency, Office of Water Programs.

R. C. Harriss.

00003

Phase II - Hydrology of Louisiana's estuaries.

The objectives of this study are: (1) to determine the physical and chemical characteristics of the waters of the estuaries of Louisiana, (2) to determine the tidal amplitudes and cycles of the respective estuaries of Louisiana, (3) to determine the correlation of physical and chemical characteristics with relation to abundance of primary organisms, (4) to develop data for the hydrology of the estuaries of Louisiana to be available for inclusion in an atlas of the Gulf of Mexico estuaries in cooperation with the other states of the Gulf States Marine Fisheries Commission and the Bureau of Commercial Fisheries.

Data will be collected, compiled and analysed with regard to salinity temperature, selected nitrogen and phosphorous compounds, tidal amplitude and cycle. Additional salinity and temperature data will be utilized from existing monitoring stations along the Louisiana Coast. Hydrological sampling will be conducted in conjunction with biological sampling to determine physical and chemical characteristics in relation to abundance of shrimp and other commercially important species, with exception of selected phosphorous and nitrogen compounds which will be collected only at selected biological stations. Where available, hydrological data will be utilized from other sources. All data will be collected, analyzed, and prepared in a form which will be available and acceptable for incorporation as a section in an atlas of the estuaries of the Gulf of Mexico.

State Wildlife and Fish Comm., 400 Royal St., New Orleans, Louisiana 70130.  
Funded by: Commerce Department, National Oceanic and Atmospheric Administration. National Marine Fisheries Service.

W. S. Perret

00004

The establishment of an environmental science laboratory at the Mississippi test facility.

This project is concerned with establishing the baseline ecology of the Mississippi Test Facility area with particular emphasis on the Jourdan River and its tributaries. Specific portions of the investigation are concerned with the hydrological, chemical, and biological characteristics of the area. Five large ponds have been constructed and are to be used for establishing ecosystems simulating those found in the central Gulf south area.

Mississippi State University. Funded by: National Aeronautics and Space Administration. 7/71-6/72.



R. Brown, J. Lorio, A. A. De La Cruz, G. Clemmer, D. H. Miles, E. B. Grimley.

00005

V.A. FOGG continental shelf research base.

The objectives of this study are: (1) to pursue the feasibility of making valuable scientific use of the hull of the V.A. FOGG, thereby creating a unique underwater research base, (2) to ascertain all governmental agencies that have any jurisdictional interest in the fate of the sunken tanker V. A. FOGG, (3) to explore with these agencies the extent to which they are willing to facilitate by positive action and monetary subsidy the development of the V. A. FOGG Continental Shelf Research Base Concept, (4) to deal with the Texas City Tanker Corporation and their legal staff in obtaining a first-look agreement on transfer of the V. A. FOGG to a second aegis, and (5) to develop the outline of an investigative program that can be carried out at the base.

Ultimately the wreck will be used as a focal point for applied research into artificial fishing and diving reef construction and management, certain aspects of open-sea mariculture, fouling and materials degradation studies as well as inquiries into the nature of hydrographic phenomena associated with offshore structures and the rate of subsidence of the wreck into the mud. All these are directly applicable to current marine problems recognized as having high priority on the Texas Coast.

For additional information pertaining to this project contact Dr. Robert C. Stephenson, Director, Center for Marine Resources, Texas A & M University, College Station, Texas 77843.

Texas A & M University System, School of Geosciences, College Station, Texas 77843. Funded by: Commerce Department, National Oceanic and Atmospheric Administration, Sea Grant Office. 6/72-5/73.

T. J. Bright, W. E. Pequegot.

00006

Department of Marine resources information.

Texas A & M University, Office of University Research, College Station, Texas 77843. Funded by: U. S. Department of Commerce, National Oceanic and Atmospheric Administration.

L. F. Miloy.

00007

Phosphate slime dewatering: characterization of Florida phosphate slimes.

Objective to develop methods for quantifying mineralogical content of phosphate slimes.

U.S. Department of Interior, Bureau of Mines, Tuscaloosa Metallurgy Research Lab., Tuscaloosa, Alabama. Funded by: U.S. Department of Interior, Bureau of Mines. July 1972 - June 1975.

W. E. Lamont.

00008

Wilcox waste disposal appraisal, Gulf Coastal Plain.

This research is part of the program of water resources investigations conducted by the U.S. Geological Survey.

The purpose of this study is to develop knowledge and understanding of subsurface environments of the Gulf Coastal Plain necessary for appraisal of their suitability for liquid waste storage; and to analyze and interpret data obtained using new concepts and principles of sedimentary basin hydrology, to make semi-quantitative determinations of the physical characteristics and geometry of reservoir rocks, the chemistry of interstitial waters, and hydrodynamic controls.

Regional maps and sections will show sediment facies distribution and thickness, structural features, water salinity distribution in major aquifer systems, and temperature distribution areally and with depth. Major buried delta systems describe reservoir rock occurrence; structural features define hydrodynamic controls; salinity and composition of formation waters describe chemical and physical properties of the fluid to be displaced by waste; and isogeothermal maps indicate natural flow paths and enable calculation of density and viscosity of reservoir fluids reaction rates and equilibria, and diffusion potentials.

U.S. Department of the Interior, Geological Survey, Bay Saint Louis, Mississippi 39520. Funded by: Interior Department, Geological Survey, Water Resources Division. 7/72 - 6/73.

P. H. Jones.

00009

Salt-water encroachment in coastal areas of Citrus and Hernando Counties, Florida.

The coastal area of Citrus and Hernando Counties is undergoing extensive housing development involving construction of finger canals sufficiently deep to penetrate the upper part of the Floridan aquifer. High density housing developments are underway or planned for the inland area. This development will also cause drainage modification in the coast area. Pressure will be felt by governmental agencies to control salt-water encroachment through establishment of salt-water barriers lines.

In order to evaluate the extent of salt water encroachment, location both areally and vertically of the position of the salt-fresh water contact in surface and ground water and delineation of the position of the salt-fresh water interface (chloride content-250 mg/l) at a depth of 100 feet below mean sea level in the Florida aquifer will be performed.

Information will be collected to depict (1) altitude of the top of the Floridan aquifer; (2) potentiometric surface of the upper part of the Floridan aquifer; (3) depth to the salt-fresh water interface at seasonal extremes; and (4) salinity of streams and canals.

U.S. Department of the Interior, U.S. Geological Survey, Tampa, Florida.  
Funded by: Interior Department, Geological Survey, Water Resources Division. 7/72-6/73.

J. D. Hunn.

00010

Analysis of researchable water problems in the South Atlantic Gulf region.

University of Florida. Funded by: Department of Interior, 2/73 - 2/75.

W. H. Morgan.

00011

Effective compositional and environmental factors on protection potentials of engineering alloys in saline environments.

University of Florida. Funded by: U.S. Department of Interior, Office of Saline Water. 2/73 - 1/74.

E. Verink.

00012

Underwater sound localization in humans.

University of Florida. Funded by: U.S. Department of Health, Education and Welfare, National Institutes of Health. 5/73 - 1/74.

H. Hollien.

00013

Chemical definition of an ecosystem - St. Louis Bay.

Establishment of "normal" levels of polluting chemicals in a relatively clean ecosystem - the Bay of St. Louis.

University of Southern Mississippi. Funded by: U.S. Department of Commerce, National Oceanic and Atmospheric Administration. 6/71 - 12/72.

R. Brent, P. Williams.

00014

The chemical and optical properties of nepheloid waters of the N. Atlantic Ocean, with special reference to the Caribbean Sea, Gulf of Mexico, and Gulf stream system.

Properties and distribution of suspended particles.

University of South Florida, Department of Marine Science, St. Petersburg, Florida 33701. U.S. Department of Navy, Office of Naval Research 1972 - ongoing.

L. Carder, K. A. Fanning, P. R. Beltzer.

00015

Variations in stable carbon, oxygen and nitrogen isotope ratios in normal and polluted biogeochemical systems.

This is a continuation of research supported under NSF grant GA-11414.

The aim of this research is to measure variations in stable isotope ratios, and to use these measurements to solve problems concerning the flow of these elements in biogeochemical systems. The following aspects will be included: (1) use C13 and N15 in case studies; (2) measure the delta-C13

and delta N15 of isolated biochemicals, particularly amino acids; (3) determine the delta-C13 and delta N15 for organic sedimentary matter in many parts of the Gulf of Mexico; and (4) gather extensive delta-O18 of O2 in nearshore Gulf waters.

University of Texas, Graduate School, Port Aransas, Texas 78373. Funded by: National Science Foundation, Division of Environmental Sciences. 9/72 - 8/73.

P. L. Parker.

**MARINE GEOLOGY**  
**CURRENT AND RECENT RESEARCH**

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Alabama Dept. of Conservation and  
Natural Resources

Marine Resources Division 00001

Alabama State Seafoods Division 00002

Earth Resources Lab. 00008

Florida State University

Geophysical Fluid Dynamics  
Institute 00004

Graduate School 00005

Oceanography 00003

Gulf Coast Research  
Laboratory (GCRL)

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Johns Hopkins University

School of Arts 00009

Louisiana State University

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Louisiana State Wildlife and  
Fisheries Commission

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Commission

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Smithsonian Institution 00021

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State University of New York

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Texas A & M University

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School of Geosciences 00032

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University of Miami

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Texas Christian University  
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U. S. Dept. of Commerce

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00001

Contributions to the holocene geology of coastal Alabama.

Alabama Marine Resources Division, Dauphin Island, Alabama. Funded by: U. S. Department of Commerce, National Oceanic and Atmospheric Administration, National Marine Fisheries Service, U. S. Corps of Engineers.

B. May.

00002

Sedimentology of Alabama's estuaries.

The objectives of this study are: (1) to make an analysis of the distribution of textural and compositional properties of the surface sediments of Alabama's estuaries, (2) to develop an atlas of the sedimentological characteristics of Alabama's estuaries in cooperation with other states of the Gulf States Marine Fisheries Commission and the Bureau of Commercial Fisheries.

Work under this phase will be performed by the Geology Department of Florida State University. Sampling and analyses will be within the recommendations of this technical coordinating committee of the Gulf States Marine Fisheries Commission. Results of the study will be incorporated into an atlas of the estuaries of the Gulf of Mexico.

Alabama State Seafoods Division, Marine Resources Lab, P.O. Box 188, Dauphin Island, Alabama 37528. Funded by: Commerce Department, National Oceanic and Atmospheric Administration, National Marine Fisheries Service.

J. H. Crance.

00003

Chemistry of mercury in natural waters of the United States.

The major objectives of this project are to determine the abundance and distribution of mercury in Gulf Coast estuaries of the Northeast section including part of the coasts of Florida, Alabama, Mississippi, Louisiana and Texas. An important phase will be to determine the relative concentration in various samples of sediments, biological materials and water. This information should provide a picture of the dynamic partition of processes necessary to predict the fate of mercury in this environment.

Florida State University, School of Arts Oceanography, Tallahassee, Florida 32306. Funded by: Environmental Project Agency, Office of Water Programs.

R. C. Harriss.

00004

Coastal circulation and sand budget of Florida.

Beach movement (erosion or accretion). Wave-topography interaction.

Florida State University, Geophysical Fluid Dynamics Inst., Tallahassee, Florida 32306. Funded by: U.S. Department of Commerce, National Oceanic and Atmospheric Administration, National Sea Grant Program. 1971 - 1976.

Richard Pfeffer.

00005

Wisconsin - Holocene coastal sedimentation - Northeast Gulf of Mexico.

Estuaries are ephemeral features which are ultimately destroyed by the same processes which brought them into being: (1) Rising sea level, and (2) estuarine/peri-estuarine sedimentation. This work will establish a model for the second of these processes through the investigation of the sedimentary history of 7 estuaries along the Florida/Alabama coast. Each represents one of several stages of estuarine sediment in-filling. The sub-bottom seismic profiler provided for this work by NSF and university funds equally will constitute the major data source.

Florida State University, Graduate School, Tallahassee, Florida 32306. Funded by: National Science Foundation, Division of Environmental Sciences. 2/72 - 1/73.

H. G. Goodell.

00006

Sedimentation, Back Bay of Biloxi - Biloxi Bay; geological and morphological development of Mississippi - Alabama coast and offshore barrier islands.

Different area units in Mississippi-Alabama coastal area, studies for geological-sedimentological information. Also: geological history and development of Florida Parishes, Louisiana and Florida Panhandle area.

Surface and subsurface investigation of the subject area with detailed sedimentological-micropaleontological study of the obtained field samples and drill cores. In areas of recent sedimentation, dredge and core samples were taken and similar procedures followed. The over-all objective is to gain sufficient data to reconstruct the late tertiary history (especially quaternary history) of the subject area and establish location and development conditions of the different geological units. Practical application (NASA Sea Grant) was obtained by studying the pollution-sedimentation characteristics of a number of coastal estuaries and bays. The results were and are being summarized in a number of publications (about seven published; several to be published in the following 2-3 years).

Gulf Coast Research Laboratory, Ocean Springs, Mississippi. Funded by: NASA - Earth Resources Laboratory, Bay St. Louis, Gulf Coast Research Laboratory. Estimate of Comp. 1973, 1974.

E. G. Otvos. Publications: Geology of the Mississippi - Alabama Coastal area and nearshore zone; Guidebook. New Orleans Geological Society, 1973. Pre-Sangamon beach ridges along the northeastern Gulf Coast-fact or fiction: Trans. Gulf Coast Assoc. Geol. Soc., v. 22, 1972. Inverse beach sand texture-coastal energy relationship on Mississippi-Alabama Coast barrier islands: Jour. Miss. Acad. Sci., 1973. Mississippi Gulf Coast Pleistocene beach barriers and the age problem of the Atlantic-Gulf Coast "Pamlico" - "Ingleside" beach ridge system. Southeast Geology, 1972.

00007

Organic geochemistry of the Mississippi coast.

Investigation of coastal bogs, marshes and other organic rich environments for geochemically significant compounds; specifically hydrocarbons, fatty alcohols and fatty acids.

Gulf Coast Research Laboratory, Ocean Springs, Mississippi. Funded by: State of Mississippi. March 1971 - June 1974.

F. Lytle. Publications: "Organic geochemical studies of Louisiana-Mississippi near-shore environments " J. R. Sever and T. F. Lytle, Coastal and Shallow Water Research Conference Abstracts, Geography Programs office of Naval Research, 1971.

"Organic geochemistry of primitive plant environments,": T. F. Lytle and J. R. Sever, The Geological Society of American Abstracts, Washington, D. C. 1971.

"Organic geochemistry of a Mississippi coastal bog environment," J. R. Sever, T. F. Lytle and P. Haug, Contributions to Marine Science, 16, University of Texas. 1972.

"The fatty acids and hydrocarbons of Lycopodium," Phytochemistry T. F. Lytle and J. S. Lytle, 1973.

00008

Biloxi Bay study.

Marine geology, marine biology and oceanography.

Gulf Coast Research Laboratory, National Aeronautics and Space Administration, Earth Resources Laboratory. Funded by: National Aeronautics and Space Administration, Gulf Coast Research Laboratory June 1972 - September 1973.

J. L. Christmas, C. Eleuterius, E. Otvos, T. Lytle, H. B. Atwood.

00009

Sedimentary environment of marine evaporites.

The principal objective of this research is a study of modern marine processes as a basis for interpreting chemical sediments of the ancient geological record. Four areas of chemical sediments representative of tropical non-carbonate shallow marginal marine deposits are under investigation. One area is in Texas, the other in the Gulf of California area.

The research plan gives particular attention to the physical, chemical, and biological processes operating in the modern evaporitic environments. Specific targets of study are: evaporite and host sediment mineralogy; sedimentary structures and textures; water chemistry of surface and interstitial waters where evaporite minerals are forming; and biochemical roles played by organisms. The end product is expected to be a refined model of chemical sedimentation in the shallow marine environment.

John Hopkins University, School of Arts, Charles and 34 Sts., Baltimore, Maryland 21218. Funded by: National Science Foundation, Division of Environmental Sciences. 10/72 - 9/73.

L. H. Hardie, H. P. Eugster.

00010

Recent sediment of Vermillion Bay -- Marsh Island to Cypremont Point.

Nature and location of sediment in Vermillion Bay as related to currents and source of material.

Bottom sediment was collected along transects from Marsh Island to Cypremont Point and at right angles to such transects in an attempt to determine the rate of accumulation and nature of the sediment and its relationship to the existing bottom and direction of currents.

Began September 1972 - no determined conclusion date.  
State University, Baton Rouge, La.

Albin, David Carpenter: MS Candidate.

00011

Geochemical cycle of cadmium and trace metals in a salt marsh ecosystem.

Trace metal geochemical cycles.

Louisiana State University. Funded by: U.S. Department of Commerce, National Oceanic and Atmospheric Administration, Office of Sea Grant.

C. A. Price, R. E. Ferrell.

00012

Geochemistry of the zone of mixing between Mississippi River water and Gulf of Mexico water.

Louisiana State University, Department of Geology, Baton Rouge. Funded by: Louisiana State University, Gulf Universities Research Corp. 6/72 - 6/74.

Dr. Jeffrey S. Hanor, Dr. Lui-Heung Chan.

00013

Input of Barium into the Gulf of Mexico.

The dissolved barium contents of water samples collected in the offshore area of Louisiana are measured with the technique of mass spectrometry isotope dilution method. The barium level is compared with those in Mississippi River water and the open Gulf. The object of the study is to better understand the barium geochemistry of the Gulf of Mexico and to detect the effect of barium input to the marine environment from the barite drilling muds used in drilling operations.

Louisiana State University. Department of Geology, Baton Rouge. Funded by: Louisiana State University, Department of Geology and Gulf Universities Research Corporation. 6/72 - 6/74.

Dr. Jeffrey S. Hanor. Dr. Lui-Helung Chan.

00014

Salt domes under and adjacent to Gulf of Mexico.

Louisiana State University, Department of Geology, Baton Rouge. Funded by: Louisiana State University. Continuing.

D. H. Kupfer.

00015

Origin and migration of salt in and around the Gulf of Mexico.

Louisiana State University, Department of Geology, Baton Rouge. Funded by: Louisiana State University. Continuing.

D. H. Kupfer.

00016

Origin of the Gulf of Mexico.

Louisiana State University, Department of Geology, Baton Rouge. Funded by: Louisiana State University. Continuing.

D. H. Kupfer.

00017

Research in oceanography - Doctoral dissertation research.

Syndeositional and postdepositional changes in assemblage composition brought about by processes operating in the shallow sublittoral environment have been the subject of extensive investigation. The inner continental shelf offshore Destin, Florida provides an opportunity to observe these processes in a natural system and to assess the degree to which they influence the composition of fossil accumulations. Of particular biological importance in this regard are wave and tide generated currents and bioturbation. The distribution patterns of these data will be statistically analyzed and interpreted with respect to the associated living assemblages, longshore and storm generated currents, depth and distance from shore, substrate, and bioturbation. In addition, burrow configuration and distribution will be investigated with reference to destruction of primary structures and sediment mixing.

Louisiana State University, School of Arts, University Station, Baton Rouge, Louisiana 70803. Funded by: National Science Foundation, Division of Environmental Sciences. 5/72 - 5/73.

B. F. Perkins.

00018

Sedimentology of Louisiana estuaries.

Objectives: (1) To determine the sediment forms of the state estuaries as an index of their respective condition, (2) to determine the degree to which alterations have already affected sediments and to establish a baseline for the evaluation of future estuarine modifications, their effect on sediments, and subsequently in the biota, (3) to develop data for the sedimentology of the estuaries of Louisiana to be available for inclusion in an atlas of the Gulf of Mexico estuaries in cooperation with the other states of the Gulf States Marine Fisheries Commission and the Bureau of Commercial Fisheries.

Louisiana State Wildlife and Fish Comm., 400 Royal St., Wildlife and Fisheries Building, New Orleans, Louisiana 70130. Funded by: Commerce Department, National Oceanic and Atmospheric Administration National Marine Fisheries Service. 7/71 - 6/72.

W. S. Perret.

00019

Cooperative Gulf of Mexico inventory and study - sedimentology of Mississippi estuaries.

The objectives of this study are: (1) to determine the sediment forms of Mississippi estuaries as an index of their respective conditions. (2) to establish a baseline for the evaluation of expected changes in sediment distribution and its effect on the biota, (3) to develop an atlas of the sediments of Mississippi estuaries, (4) to make the state atlas available, in cooperation with the other Gulf States and the Bureau of Commercial Fisheries, for inclusion in an atlas of Gulf of Mexico estuaries.

Mississippi State Marine Conservation Comm., Biloxi, Mississippi 35930.  
Funded by: Commerce Department, National Oceanic and Atmospheric Administration, National Marine Fisheries Service.

J. Y. Christmas.

00020

Subsidence and surface faulting in the Gulf Coast.

Subsidence and surface faulting - relation to environmental factors.

Rice University, Houston, Texas 77001.

H. C. Clark, G. Bradbeer.

00021

The biostratigraphy of "Unit-A" at Belle Glade and South Bay, Palm Beach County, Florida.

Unit A is a marine, possibly early Pleistocene, stratigraphic unit that is distributed broadly but unevenly over the southern half of the Florida Peninsula. Stratigraphically, the unit overlies the Caloosahatchee formation. This study will describe stratigraphic sections and molluscan assemblages at localities where the greatest thickness and most diverse fauna of the unit have been reported. Because the marine beds of the unit are entirely beneath ground-water level, all sampling has been underwater by means of SCUBA equipment.

Smithsonian Institution, Washington, D. C. 20560. Funded by: Smithsonian Institution, Museum of Natural History. 7/72 - 6/73.

T. R. Waller.



00022

Upper Cretaceous Elasmobranches from the Gulf Coastal Plain - Doctoral dissertation research.

This dissertation research in paleobiology involves the difficult task of evaluating upper Cretaceous elasmobranches in the light of taxonomy, paleoecology and paleogeography so as to elucidate the major evolutionary events in the history of this group. Focus will be on material from fossil yielding formations of the U.S. Gulf Coastal Plain.

Southern Methodist University, School of Humanities, Hillcrest and University, Dallas, Texas 75222. Funded by: National Science Foundation, Division of Biological and Medical Science.

B. H. Slaughter.

00023

Structure, ecology, and degradation of the Florida Barrier Reef.

This research is directed toward a comprehensive investigation of a major Atlantic coral reef system. The study area will encompass thirteen shallow reefs and intervening shelf margins which form a continuous barrier along the western Florida Keys. Sixteen months of on-site investigation will be carried out with the goals of determining the (1) reef structure, sedimentary facies and organism assemblages; (2) relationships of biotic distribution and migration to static and dynamic environmental controls; (3) identity of symbiotic associations, feeding habits and habitat selectivity among member species; (4) processes and rates of biological and physical destruction of the reef framework, and effects of sediment smoothing and pollution upon epifaunal mortality and subsequent reef degradation. The synthesized ecological models and information on reef degradation which result from this study should furnish guidelines for management of established coral reef preserves and preservation of presently unprotected Florida reefs.

State University of New York, School of Arts, Vestal Parkway, Binghamton, N. Y. 13901. Funded by: National Science Foundation Division of Environmental Sciences. 8/71 - 8/72.

D. L. Kissling.

00024

Adsorption chemistry of thorium and protactinium in the marine environment.

Texas A & M University, Office of University Research, College Station, Texas 77843. Funded by: National Science Foundation.

M. R. Scott.

00025

Matagorda Bay - Coastal processes and shoreline stabilization.

Texas A & M University, Office of University Research, College Station, Texas 77843. Funded by: U.S. Department of Commerce, National Oceanic and Atmospheric Administration.

W. M. Ahr.

00026

Silting mechanisms, Intercoastal Waterway, Kennedy County area.

Texas A & M University, Office of University Research, College Station, Texas 77843. Funded by: U.S. Department of Commerce, National Oceanic and Atmospheric Administration.

C. C. Mathewson.

00027

Natural background levels of heavy metals in Texas estuarine sediments.

Texas A & M University, Office of University Research, College Station, Texas 77843. Funded by: Texas Water Quality Board.

R. Hann.

00028

Coastline change processes study.

Texas A & M University, Office of University Research, College Station, Texas 77843. Funded by: U.S. Department of Commerce, National Oceanic and Atmospheric Administration.

R. Sorensen.

00029

Seabed stability.

Texas A & M University, Office of University Research, College Station, Texas 77843. Funded by: U.S. Department of Commerce, National Oceanic and Atmospheric Administration.

William Bryant.

00030

Shallow seismic and oil seep research in the Gulf of Mexico.

Texas A & M University, Office of University Research, College Station, Texas 77843. Funded by: Decca Survey Systems, Inc.

J. Antoine.

00031

High resolution, deep seismic reflection studies in the Gulf of Mexico and Caribbean.

Texas A & M University Research, College Station, Texas 77843. Funded by: National Science Foundation.

A. F. Gangi and D. A. Fahlquist.

00032

Electrical logging in aquatic environments.

The objective of the study is: to develop electrical logging devices and techniques for measuring electrical resistivity and spontaneous potential on (a) extruded cores, (b) in situ in unconsolidated sediments and (c) start a towed array for resistivity and spontaneous potential.

How information will be applied: electrical resistivity and spontaneous potential logs are additional parameters in the study of sediments and for correlation of sedimentary strata. The logs measured on cores serve to indicate names of interest within a core that otherwise are overlooked by serial sampling. Logs are compared to structural, textural and engineering properties to detect relationships with the aim to reduce the number of time-consuming laboratory tests. The in situ logging serves for correlation and identification and will reduce the number of cores to be collected. The towed array will aid in the interpretation of seismic surveys.

A resistivity/S.P. towed array was used in San Antonio Bay, and although laboratory analysis is not finished yet, it appears that a very sensitive device is developed that will contribute significantly to subbottom work.

For additional information pertaining to this project contact Dr. Robert C. Stephenson, Director, Center for Marine Resources, Texas A & M University, College Station, Texas 77843.

Texas A & M University System, School of Geosciences, College Station, Texas 77843. Funded by: Commerce Department, National Oceanic and Atmospheric Administration, Sea Grant Office. 6/72 - 5/73.

A. H. Bauma, W. E. Sweet.

00033

Recent sediments and micropaleontology of Baffin Bay, Texas.

Recent sedimentary history of Baffin Bay.

The information from the study will further understanding of recent sedimentary environment of the Texas Gulf Coast and the relationship between the benthonic microfauna and the bottom sediment types may be the key to unravelling the geologic history of the region.

Texas Christian University, Department of Geology.

Partially supported by TCU Research Foundation. January 1973 - ?

Dr. Robert H. Goodwin.

00034

Geologic and geomorphic aspects of deltaic processes, Mississippi Delta System.

U. S. Army Corps of Engineers, P. O. Box 60267, New Orleans, Louisiana 70160. Funded by: Self funding. Completion date 1973.

00035

Development of the Atchafalaya Delta, Louisiana.

U. S. Army Corps of Engineers, P. O. Box 60267, New Orleans, Louisiana 70160. Self funding. Completion date 1973.

00036

Submersible Research.

The technical objectives are (1) to extend the research capabilities of the AOML from remote sampling and sending, to in situ methods and procedures, (2) in specific cases to verify interpretations of data obtained from surface ships.

In FY 72 the deep research submarine Alvin and Mother Ship Lulu of ONR and operated by WHOI, will be used to sample bottom sediments, rocks, water and measure bottom currents and temperature in selected geological anomalous areas in the Straits of Florida from South of Dry Tortugas to northeast of West Palm Beach, Florida.

U. S. Department of Commerce, Environ Research Laboratories, Boulder, Colorado 80302. Funded by: Commerce Department, National Oceanic and Atmospheric Administration, Environmental Research Labs. 7/71 - 6/72.

J. W. Kofoed.

00037

Texas Barrier Islands.

The project is a topical study of coastal sediments and sedimentary processes on and adjacent to the barrier islands of the Texas Gulf Coast. The ultimate objectives are: (1) to evaluate the conditions and processes responsible for the origin, growth, and maintenance of barrier islands, (2) to determine why and where excessive coastal erosion and sedimentation occur, and (3) to develop criteria for the recognition of barrier islands and nearshore deposits in ancient sedimentary rocks. These goals will be pursued through the intermediate objectives of defining the kinds and rates of sedimentary processes and the character of the resultant deposits and landforms.

U. S. Department of the Interior, Geological Survey, P. O. Box 6732. Corpus Christi, Texas 78411. Funded by: Interior Department, Geological Survey, Geologic Division. 7/72 - 6/73.

R. E. Hunter.

00038

Texas Gulf Coast.

ERTS imagery will be used in a study of the sources, movement, and deposition of suspended particulate matter in Texas coastal waters and adjacent Gulf of Mexico. The imagery will provide repetitive, broad, synoptic coverage showing the distribution of turbid water masses. Supplementary imagery obtained by aircraft will be used to measure short-term rates and directions of movement of the water masses and to observe details of turbidity distribution too small to be visible on the ERTS imagery. Release of drift objects will provide further data on water movement. Shipboard measurements of temperatures, salinity, and turbidity through the water column will provide water truth data for use in the interpretation of the imagery.

Besides defining the paths of suspended sediment movement, a matter of geologic interest, the study will furnish information applicable to studies of physical oceanography, marine biology, and water-borne pollutants.

To the extent that the resolution of the ERTS system permits, the imagery will also be used in studies of shoreline changes and coastal dune movement.

U. S. Department of the Interior, Geological Survey, P. O. Box 6732. Corpus Christi, Texas 78411. Funded by: Interior Department, Geological Survey, Geologic Division. 7/72 - 6/73.

R. E. Hunter.

00039

Mesozoic and Cenozoic marine diatoms.

The aim of this study is to determine the stratigraphic ranges of diatom genera and species in the marine Mesozoic and Cenozoic strata of the Atlantic and Gulf Coastal Plains. Diatom assemblages from this area should provide useful knowledge to assist in geologic age determination and stratigraphic correlation on a world-wide basis. More information on the diatom assemblages should lead to a better understanding of the paleoecology of the coastal plain sediments.

U. S. Department of the Interior, Geological Survey, 18th & F Sts. N.W. Washington, D.C. 20242. Funded by: Interior Department, Geological Survey, Geologic Division. 7/72 - 6/73.

G. W. Andrews.

00040

Mesozoic Foraminifera, Coastal Plains.

The states to which this project pertains are Alabama, Georgia, and North Carolina.

This project is primarily a summary study of the Senonian foraminiferal faunas from the coastal plains areas of three southeastern states. The final reports will not relate to systematics as much as to biostratigraphic and biogeographic detail. Because certain planktonic species and specialized benthonic forms are useful in evaluating the assemblages, these will be compared with similar assemblages described from other areas. Besides providing age determinations this offers some clues to the climatic conditions that prevailed during the late Cretaceous in the eastern Gulf coastal areas and the southern Atlantic coastal plain. Comparisons will be made with faunas of the same age in the western Gulf area, the Caribbean Islands, and the north Atlantic coastal plain. Assemblages will be illustrated, as will a few species; diagrams will be prepared to indicate the faunal ranges and distribution of the more diagnostic species. Two reports are considered - one dealing with the planktonic forms and the other with the specialized benthonic foraminiferal.

U. S. Department of the Interior, Geological Survey, 18th and F Sts. N.W. Washington, D. C. 20242. Funded by: Interior Department, Geological Survey, Geological Division. 7/71 - 6/72.

H. R. Berquist.

00041

Hydrogology of the Wilcox Group (EOCENE), Texas - A. Regional appraisal with reference to storage of fluid washes in the subsurface.

Marine geology.

To develop knowledge and understanding of the deep subsurface environments of the Gulf Coastal Plain requisite for appraisal of their suitability for storage of liquid wastes; to utilize for this purpose the very large store of information in oil company files; to analyze and interpret data obtained using new concepts and principles of deep basin hydrology; to make quantitative and semi-quantitative determinations of the physical properties of reservoir rocks, the chemistry of interstitial waters, and hydrodynamic controls; and to demonstrate how deep aquifers can be described so that local site requirements for waste injection can be related to the regional hydrology.

Work will be accomplished in two phases. Phase 1 will describe the geologic framework of the Wilcox Group between the Rio Grande and the Sabine River. Regional maps and sections will show the distribution and thickness of sedimentary systems and their component facies and phases and structural features. Phase 2 will describe salinity distribution and geothermal conditions in the entire Wilcox Group and aquifer characteristics, head distribution, and formation water composition in the Rockdale Delta System (Lower Wilcox) between the San Marcos Arch and the Sabine River.

U. S. Geological Survey, WRD. Funded federally. 7/70 - 6/74.

Paul H. Jones.

00042

Estuarine hydrology of Tampa Bay

Marine Geology - Bay sedimentation.

The specific objectives of this study are: (1) bathymetric definition of the bay bottom, (2) determination of depth to bedrock, (3) definition of pollutant sources issuing into the bay and their subsequent distribution, (4) development of a management tool to predict the response of the bay to natural and man-made changes--dredging, filling, floods, hurricanes, etc., (5) determination of optimum channel alignment, quantity of material to be removed, and optimum location and shape of disposal sites.

The following techniques will be used to accomplish the listed objectives: (1) bay bottom mapping by negative-blue aerial photography and radar located sonic soundings, (2) depth to bedrock by low frequency sonar and core borings, (3) pollutant sources by detailed field survey--pollutant distribution by large scale water sampling program and best available laboratory analysis techniques, (4) a predictive management tool in the form of a digital model of the hydraulics and quality of Tampa Bay--verification by comparison with real data (velocity, elevation, quality), (5) optimum dredge operation and fill placement determined by using model to test all suggestions.

U. S. Geological Survey, WRD, Florida District. Funded by: Federal-state. 11/70 -6/73.

C. R. Goodwin.

00043

Texas Barrier Islands environmental studies.

Origin, geologic history, sedimentary deposits and sedimentary processes forming the Barrier Islands along the Texas coast.

The project is a topical study of coastal sediments and sedimentary processes on and adjacent to Barrier Islands of the Texas Gulf coast. The ultimate objectives are: (1) to evaluate conditions and processes responsible for the origin, growth, and maintenance of Barrier Islands, (2) to determine why and where excessive coastal erosion and sedimentation occur, (3) to develop criteria for the recognition of Barrier Islands and near shore deposits in ancient sedimentary rocks. These goals will be pursued through the intermediate objectives of defining the kinds and rates of sedimentary processes and the character of the resultant deposits and land forms.

U.S. Department of Interior, U.S. Geological Survey. Self funding, 1970 - 1974.

R. Hunter, B. Hill. Publications: Hunter, R. E., and R. E. Dickinson, Map showing land forms and sedimentary deposits of the Padre Islands portion of S. Bird Island 7.5 quadrangle, Texas, U.S. Geological Survey Misc. Geological Investigations Map I-659. Hill, T. W. and R. E. Hunter, 1973, Burrow of the Ghost Crab, *Ocypode Quadrata* (Fabricius) on the Barrier Islands, south central Texas coast, *Jour. Sed. Pet.*, 43(1): 24-30. Hunter, R. E., Watson, R. L., Hill, T. W., Dickinson, K. A., 1972, Modern depositional environments and processes, northern and central Padre Island, Texas; Padre Island National Seashore Field Guide, Gulf Coast, Association of Geological Societies, p. 1-27.

00044

Texas coastal and shelf environmental studies.

Environmental geologic processes of the inner continental shelf; sea floor physiography; nature and movement of sediments; interrelationship of water and sediment movement; and shallow geologic structures.

Topics of investigation: (1) sea floor physiography and relate to sea floor bed forms. (2) unconsolidated sediments: distribution, thickness, movement patterns; faunal remains; sources. (3) geochemistry: trace element; organic carbon; pollution factors and baseline determination. (4) shallow geologic structure: map faults that cut uppermost seafloor substrata. (5) current patterns: determine directions of water movement on seasonal basis; relate to sediment patterns.

U.S. Department of Interior, U.S. Geological Survey. Funded by: U.S. Department of Interior, U.S. Geological Survey, Texas General Land Office.

H. L. Berryhill, Jr. and J. H. McGowen.



00045

Remote sensing, South Texas coast.

Distribution and movement of suspended sediment in the northwestern Gulf of Mexico.

ERTS imagery is being used in a study of the sources, movement and deposition of suspended particulate matter in Texas coastal waters and the adjacent Gulf of Mexico. The imagery provides repetitive, broad synoptic coverage showing the distribution of turbid water masses. Supplementary imagery obtained by aircraft is being used to measure short-term rates and directions of movement of the water masses and to observe details of turbidity distribution too small to be visible on the ERTS imagery. Release of drift objects provides further data on water movement. Shipboard measurements of temperatures, salinity, and turbidity through the water column provide "water truth data" for use in the interpretation of the imagery.

Besides defining the paths of suspended sediment movement, a matter of geologic interest, this study furnishes information applicable to studies of physical oceanography, marine biology, and water born pollutants.

To the extent that the resolution of the ERTS system permits, the imagery is also being used in studies of shoreline changes and coastal dune movement.

U.S. Department of Interior, U.S. Geological Survey. Funded by: National Aeronautics and Space Administration. ERTS. 1972 - 1974.

R. E. Hunter. Distribution and movement of suspended sediment in the Gulf of Mexico off the Texas Coast. In: symposium on significant results obtained from the ERT satellite 1, Vol. 1, Tech. presentation, section B. NASA, Washington, D. C., p. 1341 - 1348, 1973.

00046

Gravity study of west Florida Continental Shelf.

States to which project pertains are Gulf Coastal States and Atlantic Coastal States.

This project is intended as a vehicle for the gathering and interpretation of new, offshore gravity data. It began in Florida Gulf waters because that was the location of the first available block of high-quality data declassified by Department of Defense. It has been extended to other areas as soon as data were forthcoming.

Maps resulting from such data requisition will aid in the interpretation of basement structure and stratigraphy when combined with other geophysical and geologic knowledge. It is hoped that insight so gained will be useful in the re-evaluation of gravity data from anywhere on the globe, in terms as gross or as detailed as station density and position accuracy will permit. A primary objective is the demarcation of transition zones between "continental" and "oceanic" crustal types.

U.S. Department of the Interior, Geological Survey, P. O. Box 6732, Corpus Christi, Texas 78411. Funded by: Interior Department, Geological Survey, Geologic Division. 7/71 - 6/72.

H. L. Krivoy.

00047

Gulf of Mexico estuaries.

States to which project pertains are Texas, Louisiana, Mississippi, and Florida.

This is a topical study of the distribution of trace elements in the continental-marine transition zone. The purpose of the study is to ascertain the spatial and temporal variations of trace elements in the coastal environment and to investigate the physiochemical processes which control them. This study will include the investigation, both in the laboratory and in the field, of the partitioning of trace elements and the rates by which these elements are introduced and removed from this zone. Particular attention will be made to determine the environmental capacity of these elements, that is, the upper limit of concentration which the environment can effectively absorb without detrimental results.

U.S. Department of the Interior, Geological Survey, P.O. Box 6732, Corpus Christi, Texas 78411. Funded by: Interior Department, Geological Survey, Geologic Division. 7/72 - 6/73.

C. W. Holmes.

00048

Land-surface subsidence, Texas City and Seabrook areas, Texas.

The objectives of this study are to predict amounts and rates of subsidence for planning, constructing, and maintaining the levees and holding ponds used for protection.

Existing data on geology, hydrology, groundwater, and oil production, water levels and declines in water levels, would be collected and analyzed. Undisturbed samples would be taken from test holes and analyzed for consolidation characteristics and permeability. Observation wells would be installed to determine existing pressure profiles and reaction with time. Borehole extensometers would be constructed. Compaction of the top 1,500 feet of material would be monitored at the Seabrook site and of the top 900 feet at the Texas City site.

U.S. Department of the Interior, Geological Survey, Austin, Texas 78701.  
Funded by: Interior Department, Geological Survey, Water Resources Division.  
7/72 - 6/73.

R. K. Gabrysch.

00049

Gulf of Mexico tectonics.

States to which project pertains are Florida, Georgia, South Carolina, Alabama, Mississippi, Arkansas, Louisiana, Texas, Oklahoma, also Mexico, Cuba, Guatemala, and British Honduras.

In July 1972, the U.S. Geological Survey began the compilation of land and marine geological and geophysical data from the Gulf of Mexico region. Under this project, ultimate publication of five maps is planned; tectonic, free-air anomaly, bouguer anomaly, total magnetic field, and residual magnetic field. The principal product of this compilation will be a tectonic map of the Gulf and its adjacent land areas that will summarize the present state of knowledge of this ocean basin in conventional mapping terms. The map will include updated compilations of the onshore regions and will, as much as the data permit, extend the land geology into offshore areas. The aim of the project is to produce an objective map useful to a wide range of geologic interests, and one that will enable investigators to evaluate the work to date and identify key regions where more work is needed. The gravity and magnetic maps are being compiled in cooperation with the U.S. Naval Oceanographic Office. The tectonic map and related geophysical maps will provide an authoritative base for the appraisal of the Gulf's resources potential and further geologic studies concerning the origin and geologic history of the basin.

U.S. Department of the Interior, Geological Survey, P.O. Box 6732, Corpus Christi, Texas 78411. Funded by: Interior Department, Geological Survey, Geologic Division. 7/72 - 6/73.

R. G. Martin.

00050

Gulf of Mexico tectonics.

States to which project pertains are Gulf of Mexico - Florida, Alabama, Mississippi, Louisiana and Texas.

The project will undertake the preparation of a preliminary tectonic map of the Gulf of Mexico and adjacent coastal plain. The tectonic map will be produced in a scale of 1:2,500,000 and will coordinate with a similar map of the Caribbean Sea being compiled simultaneously under a separate project.

The map primarily will be based on geophysical data accumulated over the past three years supplemented by additional geophysical data being made available by various universities and other federal agencies. Onshore compilation will rely heavily on published data supplemented by new information provided where possible by various geological societies and the petroleum industry. The map, supported with additional sheets showing (1) magnetics, (2) gravity, (3) sediment isopachs, (4) salt distribution (5) mineral resources and (6) physiography, will be an intensive, summary of the structure and sedimentary geology of the Gulf of Mexico, and will provide an authoritative base for the appraisal of the Gulf's resources potential and future geologic studies concerning the origin and geologic history of the basin.

U. S. Department of the Interior, Geological Survey, P. O. Box 6732.  
Corpus Christi, Texas 78411. Funded by: Interior Department, Geological Survey, Geologic Division 7/71 - 6/72.

L. E. Garrison.

00051

Organic geochemistry of recent sediments.

This project is a long-term investigation of organic constituents, particularly hydrocarbons in bottom sediments of modern environments of deposition. The primary objectives are: (1) to determine the chemical precursors of petroleum-forming substances and the processes responsible for their accumulation, preservation and transformation; (2) to determine which depositional environments are most favorable for the accumulation of petroleum-forming substances; and (3) to apply the new knowledge in the search for organic fuel resources in ancient rocks. To fulfill these objectives, studies to date have been primarily directed to estuarine sediments (Choctawhatchee Bay, Florida), partly to deep-sea marine sediments (North Pacific) and currently to lagoonal carbonate sediments (Florida Bay, Florida) in the next few years. The following investigations will be undertaken: (1) continued study of hydrocarbons and related organic constituents in carbonate sediments (Florida Bay), (2) gas chromatographic-mass spectrometric identification of specific hydrocarbons to determine their source: marine or terrestrial, plant or animal. Ancillary to this is the study of possible means of detection of oil contamination, (3) hydrocarbon analyses of probable plant and animal source materials in carbonate environments, (4) study of hydrocarbons and related organic constituents in sediments of the Florida "Reef tract."

U. S. Department of the Interior, Geological Survey, Denver, Colorado 80225.  
Funded by: Interior Department, Geological Survey, Geologic Division.  
7/72 - 6/73.

J. C. Palacas.

00052

Geohydrologic environmental studies: hydrologic significance of lithofacies of the Carrizo and Meridian Sands and summary of Claiborne aquifers.

Marine Geology and Hydrology.

The objective of this study is to establish the relations of stratigraphy, facies development, and depositional controls to the hydrologic characteristics of the sediments and to develop geologic parameters that will aid in the quantitative evaluation of the aquifer system.

To accomplish the objectives, electric log data and data on water wells in the area are used to prepare maps showing sand percentage and thickness, maximum sand-unit thickness, transmissivity, chemical characteristics, and altitude of the base of fresh water in the various Eocene formations in parts of Arkansas, Louisiana, Mississippi, and Texas.

U. S. Department of Interior, U. S. Geological Survey. Funded by: Department of Interior. 6/70 - 12/73.

J. N. Payne.

00053

Land-surface subsidence, Baytown Area, Texas.

Land subsidence.

The objective of this study is to determine rates and amounts of subsidence and to predict the rate and amount of subsidence for planning, construction, and maintenance of the proposed levee or some other protective measure.

Data of the relation of pressure decline to compaction would be collected and form the basis for determining the amount and rates of subsidence. These data include inventories of groundwater pumpage and oil and gas production and delineation of pressure decline due to each. A study would be made of the sub-surface deposits with the use of drillers' and electrical logs to determine clay and sand-bed thicknesses and composite clay thickness. Two wells would be drilled to obtain clay cores and to install pore pressure measuring devices. Water-level measurements would be obtained to relate with data from a releveling program initiated by the Corps of Engineers.

U. S. Department of Interior, U. S. Geological Survey, WRD, Texas District. Funded by: U. S. Army Corps of Engineers. 1/72 - 1/74.

R. K. Gabrysch.

00054

Natural resources and tectonic features, Gulf of Mexico.

## Structural and stratigraphic framework of the Gulf of Mexico.

The principal objective of the project is the compilation of a tectonic map of the Gulf of Mexico and adjacent coastal regions, using data from marine geological and geophysical investigations and published on-land information. The map will show major rock units, folds, faults and structure contours, as on conventional tectonic maps. Complementary maps of gravity and magnetic anomalies and isopachs of the total sedimentary section "visible" by present geophysical sensing, and/or isopachs of selected stratigraphic intervals in the basin will be included. Data from dredge and pertinent core sites, deep drill holes, and seismic refraction stations will be incorporated. The total product will be a basic reference to onshore-offshore structural relationships and an aid toward the ultimate solution of the problem of the origin and history of the Gulf of Mexico.

U. S. Department of Interior, U. S. Geological Survey. Self funded. July 1972 - December 1974.

R. G. Martin. Publications: Garrison, L. E., and R. G. Martin. Geologic structures in the Gulf of Mexico basin: U. S. Geol. Survey Prof. Paper 773, 1973.

Garrison, L. E., E. Reimnitz, and R. G. Martin. Acoustic reflection profiles, western Gulf of Mexico, cruise 70-02 of R/V Cadete virgilio uribe: Nat. Tech. Info. Service Rept. PB-207-593, 19 p, 1972.

Martin, R. G. Salt structure and sediment thickness, Texas-Louisiana continental slope, northwestern Gulf of Mexico: U. S. Geol. Survey Open File Report, 21 p, 1973.

R. G. Martin, and J. C. Case. Geophysical studies in the Gulf of Mexico: in: Stehli, F. and S. Nairn (eds) Ocean Basins and Margins: V. 3, Plenum Press, New York, (in press).

00055

Environmental studies of Gulf coast estuaries.

Investigation of the processes affecting the migration of heavy metals and other trace substances through the estuarine environment.

This is a topical study of the distribution of trace elements in the continental marine transition zone. The purpose of the study is to ascertain the spatial and temporal variations of trace physiochemical processes which control them. This study includes the investigation, both in the laboratory and in the field, of the partitioning of trace elements and the rates by which these elements are introduced and removed from this zone. Particular attention will be made to determine the environmental capacity of these elements, that is the approximate of concentration which the environment can effectively absorb without detrimental results.

Thus far, significant information has been obtained on the processes which affect zinc and cadmium, and to a lesser extent mercury in the immediate vicinity and dredge channels (sec. no. 7). Work is now underway to examine copper and lead in these environments for comparative purposes.

U. S. Department of Interior, U. S. Geological Survey. Self funding.  
July 1972 - December 1974.

Charles W. Holmes. Publications: Holmes, C. W., Slade, E. A., McLerran, C. J., 1973. Migration and redistribution of zinc and cadmium in a marine estuarine system, environmental sci. & tect. (in press).

McLerran, C. J. and Holmes, C. W., 1973. Deposition of zinc and cadmium in estuarine sediments by marine bacteria, submitted to Oceanography & Limnology.

Holmes, C. W., McLerran, C. J., Slade, E. A. 1973. Biological sedimentation of heavy metals in two marine systems, G.S.A. Abstracts vo. 5, no. 7, p. 673.

Holmes, C. W., 1973. Comparison of selected elemental distributions in Corpus Christi Bay and Baffin Bay, submitted as MF map.

00056

Thesis topics related to graduate programs Dept. of Geology and Geography University of Alabama.

Grain size distribution along Dauphin Island.

University of Alabama, Department of Geology and Geography. Completed.  
Department of Geology and Geography, University of Alabama, Box 1945,  
University Alabama 35486.

Masters thesis on file University of Alabama - James McNeal.

00057

Thesis topics related to graduate programs Department of Geology and Geography, University of Alabama.

Sediment distribution and textural studies in Mobile Bay and along Fort Morgan, Alabama Point, Perido Bay region.

University of Alabama, Department of Geology and Geography. Proposed completion 1974. Department of Geology and Geography, University of Alabama, Box 1945 University, Alabama 35486.

Thesis direction under Dr. W. Gary Hooks.

00058

Captiva Island beach erosion study.

Beach erosion.

University of Florida, Coastal Engineering Laboratory. Funded by:  
Captiva Erosion Prevention District, Captiva Island, Florida. 3/73 - 3/74.

R. G. Dean, T. L. Walton.

00059

The geological inventory of Cumberland Island, Everglades, Gulf Islands  
National Seashore and Biscayne National Monument.

Geological Processes and Resources.

Geological problems will be identified and priorities established toward solution. Geographic baselines and marker points (repetitive coordinates) for use during profiling, mapping and air photo interpretation will be established as necessary during site visits. Each project area mapped geologically and morphologically. Time-lapse motion picture photography to document shoreline and beach processes, especially storm effects. Hydrographic surveys and sub-bottom profiling to delineate physical processes, submarine topography and stratigraphy.

University of Georgia, National Park Service, 1/7/73 - 6/30/75.

Vernon J. Henry, Jr., Professor of Geology.

00060

Study of gravity data on Continental Shelf of Texas.

To study the geological framework of northwest Gulf of Mexico from gravity data.

Data from U. S. Naval Oceanographic Office. Reduction by computer programs developed here. Interpretation to be carried out partly by computer modeling, partly by correlation with other geophysical and geological information.

University of Houston, Office of Research and Sponsored Activities (Geology Department). National Science Foundation, Gulf Universities Research Council. 3/73 - 1/74.

Milton B. Dobrin, Michael Burnaman.



00061

Sedimentary structures of lagoonal carbonate muds, Florida Bay.

An investigation of sedimentary processes and a record of recent deposits in Florida Bay is being undertaken as a basis for interpreting the depositional environments of lithified calcareous muds that occur throughout the geologic record. Emphasis of the study is on processes of deposition and the resulting sedimentary features, microscopic fabric, stratification, burrowing structures, and geometry and rates of sediment accumulation. The focus of the study is the shallow marine carbonates - those muds accumulating below the lowest tide levels. The work complements earlier research on tidal - and suppratidal - flat deposits. Because much is already known about the hydrography, organisms, and sediment constituents, Florida Bay offers an ideal area to initiate a study of subtidal calcareous deposits.

University of Miami, School of Marine Science, 1 Rickenbacker Causeway, Miami, Florida 33149. Funded by: National Science Foundation, Division of Environmental Sciences. 1/72 - 1/73.

R. N. Ginsburg.

00062

Calcareous algae and recent carbonate sediments.

This research concerns the origin of calcareous muds - the precursors of limestones which are so widespread and important in the geologic record. The role of calcareous algae is believed to be especially significant as a sediment producer and this is to be examined, making particular use of scanning electron microscopy. Specific goals of the study are: (1) to determine the skeletal ultrastructure of the important species of calcareous algae; (2) to establish criteria based on particle morphology for the recognition of algae skeletal particles in sediments; (3) to determine the sediment producing potential of the algae in terms of growth rates and lime content; and (4) to evaluate the role of calcareous algae in the production of carbonate sediments in selected local areas including Biscayne Bay, Florida Bay, and the Florida Reef Tract.

University of Miami, School of Marine Science, 1 Rickenbacker Causeway, Miami, Florida 33149. Funded by: National Science Foundation, Division of Environmental Sciences. 7/72 - 7/73.

D. S. Marszalek.

00063

Distribution and geochemistry of deposited and suspended clays within the Biloxi Bay Estuary, Mississippi.

The present day lithotope of the Bilxoi Bay estuary complex will be sampled at randomly established stations. Sampled material will then be analyzed for the clay mineral content which constitutes the bed or deposited load. Also sampled above each of the bottom sample localities will be the water column at selected intervals for the clay mineral content that may be present in the suspended load. At each station salinity measurements will be taken in order to determine the amount of salt and fresh water mixing, as this exerts a large control on the extent of flocculation and subsequent deposition of certain clay mineral species.

It is expected that the above sampling and analytical program will yield information pertinent to the degree and style of clay mineral flocculation. In other words, which clay species are being deposited in and which are totally passed through the Biloxi Bay estuary system.

All clay species found in the sampled material will also be analyzed for the types and amount of absorbed metal cations. This, plus the flocculation behavior is expected to give some insight as to the concentration of polluting metals either in the deposited bed or suspended loads.

University of Mississippi, School of Engineering, 101 Carrier Hall, University, Mississippi 38677. Funded by: Interior Department, Office of Water Resources Res. Multiple support funds: 7/73 - 6/74.

W. R. Reynolds.

00064

Documentation of land-surface subsidence in the Pascagoula - Bayou Cassotte area, Jackson County, Mississippi.

University of Mississippi, Department of Geological Engineering. Funded by: Mississippi Governor's office, Office of Science and Technology. 9/72 - ?.

V. H. Minschew, T. H. Waller.

00065

Paleoclimatic and biostratigraphic studies of sediments from the Gulf of Mexico.

Studies up to this time have shown that the Gulf of Mexico is one of the finest areas in the world to conduct very high resolution studies of Pleistocene paleoclimatic and planktonic foraminiferal changes in response to oceanographic fluctuations. The objective of this research is to continue the examination of the paleo-environment of the Gulf of Mexico as inferred from studies of deep-sea sediment cores. Specific aspects of this research will include: (1) extending the studies of the paleoclimatic record to intervals older than 200,000 years and examining in greater detail those intervals that mark inglacial-glacial changes; (2) completing a study which relates paleomagnetic changes with biostratigraphic and paleoclimatic changes during the last 30,000 years and extending the paleomagnetic stratigraphy to

much older intervals; (3) carrying out detailed studies of distinct and rapid changes in the Lysocline that have been detected in our previous work; (4) extending the tephrochronological studies to older intervals and studying in detail the relations of volcanic ash horizons to the paleoclimatic record; and (5) establishing relations between changes in sedimentation rates, paleoclimatology and assumed sea level changes.

University of Rhode Island, School of Oceanography, Administration Building, Kingston, Rhode Island 02881. Funded by: National Science Foundation, Division of Environmental Sciences. 10/72 - 9/73.

J. P. Kennett.

00066

A study of the lithology and age of rocks from the Yucatan channel and northwestern Caribbean Sea.

University of South Florida. Funded by: National Science Foundation. 12/71 - 11/72.

T. E. Pyle.

00067

Seismic reflection profiles of buried stream valleys; possible archaeological sites on the west Florida coast.

University of South Florida, Department of Marine Science, St. Petersburg, Florida 33701.

T. E. Pyle, R. Ruppe, M. Almy, W. Cockrell.

00068

Structure and sediments of the Howell Hook region, West Florida Continental Shelf.

University of South Florida, Department of Marine Science, St. Petersburg, Florida 33701. Funded by: Florida State University System Institute of Oceanography (SUSIO) - shiptime.

T. E. Pyle, R. Clingan.

00069

Shallow structure and quaternary history of the West Florida Continental Shelf determined by high-resolution seismic reflection profiling.

University of South Florida, Department of Marine Science, St. Petersburg, Florida 33701. Funded by: Florida State University System, Institute of Oceanography.

T. E. Pyle and J. C. McCarthy.

00070

Study of the sediments of the west Florida continental margin.

Study of sediments of the west Florida continental margin with vibra-core.

University of South Florida. Open ended.

L. J. Doyle.

00071

Aerial photographic determination of sediment transport patterns on a barrier island (Anclote Key).

University of South Florida, Department of Marine Science, St. Petersburg, Florida 33701. Funded by: Florida Power Corp.

T. E. Pyle, W. Chiou.

00072

Development of Egmont Key, Tampa Bay based on historical bathymetric charts of U.S.C. and G.S. and aerial photography.

University of South Florida, Department of Marine Science, St. Petersburg, Florida 33701.

T. Pyle, B. Rodgers.

00073

Study of the Texas barrier islands.

This study encompasses barrier islands and cheniers from Louisiana to Mexico. Objectives of the study are to determine sand-body geometry, sedimentary processes and facies relationships, influence of climate and sediment availability on barrier island morphology and to provide data that will insure proper land use of the area. Included in the land use study will be a study of groundwater availability and quality in the coastal dune area. Quantity and quality of groundwater are dependent upon several factors such as scale of coastal dunes, grain-size parameters of the material

comprising the dunes, climatic conditions such as rainfall and hurricane frequency, etc. From an integrated study of the barriers, such as proposed, one can predict what the characteristics of groundwater for any particular coastal dune area will be.

University of Texas, Bureau of Economic Geology, University Station Box X, Austin, Texas 78712. Funded by: University of Texas. 7/72 - 6/73.

J. H. McGowen.

00074

Holocene stratigraphy and carbonate sedimentation in south Texas.

Sediments of Laguna Madre Bay and Baffin Bay on the south Texas coast are being investigated as a basis for constructing a sedimentological-geochemical model that will hopefully be useful in the interpretation of ancient carbonate rocks. The area warrants study because it contains (1) a wide variety of both skeletal and nonskeletal carbonate sediments apparently representing different precipitation mechanisms, (2) carbonate sediments rare or unknown from other areas (high-magnesium calcite as oolite coatings, etc.), and (3) numerous transition zones between areas of carbonate and noncarbonate deposits. The research is directed toward characterizing the carbonate sediments in this hypersaline environment in terms of their detailed petrography and distribution and their isotopic, organic geochemistry. Oolites from beach zones are being radiocarbon dated and hopefully this will give pertinent data to the Holocene sea level curve. The research is expected to provide data on environmental conditions (e.g. paleotemperature, paleosalinity) and changes of these conditions with time, rates of sedimentation, mechanisms of carbonate precipitation, and other information applicable to the interpretation of the ancient rock record.

University of Texas, Graduate School, Port Aransas, Texas 78373. Funded by: National Science Foundation, Division of Environmental Sciences. 5/72 - 4/73.

E. W. Behrens.

00075

Origin of bedded chert with emphasis on the Caballos and Arkansas novaculites.

The problem of the origin of bedded chert in geosynclinal rock sequences is a fundamental one, with debate concerning the nature of the initial deposits (Calcareous, siliceous, or glassy), the source of the silica (volcanic, biogenic or orthochemical), the diagenetic history of the sediment, and the depth of water during accumulation. Research is now under way on the Caballos Formation (white chert) of Texas and other colored bedded cherts in order to resolve the problem of origin of these cherts. The project involves the use of stratigraphic data to establish regional and local facies patterns

that can aid in reconstructing paleogeography and paleobathymetry, and the integration of this with data obtained by petrographic study of outcrop samples using conventional laboratory techniques plus scanning electron microscopy, electron luminescent petrography, and oxygen isotope ratios. Petrographic study is also being made of deep-sea core samples (taken under the JOIDES program) of chert and siliceous sediments in order to compare oceanic chert samples with geosynclinal samples of older ages. The opportunity to compare the unweathered siliceous rocks in deep-sea samples with ancient bedded cherts should yield important conclusions about the ancient rocks.

University of Texas, School of Arts, 200 W. 21st, Austin, Texas 78712.  
Funded by: National Science Foundation, Division of Environmental Sciences.  
6/72 - 5/73.

R. L. Folk, E. F. McBride.

00076

Depositional systems of the Yegua Formation, Texas Gulf Coast Basin.

Project involves an investigation of the Yegua Formation in outcrop and subsurface, aimed principally at delineation of specific rock units. Main considerations of water resources include mapping and reconstruction of sand aquifers in near surface fluvial units.

University of Texas, Bureau of Economic Geology, University Station Box X, Austin, Texas 78712. Funded by: University of Texas. 7/72 - 6/73.

W. L. Fisher.

00077

Environmental geology of the Texas Coast.

Project involves mapping at scale of 1:125,000, approximately 150 specific depositional units along the Texas Coast, including modern and late Pleistocene units. Water resource considerations of the project are principally (1) mapping and description of estuarine regions in relation to stream discharge and estuarine infilling, and (2) delineation of subsurface and near surface sand bodies representing groundwater aquifers.

University of Texas, Bureau of Economic Geology, University Station, Box X, Austin, Texas 78712. Funded by: University of Texas. 7/72 - 6/73.

W. L. Fisher, L. F. Brown, J. H. McGowan, C. G. Groat, C. V. Proctor.

00078

Communications: Study of Earth resistivity in Texas Gulf Coast to determine the electrical properties of deep crustal layers.

It is possible that some portion of the earth's outer regions can be used as a transmitting medium for communication purposes. This research is aimed at measuring deep electrical properties of the earth in the Texas Gulf Coast, first on land to develop measuring techniques, and then hopefully in the Gulf itself. Magnetotellurics provides a new and potentially important probe for resolving uniquely the materials and structure of the deep crust and mantle of the earth.

This research will study the deep electrical resistivity of the earth in a continental-oceanic transition zone. Sensors detect magnetic and electrical field variations induced in the earth by such natural sources as lightning, solar wind, electrojet fluctuations and pulsations in the magnetosphere in the frequency range 0,00001 to 2 CPS. Currents induced at depth by the fluctuating magnetic fields (which penetrate to greater depths the lower the frequency) give a measure of resistivity as it changes with the depth.

Supporting Agency Address Information: Office of Naval Research 4108 Arlington, Virginia 22217.

University of Texas, School of Engineering, Austin, Texas 78712. Funded by: Department of Defense, Navy, Office of Naval Research, 4108 Arlington, Virginia 22217.

H. W. Smith.

00079

Corpus Christi water exchange pass-geologic effects.

Sedimentation and sediment transport.

University of Texas, Marine Science Institute. Funded by: U. S. Army, Corps of Engineers, Texas Parks and Wildlife Department. July 1972 - ?.

E. W. Behrens, R. L. Watson.

00080

Variations in stable carbon, oxygen and nitrogen isotope ratios in normal and polluted biogeochemical systems.

The aim of this research is to measure variations in stable isotope ratios, and to use these measurements to solve problems concerning the flow of these elements in biogeochemical systems. The following aspects will be included: (1) use C13 and N15 in case studies; (2) measure the delta-C13 and delta N15 of isolated biochemicals, particularly amino acids; (3) determine the delta-C13 and delta-N15 for organic sedimentary matter in many parts of the Gulf of Mexico; and (4) gather extensive delta-O18 of O2 in nearshore Gulf waters.

University of Texas, Graduate School, Port Aransas, Texas 78373. Funded by: National Science Foundation, Division of Environmental Sciences. 9/72 - 8/73.

P. L. Parker.

00081

Structure of the deep basin of the Gulf of Mexico.

Marine geophysics.

University of Texas, Medical Branch, Marine Biomedical Institute, Earth and Planetary Sciences Division, Galveston, Texas 77550. Funded by: University of Texas, Medical Branch, National Science Foundation. U. S. Department of Navy, Office of Naval Research Foundation.

M. Ewing, G. V. Latham, J. Dorman, J. L. Worzel, G. S. Watkins.

00082

Survey of Pleistocene drainage patterns, Gulf Coast.

Marine geophysics.

University of Texas, Medical Branch, Marine Biomedical Institute, Earth and Planetary Sciences Division, Galveston, Texas 77550. Funded by: University of Texas, Medical Branch, National Science Foundation, U. S. Department of Navy, Office of Naval Research Foundation.

M. Ewing, G. V. Latham, J. Dorman, J. L. Worzel, J. S. Watkins.



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00001

Predicting runoff and streamflow from agricultural watersheds in the western Gulf region.

The objective of this study is to a) determine rates and amounts of runoff from agricultural watersheds as affected by geology, soils, climate, soil moisture, land use, treatment and watershed characteristics, b) develop rainfall-runoff models to predict runoff and streamflow on agricultural watersheds, c) to determine effects of conservation systems on runoff and streamflow. A water balance model has been developed for computing daily values of soil and plant evaporation, drainage, and soil water for a watershed. In the model, computation of daily components of the water balance of a watershed is considered as a system dependent on the interrelations of daily meteorological variables, soil water status, and plant status. Daily measured rainfall and runoff is used as input. An energy budgeting approach is used to predict daily soil and plant evaporation from daily climatic data. Potential evaporation is computed using either Fenman's equation or the product of pan evaporation and a pan coefficient. Soil drainage is computed as all water that enters the soil above the upper limit of soil water holding capacity. Five parameters based on physical characteristics of the soil are required. The model was tested, and the predicted soil water compared favorably with that measured in the field. The variable storage coefficient (VSC) flood routing method was modified to account for the variation in water-surface slope. The revised VSC method yields results that are comparable to the precise results obtained with the Implicit method. Although an interactive solution is employed, the VSC method requires little computed time and is free of convergence problems. The VSC method is more generally applicable than the Implicit method because of simpler storage methods.

Blackland Experimental Watershed, Temple, Texas 76682. Funded by: Agriculture Department, Agricultural Research Service, Soils Water Conservation Research Division. 7/72 - 6/73.

W. C. Knisel, J. K. Williams, C. W. Richardson.

00002

Investigation of mesoscale cellular convection and associated transitional patterns.

The objective of this research is the study and observation of organized convective movements within the atmosphere by means of satellite data. The geographical area to be considered is the Gulf of Mexico where outbreaks of polar continental air are modified as they move across warm water toward the Yucatan, when offshore cold air advection is perpendicular to the coastline the satellite pictures generally show a clear area of up to 100 kilometers in width followed by cloud lines and then by polygonal cells several hundred kilometers downstream.

Standard surface and upper soundings will be obtained from the National Weather Records Center and satellite photographs will be obtained from the National Environmental Satellite Center. Ultimately the research will develop a theoretical model to explain the observed convective modes and their transitions and hopefully offer agreement with the observed cell size and direction of circulations. This model will include the effects of heat flux from the surface, infrared cloud destabilization and the evaporation of cloud droplets in an overlying dry layer. The relationship between the low level wind fields and the resulting convection pattern will be examined.

Purdue University, School of Science, Executive Building, Lafayette, Indiana 47907. Funded by: National Science Foundation, Division of Environmental Sciences.

E. M. Agee.

00003

Remote sensing of wind velocity by millimeter waves.

Stanford University. Funded by: Air Force Cambridge Research Lab. NSF.

H. T. Waterman, Jr., L. C. Shen.

00004

Organized research oceanography and meteorology.

Texas A & M University, Office of University Research, College Station, Texas 77843.

R. R. Berg.

00005

Storm surge simulation in transformed coordinates.

Texas A & M University, Office of University Research, College Station, Texas 77843. Funded by: Department of Army, Coastal Engineering Research Center.

P. O. Reid and H. C. Vastano.

00006

Temporal variability of intensity, height profiles of severe storms using digital radar data.



Texas A & M University, Office of University Research, College Station, Texas 77843. Funded by: Department of Commerce, National Oceanic and Atmospheric Administration.

Clark Meteor.

00007

Shelf dynamics program.

Exchange and circulation studies on West Florida Shelf.

High temporal, horizontal and vertical resolution sampling of hydrographic and current fields for record durations of the order of a month over an area of the order of 100's km. sq. centered on 26 degrees N (off Naples) in water depths between 50 and 250 meters deep - 3 experiments to date: early June 1972, February, March 1973, and October-November 1973.

Rosentiel School of Marine and Atmospheric Science, University of Miami, Oceanographic Laboratory, Nova U., Department of Oceanography, FSU. Funded by: NSF Oceanography. 6/1972 - 12/1974.

Dr. C. M. K. Moders, Dr. Van Leev, Dr. H. Perkins.

00008

Hydrologic and meteorologic data from coastal Louisiana evaluation of data gaps.

U. S. Army Corps of Engineers, P. O. Box 60267, New Orleans, Louisiana, 70160. Self funding. Completion date 1973.

00009

Seasonal precipitation surplus and annual precipitation deficit maps of South Louisiana, 1945 - 1968.

U. S. Army Corps of Engineers, P. O. Box 60267, New Orleans, Louisiana 70160. Self funding. Completion date 1973.

00010

Texas Coast hurricane surge model studies.

Purpose of the study is to determine the effectiveness of hurricane surge protection plans for the Galveston Bay complex, including effects of the plan on bay circulation patterns, salinity, shoaling regimens, deep- and shallow-draft navigation, fish and wildlife, and pollution.

Tests were conducted in 4 models to evaluate the effectiveness of protection achieved by the proposed plans for hurricane surges and the effects of each plan on modification of tides, currents, salinity and circulation patterns for normal tides.

It is apparent that either of the 2 major hurricane protection plans would provide protection for the area inland from the barrier when the navigation openings were closed. The Alpha plan, located on the coastline of the Gulf of Mexico, would provide protection for a greater area since it shelters practically the entire area inland from the coastline. The Gamma plan leaves unprotected a major portion of West Bay, the entire society of Galveston, and all of East Bay. The Texas City, LaMarque-Hitchcock system, when completed, will provide protection for these towns from surges of 15 ft msl. Tests results indicate that: a. plan 1 Alpha barrier would have no significant effects on tides, currents, salinities, circulation, or pollution diffusion and b. plan 1 Gamma barrier would cause a slight reduction in tidal prism and salinities.

U. S. Army, Waterways Experiment Station, P. O. Box 631, Vicksburg, Mississippi 39180. Funded by: Department of Defense, Army Corps of Engineers. 7/72 - 6/73.

M. J. Brogdon. R. A. Boland.

00011

Hurricane wind fields.

Surface wind fields and other parameters in both standardized and probable maximum hurricanes are defined for any location along the Atlantic and Gulf coasts of the United States. The standardized hurricane (Standard Project Hurricane) is defined as "the most severe storm considered reasonably characteristic of the region". The probable Maximum Hurricane is a hypothetical storm having a combination of characteristics which will make it the most severe that can probably occur in the region. The other parameters are: lowest central pressure, maximum surface wind speed, radius of belt of maximum winds, and rate of storm movement. This investigation was initiated in fiscal year 1967 and is scheduled for completion in fiscal year 1972.

U. S. Department of Commerce, Office of Hydrology, Silver Spring, No. 20910. Funded by the Department of Defence, Army.

J. F. Hiller.

00012

Applied research in hurricane prediction.

Applied research to improve hurricane forecasting.

National Hurricane Center (R & D Group), National Weather Service, National Oceanic and Atmospheric Administration. Funded by: Federal Government (National Oceanic and Atmospheric Administration, Department of Commerce). Continuing research.

Dr. B. I. Miller.

00013

Tropical storm surge forecasting.

U. S. Department of Commerce, Techniques Development Lab, Silver Spring, Maryland 20910. Funded by: Commerce Department, National Oceanic and Atmospheric Administration, National Weather Service. 7/72 - 6/73.

C. Jelensnianski.

00014

Sea state and ocean color studies from satellites.

This task has 3 primary objectives: a. to obtain ocean roughness and wind information from sun glitter patterns detected from space; b. to obtain ocean roughness and wind information from space-derived microwave observations; and c. to relate ocean color patterns detected from satellites to circulation features. The approaches being followed to exploit these objectives are: a. the utilization of time-lapse photography from geosynchronous satellites to detect reflectance variations in sunglint patterns, and the utilization of north-south strips of visible SR data; b. modelling the emission from the ocean's surface to procure wind stress information and also accounting for emissions other than from roughness alone; c. mapping VHRR visible and ERTS imagery. Considerable information exists at low levels of reflectance that provide nearshore current information. These colors are generally related to suspended sediment load and algae and act as current tracers.

U. S. Department of Commerce, National Oceanic and Atmospheric Administration, National Environmental Satellite Service, Washington, D. C. 20230. Funded by: Commerce Department, National Oceanic and Atmospheric Administration, National Environment Satellite Service. 7/72 - 6/73.

Dr. A. E. Strong.

00015

Hurricane data project. Gulf Coast and South Atlantic Coast.

National Bureau of Standards, the Maritime Administration, U. S. Department of Commerce. Funded by: The Maritime Administration, U. S. Department of Commerce.

A. F. Brown, Dr. Richard Marshall.

00016

Tropical storm surge forecasting.

The technical objective of this study is to accelerate modification of the numerical hurricane storm surge forecasting model (SPLASH) to make it suitable for real-time operational use. Determine convenient forms of hurricane input information, as well as easy-to-interpret forms of storm surge forecast output. A feasibility study for real-time storm surge calculations will be made for U. S. coast of the Gulf of Mexico.

Work will emphasize the Gulf Coast where landfalling storms generate enormous surges such as observed with Hurricane Camille. A sophisticated computer program will be prepared of such generality that input data of ordinary meteorological parameters will output a storm surge forecast for particular locales. The output will be displayed in convenient form for forecast or planning purposes.

U. S. Department of Commerce, Techniques Development Lab, Silver Spring, Mo. 20910. Funded by: Commerce Department, National Oceanic and Atmospheric Administration, National Weather Service. 7/72 - 6/73.

C. Jelesnianski.

00017

Stream function representation of hurricane - generated irregular water waves.

University of Florida. Funded by: U. S. Army 1/73 - 12/73.

R. G. Dean.

00018

Ionospheric disturbances.

The technical objective is to monitor ionospheric disturbances from hurricanes.

The approach used is to extend studies of the infrasonic pulsations in the ionospheric F2 layer, caused by severe weather, in 2 directions: a. to cover hurricanes, and b. to include thunderstorms of the other climatological zones than have been studied, notably Florida.

University of Florida, School of Arts, Gainesville, Florida 32601. Funded by: Commerce Department, National Oceanic and Atmospheric Administration, Environmental Research Lab. 7/71 - 6/72.

S. B. Prasad.

00019

Dual Doppler radar studies of south Florida convection storms.

The objective of this research is to continue the development of a dual Doppler radar facility designed for the observation of the motion field of precipitation particles. The development of the system is now almost complete and next convective season, the system will be used to make observations of the convective storms developing in the area of Miami. The main emphasis of this research is on the analysis of the data collected in the spring of 1973 and the conduction of further observations in the next several years. A substantial part of the dual Doppler observations and data analysis in future will be done in conjunction with other groups and will involve participation in larger experiments together with aircraft probing, surface networks, and other field observations.

University of Miami, School of Marine Science, 1 Rickenbacker Causeway, Miami, Florida 33149. Funded by: National Science Foundation, Division of Environmental Sciences. 3/73 - 2/74.

R. M. Ihermitte.

00020

Data acquisition for engineering design in hurricane prone areas.

Useful engineering design data for wind load prediction and structural response in a hurricane environment is very meager and possibly misleading. Few, if any, measurements of wind speed, force, and building response have been obtained on the feasibility of various modes of instrument emplacement and data acquisition techniques to maximize the probability of return of information for a minimum of expense. The first measurements of interest are wind speeds and wind load information. A separate study for building response instrumentation is also underway. A survey of the Texas Coast has been made to determine possible structures feasible for instrumentation in the event of a hurricane.

University of Texas, School of Engineering, 200 W. 21st, Austin, Texas. 78712. No formal support reported.

00021

South Texas intracoastal tide study.

Astronomical and meteorological tides occurring in coastal bays and estuaries.

To determine relative importance of meteorological and astronomical forces in the internal mixing and flushing of coastal bays and estuaries, a time series analysis of water level records will be utilized. Results indicate these forces' relative importance vary significantly as flushing mechanisms.

University of Texas, Marine Science Institute, Un-sponsored at present.  
5/73 - ?.

Dr. Ned P. Smith.

00022

Sea breeze investigation. Further data analysis.

In 1966 an investigation of the Texas Gulf Coast sea breeze was begun. Field measurements were made during 3 summer periods. The following types of data were collected in the experimental area; a. daily rainfall from 150 sites; b. mesoscale temperature and humidity; c. radiosonde observations from 3 sites; d. pilot balloon observations at sea and over land; e. temperature, wind speed and direction at 9 stations; f. standard meteorological measurements plus infrared radiation data from surface to 5,000 feet made by aircraft; g. net radiometer and soil flux measurements at 2 sites; h. boundary layer profile measurements from the surface to 1500 feet at 2 sites; i. wet and dry bulb temperatures, wind direction and speed from 2, 30 m towers; and j. simultaneous bivariate and fast-response thermocouple measurements at 2 sites.

It is proposed to analyze these data so as to describe the dimensions and meteorological characteristics of the internal boundary layer, its growth and its development, and its depth as a function of time and distance from the coast line. Variations in averaging time and sampling interval affects the computations of sensible and latent heat flux in the vertical. This problem will be examined in great detail and estimates will be made of the heat flux divergence. Surface temperature as measured by an infrared scanner will be plotted and detailed analysis made of the patterns and also the optimum altitude for making such studies. Aircraft and tower data will be examined to document the existence of horizontal variation in the structure of the sea breeze.

University of Texas, School of Engineering, 200 W. 21st St., Austin, Texas 78712. Funded by: National Science Foundation, Division of Environmental Science.

K. H. Jehn, N. K. Wagner.

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	00031	00033	00034	00035	00036	00037
	00039	00042	00043	00044	00046	00047
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	00079	00080	00081	00094	00095	00104
	00109					
Coast	00006	00010	00013	00017	00018	00032
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00001

Area descriptions of Alabama's estuaries.

Objectives of this study are: a. to determine the physical characteristics of the estuarine areas of Alabama including the location, boundaries, acreage, depth, volume predominant types of vegetation, discharge of streams, principal hydrological properties, special benthic features, human population, major economic features and discharge of effluents into each estuary. To publish an atlas of results.

Existing reports, maps and other data of various agencies will be reviewed and analyzed and pertinent information will be compiled. Data not available will be obtained by field surveys. An atlas of the physical characteristics of Alabama's estuaries will be prepared in accordance with procedures adopted by the technical coordinating committee of the Gulf states Marine Fisheries Commission.

Alabama State Seafoods Division, Marine Resources Lab, P.O. Box 188, Dauphin Island, Alabama 37528. Funded by: Commerce Department, National Oceanic and Atmospheric Administration, National Marine Fisheries Service.

J. H. Crance.

00002

Ship operations support.

This project provides a substantial portion of the operating costs of two small vessels utilized by the University System of Georgia Marine Program which is administrated by the Skidaway Institute of Oceanography. Projects depending on these vessels include: research activities in geology and geophysics; determination of the seaward transport of heavy metals; assessment of fisheries and minimal resources; and a diversity of individual projects, primarily in biological oceanography, on the continental shelves of N.E. Florida, Georgia and S. Carolina. Geological studies relating to sediment transport and animal/sediment relationships will also be conducted in the area of the Bahamas and W. Florida coast.

Armstrong State College, Skidaway Inst. of Oceanography, 55 W. Bluff Road, Savannah, Georgia 31406. Funded by: National Science Foundation, Division of National and Internal Prg. 11/72 - 10/73.

D. W. Menzel.

00003

Ship operations support.

This project provides partial operating support for R/U PANULIRUS II, a small vessel operated by the Bermuda Biological Station which is approximately equidistant from all coastal points between Florida and Nova Scotia, from the Newfoundland Ridge, the Mid-Atlantic Ridge and the Puerto Rico Trench, nestled; in a great eddy of the Gulf Stream, and representing the center of the "Bermuda High." Within a radius of 100 miles off Bermuda research programs in physical, chemical and biological oceanography, and meteorology will be undertaken by scientists from various institutions.

Bermuda Biolog. Station for Research, St. George, West Bermuda. Funded by: National Science Foundation, Division of National and International Prg. 5/73 - 4/74.

W. E. Sterber.

00004

Investigation of copper and its alloys in a hot seawater desalting plant.

Copper Development Association, Inc., 405 Lexington Avenue, New York, New York 10017. Funded by: Interior Department, Office of Saline Water.

A. Cohen.

00005

University research and training.

Duke University Marine Laboratory, Cooperative Oceanographic Program, Beaufort, North Carolina 28516. Funded by: National Science Foundation.

Goodell, Vernberg, Pomeroy, Oppenheimer, Marshall.

00006

Biology and control of insects of public health importance.

Research concerns mosquitoes, dog flies (Stomoxys) sandflies and other blood sucking arthropods associated with coastal area habitats such as marshes and shores. The objective is to develop safe, effective methods of control of these pests of public health importance.

Florida Division of Health Laboratory, Bureau of Entomology, West Florida  
Arthropod Research. Funded by: State of Florida, 1964 - ?

H. J. Rogers, C. B. Rathburn, Jr. B. W. Clements, Jr. D. Williams. P.  
Hester. J. Ruff and A. H. Boike, Jr.

00007

St. Johns River Fishery Project.

The purpose of this study is to monitor fish populations of the entire St. Johns River for fishery conservation purposes. The rapid rate of human population growth in this section of Florida has produced and is continuing to cause limological and terrestrial changes, through public works and other activities, which has adverse effects on the fishery of the river. The aim of this study is to define these changes more precisely in order that deteriorations of the fishery may be arrested or prevented. Fish population samples are taken with various standard fishing gear and by different methods, including chemicals, to determine successive changes in the populations and their species composition which may be related to natural environmental factors, water pollution, or to artificial changes in the habitat.

Florida State Game and Fish Comm., Eustis, Florida 32726. Funded by:  
Florida State Government. 7/73 - 6/74.

H. L. Moody, G. Kelly, L. Touzeau.

00008

Research equipment for R/V TURSIOPS.

This project will provide equipment for the Florida State University ship, R/V TURSIOPS. This will be general purpose equipment primarily used for obtaining chemical and hydrographic data in coastal and shelf environments in the Florida area. Included in the request is a CSTD system with additional probes, sampling bottles, a slip-ring winch, trawl nets, and a life boat.

Florida State University, Marine Laboratory, Tallahassee, Florida 32306.  
Funded by: National Science Foundation, Division of National and Internal Prg.

R. C. Harriss.

00009

Ship operations support.

This project provides partial operating support for R/V TURSIOPS, a T-boat operated by Florida State University. Major programs scheduled for 1973 operations include: studies on the Mississippi Delta and shelf region of dispersion of inorganic and organic trace constituents across the salinity gradient; investigations to test experimental trawl designs; collection of data for verification of the Gulf Shelf Model studies; studies of primary production and carbon flux in waters overlying the Cayman Trench; a wide range program related to the biology, water mass dynamics geology and geochemistry of the Eastern Gulf of Mexico.

Florida State University, Marine Laboratory, Tallahassee, Florida 32306.  
Funded by: National Science Foundation, Division of National and Interstate Prg. 12/72 - 11/73.

R. C. Harriss.

00010

Systems of breeding for improving the efficiency of cattle in the Gulf Coast Region.

The objective of this study is to explain the feasibility of selection from a genetic pool of breeds for greater efficiency of performance in the Gulf Coast Region. Evaluate outcrossing within the Holstein breed of breeding for improved production efficiency under Gulf coast conditions. Investigate management practices which will provide the most profitable performance for the genetic improvement obtained.

Iberia Livestock Experiment Station, Jeanerette, Louisiana 70544.

Funded by: Louisiana State Government. 7/72 - 6/73.

B. F. Hollon.

00011

Fur animal resources and management in Louisiana swamps and marshes.

Louisiana State University, Agricultural Experiment Station, Baton Rouge, Louisiana. Louisiana State Government. 1970 - 1975.

R. H. Chabreck, Nichols, James D. A survey of fur beaver resources of the

Atchafalaya River Basin, Louisiana. Unpubl. Master's Thesis, Louisiana State University, Baton Rouge, 184 p, 1973.

00012

Social organization, behavior, and management of wild geese in Louisiana.

Louisiana State University, Agricultural Experiment Station, Baton Rouge, Louisiana. Funded by: Louisiana State Government. 1968-1973.

R. H. Chabreck, Smithy, D. A. Social organization behavior, and movement of blue and snow geese wintering in Louisiana and east Texas. Unpubl. Master's Thesis, Louisiana State University, Baton Rouge, 135 p, 1973.

00013

Application of environmental models to coastal resources management.

Environmental models - Biophysico economic.

A descriptive model of community structure and energy flow giving ranges of variation of biomass, production, respiration, and food conversion will be drawn. To use the first model in developing a mathematical model that may be used in simulated study of the system over the full ranges of known variables. Develop from physical considerations and field data a transport model for the system. Develop population models for individual components of the system initially with shrimp. Develop economic models reflecting present and potential human use of the marsh-estuarine area and to integrate these with the ecological models so that optimization techniques may be employed in deciding on management strategies. The mathematical models will be applied as planning tools to evaluate methods to management of the shrimp fishery with the shrimp distribution model in conjunction with the transport phenomena models by Louisiana Wild Life and Fisheries Commission, 2) use of the transport phenomena models to evaluate salinity control methods for improved estuary fisheries by LWFC and U.S. Army Corps of Engineers, 3) use of all biological and transport phenomena models in environmental impact studies for major engineering projects such as the proposed New Orleans airport, 4) use of all models coupled with economic model to carry out benefit-cost analysis and optimal strategies in the evaluation of multi-use policies including recreation, petroleum, fisheries, and other marine-related industries.

Louisiana State University, Center for Wetland Resources, Baton Rouge, Louisiana 70803. Funded by: U.S. Department of Commerce, National Oceanic and Atmospheric Administration, Office of SEA Grant.

Chemical Engineering: B. Wilkins, Jr., R. W. Pike. Smith Gosselink.



Completed Theses and Dissertations: Billups, C. W. A mathematical model for shrimp population dynamics. Ph.D., Schlatre, D. W., A mathematical model of primary energy input to a salt marsh ecosystem. M.S., Hacker, S., Transport phenomena in the Barataria Bay Estuary, Ph.D.

00014

Legal aspects of Ocean Resources Exploitation.

Research/Ocean Law-International.

The objectives of this project are twofold 1) to continue and to build upon the research effort of this project over the past three years with specific emphasis on estimating the impact on United States coastal and marine industries, particularly those of the State of Louisiana, of various probable alternative outcomes of the Third United Nations Conference on the Law of the Sea ("Third Conference"); and 2) following the conclusion of the Third Conference in the spring 1974, to identify for users of the United States coastal and marine environment, particularly with reference to the State of Louisiana, the impact of the new international law of the sea developed at the Third Conference. Principal support for this project is derived from Louisiana State University through the creation (in 1971) of the Campinile charities Professorship of Marine Resources Law. Sea Grant assistance is sought primarily for two summer months' salary for Professor Knight and for twelve months' support funds.

All users of the coastal and marine environment will be affected by the new rules governing extraction of living and non-living resources, acquisition of scientific research data, transportation and other uses of ocean space which will emanate from the Third Conference. The information derived from this project will be applied to the users of the coastal and marine zone, particularly those of the State of Louisiana, as well as to state government agencies engaged in the development of marine and coastal resources.

Louisiana State University, Center for Wetland Resources, Baton Rouge, Louisiana 70803. Funded by: U.S. Department of Commerce, National Oceanic and Atmospheric Administration, Office of Sea Grant. 8/74 completed.

H. G. Knight (Law Center). Publications:

Publication in the Oregon Law Review of an analysis of the 1971 United States oceans proposals.

Publication of analyses of non-extractive ocean space uses in the Marine Technology Society Journal and the Journal of Maritime Law and Commerce.

Publications of an analysis of the role of special interests in the formulation of United States oceans policy.

Testimony before two congressional subcommittees on United States oceans policy and the Deep Seabed Hard Mineral Resources Act.

Publication of an analysis of international and state-federal aspects of deep draft port and terminal facilities.

Completion of recommendations for revision of the Louisiana shrimp law.

00015  
Marine Sciences.

Education/Marine Sciences.

The objectives of this project are to: a) assure the effective development of applied and mission-oriented graduate programs in Marine Sciences; b) underwrite salary support for an investigator who is actively working with other state universities, the Louisiana Department of Education, and local school districts to strengthen elementary and secondary school treatment of marine and estuarine-related subject matter by organizing NSF and/or HEW sponsored in-service and summer training institutes for teachers; c) prepare educational materials for use by elementary and secondary school classroom teachers.

a) Strengthens career development of Marine Science professionals and scientists in related fields; b) improves effectiveness of classroom instruction concerning marine and estuarine subject matter and their relevance to cultural and economic development of coastal areas; c) facilitates efficient use of classroom teacher time and improves quality of the students' educational experience.

Louisiana State University, Center for Wetland Resources, Baton Rouge, Louisiana 70803. Funded by: U. S. Department of Commerce, National Oceanic and Atmospheric Administration, Office of Sea Grant. Continuing.

Van Lopik, J. R. (Center for Wetland Resources). J. P. Schweitzer. Publications: conducted an NSF-funded in-service training institute wetland ecology for high school science teachers. Institute involved participation of faculty from three Louisiana Universities. Produced marine sciences career brochure for distribution to high school students and undergraduates.

Produced first three of a series of marine science teaching aids for high school instructional use.

Coordinated preliminary planning for a state marine laboratory facility.

Published a national directory of elementary and secondary school marine science teachers.

Produced teaching materials for a high school instructional unit on marine science.

00016

Renewable resources economics in Louisiana's coastal zone.

Marine Economics (coastal)

The objectives of this project are to inventory the renewable resources of the Barataria Bay area of Louisiana's coastal zone; to evaluate them in economic terms; to distinguish between their values in various alternative uses; and to examine the possible gains to society from a well-planned multi-use management plan for Louisiana's coastal zone.

The decision-making abilities of various federal, state, and local agencies would be enhanced in coastal zone decisions if the value of the renewable resources were known, and if the results of various alternative actions could be evaluated in economic terms. This project would serve to provide such data. Additionally, this project would serve as a guide for subsequent research in other coastal areas.

Louisiana State University, Center for Wetland Resources, Baton Rouge, Louisiana 70803. Funded by: U. S. Department of Commerce, National Oceanic and Atmospheric Administration, Office of Sea Grant. Completed: 8/75.

R. M. Pope (Department of Marine Sciences, Ohlendorf, Paterson).

00017

Human factors in wetland resources development.

Research/socio-political studies.

The objective of the overall project is to provide background information about residents of coastal areas specifically and the state generally which will be useful in the development of wetland resources. Three specific goals are planned as follows: 1) to determine and analyze the demographic characteristics of residents in the coastal parishes, 2) to determine the knowledge and attitudes of local influentials and to assess their potential role in wetland resources development and 3) to ascertain the level of knowledge and attitude of Louisianians generally towards wetland resources development in that a better understanding of the characteristics of coastal residents will be available. In addition, local planners will be provided with data for their particular area. Also, Center for Wetland Resources personnel will be better able to plan their programs of education, research, and advisory services more effectively with a knowledge of coastal residents' attitudes and levels of knowledge.

Louisiana State University, Center for Wetland Resources, Baton Rouge, Louisiana 70803. Funded by: U. S. Department of Commerce, National Oceanic

and Atmospheric Administration, Office of Sea Grant. Completed 8/75.

A. L. Bertrand, (Dept. of Sociology and Rural Sociology), Ohlendorf Paterson. Completed background report on demographic characteristic of coastal residents in Louisiana (Phase I of III).

00018

The evaluation of aquifer systems as processing plants for the modification of the composition of injected water.

The proposed research is intended to quantify the mechanisms which control water compositions in selected Gulf Coast fresh and saline aquifer systems. If successful the results will permit the geochemical evaluation of these aquifer systems for: 1) the storage of injected waters and 2) for the controlled modification of the composition of injected water. Some fresh water aquifers could conceivably be used as water softening plants of large capacity. At depth, saline aquifers may serve for the permanent containment of dissolved metallic and radioactive wastes by exchange and fixation.

The study will combine the following methods: 1) the interpretation of existing water analyses to quantify changes in water composition which have accompanied a) progressive withdrawal of natural waters and b) mixing of diverse water types; 2) the experimental investigation, under controlled conditions, of reaction and exchange of material between aquifer sediment and waters of specific initial composition; and 3) the numerical modeling of processes of reaction and mass transport in 1) and 2) above.

Louisiana State University, School of Geosciences, University Station, Baton Rouge, Louisiana 70803. Funded by: Interior Department, Office of Water Resources Res., 7/72 - 6/73.

Dr. J. S. Hanor.

00019

Chemical water quality and sediment water reactions in Louisiana and Mississippi estuaries.

The general objectives are to: a) determine the current seasonal and geographic variation in chemical quality of free and interstitial sediment water in the Pearl, Pascagoula, and several smaller Louisiana and Mississippi estuaries, and b) determine the effects on water quality of ion exchange and absorption by sediments in these estuaries.

Some of these estuaries exist in a relatively undisturbed state, whereas

others are beginning to be altered by industrial and real estate development. The data from this study will provide a current record of seasonal water quality that can be correlated with the present biological productivity and hydrographic characteristics of the estuaries, and will allow quantitative determination of changes in chemical quality as increases in population and industry exert greater pollution pressure. By determining how and to what extent specific ions are exchanged with or absorbed by suspended and bottom sediments, we can predict their behavior over a broad salinity range.

Louisiana State University, Graduate School, Lakeshore Drive, New Orleans, Louisiana 70122. Funded by: Interior Department, Office of Water Resources Res. 7/72 - 6/73.

Dr. J. O. Snowden. E. G. Otovos.

00020

Economic study of Louisiana coastal resources.

The objectives of this project are a) to expand and extend the economic base study of coastal Louisiana, including a micro-economic analysis of the Barataria basin which will identify current economic interests in the region and explore future alternative economic uses of the area; b) to analyze the reciprocal economic interrelationships among producers using common property resources in coastal Louisiana, and c) to develop in-depth knowledge of the economics of the Louisiana coastal zone fishery, and to apply that knowledge to contemporary problems of the fishery.

The results of this study will be useful to state agencies promoting and planning economic development of the coastal region, those responsible for managing the resources, and to industries presently located or contemplating location in this region. The study of interdependent production externalities will be valuable to those state and federal agencies concerned with the efficient allocation of resources in the coastal region, and the rules and regulations necessary for such allocation to be achieved.

For additional project information contact Dr. Jack R. Van Lopik, Director, Sea Grant Program, Louisiana State University, Baton Rouge, Louisiana 70803.

D. B. Johnson. R. Flammang. L. R. Jones. G. Rice.

00021

Utilization and conservation of the Mississippi coastal zone. The objective of this program is its intelligent exploitation of marine

resources in equipoise with conservation of the environment; to provide technical data and recommendations based on this data to Mississippi agencies and officials of Mississippi to enable intelligent use of that state's marine resources. The four part theme includes marine and coastal law; prediction of ecological alterations caused by pollutants; fisheries development; and marine problems as they relate to industrial, social, and political development of the Gulf Coast Region.

Mississippi State University, Graduate School, 113 Hilbun Hall, State College, Mississippi 39762. Funded by: Commerce Department, National Oceanic and Atmospheric Administration, Sea Grant Office, 7/71 - 6/72.

S. Upham.

00022

Organic water production in inland waters in Southern Mississippi.

Two aspects of organic production are considered: 1) primary productivity in terms of photosynthetic conversion of radiant energy to food energy within the system, and 2) import productivity in terms of allochthonous organic detritus entering the drainage system from neighboring watersheds. This study measured organic production in a creek (Catahoula) and in a river (Jourdan) in southern Mississippi.

Mississippi State University. Funded by: Mississippi State University. National Aeronautics and Space Administration. 7/71 - 6/72.

De La Cruz.

00023

A multidisciplinary research program on the environment.

Mississippi State University, National Aeronautics and Space Administration. 2/1/71 - 1/1/75.

N. Miles, E. Grimley, A. A. de la Cruz, W. Lorio, H. Robinette, H. S. W. Wang, L. R. Brown.

00024

Texas Maritime Administration. Federal fund.

Texas A & M University, Office of University Research, College Station, Texas 77843. Funded by: Department of Commerce.

W. Clayton.

00025

Geochemical behavior of uranium and thorium series nuclides.

Texas Agricultural and Mechanical University.

W. M. Sackett.

00026

Environmental simulation and modification.

Texas A & M University, Office of University Research, College Station, Texas 77843. Funded by: U.S. Department of Commerce, National Oceanic and Atmospheric Administration.

R. Schiller.

00027

Short courses, estuarine quality.

Texas A & M University, Office of University Research, College Station, Texas 77843. Funded by: U.S. Department of Commerce, National Oceanic and Atmospheric Administration.

J. E. Ball.

00028

Galveston coastal laboratory.

Texas A & M University, Office of University Research, College Station, Texas 77843. Funded by: U.S. Department of Commerce, National Oceanic and Atmospheric Administration.

S. Ray.

00029

Geochemical behavior of uranium and thorium series nuclides.

Texas A & M University, Office of University Research, College Station,  
Texas 77843. Funded by: U.S. Atomic Energy Commission.

W. M. Sackett.

00030

Health hazards in Texas coastal waters.

Texas A & M University, Office of University Research, College Station,  
Texas 77843. Funded by: U.S. Department of Commerce, National Oceanic  
and Atmospheric Administration.

00031

Kinetic isotopic effects.

Texas A & M University, Office of University Research, College Station,  
Texas 77843. Funded by: American Chemical Society.

H. Sackett.

00032

Law and administration of the coastal zone.

Texas A & M University, Office of University Research, College Station,  
Texas 77843. Funded by: U.S. Department of Commerce, National Oceanic and  
Atmospheric Administration.

00033

Marine education center.

Texas A & M University, Office of University Research, College Station,  
Texas 77843. Funded by: U.S. Department of Commerce, National Oceanic and  
Atmospheric Administration.

McCloy.

00034

Marine laboratory.



Texas A & M University, Office of University Research, College Station, Texas 77843. Self funded.

00035

Marine resources information.

Texas A & M University, Office of University Research, College Station, Texas 77843. Funded by: U. S. Department of Commerce, National Oceanic and Atmospheric Administration.

L. Miloy.

00036

Marine technician support.

Texas A & M University, Office of University Research, College Station, Texas 77843. Funded by: National Sciences Foundation.

R. A. Geyer.

00037

Microbial human health hazards.

Texas A & M University, Office of University Research, College Station, Texas 77843. Funded by: U. S. Department of Commerce, National Oceanic and Atmospheric Administration.

D. H. Lewis.

00038

National Science Foundation coastal engineering short course.

Texas A & M University, Office of University Research, College Station, Texas 77843. Funded by: U. S. Department of Commerce, National Oceanic and Atmospheric Administration.

R. D. Schiller.

00039

New advisory project initiation.

Texas A & M University, Office of University Research, College Station, Texas 77843. Funded by: U. S. Department of Commerce, National Oceanic and Atmospheric Administration.

L. Miloy.

00040

Nutrient limitations in Texas watersheds.

Texas A & M University, Office of University Research, College Station, Texas 77843. Funded by: Texas Water Quality Board.

A. Hann.

00041

Undergraduate and graduate ocean engineering programs in Galveston.

Texas A & M University, Office of University Research, College Station, Texas 77843. Funded by: U.S. Department of Commerce, National Oceanic and Atmospheric Administration.

E. L. Mistler.

00042

Oceanic and marine technology.

Texas A & M University, Office of University Research, College Station, Texas 77843. Funded by: U.S. Department of Commerce, National Oceanic and Atmospheric Administration.

00043

Research programs.

Texas A & M University, Office of University Research, College Station, Texas 77843. Funded by: U.S. Department of Commerce, National Oceanic and Atmospheric Administration.

J. Calhoun.

00044

Research Programs development.

Texas A & M University, Office of University Research, College Station, Texas 77843. Funded by: U.S. Department of Commerce. National Oceanic and Atmospheric Administration.

R. C. Stephenson.

00045  
Sabine Coastal Laboratory.

Texas A & M University, Office of University Research, College Station,  
Texas 77843. Funded by: U.S. Department of Commerce National Oceanic and  
Atmospheric Administration.

00046  
Further development of solar water heater.

Texas A & M University, Office of University Research, College Station,  
Texas 77843. Funded by: National Science Foundation.

R. R. Davison.

00047  
Technical development services.

Texas A & M University, Office of University Research, College Station,  
Texas 77843. Funded by: U.S. Department of Commerce, National Oceanic and  
Atmospheric Administration.

J. Bradley.

00048  
Technical information and policy on coastal resources.

Texas A & M University, Office of University Research, College Station,  
Texas 77843. Funded by: U.S. Department of Commerce. National Oceanic  
and Atmospheric Administration.

Shaffer.

00049  
Texas Maritime administration, Federal fund.

Texas A & M University, Office of University Research College Station,  
Texas 77843. Funded by: Department of Commerce.

W. Clayton.

00050

Underwater marine medicine.

Texas A & M University, Office of University Research, College Station, Texas 77843. Funded by: U.S. Department of Commerce, National Oceanic and Atmospheric Administration.

Beckman.

00051

U.S.D.C. Grant #04-3-158-15. Proposal to conduct a series of research missions from Hydrolab to investigate the role of zooplankton in the coral reef ecosystem.

Texas A & M University, Office of University Research, College Station, Texas 77843. Funded by: U.S. Department of Commerce.

William Schroeder.

00052

Water quality literature evaluation.

Texas A & M University, Office of University Research, College Station, Texas 77843. Funded by: Texas Water Quality Board.

R. Hann.

00053

Workshops: coastal zone problems.

Texas A & M University, Office of University Research, College Station, Texas 77843. Funded by: U.S. Department of Commerce, National Oceanic and Atmospheric Administration.

00054

Galveston coastal zone laboratory.

Objectives of this study are: a) to develop a basic understanding of the principal natural and induced factors affecting the Galveston coastal area, b) to provide quick-response type research and assistance to solve local and regional marine-related problems that have a degree of urgency not compatible

with other institutional-type research, c) to maintain an awareness of activities of industry and government which may require an input from the coastal laboratory or the conduct of long-term investigations within the university, d) to maintain an awareness of activities at the university or within industry for government so as to be able to call on the best available talent in the event that a problem-solving action must be undertaken.

The information resulting from the first year of the project will be applicable to the selected problems and will also contribute to the determination of future tasks and to the mechanisms required in the solution of coastal problems.

Accomplishments during the past twelve months include: a) initiation of a short-term investigation of oil and tar deposits on beaches in the Galveston area, b) initiation of local and regional research teams; identification of specialized research teams to serve the laboratory on an on-call basis; c) development of community contacts, including local, state, and federal government agencies, to explore possible research tasks to be undertaken by the laboratory.

For additional information pertaining to this project contact Dr. Robert C. Stephenson, Director, Center for Marine Resources, Texas A & M University, College Station, Texas 77843.

Texas A & M University System, Sea Grant Program Office, College Station, Texas 77843. Funded by: Commerce Department, National Oceanic and Atmospheric Administration, Sea Grant Office. 6/72 - 5/73.

J. C. Calhoun, W. Clayton, W. H. Clark.

00055

Structural determination of the crust and upper mantle beneath the Texas Gulf Coast.

An array of moderately long-period vertical seismographs will be set up on the Texas Coastal Plain. The seismograph response is chosen to be suitable for recording Rayleigh waves; particularly waves with periods commonly observed from earthquakes in Mexico. The dimension of the array will be on the order of 200 km and one leg of the tripartite array will be oriented so that two seismographs lie on great circle paths from the most active regions in Mexico.

Dispersion of Rayleigh waves as they cross the array will be determined and analyzed to produce experimental dispersion curves. The seismograms will be digitized and the analysis made using the computer and soft-ware now in use at Texas Tech.

The measured dispersion will be explained in terms of layered models of the crust and upper mantle used to calculate theoretical dispersion curves. The agreement between the experimental and theoretical dispersion curves will relate actual structure of crust and upper mantle within the array to a best model. Once the best model is determined the array will be moved and a similar determination will be made for the new area.

D. H. Shurbet.

00056

Techniques for evaluating the effects of water resources development on estuarine environments.

State Water Development Board, Capitol Station, Austin, Texas 78711. Funded by Interior Department, Office of Water Resources Res. July 1972 - April 1974.

H. A. White.

00057

Systems simulation for management of a total water resource.

The objective of this year's research project will be the development of techniques useful in defining the least costly means of supplying municipal, industrial, irrigational, recreational fish and wildlife, and secondary petroleum recovery water requirements for a selected portion of the proposed Texas Water system to the year 2020. A methodology will be sought to aid planners in decision-making regarding means of providing water at least cost to meet demands among the several source river basins and reservoirs, and along the route of conveyance to terminal storage within the constraints of prospective water sales contracts, alternative project feature sizing, and alternative sequences and timing of construction of project elements.

Specifically, this research will have as its goal the development of the following: 1) a transfer model for optimal allocation of water to meet specified demands to the year 2020 at minimum total cost within the prescribed legal, financial, contractual, and political constraints, 2) an optimal means of sizing, sequencing and timing of the addition of project elements, 3) simulation models for the system, and 4) a support data Management System.

State Water Development Board, Austin, Texas 78711. Funded by: Interior Department, Office of Water Resources 7/72 - 4/74.

W. L. Meier, A. O. Weiss.

00058

Hydrologic models for the Barataria - Terrebonne Area, South Central Louisiana.

U.S. Army Corps of Engineering, P. O. Box 60267, New Orleans, Louisiana 70160. Self funding, Completion data: 1973.

00059

Water balance in Louisiana estuaries.

U.S. Army Corps of Engineers, P.O. Box 60267, New Orleans, Louisiana 70160. Self funding. Completion date 1973.

00060

Environmental assessments, and environmental impact statements in the Louisiana coastal area.

U.S. Army Corps of Engineers, P.O. Box 60267, New Orleans, Louisiana 70160. Self funding continuing.

Environmental Impact Statement.

00061

Controlled Diversions in the Mississippi Delta System: An approach to environmental management.

U.S. Army Corps of Engineers, P.O. Box 60267, New Orleans, Louisiana 70160. Self funding. Completion date 1973.

00062

Selected environmental parameters, coastal, Louisiana 1945, 1946, 1959-1965.

U.S. Army Corps of Engineers, P.O. Box 60267, New Orleans, Louisiana 70160. Self funding. Completion date: 1973.

00063

Intensive culture of southern pines.

The objective is to substantially increase the quantity and quality of growth

of the commercially important southern pines, research will be directed toward determining: the tolerance of individual species and strains to extremes in soil environment and physiological differences between and within species which influence their adaptability to a particular site, optimum moisture regimes for maximum production and the effects of moisture levels on individual wood characteristics, the exact levels of a balance between nutrient elements required by pines at various stages of development, and effects of stand structure on production of wood.

U.S. Department of Agriculture, U.S. Forest Service, Southern Forest Experimental Station, Alexandria, Louisiana 71360. Self funding. 7/72 - 6/73.

L. Shoulders.

00064

Geologic structure and fresh ground water in Gulf Coastal Plain.

Major elements of structural deformation in the Gulf coast Plain that have marked effect on deposits of post-oligocene age will be identified and marked at a suitable scale, together with the distribution (areally and with depth) of fresh and saline waters in aquifer systems affected by the deformation. The relative importance of individual structural features, together with companion features (e.g., regional normal faults and associated salt domes) will be evaluated using this map, and key structures in the plain will be selected for intensive study. These type studies will involve all geologic and hydrologic factors for which data can be obtained, and each will be completed with a separate report. Concepts derived and analytical methods developed in the type studies will be employed in a comprehensive analysis of conditions throughout the plains. The report on this work will include structural maps for entire aquifer systems and flow nets for principal aquifers; it will show the locus and hydraulic controls of salty water in proximity to fresh-water systems, and define, as well as may be possible, the probable consequences of changes in direction of flow and gradient in head in aquifer systems to heavy withdrawal in the future.

U.S. Department of the Interior, Geological Survey, Baton Rouge, Louisiana 70803. Funded by: Interior Department, Geological Survey, Water Resources Division.

R. H. Jones.

00065

Hydrology of Western Collier County, Florida.



The results from this investigation will determine the locations which would most likely yield the greatest quantities of the best quality water to supply the ultimate municipal needs of western Collier County. Supplemental data will indicate the effect of the canal system on aquifer storage.

These objectives will be obtained by a reconnaissance of the two-square mile area east of Naples to determine exact locations and extent of existing canals and control structures and all works proposed for near future; series of periodic streamflow measurements at several locations in canals to determine incremental losses or increases of water within specific reaches of the canals; exploratory drilling for geologic information and more detailed information on permeability of shallow aquifer; water sampling of canals and well to determine changes in water quality with time.

U.S. Department of the Interior, Geological Survey, Miami, Florida 33130.  
Funded by: Interior Department, Geological Survey, Water Resources Division.

J. J. McCoy.

00066

Salt-water encroachment in coastal areas of Citrus and Hernando Counties.

Geology and Water Quality.

The objective of the study will be to locate both areally and vertically the position of the salt-fresh water contact in surface and ground water and to delineate the position of the salt-fresh water interface (chloride content-250MG/L) at a depth of 100 ft. below mean sea level in the Fla. aquifer.

Information will be collected to depict a) altitude of the top of the Floridian aquifer; b) potentiometric surface of the upper part of the Floridian aquifer; c) depth to the salt-fresh water interface at seasonal extremes; and d) salinity of streams and canals.

U.S. Department of Interior, U.S. Geological Survey, WRD, Florida District. Funded by: Federal-State. 7/72 - 6/74.

James D. Humm.

00067

Cooperative state investigations Louisiana

Evaluating minimal resources of the state.

Completed Lake Charles area sampling; now on brick tile and clays in Baton Rouge area.

U.S. Department of Interior, Bureau of Mines, Intermountain Field Operation Center, Denver, Colorado, Louisiana Geological Survey, Tuscaloosa Metallurgy Research Center. Funded by: U.S. Department of Interior, Bureau of Mines.

00068

Environmental - mineral involvements.

Taylor's Bayou, Texas; Bushley Bayou, Louisiana.

Objective to review environmental impact statements for various governmental agencies concerning the mineral aspects of areas in which work is proposed.

U.S. Department of Interior, Bureau of Mines, various stations.  
Funded by: U.S. Department of Interior, Bureau of Mines.

00069

Reintroduction of the Sandhill Crane to the southwestern Louisiana ecology of the Mississippi sandhill cranes (Grus canadensis ptilo) Life history Mississippi sandhill crane.

U.S. Department of Interior, Bureau of Sport Fisheries and Wildlife. Self funding, 1965 - ?

J. H. Valentine, Jr. Publication: J. M. Valentine, R. E. Noble, 1970: A colony of sandhill cranes in Mississippi. Journal of Wildlife Management: 34(4): 761-768.

00070

Study of the Mississippi Sandhill Crane in Jackson County, Mississippi.

U.S. Department of Interior, Bureau of Sport Fisheries and Wildlife, Fish and Wildlife Service, Mississippi Game and Fish Commission. Funded by: U.S. Department of Interior, Bureau of Sport Fisheries and Wildlife, Fish & Wildlife Service, Division of Wildlife Refuges.

J. M. Valentine, Jr. Publications: J. M. Valentine and R. E. Noble. A colony of sandhill cranes in Mississippi. Journal of Wildlife Management Vol. 34(4): 761-768, 1970.

00071

Uraniferous rocks of Texas Coastal Plain.

This is a study of the uranium geology of the south Texas Coastal Plain including geologic mapping of the uranium-bearing rocks; stratigraphic descriptions and correlations; descriptions of the ore deposits, their types of occurrence, their mineralogy and geochemistry, the nature of their host rocks and the overlying and underlying beds, and their relation to oil and gas occurrences, to arid-climate weathering, and to the basin of their deposition.

U.S. Department of the Interior, Geological Survey, Austin, Texas 78701.  
Funded by: Interior Department, Geological Survey, Geologic Division.  
7/72 - 6/73.

00072

Geologic structure and fresh ground water in Gulf Coastal Plain.

Major elements of structural deformation in the Gulf Coast Plain that have marked effect on deposits of post-Oligocene age will be identified and mapped at a suitable scale, together with the distribution (areally and with depth) of fresh and saline waters in aquifer systems affected by the deformation. The relative importance of individual structural features, together with companion features (e.g. regional normal faults and associated salt domes) will be evaluated using this map, and key structures in the plain will be selected for intensive study. These type studies will involve all geologic and intensive study. These type studies will involve all geologic and hydrologic factors for which data can be obtained, and each will be completed with a separate report. Concepts derived and analytical methods developed in the type studies will be employed in a comprehensive analysis of conditions throughout the Plains. The report on this work will include structural maps for entire aquifer systems and flow nets for principal aquifers; it will show the locus and hydraulic controls on salty water in proximity to fresh-water systems, and define, as well as may be possible, the probable consequences of changes in direction of flow and gradient in head in aquifer systems subjected to heavy withdrawal in the future.

U.S. Department of the Interior, Geological Survey, Baton Rouge, Louisiana 70803. Funded by: Interior Department, Geological Survey, Water Resources Division 7/72 - 6/73.

P. H. Jones.

00073

Water purification by large-scale electrophoresis.

U.S. Veterans Administration, Hospital, Research Service, 3601 S. 6th St., Tucson, Arizona 85713. Funded by: Veterans Administration.

M. Bier.

00074

A supplementary zooplankton survey at the Crystal River plant site.

University of Florida. Funded by: Florida Power Corp. 6/72 - 6/73.

F. Maturo.

00075

A supplementary zooplankton survey at the Crystal River plant site.

University of Florida. Funded by: Florida Power Corp. 6/73 - 9/73.

F. Maturo.

00076

A quantitative/qualitative evaluation of impingement on the traveling screens at Crystal River G.E.C. - 92.

University of Florida. Funded by: Florida Power Corporation. 6/73 - 11/73.

S. Snedaker.

00077

Soil fertility of agriculturally important soils of western Florida.

(Ornizer Mays L.) yield responses to nitrogen from a long term fertility experiment on Red Bay fine sandy loam were affected by rainfall distribution.

University of Florida, Gainesville, Florida, 32601. Funded by: University of Florida, Institute of Food and Agriculture sciences.

W. E. Robertson.

00078

Sources of species and potential for entrapment in the intake canal at Crystal River, G.E.C. - 91.

University of Florida. Funded by: Florida Power Corp. 6/73 - 11/73.

S. Snedaker.

00079

Simulation of macroenergetic models of environment, power and society.

University of Florida. U.S. Atomic Energy Commission. 9/72 - 9/73.

H. T. Odum.

00080

Use of experimental pourboix diagrams to interpret corrosion behavior in engineering delays.

University of Florida. Funded by: U.S. Air Force, 11/72 - 8/74.

E. Verink.

00081

Development of experimental pourboix diagrams for the prediction of corrosion behavior of alloys.

University of Florida. Funded by: U.S. Navy. 12/73.

E. D. Verink.

00082

Work to be performed at St. Simons Island, Georgia.

University of Florida. Funded by: Sea Island Properties. 3/73.

C. Fairbanks.

00083

Energy circuit model and simulation of the system of the Gulf shelf.

A systems model in energy language will be prepared using data in reports and the literature for the Gulf Shelf. The model will be compartmentalized and seasonal patterns will be simulated and tested for its response to increase flows of wastes from the land including negative toxic stresses and fertilizing stimulative positive actions.

University of Florida, School of Engineering, Gainesville, Florida, 32601.  
Funded by: National Science Foundation, Division of Environmental Sciences  
6/72 - 5/73.

H. T. Odum.

00084

An optimum water allocation model based on an analysis for the Kissimmee River Basin.

The operating procedures for many multipurpose water management systems are prescribed by operating rule curves which were developed with flood control as their single purpose. Operation by such rigid rule curves often result in less than optimum allocation of water.

The purpose of this study is to develop and empirically test a model for determining the optimal temporal allocation of water among alternative uses and between watersheds.

The proposed research plan involves: a) developing a linear programming model to include relevant water-using activities, physical, political and institutional restrictions on water use, allocation between and within watersheds, allocation between time periods, b) empirically testing the model in the Kissimmee River Basin develop homogeneous soil classes based on their response to supplemental water, estimate the value of water in the alternative uses, estimate rainfall, runoff, stream flows, seepage, evaporation and irrigation return flows, determine physical, political and institutional restrictions, apply data to model and determine optimum allocation, c) alter the restrictions on water use to determine the effect on the optimum allocation of water, d) compare advantages and disadvantages of linear programming and simulation models for water management systems.

University of Florida, School of Agriculture, Gainesville, Florida 32601.  
Funded by: Interior Department, Office of Water Resources Res. 7/72 - 6/73,  
multiple support funds.

J. E. Reynolds, J. R. Conner, K. C. Gibbs.

00085

Water law of southeastern estuaries.

This will be a comprehensive survey of the estuarine water law of Louisiana, Mississippi, Alabama, Florida, Georgia, and South Carolina. The resulting monograph of approximately 300 pages would draw conclusions as to the extent to which the law of these jurisdictions (1) protects commercial fishing and public recreational uses against deleterious competing uses such as pollution, land-fill, and dredging, (2) is related in this respect to the law of bordering states and to the federal regulatory power in marginal and territorial seas. Conclusions will be drawn to overlaps, gaps, and conflicts of the present law. These can provide bases for remedial state and federal action to restore and preserve the estuaries of Southern states. The study can assist similar research in other regions of the United States.

University of Georgia, Inst. of Government, Athens, Ga. 30602. Funded by: Interior Department, Office of Water Resources Res. 7/71 - 6/72.

C. Leavell.

00086

Forecasting Texas energy demands and supplies.

Texas energy demands and supplies are being forecast for major categories of use and major sources of production.

The University of Houston: College of Business Administration. Funded by: University of Houston, Institute of Energy Studies. Completion data August 31, 1974.

R. G. Thompson.

00087

Develop a Coastal Zone Authority.

The State of Texas will develop a Coastal Zone Authority, based on an analysis of coastal and marine law, which will serve as a model for other states and will aid in developing Federal legislation regarding Federal-State planning and regulation of coastal zone activities.

This project will: a) analyze existing responsibility and authority which has either been designed statutorily or by court decision to political subdivisions of the nation and agencies at the Federal/State and local/regional level; and b) development of a model authority for coastal zone management

which eliminates gaps and overlapping roles for functions of government in an environmental system - including model legislation which will be aimed at implementing the Coastal Resource Management Program of Texas.

While the research will be conducted with regard to the situation in Texas, the methodology to be developed, as well as the functional and structural areas of analysis to be identified, will be applicable for any coastal region of the United States. The development of model legislation for the managing authority will be conducted so that portions with application to specific state needs can be easily revised to reflect the needs of any state.

University of Houston, School of Law, 3801 Cullen Boulevard. Houston, Texas 77004. Funded by: National Science Foundation, Research Application Direct. 7/72 - 6/73.

00088

Law and the marine resources of the Gulf of Mexico.

Objectives are to establish and maintain a continuous and comprehensive program of teaching, research and information services relating to the legal-administrative aspects of marine and coastal resources.

How information will be applied: the information will relate to the realization of the State Coastal Zone Management Program of Texas, to solution of problems common to the Gulf area and to viable Federal-state cooperation.

Accomplishments during past twelve months are institution of a new clinical course in cooperation with the Harris County District Attorney's Office which will provide a practical sequel to the course on the sea and its resources, publication of a summary of selected legislation relating to the coastal zone, sponsoring of a conference on recent environmental developments in maritime and offshore activities, the proceedings of which were printed in the Houston Law Review and reprinted for distribution, conducting ongoing research by faculty members of the Bates College of Law, University of Houston and the University of Texas relating to land use in the coastal zone, ports and navigation districts, bays and estuaries, and shoreline modification; the results of which will be published for distribution.

For additional information pertaining to this project contact Dr. Robert C. Stephenson, Director, Center for Marine Resources, Texas A U M University, College Station, Texas 77843.

University of Houston, School of Law, 3801 Cullen Blvd., Houston, Texas 77004. Funded by: Commerce Department, National Oceanic and Atmospheric Administration, Sea Grant Office. 6/72 - 5/73.

E. Erelli, C. Dinkins.



00089

Economics for Ocean Resource Management.

The objectives of this project are: 1) complete the economic study of Biscayne Bay described in last years 2-year proposal; 2) undertake a second look at the economics of pink shrimp farming, taking into account new aquaculture developments; 3) undertake a study of firm behavior when faced with effluent charges with special emphasis on water-based firms; 4) continue the work on theoretical and empirical fisheries economics, 5) act as an economic "advisor" to other parts of the Miami Sea Grant Program. For additional information pertaining to this project contact Dr. Richard G. Bader, Director, Sea Grant Programs, University of Miami, Coral Gables, Florida 33146.

University of Miami, School of Marine Science, 1 Rickenbacker Cswy., Miami, Florida 33149. Funded by: Commerce Department, National Oceanic and Atmospheric Administration, Sea Grant Office. 7/72 - 6/73.

L. G. Anderson.

00090

An ecological study of south Biscayne Bay and Card Sound, Florida.

This continuing program is designed to carry out an interdisciplinary study of the effects of a power plant discharge on the subtropical biota of South Biscayne Bay and Card Sound. Studies on the circulation and flushing time of the bays are continuing. The importance of organic chemicals on the grass community is beginning and nuclide measurements are continuing. Studies on the plankton of the Bay will be completed. The effect of temperature and chemicals on the sea grasses, macro algae and animals both in the field and in the laboratory will be continued. Results: Circulation in Biscayne Bay and Card Sound associated with the discharge have been determined. Preliminary data have been gathered on nutrient and trace metal chemistry. The effects of heat on the local biota have been investigated in the field and in the laboratory.

University of Miami, School of Marine Science 1 Rickenbacker Cswy., Miami, Florida 33149. Funded by: Atomic Energy Comm. Biomedical and Environmental Res. Div. 9/72 - 8/73.

R. G. Bader, M. A. Roessler, T. Lee, J. Michel, S. Gerchakov.

00091

Freshwater inflow and its effect on shallow lagoons.

The proposed research is directed at determining the effect of freshwater inflow in shallow lagoons on salinity (density) and selected macro-invertebrates and fishes. The approach is to develop a physical and biological model simulating the effects. Field investigations would be carried out in Lake Worth, Florida and would include 1) water level and discharge measurements, 2) salinity and temperature measurements, 3) collection of trawl and dredge samples.

The results of the study will provide important directives allowing fresh water needs of inland coastal waters to enter in decision on the distribution of fresh water resources.

University of Miami, School of Marine Science, 1 Rickenbacker Cswy., Miami, Florida 33149. Funded by: Interior Department, Office of Water Resources Res. 7/72 - 6/73.

M. A. Roessler, J. Vandekreeke

00092

Studies of the red algae in Biscayne Bay.

The objectives of this project are: to study the dynamic ecology of the major red alga in Biscayne Bay by combined laboratory and field studies. This alga has been found to be very important among the primary producers, and thus to be food chain, in ten years of field studies in South Florida estuaries, which studies chiefly dealt with the macroinvertebrate population. The *Laurencia* complex is intimately connected with the ecology of the animals by being a shelter as well as probable food source. However, no study of the *Laurencia* itself has been undertaken to date and virtually nothing is known of its ecology. It is now necessary to define the growth rates and major ecological factors affecting the occurrence and distribution of *Laurencia*. The appearance and/or disappearance of this genus probably will prove a sensitive indicator of pollution, which, if used in combination with animal and microalgal indicators will give early warning criteria for many types of pollution in our estuaries.

*Laurencia* and *Digenia* appear to be major contributors to the detrital food chain of Biscayne Bay-Card Sound. Data will be used to recommend safe limits for flood control canal design and outfall designs for various industrial plants. The organizations expected to use this information are as follows: U.S. Army Corps of Engineers - for dredging and filling; Environmental Protection Agency - industrial outfalls; Dade County mental Protection Agency - industrial outfalls; Dade County Pollution - industrial

outfalls; Florida Power and Light Co. - heat effluent; Florida Power Cooperation - heat effluent; State Pollution Board - industrial outfalls; Westinghouse Corporation - in desalination plants; Atomic Energy Commission - radiation and heat outfalls.

Accomplishments during the past twelve months: 1) delineation of grass community dynamics; 2) delineation of power plant outfall on grass and algal population; 3) baseline information on ecology of major green macroalgae.

For additional information pertaining to this project contact Dr. Richard G. Bader, Director, Sea Grant Programs, University of Miami, Coral Gables, Florida 33146.

University of Miami, School of Marine Science, 1 Rickenbacker Cswy. Miami, Florida 33149. Funded by: Commerce Department, National Oceanic and Atmospheric Administration, Sea Grant Office. 7/72 - 6/73.

A. Thurhaug.

00093

South Florida coastal zone workshops.

The objectives of this project are two-fold. First, it is believed that it will be of value to conduct a series of individual workshops on problems concerning coastal and ocean use that directly affect the residents of South Florida. Through this method, the issues of law, and the needs or changes can clearly be identified and priorities assigned. Secondly, those areas requiring research in depth can be fed back into the Ocean Law Program as potential thesis or individual research topics. Each workshop will be held as an independent unit, with its own report, which will only seek to identify issues and problem areas, and assign them priorities. Workshops will be by invitation, limited to those most expert in the area. At the conclusion of the series, the reports will be bound and distributed.

Information will feed into the Ocean Law research system and will be disseminated also to the Federal, State, and municipal agencies and the land-use industries involved in the workshops.

For additional information pertaining to this project contact Dr. Richard G. Bader, Director, Sea Grant Programs, University of Miami, Coral Gables, Florida 33146.

University of Miami, School of Business Administration, Miami, Florida 33124. Funded by: Commerce Department, National Oceanic and Atmospheric Administration, Sea Grant Office. 7/72 - 6/73.

T. A. Clingan.

00094

Marine invertebrates.

Invertebrates are being collected from the Gulf of Mexico and investigated for the presence of new types of therapeutic agents.

University of Mississippi. Self-funded. 1/71 - 6/73.

M. D. Corbett.

00095

Marine invertebrates.

Invertebrates are being collected from the Gulf of Mexico and investigated for the presence of new types of therapeutic agents.

Department of Pharmacology, University of Mississippi. Funded by: University of Mississippi. January 1971 - ?

M. D. Corbett.

00096

Legal problems of the Gulf coast region.

Law of the coastal zone, marine law and science, and interdisciplinary studies on problems of the coastal zone.

University of Mississippi Law School. Funded by: University of Mississippi, Sea Grant Program. 1/73 - 12/73.

F. Maraist. J. Zirkle.

00097

Legal problems of the Gulf Coast region.

The objectives of this study are to complete the collection of constitutional, statutory, and regulatory provisions, together with annotations of the appropriate decisions by the courts, and the organization and classification of

this body of laws of the coastal region into a usable form for the benefit of industry, government, and science, to examine this body of law to determine its adequacy from the economic and administrative point of view, and to discover the conflicts and other deficiencies in this body of law and recommend appropriate changes to lawmakers and authorities at all levels of government within the state.

Conflicts and deficiencies in the laws of the coastal region will be eliminated, thereby providing a more universal legal framework and a more solid base upon which to build future legislation as it pertains to the Gulf Coast REgion.

For additional project information contact Dr. Sidney D. Upham, Director, Universities Marine Center, P.O. Drawer AG, Ocean Springs, Mississippi 39564.

University of Mississippi School of Law. Funded by: Commerce Department, National Oceanic and Atmospheric Administration, Sea Grant Office. 3/72 - 2/73.

00098

The Benthic community adjacent to the Bartow power plant, Weedon Island, Tampa Bay.

University of South Florida, Department of Marine Science, St. Petersburg, Florida 33701. Funded by: Florida Power Corp.

T. Pyle, L. Doyle, and N. Blake.

00099

Anclote fish entrainment-entrapment study.

Evaluation entrainment-entrapment at Anclote facility.

University of South Florida, Department of Marine Science, St. Petersburg, Florida 33701. Funded by: Florida Power Corp. February 1973 - February 1975.

Baird.

00100

Basic organic and inorganic nutrients near the Florida Power Plant at Crystal River, Florida.

Department of Marine Science, University of South Florida, St. Petersburg,

Florida 33701. Funded by: Florida Power Corp. 7/73 - 7/75.

T. L. Hopkins.

00101

Ecology of seagrasses in the Anclote estuary, Tarpon Springs, Florida.

To describe a marine environment in the vicinity of which a power plant is to be built so that effects of the plant after construction can be determined.

Department of Marine Science, University of South Florida, St. Petersburg, Florida 33071. Funded by: Florida Power Corp. July 1970 - ?

Harold J. Humm. Publications: Humm, Harold J., R. L. Baird, K. Carder, T. L. Hopkins and T. E. Pyle, 1971. Anclote environmental project. Annual Report for 1970. Florida Power Corp.

Baird, R. C., K. Carder, T. L. Hopkins, T. E. Pyle, and H. J. Humm, 1972. Anclote environmental project. Annual Report for 1971. Florida Power Corp.

Humm, H. J., 1972. Salt marshes of the eastern Gulf of Mexico. Pub. in An Environmental Status report on the eastern Gulf of Mexico. American Petroleum Institute pages III A-1-6.

Humm, 1972. Sea grasses of the eastern Gulf of Mexico, Ibid pages III C-1-10.

Humm, 1972. Mangroves of the eastern Gulf of Mexico. Ibid, pages III D-1-8.

00102

An ecological study of the biota of the Anclote River estuary and adjacent Gulf of Mexico.

University of South Florida. Funded by: Florida Power Corp. 6/73 - 6/74.

T. L. Hopkins, H. J. Humm, R. C. Baird, N. J. Blake.

00103

The benthic invertebrate community adjacent to Weedon Island, Tampa Bay, Florida.

University of South Florida. Funded by: Florida Power Corp. 4/73-3/74.

T. E. Pyle, N. J. Blake and L. J. Doyle.

00104

Studies of molecularity and reactions of selected heavy metals in the environment.

University of South Florida. Funded by: National Science Foundation. 5/73-11/74.

R. S. Broman.

00105

Anclote environmental impact study.

Evaluation environmental impact for power generating facility.

University of South Florida, Department of Marine Science, St. Petersburg, Florida 33701. Funded by: Florida Power Corp. June 1970=June 1977.

Baird, Humm, Carder, Hopkins, Pyle, Doyle and Blake.

00106

Territorial study of Mississippi and Alabama.

While most previous studies accent strictly the political history of territorial Mississippi, this project will shed light on social, religious and economic developments in the territorial period as well as politics.

University of Southern Mississippi. Sunf funded 9/71-?

D. W. Guice.

00107

An appraisal of plans to meet the fresh water requirements of the Mississippi Gulf Coast area.

The Mississippi Gulf Coast has experienced significant economic development in the last decade. The most devastating hurricane of record, Camille, hit

the area in 1969. In the aftermath, attention was focused on the need for coordinated or areawide plans and programs. The proposed project would catalogue and appraise the various plans that have been advanced for meeting the future fresh water needs of the area. Based on the appraisal, principles will be advanced to augment overall plans to develop the Gulf Coast. Such a study should be helpful to the organizations that are being organized to develop plans and programs for the entire Mississippi Gulf Coast.

University of Southern Mississippi, School of Business Administration, Hattiesburg, Mississippi 39401. Funded by: Interior Department, Office of Water, Resources Res. 7/71-6/72.

Dr. D. C. Williams.

00108

Mechanism of active faulting on the Gulf Coast of Texas.

Surface faulting, without accompanying earthquakes, is currently taking place along many faults of the Texas Gulf Coast Plain. Man-made structures are being damaged and survey lines are being deformed. The mechanism for this type of faulting is inadequately known, although it is probably complex.

In order to obtain quantitative data, the rate and nature of the processes causing surface faulting will be measured by placing three dual creepmeters along the Long Point active fault, one on a coastal fault on a growing salt dome and one on an active fault level lines will be surveyed.

University of Texas, School of Arts, 200 W 21st, Austin, Texas 78712. Funded by: National Science Foundation, Division of Environmental Sciences. 11/71 - 10/72.

R. O. Kehle. L. J. Turk.

00109

Regional modeling of surface water temperatures from projected power growth.

Digital simulation programs developed at the Pacific Northwest Laboratory applicable to the Columbia River have been used to predict the impact of steam electric power plant operation in major river-basin areas. Program outputs have included modifications based on plant operational experience for both normal and abnormal weather and flow conditions. Ultimate capabilities of given stream systems to support thermal generation concentrations have been and will be estimated.

Westinghouse Electric Corp. Richland, Washington 99352. Funded by: U. S. Atomic Energy Commission, Reaction Devel. and Tech. Div. 7/72 - 6/73.



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CURRENT AND RECENT RESEARCH  
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00001

Hydrological atlas of Alabama's estuaries.

Objectives are to determine certain chemical and physical characteristics of the waters of the estuaries of Alabama and to develop an atlas of the hydrological characteristics of Alabama's estuaries in cooperation with other states of the Gulf states Marine Fisheries Commission and the Bureau of Commercial Fisheries.

Samples will be analyzed in the laboratory and/or the field, for salinity, temperature, oxygen, nitrate and nitrite nitrogen, and phosphates. An atlas of the hydrological characteristics of Alabama's estuaries will be prepared in accordance with procedures adopted by the technical coordinating committee of the Gulf states Marine Fisheries Commission.

State Seafoods Division, Marine Resources Lab, P.O. Box 188, Dauphin Island, Alabama 37528. Funded by: Commerce Department, National Oceanic and Atmospheric Administration, National Marine Fisheries Service.

H. Beckert.

00002

Sediment yield in relation to watershed and climatic characteristics in the Western Gulf Region.

The objective of this study is to determine sediment yields sources, and sediment accumulation in floodwater retarding structures. The Universal Soil Loss Equation was modified to compute gross erosion from watersheds. The purpose of the study was to develop a procedure for computing sediment yields based on the Universal Equation and a delivery ratio. To make the Universal Equation practical for such use, short-cuts were introduced for computing some of the factors of the equation. Procedures were established for computing the erosion control practice factor on a watershed basis. Also, delivery ratios were computed for five small watersheds in the Blacklands of Texas. The computed delivery ratios were related to watershed characteristics and a prediction equation was developed.

Blackland Experimental Watershed, Temple, Texas 76682. Funded by: Agriculture Department, Agricultural Research Service, Soil and Water Cons. Res. Div. 7/72 - 6/73.

J. R. Williams. W. G. Knisel.

00003

Investigation of copper and its alloys in a hot seawater desalting plant.

The desalting plant has been designed to produce over 5,000 gallons of fresh water per day from Gulf of Mexico seawater. The plant contains a heat recovery unit, heat exchangers with a flash tank, vertical tube evaporator and a recycle brine unit so that the copper alloys in each section are actually being tested under operating desalting plant conditions.

In addition, a side unit has been incorporated into the test plant using blowdown water to study the effects of several variables including dissolved oxygen without disrupting the operating conditions in the main plant. Specimens are being removed from the side unit at 30, 60 and 90 day intervals while from the remainder of the plant, the schedule was established at 6, 12, and 24 months.

Copper Development Assn., Inc., 405 Lexington Ave., New York, New York 10017. Funded by: Interior Department, Office of Saline Water, 7/72 - 6/73.

H. Cohen. C. Osborn.

00004

Transitions to turbulent convection.

Florida State University. Funded by: U.S. Navy, Office of Naval Research. 3/73 - 2/74.

R. Krishnamurte.

00005

A study of the Florida territorial Sea of Escarosa.

The study of the distribution and concentration of trace metals and pesticides in the territorial sea of Escarosa confirmed the physical data and indicated significant pollutant contributions were being added to the Gulf of Mexico from sources other than the Escarosa bays.

State University System, Institute of Oceanography, St. Petersburg, Florida. Funded by: Florida Coastal Coordinating Council, Tallahassee, Florida. September 1971 - October 1973.

Dr. Eugene Carcoran, Prof. U. of Miami, Dr. Harvey Brooks, Prof. U. of

Florida, Dr. Thomas Hopkins, Assoc. Prof. U. of W. Florida, Mr. Maurice Pinkel, Assistant Director, State of Florida University System's Institute of Oceanography.

00006

Dynamic models of the continental shelf circulation.

This grant supports a program for numerical studies of the physical oceanography of the continental shelf region off western Florida. The three principal parts of the program constitute studies of: analysis of quantitative models of the spatial distributions of velocity and density subject to varying driving forces, studies of temporal variations, comparison with an observation program.

Florida State University, School of Arts, Tallahassee, Florida, 32306.  
Funded by: National Science Foundation, Division of Environmental Sciences.  
5/72 - 5/73.

J. J. O'Brien, Y. Hsueh, K. Warsh.

00007

Coastal circulation and sand budget of Florida.

Beach movement erosion or accretion, wave-topography interaction.

Florida State University, Geophysical Fluid Dynamics Inst., Tallahassee, Florida 32306. Funded by: U.S. Department of Commerce, National Sea Grant Program, National Oceanic and Atmospheric Administration. 1971 - 1976.

R. Pfeffer. Publications: Barcilon, A. and J. P. Lou. A model for formation of transverse bars. J. Geophys. Res., 78 (5): 2655-2664, 1973.

Lou, J. P. and A. Barcilon. Harmonic generation of shallow water waves over topography. J. Phys. Ocean. 2 (4): 405-410, 1972.

Lou, J. P. and B. Travis. Slowly-varying Stokes waves and submarine long-shore bars. J. Geophys. Res., 78 (21): 4489 - 4497, 1973.

Tam, C. K. W. The dynamics of rip currents. J. Geophys. Res., 78 (12): 1937 - 1943, 1973.

00008

Numerical and analytical modelling.

Florida State University. Funded by: U.S. Navy, Office of Naval Research.  
10/72 - 10/73.

J. J. O'Brien.

00009

Research in oceanography - doctoral dissertation.

The major objective of the proposed study is to measure qualitatively and quantitatively the bioenergetic aspects of an intertidal sandy-beach Donax community. Over 50% of the Gulf of Mexico coastline is sandy beach and the clam, Donax, is characteristic of this area. This community is relatively simple due to its position in the harsh environment at the land-sea interface. The location of the sandy beach community at the edge of the sea and the beginning of the land is an area where complex interaction occurs.

Florida State University, School of Arts, Tallahassee, Florida 32306.  
Funded by: National Science Foundation, Division of Environmental Sciences.  
7/72 - 7/73.

R. J. Menzies.

00010

Research equipment R/V TURSIOPS

Florida State University. Funded by: National Science Foundation.

R. C. Harriss.

00011

Organic chemistry of estuarine and continental shelf areas of the eastern Gulf coast of Mexico.

A broad and integrated study of the chemistry of carbon-containing molecules in nearshore and estuarine areas of the coast of the Gulf of Mexico from the Florida Everglades to the Mississippi River will be carried out. The total sedimentary organic carbon, total dissolved organic carbon and total particulate organic carbon in water and sediment samples collected periodically from selected drainage areas over a two year period will be



analyzed for total organic carbon in concentration, organic nitrogen content, molecular weight range. C13/C12 ratio and concentration of solvent-extractable carbon.

The objectives of the study are; to determine the relationships between the measured parameters in sedimentary organic carbon between the measured parameters in sedimentary organic carbon and in its immediate sources, the dissolved and particulate organic carbon in the water column to determine geographical and seasonal variations in these relationships, and to determine whether terrestrial and marine organic carbon can be differentiated in the proposed study area.

The results of this study will be valuable in determining the origin and history of organic carbon in sedimentary column, and the importance of terrestrially derived organic carbon in the total carbon cycle of the Gulf of Mexico.

Florida State University, School of Arts, Tallahassee, Florida 32306.  
Funded by: National Science Foundation, Div. of Environmental Sciences.  
7/71 - 7/72.

J. H. Galder.

00012

Chemistry of mercury in natural waters of the United States.

The major objectives of this project are to determine the abundance and distribution of mercury in Gulf Coast estuaries of the Northeast section including part of the coasts of Florida, Alabama, Mississippi, Louisiana and Texas. An important phase will be to determine the relative concentration in various samples of sediments, biological materials and water. This information should provide a picture of the dynamic partition of processes necessary to predict the fate of mercury in this environment.

Florida State University, School of Arts, Tallahassee, Florida 32306.  
Funded by: Environmental Protection Agency, Office of Water Programs.  
7/71 - 6/72, Multiple support funds.

R. C. Harriss.

00013

The study of boundary jets in a rotating water tunnel with application to ocean currents.

Water is recirculated longitudinally through a submerged water tunnel with rectangular cross sections. With a false bottom which rises linearly downstream, the flow becomes concentrated along the left side wall and is analogous to the western intensification of currents in the ocean. The uplifting due to the sloping bottom is similar in effect to the northward increase of the local vertical component of the earth rotation. This laboratory set-up thus allows detailed study of the Gulf-stream phenomenon, which includes such features as the entrainment of open ocean water which contributes to the increase in mass transport in the boundary jets, the topographical control over the location of the boundary jets relative to the coast, and the meandering of the boundary jets. Flow visualization with thymol blue pH indicator technique will be used to allow photographing of the actual flow. For detailed study of the meanders thermistor velocity sensors will be planted to obtain long time series for harmonic analysis. The experimental results are compared with a theoretical solution of the flow.

Florida State University, School of Arts, Oceanography, Tallahassee, Florida 32306. Funded by: National Science Foundation, Division of Environmental Sciences.

Y. Hsueh.

00014

Microbial activity in nonaqueous systems.

Florida State University. Funded by: National Aeronautics and Space Administration. 9/15/72 - 9/14/73.

R. A. LaRock.

00015

Biloxi Bay study.

Marine geology, marine biology and oceanography.

Gulf Coast Research Laboratory, National Aeronautics and Space Administration, Earth Resources Laboratory. Funded by: National Aeronautics and Space Administration, Gulf Coast Research Laboratory June 1972 - September 1973.

J. L. Christmas, C. Eleuterius, E. Otvos, T. Lytle, H. B. Atwood.

00016

Investigations of pelagic fishes.

Marine biology, oceanography.

Gulf Coast Research Laboratory. Funded by: U.S. Department of Commerce, National Oceanic and Atmospheric Administration. National Marine Fisheries Service. July 1970 - December 1972.

J. Y. Christmas, R. S. Waller, A. M. Perry.

00017

Mississippi Sound remote sensing study.

Collect oceanographic data in Mississippi Sound for synoptic studies in cooperation with NASA remote sensing studies.

Gulf Coast Research Lab. Funded by: National Aeronautics and Space Administration. 7/71 - 6/72.

J. Y. Christmas.

00018

Tidal current regime of Mississippi Sound.

Delineation of the current regime and computation of the water exchange rates.

Gulf Coast Research Laboratory, Oceanography Section. Funded by: U.S. Department of Commerce, National Oceanic and Atmospheric Administration, Sea Grant Program. 1/73 - 12/75.

Charles K. Eleuterius.

00019

Mathematical modeling of the Louisiana coastal ecosystem with emphasis on the interaction between the shelf and the estuarine system.

This grant supports a program for the development of a mathematical model for the steady-state and time-dependent aspects of the Louisiana coastal ecosystem with an emphasis on the interaction between the shelf and the estuarine system. This study will be useful for the prediction of possible

effects and distributions of both natural products and man introduced substances.

Louisiana State University, School of Engineering, University Station, Baton Rouge, Louisiana 70803. Funded by: National Science Foundation, Division of Environmental Sciences. 6/72 - 5/73.

00020

Phase II - Hydrology of Louisiana's estuaries.

Objectives are to determine the physical and chemical characteristics of the waters of the estuaries of Louisiana, to determine the correlation of physical and chemical characteristics with relation to abundance of primary organisms, to develop data for the hydrology of the estuaries of Louisiana to be available for inclusion in an atlas of the Gulf of Mexico estuaries in cooperation with the other states of the Gulf States Marine Fisheries Commission and the Bureau of Commercial Fisheries.

Data will be collected, compiled and analyzed with regard to salinity, temperature, selected nitrogen and phosphorous compounds, tidal amplitude and cycle. Hydrological sampling will be conducted in conjunction with biological sampling to determine physical and chemical characteristics in relation to abundance of shrimp and other commercially important species, with exception of selected phosphorous and nitrogen compounds which will be collected only at selected biological stations. Where available, hydrological data will be utilized from other sources. All data will be collected, analyzed and prepared in a form which will be available and acceptable for incorporation as a section in an atlas of the estuaries of the Gulf of Mexico.

State Wildlife and Fish Comm., 400 Royal St., New Orleans, Louisiana 70130. Funded by: Commerce Department, National Oceanic and Atmospheric Administration, National Marine Fisheries Service.

H. S. Perret.

00021

Southeast Florida project.

The technical objectives of this study are to increase our understanding of the physical and dynamic properties of the ocean to facilitate the prediction systems for the various oceanographic phenomena as required to improve the marine service of NOAA. Research will be conducted on deep ocean and coastal circulation dynamics. Analysis and interpretation of

data acquired in the Gulf of Mexico and Caribbean Sea during FY 72 will proceed, and new field projects will be conducted in the Sargasso Sea and in the coastal region of SE Florida. Pelagic tide studies will be conducted in the Gulf and Caribbean, or off the coast of North Carolina. A major project will be the participation in the Mid-Ocean Dynamics Experiment. Modelling of estuarine circulation initiated in FY 72 will be accelerated.

Intensive sets of new data on currents and distribution of physical and chemical properties in the Gulf of Mexico and Caribbean Sea where the Gulf Stream originates. Results of analysis of tidal data from the eastern Caribbean have contributed materially to major restructuring of the International Deep-Sea Tides Program. Substantial progress has been made on numerical modelling of stratified estuaries, and interpretation of new NMFS data has produced a new conceptual model of circulation in the New York Bight.

Mass. Inst. of Technology, School of Science, 77 Massachusetts Avenue, Cambridge, Mass. 02139. Funded by: Commerce Department, National Oceanic and Atmospheric Administration, Environmental Research Labs. 7/72 - 6/73.

H. M. Stommel. A. Leetmaa.

00022

Effect of maintenance dredging on sediment dispersion in Mobile Bay, Alabama.

Marine Environmental Sciences Consortium. Funded by: U.S. Army, Corps of Engineers.

E. C. Brett.

00023

Fate and effects of oil in the aquatic environment - Gulf Coast Region.

Oceanography.

Mississippi State University, EPA \$1,037,236.00, 1 July 1972 - 30 June 1975.

Dr. Lewis R. Brown, Dr. James Heitz, Dr. George Pessoney, University of Southern Mississippi, Dr. Howard Miles, Dr. David Wesley, Dr. B. J. Brentham, University of Southern Mississippi, Dr. A. A. De La Cruz, Dr. Julia Lytle - GCRL, Dr. Tom McIlwain - GCRL, Dr. James Yarbrough, Dr. William Demoran - GCRL.

00024

The development of a cryogenic probe to study the soft sediments.

Oceanography.

Mississippi State University, Mississippi - Alabama Sea Grant Consortium  
\$21,163.00. 1 May 1973 - 31 December 1974.

Dr. Lewis R. Brown, Dr. Eugene Grimley, Dr. T. Wesley Lins, Prof. Graham Wells.

00025

Earth resources laboratory at Mississippi test facility.

The objectives are to: a) conduct research investigations in the Mississippi/Louisiana Gulf areas in the application of remote sensing, stressing the interests and needs of agencies in the area, b) extend these research investigations into experimental demonstration projects in cooperation with local agencies where appropriate; c) utilize existing aircraft and satellite programs as a primary source of remote sensing data, and collect and analyze surface data for correlation with these flight data; d) conduct continuing studies of user requirements of potential applications in order to guide future research efforts. The projects planned for FY 73 are in three major categories: 1. automated land use system - develop and demonstrate remote sensing techniques for land use mapping and updating including the definition/development of a prototype automated system for land use classification and update using the State of Mississippi as a demonstration area; 2. Wetlands characterization Study - develop remote sensing techniques for making those environmental measurements necessary to manage the wetlands and coastal marshlands; 3. sea remote sensing study - develop/define remote sensing systems to measure coastal water characteristics necessary for the evaluation/management of physical and marine resources.

U.S. National Aero and Space Administration, Mississippi Test Facility, Bay St. Louis, Mississippi 39520. Funded by: National Aeronautics and Space Administration, Mississippi Test Facility.

R. O. Piland.

00026

Theoretical studies in the onset of planetary motions in the ocean.

It is proposed to continue the program (supported under NSF Grant GA-14688) of long-period disturbances on steady oceanic gyres and experimental

investigations of vorticity diffusion to the ocean floor. New research programs include analytical and numerical computation of the generation of shelf motions in the Gulf of Mexico. It is also proposed to carry out a computation of the reflection of equatorial, planetary internal waves from meridional boundaries, and to reconsider the setup of the Somali Current in light of this calculation.

Nova University, Physical Oceanographic Center, Fort, Lauderdale, Florida 33316. Funded by: National Science Foundation, Division of Environmental Sciences. 12/72 - 11/73.

P. P. Niiler. D. W. Moore.

00027

Investigation of hydraulic characteristics and dynamic balance of tidal inlets along the Texas Gulf Coast.

Most of the coastline of Texas is barrier beaches backed by estuaries that are connected to the Gulf by occasional natural and maintained tidal inlets. These estuaries are important to Texas for recreation, sport and commercial fishing, oyster farming, etc. Sufficient outlets to the Gulf are needed to eliminate hypersalinity in the semi-arid southern region and to help assimilate partially treated liquid wastes as well as to provide passes from the estuaries to the Gulf for migrating fish.

The aim of this project is to improve the level of understanding of inlet mechanics by field and laboratory investigation so as to provide better criteria for the location, design and maintenance of inlets. Laboratory work will include a study of the hydraulic characteristics of inlet bed samples in a plume. Field measurements of tide differentials, currents, suspended and bed load transport, hydrography, wave climate, etc. will be conducted as needed.

Texas A & M University, Sea Grant Program Office, College Station, Texas 77843. Funded by: Commerce Department, National Oceanic and Atmospheric Administration, Sea Grant Office. 7/71 - 6/72.

R. M. Sorensen.

00028

Cruise support.

Texas A & M University, Office of University Research, College Station, Texas 77843. Funded by: U.S. Department of Commerce, National Oceanic and

Atmospheric Administration.

R. Anderson.

00029

Investigation of hydraulic characteristics and dynamic balance of tidal inlets along the Texas Gulf Coast.

Most of the coastline of Texas is barrier beaches backed by estuaries that are connected to the Gulf by occasional natural and maintained tidal inlets. These estuaries are important to Texas for recreation, sport and commercial fishing, oyster farming, etc. Sufficient outlets to the Gulf are needed to eliminate hypersalinity in the semi-arid southern region and to help assimilate partially treated liquid wastes as well as to provide passes from the estuaries to the Gulf for migrating fish. The aim of this project is to improve the level of understanding of inlet mechanics by field and laboratory investigation so as to provide better criteria for the location, design and maintenance of inlets. Laboratory work will include a study of the hydraulic characteristics of inlet bed samples in a plume. Field measurements of tide differentials, currents, suspended and bed load transport, hydrography, wave climate, etc. will be conducted as needed.

Texas A & M University System, Sea Grant Program Office, College Station, Texas 77843. Funded by: Commerce Department, National Oceanic and Atmospheric Administration, Sea Grant Office.

R. M. Sorenson.

00030

Editing of scientific results of the R/V ANTON BRUNN program.

Texas A & M University, Office of University Research, College Station, Texas 77843. Funded by: National Science Foundation.

Edward Chinn.

00031

Oceanography research - hydrocarbon study.

Texas A & M University, Office of University Research, College Station, Texas 77843. Funded by: Eleven oil companies.

R. H. Geyer.



00032

Robert H. Welch Foundation grant.

Texas A & M University, Office of University Research, College Station,  
Texas 77843. Funded by: Welch Foundation.

W. M. Sackett.

00033

Physical oceanography research.

Texas A & M University, Office of University Research, College Station,  
Texas 77843. Funded by: Woods Hale Oceanographic Institution.

W. D. Nowlin.

00034

Oceanographic survey vessel support.

Texas A & M University, Office of University Research, College Station,  
Texas 77843. Funded by National Aeronautics and Space Administration.  
Lyndon B. Johnson Space Center.

Neill C. Burnett and Richard C. Allison.

00035

Organized research oceanography and meteorology.

Texas A & M University, Office of University Research, College Station,  
Texas 77843. Funded by: Texas A & M University.

R. R. Berg.

00036

Gulf oceanography.

Texas A & M University, Office of University Research, College Station,  
Texas 77843. Funded by: U.S. Navy, Office of Naval Research.

R. H. Geyer.

00037

Assessing current regimes of an area between Mississippi Delta and Cape Sable.

Texas A & M University, Office of University Research, College Station, Texas 77843. Funded by: American Petroleum Institute.

R. A. Geyer.

00038

Numerical studies of gravity waves.

Texas A & M University, Office of University Research, College Station, Texas 77843. Funded by: Department of the Army, U.S. Army Corps of Engineers, Coastal Engineering, Research Center.

R. O. Reid.

00039

Submarine stability slope.

Texas A & M University, Office of University Research, College Station, Texas 77843. Funded by: Chevron Oil Company.

W. A. Dunlap.

00040

Wave-sea bottom interaction study.

Texas A & M University, Office of University Research, College Station, Texas 77843. Funded by: Chevron Oil Company.

R. A. Schapery.

00041

Studies on the circulation of the Gulf of Mexico and the Caribbean Sea.

Texas A & M University, Office of University Research, College Station, Texas 77843. Funded by: National Science Foundation.

T. Ichiye.

00042

Scour of Gulf Coast sand beaches due to wave action in front of sea walls and dune barriers.

The objectives of this study are: to increase the available knowledge of beach scour produced by waves by carrying out a systematic laboratory investigation involving simulated sand beaches composed of actual Texas beach sand at sea walls in laboratory flumes; the beaches being acted upon breaking waves generated by a mechanical wave generator, to find a procedure for measuring wave reflections when wave characteristic measurements can be made only in the beach zone.

For additional information pertaining to this project contact Dr. Robert C. Stephenson, Director, Center for Marine Resources, Texas A & M University, College Station, Texas 77843.

Texas A & M University System, School of Engineering, P.O. Box FE 44, College Station, Texas 77843. Funded by: Commerce Department, National Oceanic and Atmospheric Administration, Sea Grant Office. 6/72 - 5/73.

R. E. Schiller.

00043

Investigation of hydraulic characteristics and dynamic balance of tidal inlets along the Texas Gulf Coast.

The objectives of this study are: a) to increase the level of understanding of the behavior of natural and artificial Gulf Coast tidal inlets through field and laboratory research, to select representative inlets; measure the pertinent environmental factors that control their behavior (e.g. tide levels, currents, sediment characteristics, wind, hydrography); establish the relative significance of each factor; evaluate the stability of these inlets in comparison with existing theories of inlet stability.

Most of the Texas Gulf Coast consists of barrier beaches backed by bays connected to the Gulf by natural and/or artificial tidal inlets. The bays are of extreme value for recreation, sport and commercial fishing, etc., so satisfactory inlets from the Gulf are needed to provide water exchange for control of hypersalinity and assimilation of partially treated wastes navigation, and passes for migrating fish. Existing inlets are being modified and new inlets are being cut without sufficient understanding of the mechanics involved. The information obtained from this research will

provide greater insight into the mechanics of these inlets and more success in their future handling.

A field for laboratory study of Brown Cedar Cut, a natural tidal inlet on East Matagorda Bay, has been conducted and a report of the study and significant results has been published. For additional information pertaining to this project contact Dr. Robert C. Stephenson, Director, Center for Marine Resources, Texas A & M University, College Station, Texas 77843.

Texas A & M University System, School of Engineering, P. O. Box FE 44, College Station, Texas 77843. Funded by: Commerce Department, National Oceanic and Atmospheric Administration, Sea Grant Office. 6/72 - 5/73.

R. M. Sorenson.

00044

Sheer strength determination of marine sediments by means of wave energy ratios.

The objectives of this study are to determine empirical relationships between the generation and propagational characteristics of elastic waves and the engineering properties of marine sediments, in order to relate compressional body waves characteristics to sediments compressibility as defined in geotechnique, and sheer waves characteristics to sediments sheer strength.

The main method of application will be the rapid and continuous determination of the compressibility and sheer strength of marine sediments. This information is necessary to determine bearing capacity and settlement characteristics of submerged structures. The theoretical determination of the sheer strength parameters (cohesion and internal friction); of marine sediments in terms of propagated sheer wave energy has been developed.

The sheer strength analysis is performed by using mathematical analog of electromagnetic resonance in cylindrical cavities. A series of statistical relationships between water-content, sheer strength, bulk density, compressional wave velocity with depth below the sediment water interface, for silty-clay sediments from the Gulf of Mexico has been developed.

For additional information pertaining to this project contact Dr. Robert C. Stephenson, Director, Center of Marine Resources, Texas A & M University, College Station, Texas 77843.

Texas A & M University System, School of Geosciences, College Station, Texas 77843. Funded by: Commerce Department, National Oceanic and Atmospheric Administration, Sea Grant Office. 6/72 - 5/73.

W. R. Bryant. A. Delflache.

00045

The use of grasses for dune stabilization along the Gulf Coast, with initial emphasis on the Texas Coast.

To provide a researched set of specifications as to how to restore destroyed primary dunes on barrier islands. Primary sand dune construction and stabilization on coastal Barrier Islands.

Padre Island was chosen as the study site for development of technical specifications and methodologies to rebuild and/or stabilize deteriorated foredunes as natural barriers against storm surges. Bitter panicum and sea oats proved best adapted for rebuilding and stabilizing dunes. Most other native species tested proved unsatisfactory for our purposes as did 13 species exotic to the area. Experimental plantings with no more than 8% survival accumulated as much as 42.4 m<sup>3</sup>/m of beach in 50 months. Other plantings with 20% transplant survival accumulated 48.9 m<sup>3</sup>/m of beach in 50 months.

Texas Tech. University (Co-ordinated by Gulf Universities Research Consortium). Funded by: U.S. Army Corps of Engineers, Coastal Engineering Research Center. September 1968 - August 1974.

B. E. Dahl, B. A. Fall. Publications: Dahl, B. E., Bruce A. Fall and Lee C. Otteni. 1973. Vegetation for creation and stabilization of foredunes, Texas Coast. In Proceedings of the Second International Estuarine Research Conference, Myrtle Beach, S.C. on Oct. 16-18, 1973. 20 pp. (In press).

Otteni, Lee C., B. E. Dahl, R. L. Baker and Alan Lohse. 1972. The use of grasses for dune stabilization along the Gulf Coast with initial emphasis on the Texas Coast. GURC Report No. 120.

Woodard, D. W., B. E. Dahl, R. L. Baker, and Dan E. Feray, 1969. The use of grasses for dune stabilization along the Gulf Coast with initial emphasis on the Texas Coast. Year end report (1968 - 69) to Dept. of the Army, Corps of Engineers, Coastal Engineering Research Center.

Woodard, D. W., B. E. Dahl, R. L. Baker, and Dan E. Feray. 1970. The use of grasses for dune stabilization along the Gulf Coast with initial emphasis on the Texas Coast. Year end report (1969-70) to Dept. of the Army, Corps of Engineers, Coastal Engineering Research Center.

Woodard, D. W., Lee C. Otteni, B. E. Dahl, R. L. Baker, and T. W. Bilhorn, 1971. The use of grasses for dune stabilization along the Gulf Coast with initial emphasis on the Texas Coast. GURC Report 114.

Woodard, D. W. and B. E. Dahl, R. L. Baker, and D. E. Feray, 1971. The use of grasses for dune stabilization along the Gulf Coast with initial emphasis on the Texas Coast. Corpus Christi Geol. Soc. Bull. V. 11 (7): 1-53.

Woodard, D. W. and B. E. Dahl, 1971. Grasses for construction and maintenance of primary dune line on South Texas Barrier Islands. IN Second National Coastal and Shallow Water Research Conference. 2:273. (Abstract).

00046

Effects of a turbidity barrier during spoil disposal in Corpus Christi Bay.

Study success of containing siltation during spoil disposal using a barrier.

U.S. Corps of Engineers, Galveston, District. Funded by: U.S. Government. September 1973 - March 1974.

David Templet, Oceanographer, Environmental Resources Section. Richard Medina, Oceanographer, operation and maintenance Branch. Dolan Dunn, Oceanographer, Operations and Maintenance Branch. David Petit, Oceanographer, Environmental Resources Section.

00047

Salinity and temperature atlas of Louisiana estuaries.

U.S. Army Corps of Engineers, P.O. Box 60267, New Orleans, Louisiana 70160. Self funding. Completion data 1973.

00048

Summary of salinity statistics, coastal Louisiana Stations, 1946 - 1968.

U.S. Army Corps of Engineers, P.O. Box 60267, New Orleans, Louisiana 70160. Self funding. Completion date 1973.

00049

Measurement of Louisiana Coastal Shoreline.

U.S. Army Corps of Engineers, P.O. Box 60267, New Orleans, Louisiana 70160. Self funding. Completion date 1973.

00050

Wave energy studies along the Louisiana coast.

U.S. Army Corps of Engineers, P.O. Box 60267, New Orleans, Louisiana 70160.  
Self funding. Completion data 1973.

00051

Development of design criteria.

The purpose of this study is to develop and improve criteria and design relations for use in the functional and structural design of coastal works.

Data available from other projects or special field and laboratory tests are used to determine the influence of particular shore structures or improvements on resulting shore behavior and the stability for endurance of these structures for particular environmental conditions. Conformance with existing design relations is evaluated and new or changed criteria developed and published.

A shore protection manual to replace existing CERC Technical Report No. 4, "Shore Protection, Planning and Design," is 30% complete and is scheduled for printing at the end of FY 72. This will in turn be replaced by a broader scope Coastal Engineering Manual consisting of six chapters and 24 appendices. Corrosion rates of both "mariner" and ordinary steel are under study at the CERC prototype experimental groin at Pt. Mugu, California, and plans have been initiated to study corrosion of prestressing steel in selected prestressed concrete planks recently installed there. An analysis of hydrographic data for Carolina Beach inlet to evaluate response of channel system across ocean bar to dredging a deposition basin in throat of inlet was begun. Final draft was completed of annotated 300 item groin bibliography believed to include most of pertinent articles.

U.S. Army Corps of Engineers, Coastal Engine Res. Center, 5201 Little Falls Road, N.W., Washington, D.C. 20016. Funded by: Department of Defense, U.S. Army Corps of Engineers. 7/72 - 6/73.

Unknown.

00052

Mathematical models in analytical and experimental hydraulics.

The purpose of this study is to conduct research and develop utilization of new, high-level, computer-based mathematical modeling and data handling techniques for hydraulic problems to be used in conjunction with and, in

cases, to replace hydraulic models.

This project is envisioned as a long-range continuing effort to supplement and improve mathematical models and computerized data handling. The approach and model methodology will be strongly dependent on the field design problems. Work under this investigation was concentrated in the area of development of mathematical models for estuaries. A study of past and current literature has been made on various mathematical models previously developed for use in estuarine design. An interim report was published as WES MP H-71-6, Predictiong Construction Effects by Tidal Modelling. Work was continued on mathematical model development of one-dimensional salinity distributions for well-mixed estuaries. Work was completed on applications and extensions of Keulegan's lumped parameter approach to predict bay water heights and velocities in tidal inlets. A generalized numerical computational model to solve the nonlinear differential tidal hydraulic equations has been developed and programmed for the digital computer. The methodology includes the inertia effects, variable bay surface area, variable depth in the inlet, and mixed ocean tide. A method to compute an equivalent prismatic inlet for variable area inlet channels has been developed. The generalized model has been applied to Maxonboro Inlet. An earlier version without inertia effects was used to study the effects of adding a jetty at the Tillamock Bay entrance. Work has been started on mathematical modeling of thermal dispersion phenomena for large two-dimensional estuaries, such as the Trinity Bay. Development effort was initiated including equation formation and a numerical computation scheme derived for studying salinity intrusion. The density coupled flow and salinity distribution equations will be used to study salinities and currents varying lengthwise and depthwise in estuaries.

U.S. Army, U.S. Army Corps of Engineers, Waterways Experiment Station, P.O. Box 631, Vicksburg, Mississippi 39180. Funded by: Department of Defense, Army Corps of Engineers.

C. J. Huval.

00053

Coastal works evaluation.

The purpose of this investigation is to procure and develop data on all types of shore improvement structures and methods, to be used to determine their effectiveness, and to develop new criteria or changes in existing criteria applicable to functional and structural design of future structures. Data are collected both before, during, and after construction of shore structures, including repetitive surveys, material samplings, littoral forces (to extent possible), and that relating to techniques and materials of construction. Data may also be collected from prototype



experimental structures in the field, or small scale wave tank studies.

In connection with follow-up studies, data collection and processing were continued at 14 wide-ranging locations involving beaches and related projects. A final report was received from the University of Florida on a cooperative study with State of Florida to evaluate beach nourishment at Treasure Island, Fla., as well as a preliminary report concerning Key Biscayne and Virginia Key. Data collection on behavior of beach and underwater bottom slopes updrift and downdrift of prototype experimental groin structure (PEG) at Point Mugu, California, continued until November 1971, when the panel system was removed. Compilation and analysis of collected data were begun, as was planning for the next test. Preliminary analysis indicated that structure influenced the shoreline for a distance equal to about three times the groin length. Obtention and processing of the full program of data collection will continue at this site.

U.S. Army, U.S. Corps of Engineers, Coastal Engin. Res. Center, 5201 Little Falls Road, N.W. Washington, D.C. 20016. Funded by: Department of Defense, Army Corps of Engineers.

Unknown.

00054

Remote sensing of ocean currents.

Locate cyclonic boundary of loop current in Gulf of Mexico by ship and satellite.

Surface temperature signatures of baroclinic flows in the subtropics lose their characteristic quadrants due to summer insolation. Ocean color and sea state can be used to delineate the boundary in these areas if detectable from a remote sensing platform. The object of the research was to make a time history of the Loop current by ship and collect the appropriate data for analysis of the satellite observations (NOAA-2 and ERTS-1).

U.S. Department of Commerce, National Oceanic and Atmospheric Administration. Atlantic Oceanographic and Meteorological Laboratories. Funded by: National Aeronautics and Space Administration. June 1972 - June 1974.

George A. Maul.

00055

Lagrangian drifter studies in the Caribbean Sea and Gulf of Mexico.

The use of Lagrangian drifters to study the foundation of the Yucatan Current.

Physical Oceanography Laboratory, Atlantic Oceanographic and Meteorological Laboratories. U.S. Department of Commerce, National Oceanic and Atmospheric Administration. Funded by: National Science Foundation, I.D.O.E. Office. July 1971 - December 1973.

L. Molinari, Chew.

00056

SE-12 Fishery oceanography. Ocean climatology and monitoring, Gulf and Caribbean.

NMFS Southeast Fisheries Center, Miami, Florida. Gulf Coastal Fisheries Center, Galveston, Texas. Federal funds to NMFS.

Mr. Harvey Bullis, Director Southeast Fisheries Center, Dr. Robert F. Temple, Acting Director, Gulf Coastal Fisheries Center.

00057

Ongoing program of tide observations of Gulf of Mexico for sea level studies, prediction and determination of tidal datums.

The oceanographic division has an ongoing program of tide observations throughout the Gulf of Mexico which supply data for sea level studies, prediction and determination of tidal datums. The long-term stations are included on the attached control station list. Short series of various lengths have been obtained at the areas shown by red dots on the attached index maps. Data should be requested for specific areas as the need arises, due to the extensive volume of historic records.

U.S. Department of Commerce, National Oceanic and Atmospheric Administration, National Ocean Survey. Ongoing Study.

00058

An oceanographic environmental prediction experiment in the Caribbean Sea and Gulf of Mexico.

Numerical modeling of the Caribbean Sea and Gulf of Mexico.

A numerical model previously applied to the Indian Ocean will be used to predict circulation in the western Caribbean Sea and Gulf of Mexico.

The model uses observed temperature and salinity values to predict velocity field. Historical data compilation will yield a data-set input into initial diagnostic numerical modeling. Additional data compilation will provide a systematic time series of data in the Gulf of Mexico to predictive value of model. A proposed western Caribbean observational program will provide the data-set input into numerical modeling tests considering entire western Caribbean Sea - Gulf of Mexico.

U.S. Department of Commerce, National Oceanic and Atmospheric Administration, Physical Oceanography Lab, Atlantic Oceanography and Meteorological Lab. Funded by: National Oceanic and Atmospheric Administration. December 1973 - December 1975.

Dr. Robert L. Molinari. Mr. George Maul.

00059

Sea state and ocean color studies from satellites.

This task has three primary objectives: (1) to obtain ocean roughness and wind information from sun glitter patterns detected from space; (2) to obtain ocean roughness and wind information from space-derived microwave observations; and (3) to relate ocean color patterns detected from satellites to circulation features. Approach: The approaches being followed to exploit these objectives are: (1) the utilization of time-lapse photography from geosynchronous satellites to detect reflectance variations in sunglint patterns, and the utilization of north-south strips of visible SR data; (2) modelling the emission from the ocean's surface to procure wind stress information and also accounting for emissions other than from roughness alone; (3) mapping VHRR visible and ERTS imagery. Considerable information exists at low levels of reflectance that provide nearshore current information. These colors are generally related to suspended sediment load and algae and act as current tracers.

Several coastal areas have been under study including: the Great Lakes, Rhode Island Sound, Cape Hatteras, the Mississippi Delta and Monterey Bay on the West Coast.

U.S. Department of Commerce, National Oceanic and Atmospheric Administration. National Environ-Satellite Serv., Washington D.C. 20230. Funded by: Commerce Department, National Oceanic and Atmospheric Administration. National Environ Satellite Service. 7/72 - 6/73.

A. E. Strong.

00060

Structures and motions - Atlantic.

The technical objective is to increase our understanding of the physical and dynamic properties of the oceans to facilitate prediction systems for various oceanographic phenomena as required to improve the marine services of NOAA.

Research will be conducted on deep ocean and coastal circulation dynamics. A major effort will be devoted to observation of tides, currents, and physical and chemical properties of waters of the western Caribbean Sea and Gulf of Mexico. Studies of the physical processes of advection and diffusion in the southeast Florida coastal zone and in several selected estuaries, and numerical modeling of estuaries processes will be initiated. Progress: considerable progress has been made of investigation of the Loop Current in the Gulf of Mexico through synoptic surveys conducted in concert with other research groups in the area as a part of the CICHR program. However, much of the data are still in analysis. During FY 71 evaluation of equipment and development of data processing procedures for application to measurement of currents and mixing in the coastal zone were initiated. As a result of these efforts it will be possible to move on to analysis of data from several estuaries acquired in cooperation with NOS, and to initiate detailed studies of physical processes in the southeast Florida coastal zone in anticipation of a major thrust in this area, as part of the NOAA Marine Environmental Quality Program being planned for FY73.

U.S. Department of Commerce, Environmental Research Labs. Boulder, Colorado 80302. Funded by: Commerce Department, National Ocean and Atmospheric Administration. Environmental Research Labs.

D. V. Hansen.

00061

NOS CONMARGIN GEOPHYSICAL MAP INDEX: the bathymetric map of the Gulf of Mexico area.

The National Ocean Survey produces a series of Nautical Charts, of varying scale, per accompanying nautical chart catalog 1, designed to meet commercial shipping requirements. These charts are compiled from detailed hydrographic surveys conducted by NOS. These surveys, though designed primarily for nautical chart construction, may be utilized to produce detailed contoured bathymetric maps of the sea floor for use in marine geology, oceanographic and related studies. The accompanying NOS CONMARGIN GEOPHYSICAL MAP INDEX indicates the one bathymetric map available in the Gulf area.

U.S. Department of Commerce, National Oceanic and Atmospheric Administration,  
National Ocean Survey. Self-funded.

00062

Evaluation of engineering projects and estuarine data (estuarine program).

Estuarine-dependent species of the Gulf of Mexico coast comprise several of the nation's most valuable fishery resources. If the nursery grounds in the estuaries are to be preserved, it is essential that the estuarine habitat of these species be protected during and following construction of water-development projects in upland basins, estuarine systems, and coastal marshes. The increasing number, as well as complexity, of construction projects require a detailed understanding of estuaries.

It is the purpose of this project to (1) assist the branch of River Basin studies (BSFW) by reviewing all proposed construction and water-development projects affecting Western Gulf Estuaries and, when warranted, recommended remedial measures to reduce adverse project effects; (2) where practical, recommend changes in water-development projects whereby the habitat would be enhanced for the fishery resources; (3) inventory, organize, and keep current and published and unpublished data related to Western Gulf Estuaries; and (4) recommend basic research needed for protecting estuarine fishery resources.

U.S. Department of Commerce, National Oceanic and Atmospheric Administration, Biological Laboratory, Galveston, Texas 77552. Funded by: Commerce Department, National Oceanic and Atmospheric Administration. National Marine Fisheries Service.

R. J. Hoogland.

00063

Quality of water of the Texas Bays and Estuaries.

Purpose is to define conditions that sustain the water resources of the bays and estuaries of Texas. Specifically, to define the physical, inorganic and some of the organic water-quality characteristics and their areal distribution and time variation; occurrence, source, and distribution of nutrients; quantity and dispersion of suspended sediments; and occurrence, quantity, and dispersion of fresh water and return flows through the estuaries. A data network is being established to acquire knowledge about and to maintain a record of the water resources of most of the bays and estuaries of Texas. The study consists of three phases: 1) reconnaissance surveys to locate an optimum data-collection network, 2) repetitive surveys

throughout the network to determine the general chemical and physical characteristics of the estuarine systems, and 3) data collection at a reduced number of representative sites to maintain definition of the chemical and physical characteristics.

U.S. Department of the Interior, Geological Survey, Austin, Texas 78701.  
Funded by: Interior Department, Geological Survey, Water Resources Division.  
7/72 - 6/73.

D. O. Hahl.

00064

A reconnaissance of the Pascagoula river estuary, Mississippi.

The purpose of this study is to provide specific flow, dispersion, chemical, bacterial, and physical quality data to be used to verify a mathematical model of the estuary, to provide data for development of a comprehensive water-quality management and pollution-abatement plan for the Pascagoula River Basin by July 1973.

A network of tidal gages, water-discharge measuring sites, and dye-tracer injection and sampling stations will be established to determine the flow and dispersion characteristics of the Pascagoula River estuary. Samples will be collected in each low slack water after a dye dump and analyzed until dye passes out of estuary to define chemical, bacterial, and physical quality of the surface water. Salinity, dissolved oxygen, water temperature data at three selected sites during one tidal cycle will be determined.

U.S. Department of the Interior, Geological Survey, Jackson, Mississippi 39205. Funded by: Interior Department, Geological Survey, Water Resources Division.

D. E. Shattles.

00065

Hydrology of western Collier County, Florida.

Continued rapid increases in population have imposed large demands for fresh water on the Naples Municipal Water System. Extension of the well field along the coastal ridge will meet immediate and near future needs but fresh ground water supplies to meet predicted needs in 1985 will have to come from inland sources. This inland source must be protected from over drainage by existing canals, contamination resulting from land development, and salt water intrusion.

The results from this investigation will determine the locations which would most likely yield the greatest quantities of the best water quality to supply the ultimate municipal needs of western Collier County. Supplemental data will indicate the effect of the canal system on aquifer storage.

These objectives will be obtained by a reconnaissance of the two-square mile area east of Naples to determine exact locations and extent of existing canals and control structures and all works proposed for near future; series of periodic streamflow measurements at several locations in canals to determine incremental losses or increases of water within specific reaches of the canals; exploratory drilling for geologic information and more detailed information on permeability of shallow aquifer; water sampling of canals and wells to determine changes in water quality with time.

Maximum capacity of shallow coastal aquifer will be reached by 1979 or before. The city has begun plant to locate new well field in area where the aquifer is described in report as having the best quality water and in sufficient quantities to supply 50 to 100 MGD. Water-quality data from the monitoring network in the canal complex near the coastal well field indicate the surface waters to be of similar quality to canals in rural areas.

Observation data network has been expanded to collect more detailed data in areas of future well field sites. The data will be forwarded to the cooperator on a current basis. Annual summary will be published.

U.S. Department of the Interior, Geological Survey, Miami, Florida 33130.  
Funded by: Interior Department, Geological Survey, Water Resource Division.

H. J. McCoy.

00066  
Texas Gulf Coast.

ERTS imagery will be used in a study of the sources, movement, and deposition of suspended particulate matter in Texas coastal waters and the adjacent Gulf of Mexico. The imagery will provide repetitive, broad, synoptic coverage showing the distribution of turbid water masses. Supplementary imagery obtained by aircraft will be used to measure short-term rates and directions of movement of the water masses and to observe details of turbidity distribution too small to be visible on the ERTS imagery. Release of drift objects will provide further data on water movement. Shipboard measurements of temperatures, salinity, and turbidity through the water column will provide water truth data for use in the interpretation of the imagery. Besides defining the paths of suspended sediment movement, a matter of geologic interest, the study will furnish information applicable to studies of physical oceanography, marine biology, and water-borne pollutants.

To the extent that the resolution of the ERTS system permits, the imagery will also be used in studies of shoreline changes and coastal dune movement.

U.S. Department of Interior, Geological Survey, P.O. Box 6732. Corpus Christi, Texas 78411. Funded by: Interior Department, Geological Survey, Geologic Division. 7/72 - 6/73.

R. E. Hunter.

00067

Numerical simulation of hydrodynamic processes in rivers estuaries and embayments.

The broad objectives of this study are to thoroughly explore the hydrodynamics of one, two, and three-space dimensional transient flows in waterways and waterbodies (including the transport and interaction of constituents), and to develop the mathematical numerical techniques with which to simulate these processes. The ultimate goal is to provide the hydrologist with a simulation system comprised of rational mathematical/numerical models with which to evaluate the effect of past, present, and projected changes in prototype waterbody systems.

Mathematical models, comprised of sets of nonlinear, partial, differential equations, are derived representing various transient flow conditions. Numerical techniques are developed to simulate the various flow regimen represented by the models. Field data gathered at specific field sites and/or hypothetical data reflecting a projected change is used to provide the necessary boundary-condition information and driving function with which to particularize model solution. The simulation processes are accomplished using large-capacity, high-speed digital computers and video-graphic output equipment.

U.S. Department of the Interior, Geological Survey, Arlington, Virginia 22209. Funded by: Interior Department, Geological Survey, Water Resources Division. 7/72 - 6/73.

R. A. Baltzer.

00068

Mayport Turning Basin sediment analysis.

Analysis of sediment material for heavy metals, settleable matter, sulfur and nutrients, and biochemical oxygen demand. The research is being accomplished in connection with proposed maintenance dredging of the Mayport entrance channel and turning basin.



U.S. Naval Oceanographic Office, Washington, D.C. Funded by: Commander, Naval Facilities Engineering Command, Alexandria, Va. 3/72 - 9/73.

E. L. Ridley. Dr. R. E. Smith.

00069

Hydrodynamics and morphology of inlets on sandy coasts.

This program deals with the hydraulic and sedimentary characteristics of inlets on sandy coasts. The first year was devoted to office studies of available data. Presently, field investigations are underway at St. Mary's Entrance and at a small inlet on the Gulf Coast.

University of Florida. Funded by: U.S. Navy Office of Naval Research.

00070

Dynamics and morphology of inlets on sandy coasts.

University of Florida. Funded by: U.S. Navy. Office of Naval Research. Extends to 6/73.

O. Shemdin.

00071

Coastal engineering studies related to Florida's shoreline and beach erosion problems.

The role of inlets in contributing to the overall shoreline problems will be investigated. Special consideration will be given to the hydrographic features and sand bypassing processes at the various inlets.

Nearshore Sand Resources - A sub-bottom profile will be used to define near-shore sand resources suitable for beach nourishment purposes.

Susceptibility of General Coastline to Wave Attack - wave refraction techniques will be employed to identify areas that are particularly vulnerable to storms originating from various directions. Erosion-deposition occurrences for particular storms will be correlated with these results.

Coastal construction - The performances and effects of various types of coastal structures and practices will be assembled and interpreted in order to document the most effective solutions to Florida's coastal problems.

Setback Line - To make the necessary technical investigations in order to recommend setback lines defining the seaward limit of coastal construction throughout the various coastal counties of Florida.

University of Florida, School of Engineering, Gainesville, Florida 32601.  
Funded by: Florida State Government. 7/72-6/73.

J. A. Purpura.

00072

Wave turbulence interaction and modeling of wind in relation to AIR-SEA interaction II.

University of Florida. Funded by: U. S. Army. Extended 9/72.

O. Shemdin.

00073

Stream function representation of hurricane-generated irregular water waves.

University of Florida. Funded by: U. S. Army, 1/73-12/73.

R. G. Dean.

00074

Nearshore Circulation, Littoral drift and the sand budget of Florida.

The objectives of this project are, through field, laboratory and office studies, to develop an improved qualitative and quantitative understanding of sand transport by waves and the sand budget of Florida. Field studies to conduct traverses of surf zone by means of instrumented sea sled to gather data on waves and littoral drift; field studies to determine offshore limits of sand motion will also be conducted, 2. laboratory studies - experiments on deformable beaches will be performed and the effects of wave and/or wind induced currents will be modeled. Theoretical and computer models - based on results from 1 and 2 (above) calculation procedures will be developed to explain and predict beach response to waves and currents.

The information gathered will enable presentation of more quantitative relationship of longshore sediment transport as a function of wave energy, wave direction, beach slope, sediment size, sediment specific gravity, etc. interpretation quantitatively of the observed rates of beach erosion in Florida and along the shorelines of other states. To assign volumetric loss rates to various features, i.e. trapping by inlets, sea level rise, offshore transport, effects of structures, etc., prediction of the behavior of beach fills.

Accomplishments during past twelve months include: predictions of littoral drift have been developed for all sandy beach segments of the State of Florida, a rudimentary numerical model has been developed for predicting the effects of a large beach structure (jetty), or for predicting the behavior of a large beach nourishment project, predictions are being made

for loss rates of a beach nourishment project at Delray Beach, Florida, theoretical models have been developed to explain origin of transverse and parallel sand bars, studies are underway to document the sand-trapping history of St. Lucie Inlet, Florida, a pilot study was conducted to evaluate the laboratory use of a spiral wavemaker in conjunction with a circular beach to simulate a beach of infinite length.

For additional information pertaining to this project contact Dr. Hugh L. Popenoe, Acting Director, Center for Aquatic Sciences, University of Florida, Gainesville, Florida.

University of Florida, School of Engineering, Gainesville, Florida 32601.  
Funded by: Commerce Department, National oceanic and Atmospheric Administration. Sea Grant Office. 7/72-6/73.

Dean, Pfeffer.

00075

Wave turbulence interaction and modeling in relation to AIR-SEA interaction II.

University of Florida. Funded by: U. S. Army. Extended 12/72.

O. Shemlin.

00076

Evaluation and development of water wave theories for engineering application.

University of Florida. Funded by: U. S. Army, extended 12/72.

R. G. Dean.

00077

K. S. C. Ocean Beach Erosion.

University of Florida. Funded by: National Aeronautics and Space Administration. 4/73-6/73.

M. P. O'Brien.

00078

Beach erosion study of Captiva Island.

University of Florida. Funded by: Captiva Erosion Prevention District. 3/73-3/74.

R. G. Dean.

00079

Develop an ocean surface wave climatology for the North Atlantic Ocean.

University of Florida. Funded by: U. S. Navy, 10/73-12/73.

D. C. Bunting.

00080

Possible alternations in suspended sediment quantity type produced by offshore oil operations in the Gulf of Mexico.

University of Florida. Funded by: Gulf Universities Research Consortium. 6/73-5/74.

G. Griffin.

00081

A model relating water quality, vegetational structure and urbanization in the San Jacinto River Basin.

Correlation between vegetational structure, amount and kind of land utilization urbanization and the chemical and biological measures of water quality in the San Jacinto River Basin, Texas will be analyzed. The initial parameters will be obtained from government documents, reports already available or currently obtained (weather and hydrographic stations). These measures are assumed to be available to any metropolitan region which should give the model structural generality. Principal component analysis will be used for data reduction. Canonical correlation analysis will be used to obtain a preliminary estimate of the significant parameters. Multiple discriminant analysis will be used to identify the significant variables correlated with specific water quality stations. The data from these analyses will be used to construct a model which will characterize the present situation. The parameters of this model will then be manipulated with simulation programs in computers to attempt to predict the course and nature of water quality changes during the continued expansion of urbanization in the vicinity of Houston, Texas.

University of Houston, Graduate School, 3801 Cullen Blvd., Houston, Texas 77004. Funded by: Interior Department, Office of Water Res. 7/71-6/72.

D. L. Jameson.

00082

Optical pattern recognition.

Determine the feasibility of deducing the identities and sizes of small objects (or organisms) by a new kind of optical procedure performed on the light scattered by these objects when illuminated with a laser.

University of Houston, Electrical Engineering Department, Houston, Texas 77004. Funded by: National Science Foundation. 1/71-2/73. An additional two years funding from NSF is hoped for.

W. L. Anderson. Project based on "Counting and classifying small objects by Far-Field Light Scattering" by W. L. Anderson and R. L. Brussner. Applied Optics, Vol. 10, p. 1503, July, 1971.

00083

The effect of a reef on an ocean wave.

To determine how Flower Gardens reef in the Gulf of Mexico affects a storm wave passing over the reef.

The Marine Biomedical Institute of the University of Texas Medical College at Galveston is making plans to build an offshore research facility: The facility is to be built at the West Flower Gardens, a coral reef 110 miles SSE of Galveston. The West Flower Gardens Reef lies on the edge of the continental shelf in approximately 300 feet of water. The top of the reef is 70 to 80 feet beneath the water surface. The facility is to consist of two platforms, rigidly attached to the reef top. The design of these platforms presents a new feature in offshore design. The presence of the reef could have an adverse effect on the travel of an ocean wave over the reef. A given wave could either increase or decrease in height as it passes over the reef or it could even break (as beach waves do). The conditions for which the wave height increases or decreases or the wave breaks are presently not known for the unique geometry of the reef. The purpose of this study will be to determine what happens when a model wave passes over a model of the reef. This information will be used by designers to provide a safe design.

University of Houston, Mechanical Engineering Department, Houston, Texas 77004. Funded by: University of Texas, Medical Branch, Marine Biomedical Institute, Galveston, Texas. 11/72-12/73.

Charles Dalton, John Howell.

00084

Surface and internal waves in the inertial-tidal frequency band.

Free internal tides will be studied as related to surface tides and topographic barriers. Using a three-dimensional array of moored,

recording instrumentation (Pycnocline followers, current meters, and bottom-mounted pressure gauges), together with hydrographic techniques, internal wave motions will be directly followed. An array will be located on the continental shelf off West Florida. The primary objective of field work will be to observe the propagation properties of the surface and first order internal modes at tidal frequencies.

University of Miami, School of Marine Science, 1 Rickenbacker Miami, Florida 33149. Funded by: National Science Foundation, Division of Environmental Sciences. 6/72-5/73.

W. Duing. C. Mooers.

00085

Exchange processes on continental shelves induced by barotropic and baroclinic long waves.

This section provides support for an observation program of the physical structure of the ocean in time and space in the continental shelf region of western Florida. Unique and novel instrumentation will be developed and deployed in order that the velocities of the currents can be observed. This is the first step in increasing our knowledge of the region in order that future problems dealing with pollution and contamination may be dealt with on a knowledgeable basis.

University of Miami, School of Marine Science, 1 Rickenbacker Causeway, Miami, Florida 33149. Funded by: National Science Foundation, Division of Environmental Sciences.

C. H. Mooers, J. C. Vanleer, J. Geisler, H. Perkins, T. Lee.

00086

A study of near shore processes in Southeast Florida.

The objective is to investigate the interacting influences of the hydrodynamic environment and the sediment-biotic surface on sediment transport and bottom stability in the severely eroding Key Biscayne-Virginia Key beach and littoral drift zone. This study will combine a general survey of sedimentation, depositional history, and water movement with a detailed examination of vegetative stabilization of the nearshore bottom. The following program is planned for the period November to June, 1972: 1) determination of past shoreline changes using existing aerial photography and maps 2) diving observations and collection of sediment and bottom vegetative samples along sixteen beach-offshore profiles (laboratory analysis of samples), 3) staking and monitoring

erosion-accretion along eight beach-to-offshore profiles, 4) probing and coring in the littoral drift zone to determine character of underlying substrate and recent geologic history, 5) determination of wave characteristics in the study area by daily (visual) observations and limited measurements of current intensities and patterns, 6) procurement, adaptation and in situ testing of an electromagnetic or acoustical bottom current meter. The overall results of this project will provide the following management guidelines: 1) how much shoreline protection, bottom offer can be contrasted with a free sand bottom? 2) what effect would destruction of a certain area of vegetated bottom (by dredging, pollution outwash, sediment starvation erosion) have on the adjacent beach shoreline? 3) what rates of nourishment are necessary to stabilize beaches? What sediment sources should be used? What should be nourished (beach, vegetated bottom)?

For additional information pertaining to this project, contact Dr. Richard G. Bader, Director, Sea Grant Programs, University of Miami, Coral Gables, Florida 33146.

University of Miami, School of Marine Science, 1 Rickenbacker Causeway, Miami, Florida. Funded by: Commerce Department, National Oceanic and Atmospheric Administration, Sea Grant Office. 7/72-6/73.

E. Emiliani, S. C. Daubin, H. R. Wanless, J. Vandekreeke.

00087

Development of Egmont Key, Tampa Bay based on historical bathymetric charts of U.S.C. and G.S. and aerial photography.

Department of Marine Science, University of South Florida, St. Petersburg, Florida 33701.

T. Pyle, B. Rodgers.

00088

Nature and origin of buried "Karst" at 30 meter depths on continental shelf off Pinellas County, Florida.

University of South Florida, Department of Marine Science, St. Petersburg, Florida 33701. Funded by: State University System, Institute of Oceanography.

Pyle, J. McCarthy. D. Wallace.

00089

Professional services for digital computer model of Tampa Bay, Florida.

University of South Florida. Funded by: Department of the Army. 8/72-?

B. E. Ross.

00090

The chemical and optical properties of nepheloid waters of the N. Atlantic Ocean with special reference to the Caribbean Sea, Gulf of Mexico, and Gulf Stream system.

Properties and distribution of suspended particles.

University of South Florida, Department of Marine Science, St. Petersburg, Florida 33701. Funded by: Office of Naval Research. 1972-ongoing.

P. R. Bettzer, K. L. Carder, K. A. Fanning.

00091

Light transmissivity and suspended sediments in Anclote anchorage and St. Joseph's Sound.

Department of Marine Science, University of South Florida, St. Petersburg, Florida 33701. Funded by: Florida Power Corp.

T. Pyle, R. Clingan.

00092

Physical, chemical and geological oceanography of the Anclote estuary and adjacent Gulf of Mexico.

Numerical modeling (calibration and verification of estuarine circulation and diffusion at Anclote River power plant.

Department of Marine Science, University of South Florida, St. Petersburg, Florida 33701. Funded by: Florida Power Corp. 1970-?

T. Pyle. L. Carder of Naval Research. 1/73-12/73.

P. R. Betzer and K. L. Carder.

00093

A study of the chemical, geological and physical oceanography of the Anclote River estuary and adjacent Gulf of Mexico.

University of South Florida. Funded by: Florida Power Corp. 6/73-6/74.

K. L. Carder, L. J. Doyle, T. E. Pyle.

00094

Accumulation of suspended and flocculated sediment by oyster reefs in Mississippi coastal waters.



Oyster-dominated and adjacent oyster-free areas will be mapped and sampled by coring stations on traverses. Bottom topography will be determined by traversing with a portable recording echo sounder. Current velocities will be measured in suspended sediment. Concentration will be determined to quantitatively evaluate sediment accumulation due solely to gravity. Suspended sediment concentration change between up-current and down-current stations on reefs will quantitatively evaluate sediment removal by the reef due to trapping and active filtration by living oysters. Laboratory analyses will involve determination of 1) grain size distribution of suspended and accumulated bottom sediment, 2) weight per cent  $\text{CaCO}_3$  as a measure of in situ oyster shell fragmentation, and 3) titration of water samples for salinity.

University of Southern Mississippi, School of Science, Hattiesburg, Mississippi 39401. Funded by: Interior Department, Office of Water Resources. 7/71-6/72.

Dr. C. M. Hoskin.

00095

An analysis of the present state of knowledge of flushing and water quality in coastal canals of the Gulf of Mexico.

This investigation is planned to define the present state of knowledge of flushing in coastal canals. This will be done through consultation with regulatory agencies in areas where such canals have existed for some time. All factors which contribute to changes in water quality in the canals will be evaluated for several areas in which geologic and oceanographic processes contribute in different ways to the flushing and to the biologic assemblages found in the canals.

University of Southern Mississippi, Hattiesburg, Mississippi. Funded by: Department of Interior, Office of Water Resources Research. 7/73-6/74.

L. Paulson, Jr., F. Pessoney.

00096

Padre Island - Laguna Madre ecosystem study. A tide and circulation study of upper Laguna Madre.

Select and identify stations in the Laguna Madre and then collect and analyze water level records over a year's time.

Determine volume of water moving in and out of study site, to determine the primary and outflow channels and thus the most flushed sections of the area. To determine current speeds associated with wind drift and tidal motions and the characteristics of the wind tides and astronomical tides.

University of Texas, Marine Science Institute at Port Aransas, Texas.  
Funded by: U. S. Department of Interior. 8/73-8/74, then continued  
monitoring.

Dr. Ned Smith.

00097

Nearshore circulation study off South Texas.

Temporal and spatial characteristics of nearshore current.

To understand temporal and spatial characteristics of nearshore current,  
a time series analysis of current data obtained from moored recording  
current meters will be utilized.

University of Texas, Marine Science Institute. Unfunded at Present.  
1/72-?

Dr. Ned P. Smith.

00098

Horizontal dispersion in shallow estuaries of irregular shape.

This proposed research involves the development and verification of a  
numerical model to evaluate transport characteristics in shallow vertically-  
mixed estuaries of irregular shape. The model is designed to assist in  
developing water quality requirements and evaluating the assimilative  
capabilities of the shallow irregular estuaries found along the Gulf  
Coast of the United States.

The study includes the following three phases: 1) adaptation of an  
explicit numerical model of the two-dimensional convective dispersion  
equation to the irregularly-shaped estuary, 2) evaluation of the  
dispersion coefficients from graphical and analytical considerations of  
the circulation and scale of turbulence in the estuary, 3) verification  
of Phases 1 and 2 in a hydraulic model and then in the field.

University of Texas, School of Engineering, 200 W. 21st, Austin, Texas  
78712. Funded by: Interior Department, Office of Water Resources  
Res. 9/71-8/72.

F. D. Masch.

PETROLEUM INDUSTRY  
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00001

Potential onshore effects of deepwater oil terminal related industrial development.

Council of Environmental Quality. Funded by: National Technical Information Service. U. S. Department of Commerce.

(Deepwater terminals impacts onshore).

00002

Aquacultural and resource utilization studies in estuarine oil pipeline canals in Louisiana.

Mariculture of shrimp and catfish in brackish water pipeline canals. Management of pipeline canals in estuarine marsh for greatest biological productivity.

Department of Biological Sciences, Nicholls State University, Thibodaux, Louisiana 70301. Funded by: National Sea Grant Program, National Oceanic and Atmospheric Administration. February 1972-August 1974.

Dr. A. H. Harris, Dr. R. Kilgen, Mariculture: resource, utilization, pipeline canals, estuarine.

Publications:

Harris, A. H., R. H. Kilgen and D. Kraemer. Mariculture in estuarine oil-pipeline canals in Louisiana. Proceedings of the fourth annual workshop. World Mariculture Society. L.B.U. Division of Continuing Education. 1973.  
Kilgen, R. H. and A. H. Harris. Length, weight relationships and condition coefficients of fishes trapped in brackish-water oil field pipeline canals in Louisiana Coastal marshes. Presented at 47 Annual Meeting of the Louisiana Academy of Sciences. 1973.

Kilgen, R. H., A. H. Harris and D. Kraemer. Standing crops of natural fish populations in brackish-water oil field pipeline canals. Proceedings of the 4th Annual Workshop World Mariculture Society. L.S.U. Division of Continuing Education. 1973.

00003

Estuarine Pipeline Canals

The objectives of this project are: 1) to determine the suitability of estuarine pipeline canals as impoundments for culture of channel catfish, pompano and shrimp and 2) to identify environmental management practices that can increase biological productivity of estuarine pipeline canals, thus compensating for productive marshlands destroyed when canals are dug. Approximately 4,000 acres of Louisiana's estuarine marshes are destroyed annually by canal dredging activities.

Biological data, production statistics and management practices resulting from this study will enable assessment of risks and benefits associated with similar ventures on a larger scale. At the conclusion of the two-year study, a detailed ecological management plan will be developed for the



network of closed canals located on property of the Louisiana Land and Exploration Company, a participating commercial sponsor, which will enable this organization to implement a pilot demonstration project. Features of this plan will probably include water control structures and operating guidelines that respond to the physiological needs of natural species as those to be cultured. Plans for the future contemplate follow-up liaison with the landowner and open dissemination of demonstration project results to other operators with similar resource problems.

Nicholls State University, Graduate School, Thibodaux, Louisiana 70301.  
Funded by: Commerce Department, National Oceanic and Atmospheric Administration, Sea Grant Office. 8/72-7/73.

Dr. A. Harris, R. Kilgen. (Pipeline canals: beneficial uses: fish culture areas).

00004

Louisiana Superport studies.

Research/ports, harbors and offshore terminals.

Project provides an administrative mechanism through which the university's sea grant capabilities can be marshalled to assist several state and private interests in developing a "superport" facility in Louisiana offshore waters. Particular emphasis is devoted to environmental safeguards, economic justification, legal questions, and engineering data needs. Superport development represents a major opportunity for application of new knowledge and methodology produced in the Systems Ecology, Coastal Zone Planning and Development, and Law and Socio-Economics program areas of the LSU Sea Grant program.

The project has made a quick-response multidisciplinary capability available to the State Planning Office and the Louisiana Deep Draft Harbor and Terminal Authority for assessment of problems associated with deep draft port construction and continues to support these efforts through formulation of environmental protection plans and conduct of baseline environmental studies. Information provides a technical basis for promulgation of Louisiana's Deep Draft Harbor and Terminal Act, as well as to aid private interests in complying with provisions of the act relative to environmental impacts.

Louisiana State University's Center for Wetland Resources, Baton Rouge, Louisiana 70808. Funded by: U. S. Department of Commerce, National Oceanic and Atmospheric Administration, Office of Sea Grant. August 1974.

J. H. Stone (Department of Marine Sciences). Publications: Completed first-phase study on Louisiana Superport development. Report includes initial data analysis and preliminary recommendations to the State Deep Draft Harbor and Terminal Authority on topics including law, engineering, economics and environment. Completed report of Sea Grant/CEQ sponsored study on "Environmental Impact of a Superport off the South Central Louisiana Coast." Completed first draft of "Environmental Protection Plan"

for Louisiana Deep Draft Harbor and Terminal Authority. Initiated environmental assessment study for Louisiana Offshore Oil Ports, Inc. (LOOP).

00005

Pile Conductor Test Program.

Texas A & M University, Office of University Research, College Station, Texas 77843. Funded by: Brown and Root, Inc.

T. J. Hirsch.

00006

Seadock environmental study.

Texas A & M University, Office of University Research, College Station, Texas 77843. Funded by: Seadock Environmental Committee.

Roy W. Hann, Jr.

00007

Natural hydrocarbon seepage study.

Texas A & M University, Office of University Research, College Station, Texas 77843. Department of Commerce, National Oceanic and Atmospheric Administration.

R. A. Geyer.

00008

Offshore port study.

Texas A & M University, Office of University Research, College Station, Texas 77843. Department of Commerce, National Oceanic and Atmospheric Administration.

J. Bradley.

00009

Impact of Texas deepwater terminals.

Texas A & M University, Office of University Research, College Station, Texas 77843. Funded by: National Oceanic and Atmospheric Administration.

Daniel M. Bragg.

00010

Offshore pipelines.

Texas A & M University, Office of University Research, College Station, Texas 77843. Department of Commerce, National Oceanic and Atmospheric Administration.

Richard Dominguez.

00011

Environmental impact of a superport in the Galveston-Freeport area.

Objectives of this study are: 1) to establish within the limits of available data the existing environmental conditions at the proposed site and 2) to predict and/or document: (a) the effects of a hypothetical or real oil spill at/or near the proposed site, (b) the effects of construction, (c) the effects of operations.

This will be part of an inter-institutional effort and the points made in a March 17, 1972, memorandum to Dr. H. McLellan, NOAA from the Executive Office of the President, Council on Environmental Quality, are agreed to.

The information has been specifically requested by a task force of the Council on Environmental Quality. This task will be reported upon schedule (15 October 1972) to the Office of Sea Grant where it is understood the several reports will be used to prepare a single report to C.E.O.

For additional information pertaining to this project contact Dr. Robert C. Stephenson, Director, Center for Marine Resources, Texas A & M University, College Station, Texas 77843.

Texas A & M University System, Graduate School, College Station, Texas 77843. Funded by: Commerce Department, National Oceanic and Atmospheric Administration. Sea Grant Office.

W. P. James, R. W. Hann.

00012

Evaluation of petroleum producing capacity in Texas and Louisiana.

Evaluate petroleum production activities.

Objective to estimate productive capacity and determine capabilities in meeting future increased demands for domestic crude oil.

Bureau of Mines, Intermountain Field Operation Center, Dallas, Texas. Funded by: Bureau of Mines. July 72-January 74.

W. J. Alexander

00013

Depth producing rate classification of petroleum reservoirs.

Objective is to classify crude oil production in the United States by depth and producing rate. Results are to be reported by state and subdivisions in Texas and Louisiana.

Bureau of Mines, Intermountain Field Operational Center, Dallas, Texas.  
Funded by: Bureau of Mines. July 73-April 74.

Information circular: "Depth producing rate classification of petroleum reservoirs" scheduled for completion in 4th Quarter F. Y. 1974.

00014

Drilling activities on crude oil and natural gas reserves (Part II Gulf of Mexico offshore areas).

Knowledge of hydrocarbon availability to forecast amount of imports necessary and estimate alternative sources of supply.

Objectives are: (1) to show factors limiting rate of discovery under revised Federal leasing schedule and (2) estimate annual crude oil, condensate and natural gas production through 1985 from Federal offshore areas off Louisiana and Texas.

Bureau of Mines, Intermountain Field Operations Center, Dallas, Texas.  
Funded by: Bureau of Mines. July 1972-January 1974.

Information circular: L. K. Weaver "Drilling Activities on Crude Oil and Natural Gas Reserves (Part II Gulf of Mexico Offshore Areas). 4th Quarter. Fy 1974.

00015

Consumption of natural gas.

Questions of gas allocations.

Objective is to study the feasibility of determining consumption patterns in Texas and Louisiana to provide data for considering allocation of supply.

Bureau of Mines, Intermountain Field Operation Center, Dallas, Texas.  
Funded by: Bureau of Mines. July 1973-April 1974.

R. W. Martin "Consumption of Natural Gas" 4th Quarter, Fy 1974.

00016

The legal framework affecting offshore oil terminals.

The Texas Law Institute of Coastal and Marine Resources. 1973.

Prof. Eliezer Erel.

00017

Possible alternations in suspended sediment quantity type produced by offshore oil operations in the Gulf of Mexico.

University of Florida. Gulf Universities Research, Consortium. 6/73-5/74.

G. Griffin.

00018

Offshore oil ecology study.

University of Texas, Marine Science Institute at Port Aransas, Texas 78373.  
Funded by: Gulf University Research Corporation.

Dr. Miget. Dr. Kator.

POLLUTION  
CURRENT AND RECENT RESEARCH

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Louisiana State University

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00001

Effects on water quality when dredging a polluted harbor using confined spoil disposal.

Alabama Marine Resources Division, Dauphine Island, Ala. Funded by:  
U. S. National Marine Fisheries Service, U. S. Corps of Engineers.

Edwin B. May.

00002

Breton Sound Oil Pollution. Alpine Geophysical Assn., Inc., 55 Oak St.,  
Norwood, New Jersey 07648. Funded by: Environmental Protection Agency,  
Office of Water Programs.

J. Hirshman.

00003

Documentation of Breton Sound Oil Pollution Incident.

The purpose of the study is to document effects of the March 1970, oil spill  
in Breton Sound, Gulf of Mexico and assess the effectiveness of measures  
tried to contain and cleanup the spilled observations, interviews and  
collection and correlation of data generated by key participants and  
observation on the scene.

Alpine Geophysical Assn., Inc., 55 Oak St., Norwood, N. J. 07648.  
Environmental Protection Agency, Office of Water Programs.

J. Hirshman

00004

Virological studies for St. Petersburg effluent irrigation research project.

Study of problems associated with filtration of viruses contained in sewage  
effluent sprayed onto land. This is part of a land improvement study being  
done by the City of St. Petersburg, Florida.

Studies completed to date have shown that: A. activated sludge treatment  
plants incorporating both pre- and post-chlorination do not produce a virus-  
free effluent. B. some of the virus particles in the effluents do survive  
spraying onto the ground of the field. C. viruses have been found in  
sewage effluents that have percolated through five feet of sandy soil at  
an application rate of 11 inches per week.

Epidemiology Research Center, Bureau of Research, Florida Division of Health,  
Tampa, Florida. City of St. Petersburg, Florida, Feb. 1972-?

Dr. Flora Mae Wellings.

00005

Demonstration of the limitations and effects of waste disposal on an ocean shelf.

The purposes of this study are: A. to discover the details and mechanisms of nearshore circulation and its effect upon the distribution of effluent from the outfalls, B. to demonstrate the effects of the Boca Raton outfall discharge (completion date, Sept. 1969) on water quality and upon the marine organisms of the water and the bottom, C. to determine the maximum quantity of effluent which can be discharged per unit of cost per day without significant water quality degradation, physical or aesthetic, D. to investigate bacteriological and virological consequences of discharge of raw human sewage on this unique continental shelf.

Florida Ocean Sci. Inst. Inc., Deerfield Beach, Florida 33441. Funded by: Environmental Protection Agency, Office of Water Programs.

R. F. McAllister.

00006

Pollution.

Florida State University, Franklin City, Florida, Dates 10/72-10/73.

R. J. Livingston.

00007

Effects of cattle ranch on Appalachicola Bay.

Florida State University. Florida Department of Pollution Control. 9/92-9/73.

R. J. Livingston.

00008

Off-shore oil platforms, effects on marine community.

Florida State University, Gulf Universities, Research Consortium. 9/72-5/73.

R. J. Menzies.

00009

Sources and transport, trace metals/urban aerosols.

Florida State University. Environmental Protection Agency, 4/73-3/74.

00010

Petroleum effects in marine environment.

Florida State University. Int. Decade Ocean Exploration (IDOE): 3/73-8/75.

J. A. Calder.

00011

Insecticides on estuarine animals of the northern Gulf Coast of Florida.

The objectives of this project are: 1) a quantitative field survey of Apalachicola Bay will be continued with an emphasis on important commercial species that use the area as a nursery. A computer program will be developed to allow estimates of long-term changes in aquatic populations, 2) in conjunction with the field survey, a comprehensive pesticide residue analysis will be made to determine the extent of the biological concentration of chlorinated hydrocarbon pesticides in important aquatic food chains. This will be compared to sediment and animal samples taken from other parts of the drainage system (Lake Seminole) to determine the movement of such pesticides through the environment, 3) chronic laboratory tests will be conducted on the behavior of certain estuarine organisms to allow increased understanding of the field data with respect to avoidance of pesticides, seasonal fluctuations of pesticide susceptibility, etc.

Assessment of possible economic effects of agriculturally applied pesticides on the fauna of the Apalachicola drainage system will assist in evaluating the effects of the massive fire ant program (Mirex) in Georgia.

Accomplishments during past twelve months include: 1) a field program was initiated in Apalachicola Bay to make quantitative determinations of estuarine populations and to determine the levels of pesticide contamination in the area for comparison with upland portions of the drainage system (Lake Seminole). 2) Computer programs were developed to determine species diversity, evenness, community interactions, etc. 3) Laboratory systems were established for pesticide residue analysis and the development of a program to determine the chronic effects of pesticides on the behavior of various estuarine organisms.

Florida State University, School of Arts, Tallahassee, Florida 32306.  
Funded by: Commerce Department, National Oceanic and Atmospheric Administration, Sea Grant Office. 7/72-6/73.

R. J. Livingston, N. P. Thompson.

00012

Evaluation of a periodic flushing system for combined sewer cleansing.

This is a continuation grant for the fifth and final year of a demonstration grant. The objectives are to determine the best type of bedding arrangements and the most suitable materials to be used in laying sewer pipes in the Gulf Coast area. Investigations also will be conducted on the performance of manholes, tees and other appurtenances. Infiltration studies will continue of three in-use sections of sewer lines. This final year will be used in filling voids in the needed data and the preparation of the final report which will contain a manual section of recommended materials and practices.

F.M.C. Corporation, 1185 Coleman Ave., Santa Clara, California 95050.  
Funded by: Environmental Protection Agency, Office of Water Programs.

J. Pelmulder.

00013

Microflora of the Bay of St. Louis - pollution indicator and mineralizing bacteria.

To conduct baseline studies on the microbial population in the waters and sediments of the Bay of St. Louis.

Gulf Coast Research Lab. Funded by: U. S. Department of Commerce,  
National Oceanic and Atmospheric Administration. 6/71-12/72.

David W. Cook.

00014

Oyster Reef Survey.

Survey of the amounts of oysters in areas closed to harvesting due to excessive contamination from human waste sources and plans for delaying same for ultimate marketing.

Gulf Coast Research Lab. Mississippi Marine Conservation Commission 9/71-6/72.

William J. Demoran.

00015

Distribution of pollution indicator bacteria in the waters of Biloxi Bay, Mississippi and the adjacent Mississippi Sound.

Keywords: Pollution indicator, bacteria, coliforms, fecal coliforms, estuarine.

Gulf Coast Research Laboratory, Microbiology Section, Ocean Springs, Mississippi 39564. Funded by: State of Mississippi. September 1972-continuous.

D. W. Cook. Report: Coliform and faecal coliform bacteria distribution in Biloxi Bay, Mississippi for September 1972 through July 1973. David W. Cook, Microbiology section Gulf Coast Research Lab. 1973.

00016

The effect of mirex and Carbofuron on estuarine micro-organisms.

Gulf Coast Research Laboratory, Microbiology section, Ocean Springs, Mississippi 39564. Funded by: Environmental Protection Agency. July 1973-December 1974.

D. W. Cook.

00017

Distribution and concentration of lead, mercury, arsenic and cobalt in suspended particulates and bottom sediments - upper Florida Keys and Florida Bay.

Distribution of toxic metals in suspension and in bottom sediments.

Sea water samples (151) are collected and filtered and subjected to atomic absorption analysis. Neutron activation analysis also may be employed. Other data collected with sea water samples are: salinity, temperature, dissolved oxygen, turbidity, current strength and direction and water depth. Bottom samples will be collected during the summer of 1974 (along with more water samples).

Harbor Branch Foundation Laboratories, Fort Pierce, Florida and Rice University, Department of Geology. Self funded.

J. P. Manken, J. J. W. Rogers and C. M. Griffin.

00018

Nitrate removal from water at the water-mud interface in swamps, marshes and flooded soils.

Louisiana State University Agricultural Experiment Station, Baton Rouge, Louisiana. Funded by: Environmental Protection Agency 10/71-9/72.

00019

Nitrate removal from water at the water-mud interface in swamps, marshes and flooded soils.

Find out how rapidly, how completely and by what mechanism nitrate is removed by biological reduction from shallow surface water in swamps,

marshes and flooded soils in the Gulf Coast area. Determine the oxidation-reduction properties of the water-mud interface that control or influence the reduction of nitrate to nitrogen gas.

Biological and chemical factors in flooded soils and swamp sediments that are responsible for denitrification losses of dissolved nitrate will be determined. Nitrate reduction rates will be determined on a large number of flooded soils and swamp sediments. Oxidation-reduction properties of flooded soils and swamp sediments will be studied using labelled nitrogen compounds in order to follow the pathway by which nitrate dissolved in shallow flood water is returned to the atmosphere through denitrification in the anaerobic portion of the water-mud system.

Redox potential, reduced forms of manganese, iron and sulfur, and nitrate and ammonium nitrogen in the profile were used to evaluate the thickness of the aerobic layer of a flooded soil. The sulfide profile indicated the thickest aerobic or oxidized layer, the manganese profile indicated the thinnest aerobic layer and the iron profile was intermediate. The aerobic layer increased in thickness with time for all chemical systems. The aerobic layer was depleted of ammonium, nitrogen and accumulated nitrate, although the amount of nitrate in the aerobic layer did not account for the large loss of ammonium from this layer. Nitrification and denitrification were probably both proceeding at the same time in the aerobic-anaerobic double layer.

Louisiana State University, Agriculture Experiment Station, Baton Rouge, Louisiana. Funded by: Environmental Protection Agency. 7/72-6/73.

00020

Effects of varying levels of petroleum on wildlife and plants of Louisiana.

Louisiana State University, Agricultural Experiment Station, Baton Rouge Louisiana. Funded by: Louisiana State Government, American Petroleum Institute, Wildlife Management Institute. 1970-1973.

P. H. Chabreck. Publications: Geehart, James L., 1973. The effects of varying levels of crude oil on plants of the Louisiana coastal marshes Unpubl. master's thesis. La. State University, Baton Rouge, Louisiana. 77 p.

Chabreck, R. H., 1973. The effects of oil spills on birds in the Louisiana coastal marshes. La. Acad. of Sci. (In press).

00021

Geochemistry of cadmium in a salt marsh ecosystem.

Research/pollution - metals.

The objective of this proposed research is to study the "in vivo" geochemical reactivity of the trace metal, cadmium, in a salt marsh ecosystem.



Data collected during the study will be used to determine the residence sites and rate of uptake and release of the element by the environment. It is important to have this kind of information about cadmium because it is an essential trace substance in some biological systems and toxic in others. Geochemical affinities suggest the data for Cd may be used to predict the behavior of Cu, Zn and Pb in the marsh. In the course of the research, background values for Cd and the other elements listed above will be assessed by measuring their abundance in the sediments, marsh grass and shellfish.

Information obtained by this research will provide essential baseline data on the behavior of Cd in the environment. The results can be used to evaluate the role of the salt water marsh as a potential sink for Cd and define the organisms that may introduce large quantities of the element into the food chain. The controlled experiments on Cd uptake and release will supply reaction rate data for incorporation in predictive modeling of trace element distribution in the ecosystem. This research will assist in evaluation of the environmental impact of man generated changes in the system by dredging, drainage, mariculture or waste disposal. In particular, the analyses of shellfish should be useful to the commercial fishing interests in the area.

Louisiana St. University, Center for Wetland Resources, Baton Rouge, Louisiana 70803. Funded by: U. S. Department of Commerce, National Oceanic and Atmospheric Administration, Office of Sea Grant. August 1974.

R. E. Ferrell (Department of Geology)

00022

Enrichment of marsh habitats with organic wastes.

Research/pollution - organic wastes.

The objectives of this project are 1) to identify beneficial uses for organic wastes with high nutrient levels in brackish and saline water marsh habitats; 2) assess changes in community structure and function accompanying waste water application; 3) assess hazards to human health associated with disposal of primary and secondary treatment effluents utilized in this manner. There are many needs for disposal of waste waters of high organic content in the coastal marsh zone. Menhaden processing plants in the area are required to reduce organic content of effluents to low levels by 1973. Many communities in the area have sewage disposal problems that cannot be solved by discharge of waste water into the sluggish and densely populated bayous. Means of disposal that will have minimal environmental effect and public health impact are badly needed. Cooperative program with Louisiana Water Resources Institute.

Louisiana State University, Center of Wetland Resources, Baton Rouge, Louisiana 70803. Funded by: U. S. Department of Commerce, National Oceanic and Atmospheric Administration, Office of Sea Grant. 6/74.

W. G. Smith and J. W. Day, Center for Wetland Resource.

00023

Hydrocarbon occurrence in chronically stressed environments.

Pollution - oil spills.

Overall objective is to identify characteristics of areas subject to long-term low level hydrocarbon discharge, e.g., old oilfields in terms of hydrocarbon species and concentrations versus unstressed areas. Specific objectives are the following: A. measure concentrations and distributions of hydrocarbons in C11 through C35 range in marsh and estuarine bottom sediments, vegetation and tissues of high trophic-level organisms; B. determine changes in hydrocarbon types and concentrations occurring in sediments as functions of time and depth of burial; and C. measure occurrence of light hydrocarbons in sediments and water column which may be produced as a result of bleedwater discharge. Information will support studies directed towards understanding ecological changes in estuarine areas resulting from oilfield development activities.

Information will contribute towards methodology for positive definition and determination of physical aspects of hydrocarbon pollution.

Information will establish scientific basis for regulatory practices of state agencies aimed at controlling cumulative effects of oilfield development practices.

Louisiana State University, Center for Wetland Resources, Baton Rouge, Louisiana 70803. Funded by: U. S. Department of Commerce, NOAA, Office of Sea Grant. Completed by 8/31/76.

T. Whelan (Dept. of Marine Science).

00024

Hydrocarbonoclast yeasts in shellfish producing areas along the Louisiana Coast.

The major objectives are: A. increased knowledge of the role of single and mixed species in the breakdown of hydrocarbons in oil contaminated sediments, B. selections of species which, if present, would be indicative of hydrocarbon contamination, C. selection of species which, when introduced into oil contaminated environments, might accelerate the degradation of oil in sediments.

Louisiana State University, School of Agriculture, University Station, Baton Rouge, Louisiana 70803. Funded by: Environmental Protection Agency, Office of Water Programs.

Prof. S. P. Meyers.

00025

The microflora of the Bay of St. Louis and its relationship to the food web.

The objective of this proposal is to quantitatively and qualitatively establish the baseline concentrations of microorganisms in the Bay of St. Louis. Particular emphasis will be placed upon sulphate reducing-hydrocarbon-utilizing microorganisms, nitrate reducing-hydrocarbon utilizing microorganisms and microorganisms resistant to a variety of different biocides. Variations in microbial population caused by low levels of biocides have been observed and the data is being evaluated in terms of its significance to the overall ecological balance of an estuary.

Mississippi State University. Funded by: University of Mississippi, Medical Center, 7/71-6/72.

Lewis R. Brown.

00026

Effects of mirex and carbofuran on estuarine microorganisms.

Mississippi State University. Funded by: Environmental Protection Agency, \$74,215.00. 7/1/73-12/31/74.

Dr. Lewis R. Brown, Dr. Earl Alley (Miss. State Chemical Lab), Dr. David W. Cook (CGRL)

00027

The prediction of ecological alterations caused by pollutants.

The objectives of this study are: A. to establish "baseline" ecological conditions in the area involved, B. determine the effects of various pollutants individually and collectively on the biota of the area, C. construct the mathematical models necessary for predicting the dissemination of materials in the given areas and D. to establish "pilot plant ecosystems" for testing the mathematical models as well as the effects of pollutants on simulated ecologies.

The successful establishment of the "pilot plant ecosystems" coupled with the derivation of practical pollution dissemination models will make it possible to predict the ecological effects of pollutants on specific estuarine ecosystems. Additionally, it is anticipated that the "pilot plant ecosystems" will be employed in 1) developing new pollution abatement methods, 2) testing environmental monitoring systems, 3) assist in studying remote sensing system and 4) developing ecological reclamation methods.

The information obtained will 1) serve as a baseline for comparisons to be made to similar ecological areas already polluted and 2) generate sufficient data for initiating attempts to simulate this estuarine environment in the "pilot plant ecosystems." For additional information pertaining to this project contact Dr. Sydney D. Upham, Director, Universities Marine Center, P. O. Drawer AG, Ocean Springs, Mississippi 39564.

Mississippi State University, School of Arts, 102 Experiment Station Building, State College, Mississippi 39762. Funded by: Commerce Department, National Oceanic and Atmospheric Administration Sea Grant Office. 3/72 - 2/73.

L. Brown.

00028

Utilization and conservation of the Mississippi Coastal Zone.

The objective of this program is its intelligent exploitation of marine resources in equipoise with conservation of the environment; to provide technical data and recommendations based on this data to Mississippi agencies and officials of Mississippi to enable intelligent use of that state's marine resources. The four part theme includes marine and coastal law; prediction of ecological alterations caused by pollutants; fisheries development; and marine problems as they relate to industrial, social, and political development of the Gulf Coast Region.

Mississippi State University, Graduate School, 113 Hilbun Hall, State College, Mississippi 39762. Funded by: Commerce Department, National Oceanic and Atmospheric Administration, Sea Grant Office, 7/72 - 6/72.

S. Upham.

00029

A study of coliform bacteria and Escherichia Coli on polluted and unpolluted oyster bottoms of Mississippi.

The objectives of this study are: a. to establish a regular sampling program on transects across Mississippi Sound and extending from fresh water to the Gulf of Mexico and on selected polluted and unpolluted oyster reefs, b. to perfect technique for collecting comparable samples, c. to compare the bacterial flora from polluted and unpolluted areas of Mississippi Sound and adjacent waters, especially as it relates to sewage polluted oyster beds.

State Marine Conservation Commission, Ocean Springs, Mississippi 39564. Funded by: Commerce Department, National Oceanic and Atmospheric Administration, National Marine Fisheries Service. 7/71 - 6/72.

Dr. G. Gunter.

00030

Characterization of seafoods processing wastewaters.

The primary objectives of this grant are to develop waste profiles on: a. the Pacific NW Seafood Processing Industry (tuna, bottom fish, crab, clams, shrimp, salmon wastes, and by-products); b. the South Atlantic menhaden; c. The South Atlantic and Gulf of Mexico Shrimp Processing Industry. A total of fifteen processing plants will be monitored; six Pacific NW plants, four South Atlantic Menhaden plants, and a total of five South Atlantic and Gulf of Mexico Shrimp processing plants. Waste profiles will include, but not be limited to: flow, temperature, dissolved oxygen, pH, total solids, dissolved solids, volatile solids, settleable solids, suspended solids, chemical oxygen demand, 5-day biochemical oxygen demand, ultimate biochemical oxygen demand, oil, grease, and complete nitrogen and phosphorus analysis.

Oregon State University, School of Agriculture, 126 Agriculture Hall, Corvallis, Oregon 97331. Funded by: Environmental Protection Agency, National Environ. Res. Center. 7/72 - 6/73.

M. R. Soderquist.

00031

Hydrocarbon studies.

Objectives of this study are: a. to locate and study natural hydrocarbon seeps in the Gulf of Mexico, b. to determine the amount and nature of discharge and the area of dispersal, c. to develop methods of chemically identifying and discriminating between hydrocarbons of different sources, d. to develop instruments for detecting dissolved hydrocarbons, e. to study the impact upon the ecology by naturally occurring hydrocarbons. The information will be used to determine sources of natural pollution and possible methods to curtail them. Ultimately it should be possible to identify the source of a pollutant by a chemical analysis.

Accomplishments during past twelve months include: a. location of several natural seep sites and videotaped discharges, b. conduction of beach patrols between Brownsville and Port Arthur to evaluate beach tar deposits, c. examination of tar samples by 11 analytical techniques to evaluate fingerprinting methodology, d. adaptation of instrumentation to measure hydrocarbon content in water to locate seep sites, e. initiation of studies of the biological impact of oil seeps on aquatic life in the adjacent area, f. initiation of studies of tar aging. For additional information pertaining to this project contact Dr. Robert C. Stephenson, Director, Center for Marine Resources, Texas A & M University, College Station, Texas 77843.

Texas A & M University System, Graduate School, College Station, Texas, 77843. Funded by: Commerce Department, National Oceanic and Atmospheric Administration, Sea Grant Office. 6/72 - 5/73.

W. Sweet, R. A. Geyer.

00032

The role of sea grasses and benthic algae in the Geochemistry of trace metals in Texas Estuaries.

The proposed research involves field and laboratory investigations of trace metal concentrations on benthic algae and aquatic angiosperms. The metals to be analyzed for include: aluminum, cadmium, chromium, cobalt, copper, lead, manganese, mercury, nickel, and zinc. Laboratory investigations include: 1) measurement of uptake of metals by cultured algae and sea grasses, 2) determination of the influence of temperature, light intensity, salinity, etc. on metal uptake by plants, 3) determination of the influence of elevated metal concentrations on growth, respiration, and photosynthesis.

Texas A & M University System, Graduate School, College Station, Texas 77843. Funded by: Interior Department, Office of Water Resources Res. 7/73 - 6/74.

B. N. Smith.

00033

Waste management project.

Objectives are: a. to develop conceptual plans for the management of waste materials in the coastal zone of the State of Texas, including evaluation of the present status of air, water, and solid waste management, evaluation of trends to be expected as the coastal zone develops, and the development and evaluation to alternative management methods for the future.

Results of this project will serve as direct input to major study of the coastal zone by the Governor's Office of the State of Texas.

Accomplishments during past twelve months include a major report covering the broad topics of waste management in the Texas Coastal Zone was prepared in draft form and published for review by the Governor's Office of the State of Texas. Specific attention was given to water pollution, air pollution and solid waste management. Specific conclusions were developed for consideration and inclusion in the final report to the Governor of the State of Texas.

For additional information pertaining to this project contact Dr. Robert C. Stephenson, Director, Center for Marine Resources, Texas A & M University, College Station, Texas 77843.

Texas A & M University System, School of Engineering, P. O. Box F. E. 44, College Station, Texas 77843. Funded by: Commerce Department, National Oceanic and Atmospheric Admins.

R. W. Hann, W. P. James.

00034

Management of industrial waste discharges in complex estuarine systems.

The objective of the project is to develop and demonstrate a hierarchy of mathematical models which may be applied to the solution of many different management problems regarding industrial waste discharges to estuarine systems. The Houston Ship Channel, Galveston Bay Complex and other Gulf Coast estuaries are much more complicated systems than the East Coast estuaries in which FWQA has considerable modeling experience. The set of models will range from one-dimensional, steady-state to three-dimensional dynamic, all having applications, depending on the type and precision of answer desired. A vast portion of the project is gathering the necessary field data for development and calibration of the various models.

Texas A & M University System, School of Engineering, P. O. Box F. E. 44, College Station, Texas 77843. Funded by: Environmental Protection Agency, Office of Water Programs. 7/71 - 6/72 multiple support funds.

R. W. Hann.

00035

Mariculture of commercial crustaceans and fishes of the upper Texas coast.

The objective is to determine the potential for use of waste heat from power plants to maximize growth, food-conversion, and survival rates of commercially valuable fishery species in mariculture. Growth, food-conversion and survival rates of brown and white shrimp, blue crabs, striped mullet, and pompano will be determined at various salinities and temperatures with controlled photoperiods. Results will suggest conditions to be tested further under semi-controlled conditions in experimental ponds utilizing waste heat from a power plant.

Dr. J. Selman Holland finished his dissertation on the effects of temperature and salinity on survival, growth, and food conversion rates of small blue crabs. Mr. Gerald P. Pfeiffer finishes his thesis on the acclimation rates to increased temperature of stripped mullet fry at several salinities. Data on growth of striped mullet fry at several salinities; cage culture of pin fish, Atlantic croakers, and pompano in an intake canal; and on temperature and salinity preference of shrimp were taken. Cannibalism has to be controlled before blue crab culture will be feasible. Juvenile blue crabs grew fastest and converted food to crabmeat the most efficiently at 29-30 degrees C.

Summer temperatures of power plant discharges in Texas are too hot for blue crab culture. A salinity of 1‰ was lethal to small blue crabs. Striped mullet fry caught on the Gulf of Mexico side of a barrier beach were adapted for stocking at low salinities and at greatly increased temperatures. Pin fish, Atlantic croakers, and pompano prospered in cages in an intake canal but temperature shock apparently hindered the stocking of these species in cages in the discharge canal.

Texas A & M University, Agricultural Experiment Station, College Station, Texas 77843. Funded by: Texas St. Government. 7/72 - 6/73.

R. K. Strawn, D. W. Aldrich.

00036

Species diversity and abundance before and after construction of Cedar Bayou generating station.

Study the species diversity and abundance of the bottom fauna, macroplankton, commercially important crabs and shrimp, and fishes, before and after the construction of the Cedar Bayou generating station.

The only observed detrimental effect on organisms was damage to the Rangia population in the immediate area of the discharge. Widgeon grass appeared to be little affected by the effluent of the plant. An increase of crustacea occurred in the intake area and a decrease occurred in the discharge area. Fish were more abundant after operation of the plant than during the same months of the previous year.

Texas A & M University System, Agricultural Experiment Station, College Station, Texas 77843. Funded by: Texas State Government. 7/72 - 6/73.

R. K. Strawn, R. D. Reimer.

00037

Isolation characterization, quantitation and biological effects of phthalates and chlorinated hydrocarbons in biota from the Gulf of Mexico.

This study will initiate an analytical program for the detection of the various types of phthalates in marine organisms and will provide support for an ongoing effort in the detection of polychlorinated biphenyls (PCB) in marine organisms. The study site will be the northwestern Gulf of Mexico, a region in which a substantial part of these man-made chemicals are manufactured. Field and laboratory studies will be carried out to determine the effects of these materials on marine life. An evaluation of the impact of PCB's and phthalates on the northwestern Gulf of Mexico will be made.



Texas A & M University System, School of Science, College Station, Texas 77843. Funded by: National Science Foundation, Division of National and International Prg. 2/73 - 1/74.

C. Giam.

00038

Moody Marine Institute

Texas A & M University System, Sea Grant Program Office, College Station, Texas 77843. Funded by: Commerce Department, National Oceanic and Atmospheric Administration, Sea Grant Office. 6/72 - 5/73.

J. C. Cahoun, W. Clayton, W. H. Clark.

00039

Movement of pesticides in soil and water.

Texas A & M University System, Agricultural Experiment Station, Agriculture, Prairie View, Texas 77445. Funded by: Agriculture Department, Agricultural Research Service, Soil and Water Conservation Res. Div.

A. S. Mangaroo.

00040

Corpus Christi channel study.

Texas A & M University, Office of University Research, College Station, Texas 77843. Funded by: Texas Water Quality Board.

R. Hann.

00041

Removal, treatment and disposal of sediments containing industrial wastes.

Texas A & M University, Office of University Research, College Station, Texas 77843. Funded by: National Oceanic and Atmospheric Administration.

J. Slowey.

00042

Control of hazardous materials in the coastal zone.

Texas A & M University, Office of University Research, College Station, Texas 77843. Funded by: National Oceanic and Atmospheric Administration.

Roy Hann.

00043

Effects of currents and waves on a floating oil slick retained by a barrier.

Texas A & M University, Office of University Research, College Station, Texas 77843. Funded by: U. S. Coast Guard Headquarters, Dept. of Transportation.

L. A. Hale.

00044

Transportation of waterborne hazardous materials.

Texas A & M University, Office of University Research, College Station, Texas 77843. Funded by: National Oceanic and Atmospheric Administration.

H. Richards.

00045

The urban modification of the atmospheric and hydrologic environment.

Texas A & M University, Office of University Research, College Station, Texas 77843. Funded by: National Oceanic and Atmospheric Administration.

J. F. Griffiths.

00046

Evaluation of selected products in waste water treatment.

Texas A & M University, Office of University Research, College Station, Texas 77843. Funded by: Boroid Division, N. L. Industries, Inc.

Richard Allison and Neil Burnett.

00047

Fate, spatial and temporal distribution of petroleum derived organic compounds.

Texas A & M University, Office of University Research, College Station, Texas 77843. Funded by: National Science Foundation.

William M. Sackett.

00048

Deep sea disposal of industrial waste.

Texas A & M University, Office of University Research, College Station, Texas 77843. Funded by: G. A. F. Corporation.

John Ball, Tom Reynolds.

00049

Industrial waste research.

Texas A & M University, Office of University Research, College Station, Texas 77843. Funded by: Environmental Protection Agency.

00050

Bedding and infiltration studies of sanitary sewers in the Gulf Coast area.

This is a continuation grant for the fifth and final year of a Research Demonstration grant. The objectives are to determine the best type of bedding arrangements and the most suitable materials to be used in laying sewer pipes in the Gulf Coast Area. Investigations will also be conducted on the performance of manholes, tees and other appurtenances. Infiltration studies will continue of three in-use sections of sewer lines. This final year will be used in filling voids in the needed data, and the preparation of the final report which will contain a manual section of recommended materials and practices.

Tulane University of Louisiana, School of Engineering, New Orleans, Louisiana 70118. Funded by: Environmental Protection Agency, Office of Water Programs, 1/72 - 6/72.

F. W. MacDonald.

00051

Develop in-house capability in water quality techniques for analyses of heavy metals, bacteria, and pesticide residues.

U. S. Army, Corps of Engineers, Waterways Experiment Station, Vicksburg, Mississippi. Funded by: Department of Defense, Army.

C. F. Derrington.

00052

Contaminants and Fishery Products.

Technical objective of the study is assessment of fishery products for heavy metals; contaminants in fishery products; chemical form of contaminants; removal of contaminants; contaminants data bank. Fish and fish products are being analyzed for trace metals; measuring of mercury, lead, arsenic, etc.; determining the amount and form of contaminants; determine what process can be used for contaminants removal; central geographical location for data bank is being determined.

Three hundred eighty samples of fish representing 75% of the major species available to the consumer were analyzed for mercury, lead, cadmium, arsenic and chromium content. A manuscript incorporating this data has been prepared. A survey for mercury content of fish meals, Florida Coastal fish, and Hawaiian Coastal fish has been completed. A fishing resource survey for 16 heavy metals including mercury, cadmium, arsenic, lead, selenium in 15,000 samples of known species and known catch location to cover the waters of the U. S., Alaska and Hawaii has been initiated. Mercury data generated in the technological laboratories of the National Marine Fisheries Service has been compiled and a data bank is being set up to receive it and other pertinent data on fish and contaminants. Several tests have been made on the removal of mercury from fish and fish products.

U. S. Department of Commerce, Fish Product Technical Lab, Regents Drive, College Park, Maryland, 20740. Funded by: Commerce Department, National Oceanic and Atmospheric Administration, National Marine Fisheries Service. 7/72 - 6/73.

G. M. Knobl, D. L. Dubrow, E. G. Zook.

00053

Pesticide monitoring program.

Cooperative program involving 15 private, state and federal laboratories who collect duplicate samples of mollusks from approximately 175 estuarine stations on Atlantic, Gulf and Pacific Coasts at monthly intervals. Program initiated 1965, proposed to continue until 1969; 1500 analyses completed September 1965. Samples are sent to the Gulf Breeze Laboratory for pesticide residue analysis. Eastern oyster is chief bioassay animal, also used Mya arenaria, Mercenaria mercenaria, Ostrea luria, Crassostrea gigas and some fish species. Each sample is screened for aldrin, BHC, dieldrin, DDD, DDE, DDT, endrin, heptachlor, epoxide, lindane and methoxychlor. Analyses are made with electron capture gas-liquid chromatography techniques.

U. S. Department of Commerce, National Oceanic and Atmospheric Administration, Biological Laboratory, Gulf Breeze, Florida 32561. Funded by: Commerce Department, National Oceanic and Atmospheric Administration, National Marine Fisheries Service.

P. A. Butler.

00054

Hydrobiochemical effects of spraying of waste treatment effluent in the St. Petersburg, Florida area.

St. Petersburg is interested in eliminating the disposal of secondary effluent into shallow bays of its prime beach area. Local and federal pressures have demanded either tertiary treatment or more suitable alternatives than dumping into shallow bay waters. Spray irrigation offers several economic and esthetic potentialities as well as water conservation through reuse.

Objectives include: a. to determine hydrobiochemical effects of spraying waste treatment effluent, b. to aid in developing guidelines for design and management of spray disposal sites under adverse climatic conditions such as high rainfall and adverse hydrologic conditions such as high water table and low land elevations.

A determination of the type and nature of soil materials and their abilities to capture and filter organic and inorganic constituents in the waste effluents will be made. Different rates of loading under varying hydrologic conditions will be investigated and the rate, distance and extent of movement of the waste will be determined.

Series of tests will be conducted which include high and low continuous application rates to determine the effectiveness of the soil and plant materials to remove dissolved constituents from the waste treatment plant effluent.

U. S. Dept. of the Interior, Geological Survey, Tampa, Florida. Funded by: Interior Department, Geological Survey, Water Resources Division.

R. N. Cherry.

00055

Hydrogeology of the Wilcox group (Eocene), Texas - A. Regional appraisal with reference to storage of fluid wastes in the subsurface.

Marine geology.

The objective is to develop knowledge and understanding of the deep subsurface environments of the Gulf Coastal Plain requisite for appraisal of their suitability for storage of liquid wastes; to utilize for this purpose the very large store of information in oil company files; to analyze and interpret data obtained using new concepts and principles of deep basin hydrology; to make quantitative and semi-quantitative determinations of the physical properties of reservoir rocks, the chemistry of interstitial waters, and hydrodynamic controls; and to demonstrate how deep aquifers can be described so that local site requirements for waste injection can be related to the regional hydrology.

Work will be accomplished in two (2) phases. Phase 1 will describe the geologic framework of the Wilcox Group between the Rio Grande and the Sabine River. Regional maps and sections will show distribution and thickness of sedimentary systems and their component facies and phases and structural features. Phase 2 will describe salinity distribution and geothermal conditions in the entire Wilcox Group and Aquifer characteristics, head distribution, and formation water composition in the Rockdale Delta System (Lower Wilcox) between the San Marcos Arch and the Sabine River.

U. S. Geological Survey, WRD. Funded by: Federal. 7/70 - 6/74.

Paul H. Jones.

00056

Wilcox waste disposal appraisal, Gulf Coastal Plain.

The purpose is to develop knowledge and understanding of subsurface environments of the Gulf Coastal Plain necessary for appraisal of their suitability for liquid waste storage; and to analyze and interpret data obtained using new concepts and principles of sedimentary basin hydrology, to make semi-quantitative determinations of the physical characteristics and geometry of reservoir rocks, the chemistry of interstitial waters, and hydrodynamic controls.

Regional maps and sections will show sediment facies distribution and thickness, structural features, water salinity distribution in major aquifer systems, and temperature distribution areally and with depth. Major buried delta systems described reservoir rock occurrence; structural features define hydrodynamic controls; salinity and composition of formation waters describe chemical and physical properties of the fluid to be displaced by waste; and isogeothermal maps indicate natural flow paths and enable calculation of density and viscosity of reservoir fluids reaction rates and equilibria, and diffusion potentials.

U. S. Department of Interior, Geological Survey, Water Resources Division, Bay Saint Louis, Mississippi 39520. Funded by: Interior Department, Geological Survey, Water Resources Division.

P. H. Jones

00057

Chronic effects of certain chlorinated hydrocarbon insecticides on estuarine animals of the northern Gulf Coast of Florida.

Pesticides in fish, sediment, shrimp, clams, oysters, Apalachicola Bay.

Determination of chlorinated hydrocarbon residues in sediment and biological organisms of Apalachicola Bay, by gas liquid chromatography. Polychlorinated biphenyls (P.C.B.'s) and D.D.T. and metabolites found, certain organisms contain dieldren overall residue assessment indicate low levels present.

Florida Sea Grant, U. S. Department of Commerce, National Oceanic and Atmospheric Administration. U. S. Department of Commerce, National Oceanic and Atmospheric Administration, Office of Sea Grant. January 1972-December 1974.

N. P. Thompson, R. J. Livingston.

00058

Training in water quality management and engineering control of estuarine pollution.

University of Florida. Funded by: Environmental Protection Agency. 9/72-2/73.

Pyatt and Partheniades.

00059

A thermal plume at Crystal River, measures and indices of impact. GEC-90.

University of Florida. Funded by: Florida Power Corp. 6/73-6/74.

S. Snedaker.

00060

Evaluation of the marine ecosystem developing within, and adjacent to, the thermal plume of the power generating units at Crystal River, Florida. GEC-76.

University of Florida. Funded by: Florida Power Corp. 1/73-4/73.

S. Snedaker.

00061

Environmental surveillance for radioactivity in the vicinity of the Crystal River nuclear power plant, an ecological approach.

University of Florida. Funded by: Florida Power Corp. 8/72-7/73.

W. E. Bolch.

00062

Ocean Reverberation - required oceanographic modeling.

Water pollution - in general.

University of Houston. Funded by: U. S. Navy, Office of Naval Research.

Dr. H. S. Hayre.

00063

National economic models of industrial water use and waste treatment.

Economic models of water use and waste treatment are being developed for the five leading waterusing industries: chemicals, petroleum, refining, pulp and paper, iron and steel, and steam electric power generation.

The University of Houston: College of Business Administration; Cullen College of Engineering, Dr. Russell G. Thompson, University of Houston, Houston, Texas 77004. Funded by: National Science Foundation. Completion May 31, 1974.

Dr. Russell G. Thompson. Publications: 1. "Forecasting Water Use for Policy Making: A Review," Water Resources Research, August 1973. Authors: Thompson and Young. 2, "A Least-Cost Allocation and Valuation Model for Water Resources," to appear in Water Resources Research. Authors: Young and Thompson. 3. "An Industrial Economic Model of Water Use and Waste Treatment for a Representative Ethylene Plant," Thompson, Schwartz and Slimak. To appear in the Proceedings of Water Use and Complete Water Reuse Conference, jointly sponsored by AICHE and EPA.

00064

Studies of the red algae in Biscayne Bay.

The objectives of this project are: to study the dynamic ecology of the major red algae in Biscayne Bay by combined laboratory and field studies. This algae has been found to be very important among the primary producers, and thus to the food chain, in ten years of field studies in South Florida estuaries, which studies chiefly dealt with the macroinvertebrate population. The Laurencia complex is intimately connected with the ecology of the animals by being a shelter as well as probable food source. However, no study of the Laurencia itself has been undertaken to date and virtually nothing is known of its ecology. It is now necessary to define the growth rates and major ecological factors affecting the occurrence and distribution of Laurencia. The appearance and/or disappearance of this genus probably will prove a sensitive indicator of pollution, which, if used in combination with animal and microalgal indicators will give early warning criteria and many types of pollution in our estuaries.



Laurencia and Digenia appear to be major contributors to the detrital food chain of Biscayne Bay-Card Sound. Data will be used to recommend safe limits for flood control canal design and outfall designs for various industrial plants. The organizations expected to use this information are as follows: U. S. Army Corps of Engineers - for dredging and filling; Environmental Protection Agency - industrial outfalls; Dade County Pollution - industrial outfalls; Florida Power and Light Co. - heat effluent; Florida Power Corporation - heat effluent; State Pollution Board industrial outfalls; Westinghouse Corporation - in desalination plants; Atomic Energy Commission - radiation and heat outfalls. Accomplishments during the past twelve months: 1) delineation of grass community dynamics; 2) delineation of power plant outfall on grass and algal population; 3) baseline information on ecology of major green macroalgae.

For additional information pertaining to this project contact Dr. Richard G. Bader, Director, Sea Grant Programs, University of Miami, Coral Gables, Florida 33146.

University of Miami, School of Marine Science, 1 Rickenbacker Cswy., Miami, Florida 33149. Funded by: Commerce Department, National Oceanic and Atmospheric Administration, Sea Grant Office. 7/72-6/73.

A. Thoraug.

00065  
Oceanography.

The objectives of this project are, in response to the water management needs of southeast Florida: 1) in cooperation with the other disciplines of Sea Grant to determine the physical factors which in the local environment control the "natural state" water quality and influence the biological community using South Biscayne Bay and Card Sound as examples, 2) study the relation of water quality to circulation and exchange conditions in North Biscayne Bay, with special reference to earlier work which precedes recent causeway construction and shoreline modifications, as well as present pollution stress conditions, 3) continue our efforts in conjunction with other projects to develop a quantitative understanding of exchange conditions in the coastal waters seaward of the keys, 4) render support in physical technical matters to other groups in the program.

Information will be used to aid protective management and safeguard water quality. Analysis of Biscayne Bay observations will be compared to previous work to aid in restoration projects. A model of spin-off eddies from the Florida Current will be utilized in cooperative study conducted under the co-sponsorship of the Atomic Energy Commission and Florida Power and Light Company. Investigation of the Miami Outfall will provide the City of Miami with evidence to support the repositioning of the outfall terminus.

University of Miami, School of Marine Science, 1 Rickenbacker Causeway, Miami, Florida 33149. Funded by: Commerce Department, National Oceanic and Atmospheric Administration, Sea Grant Office.

T. N. Lee, C. Rooth.

00066

Distribution and geochemistry of deposited and suspended clays within the Biloxi Bay Estuary, Mississippi.

The present day lithotope of the Biloxi Bay estuary complex will be sampled at randomly established stations. Sampled material will then be analyzed for the clay mineral content which constitutes the bed or deposited load. Also sampled above each of the bottom sample localities will be the water column at selected intervals for the clay mineral content that may be present in the suspended load. At each station salinity measurements will be taken in order to determine the amount of salt and fresh water mixing, as this deposition of certain clay mineral species.

It is expected that the above sampling and analytical program will yield information pertinent to the degree and style of clay mineral flocculation. In other words, which clay species are being deposited in and which are totally passed through the Biloxi Bay estuary system.

All clay species found in the sampled material also will be analyzed for the types and amount of absorbed metal cations. This, plus the flocculation behavior is expected to give some insight as to the concentration of polluting metals either in the deposited red or suspended loads.

University of Mississippi, School of Engineering, 101 Carrier Hall, University of Mississippi 38677. Funded by: Interior Department, Office of Water Resources Res. Multiple support funds: 7/73-6/74.

W. R. Reynolds.

00067

Liver enzymes as pollution indicators.

Department of pharmacology, University of Mississippi, Sea Grant, University of Mississippi. 6/71-12/73.

J. P. Hickenbottom.

00068

The prediction of ecological alterations caused by pollutants.

University of Mississippi. Funded by: Mississippi Universities Marine Center. 6/72.

L. A. Magee.

00069

Independent environmental study of thermal effects of power plant discharge.

Numerical modeling (calibration and verification) of estuarine circulation and diffusion at the Crystal River power plant.

Department of Marine Science, University of South Florida, St. Petersburg, Florida 33701. Funded by: Florida Power Corp.

Dr. Thomas Pyle.

00070

Research fellowship for R. W. Virustein - effects of thermal effluents on benthos in Tampa Bay.

University of South Florida. Funded by: Environmental Protection Agency. 1/72-8/72.

B. C. Cowell.

00071

Independent environmental study of thermal effects of power plant discharge.

University of South Florida. Funded by: Florida Power Corp. 5/73-5/74.

K. L. Carder.

00072

Collection and preparation of fish monitor samples for E.P.A. Pesticides Laboratory.

University of South Florida. Funded by: National Marine Fisheries Service. 10/72-?

R. C. Baird.

00073

Independent environmental study of thermal effects of power plant discharge.

Numerical modeling (calibration and verification) of estuarine circulation and diffusion at the Crystal River power plant.

Department of Marine Science, University of South Florida, St. Petersburg, Florida 33701. Funded by: Florida Power Corp. 1970-?

Kendall L. Carder.

00074

Pesticide survey - Gulf of Mexico.

Determine pesticide levels in nearshore and deep sea fishes.

Department of Marine Science, University of South Florida, St. Petersburg, 33701. Funded by: Environmental Protection Agency.

Baird.

00075

The effect of urban land development on water quality.

The purpose of this study is to establish changes in water quantity and quality with land use: a high density apartment complex. Rainfall runoff relationships have been established. A study area soil map has been prepared and infiltration rates have been quantified. Water level fluctuations have been monitored in the surface aquifer by use of six observation wells. A vegetational analysis of the area has been completed. Various surface water quality parameters have been monitored.

University of South Florida, Tampa, Florida. Funded by: Florida Water Resources, Research Center.

Dr. Bernard E. Ross, Dr. Melvin W. Anderson.

00076

Chlorinated hydrocarbons in deep-sea and near-shore fishes in the northern and eastern gulf.

Department of Marine Science, University of S. Florida, St. Petersburg, Florida. Funded by: EPA, 7/73-7/74.

T. L. Hopkins, R. C. Baird.

00077

A study of fish entrainment at the Anclote power generating facility.

University of South Florida. Funded by: Florida Power Corp. 12/72-12/73.

R. C. Baird.

00078

Parameters related to oxygen demand in the offshore and nearshore environment.

Measurement of organic and inorganic carbon as well as biochemical and chemical oxygen demand in the vicinity of offshore oil rigs in the Grand Isle Timbalier Bay areas.

University of Southern Mississippi. Funded by: Gulf Universities Research Consortium. 6/72-5/73.

Charles R. Brent, Howard P. Williams.

00079

Radiocarbon study of oil pollution from offshore drilling.

Carbon 14 is used as a measure of the total amount of petroleum and petroleum derivatives in sea water.

University of Southern Mississippi. Funded by: Gulf Universities Research Consortium. 6/72-6/74.  
Douglas C. McCain

00080

Microbiological seeding to accelerate normal oil degradation processes. This was to be accomplished by producing hydrocarbon oxidizing microorganisms with more rapid growth; production of a nutrient material to enhance growth; studying UV resistance for surface growth and in microbial production of non-toxic surface active agents or physical absorbents to produce emulsification and larger water-oil surface. The continuation program is intended to extend laboratory and tank experiments on microbial degradation of oil slicks to actual estuarine conditions. The residual hydrocarbons will be determined in selected natural or polluted marine estuaries, water, sediments and living organisms. Finally, to participate in cooperative controlled spill tests offshore on the Texas coast.

University of Texas, Marine Science Institute, Port Aransas, Texas 78373.  
Funded by: Environmental Protection Agency, Office of Research and Development. 7/72-6/73.

00081

General seasonal ecological studies on growth and metabolism of Gulf coast fish with reference to sublethal natural and man-induced stresses.

In general the investigations deal with the depression of respiratory metabolism by thermal, salinity, dissolved oxygen and pollutant effects. Fishes over a range of sizes and swimming velocities are used. Seasonal effects, aside from temperature are evaluated. The pinfish, striped mullet, midshipman and spotted sea trout have received special attention with respect to these variables.

University of Texas, Marine Science Institute, Department of Zoology.  
Funded by: The University of Texas, National Science Foundation, Texas  
Water Quality Board, Welder Wildlife Foundation.

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on the respiratory metabolism of the pinfish (Lagodon rhomboides).  
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00082

Marine petroleum pollution, biological effects and chemical characterization.

Effects of petroleum on oceanic animals.

Toxicity of petroleum oils on eggs, sperm embryos and larvae of marine animals, and on tissue respiration is being studied.

The University of Texas, Marine Science Institute, Port Aransas.  
Funded by: National Science Foundation, 1975.

K. Winters, C. Van Boolen, S. Ito, R. Wang.

00083

Toxicity of CCl<sub>4</sub> and Freon to selected marine animals.

University of Texas, Marine Science Institute at Port Aransas, Texas 78373.  
Funded by: DuPont. Completed or underway 1972-1973.

Dr. Brogden.

00084

Galveston Bay toxicity study.

The University of Texas, Marine Science Institute at Port Aransas, Texas 78373. Funded by: Texas Water Quality Board. Underway or completed 1972-1973.

Drs. Van Boolen, Wohlschlag, Armstrong. Drs. Brogden, Holland, Gordon.

00085

Effects of mercury and zinc on Penaeid Shrimp (Ph. D. thesis).

University of Texas, Marine Science Institute at Port Aransas, Texas 78373.  
Funded by: Welder Wildlife Foundation. Completed or underway 1972-1973.

Mr. Rod Jackson.

00086

Variations in stable carbon, oxygen and nitrogen isotope ratios in normal and polluted biogeochemical systems.

This is a continuation of research supported under NSF grant GA 11414.

The aim of this research is to measure variations in stable isotope ratios and to use these measurements to solve problems concerning the flow of these elements in biogeochemical systems. The following aspects will be included: 1) use C13 and N15 in case studies, 2) measure the delta C13 and delta N15 of isolated biochemicals, particularly aminoacids; 3) determine the delta C13 and delta N15 for organic sedimentary matter in many parts of the Gulf of Mexico; and 4) gather extensive delta O18 of O2 in nearshore Gulf waters.

University of Texas, Graduate School, Port Aransas, Texas 78373. National Science Foundation, Division of Environmental Sciences. 9/72-8/73.

P. L. Parker.

00087

Estimation of nitrogen and phosphorus inputs and prediction of effects of such inputs on eutrophication time table of Bayou Texar, Florida.

The proposed research is part of a two-stage project. The first stage is aimed at the determination of a nitrogen and phosphorus budget for Bayou Texar, Pensacola, Florida. The second stage involves a continuation of stage one plus the delineation of the extent of the effects of these inputs on the primary productivity of this estuarine bayou. This inlet from Pensacola Bay is fast becoming eutrophic; mostly from urban activities, and it is anticipated that determination of the extent of nitrogen and phosphorus inputs into this system will aid in the recommendation of measures for alleviation of this enrichment problem. The two-year proposed program involves qualitative and quantitative determinations of such inputs, the delineation of the sources, as well as the employment of field and laboratory studies, including culture work, in determining primary productivity trends in the bayou.

Finally, predictive theories will be derived and projections and recommendations will be made concerning approaches which would alleviate the problem of nutrient enrichment in Bayou Texar.

University of West Florida, Graduate School, Biology, Pensacola, Florida 32504. Funded by: Interior Department, Office of Water Resources Res. July 1972-June 1974.

G. A. McShiri.



00088

Photochemical reactions of chlorine in atmospheric pollution.

The purpose of our proposed program is to examine potential air pollution problems arising from a release of chlorine into the atmosphere. It has been shown that chlorinated hydrocarbons as scavengers in leaded automobile fuel is a source of chlorine with possibly high concentrations in localized areas containing other objectionable pollutants. In addition, the Niagara Falls, New York and Gulf Coast, Texas areas, as major chlorine producers, are susceptible to high levels of chlorine release. A potential effect of chlorine in air pollution cannot be neglected. This proposal is designed to explore the photochemical chlorine reaction processes which may contribute to smog-formation. It is our ultimate objective to elucidate the nature of these reaction processes so that appropriate measures may be taken to ensure satisfactory air qualities in our urban environment.

Western N. Y. Nuclear Research Center, Power Drive, Buffalo, New York 14214. Funded by: Environmental Protection Agency. Office of Research and Development.

J. Y. Yang, J. A. Sandel.

00089

Regional modeling of surface water temperatures from projected power growth.

Digital simulation programs developed at the Pacific Northwest Laboratory applicable to the Columbia River have been used to predict the impact of steam electric power plant operation in major river-basin areas. Program outputs have included modifications based on plant operational experience for both normal and abnormal weather and flow conditions. Ultimate capabilities of given stream systems to support thermal generation concentrations have been and will be estimated.

Westinghouse Electric Corp., Engineering Division Labs, Richland, Washington, 99352. Funded by: Atomic Energy Commission, Reactor Development and Tech. Div.

D. E. Peterson.

RARE AND ENDANGERED SPECIES  
CURRENT AND RECENT RESEARCH

CURRENT AND RECENT RESEARCH  
RARE AND ENDANGERED SPECIES  
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GENERAL

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RARE AND ENDANGERED SPECIES OF NATIONAL SIGNIFICANCE

Flora	00013	00018				
Fauna - Rare and Endangered						
Invertebrates		00011				
Vertebrates						
American Alligator ( <u>Alligator mississippiensis</u> )				00014	00033	
				00034	00041	
				00042	00046	
Eastern Brown Pelican ( <u>Pelecanus occidentalis carolinensis</u> )					00023	
					00026	

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Florida Great White Heron ( <u>Ardea o. occidentalis</u> )	00039		
Southern Bald Eagle ( <u>Haliaeetus l. leucocephalus</u> )	00011	00029	
	00032	00036	
Arctic Peregrine Falcon ( <u>Falco peregrinus tundrius</u> ), migrant only	00030	00035	
Whooping Crane ( <u>Grus americana</u> )	00003	00007	00019
Mississippi Sandhill Crane ( <u>Grus canadensis pulla</u> )			00016
Red-cockaded Woodpecker ( <u>Dendrocopus borealis</u> )			00027
Cape Sable Sparrow ( <u>Ammodramus mirabilis</u> )	00043		
Key Largo Woodrat ( <u>Neotoma floridana smalli</u> )			00044
Red Wolf ( <u>Canis rufus</u> )	00031		
Florida Manatee ( <u>Trichechus manatus latirostris</u> )			00015
Everglade Mink ( <u>Mustela nixon evergladensis</u> )			00045
Fauna - Peripherally Rare or Endangered, U. S. Only			
Vertebrates			
Eastern Reddish Egret ( <u>Dichromanassa r. rufescens</u> )			00005
Short-tailed Hawk ( <u>Buteo brachyurus</u> )	00038		
Fauna - Status Undetermined			
Vertebrates			
Wood Ibis ( <u>Mycteria americana</u> )	00040		
White-faced Ibis ( <u>Plegadis chihi</u> )	00024		
American Osprey ( <u>Pandion haliaetus carolinensis</u> )		00029	00032
		00037	
Woodstork ( <u>Mycteria americana</u> )	00002		
Least Tern ( <u>Sterna albifrons</u> )	00008		
Sooty Tern ( <u>Sterna tuscata</u> )	00010		
Brown Noddie ( <u>Anous stolidus</u> )	00010		

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Louisiana State Wildlife and Fisheries Commission	00014				
Manatee Research Project	00015				
Mississippi College	00017				
Mississippi Game and Fish Commission Game Division	00016				
Mississippi State University	00017				
National Audubon Society	00002	00003	00004		
Research Department	00005	00006	00007		
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Office of Environmental Sciences	00018				
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University of Miami      00049

University of Mississippi      00017

University of Southern Mississippi      00017

University of Texas      00052

Rare Plant Study Center      00051

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00001

Rare and endangered species of Alabama.

Alabama Department of Conservation and Natural Resources.

Wayne Colon.

00002

Woodstorks at Corkscrew swamp sanctuary.

National Audubon Society, 115 Indian Mound Trail, Tavernier, Florida 33070.  
Funded by: National Audubon Society.

Alexander Sprunt IV.

00003

Whooping Cranes at Aransas National Wildlife Refuge.

National Audubon Society, 115 Indian Mound Trail, Tavernier, Florida 33070.  
Funded by: National Audubon Society.

Alexander Sprunt IV.

00004

Wading bird populations, including Gulf coastal species.

National Audubon Society, 115 Indian Mound Trail, Tavernier, Florida 33070.  
Funded by: National Audubon Society.

Alexander Sprunt IV.

00005

Status and ecology of the Reddish Egret.

Determine status and numbers of Reddish Egret throughout range, and additionally study ecology of species.

Project not yet begun. Specific ecological objectives to be determined after. Literature search. However, field work will be done at one or more of the colonies along the Texas coast near Rockport.

National Audubon Society, Research Department. Self-funded. November 1973 -

Richard T. Rault.

00006

Aerial wading bird study.

Census of several species of wading birds - particularly breeding colonies - in Gulf area.

Aerial survey of Gulf Coast including Louisiana, Texas, Mexico to Yucatan (Florida data from other sources including Everglades National Park, Florida Department of Game and Freshwater Fish). Inventory of all breeding colonies of large wading birds visible from air. Cryptic species such as bitterns not included. Contact Dr. Clarence Cottane; of the Welder Wildlife Foundation, Sinton, Texas for information on the Texas coast wading bird survey.

National Audubon Society-Research Department. Self Funded. Annual surveys 1971 - 1973 and at intervals in future.

Alexander Sprunt, C. Eugene Knoder.

00007

Cooperative whooping crane research program.

Ecology and behavior of wintering cranes, particularly with regard to food habits.

Study of factors bearing on abundance and availability of various potential food organisms; study of factors affecting utilization of food resources, including spacing of cranes (social behavior) and physical factors facilitating or hampering feeding activities. This includes effort to identify factors which may threaten habitat quality.

National Audubon Society - Research Department (in cooperation with BSWF). Funded by: National Audubon Society. 11/70 - 1975.

Davis R. Blankinship.

00008

Experimental management of least tern and wading bird colonies

To create and maintain suitable habitat for selected species of birds.

Managed impoundment and island created to provide habitat for wading bird colony and least tern colony, respectively. Habitat of both sites currently managed to maintain suitability. Least tern is seriously declining in numbers over much of its range. Disturbance of nesting grounds appears to be part of the problem. The present management effort, as time permits, will evolve into a banding effort and study of nesting ecology to aid in the

understanding of the little studied species.

National Audubon Society - Sanctuaries Division. Self Funded. 1966 - open.

Lonnie Lege (Superintendent, Rainey Wildlife Sanctuary, Abbeville, Louisiana 70510).

00009

Wading birds monitoring program.

Monitoring of breeding success of colonies of brown pelicans, double-crested cormorants, various herons and egrets, ibis, and roseate spoonbills on sanctuaries in Tampa Bay (Florida) area.

Probable expansion of program to include more detailed studies of reproductive behavior of the birds. Some of present activity includes cooperation with researchers from University of South Florida (Tampa) and Mote Marine Laboratory (St. Petersburg) in their intensive studies of reproductive biology and pesticides in the Brown Pelican. For further information contact Ralph W. Schreiber at University of South Florida.

National Audubon Society, Sanctuaries Division. Self-funded. Continuing research.

Frank M. Dunstan, Jr.

00010

Biology of nesting Sooty Terns (*Sterna fuscata*) and Brown Noddies (*Anous stolidus*) embracing movement (from banding) population age structure, food and feeding habits and general breeding biology.

Everglades National Park, U. S. National Park Service. Funded by: U. S. National Park Service.

Dr. W. B. Robertson Jr., Dr. G. E. Woolfender, Dr. O. L. Austin, Jr.

00011

Breeding biology and productivity of Bald Eagles.

Everglades National Park, U. S. National Park Service. Funded by: U. S. National Park Service.

Dr. W. B. Robertson, Jr.

00012

Various species of rare and endangered Florida wildlife.

Florida Department of Natural Resources.

Mr. Powell.

00013

Rare and endangered plant species in Louisiana.

Louisiana State University, Baton Rouge, Louisiana 70803.

Dr. Martin Piehl.

00014

American Alligator.

Louisiana Wildlife and Fisheries Comm. Baton Rouge, Louisiana. Rockefeller Wildlife Refuge, Cameron, Louisiana.

Richard Yancey, Robert Murry, Ted Joanna.

00015

A study of the current status of the Manatee in Florida with recommendations for its conservation.

The current status of the manatee (Trichechus manatus Linnaeus) in Florida is uncertain. Recent studies suggest that populations are distributed discontinuously along the east and west coasts of the peninsula. Movements of animals from one population to the next seem to occur on an irregular basis. Beyond this, knowledge of the manatee's distribution, abundance and migratory patterns in the state is desperately inadequate.

The main purpose of this study, therefore, is to determine where and why manatee populations are increasing or decreasing in Florida. The study will attempt to link specific environmental factors with the animals' disappearance from or recolonization of former haunts.

In short, the study will research those aspects of Florida's ecology which affect the manatee and suggest conservation measures to counteract any threats to the specie's survival in the United States.

Ancillary to this principal aim, the study will focus on facets of manatee natural history that have, to date, escaped observation and analysis. Especial efforts will be made to observe the activities of manatees in salt

water, a subject about which virtually nothing is known. In addition, a serious endeavor will be made to record and analyze manatee vocalizations, correlating sounds with behavioral patterns on a sonograph. Finally, the investigators will continue to explore the practicability of establishing a manatee refuge on the coast of Citrus County.

Manatee Research Project, P. O. Box 1774, Crystal River, Florida 32629.  
Funded by: Interior Department, Bureau of Sport Fish and Wildlife, Office of Endangered Species. 12/72 - 12/73.

Dr. D. S. Hartman.

00016

Various species of rare and endangered Mississippi sandhill crane.

Mississippi Game and Fish Commission, Game Division.

W. H. Turcott.

00017

Rare and endangered plants of Mississippi.

Mississippi State University, University of Mississippi, Mississippi College of Clinton, Mississippi, University of Southern Mississippi - Hattiesburg, Mississippi.

Dr. Roy Watson, Dr. Thomas M. Pullin, Dr. Louis Temple, Dr. Ken Rodgers.

00018

Rare and endangered plants of the United States.

Director Ecology Program, Office of Environmental Sciences, Smithsonian Institute. Funded by: Smithsonian Institute, Washington, D. C. 20560.

Dr. Dale W. Jenkins

00019

Ecology of San Antonio Bay, Texas with special reference to shell dredging and whooping cranes.

Objective is to conduct a thorough bibliographic search and consolidate all relevant information on the ecological significance. A search of all available published and unpublished information on the ecology of San Antonio Bay,

Texas with special reference to the effects of shell dredging and to the use of the area and dependence upon it by whooping cranes will be made. The investigator will also explore potential sources of information on locations of remaining shell beds suitable for dredging and the likelihood that dredging them would place substantial silt burdens on places known to be used by whooping cranes as feeding areas. University Libraries and all marine research laboratories in Texas were searched for all available published and unpublished information on the ecology of San Antonio Bay, with special reference to the effects of shell dredging and to the use of the area and dependence upon it by whooping cranes.

Texas A & M University System, Agricultural Experiment Station, College Station, Texas 77843. Funded by: Texas State Government. 7/72 - 6/73.

H. D. Irby.

00020

Texas Rare and Endangered Species.

Texas Parks and Wildlife, Austin, Texas and Texas A & M University, College Station, Texas.

John Smith.

00021

Rare and endangered species of Texas.

Texas Organization for Endangered Species, P. O. Box 648, Temple, Texas 76501.

John W. Arnn.

00022

Red wolf in Texas.

Texas Parks and Wildlife, Austin. Bureau of Sport Fisheries and Wildlife, 504 Independence Drive, Liberty, Texas 77575.

Glynn Riley, John Smith.

00023

Brown Pelican.

Texas Parks and Wildlife, Austin, Bureau of Sport Fisheries and Wildlife.

Curt King, John Smith, Dr. Henry Hildebrand, Edward Fleckinger.

00024

White-faced Ibis.

Texas Parks and Wildlife, Austin, Texas, Bureau of Sport Fisheries and Wildlife.

Curt King, Edward Fleckinger, John Smith, Dr. Henry Hildebrand.

00025

Effects of pesticides on birds.

Texas Parks and Wildlife, Austin, Texas. Bureau of Sport Fisheries and Wildlife.

Curt King, Edward Fleckinger, John Smith, Dr. Henry Hildebrand.

00026

Brown Pelican.

Texas Parks and Wildlife, Austin, Texas. Bureau of Sport Fisheries and Wildlife, Rockport, Texas.

John Smith, Dave Blankenship.

00027

Red-cockaded woodpecker.

Texas Parks and Wildlife, Austin, Texas.

John Smith.

00028

Banding program on fish-eating birds.

Texas Parks and Wildlife, Austin, Texas.

John Smith.



00029

Survey of fish eating birds, including the Southern Bald Eagle and the Osprey.

Texas Parks and Wildlife, Austin, Texas.

John Smith.

00030

Special wildlife investigations

Texas peregrin falcon survey.

To determine number of peregrine migrating down Texas coast. To monitor population changes. To determine age and sex of peregrine population. To determine rate of peregrine movement down coast. September 1972 -

Texas Parks and Wildlife Department, John H. Regan Building, Austin, Texas 78701. Funded by: State of Texas, Bureau of Sport Fishing and Wildlife.

John C. Smith.

00031

Special Wildlife Investigation.

Red Wolf survey.

Cooperating in the red wolf recovery plan with the Federal Government.

Texas Parks and Wildlife Department, John H. Regan Building, Austin, Texas 78701. Funded by: State of Texas, Bureau of Sport Fishing and Wildlife. 1973 -

John C. Smith. A survey of Red Wolf - Riley - Special Science Report #162. Bureau of Sport Fishing and Wildlife.

00032

Special wildlife investigation.

Bald eagle and osprey survey.

Distribution, number and status and trends of bald eagle and osprey in Texas.

Texas Parks and Wildlife Department, John H. Regan Building, Austin, Texas

78701. Funded by: State of Texas, Bureau of Sport Fishing and Wildlife.

John C. Smith.

00033

Special wildlife investigation.

American alligator survey.

Distribution numbers and status of all alligators in Texas. Texas Parks and Wildlife Department, John H. Regan Building, Austin, Texas 78700.

Funded by: State of Texas, Bureau of Sport Fishing and Wildlife. 1972 - 1976.

John C. Smith.

00034

American Alligator studies.

Texas Parks and Wildlife, Austin, Texas.

John Smith.

00035

Arctic Peregrine Falcon: Survey of migratory and wintering populations on the Texas coast.

Texas Parks and Wildlife, Austin, Texas.

John Smith.

00036

Southern Bald Eagle.

National Park Service, Everglades National Park, Homestead Florida. Funded by: Bureau of Sport Fisheries and Wildlife.

Lee Perkinson.

00037

American Osprey.

National Park Service, Everglades National Park Homestead, Florida. Funded by: Bureau of Sport Fisheries and Wildlife.

Lee Perkinson.

00038  
Short-tailed Hawk.

National Park Service, Everglades National Park, Homestead, Florida. Funded  
by: Bureau of Sport Fisheries and Wildlife.

Lee Perkinson.

00039  
Great white heron.

National Park Service, Everglades National Park, Homestead, Florida. Funded  
by: Bureau of Sport Fisheries and Wildlife.

Lee Perkinson.

00040  
Wood ibis.

National Park Service, Everglades National Park, Homestead, Florida. Funded  
by: Bureau of Sport Fisheries and Wildlife.

Lee Perkinson.

00041  
American crocodile.

National Park Service, Everglades National Park, Homestead, Florida. Funded  
by: Bureau of Sport Fisheries and Wildlife.

Lee Perkinson.

00042  
American alligator.

National Park Service, Everglades National Park, Homestead, Florida. Funded  
by: Bureau of Sport Fisheries and Wildlife.

Lee Perkinson.

00043

Cape Sable sparrow.

National Park Service, Everglades National Park, Homestead, Florida. Funded by: Bureau of Sport Fisheries and Wildlife.

Lee Perkinson.

00044

Key Largo Woodrat.

Bureau of Sport Fisheries and Wildlife.

Lee Perkinson.

00045

Everglades mink.

Bureau of Sport Fisheries and Wildlife.

Lee Perkinson.

00046

Life History - alligator.

Bureau of Sport Fisheries and Wildlife. Self funded.

Jacob M. Valentine, Jr. and John Walther. Publications: Valentine, et. al. 1972. Alligator diets of the Sabine N. W. Refuge, Louisiana. Journal Wildlife Management 36 (3): 809-815.

00047

Rare and Endangered fish of Florida.

University of Florida, Agriculture Experimental Station, Gainesville, Florida. Florida State Museum, Gainesville, Florida. Funded by: National Audubon Society, Florida Audubon Society.

00048

Rare and endangered species, chrm. plan comm. for Florida.

University of Florida, Agricultural Experiment Station, Gainesville, Florida. Funded by: University of Florida.

Dr. Daniel B. Ward.

00049  
Florida manatee and other marine mammals.

University of Miami, National Park Service, Everglades N. Park. Homestead, Florida.

Dr. Daniel O'Dell, Lee Perkinson.

00050  
Rare and endangered invertebrates of Florida.

University of Florida, Agriculture Exp. Station, Gainesville, Florida.  
Funded by: Audubon Society, Florida Audubon Society.

Dan Ward, Howard Weems.

00051  
Rare and endangered plant species of Texas.

The University of Texas at Austin, Rare Plant Study Center, P. O. Box 8495, Austin, Texas 78712.

Dr. Marshall Johnston.

00052  
Compiling bibliography of Gulf coast invertebrate organisms, including any references to rare or endangered species. (Planning stage only).

University of Texas at Austin.

Dr. Martin Sage.

RECREATIONAL SITES AND OPPORTUNITIES  
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FLORIDA STATE UNIVERSITY

School of Arts 00002

LOUISIANA STATE UNIVERSITY

Department of Sociology and Rural Sociology 00003

School of Forestry and Wildlife 00004

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MISSISSIPPI RESEARCH AND DEVELOPMENT CENTER 00006 00007

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Bureau of Outdoor Recreation

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Bureau of Planning 00001 00021

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00001

Florida Recreation Area Inventory.

The identification, resource and facility description and location of all publicly (Federal, state, county, and municipal) administered recreation areas in Florida.

A data base necessary for the statewide comprehensive recreation planning process.

Department of Natural Resources, Division of Recreation and Parks in cooperation with the Department of Transportation.

00002

Economic evaluation of public recreation sites - a survey research approach.

The objectives of this project are: (1) To develop a practical method for determining the demand for and the value of recreation sites on the northwestern coast of Florida. (2) To test this method of analysis in a survey research study of the demand for and value of beach-ocean recreation by residents of northwestern Florida.

How information will be applied: (1) Tabulated survey results together with statistical interpretations will be communicated to the Department of Natural Resources, State of Florida, for use by planning officers. (2) An article describing the technical aspects of the research and introducing the new methodology to specialize in the area of recreation economics will be submitted to Land Economics at the conclusion of the study.

Accomplishments during past twelve months: (1) 350 randomly selected households in northwest Florida have been survey-interviewed and their responses coded. (2) Fifteen computer runs have been completed using newly-developed statistical programs to determine the significance of such variables as age, income, sex, race, and length of residence in Florida upon beach use patterns. (3) A measure of the "consumers' surplus" or monetary value of free beach access to area residents has been developed which indicates that much larger values must be assigned to public beaches than could be inferred from site-use statistics. (4) A qualitative analysis of individual beach characteristics (by location) has been made to assist the Department of Natural Resources in planning for beach-site acquisition.

For additional information pertaining to this project contact Dr. Hugh L. Popenoe, Acting Director, Center for Aquatic Sciences University of Florida, Gainesville, Florida.

Florida State University, School of Arts, Tallahassee, Florida, 32306.  
Funded by: Commerce Department, National Oceanic and Atmospheric Administration, Sea Grant Office. 7/72 - 6/73.

Dr. P. E. Sorensen, K. Gibbs. (Economic value: research: Florida).

00003

Recreational potential of estuarine land.

A survey of the attitudes of (1) private land owners, (2) public officials, and (3) potential users toward uses of private land for public recreational purposes.

The objective of the project is to investigate attitudes and facts concerning recreational use potential of privately owned and/or controlled lands in the coastal area of Louisiana. Information will be gathered on four key issue areas: (1) the extent and potential recreational uses of private holdings (2) economic considerations, (3) legal and political issues relating to such use, and (4) the social ramifications of such uses. Information of the issue areas will be sought from (1) owners/managers of private land holdings, (2) public officials, and (3) potential users.

Louisiana State University, Dept. of Sociology and Rural Sociology, Baton Rouge, Louisiana 70803. Funded by: U.S. Department of Commerce, National Oceanic and Atmospheric Administration, Office of Sea Grant. 1/74 - 8/75.

M. D. Grimes, A. L. Bertrand. Human Dimension of Coastal Development, La. Agri. Experiment Station Bulletin (forthcoming).

00004

A study of the ecological natural history themes within the Mississippi Alluvial Plain.

Identify and categorize the natural areas within the Mississippi Alluvial Plain.

The objectives of the study are to: (1) describe the natural history themes and subthemes of the region, (2) locate all significant natural areas, (3) prepare an inventory of the characteristics of each area, (4) group and rank areas according to their theme, quality, and significance. Natural areas will be located largely through secondary sources by corresponding with college and university personnel, state and federal agency personnel, private agencies and individuals. As many of the sites as possible are being visited to determine their natural assets.

Louisiana State University, School of Forestry and Wildlife Management, Baton Rouge, Louisiana 70814. Funded by: U.S. Dept. of Interior, National Park Service. 8/72 - 6/74.

R. E. Noble, G. L. Montgomery.

00005

Survey to locate and describe the natural areas of the Gulf Coastal Plain Province.

This survey of natural areas within the Gulf Coastal Plain will result in some areas being classified as registered national land works. The Gulf Coastal Plain consists of 3 divisions: East Gulf Coastal Plain, Mississippi Alluvial Plain and West Gulf Coastal Plain. Sites can be of any size, under private or public ownership; and should be relatively undisturbed, unspoiled, or easily restored. Examples of areas likely to qualify are: (1) ecological community of relative stability in maintaining itself under prevailing natural conditions. (2) ecological community significantly illustrating the process of primary succession and restoration to natural conditions following a disruptive change or secondary succession. (3) habitat supporting a vanishing, rare, or restricted species. (4) relic flora or fauna persisting from earlier period. (5) seasonal haven for concentrations of native animals or vantage point for deserving concentrated populations. (6) site containing significant evidence illustrating important scientific discoveries. (7) scenic grandeur of natural heritage. (8) geological formations. (9) etc.

Louisiana State University, School of Forestry and Wildlife Management, Cooperative Wildlife Research Unit.

Robert H. Chabreck.

00006

Bluff Creek Park Project: to study feasibility and preplanning of a state park facility on Bluff Creek in Jackson County.

Outdoor recreation.

Mississippi Research and Development Center. Self-funding. 5/72 - 1/74.

Hugh Tatum, Jim Hitt. Mississippi Statewide Comprehensive Outdoor Recreation Plan.

00007

"The Mississippi Outdoor Recreation Plan"

Coastal Zone Management.

This project dealing with coastal zone management sought to recognize and define the coastal zone. A management structure was designed, along with recommendations for necessary legislative changes, to enhance the management proposal. Broad based objectives were: (1) encourage economic growth and industrial development of Mississippi's marine resources; (2) enhance natural, cultural and aesthetic qualities of Mississippi's coastal areas; and (3) improve Mississippi's national image regarding coastal zone management.

Mississippi Research and Development Center. Funded by: U.S. Department of Interior, Bureau of Outdoor Recreation. 2/70-10/70.

Hugh Tatum, Ken Goodwin.

00008

Recreational Plan for Kisatchie Bayou without a dam.

Kisatchie Bayou is one of the 33 free flowing streams in Louisiana protected by a wild rivers bill passed by the state legislature in 1970 which is now endangered by the Army Corps of Engineers who have plans for building a dam on this unique stream.

Doug Tarver will have completed about half his requirements for a degree after the 1971 summer session and plans to do this study and report during the fall semester. He is a local boy who knows the area very well and has strong feelings that the stream should be retained in its natural state.

The Shreveport Sierra Club Group has indicated interest in this study and they and a number of other groups have been actively opposing the plan by the Army Corps of Engineers.

This is also an active and controversial issue among local groups in Natchitoches, and Natchitoches Parish.

This study promises to be a valuable one which will make a positive contribution toward helping save Kisatchie Creek from destruction.

Northwestern State College of Louisiana, School of Science, Natchitoches, Louisiana 71457. No formal support reported.

Dr. W. R. Evans. D. Tarver.

00009

Economic impact of recreation and tourism.

Texas A & M University, Office of University Research, College Station, Texas 77843. Funded by: National Oceanic and Atmospheric Administration, Department of Commerce.

B. I. Ingram.

00010

Financing private recreation in the coastal zone.

Texas A & M University, Office of University Research, College Station, Texas 77843. Funded by: Department of Commerce, National Oceanic and Atmospheric Administration.

W. E. Etter.

00011

Environmental evaluation of a seacoast for Tourism - Recreation development.

Objective is to devise a system of environmental evaluation of a coastal region for the planning and development of tourism-recreation. The system is to include: (a) identification of natural and man-made resource factors important to the support of tourism-recreation activities; (b) creation of a typology of tourism-recreation activities and their degree of dependency upon the natural and man-made resources; (c) development of a means of identifying the propensity for tourism-recreation growth as seen by a panel of knowledgeable and influential persons in the region; and (d) the delineation of zones best suited to basic categories of tourism-recreation development.

How information will be applied: The system created by this study will provide a regional approach (not now available) that can be used by planning agencies and tourism-recreation related businesses and government enterprise in order to exploit tourism in a manner compatible with the environmental opportunities and constraints. More specifically, the guidelines resulting from this study will reduce resource erosion and misuse, increase the probability of business success, and enhance satisfaction to tourism-recreation participants when implemented.

Accomplishments during past twelve months: (1) identification of coastal tourism-recreation area criteria. (2) preparation of tourism-recreation coastal activity typology. (3) development of an activity-resource dependency scale. (4) creation of a general concept for coastal tourism-recreation development. (5) structured and performed survey of knowledgeable pertaining to development in the Corpus Christi area. (6) collected physical resource data for the Corpus Christi area.

For additional information pertaining to this project contact Dr. Robert C. Stephenson, Director, Center for Marine Resources, Texas A & M University, College Station, Texas 77843.

Texas A & M University System, School of Agriculture, College Station, Texas 77843. Funded by: Department of Commerce, National Oceanic and Atmospheric Administration, Office of Sea Grant. 6/72 - 5/73.

C. A. Gunn, A. Worms.

00012

Predicting recreational boating needs in Texas.

The objectives of the project are to determine trends in recreational boating throughout Texas, and to acquire a data bank on the behavior, attitudes and preferences of Texas boaters. The research methodology employs a mathematical system simulation of the interrelationships of natural resources at destinations, transportation routes and access links, and boater population characteristics at origins. In addition synagraphic mapping techniques will be employed to visualize the system's simulation of present and future behavior patterns for this recreation activity.

Texas A & M University System, School of Agriculture, College Station, Texas 77843. Funded by: Texas A & M University System. 7/72 - 6/73.

Prof. C. S. Vandoren.

00013

Environmental evaluation of a seacoast for tourism - recreation development.

Objectives: Devise a system of environmental evaluation of coastal resources for the development of tourism-recreation.

Approach: Specific methodology will be created that will evaluate the potential resource-use match for various categories of tourism-recreation purposes. This will entail examination of existing patterns of recreational use by means of review of existing data and performance of new survey research as needed; examination of popular recreation patterns in the United States, seeking voids and similarities with the coastal findings; examination of such use patterns and the accompanying attraction, facilities, and services with respect to their dependency upon natural and man-made resources; non-profit organizations and government investments by business, non-profit organizations and government investments in tourism and recreation enterprises; development of an index, relating location criteria to resource and use characteristics; and mapping those areas where resource factors are positive in support of projected tourism-recreation uses.

Texas A & M University System, School of Agriculture, College Station, Texas 77843. Funded by: Texas State Government. 7/72 - 6/73.

C. A. Gunn, C. S. Vandoren, S. M. Gillespie.

00014

Effects of human activity on the ecology of the sand dunes of Padre Island National Seashore and adjacent areas.

To determine the carrying capacity of the beach zone and the dune area insofar as human activity and impact is concerned.



Quantitatively determine the total productivity of vegetation in transects during seasonal fluctuations as related to human impact. Quantitatively determine plant species composition in transects during seasonal fluctuations as related to human impact. Quantitatively determine total animal biomass in transects on a monthly basis. Study micro-environment within the study area and the modifications human activity creates. Investigate the possibility of arriving at a maximum number of people that the park will support without causing permanent damage to the existing vegetation and animal life, and proper distribution of these.

Texas A & I University. Funded by: Texas A & I University. Welder Wildlife Foundation 3/73 - 5/74.

Mr. Jerry McAtte, Mr. Tony Ortiz. Published thesis.

00015

Outdoor recreation on the Gulf Coast of Texas.

Texas Department of Parks and Wildlife. January 1974.

(General Survey).

00016

Lower Mississippi Region Comprehensive Study.

Study outlining recreation resource availability and needs.

Bureau of Outdoor Recreation, Southeast Region, 810 New Walton Building, Atlanta, Georgia 30303. Funded by: Corps of Engineers.

Federal Agencies: Department of the Army; Department of the Interior; Department of Agriculture; Department of Commerce; Department of Health, Education and Welfare; Department of Housing and Urban Development; Department of Labor; Department of Transportation; Federal Power Commission; Environmental Protection Agency.

States: Arkansas, Illinois, Kentucky, Louisiana, Mississippi, Missouri, Tennessee.

Publication: Recreation appendix.

00017

Study of Suwanee River in Georgia and Florida under the provision of Public Law 90 - 542. Wild and Scenic River Act.

Bureau of Outdoor Recreation Southeast Region. General Operating Funds, 810 New Walton Building, Atlanta, Georgia 30303.

Bureau of Outdoor Recreation, States of Georgia and Florida -- concerned agencies, U.S. Forest Service -- State and Private Forestry, Bureau of Sport Fisheries and Wildlife, National Park Service, U.S. Geological Survey, Environmental Protection Agency -- Water Quality office, Economic Research Service, Soil Conservation Service.

00018

Pilot survey of saltwater sport fishing activity in the Cedar Key, Florida area.

Evaluating outdoor recreation.

To conduct a survey of sport fishermen and associated sport fishing activity, prepare a non-analytical tabular summary report, and provide a complete record of the survey responses of Cedar Key, Florida.

University of Florida, National Marine Fisheries, Gainesville, Florida 32611. Funded by: U.S. Dept. of Commerce.

Kenneth C, Gibbs, Richard Raulerson.

00019

Hydrographic study of the proposed dredging for New Smyrna Beach.

University of Florida. Funded by: Stafford and Brock.  
2/73 - 4/73.

O. Shemdin.

00020

Hydrographic study of Punta Gorda Isles marina.

University of Florida. Funded by: Punta Gorda Isles. 10/72 - 2/73.

O. Shemdin.

00021

Florida Recreation Area Inventory

The identification, resource and facility description and location of all publicly (Federal, state, county, and municipal) administered recreation areas in Florida.

A data base necessary for the statewide comprehensive recreation planning process.

Department of Natural Resources, Division of Recreation and Parks in cooperation with the Department of Transportation, Bureau of Planning. Operating budget. 3/1/73 - 4/30/74 (Update beginning in 5/74).

Collier Clark - Planner, Division of Recreation and Parks, DNR. William Hill Environmental Specialist, Bureau of Planning, Department of Transportation.

00022

A study of beach elevation and vegetation interrelationships on Padre Island, Texas.

Effect of vehicles on long term net foredune recession, Padre Island and Texas Gulf Coast.

Study beach profiles at each study site to determine rate of accumulation or erosion. Determination of vegetation type and density. Distance from high tide line to seaward edge of vegetation. Distance from seaward edge of vegetation to the front of the foredune ridge. Distance from front of foredune ridge to high tide line. Aerial photographing of study areas to determine development of vegetation over larger areas of the beach than by surface survey. Monthly monitoring of these areas.

University of Texas, Marien Science Institute at Port Aransas, Texas. Funded by: National Park Service. 8/73 - continued monitoring.

Dr. William Behrens, Dr. Richard Watson Interior reports and yearly progress reports.

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Marine Science Institute at  
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00001

Striped bass production and stocking experiments in Alabama coastal areas.

Alabama Department of Conservation and Natural Resources (Marine Resources Division). Funded by: U. S. Dept. of Commerce, National Oceanic and Atmospheric Administration, National Marine Fisheries Service. U. S. Department of Interior, Bureau of Sport Fisheries and Wildlife (Anadromous Fish Act).

M. P. Powell, W. M. Tatum.

00002

Food habits, length-weight relationships and condition factor of large mouth bass in a southern coastal river.

Mississippi State University, Department of Wildlife and Fisheries. Funded by: National Atmospheric and Space Administration.

R. Coleman, W. J. Lorio.

00003

Sportsfishing survey of Biloxi Bay and Mississippi Sound.

The objectives of this study are: 1) initially to establish statistical data showing the sportsfish catch along the Mississippi Gulf Coast. When combined with like data recorded by the commercial fishermen, it will provide a complete picture of the total fishery of the Mississippi Gulf Coast, 2) ultimately to initiate sound management practices and to recommend legislation for a well regulated sportsfishing industry and to recommend legislation which would enable Mississippi to preserve and to more wisely utilize its total fishery resources.

For additional information pertaining to this project contact Dr. Sidney D. Upham, Director, Universities Marine Center, P. O. Drawer AG, Ocean Springs, Mississippi 39564.

Mississippi State University, Graduate School, 113 Hilbun Hall, State College, Mississippi 39762. Funded by: Commerce Department, National Oceanic and Atmospheric Administration, Sea Grant Office. 3/72 - 2/73.

T. D. McIlwain, W. J. Lorio.

00004

Acoustical detection of marine organisms.

Objectives are to: 1) produce a library of marine animal sounds from the Texas Coast, 2) pursue and perfect techniques for utilizing underwater habitats as bases for bio-acoustical investigations, 3) define aspects of the acoustical behavior of certain dominant sound producers (particularly members of the family Holocentridae), 4) define relationship of sound production to feeding behavior of certain predaceous and grazing fishes.

Information will be used: 1) ultimately, in the production of an instructive bulletin for laymen which will enable them to interpret sounds detected on reefs and other fishing grounds, 2) in relating sound production patterns to distribution and behavior of sport and commercial fishes frequenting hard bottom marine habitats. For additional information pertaining to this project contact Dr. Robert C. Stephenson, Director, Center for Marine Resources, Texas A & M University, College Station, Texas 77843.

Texas A & M University System, School of Science, College Station, Texas 77843.  
Funded by: Commerce Department, National Oceanic and Atmospheric Administration, Sea Grant Office. 6/72 - 5/73.

T. J. Bright.

00005

Biology and ecology of billfishes in Gulf of Mexico.

Technical objective is to obtain answers to questions concerning food, growth, spawning, distribution, morphology, occurrence, and association with environmental factors of big game fishes in the Gulf of Mexico. Certain data on catch and effort in the sport fishery for big game fishes in the Gulf. These data will be essential for making managerial decisions concerning big game fish resources.

U. S. Department of Commerce, National Oceanic and Atmospheric Administration, National Marine Fisheries Service, East Gulf Sp. Fish Marine Lab., P. O. Box 4218, Panama City, Florida 32401. Self funding.

E. L. Nakamura, L. H. Ogren, L. R. Rivas.

00006

Fisheries resources assessment and monitoring.

Marine biology, commercial fishing, oceanography, sport fishing.

U. S. Department of Commerce, National Oceanic and Atmospheric Administration, National Marine Fisheries Service; Gulf Coast Research Laboratory. Funded by: National Marine Fisheries Service 10/73 - 9/76.

J. Y. Christmas, H. M. Perry.

00007

Magnitude of sportfishing in Biloxi Bay and Mississippi.

This survey is documenting the magnitude of sportfishing activity in Biloxi Bay and Mississippi and providing data on the biology and economics of that fishery.

U. S. Dept. of Commerce, National Oceanic and Atmospheric Administration, National Marine Fisheries Service, Gulf Coast Research Laboratory, Andromous Fish Section. Funded by: U. S. Department of Commerce, National Oceanic and Atmospheric Administration, Office of Sea Grant. July 71 - December 74.

D. McIlwain, Dr. D. C. Williams. Publications: Jackson, Gerry A. "A Sportsfishing Survey of Biloxi Bay and the Adjacent Mississippi Sound". Department of Wildlife and Fish, Mississippi State University. December 1972. (M.S. Thesis), Pub. #MS6P-70-013.

00008

Life studies, Gulf Coastal Marine Fish.

Marine sportfishes.

U. S. Department of Commerce, National Marine Fisheries Service, Gulf Coastal Fisheries Center, Panama City Laboratory, Panama City, Florida. Self funded. 1970 - ?.

E. L. Nakamura.

Wickham, D. A.; J. W. Watson; and L. H. Ogren 1973, The efficacy of midwater artificial structures of ratracting pelagic sport fishes. Trans. Amer. Fish. Soc. 102 (3): 563-572.

Nakamura, E. L. and L. R. Rivas, 1972. Big game fishing in the Northeastern Gulf of Mexico during 1971. Mimeo, rept., NMFS, Panama City, Florida.

Rivas, L. R. 1973, Big game fishing in the northern Gulf of Mexico during 1972. Mimeo. rept. NMFS, Panama City, Florida.

00009

Striped Bass rearing and stocking program - Mississippi.

Feasibility of rearing striped bass in an artificial environment for stocking into local waters to rebuild a striped bass fishery for both sports and commercial fisherman.

U. S. Department of Commerce, National Oceanic and Atmospheric Administration, National Marine Fisheries Service. Funded by: U. S. Department of Interior, Bureau of Sport Fisheries and Wildlife, State of Mississippi.

Annual Completion Reports of Project Activity - NMFS Regional Office, St. Petersburg, Florida. Publications: McIlwain, T. D. 1967. Distribution of the Striped Bass, Roccus saxatilis, in Mississippi waters. Proc. 21st Annual Conference S.E. Assoc. Game and Fish Comm. pp. 254-257.

00010

Sport fishing survey of Biloxi Bay, Mississippi.

To survey the sport fishing effort, total catch, and composition of Biloxi Bay, Mississippi.

Gulf Coast Research Lab and Mississippi Southern University. Funded by: National Science Foundation, Mississippi Universities.

Marine Center. 6/71 - 6/72.

W. J. Lorio.

00011

Biology and ecology of coastal marine fishes.

Technical objective is to answer the following: 1) what species occur in coastal and estuarine areas of the Gulf of Mexico? 2) how and in what stages of their life history are the species associated with our coastal and estuarine habitats? 3) what is the distribution and abundance of these species relative to geography, seasons, and environmental parameters? 4) what constraints affect or limit the distribution and abundance of these species?

U. S. Department of Commerce, Panama City Laboratory, P. O. Box 4218, Panama City, Florida 32401. Self funding.

00012

Sports fishing survey of Biloxi Bay and Mississippi Sound.

Gather and analyze data on species composition, length, weight data, and seasonal occurrence of those fish taken in the sport fishery.

U. S. Department of Commerce, National Oceanic and Atmospheric Administration, National Marine Fisheries Service, Gulf Coastal Research Laboratory. Funded by: U. S. Department of Commerce, National Oceanic and Atmospheric Administration. 6/71 - 12/72.

W. J. Lorio, T. D. McIlwain.

00013

Sport fishing in Everglades National Park, Florida.

Basic data acquisition concerning sport fishing for management of the fishery.

Catch and fishing effort data are collected by interviewing fishermen at dockside. Total fishing pressure and harvest are estimated from aerial surveys and ramp counts. Boating use patterns are also recorded during the aerial surveys. Catch rates are calculated for 21 species of marine and estuarine fishes from 6 ecological zones by 5 categories of fishermen. Fish populations, inferred from catch rates, show fluctuations associated with rainfall and salinity, but not fishing pressure. No significant decline in catch rates is apparent over the past 14 year period.

National Park Service, Everglades National Park. Funded by: National Park Service, 1958 - ?.

Gary E. Davis.

00014

Spiny lobster, Panulirus argus, sport fishery at Dry Tortugas, Florida.

Population dynamics, ecology, and sport dive harvest impact on the spiny lobster population at Dry Tortugas, Florida.

Spiny lobsters support valuable fisheries world wide. Unexploited, natural populations are rare, and the Panulirus argus population at Dry Tortugas, Florida, represents the only large undisturbed population of this species in North America, and perhaps anywhere in its range. The impact of a limited sport harvest on this population is being assessed. No commercial or trap harvest will be allowed. The residency of the lobsters at Dry Tortugas is being determined by population age structure comparisons with other areas, and a tagging/recovery program. Preliminary results indicate a rather large, stable, resident population that moves seasonally between the deepwater reefs and shallow water reef flats. It is too early to make any statement concerning impact of the sport harvest. Some catch and effort data are being collected from the adjacent commercial trap fishery.

U. S. Department of Interior, National Park Service, Fort Jefferson National Monument. Funded by: U. S. Department of Interior, National Park Service, June 1971 - July 1976.

G. E. Davis.

00015

Florida Bay Fisheries Research Project

An ecological investigation of the ichthyofauna and invertebrates inhabiting specific habitat types in relation to the sport and commercial fishery population patterns.

An exploratory ecological survey in Florida Bay will be conducted in order to most effectively describe the ichthyofauna and invertebrates occupying representative habitats within the confines of the Park. This will be carried out by collecting and analyzing data on absolute abundance (Biomass), relative abundance, seasonal occurrence and life history aspects with emphasis on trophic relationships on the biota in the Bay. Samples will be taken with quantitative and qualitative gear including semi-balloon otter trawl, beach seines, cast nets and encircling nets with systemized and standardized collecting procedures based on tidal and lunar periodicity. Hydrographic observations will be made on biological sampling stations to include salinity, temperature, conductivity, dissolved O<sub>2</sub>, pH, and turbidity.

The resultant findings will enable realistic evaluations of management programs and provide additional bases to monitor the effects of environmental changes in Florida Bay.

National Park Service, Everglades National Park. Funded by: Department of Interior, National Park Service. June 1973 - 1978.

T. W. Schmidt.

00016

Pilot survey of saltwater sport fishing activity in the Cedar Key, Florida area.

Evaluating outdoor recreation.

The purpose of this study is to conduct a survey of sport fishermen and associated sport fishing activity, prepare a non-analytical tabular summary report, and provide a complete record of the survey responses of Cedar Key, Florida.

University of Florida, National Marine Fisheries, Gainesville, Florida 32611. Funded by: U. S. Department of Commerce.

K. C. Gibbs and R. Raulerson.

00017

Pilot survey of saltwater sport fishing activity in the Cedar Key, Florida area.

University of Florida. Funded by: U. S. Department of Commerce, 6/73.

K. C. Gibbs.

00018

Distribution and relative abundance of the spiny lobster Panulirus guttatus in southeastern Florida.

The objectives are: 1) to conduct a survey of distribution and relative abundance of the spiny lobster, Panulirus guttatus, along the southeastern coast of Florida and into the Florida Keys to determine whether or not this species occurs in commercial quantity 2) to obtain the biological data necessary to evaluate the need for regulations of fishing.

How information will be applied: information concerning distribution and abundance of this presently unexploited (in Florida) species of spiny lobster will be made available to the commercial lobster fishing industry of Florida. Through publications, responses to inquiries, etc., information concerning methods of capture, lobster habitat, seasonal fluctuations in abundance, and reproductive cycle will also be made available to individuals and organizations within the Caribbean and South American regions where P. guttatus is known to occur. Such information would be applied toward development of more effective sport and commercial fisheries of this species.

For additional information pertaining to this project contact Dr. Richard G. Bader, Director, Sea Grant Programs, University of Miami, Coral Gables, Florida 33146.

University of Miami, School of Marine Science, 1 Rickenbacker Cswy., Miami, Florida 33149. Funded by: Commerce Department, National Oceanic and Atmospheric Administration, Sea Grant Office.

C. W. Caillouet

00019

Sport fishing creel census - pilot study.

University of Texas, Marine Science Institute at Port Aransas, Texas 78373. Funded by: Lower Nueces River Water Supply District. Completed or underway 1972 - 1973.

Mrs. Bowman.



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### **The Department of the Interior Mission**

As the Nation's principal conservation agency, the Department of the Interior has responsibility for most of our nationally owned public lands and natural resources. This includes fostering sound use of our land and water resources; protecting our fish, wildlife, and biological diversity; preserving the environmental and cultural values of our national parks and historical places; and providing for the enjoyment of life through outdoor recreation. The Department assesses our energy and mineral resources and works to ensure that their development is in the best interests of all our people by encouraging stewardship and citizen participation in their care. The Department also has a major responsibility for American Indian reservation communities and for people who live in island territories under U.S. administration.



### **The Minerals Management Service Mission**

As a bureau of the Department of the Interior, the Minerals Management Service's (MMS) primary responsibilities are to manage the mineral resources located on the Nation's Outer Continental Shelf (OCS), collect revenue from the Federal OCS and onshore Federal and Indian lands, and distribute those revenues.

Moreover, in working to meet its responsibilities, the **Offshore Minerals Management Program** administers the OCS competitive leasing program and oversees the safe and environmentally sound exploration and production of our Nation's offshore natural gas, oil and other mineral resources. The MMS **Minerals Revenue Management** meets its responsibilities by ensuring the efficient, timely and accurate collection and disbursement of revenue from mineral leasing and production due to Indian tribes and allottees, States and the U.S. Treasury.

The MMS strives to fulfill its responsibilities through the general guiding principles of: (1) being responsive to the public's concerns and interests by maintaining a dialogue with all potentially affected parties and (2) carrying out its programs with an emphasis on working to enhance the quality of life for all Americans by lending MMS assistance and expertise to economic development and environmental protection.