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# THIRTY-SIXTH ANNUAL REPORT OF THE GULF STATES MARINE FISHERIES COMMISSION



The GULF STATES MARINE FISHERIES COMMISSION is an organization of the five States, whose coastal waters are the Gulf of Mexico. This compact, authorized under Public Law 81-66, was signed by the representatives of the Governors of the five Gulf States on July 16, 1949, at Mobile, Alabama. It has as its principal objective the conservation, development, and full utilization of the fishery resources of the Gulf of Mexico, to provide food, employment, income, and recreation to the people of these United States.

GULF STATES MARINE FISHERIES COMMISSION  
THIRTY-SIXTH ANNUAL REPORT (1984-1985)

*To the*

CONGRESS OF THE UNITED STATES

*And to the*

GOVERNORS AND LEGISLATORS

*of Alabama, Florida, Louisiana, Mississippi, and Texas*

Presented in compliance with the terms of the Compact and  
the State enabling Acts creating such Commission and  
Public Law 66 - 81st Congress assenting thereto.

GULF STATES MARINE FISHERIES COMMISSION  
P.O. Box 726  
Ocean Springs, Mississippi 39564

(601) 875-5912

## ACKNOWLEDGEMENT

In submitting this Thirty-Sixth Annual Report, the Commissioners wish to express their most sincere appreciation for the splendid cooperation of the Members of Congress and the Governors and Legislators of the compact states. The Commission fully appreciates that such measure of success as has been attained in the past thirty-six years could not have been possible without such valued assistance. This acknowledgment is also extended to the directorates and staffs of Federal, State and interstate agencies, and to representatives of all organizations and individuals who have contributed toward the realization of the objectives of the GULF STATES MARINE FISHERIES COMMISSION.

Respectfully submitted,

Richard L. Leard, Chairman  
Clyde Richbourg, Vice Chairman  
Larry B. Simpson, Executive Director

Published June 1986

GULF STATES MARINE FISHERIES COMMISSION

Thirty-sixth Annual Report (1984-1985)

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*Roster of the*

GULF STATES MARINE FISHERIES COMMISSION

October 1, 1984 - September 30, 1985

Chairman: Richard L. Leard

Vice Chairman: Clyde Richbourg

COMMISSIONERS

(order of listing - Administrator, Legislator, Governor's appointee)

ALABAMA

John W. Hodnett, Commissioner  
Alabama Department of Conservation  
and Natural Resources  
Montgomery, AL

Taylor F. Harper, Representative  
State of Alabama  
Grand Bay, AL

John Ray Nelson  
Bon Secour Fisheries, Inc.  
Bon Secour, AL

FLORIDA

Elton J. Gissendanner  
Executive Director  
Florida Department of Natural  
Resources  
Tallahassee, FL

Sam Mitchell, Representative  
State of Florida  
Chipley, Florida  
Clyde Richbourg  
Gulf Breeze, FL

LOUISIANA

J. Burton Angelle  
Executive Secretary  
Louisiana Department of  
Wildlife and Fisheries  
Baton Rouge, LA

Frank J. Patti, Representative  
State of Louisiana  
Belle Chasse, LA

Leroy Kiffe  
Tom Kiffe & Son Boats  
Lockport, LA

MISSISSIPPI

Lon Strong, Executive Director  
Mississippi Department of  
Wildlife Conservation  
Jackson, MS

Ted Millette, Representative  
State of Mississippi  
Pascagoula, MS  
Holton D. Turnbough  
WGUF Radio Station  
Gulfport, MS

TEXAS

Charles D. Travis  
Executive Director  
Texas Parks and Wildlife  
Austin, TX

H. Tati Santiesteban, Senator  
State of Texas  
El Paso, TX  
Leslie E. Casterline, Jr.  
Fulton, TX

STAFF

Larry B. Simpson  
Executive Director

Virginia K. Herring  
Executive Assistant

Nikki Bane  
SEAMAP Coordinator

Lucia B. O'Toole  
Publication Specialist

Eileen M. Benton  
Staff Assistant

COMMISSION OFFICERS ELECTED FOR  
YEAR 1984-1985

Chairman: Richard L. Leard succeeding Robert J. Kemp  
Vice Chairman: Clyde Richbourg succeeding Richard L. Leard

COMMITTEES

Executive Committee.....Richard L. Leard, Chairman  
Technical Coordinating Committee.....J.Y. Christmas, Chairman  
    SEAMAP Subcommittee.....Walter Tatum, Chairman  
    Crab Subcommittee.....Paul Hammerschmidt, Chairman  
    Statistical Subcommittee.....Henry "Skip" Lazauski, Chairman  
    Anadromous Fish Subcommittee.....Larry Nicholson, Chairman  
Industry Advisory Committee.....Ralph Rayburn, Chairman  
Recreational Fisheries Committee.....Jim Barrett, Chairman  
Law Enforcement Committee.....Jerald Waller, Chairman  
Gulf State-Federal Fisheries Management Board.....Hugh Swingle, Chairman  
    Menhaden Advisory Committee.....Dalton Berry, Chairman

## COMMISSION ACTIVITIES

OCTOBER 1984 - SEPTEMBER 1985

The Gulf States Marine Fisheries Commission held two regular semi-annual meetings in October and March. The Committees and Subcommittees met more frequently on an as needed basis. The October meeting was held in New Orleans, Louisiana and the March meeting was held in Mobile, Alabama.

The October meeting of the Commission, as has been the tradition, dealt with Commission and Committee issues without a formal region wide symposium on a current topic. The activities of the full Commission and its various segments has grown significantly in recent years. An overview of some of the major projects undertaken by the Commission is contained herein. A major project undertaken by the Commission this year was to document the needed research (in the broadest sense) of the Gulf of Mexico and develop a plan for implementing the program if funded by Congress. The project known as the Marine Fisheries Initiative (MARFIN) -- the Gulf of Mexico phase was an ambitious undertaking given the diverse marine resources of the Gulf and the fiscal climate of the Federal Government. The Gulf's research funding needs have too long lagged behind other geographic areas in terms of Federal funding--this in the face of supporting the number one fishery in terms of value (shrimp) and the number one fishery in terms of pounds landed (menhaden). A broad based task force was assembled and with a high level of matching funds from industry and partial funding from the Gulf and South Atlantic Fisheries Development Foundation, the project was completed in January of 1985. It is in the best interest of the nation to maintain and increase employment, and to prevent increases in and to reduce the national trade deficit. Investment of public funds in the acquisition of additional fishing information needed to maintain and expand existing fisheries and to establish new fisheries could meet increasing demands for fishery products, reduce existing needs for imported fishery products, and increase export of fishery products. Increased production would provide substantial increases in employment opportunity.

A management organization was developed to provide guidance for the 5 year research program. An estimated \$8 million per year was identified as the funding needs. The Federal Government appropriated some \$2.85 million for FY 86 thus indicating a high level of commitment, emphasis, and given the fiscal climate, support for Gulf marine fisheries needs.

The Anadromous Fish Subcommittee of the Technical Coordinating Committee (TCC) continued the difficult work of developing a management plan for striped bass in the Gulf of Mexico. They expect to publish the plan in 1986.

The year saw continued support for the PL 88-309 (Commercial Fisheries Research and Development Act) by Congress. Not only was funding restored (Administration recommended zero) but \$500K was added for this important state program. The Commission was deeply involved in carrying the need and justification for the program to Congress on behalf of the States.

The March meeting of the Commission was held in Mobile, Alabama and had as its theme "Design, Collection and Assessment of Angler Volunteered Information Programs." The statistical programs of the States and the Federal Government provide the foundation -- the basic building blocks of information such as catch, effort, area of capture, basic value, etc. This information is used by the States, Councils and Federal Government to manage and monitor fishing resources based on sound scientific information rather than the human tendencies of emotion or politics.

An excellent group of statisticians was assembled to present and discuss interaction of the various State and Federal data collection programs. The following papers were presented at the General Session Symposium sponsored by the Statistical Subcommittee:

- (1) General and Past Experiences with Survey Design, Data Collection and Analysis  
Dr. Steve Malvestuto, Auburn University
- (2) National Recreational Fishing Survey  
Dr. Mark C. Holliday/Mr. Ronald J. Essig, National Marine Fisheries Service
- (3) State of Texas Recreational Fishing Survey  
Dr. Hal R. Osburn, Texas Parks and Wildlife Department
- (4) The Administrative, Technical and Legal Aspects of Setting Up and Use of an Information System -- West Coast Experiences  
Mr. Will Daspit, Pacific Marine Fisheries Commission -- PACFIN
- (5) Assessing the Validity of Information Provided by Tagging Studies  
Mr. Albert W. Green, Texas Parks and Wildlife Department
- (6) NMFS Charterboat Surveys  
Dr. Lee Trent, National Marine Fisheries Service
- (7) Problems and Needs with Respect to the NMFS National Recreational Fishing Survey and Commercial Landing Survey  
Dr. Henry G. (Skip) Lazauski, Alabama Department of Conservation and Natural Resources
- (8) Panel Discussion and Audience Questions and Answers.

The formal publication of the Proceedings is expected to be in the fall of 1986.

These along with the "normal" coordinating functions of the Commission's active Committees and Subcommittees made for a very busy and productive year.

## MEETINGS/ACTIVITIES OF THE EXECUTIVE DIRECTOR

### *Gulf States Marine Fisheries Commission (GSMFC)*

Marine Fisheries Initiative (MARFIN - S/K Contract) Task Force Meeting, New Orleans, Louisiana - October 1984  
35th Annual Fall Meeting, New Orleans, Louisiana - October 1984  
35th Annual Spring Meeting, Mobile, Alabama - March 1985  
Meeting with Chairman Leard regarding October Commission Meeting, Long Beach, Mississippi - October 1984  
Meeting with Consultants on MARFIN Project - October 1984  
Meeting with Consultants on MARFIN Project - November 1984  
Marine Fisheries Initiative (MARFIN - S/K Contract) Task Force Meeting, Biloxi, Mississippi - December 1984  
Conference Call with Interstate Compact Executive Directors regarding Federal Budget, Ocean Springs, Mississippi - December 1984  
Meeting with General Session Chairman Lazauski, regarding March symposium, Dauphin Island, Alabama - December 1984  
Meeting with Chairman Leard regarding March Commission Meeting, Long Beach, Mississippi February 1985  
Meeting with Chairman Tatum regarding SEAMAP, Ocean Springs, Mississippi - March 1985  
Anadromous Subcommittee Meeting, Biloxi, Mississippi - July 1985  
Joint Gulf/South Atlantic SEAMAP Meeting, Charleston, South Carolina - August 1985  
SEAMAP Plankton Workgroup Meeting, Ocean Springs, Mississippi - August 1985  
SEAMAP Subcommittee Meeting, New Orleans, Louisiana - August 1985  
Meeting with Representative Harper, regarding National Council of State legislators meeting concerning fisheries issues, Mobile Airport, Mobile, Alabama - September 1985  
Meeting with Chairman Leard, regarding October Commission Meeting, Long Beach, Mississippi - September 1985

### *Gulf States-Federal Fisheries Management Board (GS-FFMB)*

GS-FFMB Meeting, New Orleans, Louisiana - October 1984  
GS-FFMB Meeting, Mobile, Alabama - March 1985

### *Gulf of Mexico Fishery Management Council (GMFMC)*

November 1984	Tampa, Florida
January 1985	Brownsville, Texas
May 1985	Biloxi, Mississippi
July 1985	Key West, Florida
September 1985	New Orleans, Louisiana

### *Congressional Meetings*

Testimony before House Subcommittee on Fisheries and Wildlife Conservation and Environment regarding PL 88-309 and PL 89-304 Washington, D.C. - February 1985  
Presentation/Briefing Congressional delegations and staff, NMFS staff regarding MARFIN, Washington, D.C. - January 1985  
Testimony before House Subcommittee on Appropriations Washington, D.C. - April 1985

## *Other Meetings and Activities*

Atlantic States Marine Fisheries Commission (ASMFC) Annual Meeting, Savannah, Georgia -  
October 1984

NMFS/Southeast Fisheries Center Merit Award for Perry Thompson, Pascagoula, Mississippi -  
November 1984

NMFS/SERO Industry Steering Committee, St. Petersburg, Florida - November 1984

Minerals Management Information Transfer Meeting, New Orleans, Louisiana - November 1984

Oil Companies and Fishing Industry Advisory Council Meeting, Orlando, Florida -  
January 1985

Marine Fisheries Advisory Committee (MAFAC) Washington, D.C. - January 1985

Mississippi Gulf Coast Fishing Banks Annual Meeting, Biloxi, Mississippi - February 1985

U.S./Japanese Delegation Meeting to plan cooperative Squid/Butterfish Research Cruise,  
Pascagoula, Mississippi - March 1985

Louisiana Shrimp Association/International Trade Commission Meeting, New Orleans,  
Louisiana - March 1985

Presentation to Sport Fishing Workshop (S/G) regarding Flounder fishing, Biloxi,  
Mississippi - April 1985

Louisiana Department of Wildlife and Fisheries Meeting regarding setting shrimp  
season, New Orleans, Louisiana - April 1985

Squid/Butterfish Workshop, Pascagoula, Mississippi - June 1985

State Fish and Wildlife Directors Conference, Washington, D.C. - June 1985

Mississippi/Alabama Sea Grant project Artificial Reef Siting Plan, Mobile, Alabama -  
September 1985

## ALABAMA DEPARTMENT OF CONSERVATION AND NATURAL RESOURCES

### MARINE RESOURCES DIVISION

The Marine Resources Division is responsible for management, production and enhancement of the State's marine fishery resources. The Division conducts fisheries research aimed at increasing and protecting fishery resources, increasing the accessibility of fishery stocks to resource users and provides protection of these resources through enforcement of laws and regulations promulgated by the Commissioner.

The Division contains the Administrative, Fisheries, and Enforcement Sections and had 36 full-time employees during FY 84-85.

#### ADMINISTRATIVE SECTION

The Administrative Section contains the Division Director, six full-time clerical, and one custodial-mechanical personnel during FY 84-85 with offices maintained at Dauphin Island and Bayou La Batre (Mobile County) and Gulf Shores (Baldwin County).

#### FISHERIES SECTION

The Fisheries Section contains the Chief Marine Biologist, two Biologist III's, three Biologist II's, two Biologist Aide I's, two Biologist Aide II's, three Biologist Aide's III, and two biweekly laborers. The Section conducts applied marine fishery research, collects biological data from which management recommendations are made and provides supervision and recommendations on the maintenance and construction of public access areas and artificial reefs. The hatchery facility at Gulf Shores produces striped bass fingerlings for stocking into the estuarine area and additionally conducts mariculture research on a number of recreational and commercially important marine species including red drum, speckled trout, bull minnows (bait fish), and shrimp.

Sampling of the oyster reefs during August indicated the largest oyster population since the dive survey began in 1979. Hurricane Elena devastated the reefs in September of 1985. A loss of 89% of the oysters on Cedar Point Reef, 84% on Buoy Reef, and 48% on Kings Bayou Reef was documented. Two weeks following the hurricane 14,458.77 yd<sup>3</sup> of clam shell was placed on the western edge of Cedar Point Reef.

#### COOPERATIVE STATE/FEDERAL STATISTICAL PROGRAM

The Marine Resources Division/National Marine Fisheries Service (NMFS) Cooperative Statistical Program was initiated during FY 81-82 to more efficiently collect and make available commercial fish and shellfish catch and landing data. Since project initiation, the Marine Resources Division has established a data collection system utilizing a port sampler in Baldwin and Mobile counties, hired a data entry person for entering catch data on a microcomputer and hired a State statistician for overseeing the data collection system. The program, although functioning well from a State perspective, has been somewhat stymied from reaching its full potential by the failure of the NMFS to honor in a timely manner its commitment to the program.

COMMERCIAL FISHERIES RESEARCH AND DEVELOPMENT ACT PL 88-309

This project was implemented 1 October 1982 although PL 88-309 funds were not made available until 15 November 1982. The report provides a summary of all project activities from 1 October 1982 - 30 September 1985.

Biological samplings in our assessment and monitoring program provided management data for penaeid shrimp, blue crabs, finfish, and oysters. The number of sampling stations was reduced from 51 in 1982 to 29 in 1984-85. Monthly catch per unit effort (CPUE) was calculated for juvenile and postlarval penaeid shrimp, blue crab juveniles and megalopae, and targeted finfish species. Oyster resources were monitored using 91.4m (100-yard) transect lines with 10 randomly placed grab bags. A scuba diver swam along the line until he encountered a grab bag at which time a 0.83 m<sup>2</sup> (1 yr<sup>2</sup>) grid was dropped and the contents inside the grid were picked up by hand and placed into the bag for later analysis. A creel survey was employed to analyze the adult finfish population in Alabama waters.

The monthly CPUE by brown shrimp postlarvae peaked in April of 1983, 1984, and 1985 with catches of 169.2, 36.4, and 153.8, respectively. The CPUE of juvenile brown shrimp peaked in June of 1982, May 1984, and May 1985 with catches of 82.1, 101.9, and 238.5, respectively. Monthly CPUE of postlarval white shrimp peaked in August of 1983 and 1984 and in September 1985 with catches of 6.0, 6.7, and 15.0, respectively. Monthly CPUE for juvenile white shrimp peaked in October 1983 and 1984 and in September 1985.

Monthly CPUE of blue crab megalopae peaked in December 1983, April 1984, and August 1985 with catches of 0.7, 3.5, and 178.8, respectively. Monthly CPUE for blue crabs peaked in April 1983, May 1984, and April 1985 with catches of 12.1, 33.9, and 2.4, respectively.

Annual CPUE for eight target species (menhaden, sand seatrout, spot, croaker, southern flounder, striped mullet, spotted seatrout, and red drum) was calculated from monthly and supplemental sampling stations. Five new species of fish were taken during the past year of assessment, one of which (Cuban anchovy, Anchoa cubana) had never been recorded from Alabama waters or the nearshore area of the Gulf of Mexico.

A 12-month creel survey conducted during 1984-85 by Marine Resources Division showed that 2,219,906 angler hours were spent by recreational anglers producing a total catch of 1,619,029 pounds of fish.

The annual August dives during 1985 on Alabama's productive oyster reefs showed the largest oyster population since dive surveying began in 1979. Hurricane Elena tore through Alabama's oyster beds in September 1985 devastating 89% of the oysters on Cedar Point Reef, 84% of Buoy Reef, and 48% on Kings Bayou Reef.

There has been a steady decline in USACOE Section 10 and Section 404 permit requests in the Alabama coastal area since 1981.

Pond production experiments with Fundulus grandis for live bait production over the length of this project indicates that female to male sex ratio, stocking density of broodstock, and available spawning mat space all play an important role in egg production. Winter culture experiments with rainbow trout indicate the best strain for brackish water culture in south Alabama to be the Wytheville strain followed respectively by the White Sulphur and London.

The development of culture techniques for taggable size spotted seatrout at Claude Poteet Mariculture Center has improved during each of the three segments in which this research has been

successful spawn, culture, and eventual tag and release of spotted seatrout has increased from 0 in 1983 to 200 in 1984 and finally to 8,344 in 1985.

The pond culture of penaeid shrimp during Segment 1 and 2 of this project was devoted to producing shrimp for human consumption. The culture trials were altered during Segment 3 to develop techniques for the production of live bait shrimp.

#### ANADROMOUS FISH ACT PL 89-304

Project number AFCS-23-2 is a cooperative project between the States of Alabama and Mississippi and is jointly funded by the Federal Government (NMFS and USF&WS) and the States on a 66 2/3 to 33 1/3 match, respectively. The cooperative project utilized facilities at the Gulf Coast Research Laboratory, Ocean Springs, Mississippi, to culture phase I striped bass after which the facilities at Claude Peteet Mariculture Center, Gulf Shores, Alabama, were utilized to culture advanced striped bass fingerlings. Personnel from the two States then worked together in the harvest, tagging, and releasing of the cultured fish.

Sixteen ponds were stocked with phase I fingerlings reared at the Gulf Coast Research Laboratory on 24 and 25 May 1984. Stocking rates of 25,000, 37,500, and 55,000 fish/acre were utilized. Subsequent parasitic and bacterial infections severely affected survival.

A total of 10,432 fish was harvested with 10,342 fish tagged. The fish were restocked into ponds and observed from 26 November 1984 until 14 January 1985 for the presence of the bacterium Pasteurella piscicida. At harvest 37.5% of the fish were recovered and released. A total of 3,879 tagged striped bass were released in Alabama and Mississippi coastal waters.

Thirty-three striped bass were captured in Alabama and one in Mississippi during evaluation studies. These fish ranged in size from 17.3 cm to 62.4 cm. Fifty-three tagged striped bass caught by fishermen were reported to the Marine Resources Division.

#### LAW ENFORCEMENT SECTION

The Enforcement Section contains 13 Conservation Enforcement Officers, eight in Mobile County and five in Baldwin County. Officers patrol the 780 square miles of brackish and salt waters of the state while enforcing state and federal laws and regulations pertaining primarily to seafood protection. They also enforce laws and regulations pertaining to public safety and unlawful activities such as smuggling. In addition to law enforcement, the officers conduct numerous search and rescue operations for overdue or disabled vessels and assist various federal, state, county, and volunteer agencies with seafood festivals, fishing rodeos and sailboat races.

Marine Resources Division officers worked a total of 23,808 boat and shore patrol hours. Officers worked 326.5 hours on search and rescue missions. There were 393 citations issued for violations of Marine Resources laws and regulations with shrimping in closed waters being the major violation (27%), followed by taking uncultured oysters (20%). Citations were also issued for 98 violations of water safety and game and fish laws and regulations. Eighty-eight percent of the citations issued resulted in convictions.

### Commercial Fisheries Landings

Total seafood landings in Alabama during 1984 were 26,405,000 pounds valued at \$43.8 million which was a increase of 27 percent in volume and a 2 percent increase in value under 1983.

Shrimp landings were 18,461,000 pounds valued at \$40.3 million accounting for 70 percent of the volume and 92 percent of the value of all landings during 1984.

Oyster landings were 477,000 pounds of meat valued at \$681,000. This was a 42 percent increase from 1983 and was about one-half of the average annual harvest. Unless funds are made available for annual shell planting, annual fluctuations in production will occur. The high landings during 1982 of 1.5 million pounds resulted from the Federally funded planting program in 1980.

### Fish Kills

A total of six fish kills was investigated by Marine Resource Division biologists during the past fiscal year. This represents a significant decrease (85%) from the previous fiscal year's fish kill investigations. Three of the six kills were thought to be related to water quality problems with the remaining three associated with either shrimper's discards or gill net discards.

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Location	County	Date	Total Killed	Species
Gulf of Mexico	Baldwin	11/15/84 11/16/84	3,000	Hardhead Catfish & Croaker
Terry Cove	Baldwin	10/31/84	45,000	Spot
Gulf of Mexico	Baldwin	6/20/85	37,050	Croaker & Hardhead Catfish
Bayou La Batre	Mobile	6/24/85	3,000	Menhaden
Bon Secour Bay	Baldwin	8/12/85	25	Hardhead Catfish
Bon Secour Bay	Baldwin	8/23/85	<u>523</u>	Menhaden
Total -			88,598	

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## Publications

- Heath, Stevens R. 1985. Shrimp Monitoring and Assessment in Alabama. In Proceedings of the Annual Conference of the Southeastern Association of Fish and Wildlife Agencies. No. 36. pp 403-409.
- Heath, Stevens R. 1985. Marine Biology in Action. Alabama Conservation Magazine July/August. pp 4-5.
- Heath, Stevens R. 1985. Nearshore Sampling Design, Gear, and Vessels Used by State Agencies in the Gulf of Mexico Region. In Proceedings of SEAMAP Shrimp and Bottomfish Sampling Gear Workshop - Gulf States Marine Fisheries Commission Publication No. 12. pp 1-9.
- Heath, Stevens R. 1985. Alabama Coastal Fisheries Resources Assessment and Monitoring. Research and Management of Alabama's Coastal Fisheries Federal Aid Completion Report 2-391-R. Mimeo File Report.
- Minton, R. V. and John P. Hawke. 1985. Spawning and Rearing of Selected Marine Species. Research and Management of Alabama's Coastal Fisheries. Federal Aid Completion Report 2-391-R. Mimeo File Report.
- Tatum, W. M. and R. V. Minton. In Press. An Overview of Mariculture Research at Claude Peteet Mariculture Center, Marine Resources Division, Alabama Department of Conservation and Natural Resources. In Department of Fisheries and Allied Aquacultures 50 Year Symposium.
- Tatum, Walter M. 1985. Do You Really Want to Catch Bluefin Tuna? Alabama Conservation Magazine July/August 1985. pp 8-9.
- Tatum, Walter M. 1985. The Alabama Seafood Industry: A Regionally Dependent Multi-million Dollar Enterprise. Alabama Conservation Magazine July/August 1985. pp 10-12.

## FLORIDA DEPARTMENT OF NATURAL RESOURCES

### DIVISION OF MARINE RESOURCES

#### BUREAU OF MARINE RESEARCH

Biologists of the Florida Department of Natural Resources, Bureau of Marine Research, reviewed and commented on several Gulf of Mexico and South Atlantic fisheries management plans by supplying research data and critiques. Other advisory and research assistance was provided to various Federal, State and local agencies. New programs in 1985 included: 1) the initiation of a marine fish stock enhancement research program, with snook selected as the first test species; 2) expansion of the collection of biostatistical data for fisheries statistics and initiation of an inventory of marine recreational fishing sites in each coastal county by fishing mode and seasonal usage; 3) expanded stone crab studies; 4) a pilot project on nursery habitat selection by juvenile fishes; and 5) the development of proposals to study hard clam resources and age and growth of spotted seatrout.

#### FINFISH

King mackerel size frequency monitoring continues. Approximately 10,000 fish, principally from commercial catches, were measured during 1985, bringing the total number of king mackerel measured to almost 100,000 for the periods 1968-69 and 1975-85. A decrease in modal size in yearly (seasonal) landings suggests a recruitment influx. Previous summaries indicate that recruitment is not constant; three periods of elevated recruitment occurred in 1969, 1975-76 and 1980-81. Past observations also indicate that commercial production increased when there was a decrease in modal size. During the years following elevated recruitment, the modal size of the landings progressively increased, suggesting that the fishery is strongly dependent on these cohorts. Yearly production following elevated recruitment appeared to be stabilized by individual growth of these cohorts, which offset declines in strength due to mortality. In 1984, a new wave of recruitment was indicated by a modal size decrease, followed by an incremental increase in 1985. Based on previous cycles, an increase in commercial landings would be expected for 1984-85. However, preliminary 1984 and 1985 landings indicate a precipitous decline for the Florida winter fishery, suggesting a weak recruitment class. Given the increased effort in recruitment years, the geographic expansion of the fishery and the increased capture of larger, older, predominantly female fish in Louisiana and some south Florida areas, there is urgent need to consider recruitment overfishing and recruitment failure.

A stock assessment of Spanish mackerel was prepared for the Florida Marine Fisheries Commission. There is strong evidence of a biological problem on the Florida east coast where recreational and commercial catches declined and the size of fish caught by recreational anglers also declined. On the Florida Gulf coast the evidence was conflicting. Although the recreational catch rates did not decline, the size of the fish captured decreased. In addition, since 1977 commercial catches on the Florida west coast were only a third of what they were in the previous decade. However, it could not be determined whether the decline was attributable to a decrease in abundance of Spanish mackerel or a reduced commercial fishing effort.

Though there was strong evidence of an overfishing problem on the east coast, the remedy was not so clear. Long term data were not available. Several data sources and analytical methods

were employed to estimate mortality rates, which were used, in turn, in yield per recruit analyses. A conservative approach was taken and the mortality rates selected were from the higher end of the range of possible values. The analyses indicated the need to remove some of the effort from the Spanish mackerel fishery and that the fishery may also benefit by increasing the age of entry into the fishery (i.e., increasing minimum size). The Florida Marine Fisheries Commission is formulating rules to limit effort and increase the age at entry into the fishery.

Snook tagging on the lower east coast continues with the aid of recreational anglers. This cooperative tagging is producing a different length-frequency distribution from that obtained for west coast snook. Gear selectivity is the most probable reason.

Tagging for the tenth year on the west coast has confirmed the presence of a very good year class of snook in the 15 to 22 inch size range. Appearance of these fish was predicted because of conditions favorable to larval/juvenile survival in 1982. Snook tagging was also initiated in Tampa Bay in 1985 with nearly 500 tagged.

New snook regulations (August closed season added to the June/July closures; new minimum size limit) have substantially reduced the number of tag returns from the west coast.

A total of 863 red drum were tagged and released in Tampa Bay from spring 1984 through spring 1985, continuing a study of red drum life history. Manuscripts on reproduction, growth and mortality, and a tag/recapture study on the Gulf coast are currently in review.

Sampling for a 17 month study on the life history of adult black drum in northeast Florida was completed in March 1985. Preliminary results suggest slow growth, peak spawning in March/April, sexual maturity between ages III-VI for males and ages V-VI for females, longevity of 55-60 years, and total mortality between ages III and VI of 55-67 percent.

#### INVERTEBRATES

Investigations of spiny lobster fishery practices continued. Research topics included trap escape gap design, comparative bait assessments, and effects of stress imposed by air exposure and escape behavior. A morphometric data base was acquired to provide management agencies additional information regarding sub-legal lobsters and to examine ontogenetic indicators of maturation. Studies indicated growth retardation of sub-legal lobsters resulting from confinement in fishery traps. A survey was initiated to determine the incidence and effectiveness of live wells to reduce mortality of lobsters used as attractants.

Blue crab tagging at 19 stations along the west Florida coast was completed. A total of 33,257 crabs were captured, 25,505 crabs were tagged and 19.1 percent were recovered. Return rates varied in different areas (from 7 to 43 percent), indicating differential fishery intensity. The seasonal northerly migration of females, revealed during an earlier Tampa Bay study, was confirmed.

The incidence of regenerated stone crab claws in fishery landings declined in 1984, followed by a resurgence to normal incidence during 1985. Results of studies on the effects of claw removal and exposure were used to change fishery regulations to enhance stone crab survival.

#### HABITAT

Under contract with the Florida Department of Environmental Regulation, the Bureau has continued to assess coastal and estuarine fisheries habitat changes. Areal fisheries habitat

component loss, e.g., mangroves, seagrasses, saltmarshes, mud flats, and oyster reefs, is being documented through time series evaluations of aerial photographs, satellite imagery, and maps for Charlotte Harbor, Tampa Bay, Indian River, Loxahatchee River, northeast Florida, the Big Bend area, Ponce Inlet, and the Florida Keys.

In addition to documentation of habitat loss and vegetation inventories, other habitat studies were conducted or are in progress. For example, a seagrass shading study quantified a decrease in leaf area due to light reduction, and a study of the effects of tidal inundation of mangroves continues in the Indian River mosquito impoundments. A cooperative study to evaluate habitat restoration success is demonstrating a lack of adequate research and monitoring of these activities over time. A major habitat study is using isotopic analysis of several estuarine fishes and their prey to determine their trophic relationships to mangroves, seagrasses, macroalgae, and phytoplankton in the Charlotte Harbor and Tampa Bay systems.

Microcomputers were acquired as a first step toward easier accessibility of habitat data by managers and researchers. The Rookery Bay Marine Sanctuary was chosen to serve as the pilot.

Evaluation of human impacts on coral reefs continues. The Bureau was active in assessing the damages caused by the grounding of the Wellwood tanker on Molasses Reef in Key Largo National Marine Sanctuary. Rehabilitation of the reef is being monitored by a variety of agencies.

#### PLANKTON

Studies of toxic dinoflagellates continue. Samples were collected at a disturbed reef site (Molasses Reef) and are being processed to determine relative abundance of potentially toxic dinoflagellates. Ciguatera studies include the culture of suspect toxic species, identification of species and their relative distribution from Dry Tortugas to Palm Beach.

#### ENDANGERED SPECIES

The green sea turtle headstart program continued with substantial facility improvements at the House of Refuge in Jensen Beach. Nesting of all species of sea turtles (i.e., loggerheads, greens, and leatherbacks) reached record highs in 1985.

West Indian manatee recovery program established two new boat speed regulatory zones to reduce mortality associated with boat kills. A new field office was established in Ft. Myers to monitor manatee populations in the Charlotte Harbor area. During the 1984-85 period, 16 manatees were tagged and tracked by radiotelemetry for up to seven months; one tagged female calved while wearing a functional transmitter.

#### FISHERIES STATISTICS

The fisheries statistics and data processing cooperative effort with NMFS continues. The State "trip ticket" program for commercial statistics started in December 1984 and had about 200 dealers reporting. When the program is in full operation, there will be about 550 reporting dealers. The purpose of these programs is to determine catch, effort, and exvessel value of all marine commercial fishery resources landed in Florida. The NMFS recreational catch statistics for 1979-84 were used for stock assessment of mackerels, redfish, and spotted seatrout. A State recreational fisheries program to inventory all fishing sites and shore based facilities (ramps, charter docks, etc.) will begin in 1986 using Wallop-Breaux funds. This inventory will allow further refinement of recreational surveys.

## BUREAU OF MARKETING AND EXTENSION SERVICES

The seafood industry today plays an important role in Florida's economy and the Florida Department of Natural Resources. The Bureau of Marketing and Extension Services is a vital factor in its continuous growth. The Bureau's prime function is to spearhead the State's seafood marketing activities, not only in Florida, but in existing and potential markets both foreign and domestic. With headquarters in Tallahassee, the Bureau consists of seven offices located throughout Florida; Atlanta, Georgia; and Little Rock, Arkansas.

Consumers are made aware of Florida seafood through personally conducted group demonstrations, television demonstrations, radio spots, and interviews, plus newspaper and magazine articles containing recipes and photographs. However, education goes much further than directly to the consumer. Marketing Specialists are in constant touch with food chain seafood merchandisers, brokers, wholesalers and retail seafood dealers making these people aware of species availability, promotional efforts and materials, "tie-ins," and market trends. Full knowledge of existing conditions in both Florida and the Nation's seafood industry, plus knowledge of and potential marketing possibilities is essential. This is accomplished by the continuous analysis of "catch" statistics, current market trends, and direct contacts with producers and processors. Also, Marketing staff members engage in specific seasonal promotions three times a year.

Educating consumers and professional food people on the nutritional value, selection, handling, and storage techniques of Florida seafood products is another function of staff members. Reaching further to enhance the use of Florida seafood, school lunch program directors, institutional food directors and buyers, and other groups receive educational demonstrations and information to guide them in making cost-effective seafood selections. This past year, a major breakthrough was accomplished in a newly revitalized institutional program. Many meetings and taste tests conducted in cooperation with the Florida Department of Corrections and the Florida Department of Health and Rehabilitative Services, and school lunch personnel have brought about new interests in Florida seafood and seafood products. The success of this program was due, in a large part, to the participation and interest of various industry representatives, who took the time to understand the problems associated with institutional foodservice and worked toward a common solution to increase the utilization of seafood.

The Bureau coordinated and participated in various trade shows and functions both nationally and internationally. These activities were conducted in concert with the Gulf and South Atlantic Fisheries Development Foundation, Inc. These shows included ANUGA International Food Fair in Cologne, West Germany; Alimentaria '84 in Barcelona, Spain; Hoteres and Foodex Japan '84 in Tokyo, Japan; Caribbean Food and Equipment Trade Exposition in San Juan, Puerto Rico; Rocky Mountain Hospitality Convention in Denver, Colorado; Pacific International Hospitality Convention in Seattle, Washington; Food Marketing Institute Convention, Dallas, Texas; 4th Gourmet Food and Wine Show, San Francisco, California; SIAL 84, Paris, France, National Grocer's Association Food Industry Exposition, Reno, Nevada; Midwest Grocer's Show, Indianapolis, Indiana; the American Diabetic Convention, Washington, D.C.; Florida Week, Toronto, Canada; and, Florida Trade Mission, Toronto/Calgary, Canada.

The Bureau continues to produce and distribute multi-million copies of point-of-sale and informational materials to retail markets, grocery chains, etc. These materials maintain top priority by retailers to educate the public on the awareness and utilization of seafood. While the materials are provided free-of-charge, major retail food chains are encouraged to utilize the Bureau's information, artwork, and transparencies to create their own point-of-sale materials.

The future for seafood marketing continues to focus on "change" and "new technology." The Bureau recently acquired video equipment which enables production of inhouse short-series video

tapes to tell the story. Tapes will be introduced at seafood retail counters as point-of-sale information and will offer exciting graphics for seminars and consumer education programs. A tape library will be available for distribution of taped programs throughout the United States upon request and will contain a variety of subjects from "Catch to Kitchen" about the industry.

These marketing activities are a major reason why Florida's seafood industry is a great economic factor to the State, continuing to enrich those who participate in the production, distribution and consumption of seafood both nationally and internationally.

## BUREAU OF MARINE RESOURCE REGULATION AND DEVELOPMENT

The primary responsibilities of the Bureau include the classification and monitoring of shellfish growing waters and the inspection of shellfish and blue crab processing plants to insure that shellfish and blue crabs are processed in a sanitary manner. Other programs include oyster reef construction and oyster transplanting, shellfish leasing, and artificial reef construction.

More than 10,000 shellfish growing water samples were tested for fecal coliform contamination to monitor Florida's shellfish harvesting areas. Florida has, as of 1980, 512,227 acres of Approved waters, 110,281 acres of Conditionally Approved waters, 292,484 acres of Prohibited waters and 1,352,635 acres of unclassified waters as calculated by the Food and Drug Administration's Northeast Technical Services Unit. Ten Environmental Specialists routinely monitor open and prohibited areas. In addition to routine water monitoring, personnel are responsible for red tide sampling and comprehensive shellfish area surveys or reappraisals.

The Processing Plant Inspection Program is staffed by five Environmental Health Specialists responsible for ensuring that oyster, clam, and blue crab processing plants throughout Florida maintain strict adherence to sanitary standards. As of January 1986, a total of 256 oyster processing plants and 43 blue crab processing plants were certified.

One full-time staff member is utilized in the Shellfish Leasing Program and is responsible for the inspection of existing shellfish leases for compliance with State law in the cultivation of oysters and clams in State waters. Additionally, proposed leases are inspected to insure that the requested lease areas are compatible with those conditions favorable for oyster or clam cultivation. More than 2,300 acres are currently under lease.

The Artificial Reef Construction Program, implemented August 7, 1979, had 12 projects funded between the first year and 1981. By June 1984, that figure had jumped to 54. Eleven reef construction projects were funded in 1985 and 20 will be funded in 1986.

Nine staff members are assigned to the Oyster Culture Program and are responsible for the construction of artificial oyster reefs to enhance the production of oysters in selected areas around the State. Shucked oyster shells are collected from selected oyster shucking establishments, stockpiled, and "cured" before being used as cultch for the "planting" of these reefs. During 1985, more than 70 acres of oyster reefs were planted in Apalachicola Bay, Franklin County, and Indian Lagoon, Gulf County.

Legislative appropriations for relaying seed oysters and rehabilitating oyster reefs totaled \$300,000 during fiscal year 1985-86. Funds were committed to programs in the following Florida Counties: Bay County received \$65,000; Wakulla County received \$50,000; Levy County received \$50,000; St. Johns County received \$25,000; Santa Rosa County \$50,000; Dixie County \$10,000; and Franklin County received \$50,000. Funds were administered through contracts between the Department of Natural Resources and local fishermen's associations. Programs were supervised by representatives of the Division of Marine Resources.

Depuration is a process whereby bacteria-free water is circulated through shellfish harvested from polluted areas. After a minimum of 48 hours, the process will render shellfish safe for human consumption. Ultraviolet radiation is used to kill bacteria and viruses which are purged by the contaminated shellfish. Five depuration plants are currently permitted by the Department.

## LOUISIANA DEPARTMENT OF WILDLIFE AND FISHERIES

### OFFICE OF COASTAL AND MARINE RESOURCES

#### ADMINISTRATIVE SECTION

The Administrative Section controls the budgetary, personnel and policy function of the Division; technical and administrative personnel also perform research and management activities. Additionally, Division personnel serve as technical representatives on various committees, commissions and task forces. During 1984 technical assistance was given to various commissions and task forces, i.e. Gulf States Marine Fisheries Commission, Gulf of Mexico Fishery Management Council, Governor's Saltwater Finfish Task Force, Task Force on Shrimp Management, Lott/McIlwain Task Force, etc. In addition personnel reviewed and commented on several fisheries management plans for the FCZ (Fishery Conservation Zone) administered by the Gulf of Mexico Fishery Management Council.

This Section also administers and issues permits to persons engaged in various activities across the coast. During the year 57 scientific collecting permits were issued to scientists and researchers to collect specimens using a variety of gear and techniques for scientific research and educational purposes. Additionally 28 shrimp bait dealer permits were issued to bait dealers to harvest shrimp for live bait between the spring and fall inshore shrimp seasons. This Section also issued and monitored 21 pompano permits and 45 underutilized species permits.

Statistics released in 1985 by National Marine Fisheries Service (NMFS) show Louisiana once again lead the nation in seafood production during 1984 landing over 1.9 billion pounds of fish valued at over \$265 million. The Department of Wildlife and Fisheries is the State agency charged with the responsibility of managing Louisiana's fisheries resources within the guidelines established by the Louisiana Legislature. Within the Department of Wildlife and Fisheries the Office of Coastal and Marine Resources has the responsibility for managing marine and estuarine fisheries resources.

During 1985 the Department conducted numerous research and monitoring projects which provided information necessary for management of Louisiana's fisheries resources. Personnel within the Office of Coastal and Marine Resources also served as technical representatives on numerous fisheries resource management committees and task forces and reviewed numerous environmental impact statements and fishery management plans developed by the Gulf of Mexico Fishery Management Council.

In 1985 the Department issued 102 scientific collecting permits to scientists and researchers to collect specimens using a variety of gear and methods. Additionally 26 bait shrimp permits, 21 pompano, and 50 experimental fisheries permits were issued.

#### LOUISIANA SEAFOOD PROMOTION AND MARKETING BOARD

The Louisiana Seafood Promotion and Marketing Board was established to develop new markets as well as enhance existing markets for Louisiana's vast fisheries resources. The year marked a major step forward for the Board with the hiring of an Executive Director and other staff personnel to carry on the day to day operations of the Board. The Board represented the Louisiana Seafood industry at numerous seafood trade shows around the country, establishing new contacts and potential buyers for Louisiana's seafood products. Brochures, ads, posters, and

other collected materials were developed to take the message of Louisiana seafood to both the consumer and commercial markets.

#### LYLE S. ST. AMANT MARINE LABORATORY

During 1985 the Department's marine laboratory on Grand Terre Island in Barataria Bay was formally dedicated as the Lyle S. St. Amant Marine Laboratory in honor of Dr. Lyle S. St. Amant, former Assistant Secretary of the Department of Wildlife and Fisheries and a pioneer in marine fisheries research. The primary function is to conduct applied marine fisheries research. During 1985, laboratory scientists conducted a variety of studies in four broad areas.

##### Shrimp

During 1985 a five year study to determine the effects of the opening of the inshore trawling season on brown shrimp populations in Barataria Bay was completed. Results from this study indicated 60-80 percent of the inshore shrimp populations in Barataria Bay may be taken during the first week of fishing. A study to evaluate various modifications of the typical wingnet (butterfly net) on both shrimp and by-catch catch was completed during the year; this study showed that using a cage type apparatus instead of the standard cod-end on the wingnet resulted in less by-catch and reduced the catch of small shrimp.

Other shrimp related activities included biological monitoring of shrimp farming operations in LaFourche Parish and analysis of data collected from the Department's ongoing shrimp monitoring program.

##### Oyster

Methods for collecting oyster monitoring data were standardized; historical data collected from Louisiana's public oyster seed grounds is being transformed into a computerized data base. Two research projects relative to oysters were completed in 1985, "Oyster Growth and Survival in the Barataria Bay System" and "Cultch Placement on the Hackberry Seed Reservation".

##### Finfish

Numerous finfish related projects are currently underway at the Lyle S. St. Amant Marine Lab investigating population dynamics and biological characteristics of commercially and recreationally important finfish. In 1985 a December spawning peak for southern flounder was identified using gonadosomatic indices calculated from approximately 250 fish. A spotted seatrout selectivity curve for gill nets of 1-4 inches stretch mesh was developed during the year. Also underway at the lab is a project to determine the environmental parameters affecting the distribution and abundance of young-of-the-year spotted seatrout and red drum. Age analysis of red drum is being done using sectioned otoliths; fish for this project had been injected with a Tetracycline solution which greatly aided in validating data collected in the project's previous two years.

#### OTHER PROJECTS

In 1985 scientists at the Marine lab worked in close cooperation with the U. S. Army Corps of Engineers on fresh water diversion from the Mississippi River into coastal Louisiana. During the year, a monitoring program was designed. Lab scientists are developing salinity/productivity relationships for each fishery resources so the diversions can be managed for maximum benefit. Two cooperative projects between laboratory scientists and researchers

from Louisiana State University were initiated: the first study is to determine the feasibility of and the problems associated with pond culture of red drum, and the other is an investigation into the genetic variability in oysters and its effect on oyster growth.

#### SALTWATER FINFISH MANAGEMENT SECTION

The Department's new Saltwater Finfish Management Section was fully staffed during 1985, finfish sampling techniques were standardized, and an intensive year-round monitoring program was initiated. Data from this monitoring program is being computerized and stored on a continuous basis. Personnel within the finfish section administer the Department's Experimental Permit Program. The rules and regulations which govern this program were completely revised in 1985 to give the Department more management flexibility within the program.

#### FISHERIES MANAGEMENT SECTION

The Fisheries Management Section conducted intensive year around monitoring programs for shrimp and oysters throughout coastal Louisiana; a portion of this program was funded by P.L. 88-309 funds. Information from these monitoring programs was used to open and close three shrimp seasons and the annual oyster season. These monitoring programs also provided information used to develop forecasts for these seasons. Additionally, scientists within this section prepared numerous reports on the effects of three hurricanes which hit the Louisiana coast during 1985. Personnel within this section were also involved in revising the regulations which govern Louisiana's shell dredging industry.

#### SEAMAP

The Department's participation in the State-Federal cooperative Southeast Area Monitoring and Assessment Program (SEAMAP) continued for the fourth year. With federal funds available in 1985 Louisiana increased its participation to include sampling in offshore waters to 15 fathoms. A contract vessel sampled these waters for one week periods in June, July, September, and December sampling day and night, nekton, plankton and environmental parameters.

Biological and environmental monitoring activities in nearshore waters were also conducted during June and November in conjunction with sampling conducted further offshore by the NMFS research vessel.

#### COOPERATIVE STATE/FEDERAL STATISTICS

LSU's Coastal Fisheries Institute was contracted to fulfill the Department's obligations under the Cooperative State/Federal Statistics Program. The goals of this project were: 1) to collect catch and effort and bio-profile data on coastal pelagics landed by both recreational and commercial boats in Louisiana; 2) to collect bio-profile data on black drum and striped mullet landed in commercial catches east of the Mississippi River in Louisiana; 3) to collect catch data from the inshore shrimp fishery in Louisiana's Terrebonne, Timbalier and Barataria Bays.

#### GULF OF MEXICO FISHERY COUNCIL

Personnel within the Department of Wildlife and Fisheries served as members on the Gulf of

Mexico Fisheries Council in 1985 as well as many of the council technical advisory committees. During 1985 the Council addressed two very controversial subjects: 1) amendments to the Gulf Shrimp Plan which would alter Plan Measure 2 The "Texas Closure", and an amendment which would establish a minimum count on white shrimp of 100 count (whole shrimp per pound) in the FCZ off Louisiana; 2) consideration of emergency regulations altering king mackerel catch limits in the Gulf and South Atlantic Fishery Management Council's plan for coastal migratory pelagics. These regulations would have drastically reduced total allowable catch limits for king mackerel, particularly in the Western Gulf of Mexico. The regulations were requested as a result of a 1985 stock assessment on the status of king mackerel populations in the Gulf of Mexico and South Atlantic regions.

## MISSISSIPPI DEPARTMENT OF WILDLIFE CONSERVATION

### BUREAU OF MARINE RESOURCES

The Bureau of Marine Resources (BMR) is a highly professional/technical division of the Department of Wildlife Conservation. Its major programmatic responsibilities include saltwater fisheries management, enforcement, wetlands protection, coastal planning, and technical assistance to other agencies and the general public on matters pertaining to oil and gas exploration/development.

Many other sub-programs are also vital parts of the overall program of BMR. Some of these include: 1) collection and dissemination of fishery related data and statistics; 2) liaison with federal fishery management agencies; 3) Special Management Area (SMA) planning; 4) environmental analysis of development proposals; 5) aquaculture; 6) assistance to industry in areas of product development and waste utilization; 7) pollution abatement; and many others.

The following sections define BMR activities more specifically for FY 85.

#### SALTWATER FISHERIES

The division of Saltwater Fisheries has as its principal mission the administration of all marine fisheries management-related activities for the State of Mississippi. The division provides technical support to the Commission on Wildlife Consideration, the Gulf of Mexico Fishery Management Council, the Gulf States Marine Fisheries Commission, and the Gulf States Federal Fisheries Management Board. In addition to participating in regional fisheries monitoring and assessment work, such as the Southeast Area Monitoring and Assessment Program (SEAMAP), division biologists conduct routine surveys of Mississippi's shrimp, oyster, crab, and finfish fisheries.

Much of the monitoring and assessment work is done to manage and coordinate seasonal openings and closures of the various fisheries in the territorial sea. In addition to the fisheries-independent monitoring and assessment work, division biologists participate in a regional commercial fisheries statistics program in which landings data are collected and evaluated. The end result of these efforts are used in the publication of the Monthly Mississippi Landings Bulletin, the tri-weekly Market News Report, and other landings-related reports.

Fisheries division personnel also assist in solving problems in fisheries technology and utilization for the commercial fishing industry and for the consumer in concert with other State and Federal fisheries development organizations.

An annual program of oyster reef rehabilitation and low profile recreational fishing reef construction is carried out for the benefit of both commercial and recreational users. In recent years, as much as 100,000 cubic yards of clamshells have been transported and deposited over Mississippi's oyster reefs to serve as supplemental cultch material. The success of this program was evident during the record 1983-84 oyster season when some 360,000 sacks of oysters were harvested from State reefs; many of the oysters were still attached to their clamshell substrate.

Fisheries division biologists constructed low profile fishing reefs at numerous sites coast

wide. The Bay St. Louis Bridge, Long Beach Harbor Jetties, Moses Pier in Gulfport, Biloxi Lighthouse Pier, the East Pascagoula River Pier, and the Pascagoula Community Pier are among the many locations where fine fishing is now available as a result of these efforts.

In other related work, Saltwater Fisheries division personnel are planning to conduct a creel survey of local anglers to help determine and evaluate the total recreational landings. This information, along with the biological data currently being collected on selected finfish species (spotted seatrout, red drum, black drum, striped mullet, Spanish mackerel, red snapper, and others) will help division biologists to better evaluate existing regulations and continue to provide the Commission with sound management recommendations.

In the coming year, the division of Saltwater Fisheries will also conduct a mark/recapture study of spotted seatrout and red drum to assist in the stock evaluation of these two highly important commercial and gamefish species.

The division will also continue to serve as a clearinghouse for the exchange of ideas regarding the management of Mississippi's marine fisheries. Research proposals for funding under the Commercial Fisheries Research and Development Act and the Anadromous Fish Act are reviewed and evaluated by Fisheries staff members. The administration and these fisheries-related financial assistance programs is a continuing aspect of Saltwater Fisheries division responsibilities for the overall benefit of the State's Gulf of Mexico-based fisheries.

## Description Of Fisheries

### COMMERCIAL FISHERIES

Landings of commercial marine fish and shellfish during 1984 amounted to 427.2 million pounds valued at \$43.44 million. This represents a 12.1 percent increase in volume and an 8 percent decrease in value over the previous year.

License sales for 1984 showed increases in virtually all fisheries. A four-year summary of the State's seafood license sales follows:

	<u>1981</u>	<u>1982</u>	<u>1983</u>	<u>1984</u>
Shrimp	5851	5799	5046	5731
Crab	4837	4661	3709	4594
Oyster	N/A	938	1337	1314
Fish	343	405	478	489

The following is a brief summary of each of the State's major fisheries for which data are available and can be released under existing confidentiality provisions:

### MENHADEN

Menhaden landings of 410.58 million pounds in 1984 represent a 12.4 percent increase over the landings in 1983. The total value of \$18.948 million was up over the total value in 1983. The unit cost (price per pound) for menhaden, at \$.046 was up some 4.6 percent over the previous unit cost.

Prices of menhaden meal averaged lower in 1984 than in 1983, \$338 versus \$380 a short ton, and below the 1979-83 average of \$381. Prices were \$306 a short ton in December 1984, over \$100 below that of a year earlier. Prices were strong in late 1983 and early 1984, but weak in late 1984. Prices in world markets for major high protein feed meals were down more than menhaden

meal prices, probably because world imports of fish meal were down while world demand for all feed meals weakened and supplies were high.

Although prices of high-protein feed meals fell in 1984, prices of major oils averaged higher. Menhaden oils averaged 17.7 cents per pound, up about 6 percent, or 1 cent per pound. A downward trend in menhaden oil prices from 1977 to 1982 was reversed in 1983. In contrast to the menhaden meal situation, prices of major oils strengthened more than fish oil in 1984. The ratio of U.S. prices of menhaden oil to soybean oil averaged .58 in 1984, the third lowest in 20 years, and well below the 1959-84 average of .74. It is speculated that because of the increase in fish oil supplies (imports) on the European market, which is of prime importance to U.S. producers, the menhaden oil price weakened to 16.75 cents per pound at the end of the year, even though the 1984 average price was higher than in 1983.

#### OYSTERS

Oyster landings of 1.39 million pounds of oyster meats were down by some 58 percent over those in 1983. The value showed a decrease of 51 percent during that period as well. Unit costs of oysters rose to \$1.25 per pound of oyster meats, a 16.4 percent increase from 1983.

This increase in unit price is more than likely reflective of the significant landings decline and catch of oysters from State reefs during the 1983-84 oyster season.

Although oyster landings from State reefs was considerably less than the previous year, there was cause for optimism as several of the State's southernmost reefs showed promise for future years. In particular, the Buoy, Umbrella Key, and Pelican Key reefs off the southwest tip of Cat Island contained dense concentrations of healthy, market-size and juvenile oysters and contributed heavily to the year's harvest.

#### BLUE CRABS

Landings of hard, blue crabs in 1984 increased to 2,250,342 pounds. Processed crab meats were reported up at each of the principal ports of Pascagoula and Biloxi, with the total value of blue crab landings rising to \$639,671, up some 92.8 percent from the 1983 figure. The unit price of blue crabs, however, fell some 2 percent to 28.4 cents per pound.

#### EDIBLE FINFISH

As is characteristic for the State's saltwater finfisheries, landings fluctuated considerably from their 1983 values. Landings trends for Mississippi's major finfish indicator species are as follows:

Black Drum: Landings showed an 80.5 percent increase in 1984 over the landings in 1983. Total dockside value of this species increased 90.6 percent in the time interval. Unit prices as well rose some 5.5 percent to 15.2 cents per pound.

The majority of black drum landed in Mississippi are processed and exported to underdeveloped countries where an increased demand has intensified the purse seine fishery for this species.

Mullet: Landings of mullet in Mississippi ports totalled 763,976 pounds in 1984, 4 percent less than in the previous year. Average total dockside value increased 13.8 percent, and the price-per-pound of fresh, whole mullet rose about 19.2 percent to 21.7 cents in 1984.

Despite lower landings of mullet all along the southeast, wholesale prices of fresh whole mullet in New York City markets remained the same at 55 cents per pound.

Sizeable landings of mullet occur in all months of the year, but the species is harvested largely for its roe during the months of October, November, December and January, at which time exvessel prices are at a maximum. According to industry sources, the winter fishery for mullet began about a month later than usual in 1984, and processor had difficulty in meeting commitments. Mullet roe are exported mostly to Taiwan where they are processed for the Japanese market.

Red Snapper: Red snapper landings in 1984 underwent a fall of some 7 percent from 1.12 million pounds to 1.03 million pounds. The total dockside value also fell about 8 percent from \$1.5 million to \$1.4 million in 1984. Average unit prices during 1984 stood at \$1.35, down only slightly from the 1983 figure.

In 1984, wholesale prices of fresh (ice-pack), whole red snapper in New York markets averaged \$2.96 a pound, 10 percent higher than a year earlier. The exvessel and wholesale prices of red snapper are still higher than for other reef fish, but they have grown much less in the 1980's. The cause, according to industry sources, includes increased imports, greater competition from other fish species, and changes in the fishery.

Spanish Mackerel: In addition to black drum and mullet, Spanish mackerel usually comprise a significant percentage of frozen fish products. In 1984, landings of Spanish mackerel totalled only 2,671 pounds with a total dockside value of only \$850, representing a 94 percent decline in landings and a fall of 93 percent in value. The price per pound of Spanish mackerel in 1984 was 31.8 cents which is up 14.6 percent from the 27.7 cents per pound referenced in 1983.

Total Gulf-wide landings of Spanish mackerel were down sharply (50 percent) in 1984; and exvessel prices also fell some 7 percent. According to industry sources, this has resulted from increased competition from other fish species, notably South American whiting and Atlantic cod. It is also reported that the size of fish landed has adversely affected the price.

Spotted Seatrout: Landings of spotted seatrout from Mississippi waters increase nearly 2 percent, from 54,000 pounds in 1983 to 55,000 pounds in 1984. Since this species has gained gamefish status in the states of Alabama and Texas, and since Florida and Louisiana are also considering prohibitions on the sale of spotted seatrout, Mississippi's stocks might be subject to increased fishing pressures in the future.

According to National Marine Fisheries Service sources, prices of fresh seatrout in New York markets averaged only 96 cents per pound. This relatively low price is attributed once again to an increase in imports, in this case, from Venezuela. Local prices of spotted seatrout rose some 6.8 percent in 1984 to 98.6 cents per pound.

Red Drum: Red drum landings in 1984 showed a fall 2 percent, from 24,200 pounds in 1983 to 23,600 pounds. The total dockside value of this species rose to \$12,637, up nearly 37 percent from last year.

Landings figures for red drum in Mississippi are highly inaccurate since it is not permitted to have this species on board a purse seine vessel in State waters. As a consequence, large quantities of red drum are landed in Bayou La Batre, Alabama and trucked to Pascagoula for subsequent processing.

Flounder: Flounder landings, as collected by Saltwater Fisheries division biologists and National Marine Fisheries Service port agents under cooperative agreement, comprise a number of

different species. In 1984 the landings volume totalled 43,528 pounds, representing a 12 percent decline over the 1983 figure. Total dockside value was similarly depressed some 2 percent, from \$22,352 to \$21,796.

Kingfish: Kingfish, or ground mullet as they are locally known, underwent a significant landings decline in 1984 from 286,000 pounds to 108,000 pounds. The average price was up to 30.6 cents per pound from the 27.6 cents per pound of 1983.

Grouper: Grouper landings, which include spotted, Nassau, and black grouper, fell 18 percent from 1983 to 1984. The price per pound averaged \$1.00 in 1984, virtually the same as in 1983.

Landings of reef fish (snappers, groupers, tilefish, etc.) in southeastern ports from North Carolina to Texas totalled 27 million pounds in 1984, off some 9 percent from the previous year, and the value to fishermen was down about 1.4 percent in the region.

In summary, of the state's major finfish indicator species, only five showed landings gains in 1984. These are as follows: black drum, bluefish, menhaden, pompano, and spotted seatrout.

#### SHRIMP

Heads-off landings of Gulf shrimp (brown, white and pink) totalled 8.02 million pounds in 1984, representing a 22.9 percent increase from heads-off landings in 1983. Traditionally Mississippi's most valuable fishery, the total dockside value of the 1984 shrimp harvest is estimated at nearly \$20 million.

Average dockside value of shrimp decreased from \$3.84 per pound in 1983 to \$2.48 in 1984; and while the total shrimp landings for the 1984 season represent a much better than average year based upon the 25-year mean of 4.9 million pounds, the individual shrimp fisherman did not fare well.

The Mississippi Commission on Wildlife Conservation opened the 1984 shrimping season on June 12 upon the recommendations of Saltwater Fisheries division biologists who conducted a biweekly trawl sampling program to determine when shrimp populations in Mississippi Sound would reach the minimum legal size of 68 per pound.

#### RECREATIONAL FISHERIES

Marine recreational fisheries in Mississippi followed the normal seasonal trends. An extremely cold winter caused recreational fishing to be slow during January and February of the year. The spring warming trend, however, brought excellent reports of good catches of spotted seatrout, red drum, flounder, and other popular nearshore gamefishes. One notable catch of the colder months, though, was a 10 pound spotted seatrout caught in the waters of Fort Bayou in Jackson County. The big fish scarcely missed establishing a new state record for the species.

Reports from the many low-profile, recreational fishing reefs established by Saltwater Fisheries division biologists, indicate that these areas are producing excellent catches of white trout, kingfish, and other nearshore fishes. These fish havens are sited at the Pascagoula Community Pier, the East Pascagoula River Pier, the Whitehouse Reef, the Biloxi Lighthouse Pier, Biloxi Smallcraft Harbor, Gulfport's Moses Pier, Westside Community Pier, the Long Beach Harbor Jetties, and the Bay St. Louis Bridge. The popular areas have indeed provided local anglers with some of the best fishing around.

The Gulf Coast's many fishing rodeos provide Saltwater Fisheries division biologists with an excellent opportunity to interface with the sportsfishing public, both to inform them of the superb fishing that the state has to offer and to collect valuable scientific data. The 1984 rodeo season was a most successful one and resulted in a number of new state saltwater sportsfishing records.

Of the estimated 155,000 saltwater sportsfishermen in Mississippi, approximately 57 percent are residents of the three coastal counties, 9 percent are upstate residents, and 34 percent are residents of other states. It is estimated that some 640,000 fishing trips are made to saltwater locations each year and that an average of 5.3 fish are taken by each fisherman each trip. By far the majority of the fish taken in coastal waters are of the drum family. Thirty percent of the catch is comprised of seatrout, both white and spotted, and an additional 30 percent is comprised of Atlantic croaker. Other species taken in relatively large abundance include: sea catfish (12 percent), mullet (7 percent), kingfish (2.5 percent), ladyfish (2.5 percent), and flounders (2 percent).

Approximately half of all the state's saltwater anglers are boat owners, and a majority of the boat fishing effort consists of trolling in and around the barrier islands and passes. According to National Marine Fisheries Service recreational fishing surveys, the most frequently occurring species in trolling catches during 1984 were: Spanish mackerel, jack crevalle, red drum, Atlantic bonito, and cobia. Other boat owners prefer bottom fishing techniques and frequent the offshore liberty ship reefs in this pursuit. Bottomfishing can yield a varied catch, but red snapper, Atlantic croaker, white trout, kingfish, and sharks are by far the most frequently caught species.

As evidenced by the numerous new state records established, the 1984 fishing season was a most bountiful one for Mississippi's coastal anglers. The year was also highlighted by a number of landmark decisions of sportfishing importance. Both Texas and Alabama have enacted legislation prohibiting the sale of spotted seatrout and red drum, and moves are currently afoot to enact similar restrictions in Louisiana and Florida.

Because of the perceived overfishing of spotted seatrout and red drum stocks, most states have also decreased their daily catch allowance of these species while simultaneously increasing the minimum size restrictions of each. Spotted seatrout creel and size limits, for example, are currently 10 fish/day (14" min.) in Texas, 15 fish/day (12" min.) in Alabama, and 50 fish/day (12" min.) in Louisiana. On recommendations from Saltwater Fisheries division biologists, the Mississippi Commission on Wildlife Conservation is currently considering a 25 fish/day (12" min.) creel limit in this state as well.

In summary, 1984 was an eventful year for saltwater sportsfishermen Gulf-wide, both from the perspective of a good fishing season and from conservation measures and new legislation that should help to ensure good fishing for years to come.

#### ORDINANCES ADOPTED IN FY 1985

During the 1985 fiscal year, the Mississippi Commission on Wildlife Conservation adopted the following new regulations:

Ordinance No. 114 -- An ordinance to repeal ordinance numbers 4, 50, and 96, and to reestablish rules and regulations for shrimping; to define the line of the barrier islands north of which double rigs are prevented from shrimping; and to preclude the use of test or try trawls during live bait shrimping activities.

MISSISSIPPI BUREAU OF MARINE RESOURCES  
 DIVISION OF SALTWATER FISHERIES  
 LANDINGS COMPARISON REPORT

SPECIES LIST	1983			1984			PERCENTAGE CHANGE		
	POUNDS	VALUE	\$/LB.	POUNDS	VALUE	\$/LB.	LB.	\$	\$/LB
Black Drum	1,416,730	\$ 203,766	.143	2,558,590	\$ 388,473	.151	.805	.906	.055
Bluefish	800	200	.25	18,251	4,730	.259	21.9	22.6	.036
Blue Runner	405,200	60,840	.150	19,815	3,743	.188	-.95	-.93	.258
Crevalle Jack	18,900	2,835	.15	10,000	1,500	.15	-.47	-.47	.0
Croacker (Food)	165,120	68,585	.415	56,852	18,187	.319	-.65	-.73	-.22
Flounder	49,750	22,352	.449	43,528	21,796	.500	-.12	-.02	.114
Grouper (Uncl.)	47,460	47,047	.991	38,297	38,302	1.00	-.19	-.18	8.91
King Whiting	285,810	79,106	.276	108,484	33,218	.306	-.62	-.58	.106
Menhaden	365,084,340	16,106,638	.044	410,576,000	18,948,101	.046	.124	.176	.046
Mullet	800,010	146,186	.182	763,976	166,496	.217	.04	.138	.192
Pompano	2,530	6,704	2.64	9,792	27,600	2.81	2.87	3.11	.063
Red Drum	24,200	9,241	.381	23,660	12,637	.534	-.02	.367	.398
Red Snapper	1,116,280	1,509,279	1.35	1,029,405	1,386,308	1.34	-.07	-.08	
Sheepshead	206,460	29,991	.145	181,412	32,582	.179	-.12	.086	.236
Spanish Mackerel	46,150	12,815	.277	2,671	850	.318	-.94	-.93	.146
Spotted Seatrout	54,060	49,913	.923	55,003	54,258	.986	.017	.087	.068
Sea Catfish	2,760	432	.156	1,600	320	.2	-.42	-.25	.277
White Seatrout	73,240	22,448	.306	41,380	12,642	.305	-.43	-.43	-3.2
Shrimp	6,527,000	25,063,680	3.84	8,024,000	19,915,969	2.48	.229	.20	-.35
Oysters	3,333,010	3,600,967	1.08	1,378,202	1,733,819	1.25	-.58	-.51	.164
Blue crabs	1,139,690	311,611	.290	2,250,342	639,671	.284	.974	.928	-.02
<b>TOTAL</b>	<b>380,799,500</b>	<b>47,374,636</b>	<b>.124</b>	<b>427,191,260</b>	<b>43,441,202</b>	<b>.101</b>	<b>.121</b>	<b>-.08</b>	<b>-.18</b>

Ordinance No. 115 -- An ordinance amending ordinance No. 82, section 2, prohibiting the taking of oysters in certain waters of the Bay of St. Louis declared unsafe by the State Department of Health.

## OTHER ACTIVITIES

### GULF STATES MARINE FISHERIES COMMISSION

The Gulf States Marine Fisheries Commission (GSMFC) is a compact of the Gulf States: Florida, Alabama, Mississippi, Louisiana, and Texas. Authorized by Public Law 81-66, this compact was signed by representatives of each of these five states on July 19, 1949 in Mobile, Alabama. The primary objective of the Commission is the conservation, development, and full utilization of the fisheries resources of the Gulf region by providing food, employment, income, and recreational opportunities.

The GSMFC provides a medium for the exchange of information and ideas concerning marine fisheries management, research and development, and other critical fisheries-related issues. The principal species of concern to the Commission are those transboundary species that are known to migrate across state lines and are therefore subject to multiple and varying regulatory policies and practices. In addition, the Commission assists in obtaining funding for numerous research and public information programs, projects, symposia, workshops, and the like.

Mississippi's three members on the GSMFC are Mr. Lon Strong, Conservation Administration Commissioner, Representative Ted Millette, Legislative Commissioner, and Holton Turnbough, Commissioner-at-large appointed by the governor.

In FY 85, Saltwater Fisheries division personnel were most active in Commission committees and workshops. Dr. Fred Deegen served both as chairman of the Recreational Fisheries Committee and vice chairman of the Statistical Subcommittee of the Technical Coordinating Committee. In addition, he was moderator and chairman of a Commission-sponsored symposium on the worth of angler-volunteered data, held March, 1985, in Mobile, Alabama.

### GULF OF MEXICO FISHERIES MANAGEMENT COUNCIL

1984 marked the seventh year in which the Magnuson Act, creating the Fisheries Conservation Zone and the Gulf of Mexico Fisheries Management Council (GMFMC), has been in full operation. Implementation of the Act by the GMFMC has resulted in the development of 12 draft fishery management plans (FMPs) or management profiles. Of these, the shrimp and stone crab plans, and the mackerel and reef fish plans are currently in force. Only three plans, groundfish, sharks, and castal herrings, have been withdrawn because of apparent lack of evidence to support their need at the present time.

GMFMC Headquarters are in Tampa, Florida and bi-monthly meetings are held there as well as in major coastal cities of the other Gulf States. Among the other major fisheries management activities of the GMFMC, continuing negotiations with the Japanese tuna fishing industry to reduce fishing pressure on heavily-fished billfish stocks are a major achievement. The Council also participates in the MEXUS-Gulf cooperative research and development program with Mexico and in the planning sessions of both the Food and Agriculture Organization (FAO) and the Western Atlantic and Caribbean Fishery Development Programs.

The GMFMC continues in its efforts to develop fishery management plans for all of the major fisheries that occur within the Gulf Fishery Conservation Zone by the end of the decade.

## ENFORCEMENT

In FY 85, Enforcement division personnel set an all time record for numbers of arrests and incidents. Arrests include violations of seafood laws, boat and water safety laws, game and fish laws, and an occasional infraction of other laws. Incidents, as noted in previous reports, include such things as assistance to other agencies and divisions, boating accidents, overdue vessels, capsized boats, drownings, marine mammal or sea turtle strandings or deaths, rescue missions, "tow-ins", sinkings, and other assistance to boaters.

During this fiscal year enforcement officers made 1,150 arrests as compared to 1,059 in FY 84. Additionally, officers handled 1,426 incidents as compared to 1,261 in FY 84.

This increase is attributed to increased activities of fishermen and boaters in the coastal area. Likewise, there has been an increasing need for coordination between State and Federal agencies in enforcing interstate transportation of illegally obtained seafood products and an increase in incidents involving protected species.

This dramatic increase in enforcement activity has been accomplished with no increase in personnel. Also, and somewhat ironically, this increase in effort has occurred during a period of broad scrutiny of enforcement practices by various investigative agencies, namely the Highway Patrol, the State Auditor's Office, and the PEER Committee.

## WETLANDS

Wetlands division personnel are charged with the responsibility of administering the Mississippi Coastal Wetlands Protection Law. This law was enacted in 1973 to provide a mechanism to protect the State's coastal wetlands.

Mississippi coastal wetlands are made up of approximately 66,000 acres of tidal marsh and approximately 370,000 acres of submerged waterbottoms. These public trust wetlands serve as a valuable and irreplaceable natural resource of great economic and aesthetic value to the State of Mississippi. In recent years the rapidly growing coastal region has suffered a loss in total acreage of coastal wetlands. Uncontrolled use and destruction of valuable wetlands areas has resulted in losses of only 10,000 acres of tidally-influenced wetlands.

Through the efforts of the Wetlands division, the BMR has been able to limit the unnecessary alterations of the coastal wetlands by encouraging projects and activities which are environmentally acceptable.

Under provisions of the Wetlands Law, persons wishing to perform dredge and fill operations in the wetlands or to undertake major construction in wetlands must first obtain a permit from the Commission on Wildlife Conservation. The Wetlands division of the BMR evaluates all proposed activities in the coastal area and makes reports and recommendations based on their findings to the Commission.

During FY 85 the BMR, Wetlands division processed 404 cases. This case load included the evaluation of several major development projects which may have had impacts on the integrity of the coastal resources. Working with the applicant, the Wetlands division was able to modify these projects to reduce serious environmental impacts.

Working with the Corps of Engineers (Mobile District) the Wetlands division developed the Mississippi Regional Permit for the coastal areas under their joint jurisdiction. With this Mississippi Regional Permit in place, applicants proposing minor projects can now obtain

authorization for the work in less than two weeks. Before this permit was developed, an applicant might have to wait as much as three months for authorization. The adoption of the Mississippi Regional Permit represents a giant step toward "one stop permitting" which is a regulatory concept envisioned by the Mississippi Legislature.

The Wetlands Division is presently working with the Corps of Engineers (Vicksburg District) to develop a similar Regional Permit for the remainder of the Mississippi Gulf Coast. It is anticipated that the Regional Permit with the Vicksburg District will be operational in early FY 86.

In addition to their regulatory efforts, the Wetlands division worked with a number of State and Federal agencies providing technical assistance in matters such as oil and gas development, Special Management Area planning, marine boundary surveying and coastal erosion.

### MISSISSIPPI COASTAL PROGRAM

The Mississippi Coastal Program (MCP) is a consolidated statement of State policy. The text, maps and guidelines included therein applies to the coastal area of Mississippi and represents a balance of protection with development of the State's coastal and marine resources. The MCP was approved by the Governor, the Commission on Wildlife Conservation and the Office of Ocean and Coastal Resource Management (OCRM) NOAA, Department of Commerce during September, 1980, and became operational as state policy on September 29, 1980. The maintenance and implementation of the MCP is handled by the Coastal Program Division of BMR; however, the coastal program supports all areas of the Bureau's operation.

The provisions of the Coastal Program apply to activities in the coastal wetlands below the watermark of ordinary high tide and certain uplands in Hancock, Harrison and Jackson Counties.

In early FY 82, BMR received a grant from OCRM in the amount of \$706,000 for implementation of the MCP for an 18 month period, which was later extended to terminate December 31, 1984. OCRM awarded BMR an additional \$400,000 grant covering the period January 1, 1985 through December 31, 1985 to continue administering our Coastal Program.

The MCP applies to activities that have a direct and significant impact on the State coastal resources. It provides financial support to the Bureau in the form of equipment purchases, certain office expenses, and contractual support for research, planning and technical studies.

The Coastal Program also contains the consistency provisions of the Coastal Zone Management Act, P.S. 92-583. These consistency provisions require that all Federal activities that may effect land and water resources in the coastal area, including Federal Licenses and Permits, Direct Federal Activities and Development Projects, Outer Continental Shelf (OCS) Exploration, Development and Production Activities, and any Federal assistance to State and local governments, be compatible with the guidelines and the Wetlands Use Plan of the Coastal Program.

The Coastal Program encompasses five areas of the BMR's overall program:

The Wetlands Management function which includes wetlands permitting as well as regulatory authority over designated waterfront industrial sites.

For eligibility of federal funding and coordination purposes, Fisheries Management is incorporated into the Coastal Program; however, the program makes no change to the State's existing fisheries management efforts.

The ten broad goals on which the Coastal Program was established necessitated a procedure for Policy Coordination in wetlands management, industrial development, waterfront conservation, fisheries management, pollution control, water conservation, archaeological and historical preservation, preservation of natural scenic qualities, protection of national interests, assistance to local governments, and the coordinated implementation of public policy. The legislation on which this function was based requires that all State agencies comply with the program and these ten goals. In addition to compliance by State agencies, activities proposed by Federal agencies are also required to comply under "Federal consistency" provisions of the Coastal Program.

Because of their localized development problems and opportunities, many areas on the coast require site-specific planning and management. Such areas are designated as Special Management Areas. The Coastal Program recognized three such areas: industrial and port areas, urban waterfronts, and shorefront access areas. Just as the general provisions of the program govern activities in the coastal area in general, special management plans govern the specific areas for which they are adopted.

To complement the regulatory provisions of the Coastal Program, Affirmative Management Activities were developed and include efforts in areas such as energy facility planning, shoreline erosion work, designation of preservation/restoration areas, the Coastal Energy Impact program (CEIP), marine research, and public education on marine and coastal resources.

#### POLICY COORDINATION PROCEDURES

From July 1, 1984 through June 30, 1985, 100 actions were subject to policy coordination procedures and submitted to the State A-95 Clearinghouse Office, the instrument used in State agency reviews for policy coordination activities.

Of these actions, 50 involved activities which required a wetlands permit or were subject to formal wetlands review. One activity was determined to be inconsistent with the Coastal Program and thus denied, while one action was issued a conditional consistency, meaning that additional conditions had to be met before a full consistency finding could be issued. Forty-eight wetlands actions were determined to be consistent with the program and received either a wetlands permit or were issued a waiver of permit requirements.

The remaining 50 actions consisted of projects submitted by State agencies such as Coastal Energy Impact program projects from the BMR; Federal assistance to local and city government through such programs as community development block grants; and direct Federal actions, such as Outer Continental Shelf (OCS) oil and gas drilling applications submitted by the Minerals Management Service and Corps of Engineers federally authorized channel maintenance dredging. These actions were determined to be consistent with the Mississippi Coastal Program.

#### Special Management Area Planning

At the request of the counties of Hancock, Harrison, and Jackson, the Coastal Program Division began Special Management Area (SMA) planning by providing assistance, both financial and technical, to the participating entities. The advance planning in SMA insures that development will occur in an orderly manner avoiding the problems of piecemeal decisions.

In FY 85, BMR concentrated SMA planning efforts, primarily the Port of Pascagoula, with other progress being made on the Port Bienville Industrial Park and the Pass Christian Industrial Park.

Early in 1982, BMR retained a consultant to assist and facilitate SMA planning. During this same time period, the Bureau formed an SMA Task Force to develop SMA plans. This Task Force is composed of representatives from the U. S. Army Corps of Engineers, Environmental Protection Agency, National Marine Fisheries Service, Fish and Wildlife Service, Mississippi Bureau of Marine Resources, Mississippi Bureau of Pollution Control, Mississippi Department of Archives and History, as well as representatives from the local entities.

Significant planning achievements for Port of Pascagoula SMA during FY 85 included the completion of the Task Force review draft of the Port of Pascagoula SMA plan and the securing of preliminary commitments to the SMA plan from the participating agencies.

Efforts for the Pass Christian SMA included the execution of an extended contract between BMR and the Harrison County Development Commission. This contract provides for the procurement of technical information necessary for the planning effort.

Progress on the Port Bienville SMA plan was also made. The Bureau staff identified remaining issues and took the necessary steps which should lead to the resolving of these issues.

During FY 85 the Bureau and Task Force consultant convened two SMA Task Force meetings. Numerous other meetings were arranged with individual agencies and groups.

Also in FY 85, one revision to the Mississippi Coastal Program Rules and Regulations was made. The revision was made to those Guidelines for Regulated Activities dealing with marinas. The revision was necessary for the Bureau staff to better evaluate marina projects and their impacts to the coastal environment. Four projects were granted changes in the Coastal Wetlands Use Plan (CWUP) by the Mississippi Commission on Wildlife Conservation. The CWUP establishes districts where only certain uses may occur. These changes were to allow four marinas accounting for approximately 127 new boat berths on the coasts.

### Affirmative Management Activities

BMR instituted two key affirmative type projects during this reporting period. First, BMR entered into a subgrant agreement with the City of Gulfport to prepare plans for the development of an area in the City known as Harbor Square. Special emphasis will be placed on this waterfront property to more efficiently utilize the existing space within this area and upgrade the existing facilities. The final plan will identify a number of important factors such as: proposals for improving traffic patterns, estimating costs for new and expanded marina facilities, parking alternatives, and consideration for the linkage of several key areas to the Harbor Square area. This plan will not be completed until 1986.

Second, BMR coordinated the development of the Harrison and Hancock County Sand Beach Master Plans. This has been a major effort of the Bureau to provide for local, city, and county governments to prepare coordinated plans for their beach areas. The study is focusing on ways to prevent or reduce beach erosion, providing facilities in certain "high-use" beach areas, increasing parking facilities, improving the appearance of several of the beach areas, and addressing water quality. A group of consultants have been retained to address these issues and executive and technical advisory committees in both counties have been formed to guide in the preparation of the final master plans.

BMR also has had ongoing planning efforts this year with the City of Pascagoula in their preparation of a Waterfront Development project which identifies the potentials for utilizing certain areas along the riverfront.

Lastly, BMR continues to participate in a subgrant agreement with the Governor's Office of Planning and Policy. The primary purpose is to provide funding for that clearinghouse office to assist BMR in the notification of activities affecting the coastal area to other applicable State agencies.

Additional affirmative management activities center around BMR's information/education projects. The publication of BMR's newsletter continues with the circulation now over 550. News releases, public speaking engagements, stories published in MS Outdoors, and distribution of DWC educational material were also part of our ongoing public information/education efforts.

A prime example of this is the production of a children's activity workbook on an elementary school level which provides the user with an awareness and basic knowledge of our coastal area and resources. The final product, entitled Waterworks Book, was published in late 1984 and is now available for distribution.

In May 1985, BMR received the final printing of a 20-30 minute video taped educational program for use in informing the public about the State's coastal resources. This tape can be shown to schools, civic groups, and other interested parties.

## MARINE OIL AND GAS ACTIVITIES

The BMR addresses environmental aspects of oil and gas activities proposed for and occurring within the State's coastal waters and in Federal Outer Continental Shelf waters. In the past year the personnel of the Scientific-Statistical division continued to provide oil and gas related guidance and technical support, from an environmental perspective, to the Commission and to involve State and Federal agencies. The Division's efforts through the Bureau are directed toward ensuring that coastal oil and gas operations proceed in an acceptable manner which provides for the protection of the valuable and renewable coastal marine resources.

### MISSISSIPPI COASTAL WATERS: OIL AND GAS RELATED ACTIVITIES

As interest in the potential development of oil/gas resources within Mississippi's coastal waters continued during FY 85, the Bureau addressed specific aspects of oil/gas leasing and operations within the area.

During FY 85, the State leased over 20,000 acres of coastal waterbottoms to a company interested in exploring for crude petroleum hydrocarbons. The location of the leased area is south of Ship Island. This particular lease was awarded in February 1985. The personnel of the Scientific/Statistical division continued to address post-lease environmental aspects pertaining to this company's proposed operational activities within the leased area. This lease award and a previous lease awarded to another company during 1982 are the only current active oil/gas leases on state-owned coastal waterbottoms. At the end of FY 85 no exploratory drilling activities had been initiated on either of the leased areas.

The BMR, through the Scientific division, developed specific documents and general guidance publications which have management utility for oil and gas activities within the coastal marshlands and waters. Among these were the following: "Informational Requirements and Instructions for the Preparation of Evaluation Documents Pertaining to Oil and Gas Operations Within State-owned Coastal Waters of Mississippi" (Preliminary), and "Procedures and Responsible Agencies Regarding Leases, Permits and Other Approvals Applicable to Oil and Gas Operations Within the State-owned Coastal Waters of Mississippi" (Preliminary).

Also, in view of the increasing interest in oil and gas developments in the coastal waters of the State and as a result of actual operations in adjacent State and Federal waters, the division's personnel provided the lead in developing a major document. The document will serve to provide field guidance for implementing protection to priority actions applicable to Mississippi coastal environments in the event of an oil spill. The document is entitled, "A Contingency Guide to the Protection of Mississippi Coastal Environments from Spilled Oil: Protection Priorities and Related Environmental Information".

The division's personnel worked very closely with the U. S. Army Corps of Engineers (Mobile District) during the developmental stages of a Corps General Permit (GP) which governs oil and gas exploration and appraisal drilling activities within Mississippi Sound and Mississippi Offshore waters. The personnel served on executive and technical committees which directed the development of the GP. The GP which became effective on June 18, 1985 is the result of lengthy environmental evaluations and discussions pertaining to the State's coastal waters.

The division's staff met with other agencies, e.g. the Environmental Protection Agency, U.S. Coast Guard, U.S. Fish and Wildlife Service, National Marine Fisheries Service, involved in coastal oil and gas developments. During FY 85, the division's staff participated in 12 major technical meetings related to coastal oil and gas activities.

#### OUTER CONTINENTAL SHELF OIL AND GAS ACTIVITIES

Beginning at the seaward boundary of the coastal territorial waters of each coastal state and extending seaward to the limits of the federal waters is the Outer Continental Shelf (OCS). The Gulf of Mexico OCS region is a leader among all OCS regions of the U.S. in oil and gas development, accounting for more than 94 percent of the oil and gas produced from all U.S. OCS regions. The Gulf OCS region has been producing oil and gas since 1953. Since this time over 16 million acres of OCS ocean bottom have been leased in 50 Lease Sales. By the end of FY 85 there were 3,146 active Gulf OCS oil/gas leases. Over 21,000 wells have been drilled in the Gulf with over 6,000 of these wells actively producing oil and gas during FY 85. The greater percentage of Gulf OCS activity is located within the Gulf's Central Planning Area, that OCS area which includes the Gulf waters south of the State of Mississippi.

The U.S. Minerals Management Service (MMS) is the Federal agency responsible for the management on the OCS of oil and gas exploration, development and production activities as well as other mineral resource development. For management purposes, OCS oil and gas activities are divided into five categories: 1) oil and gas leasing; 2) post-leasing activities; 3) oil and gas transportation; 4) environmental studies; and 5) hard mineral mining. Through the efforts of the personnel of the Scientific-Statistical division, the BMR provides advice to the MMS regarding environmental aspects of oil and gas activities on OCS, thereby affording the State of Mississippi the opportunity for input into OCS Management matters. The Bureau also continued to provide recommendations to the Office of the Governor, State of Mississippi, regarding OCS related matters. The participation of the State in the Federal OCS oil and gas development program provides the opportunity for the State to receive maximum benefits from OCS oil and gas activities which affect it socio-economically and which have the potential to impact its living coastal resources.

The BMR also represents the State on the Gulf of Mexico Regional Technical Working Group. This Working Group, comprised of State, Federal, oil industry and private representatives, meets periodically to discuss and formulate technical information pertaining to the overall Gulf OCS Program. The BMR continued its involvement with the OCS Environmental Studies Program for the Gulf region, as administered by the MMS. During 1985, personnel of the Scientific Statistical division participated in the update and development of the MMS Environmental Studies Program for the Gulf Region. The process involved proposing study topics, reviewing new study proposals,

providing advice and information regarding previously approved study projects, maintaining an awareness of the overall annual Studies Program components, and attending related meetings. During 1985 there were 23 on-going MMS environmental study projects within the Gulf. The division's personnel took particular interest in one environmental study entitled, "The Tuscaloosa Trend Regional Data Search and Synthesis Study". The study focused on presenting a review of information applicable to the nearshore OCS area off the states of Mississippi, Alabama, and eastern Louisiana. The division's personnel contributed valuable environmental information and data to the MMS study contractor during the development of the study.

During FY 85 there were two OCS Lease Offerings (Lease Sales) in the Gulf of Mexico. These offerings generated over \$2.1 billion in revenues for the Federal Government. Of this total, the Central Planning Area Lease Offering (No. 98) generated \$1.1 billion in high bids for 2.24 million acres of ocean bottom. Also state reviews and comments were made to the MMS pertaining to three future Gulf OCS Lease Offerings (Nos. 94, 102, and 104).

Thirteen (13) OCS tracts located in the vicinity of Mississippi's offshore boundary were leased in Offering No. 98. At the end of FY 85 there were 19 OCS tracts under lease off Mississippi in Federal waters. To date, exploratory drilling for natural gas has taken place on one of the tracts which abuts the State's offshore boundary. It is anticipated the other OCS tracts off Mississippi will be leased in future federal lease offerings and that drilling will undoubtedly take place on some of these tracts as well as those already leased.

During FY 85, Scientific-Statistical division staff participated in 8 OCS-related meetings and developed 18 OCS-related written responses. The staff reviewed numerous publications, reports, and other documents to remain abreast of those OCS oil/gas activities taking place within the Gulf region which may affect or pertain to Mississippi.

In the past year, the U.S. Environmental Protection Agency continued the process for formulating a General Permit (GP) applicable to OCS oil and gas operational discharges in the Gulf of Mexico. The BMR provided information and attended workshops during developmental stages of the GP. The aim of the GP is to provide for prudent environmental management while expediting needed mineral resources, thereby providing a balance between the two activities.

## GRANTS AND CONTRACTS

### RESEARCH GRANTS AND CONTRACTS UTILIZING STATE FUNDS

The goal of these grants and contracts is to develop, through BMR sponsored efforts and research projects, valuable information which is applicable to protecting, enhancing and utilizing Mississippi's coastal and marine resources and to aquaculture enhancement to benefit the citizens of Mississippi. The developed information is utilized by the BMR to enhance existing business opportunities and to create new ones, to manage the coastal and marine resources and address problems related to them, and to aid in preparing recommendations to the Commission on Wildlife Conservation who renders the management decisions.

The Scientific-Statistical division was assigned the responsibility for preparing the following contract supported with State funds: "A Contractual Agreement for Providing Research Efforts Regarding the Experimental Evaluation of Sodium Ricinoleate as an Agent for the Prevention of Blue-green Algal Blooms and Their Off-flavor in Commercial Catfish Ponds". George Pessoney and others -- \$6,400.

## RESEARCH GRANTS AND CONTRACTS UTILIZING FEDERAL FUNDS AND MATCHING STATE FUNDS

"Experimental Evaluation of Sodium Ricinoleate as an Agent for Prevention of Blue-Green Algal Blooms and Their Off-flavor in Commercial Catfish Ponds". University of Southern Mississippi -- \$59,980.

## INDUSTRY AND PRIVATE ENTERPRISE ASSISTANCE

The purpose of this activity is to provide technical advice and assistance to industries and individuals involved and interested in the appropriate development and utilization of Mississippi's coastal and marine resources. The technical advice and assistance is aimed at enhancing the quality and marketability of seafood (including underutilized species), encouraging intensive, cultured production of aquatic organisms in the coastal area to supplement the harvest of food from the natural marine environment, reducing pollution to the coastal marine environment by transforming wastewaters into saleable products, and for Mississippi citizens, enhancing their income and maintaining consistent, profitable income from the sale of products derived directly or indirectly from coastal and marine resources.

Though the demand was high, industry and private enterprise assistance rendered by the personnel of the Scientific-Statistical division was somewhat curtailed during FY 85. This curtailment occurred because of a heavy workload required to meet the review and information development needs associated with marine oil and gas activities.

The staff of the Scientific-Statistical division continues to provide technical assistance to persons involved or interested in becoming involved in aquaculture in the coastal area of Mississippi. Aquaculture is the controlled cultivation of aquatic animals and plants.

The Bureau's aquaculture program efforts continue to be mainly aimed at providing an awareness of aquacultural opportunities and developing aquaculture operations which diversify and supplement an existing income base. Highly technical information developed by research organizations has been reviewed and evaluated and has been transformed by the division's staff into information which can be readily understood and applied by aquaculturists located in the coastal region of Mississippi.

Requests for aquaculture assistance through the division continues to escalate from year to year. This indicates a growing interest in aquaculture in the coastal area and positive benefits from the educational emphasis of the Bureau's aquaculture program and the contacts made in association with it. During FY 85 the personnel of the division worked with a number of individuals providing them technical aquacultural information, evaluating their available resources for aquaculture use, and advising them on actual culture of organisms in the coastal area including relatively new species. All aquacultural assistance was rendered by the Bureau with the aim of enhancing job and income opportunities, increasing tax revenues to the State, and of offsetting dollars spent importing fish (second only to import of petroleum products), thus improving our trade balance.

During FY 85, as example, specific aquacultural assistance included continued on-site technical advice to the South Mississippi Retardation Center and the development of a detailed suggested protocol regarding aquacultural activities for enhancing the well-being of the mentally handicapped; providing information on saltwater and freshwater shrimp culture to several interested persons and to the personnel at the Gulf Coast Research Laboratory; providing information on crawfish culture and the use of a new spray mist system for holding harvested crawfish. A coastal crawfish farmer is now using this system which has significantly reduced losses while holding crawfish until marketed; providing information on baitfish culture; and

presenting information on aquacultural opportunities in the coastal area to the Association of Retired Federal Employees.

The division's personnel continued working with a large Mississippi coastal corporation in utilizing selected fish to remove suspended solids from their wastewater effluent stream.

The division's personnel attended selected aquaculture seminars and technical meetings to gain new information which could be transferred in an appropriate format to enhance aquacultural opportunities and activities in the coastal area. One such valuable technological information transfer involved the crawfish holding spray mist which was previously mentioned.

In the area of seafood marketing, the division supplied technical information on holding and air shipping crabs and shrimp and on marketing problems associated with such shipping.

During FY 85, the division's personnel continued to provide assistance aimed at developing outlets and markets for shrimp waste solids produced by Mississippi coastal seafood processors. One Mississippi shrimp processor continues to produce dried shrimp shells based upon utilization of technology which was recommended by the division about three years ago. These shells when incorporated into soil provide some valuable benefits to economically important plants. When incorporated into soils, the shrimp shells help prevent infections to plants caused by plant parasitic nematodes and plant pathogenic fungi. The prevention of such infections was earlier demonstrated through research efforts funded by the Bureau.

With respect to other activities involving shrimp shells, a coastal commercial sod producer applied shrimp shells to his growing grass sod based upon the recommendations of the divisions' personnel. Technical information and a list of potential Mississippi supplies of crab and shrimp waste were provided to a researcher with NASA. The waste obtained was used to conduct research studies regarding waste treatment technology.

In support of industry and private enterprise assistance, the following publications were produced by the personnel of the Scientific-Statistical division:

Ladner, Cornell. October 1984. Potential Prawn (Freshwater Shrimp) Farming in the Southern Portion of Mississippi. Some highlights pertaining to Macrobrachium rosenbergii culture. Mississippi Bureau of Marine Resources, Long Beach, MS.

Ladner, Cornell M. January 1985. Red or Golden Tilapia. Selected notes regarding the opportunity to commercially culture them in Mississippi. Mississippi Bureau of Marine Resources. Long Beach, MS.

Ladner, Cornell M. and John B. Loftus. January 1985. Redfish. Highlights regarding the potential for their culture in Mississippi. Mississippi Bureau of Marine Resources, Long Beach, MS.

Leingang, Andrew J. and Cornell M. Ladner. 1984. The following information flyers were prepared:

- 1) Comparison of Possible Aquacultural Ventures for Small Ponds in Coastal Mississippi.
- 2) Seasonal Water Temperature and Survival, Growth and Reproduction of Commercially Important Aquacultural Species in Coastal Mississippi.

3) Crawfish Culture Highlights.

4) How To Determine the Sex of Freshwater Shrimp.

Loftus, John B. January 1984. The Renewed Value of Organic Plant Nutrients from Marine Resources. Mississippi Bureau of Marine Resources, Long Beach, MS.

## TEXAS PARKS AND WILDLIFE DEPARTMENT

### Texas Parks and Wildlife Coastal Fisheries Research Management Programs

The Coastal Fisheries Branch is responsible for making management recommendations regarding the State's saltwater fishery resources within the bays and estuaries and out to nine nautical miles in the Gulf of Mexico. More than \$400 million is spent annually in Texas' 4 million acres of saltwater by approximately 26,000 commercial and over 1,000,000 recreational fishermen.

The goal of the Coastal Fisheries program is to develop management plans within the concept of optimum yield for selected fisheries that include harvest regulations, resource stock enhancements or habitat enhancements based on monitoring programs and the best scientific information available. The objectives of the Coastal Fisheries Branch are: 1) to recommend management strategies for the aquatic marine resources to the Division Director, Executive Director, Commission and Legislature based on the results of research and monitoring programs and the best scientific information available; 2) to determine the sizes and changes in the sizes of finfish and shellfish populations caused by environmental conditions and fishing; 3) to determine the landings of marine species and the associated social and economic characteristics of the fisheries; 4) to develop mariculture techniques for selected species and make the information available to commercial mariculturists in Texas; 5) to educate the consumer regarding high quality, wholesome seafood products. To achieve these objectives, the Branch is organized into five major functions or programs: Administration, Fisheries Resource Monitoring, Fisheries Harvest Monitoring, Marine Culture and Enhancement, and Seafood Marketing. In FY 85, a total of 18 technical reports, nine scientific journal articles and four magazine articles about various aspects of the Texas coastal fishery resources were completed to aid in meeting the objectives.

Effective management of finfish and shellfish resources must be based on a thorough knowledge of the population dynamics and stability of the resources. Long-term trend data based on routine monitoring are necessary to assess changes in abundance and stability. Landings information from both sport and commercial fishermen is necessary to assess the impacts of user groups on the fisheries and to determine the economic importance of the fisheries to the State.

Monitoring of the relative abundance of adult finfishes in Texas waters is accomplished using 600-foot-long gill nets with individual 150-foot sections of 3-, 4-, 5-, and 6-inch stretched mesh. Bag seines (60 feet long) and 20-foot trawls are used to determine the abundance of juvenile finfishes as well as shrimp, blue crabs and associated organisms. Oyster dredges (19.5-inch wide) are used to collect oyster samples.

The sport landings and fisherman activity are estimated from samples selected in proportion to the activity at a site (probability sampling); the higher use sites are sampled more frequently. Roving counts are utilized to assess relative pressure at sampling sites to insure that proper sampling probabilities are maintained. The charter fishery is randomly sampled on a continual basis within each of the bay systems of the coast by intercepting boats when trips are completed (party boats) or by accompanying the boat on fishing trips and assessing the landings (headboats). Commercial landings are obtained from commercial seafood dealers through submission of Monthly Marine Products Reports.

The Perry R. Bass Marine Fisheries Research Station at Palacios was established to provide information and techniques necessary for the improvement of Texas fisheries management plans. Research effort is directed toward methods for spawning and rearing marine fish and shellfish. Once developed, such techniques will be used to provide animals for stocking coastal bays and

freshwater reservoirs and information on techniques will be made available to commercial mariculturists in Texas. Coastal fisheries personnel cooperate with other coastal states in marine fisheries enhancement efforts through the transmittal of information and supply of available fishes.

As directed by the Texas Legislature, the Seafood Marketing Program was initiated to increase the utilization and value of seafood products. This charge is aimed at all functional levels within the marketing channel. Since 1977, the Seafood Marketing Program has functioned through an interagency contract with Texas A&M University, the Texas Agricultural Extension Service, and the Sea Grant College Program's Marine Advisory Service. Several Fisheries Development Foundations nationwide have also supported various work completed by the Seafood Marketing Program.

#### Activities in FY 85 Included:

Regulations were modified to protect red snapper by requiring a 13-inch minimum size for retention in Texas waters. These regulations conformed to those approved by the Gulf of Mexico Fishery Management Council for federal waters. Other regulations concerned the use of snapper traps in certain waters and specific exemptions to the minimum size limit.

The closure period for Gulf shrimping in State waters was coordinated with the National Marine Fisheries Service for closure of the Fisheries Conservation Zone to increase yield and value for the shrimping industry. The season was closed 30 minutes after sunset on May 20 and opened 30 minutes after sunset on July 8.

The Galveston Bay oystering season was delayed for 75 days to reduce fishing pressure on small oysters and low number of market size oysters. The oyster program was redesigned to provide broader coverage and increased efficiency.

Development of a State red drum management plan was initiated as part of the 6-year plan for Coastal Fisheries Programs approved by the Commission. The Branch also participated in the development, review, and revision of 10 Gulf Council management plans, requiring 2,880 manhours.

Four new 44-ft vessels were put into service to sample bay and Gulf waters. They are faster and have a shallower draft than the former Gulf vessel and will result in wider and more efficient coverage of the State's territorial sea. A new vessel is planned for Sabine Lake and the adjacent Gulf of Mexico. The unbiased sampling scheme for all organisms was enhanced through the implementation of a coastwide grid system based on one-minute latitude and longitude lines. There were 670 gill net samples, 960 bag seine samples, 2,080 trawl samples, 1,200 oyster dredge samples, and 40 Southeast Area Monitoring And Assessment Program samples collected. A total of 1,144 survey days were spent to estimate landings and pressure of the recreational boat fishermen.

Gulf of Mexico waters from Alabama to the Rio Grande were sampled to a depth of 270 feet during June-July with other Gulf States and National Marine Fisheries Service. This effort was coordinated by the Gulf States Marine Fisheries Commission through the Southeast Area Monitoring and Assessment Program (SEAMAP). Results of sampling were used by the National Marine Fisheries Service to evaluate the closures of Gulf waters to shrimping.

A report was prepared from mail survey data detailing Texas sport fishing activities. This report confirmed that at least 78 percent of all saltwater sport-boat fishing trips originate from boat access areas which are surveyed by Coastal Fisheries personnel.

An analysis of fisherman activity and landings data justified the termination of weekend boat access site surveys at 2:00 p.m. rather than 6:00 p.m. when no angling interviews were conducted prior to 2:00 p.m. This measure increased efficiency of survey personnel with a loss of less than 3 percent of landings data.

Routine collection, editing, summarization, and publication of commercial landings data continued through a formal cooperative statistics agreement with National Marine Fisheries Service to replace the informal agreement that has been in place for many years. Texas Park and Wildlife Department collected commercial landings statistics on crabs, oysters, and finfishes, while National Marine Fisheries Service continued to gather landings statistics on shrimp.

Several marine fishes were maintained on a controlled photoperiod/temperature regime to induce sexual maturity and spawning. Southern flounder exhibited external signs of sexual maturity and were placed on an abbreviated cycle in anticipation of a September 1985 spawn. Common snook were maintained on an optimal growth regime and are currently scheduled for a 1986 spawn.

Pond culture studies of several species resulted in the production of fry and fingerlings which were released into Texas bays and reservoirs. Common snook fry were obtained from Florida for the first pond culture attempt with this species. Black drum x red drum hybrids were produced and stocked to compare growth of the hybrids to the parent species over 235 days. Hybrids grew larger than red drum or black drum over the experimental period.

Technical information regarding activities at the Perry R. Bass Marine Fisheries research station was provided to other coastal states in a cooperative effort to enhance coastal marine fisheries.

## GULF STATES-FEDERAL FISHERIES MANAGEMENT BOARD

During the period October 1, 1984 to September 30, 1985, two meetings were held by the Gulf States-Federal Fisheries Management Board (GS-FFMB): New Orleans, Louisiana - October 1984 and Mobile, Alabama - March 1985.

The GS-FFMB is comprised of Gulf States Marine Fisheries Commission (GSMFC) Commissioners, two from each of the five Gulf States. The Board members vote as a State with a single vote per State. The Regional Director of the National Marine Fisheries Service (NMFS), or his designee, and the Executive Director of the GSMFC are non-voting members of the Board. The Board is advised on technical, scientific matters, and industry views by the same advisory groups as the Commission. Among these groups are the Technical Coordinating Committee (scientific), the Menhaden Advisory and Management Committee, the Shrimp Management Committee, as well as the NMFS.

The GSMFC is the prime contractor for all management plan development and support in the Gulf of Mexico for the Board. This has resulted in coordinated involvement by the Commission in State-Federal management and information in the territorial seas. The activities of the Board and the Commission complement those of the Gulf of Mexico Regional Fishery Management Council, thereby providing an effective system for advising the management of the fisheries throughout the extent of their range.

The major activities and accomplishments of the Board are described in the following summary:

The GSMFC, in accordance with provisions included in Cooperative Agreement #SF-28, provided for administration, travel, communication, planning, and other activities for the administration and committee support of the GS-FFMB. This agreement in the amount of \$41,500, provided financial support for the following.

The staff of the GSMFC carried out many secretarial duties for the Board and its committees (Crab Subcommittee, Menhaden Advisory Committee, SEAMAP Subcommittee, and Anadromous Fish Subcommittee), which included: preparing and distributing minutes of all Board meetings as well as minutes of all committees of the Board, preparing and distributing meeting material, arranging and financially supporting meetings of the Board and its committees and all other duties as required by the Board. Travel reimbursements were made for members and other approved participants of State-Federal Board meetings in accordance with accepted Government and Commission policy. Travel reimbursements were also made for attendance of other meetings related to State-Federal activities by authorized representatives of the GSMFC.

Major SEAMAP Subcommittee meetings were held in October 1984 and March 1985, in conjunction with the Annual Fall and Spring Meetings of the GSMFC. Resource survey planning meetings of the Subcommittee were held in January and August 1985; all meetings included participation by the several work group leaders, data managers, curators, and the GSMFC Executive Director.

All SEAMAP work groups also met this past year, charged specifically with providing recommendations to the Subcommittee for survey and data management plans. The Red Drum Work Group met in November 1984; the Shrimp/Groundfish Work Group in February 1985; the Environmental Data Work Group in February 1985; the Data Coordinating Work Group jointly with the South Atlantic SEAMAP Data Management Work Group in March 1985; the Squid/Butterfish Work Group in June 1985; and the Plankton Work Group in August 1985.

Coordinating program surveys and distributing quick-report summaries of two Gulf-wide surveys to management agencies and industry were major functions of SEAMAP management in FY 85. Other important management activities included coordinating data provisions and specimen loans, preparing publications and documents, and assisting in the preparation of State-Federal cooperative agreements, including amendments to permit extension of activities previously not detailed in the agreement.

Major meetings of the Anadromous Fish Subcommittee were held in October 1984, March 1985 and July 1985. All member Gulf States, U.S. Fish and Wildlife Service, and National Marine Fisheries Service were represented on the committee. A draft profile for striped bass has been developed and the committee will incorporate this information into a regional striped bass management plan in fiscal year 1986.

The Board elected Mr. William S. Perret (Louisiana) as Chairman and Mr. Edwin Joyce (Florida) as Vice-Chairman to serve in 1984-85.

## SOUTHEAST REGIONAL OFFICE AND SOUTHEAST FISHERIES CENTER

### NATIONAL MARINE FISHERIES SERVICE (NMFS)

National Oceanic & Atmospheric Administration (NOAA)  
U.S. Department of Commerce

#### Southeast Fisheries Center Highlights

In fiscal year 1985, activities of the Southeast Fisheries Center concerned programs focusing on species that support major commercial and recreational fisheries within the region. Most often, these groupings correspond to those employed by Regional Fishery Management Councils in their consideration of management needs. Each of the species-oriented programs is responsible for developing data needed to assess/monitor stock characteristics and condition. Center species programs include: Latent Resources, Mackerels, Menhaden, Molluscan Shellfish, Oceanic Pelagics, Protected Species, Reef Resources, and Shrimp. Our report this year covers these species programs and other related activities.

#### LATENT RESOURCES

Latent resource cruises in the Gulf of Mexico on the CHAPMAN and OREGON II focused on winter and spring periods. Efforts to sample coastal herrings with mid-water and high-opening trawls were not successful. Periodically, large catches were made such as with red tail scad where a catch rate of over 11,000 pounds/hour was achieved. A number of large catches of Gulf butterfish were also made. Gear trials indicated that a means of identifying acoustic targets and for evaluating fish reactions to the trawls is essential to the program. A towed submersible was made available in January 1986 for this purpose. Sampling with large mesh trawls in shallow water off Panama City continued during the summer.

Two cooperative cruises, targeting squid and butterfish, were conducted with Japan in the north central Gulf in the fall of 1984 and spring of 1985. Very few squid were caught, however, commercial size catches of butterfish were obtained. Industry workshops were held at the end of the spring cruise. A summer survey was organized under SEAMAP with Gulf States participating. Catch rates were much lower than in the spring and fall but fat content of fish was significantly higher.

A review of information on food habits of predatory recreational species reported butterfish included in the diets of 11 recreational fish. Survey results indicated the most significant bycatch of the butterfish fishery would be Atlantic croaker and this would be less than 17,000 metric tons annually.

#### MACKERELS

A series of new analysis were conducted to update the status of stocks of king mackerel in the southeastern United States. The studies show that landings of the Atlantic migratory group have risen in recent years. Recruitment shows an upward trend, as does spawning stock biomass. However, landings of the U.S. Gulf migratory group have decreased sharply since 1981 in both commercial and recreational sectors. All evidence suggests a decline in recruitment of juveniles into the fishery. Adult size classes also appear to be declining. While catches in the United States have decreased, catches in Mexico increased sharply from 1978-82. If a single

stock is assumed, results of the virtual population analyses show reduced recruitment, suggesting overfishing of the recruit size classes.

The historical data base of lengths of king mackerel from the southeastern United States was completed. A survey to obtain lengths and otoliths of mackerels was begun to provide age and growth information. Most samples were obtained from North Carolina, northeast and east Florida, Louisiana, and Texas. Samples collected on research cruises were used in a cooperative effort with Louisiana State University to study growth and survival of young Spanish mackerels.

Charterboat surveys continued. Due to mandatory reporting requirements specified in the amended FMP, new logs were designed and reporting procedures developed.

King mackerel were tagged to address questions concerning migratory routes and discreteness of stocks off Louisiana; off Veracruz, Mexico through a cooperative effort with Mexico; and off North Carolina. An improved tag was designed and kits prepared for distribution to anglers interested in tagging king or Spanish mackerel.

The study on effects of purse seining of mackerels continued and will be completed in 1986.

#### MENHADEN

Almost 21,700 juvenile Gulf menhaden and over 34,600 Atlantic menhaden were tagged. Work continued to analyze the statistical basis of the menhaden port-sampling program. Expanded juvenile surveys, to develop a survey methodology for forecasting year-class strength and subsequent harvests, increased diversity of estuarine habitats sampled and extended the geographic range covered. The Captain's Daily Fishing Report provided information about the process of purse-seine fishing useful in determining the stock status of the Atlantic and Gulf menhaden resources. A stock assessment analysis of the Atlantic menhaden fishery was conducted with purse seine landings data from 1940-1984 and port sampling data from 1955-1984. Research was conducted on the development and application of fisheries technology to increase the export and direct domestic consumption of menhaden products.

#### MOLLUSCAN SHELLFISH

Viral research concentrated on hepatitis-A and the Norwalk virus. Papers were published reviewing the shellfish-related viral illnesses in the United States and evaluating improved assay methods for polio, echo, and cocksackie viruses. Chemical contamination research concentrated on the effects on shellfish of the heavy metal cadmium and on the efficacy of depuration. The physiological causes of excessive drip loss in oysters were studied. This research will be useful to the Shellfish Institute of North America in testing a tentative 15 percent free-liquor standard for oysters. Factors affecting the quality and shelf life of calico scallops were assessed.

A draft five-year strategic plan was prepared to direct future NMFS activities in molluscan shellfish. Key aspects include enhanced law enforcement to control illegal harvests and post harvest abuse, depuration technology research to allow for removal of pathogenic virus and chemical contaminants, abatement of habitat degradation, and improved administration of shellfish activities.

#### OCEANIC PELAGICS

A unified swordfish data base was established and a first assessment of the resource in the northwest Atlantic was completed. Results indicate an increase in the exploitation level in recent years and that the abundance of larger swordfish has declined. Swordfish bone samples

were obtained for age composition studies and 113 swordfish were tagged and released for studies of migrations and for estimating growth rates.

Fisherman participating in the Cooperative Gamefish Tagging Program released 1,321 sailfish, 568 white marlin, and 514 blue marlin in 1985. They caught 24 sailfish, and 17 white marlin that were tagged and released previously, providing information on migration habits and growth of these big game fish. Twenty-eight billfish fishing tournaments were monitored and dock sampling continued at seven gulf ports. Data collected at the tournaments and dock samples of sport fishing trips were evaluated to estimate trends in abundance.

Bluefin tuna research concentrated on assessing the status of the bluefin population which, according to previous analyses, was believed to be at a low level of abundance. This topic was addressed by an international workshop hosted by the SEFC. Research on the chemical composition of bluefin bone tissue was completed, suggesting little mixing from each side of the Atlantic. Recreational catch and effort data were used to estimate the numbers of small bluefin caught by recreational fishermen in 1985. Samples of the 1985 recreational catch and effort for all sizes of bluefin were collected through a survey in cooperation with state agencies. One hundred twenty-six bluefin were tagged and released and 12 were recaptured. Samples were obtained from 203 fish for establishing the age composition of the 1985 catch in the western Atlantic. Preliminary investigations were initiated on the following tuna species in the Atlantic and Gulf of Mexico: albacore, bigeye, blackfin, bonito, little tunny, skipjack, and yellowfin.

#### PROTECTED SPECIES

Sea Turtles -- Preparations are underway for the second Western Atlantic Turtle Symposium (WATS II) to be held in July 1987. The Cape Canaveral Sea Turtle Workshop was held in Miami in February to exchange information on marine turtles which occur in large numbers in this area. A published proceedings will be available in 1986.

The status of three species of marine turtles occurring in the U.S. waters was evaluated. Results suggest that the loggerhead turtle stock in U.S. waters has been stable since 1982. The Kemp's ridley turtle nests on specific Mexican beaches and remains in the hundreds each year. The green sea turtle is appearing in U.S. waters and on U.S. beaches nesting in greater numbers over the past ten years.

A preliminary evaluation of beach habitat from North Carolina to the Florida east coast suggests that development of beaches needs to be evaluated as to potential impact on nesting behavior and reproductive output for the U.S. loggerhead stock.

About 1,650 Kemp's ridleys of the 1985 year-class are being reared at the Galveston Laboratory. Plans are to multiple-tag all healthy survivors of the 1985 year-class, to release most of them in May or June 1986, and to distribute not more than 15 to the Grand Cayman Turtle Farm for captive rearing and breeding.

The ability to analyze the stock structure of western Atlantic sea turtle species by a biochemical approach was advanced by the successful application of methods for detecting genetic variability using selected blood proteins.

Satellite tracking research continued to describe migratory movements and to establish the operational feasibility of the ARGOS tags for tracking Kemp's ridley sea turtles.

Marine Mammals -- Four regional surveys to collect data for abundance estimation and subsequent quota recommendations for live-capture fishery for bottlenose dolphin were completed in the northwestern Gulf of Mexico. The Center continued to provide partial support for

stranding and salvage operations in the southeast region. The degree of genetic heterogeneity between localized groups of bottlenose dolphins collected from discrete geographical locations along the southeast coast was evaluated. The Center cooperated in a Marine Mammal Commission-funded project to test the utility of mtDNA analysis for determining stock structure in bottle-nose dolphin.

In addition to research on Atlantic bottlenose dolphin, research on large whale species frequenting the region was begun. A research planning meeting for large whales resulted in a draft plan for large cetacean species of joint concern to the Northeast and Southeast Fisheries Center.

#### REEF RESOURCES

A review of the Gulf of Mexico reef fish data bases to evaluate data from commercial, recreational, and research surveys and to described trends in abundance was prepared for the Gulf of Mexico Fishery Management Council. The South Atlantic headboat survey continued and will be expanded to include 65 headboats in the Gulf of Mexico. A study off Galveston, Texas determined depth-specified survival rates for red snapper. Surveys of reef fish stocks were conducted in Gray's Reef National Marine Sanctuary in Georgia in cooperation with NOAA's Sanctuaries Program Division. At Looe Key National Marine Sanctuary in Florida, an experiment was conducted using models of fish to quantitatively determine the effects of fish size and color, light levels, background color, and degree of fish dispersion on the ability of divers to accurately count the number of fish in the study area.

Studies on age and growth, feeding habits and a review of reproductive biology were completed for yellowtail snapper and queen triggerfish in Puerto Rico and the U.S. Virgin Islands.

The OREGON II supported submersible research off the coast of Florida to assess stocks of yellowedge grouper, golden tilefish, blueline tilefish, and Geryon crabs. The CHAPMAN tested deployment and retrieval of traps and bottom longlines in the Caribbean.

A review of scientific publications produced information on the biology, ecology, and economics of artificial reefs and described areas where future research is needed.

#### SHRIMP AND BOTTOMFISH

The field phase of a study to estimate brown shrimp movements across the Texas-Mexico border was completed during the 1985 Texas Closure. With cooperation from Mexico's Instituto Nacional de la Pesca (INP) about 81,000 brown shrimp were marked with numbered plastic streamer tags and released along the Texas and Tamaulipas coasts. Tag recoveries and catch statistics are being collected.

The Texas brown shrimp forecast was released in mid-May and updated on June 27. A second index of brown shrimp abundance was provided by estimates of juvenile shrimp in secondary bays and marshes. Catch rates for the Texas inshore commercial fishery offered another estimate of shrimp abundance. Data collected from the Galveston Bay bait shrimp fishery indicated the most reliable estimate of the offshore brown shrimp harvest for Texas.

The study to establish comparative fishery nursery values of estuarine habitats in Texas and Louisiana continued. Shrimp predation by fishes and the magnitude of its effect on survival of postlarval and juvenile shrimp in estuaries were examined. The effects of environmental factors on penaeid shrimp at various life stages, with emphasis on the period of inshore existence was studied. The relationships between shrimp harvests and freshwater inflows were studied for the Matagorda Bay (Texas) system.

Three reports were produced on the economic conditions of the commercial shrimp industry. NMFS, Sea Grant, and segments of the shrimping industry produced and distributed a new southeastern shrimp trawl movie.

#### ECONOMICS AND STATISTICS

The Economics and Statistics Office was established in September 1985, incorporating the former Center units of economics research, statistics, and information management.

During the year the price and value effects of the Texas Closure shrimp fishery regulation and cost and revenue data from offshore shrimp vessels were analyzed. A report was produced describing the development of management plans on reef fish in the Gulf and South Atlantic. A project is underway to estimate the effects of bag limits on the demand for recreational charterboat fishing. Monthly surveys were conducted to obtain data on amounts and prices of commercial fishery landings, species composition of the catch, and fishing area and fishing effort.

Summaries were provided of processed fishery product production and fishing fleet operations. Information on king mackerel was provided weekly to monitor the quotas set by regulations, and reports were received from stone crab fishermen and dealers. Computer service support was provided for fishery research projects, including major programming tasks for SEAMAP, Bluefin Tuna, Swordfish, Reef Fish, Stone Crabs, and Shrimp. State cooperators were provided software to allow access/retrieval of regional statistical data files between their microcomputers and the host system.

#### FISHERY HABITAT

Field sampling was completed in the Everglades National Park to determine the distribution and recruitment of larval and juvenile fishes in a subtropical estuarine system. Modeling of the possible effects of salinity changes due to increased freshwater inflow from channelization projects on abundance of estuarine organisms in Faka Union Bay, Florida and sampling of ichthyoplankton in the Ten Thousand Islands area were initiated. In North Carolina, analyses of temporal patterns of movement of early postlarval fishes into an estuarine system were completed.

We participated in an OAD/NOS sponsored "Nationwide Review of Oxygen Depletion and Eutrophication in Estuarine and Coastal Waters," and helped formulate a proposal for research to monitor hypoxia events. In cooperation with the NEFC Sandy Hook Laboratory and Louisiana State University samples were analyzed from coastal New Jersey and an hypoxic event in the northern Gulf.

Experiments on size selectivity of spotted hake feeding on juvenile spot and an analytical technique for quantitative aspects of size selectivity in fish predation were completed. Research on mitigation of salt marsh and seagrass was conducted.

Research was conducted on the structure and functioning of larval fish food webs in the northern Gulf of Mexico and on the impacts of Ocean Thermal Energy Conversion operations on Caribbean fisheries organisms.

Investigations of the impacts of trace metals on estuarine fishery organisms expanded to include not only the effects on food web organisms that support the survival and growth of larval fish, but also the development of techniques to determine the potential for trace metal toxicity in natural waters.

## PRODUCT QUALITY AND SAFETY

Collection of information on the composition, safety, and uses of fish oil continued and is near completion. The pilot plant in Charleston confirmed that a fairly light-colored surimi of good gel strength is possible with menhaden. The primary data collection phase of the project on edibility characteristics and chemical composition of southeastern finfish was completed. A total of 35 species were evaluated by the sensory panel and proximate chemical composition and fatty acid profiles for both raw and cooked flesh samples of each species were determined. Proximate and fatty acid analyses were obtained for other underutilized species, including rough scad, chub mackerel, and Gulf butterfish. Latent species processing studies investigated canned menhaden and a smoked, heat processed shad product. Five diverse species of fish from the southeast Atlantic were analyzed for lipid levels and fatty acid composition.

A literature survey was completed pertaining to levels of free liquor in oysters and physiological studies relating to how/why oysters lose or take up water after shucking and packing. Microbiological and organoleptic characteristics of calico scallops during storage, transportation, and marketing were investigated. In coordination with FDA and EPA a survey was designed to determine the levels of polychlorinated biphenyls (PCBs) in the edible tissues of bluefish along the east coast of the United States. The biochemical mechanisms by which methylmercury and selenium interact to lessen the potential health risk to the consumer were evaluated. Data were obtained on levels of PCBs and chlorinated pesticides in edible tissues of various reef fishes collected off the northern coast of Puerto Rico and the Virgin Islands. Research was begun to evaluate alternatives to a chemical preservative called bisulfite, used to prevent black spot in shrimp. The economic impact on the shellfish industry of arbitrary action levels on cadmium was assessed. Research on enteric viruses focused on the development of methods for the extraction and assay of enteroviruses from oysters and clams. An improved poliovirus extraction was developed for each shellfish, and hepatitis-A virus studies were initiated. Progress was made in producing algal toxin(s) thought to be either ciguatoxin or a closely related toxin, and development of an immunological method for detecting toxic reef fish will no longer be hindered by a limited supply of the toxin.

## MEXUS-GULF

MEXUS-Gulf, a cooperative program between the National Fisheries Institute of Mexico and NMFS, held the tenth annual meeting in October and included U.S. and Mexican government and industry representatives. Activities of last year's work were reviewed and plans outlined for the coming year regarding shrimp, coastal pelagics, ichthyoplankton, marine turtles, aquaculture, recreational fisheries, groundfish and harvesting technology.

## Southeast Regional Office Highlights

Our mission with respect to Marine Recreational Fisheries (MRF) is to resolve impediments to stability and growth. In pursuit of this mission, regional program activities are conducted to increase satisfaction of recreational fishermen, to develop resource and user information, to increase access to available fishery resources, and to support growth of recreational fishing support businesses.

Numerous newsletters and information items were distributed to MRF audiences and presentations were made to MRF clubs and organizations. Other additional activities included participation in a task force to develop the National Artificial Reef Plan. The plan was completed and is being distributed to states and others for their use.

The staff participated in the Recreational Fisheries Statistics Review Committee created in December 1984, and worked with states and councils to develop a recreational fisheries data collection program.

A comprehensive compilation of charterboats, headboats, and dive-boats in the region was conducted and the information organized for the computerized mailing list. A directory of these vessels was published in January 1986.

Regarding International Fisheries relations, in June 1985, a meeting was held in the regional office involving Mexican fisheries officials. The group of diplomats showed favorable interest in aquaculture development; fisheries research and utilization (particularly underutilized species); joint ventures involving shark, mullet, deep water snapper and grouper, rock shrimp, and deep water shrimp; and exchange of technical experts in research and fisheries development.

#### HABITAT CONSERVATION

Our office of Habitat Conservation investigates and analyses proposed environmental alterations and reviews environmental impact analyses, provides technical consultation services to developers, sets forth environmental research requirements, develops criteria and guidelines and conducts surveillance activities related to environmental alterations.

During the year, field office staff in Beaufort, NC, Galveston, TX, and Panama City, FL reviewed about 4,500 water-development proposals to dredge, fill, drain, and impound wetlands which support fishery resources. We did not object to 3,173 proposals, responded jointly with U.S. Fish and Wildlife Service and/or the U.S. Environmental Protection Agency on 364 proposals, and recommended major project modifications on 680 actions and minor modifications on 181 actions. We recommended denial of 48 projects (about 1%) and provided significant comments on 59 actions.

In terms of habitat amounts, 57,929 acres of fisheries habitat were proposed for alteration. We did not oppose alterations in 21,813 acres. This results in potential conservation of 36,115 acres of fishery habitat. Moreover, we recommended restoration and/or generation of 36,600 acres of fisheries habitat.

The staff also reviewed 147 permit applications for acceptance of Regional Office recommendations by the Corps of Engineers and completion of projects as recommended by applicants. The Corps of Engineers accepted our recommendations on 91 of 132 issue permits (69%). Applicants completed work as recommended on 76 of 102 projects (75%).

We continued our efforts in Louisiana to work with agencies and landowners to develop management plans for deteriorating marshes. To date, 35 management plans have been completed covering more than 440 square miles (280,000 miles) of Louisiana's coastal wetlands.

#### FISHERIES MANAGEMENT

The Fishery Operations Branch is the principal focal point for carrying out responsibilities mandated by Public Law 94-265, the Magnuson Fishery Conservation and Management Act of 1976.

Noted activities for the year include implementation of final regulations for the reef fish fishery for the Gulf of Mexico; final regulations for the spiny lobster fishery in Puerto Rico and the U.S. Virgin Islands; fishery closures under the stone crab and shrimp plans to prevent gear conflicts in several counties off the west coast of Florida and for shrimp trawling in the FCZ off Texas. Final regulations designed to rebuild king mackerel stocks and provide greater management flexibility were written, and a fishery management plan executed for the shallow-water reef fish fishery of Puerto Rico and the U.S. Virgin Islands. An amendment to the regulations for the snapper-grouper fishery management plan initiating gear identification

requirements was completed, as well as a fishery management plan monitoring report for coral and coral reefs of the Gulf of Mexico and the South Atlantic. A technical amendment to shrimp and stone crab regulations was prepared, and the Branch responded to numerous inquiries from the public and news media concerning mackerel regulations and potential closure of the king mackerel fishery in the Gulf of Mexico.

Other activities involving the fishery management plans were final regulations for swordfish, operational plan for shrimp, and approval of a portion of the five council Atlantic swordfish plan. A regulatory amendment to the snapper-grouper regulations was established for vessel and gear identification requirements, an operations plan for Gulf of Mexico reef fish was completed as well as a technical amendment on method of determining fish trap volume for fishing reef fish in the Gulf of Mexico. An amendment for Gulf of Mexico reef fish reporting requirements was submitted to the Secretary of Commerce for review, and since November 1984, 132 permits and 7,432 identification tags were issued to those fishing reef fish traps in the Gulf of Mexico.

The State/Federal and Grants staff of the Fisheries Management Division administers the funding for research and development grants in aid (Public Law 88-309), anadromous fish conservation grants in aid (Public Law 89-304), and State/Federal cooperative statistics (Public Law 94-265) totaling over \$3.1 million for FY 85.

Financial assistance programs are managed in cooperation with 17 states, Puerto Rico, the Virgin Islands, the Gulf and South Atlantic State/Federal Fisheries Boards, and the Gulf and Atlantic States Marine Fisheries Commissions. The research gained from these programs is used to develop fisheries resource information and to establish fishery management practices.

Over the year the staff processed a total of 55 grants and cooperative agreements. Interjurisdictional fisheries were coordinated with the State/Federal Fishery Management Boards. The initiation of the Wallop/Breaux fishery program was coordinated with State fishery offices and the U.S. Fish and Wildlife Service regional offices. Wallop-Breaux monies are generated from gasoline, fishing tackle, and boat sales. The funds flow from the Federal government to the States to enhance recreational fishing. Some projects expected to be accomplished with these funds are building and/or renovating of boat ramps and fishing piers. The staff also reviewed oyster damages caused by Hurricane Elena in Florida and Alabama, and participated in the grants workshop.

FY 85 FEDERAL FUNDS ALLOCATED TO STATES  
(\$1000s)

State	88-309	89-304	Cooperative Statistics	State/Federal Boards	Total
Alabama	\$ 141.0	\$ 68.1	\$ 89.2	--	\$ 298.3
Florida	270.0	--	139.7	--	409.7
Georgia	72.0	--	85.4	--	157.4
Louisiana	270.0	--	114.3	--	384.3
Mississippi	203.1	30.5	90.5	--	324.1
North Carolina	92.7	40.0	113.3	25.0	271.0
South Carolina	24.5	53.0	92.8	--	170.3
Texas	270.0	--	50.1	--	320.1
Puerto Rico	270.0	--	108.7	--	378.7
Virgin Islands	22.5	--	109.4	--	131.9
Inland States	212.0	--	--	--	212.0
GSMFC	--	--	--	41.5	41.5
<b>Total</b>	<b>\$1,847.8</b>	<b>\$191.6</b>	<b>\$993.4(A)</b>	<b>66.5</b>	<b>\$3,099.3</b>

(A) Southeast Fisheries Center Funds

The Protected Species Management activities support the Endangered Species Act (Public Law 93-205) and the Marine Mammal Protection Act (Public Law 92-522), legislation enacted to conserve species such as sea turtles, whales, and bottlenose dolphins. There are five major activities carried out to support program goals.

Trawling Efficiency Device (TED) Technology Transfer: TED increases the efficiency of shrimp trawls because it reduces trash and finfish bycatch and reduces the likelihood of sea turtle mortality. The Fisheries Service has encouraged shrimpers to use the TED voluntarily and so far have been successful. With the help of Sea Grant, this past year 50 TEDs were built and distributed through the Southeast for a total of 300-400 now being used.

Section 7 Consultations: Section 7 of the Endangered Species Act requires all federal agencies to assure their activities do not jeopardize endangered or threatened species. The Fisheries Service completes about 150 consultations each year, and most involve channel dredging by the Army Corps of Engineers. As a result of a significant breakthrough in technology, a dredging window and clamshell dredge were introduced in Port Canaveral, FL ship channel. This year two sea turtle mortalities were documented there as opposed to as high as 71 for other years.

Sea Turtle Recovery Plan: A U.S. Sea Turtle Recovery was completed in 1984 and distributed to groups who could take action to enhance sea turtle recovery. A survey of these groups' activities was begun this year but has not been completed.

Permitting: The branch staff reviews and comments on sea turtle and marine mammal permit applications. In the past year, 35 permit reviews were conducted. The marine mammal stranding network, operated by the Branch, has 175 participants authorized to rehabilitate or take specimens for research. The staff also coordinates live capture of bottlenose dolphins (for 1985, 52 bottlenose dolphins were collected).

## Fisheries Development

The functions of the group encompass a broad range of programs including market development, both domestic and abroad, market news services, fishery situation and outlook analyses, the economic evaluation of fishery development projects, and the administration of financial assistance programs to the industry. Market development activities are coordinated with our partners. Our programs are the largest in the Fisheries Service with regard to area served, budget, staff, numbers of fish species, and the level of development activity.

Financial Services are performed to assist fishermen with the Fisheries Obligation Guarantee Program and Fisheries Loan Fund. The region accounts for 53 percent of the total financial assistance case activity nationally and our program has the largest servicing workload of all the regions as well as the greatest economic impact.

On October 1, 1984, Congress authorized \$2.5 million nationwide for the Fisheries Loan Fund Program. The region guaranteed 25 new loans totaling \$1,050,248 for the period ending September 30, 1985. The branch serviced 484 active Fishing Vessel Obligation Guarantee and Fisheries Loan Fund accounts with an outstanding loan balance of \$61.1 million, and completed the sale of 14 repossessed shrimp trawlers.

The staff participated in vessel safety and insurance activities last year including the conference held in Washington in November 1984, under the direction of Chairman Walter B. Jones, House Merchant Marine and Fisheries Subcommittee. We serve as contact monitor on a regional S-K project investigating the feasibility of an industry owned and operated insurance system.

Commercial Development services are conducted to investigate market potential for Southeast fishery products in other regions of the U.S. and foreign markets. We participate in foreign and domestic food trade shows to introduce regional fishery products to potential buyers. The staff publishes a monthly marketing newsletter, fisheries supply data, industry directories, and educational materials to increase the marketing of seafood products.

In 1985, the staff published 12 monthly issues each of the Best Southeast Region Seafood Buyer Report and Market Opportunities Newsletter; a Gulf and South Atlantic Seafood Companies Directory; and a Directory of Gulf and South Atlantic Seafood Exporters. The Little Rock, Arkansas field office produced a national surveyors directory and a national aquaculture directory. The Little Rock, Arkansas and Pascagoula, Mississippi field offices helped run the 12th Annual National Farm-Raised Catfish Cookoff Contest.

In cooperation with Florida Department of Natural Resources, we produced a shrimp Christmas tree poster and recipe card. Seafood distributors and food companies requested 14,000 posters and 700,000 cards. Two seafood video training films were produced for retailers and food service operators.

The Gulf and South Atlantic Fisheries Development Foundation participated in about 20 domestic and foreign food shows during the year. Our staff collected fishery product samples for most of the shows, coordinated several shows, and distributed all show reports to the industry.

During 1985 the Fisheries Development Analysis group program activities resulted in 150 market news reports, five situation and outlook reports, economic feasibility statements for yellowfin tuna and butterflyfish, speeches/presentations based on program work, a major paper on the current and future outlook for surimi products and markets, review of 60 S-K project applications, and reports on shrimp mariculture.

#### FISHERIES LAW ENFORCEMENT

The Fisheries Service enforcement responsibilities involve investigation of criminal and civil violations of all statutes and regulations within the services's enforcement jurisdiction. The group plans and participates with the Coast Guard, Customs Service and state agencies in patrol, inspection, and investigative activities for maximum application of resources. In addition, they provide technical assistance to the Regional Fishery Management Councils.

The primary statutory authorities are: Title 16, U.S. Code -- Atlantic Tunas Convention Act of 1975, Marine Mammals Protection Act of 1972, Endangered Species Act of 1973, Lacey Act Amendments of 1981, and Title 18, U.S. Code - General criminal violations as related to authorized duties.

Accomplishments include participation in special operations with Louisiana Wildlife and Fisheries, Mississippi Bureau of Marine Conservation, both state health departments, and the Food and Drug Administration. The operations resulted in five Lacey Act cases and seizures of 1,883 sacks of illegally harvested or improperly tagged oysters originating from Louisiana. The Food and Drug Administration awarded three of our agents the Commissioner's Special Citation for their role in halting illegal oyster harvesting.

Lacey Act violations due to illegal shrimping in the Mexican Exclusive Economic Zone were reduced from 340 cases last year to six cases this year due to more effective enforcement and greater compliance in the Brownsville/Port Isabel area.

## SPECIAL MEETINGS AND PROJECTS

One way in which we try to improve relationships with our constituents and partners is through meetings. The following are special meetings that were arranged and conducted.

Recreational Constituency -- The marine Recreational Fisheries Steering Committee met during July 1985 to offer input into the direction of our recreational fisheries program. Major topics of discussion were: 1) suggested research priorities for the Wallop-Breaux program, 2) an update on implementation of the marine recreational fisheries program plan in the southeast, and 3) a review of the 1985 S-K project proposals.

Commercial Constituency -- The third annual Industry Steering Committee meeting was held November 7, 1984. The meeting provided Dr. Anthony Calio, Administrator for NOAA, an opportunity to meet many of the key industry leaders in the southeast. Industry guidance was solicited on the research and development for underutilized resources. We discussed plans for conducting more economic evaluation and situation and outlook work, and the Southeast Fisheries Center discussed the cooperative Japanese/American squid research. Progress on the emerging Marine Fisheries Initiative (MARFIN) was also discussed. Industry members served on the S-K review panel and participated in the domestic and export marketing planning meeting.

Sea Grant Retreat -- The Fisheries Service hosted the Southeast Region Sea Grant Directors, the Executive Director of the Gulf and South Atlantic Fisheries Development Foundation, and others for our third annual retreat in January 1985. This meeting focused on improving program coordination and 48 cooperative action items were developed.

Vietnamese Fishermen -- A study was performed on the establishment of Vietnamese citizens and resident aliens in southeast fisheries in response to a number of congressional inquiries. The study revealed the assimilation of the Vietnamese into the Gulf Coast Fisheries and highlighted their participation in southeast fisheries. The study enabled a number of Congressmen to respond to concerned citizens, and assisted in providing accurate information about the situation to the media and public at large. The study helped in our coordination with the Eighth Coast Guard District as they defined their policy toward alleged Vietnamese violations of vessel documentation laws.

Presidential Initiative on Habitat Conservation -- A slide presentation on the habitat initiative was developed in cooperation with the U.S. Army Corps of Engineers to better define the Fisheries Service' legislative initiative for the rehabilitation, conservation, and responsible use of coastal habitats. We are going forward to enact this important legislation.

Florida Marine Information Network (MARINE) -- MARINE is a non-political, non-profit, tax exempt Florida corporation established as an educational foundation with a mission to keep Florida's marine and coastal environment clean, healthy, and productive by seeking to insure desirable economic growth is accompanied by an appreciation of Florida's natural resources. A workshop was conducted on information and education for professional communicators.

## GULF OF MEXICO FISHERY MANAGEMENT COUNCIL

### ACTIVITIES OF THE GULF COUNCIL DURING 1985

During 1985 the Swordfish Fishery Management Plan (FMP) and Amendment Number 1 to the Coastal Migratory Pelagics (Mackerel) FMP were implemented. The provisions of the Swordfish FMP submitted by the Councils were partially disapproved by NMFS. The proposed closure, designed to reduce harvest levels of small swordfish, was disapproved as a result of disagreement between the Councils affected. The FMP is being amended.

Public hearings were held on Amendment Number 1 to the Coastal Migratory Pelagics FMP early in 1985. The amendment was implemented in the fall of 1985. The amendment recognized two separate management groups of king mackerel, a Gulf group which was being overfished and an Atlantic group which was underexploited. The amendment specified a total allowable catch (TAC) at 14.225 million pounds which was a 22 percent reduction of the five year average of landings. Commercial and recreational allocations were specified as 32 percent and 68 percent of TAC, respectively. The commercial allocation was subdivided into quotas for the eastern and western Gulf to assure equitability in access to the migratory resource by fishermen based in the two areas. The amendment included a stock assessment procedure whereby TAC and the allocations could be rapidly adjusted by Federal rule based on new stock assessment information.

During the fall of 1985 the Council's Stock Assessment Group provided a new stock assessment which indicated recruitment to the Gulf migratory group of king mackerel had declined more significantly than had been originally anticipated. The Gulf and South Atlantic councils held 15 public hearings to review the new information and potential impacts on users of the resource. Based on the stock assessment and socio-economic considerations, the Councils recommended to NMFS that TAC be reduced to 5.2 million pounds for the Gulf migratory group of king mackerel, an additional 63 percent reduction. This recommendation was rejected as an in-season adjustment for implementation by NMFS on procedural grounds. The Councils then recommended the TAC be implemented as an emergency action to protect the resource under other provisions of the Magnuson Act. A decision by NMFS on this recommendation is pending.

During 1985 extensive monitoring reviews of the effectiveness of the FMPs for shrimp, stone crab, and spiny lobster fisheries were conducted by the Council, its Scientific and Statistical Committee (SSC), and Advisory Panels (AP). Based on these reviews, amendments to Stone Crab and Spiny Lobster FMPs were prepared by staff for Council approval and for public hearings early in 1986. The Texas Closure of the Shrimp FMP was continued as a result of the monitoring review.

The principal emphasis of the draft for the Spiny Lobster Amendment was to address mortality associated use of undersize lobster as attractants in traps, and to make State and Federal rules more compatible. The draft Stone Crab amendment was designed to adopt the State data reporting system for the FMP in lieu of the current Federal logbook and to reduce mortality associated with holding of crabs on board vessels. At the request of the APs for these fisheries, the Council will develop alternative limited entry systems for future considerations by the APs and possible implementation by the Council and State of Florida.

The Council staff continued summarizing and compiling of the data base for amendment of the Reef Fish FMP, which will re-examine all objectives and management measures in the FMP. Completion of the amended FMP is anticipated during 1986 with implementation expected to occur in 1987. The Council's staff completed an options paper for an amendment of the Shrimp FMP which is also anticipated to be adopted in 1986. This amendment action will re-examine the objectives and management measures based on current economic conditions in the fishery and will attempt to make State and Federal rules more compatible. The Council also requested that staff begin development of Amendment Number 2 to the Coastal Migratory Pelagics FMP. Council members and staff also

participated in a joint effort by east coast Councils to update the data base for the shark fishery preparatory to a decision on whether to resume development of a Shark FMP.

The Council's Chairman and Executive Director participated in a joint NOAA/Council Task Group appointed by Dr. Calio, Administrator of NOAA. This task group was charged with development of a joint report which examined issues relating to the NOAA/Council interaction and responsibilities in plan development and approval, to the most effective structure for Federal management institutions, and to the tasks and actions required to most effectively carry out the provisions of the Magnuson Act. This report was completed for distribution during 1986 to fisheries associations and the public for comment on the conclusions and recommendations.

The Council's Chairman presented testimony on behalf of the eight Fishery Management Councils to Congress on reauthorization and amendment of the Magnuson Act. The Council participated in the development of the National Artificial Reef Plan authorized by Congress. The Council's Chairman participated in the Department of Interior's "Rigs to Reefs" program which is developing alternatives for converting obsolete oil and gas platforms into artificial reefs.

The Council staff developed a data collection plan discussion paper in an effort to develop a coordinated, cooperative State/Federal data collection system under an FMP structure. After completion of the discussion paper the Council requested NMFS utilize it as a basis for development of such a regional State/Federal program. NMFS completed the first draft of a document setting forth the provision of a system for Council review.

The Council Chairman and staff met with the SEFC directorate to develop better avenues for identifying and addressing research needed for management of the fishery resources currently under FMPs. An operations plan mode was selected as satisfactory for Council specification of research needs for each FMP for near-term requirements. The Council expressed the need to participate in the SEFC budgetary process in order to factor in longer term requirements into SEFC programs. Council representatives also participated in a task team effort in specifying long-term research requirements for oceanic pelagic fishes managed under ICCAT.

The Council's Law Enforcement Advisory Panel met jointly with the GSMFC's Law Enforcement Committee to review the effectiveness and need for change to the FMPs regulations and to discuss improved avenues for cooperation between State and Federal enforcement entities.

The Council's Habitat and Environmental Protection Committee reviewed and commented on several proposed development projects that had potential to adversely impact fisheries managed by the Council.

## 1986 SEAMAP MARINE DIRECTORY

In March 1982 the SEAMAP Subcommittee recommended to the Technical Coordinating Committee of the Gulf States Marine Fisheries Commission that an annual SEAMAP Marine Directory of fishery-independent research programs in the Gulf of Mexico be developed. The Directory describes the survey activities, target species, sampling areas, gear used and vessel schedules of State, Federal, and university programs; this information is also published in the Commission's Annual Report. The objective of the Directory is to inform regional marine management, development, and research organizations of current fishery-independent research, in order to prevent redundant and wasteful data collection in the Gulf. Updated Marine Directories have been published and distributed by the program each spring since 1983.

Agencies listed in the 1986 Directory were contacted in January 1986 and requested to provide current information or projected changes in their survey programs. As in past years, efforts were made to include all such programs operating in the Gulf. Tables 1, 2, and 3 are condensed summaries of information submitted by responding agencies and organizations, indicated as either Federal, State, or university activities.

TABLE 1. SUMMARY OF INFORMATION PROVIDED BY FEDERAL AGENCIES

AGENCY	TARGET SPECIES	LIFE STAGES SAMPLED	TYPES OF FISHERY-INDEPENDENT SAMPLING		ANNUAL EFFORT DEVOTED TO FISHERY-INDEPENDENT SAMPLING BY ACTIVITY IN:		TYPES OF GEAR		SAMPLE STRATEGY FOR DATA COLLECTION	ANTICIPATED CHANGES IN DIRECTION OF FISHERY-INDEPEND. ACTIVITIES OVER NEXT 5 YEARS	HIGH PRIORITY SPECIES PRESENTLY UNABLE TO SAMPLE	
			AREA SAMPLED	GEOGRAPHIC AREAS OF IMPORTANCE	TYPES OF PLATFORMS	NUMBER OF DAYS	NUMBER OF SAMPLES	FISHING, TRAWLING				PLANKTON
NOAA NMFS/SEFC Mississippi Labs, Pascagoula (MS)	Groundfish (shrimp, spot, croaker, catfish, trout)	Subadults-adults	Gulf of Mexico	Territorial; open ocean (FCZ)	172' OREGON II	70/yr toward target species; 70/yr total sea days	1644/yr trawl stations, 180 plankton/yr 180 neuston/yr	Standard 40' semiballoon trawl	Bongo array with .333-mm mesh nets; 1 x 2-m neuston net with .947mm mesh	Random (stratified) 5-50 fm	None	None
	Reef fish (snapper, grouper, tilefish)	Adults	Gulf of Mexico; South Atlantic; Caribbean	Territorial; open ocean (FCZ)	OREGON II; 127' CHAPMAN; submersible	30/yr toward target species	100 longline sets/yr	Longline; traps	None	Stratified random	None	None
	Latent resources (coastal hering, squid, hutterfish)	Subadults-adults	Gulf of Mexico	Territorial; open ocean (FCZ)	CHAPMAN	140/yr toward target species 180/yr total sea days	400/yr trawl stations	High-opening & mid-water bottom trawls	None	Transects	Expansion	None
	Marine mammals; sea turtles	Subadults-adults	MS Sound	Internal; territorial	Outboard 100 hp; airplane	60/yr	200/yr trawl stations	80' high-opening trawl	None	Transects	Expansion	None
NOAA NMFS/SEFC Miami Lab (FL)	All recreationally & commercially important species	Larvae	Gulf of Mexico; SW FL	Territorial; open ocean (FCZ); internal	OREGON II; CHAPMAN; various small boats	35/yr	1500/yr	None	Bongo nets 60 & 20 cm with .333-mm mesh; neuston 1 x 2-m with .947-mm mesh	Systematic, grid basis; long-term station selection; estuary entrances	Continuation of SEAMAP; continuation of SE FL monitoring	None
NOAA NMFS/SEFC Beaufort Lab (NC)	Atlantic croaker; spot	Subadults-adults	Charlotte Harbor; Tampa, Apalachicola, Escambia, Mobile, Barataria, Corpus Christi, Galveston Bays; MS Sound; MS Delta; Laguna Madre	Territorial	133' FERREL	70/yr	90 fish per sampling site	30' otter trawl	None	Samples representative of general contaminant levels at each sampling site (NOAA Status & Trends project; organic contaminants, trace metals, histopathology)	Project funded on yearly basis	None
NOAA NMFS/SEFC Galveston Lab (TX)	Penaeid shrimp; lane snapper; red snapper; rock sea bass, so. kingfish; dwarf sand perch; blackfin sea robin; inshore lizardfish; bighead sea robin; ocellated flounder	Postlarvae-adults	Gulf of Mexico	Internal, FCZ	OREGON II (Texas Closure); small boats	39/yr 78/yr		Standard 40' semiballoon trawl	Bongo nets 60 & 20 mm with .333-mm mesh; neuston 1 x 2-m with .947-mm mesh	Random stratified for Texas Closure; short-term special studies for estuarine ecology	None	None
NOAA NMFS/SEFC Panama City Lab (FL)	Bluefish; king & Spanish mackerel	Subadults-adults; larvae	Gulf of Mexico; South Atlantic	Territorial; open ocean (FCZ)	OREGON II; CHAPMAN; small boats	50/yr	50/yr	Trawls	Bongo nets 60 & 20 cm with .333-mm mesh; neuston 1 x 2-m with .947-mm mesh	Systematic, grid basis; long-term station selection; estuary entrances	Continuation of SEAMAP; continuation of SE FL monitoring	None

TABLE 1. (CONTINUED)

AGENCY	TARGET SPECIES	LIFE STAGES SAMPLED	TYPES OF FISHERY-INDEPENDENT SAMPLING		TYPES OF PLATFORMS	ANNUAL EFFORT DEVOTED TO FISHERY-INDEPENDENT SAMPLING BY ACTIVITY IN:		TYPES OF GEAR		SAMPLE STRATEGY FOR DATA COLLECTION	ANTICIPATED CHANGES IN DIRECTION OF FISHERY-INDEPENDENT ACTIVITIES OVER NEXT 5 YEARS	HIGH PRIORITY SPECIES PRESENTLY UNABLE TO SAMPLE
			AREA SAMPLED	GEOGRAPHIC AREAS OF IMPORTANCE		NUMBER OF DAYS	NUMBER OF SAMPLES	FISHING, TRAWLING	PLANKTON			
U.S. Dept. of Interior, Fish & Wildlife, LSU, Baton Rouge, LA	All economically important estuarine-dependent fishes & crustaceans	Larvae-juveniles	SW LA	Estuarine	275-hp mudboat; 250-hp airboat; 35-hp outboard	365/yr	Varies with project	16' flat otter trawl	.5-m 0000 plankton net; 6' beam trawl with 0000 mesh	Systematic, long-term station selection; short-term special studies	Depending on funding, will remain the same	None
U.S. Army Corps of Engineers, Mobile, AL	All commercially & recreationally important species	All stages	Mobile Bay; MS Sound; Gulf of Mexico to the 20-fm contour	Internal; territorial	Charter research vessel; small boats	Varies with project	Varies with project	Varies	None	Systematic, random, short-term special studies	None	None
USDI MMS/GOM Regional OCS Office, Metairie, LA	Physical oceanography: Field Measurements Program	None	Gulf-wide	Shelf & slope	GYRE; SUNCOASTER; Drifting (satellite-tracked) buoys; ships of opportunity (SOOPS)	Ships: ± 40 sea days/yr to 1987; Buoys: 200-500 buoy days/yr; SOOPS: 70 transects of Gulf basin/yr	Hydrographic records	None	None	Fixed location current meter moorings; selected hydrographic station transects; random locators for buoys only; repeating transects for SOOPS	Anticipated end of program; May-June, 1987 contractors: Science Applic. Int.; Nat. Data Buoy Center; NMFS	None

TABLE 3. SUMMARY OF INFORMATION PROVIDED BY UNIVERSITIES

			TYPES OF FISHERY-INDEPENDENT SAMPLING		ANNUAL EFFORT DEVOTED TO FISHERY-INDEPENDENT SAMPLING BY ACTIVITY IN:			TYPES OF GEAR				
UNIVERSITY	TARGET SPECIES	LIFE STAGES SAMPLED	AREA SAMPLED	GEOGRAPHIC AREAS OF IMPORTANCE	TYPES OF PLATFORMS	NUMBER OF DAYS	NUMBER OF SAMPLES	FISHING, TRAWLING	PLANKTON	SAMPLE STRATEGY FOR DATA COLLECTION	ANTICIPATED CHANGES IN DIRECTION OF FISHERY-INDEPEND. ACTIVITIES OVER NEXT 5 YEARS	HIGH PRIORITY SPECIES PRESENTLY UNABLE TO SAMPLE
<b>FLORIDA</b>												
Florida State Tallahassee	Benthic in-fauna; epibenthic fishes & invertebrates	Larvae-adults	NE Gulf of Mexico	Internal; territorial	(3) 55-hp 25' skiffs; outboard	48/yr	Monthly samples, both trawl & environ.	Standard 5-m otter trawl	80-um plankton net	Systematic, random long-term station selection; short-term special studies	More environmental experimentation	Areas: Apalachicola Bay system & Apalachee Bay; species: all species in those areas
Univ. West Florida Pensacola	Snappers; groupers; triggerfish	Subadults-adults	NE Gulf of Mexico	Internal	23' ARGONAUT	7/yr trawl; 14/yr plankton neuston	50/yr; 140/yr	16' otter trawl	2 (1-m) bongos 3 (1-m) neustons	Systematic, random (stratified)	None	None
Florida Sea Grant Gainesville	Oysters; spiny lobster; swordfish; tilefish; snowy grouper; shark; clams; shrimp; scallops; golden crabs; snook	All stages	FL waters	Estuarine; offshore	Industry, NMFS and F.I.O. contract vessels	Varies with project	Varies with project			Varies with project	None	None
Florida Institute of Oceanography St. Petersburg	All species	All stages	Gulf; Caribbean; South Atlantic	Internal, territorial	SUNCOASTER; BELLOWS	70-30/project	Varies	40' otter trawl; Tucker trawl; shellfish dredge	Various plankton nets	Random, long-term station selection; short-term special studies	To continue with SEAMAP; Expanded environmental sampling	None
University of Florida Gainesville	Offshore: deep-water crabs & lobsters; nearshore: stone crabs	Offshore: adults, juveniles; nearshore: adults, sub-adults	Offshore & nearshore, eastern Gulf of Mexico	Offshore: continental slope nearshore: internal, territorial	Offshore: SENARD JOHNSON; ORFGON II; industry vessel; sumersible; nearshore: 24 inboard-outboard	Offshore: 7/yr; nearshore: 30+/yr	Offshore: 96 transects 2 trawl tows 5 trap lines nearshore: 5 transects/day	Otter trawl; various traps; acuba and 250-m transect line		Offshore & Nearshore: intensive sampling during mating season	None	None
<b>ALABAMA</b>												
Univ. So. Alabama Mobile	All finfish	Eggs; larvae	Mobile Bay; nearshore waters	Internal; territorial	40' DEBORAH "B"	Biweekly, April-October	200/yr		Meter net .505-mm mesh demersal, & neuston	Systematic, grid basis, long-term station selection	Strongly oriented toward sciaenid eggs and larvae	None
Marine Environmental Sciences Consortium (Dauphin Is. Sea Lab & U. Alabama)	Spotted sea-trout; white sand trout; croaker; red drum	All stages	MS Sound; Mobile Bay; Perdido Bay	Estuarine	40' DEBORAH "B"; 14' skiff; 23' outboard	At least monthly, April 85 through March 86	Monthly at 4 sites & supplemental	Fyke net; drop net; bag seine	.505-mm mesh beam trawl	Target areas: grass beds	None	None
Mississippi-Alabama Sea Grant Consortium Ocean Springs (MS)	Red drum; blue crabs; stone crabs; oysters	Vertebrates: larvae; invertebrate: all stages	Northern Gulf of Mexico; MS Sound; Mobile Bay	Territorial; FCZ; estuarine; coastal	96' TOMMY MUNRO; skiffs; industry	Varies with project	Varies with project	Various types of crab pots; tonging for oysters; closed, recirculating sea-water system for crabs; opening/closing plankton trawl	Tucker trawl (.202-mm and .333-mm mesh nets); 60-cm bongo net	Varies with project	None	None

TABLE 2. SUMMARY OF INFORMATION PROVIDED BY STATE AGENCIES

AGENCY	TARGET SPECIES	LIFE STAGES SAMPLED	TYPES OF FISHERY-INDEPENDENT SAMPLING		ANNUAL EFFORT DEVOTED TO FISHERY-INDEPENDENT SAMPLING BY ACTIVITY IN:			TYPES OF GEAR		SAMPLE STRATEGY FOR DATA COLLECTION	ANTICIPATED CHANGES IN DIRECTION OF FISHERY-INDEPENDENT ACTIVITIES OVER NEXT 5 YEARS	HIGH PRIORITY SPECIES PRESENTLY UNABLE TO SAMPLE
			AREA SAMPLED	GEOGRAPHIC AREAS OF IMPORTANCE	TYPES OF PLATFORMS	NUMBER OF DAYS	NUMBER OF SAMPLES	FISHING, TRAWLING	PLANKTON			
Texas Parks & Wildlife Dept.	All penaeid shrimp; all other species	Juveniles-adults	TX internal coastal waters; territorial sea	Internal; territorial	30' Inboard & 18' out-board skiffs; 40'-45' inboards	365/yr	1080/yr 1680/yr 768/yr 756/yr 32/yr 5232/yr 720/yr	60' bag seines (shoreline); 20' trawl (bay, open water); 20' trawl (Gulf waters); gill nets for adult finfish (along shore); 40' trawl (Gulf waters); oyster dredge; beach seine (Gulf beach)	None	Random, grid basis	None	Adult finfish in open Gulf waters
Louisiana Dept. of Wildlife & Fisheries	All penaeid shrimp; groundfish	Larvae-adults	LA inshore coastal waters; territorial seas; FCZ	Internal; territorial	13-17' out-boards for 6' trawl; 30' in-boards for 16' trawls; 85' vessel (LOOP) for 50' trawl  Leased vessel 40' trawl	167/yr state  92/yr LOOP  16/yr	Plankton, 1285/yr; Benthos, 56/yr; Trawls: 1225/yr 1288/yr 494/yr 72/yr 12/yr  96/yr	6' (Inshore) 16' (Inshore) 16' (offshore) 50' (offshore) 50' (Inshore) 40' (offshore)  Otter Trawls: 6' (Inshore) 60-cm bongo nets (.333-.363-mm) neuston (.948-mm)	1/2-m surface ring nets (.153-mm & .363-mm; 1-m surface ring (363-mm)	Long-term station selection, LOOP monitoring, and stratified random sampling for SEAMAP (40' trawls and plankton)	Increase territorial sea sampling; increase emphasis on commercial finfish	Most of the important commercial & recreational catch
Mississippi Bureau of Marine Resources	All penaeid shrimp; speckled trout; redfish; mullet; black drum; flounder; snapper; grouper; white trout; so. kingfish; menhaden; blue crab	Juveniles-adults	MS territorial sea	Internal; territorial; (FCZ)	32' Laffitte; 19' Cobia; 65' oyster dredge boat	50/yr; 10/yr; 50-60/vr	Varies; oyster 6/mo; shrimp 10-15/mo	12' and 16' trawl; oyster tongs and dredge	None	Long-term station selection, varies with opening and closing of areas	Increase and expand mackerel, snapper, grouper research with age and growth length frequency	Highest priority are shrimp and oysters; finfish, inadequate personnel
Alabama Dept. of Conservation & Nat. Resources	All penaeid shrimp; southern flounder; Gulf menhaden; spot; croaker; red drum; seatrout; blue crab	Larvae-adults	AL marshes to territorial sea	Internal; territorial	22' Tiara, (2) 90-hp; 23' Seacraft, (2) 115-hp; 32' Laffitte	110/yr	626/yr	50' bag seine; 16' otter trawl	6' beam plankton trawl; neuston net	Long-term station selection	More intensive work with target species, i.e., tagging	Increase level of sampling in AL territorial sea
Florida Dept. of Natural Resources	Red drum; spotted trout; snook; king mackerel; mullets; gag grouper; tarpon; stone crab; blue crab; spiny lobster; oysters; hard clam	All stages, larvae-adults	FL waters & offshore	Internal, territorial	37' BONNIE "E"; 27' Sea Star twin i/o; 24' T-craft inboard; 2 small out-boards used for inshore sampling; 1 mullet skiff; 34' Allmend; 24' tunnel boat; 19' Monark; 17' Boston Whaler	Varies  Weekly intervals (annually)	Varies with project	100' bag seine; benthic sled with net; 600' x 8' trammel net; lobster & crab traps	bongo array	Systematic, random (stratified), grid basis; long-term station selection, short-term special studies	As per Florida Marine Fisheries Commission	Mainly applies to implementation of research phases on current species or topics with additional personnel and increased funding

TABLE 3. (CONTINUED)

UNIVERSITY	TARGET SPECIES	LIFE STAGES SAMPLED	TYPES OF FISHERY-INDEPENDENT SAMPLING			ANNUAL EFFORT DEVOTED TO FISHERY-INDEPENDENT SAMPLING BY ACTIVITY IN:		TYPES OF GEAR		SAMPLE STRATEGY FOR DATA COLLECTION	ANTICIPATED CHANGES IN DIRECTION OF FISHERY-INDEPEND. ACTIVITIES OVER NEXT 5 YEARS	HIGH PRIORITY SPECIES PRESENTLY UNABLE TO SAMPLE
			AREA SAMPLED	GEOGRAPHIC AREAS OF IMPORTANCE	TYPES OF PLATFORMS	NUMBER OF DAYS	NUMBER OF SAMPLES	FISHING, TRAWLING	PLANKTON			
<b>MISSISSIPPI</b>												
Univ. So. Mississippi Hattiesburg	Freshwater prawn; all estuarine finfish; centrarchids	All stages	MS estuarine; northern Gulf; Biloxi Bay	Estuarine; territorial	Various small skiffs (outboard)	Varies	Biveekly to monthly	Standard basic equipment	Standard basic equipment	Short-term special studies	Increase development of a marine science program	None
Gulf Coast Research Laboratory Ocean Springs	All penaeid shrimp; blue crab; croaker; spot; seatrout; catfish; Gulf menhaden; sea mullet; Atlan. bumper; butterfly fish; cutlassfish; red drum; squid	Larvae-adults	MS territorial sea; offshore to 300 fm	Internal; territorial; (FCZ)	96' TOMMY MUNRO; (5) 20' skiffs; 35' HERMES; 40' NEREUS;	Seminmonthly at 2-wk intervals	216 trawl stations/yr	50' bag seine; 36' otter trawl; 16' otter trawl; 6' Renfro beam trawl; variable mesh gill net sampler; 40' shrimp trawl; 80' high-rise net	Tucker trawl; neuston; bongo	Long-term station selection; stratified-random	Fishery Division anticipates its program of monitoring & assessment over the long term, with appropriate increases in intensity & scope if funds become available; longline for pelagic fishes; bottom longline; deepwater traps	None
Mississippi-Alabama Sea Grant Consortium Ocean Springs	Red drum; blue crabs; stone crabs; oysters	Vertebrates larvae; invertebrates: all stages	Northern Gulf of Mexico; MS Sound; Mobile Bay	Territorial; FCZ; estuarine; coastal	96' TOMMY MUNRO; skiffs; industry	Varies with project	Varies with project	Various types of crab pots; tonging for oysters; closed, recirculating seawater system for crabs; opening/closing ichty. crawl	Tucker trawl (.202-mm and .333-mm mesh nets); 60-cm bongo net	Varies with project	None	None
<b>LOUISIANA</b>												
Univ. New Orleans New Orleans	Blue crab; oysters; marine commercial finfish	All stages	Lake Pontchartrain; Lake Borgne	Estuarine		Varies				Short-term special studies	Analyze commercial fish populations by use of electrophoresis; studies of oyster nutrition and parasitology	None
McNeese St. University Lake Charles	Plankton; nekton; benthic	All stages	Calcasieu estuary	Estuarine;	Small boats	250/yr	Benthic; nekton; phytoplankton; zooplankton	15-m balloon otter trawl, 5-m flat otter trawl	3-1 Van Dorn bottle; 67-cc bongo array; .333-mm & .505-mm mesh nitex nets; Ring net 1.0 m with .353 mesh	Long-term station selection	Scale down sampling activities from monthly to quarterly;	None
Nicholls St. University Thibodaux	Oysters	All stages	Terrebonne Bay; Barataria Bay	Estuarine	21' skiff; 30' oyster dredge boat	48/yr	144/yr	Oyster dredge		Random, long-term station selection	2 more years with oyster project before it ends	None

TABLE 3. (CONTINUED)

UNIVERSITY	TARGET SPECIES	LIFE STAGES SAMPLED	TYPES OF FISHERY-INDEPENDENT SAMPLING			ANNUAL EFFORT DEVOTED TO FISHERY-INDEPENDENT SAMPLING BY ACTIVITY 1N:		TYPES OF GEAR		SAMPLE STRATEGY FOR DATA COLLECTION	ANTICIPATED CHANGES IN DIRECTION OF FISHERY-INDEPEND. ACTIVITIES OVER NEXT 5 YEARS	HIGH PRIORITY SPECIES PRESENTLY UNABLE TO SAMPLE
			AREA SAMPLED	GEOGRAPHIC AREAS OF IMPORTANCE	TYPES OF PLATFORMS	NUMBER OF DAYS	NUMBER OF SAMPLES	FISHING, TRAWLING	PLANKTON			
LOUISIANA												
Louisiana St. University Baton Rouge	Red drum	Juveniles	Saltwater impoundment near Grand Isle	Estuarine	None	10	more than 200/yr	Hook-and-line	None	Short-term, random at fixed station	Short-term special study to be applied to long-term tagging studies	None
	Red drum	Adults	Nearshore Gulf of Mexico off eastern LA	Coastal	Purse-seine vessel	30	Varies	Purse-seine	Bongo nets	Sample in areas of commercial activity	Two additional years	None
	All fish and macroinvertebrate assemblages	All stages	Lower Calcasieu River	Estuarine	Skiff	Varies	Varies	Nets, dredges	None	Stratified, short-term station selection	Short-term special study	None
	Shad; gar; catfish; sunfish; herring	Adults	Lake Charles	Estuarine	Skiff	10	5	Trammel nets; gill nets; otter trawls; trotlines; minnow traps; electroshockers	None	Short-term random	Short-term special study	None
	Gulf menhaden	Juveniles	Fourleague Bay	Estuarine	Skiff	Varies	Varies	Otter trawls	Bongo nets	Stratified, short-term station selection	Short-term special study	None
	King mackerel	Adults	Gulf of Mexico	Gulf-wide	Varies	Varies	Varies	Trolling nets; hook-and-line	None	Areas of commercial and recreational activity	Expand sampling activity to obtain specimens from all areas of Gulf and South Atlantic, including Cuba, at least once a month	None
	Striped mullet	Adults	Lake Borgne	Estuarine	Lafitte skiff	14	84	Gill nets, different mesh sizes	None	Stratified random short-term station selection	Short-term special study	None
	Drums; seatrouts; croaker; spot	Eggs; larvae	Western LA continental shelf	Coastal	Ocean-going SEAMAP vessels	150	185	None	Modified bongo net	Stratified, short-term station selection	Short-term special study	None
	Red drum; carangids; clupeids; scombrids	Larvae	Gulf of Mexico	Gulf-wide	Ocean-going SEAMAP vessels	Varies	Varies	None	Bongo array	Partially randomized stations Gulf-wide	Next want to look at MS River Delta plume effects on larva recruitment and transport	None
	Largemouth bass	Juveniles; adults	Lake Pechant	Freshwater lake & marsh	21' crew boat	18	160 sets	Gill net; pull seine	None	Stratified, random, short-term station selection	Anticipate expanded life history studies to characterize marsh bass survival in saline environments	None
	Butterfish; squid	Juveniles; adults	Northern Gulf of Mexico	Gulf-wide	Various ocean-going vessels	Varies	Varies	Modified otter trawl	Bongo nets; neuston nets	Fixed short-term station selection along partially randomized lat./long. transects	Exploratory short-term study-sampling to be continued by NMFS and SEAMAP	None

TABLE 3. (CONTINUED)

UNIVERSITY	TARGET SPECIES	LIFE STAGES SAMPLED	TYPES OF FISHERY-INDEPENDENT SAMPLING		ANNUAL EFFORT DEVOTED TO FISHERY-INDEPENDENT SAMPLING BY ACTIVITY IN:			TYPES OF GEAR		SAMPLE STRATEGY FOR DATA COLLECTION	ANTICIPATED CHANGES IN DIRECTION OF FISHERY-INDEPEND. ACTIVITIES OVER NEXT 5 YEARS	HIGH PRIORITY SPECIES PRESENTLY UNABLE TO SAMPLE
			AREA SAMPLED	GEOGRAPHIC AREAS OF IMPORTANCE	TYPES OF PLATFORMS	NUMBER OF DAYS	NUMBER OF SAMPLES	FISHING, TRAWLING	PLANKTON			
<b>LOUISIANA</b>												
Louisiana Universities Marine Consortium Cocodrie	Stone crabs	Adults	Barataria Bay	Coastal	Chartered commercial fishing boat	10	2,193	Modified crab pots	None	Stratified random short-term, fixed station selection	Exploratory short-term study	None
	Yellow-edge groupers; red snapper; golden tilefish	Adults	Offshore LA out to 200 fm	Coastal	58' commercial long-line vessel	25	Varies	Bottom longline	None	Sampled in areas of commercial activity	Exploratory short-term study; conclusion of study begun two years ago	None
	Zooplankton; benthos	All stages	Terrebonne and Timbalier Bays; Inner Cont. Shelf	Internal; territorial	110' PELICAN; 44' R.J. RUSSELL; small outboards; 19-m, 32-m vessels	Varies	Varies	5-m otter trawl	.333-mm & .505-mm mesh bongo nets	Fixed station transects	None	None
<b>TEXAS</b>												
Univ. of TX, Austin Marine Science Institute, Port Aransas	Shelf & bay species	All stages	Internal; territorial waters	Internal; territorial; (FCZ)	80' LONGHORN 57' KATY	100/yr	Varies with project	42' semi-balloon shrimp trawl; 40' semi-balloon otter trawl	12' x 24" plankton net	Short-term special studies	Institute expansion on all present programs	None
Texas A & I Kingsville	All inshore bay species	All stages	Corpus Christi to Brownsville	Internal; coastal		24/yr	150/yr			Short-term special studies	None	None
Texas A & M College Station and Galveston	All macro-crustaceans and finfish	All stages	Bryan Mound, Freeport, TX; West Hackberry, Cameron, LA	Internal; territorial; (FCZ)	71' EXCELLENCE II	40/yr	Monthly samples	34' & 50' semi-balloon trawls	Bongo net with .333-mm & .505-mm mesh	Long-term station selection; short-term special studies; systematic, grid basis	None	None
Pan American University, Coastal Studies Lab, So. Padre Island	All finfish of Laguna Madre, benthic macrofauna of Laguna Madre	All stages	Corpus Christi to Brownsville	Laguna Madre; Gulf near-shore	Shallow-draft bay boats	48/yr	Biweekly and monthly depending on project	Otter trawls & bag seines	Plankton tows	Long-term baseline studies	Intensive studies of individual species	None



GULF STATES MARINE FISHERIES COMMISSION

Financial Statements  
September 30, 1985

BOUTWELL AND COMPANY, LIMITED  
Certified Public Accountants  
Pascagoula, Mississippi

# *Boutwell and Company, Limited*

Certified Public Accountants

1126 JACKSON AVENUE - POST OFFICE BOX 295  
PASCAGOULA, MISSISSIPPI 39567

MEMBER  
AMERICAN INSTITUTE OF  
CERTIFIED PUBLIC ACCOUNTANTS  
MISSISSIPPI SOCIETY OF  
CERTIFIED PUBLIC ACCOUNTANTS

MILLETTE BUILDING  
SUITE 402  
TELEPHONE 762-5111

January 30, 1986

To The Commissioners  
Gulf States Marine Fisheries Commission  
c/o Mr. Larry B. Simpson, Executive Director  
P. O. Box 726  
Ocean Springs, Mississippi 39564

Gentlemen:

We have examined the balance sheet of Gulf States Marine Fisheries Commission as of September 30, 1985, and the related statement of revenues, expenses and changes in fund balances for the fiscal year then ended. Our examination was made in accordance with generally accepted auditing standards, and accordingly included such tests of the accounting records and such other auditing procedures as we considered necessary in the circumstances.

In our opinion the accompanying financial statements present fairly the financial position of Gulf States Marine Fisheries Commission at September 30, 1985, and the results of its operations and changes in fund balances for the twelve months then ended, in conformity with generally accepted accounting principles applied on a consistent basis.

A separate management letter containing our observations pertaining to the internal administration of the Commission's financial affairs will be furnished in a separate letter.

Respectfully submitted,

*Boutwell and Company, Limited*  
BOUTWELL AND COMPANY, LIMITED  
Certified Public Accountants

GULF STATES MARINE FISHERIES COMMISSION  
Balance Sheet  
September 30, 1985

ASSETS

Cash		\$ 93,884
Furniture, Fixtures and Equipment	\$ 41,201	
Automotive Equipment	5,570	
Total	\$ 46,771	
Less: Accumulated Depreciation	(23,624)	23,147
Total		\$ 117,031

LIABILITIES

Payroll Taxes Withheld and Accrued		\$ 1,919
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FUND BALANCES

Operating Fund	\$ 116,129	
State-Federal Management Funds	17,864	
State-Federal Administrative Programmatic Funds	(6,217)	
State-Federal SEAMAP Funds	(12,111)	
State-Federal Council Funds	(553)	
Marine Fisheries Initiative Funds	-0-	115,112
Total		\$ 117,031

The accompanying notes are an integral part of these financial statements.

GULF STATES MARINE FISHERIES COMMISSION  
Statement of Revenues, Expenses and Changes in Fund Balances  
Fiscal Year Ended September 30, 1985

	<u>Operating Fund</u>	<u>State-Federal Management Funds</u>
<b>REVENUES:</b>		
Member States Appropriations		
Alabama	\$ 11,250	
Florida	45,000	
Louisiana	-0-	
Mississippi	11,250	
Texas	-0-	
Grants - Current Year		
Grants - Previous Year		
Interest Earned	<u>7,934</u>	
<b>Total Revenues</b>	<u>\$ 75,434</u>	<u>\$ -0-</u>
<b>EXPENSES:</b>		
Salaries	\$ 24,608	
Insurance - Hospital	8,116	
Retirement Plan	3,925	
Taxes - Payable	5,692	
Office Rental	1,200	
Office Supplies	1,809	
Postage	2,163	
Professional Fees	1,779	
Travel and Entertainment	11,416	
Telephone	4,130	
Equipment Rental	6,153	
Printing	2,242	
Meetings	3,039	
Dues and Subscriptions	1,320	
Auto Expense	447	
Insurance - Auto and Bond	1,228	
Maintenance and Repairs	2,869	
Courtesies	411	
Depreciation	3,325	
Miscellaneous	<u>298</u>	
<b>Total Expenses</b>	<u>\$ 86,170</u>	<u>\$ -0-</u>
<b>Excess of Revenues Over (Under) Expenses</b>	<u>\$ (10,736)</u>	<u>\$ -0-</u>
<b>Fund Balances, October 1, 1984</b>	<u>126,865</u>	<u>17,864</u>
<b>Fund Balances, September 30, 1985</b>	<u>\$ 116,129</u>	<u>\$ 17,864</u>

1. To receive \$4,936 in next fiscal year on \$41,500 contract.
2. To receive \$57,245 in next fiscal year on \$79,000 contract.
3. To receive \$7,212 in next fiscal year on \$25,000 contract.

The accompanying notes are an integral part of these financial statements.

State-Federal Administrative Programmatic Funds	State-Federal SEAMAP Funds	State-Federal Council Funds	Marine Fisheries Initiative Funds	Combined Funds
				\$ 11,250
				45,000
				-0-
				11,250
				-0-
\$ 36,564	\$ 21,755	\$ 17,788		76,107
36,609		6,940	\$ 70,000	113,549
				7,934
<u>\$ 73,173</u>	<u>\$ 21,755</u>	<u>\$ 24,728</u>	<u>\$ 70,000</u>	<u>\$ 265,090</u>
\$ 22,836	\$ 31,586	\$ 25,000	\$ 4,613	\$ 108,643
				8,116
				3,925
				5,692
				1,200
603	1,304		116	3,832
1,010	1,570		278	5,021
			15,000	16,779
19,628	6,960		8,000	46,004
1,056	1,505		300	6,990
999	2,439		1,051	10,642
35				2,277
2,248	1,107		2,093	8,488
	75			1,395
				447
				1,228
				2,869
				411
		221		3,546
			3,263	3,561
<u>\$ 48,415</u>	<u>\$ 46,546</u>	<u>\$ 25,221</u>	<u>\$ 34,714</u>	<u>\$ 241,066</u>
\$ 24,758	\$ (24,791)	\$ (493)	\$ 35,286	\$ 24,024
(30,975)	12,680	(60)	(35,286)	91,088
<u>\$ (6,217)</u>	<u>\$ (12,111)</u>	<u>\$ (553)</u>	<u>\$ -0-</u>	<u>\$ 115,112</u>
1	2	3		

GULF STATES MARINE FISHERIES COMMISSION  
Notes to Financial Statements  
September 30, 1985

NOTE 1: SUMMARY OF SIGNIFICANT ACCOUNTING POLICIES:

- (A) The accounting and reporting practices of the Commission conform to generally accepted accounting principles applicable to governmental units applied on a consistent basis between periods. The accrued basis of accounting is followed with these modifications:
- (1) Revenues from members states' appropriations are recorded when received in cash.
- (B) Depreciation of furniture, fixtures, equipment and the commission vehicle is calculated using the straight-line method.

NOTE 2: ORGANIZATION:

Gulf States Marine Fisheries Commission was created with the consent of the 81st Congress of the United States, granted by Public Law 66, approved May 19, 1949, authorizing an interstate compact relating to the better utilization of the fisheries of the Gulf of Mexico. Parties to the agreement are the states of Alabama, Florida, Louisiana, Mississippi and Texas.

NOTE 3: STATE-FEDERAL FISHERIES MANAGEMENT PROGRAM:

Effective August 15, 1975, the Commission entered into a contract with the U. S. Department of Commerce to provide administrative support of the State-Federal Fisheries Management Program in the Gulf of Mexico coastal states.

NOTE 4: STATE-FEDERAL FISHERIES ADMINISTRATIVE SUPPORT PROGRAM:

Effective in April, 1978, the Commission entered into contracts with the U. S. Department of Commerce to provide programmatic funds to support the State-Federal Fisheries Planning and Administrative Program in the Gulf of Mexico coastal states.

NOTE 5: STATE-FEDERAL FISHERIES COUNCIL SUPPORT PROGRAM:

Effective in October, 1977, the Commission entered into contracts with the U. S. Department of Commerce to provide administrative support of the State-Federal Fisheries Council in the Gulf of Mexico coastal states.