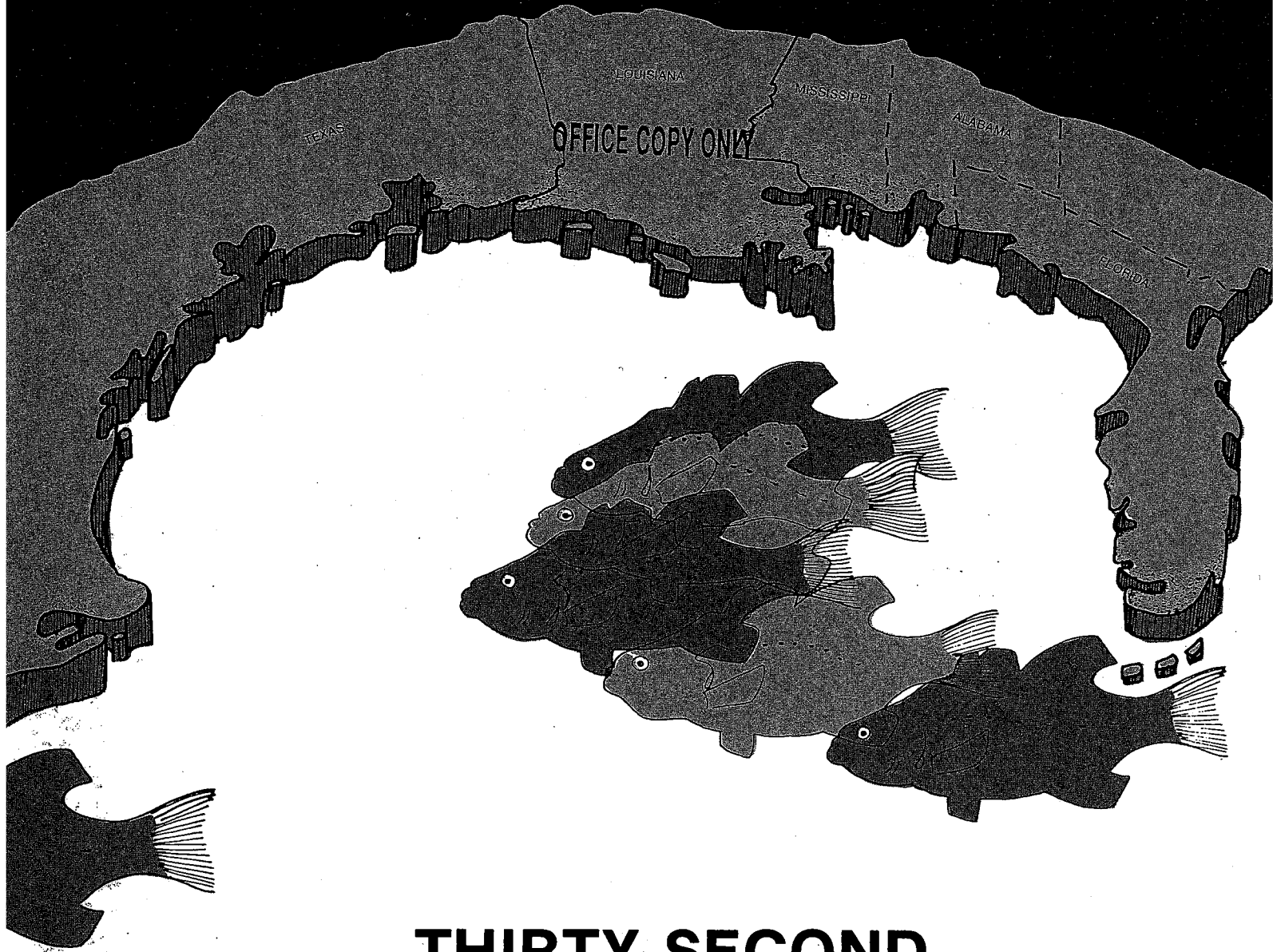
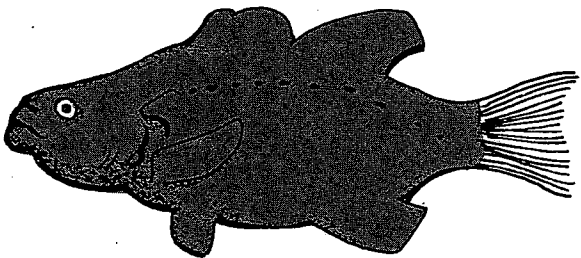


# Gulf States Marine Fisheries Commission



## THIRTY-SECOND ANNUAL REPORT



MEMBER STATES  
ALABAMA  
FLORIDA  
LOUISIANA  
MISSISSIPPI  
TEXAS

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-SECOND ANNUAL REPORT (1980-1981)

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

#### ACKNOWLEDGMENT

In submitting this Thirty-second 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-two 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,

Elton J. Gissendanner, Chairman  
Jesse J. Guidry, Vice Chairman  
Charles H. Lyles, Executive Director

Published August 1982

GULF STATES MARINE FISHERIES COMMISSION

Thirty-second Annual Report (1980-1981)

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Roster of the  
GULF STATES MARINE FISHERIES COMMISSION

October 1, 1980 - September 30, 1981

Chairman: Elton J. Gissendanner

Vice-Chairman: Jesse J. Guidry

COMMISSIONERS

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

Alabama

John M. McMillan, Jr. 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, AL

Florida

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

Joseph B. Allen, Jr., Representative  
State of Florida  
Key West, FL

Clyde Richbourg  
Pensacola, FL

Louisiana

Jesse J. Guidry, Executive Secretary  
Louisiana Department of Wildlife  
and Fisheries  
New Orleans, LA

Sam Theriot, Representative  
State of Louisiana  
Abbeville, LA

Leroy Kiffe  
Lockport, LA

Mississippi

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

Ted Millette, Representative  
State of Mississippi  
Pascagoula, MS

Dr. Michael Carron  
NSTL Station, MS

Texas

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

Leroy J. Wieting, Representative  
State of Texas  
Portland, TX

John A. Mehos  
Galveston, TX

GULF STATES MARINE FISHERIES COMMISSION STAFF

Charles H. Lyles  
Executive Director

Larry B. Simpson  
Assistant to the Director

Virginia K. Herring  
Administrative Assistant

Carole E. Allen  
Clerical

COMMISSION OFFICERS ELECTED FOR  
YEAR 1980-1981

Chairman: Elton J. Gissendanner succeeding Richard K. Yancey  
Vice-Chairman: Jesse J. Guidry succeeding Elton J. Gissendanner

STANDING COMMITTEES

Executive Committee.....Elton J. Gissendanner, Chairman  
Technical Coordinating Committee.....Ted Ford, Chairman  
Industry Advisory Committee.....Leroy Kiffe, Chairman  
Recreational Fisheries Committee.....Michael Carron, Chairman  
Sea Grant Committee.....Willis Clarke, Chairman  
Enforcement Committee.....Ray Montet



## COMMISSION ACTIVITIES

OCTOBER 1980 - SEPTEMBER 1981

The 1980-81 fiscal year was an extremely busy one for the Commission and staff members. A faltering economy and increasing costs in the shrimp industry presented some very serious problems for the producing segment of the industry. Fuel prices and other operating costs rose at an unprecedented rate causing some operators to default on vessel payments. Some banks and lending agencies that held large numbers of vessel mortgages were placed in a serious economic bind. The Executive Director of the Gulf States Marine Fisheries Commission, received numerous calls from industry representatives for assistance in obtaining some kind of relief. This resulted in his making more than the usual number of trips to Washington and to various localities along the Gulf to assist in formulating a program to obtain a tariff, quota or marketing assistance to get the industry over the crisis.

Differing objectives among the various segments of the industry presented a serious roadblock not only in achieving unity in the kind of legislation needed but hindered strong and aggressive congressional action due to a divided industry over this issue. Congressman John Breaux, recognizing the serious plight of the shrimp industry, drafted and introduced H.R. 4041 which was reported out of the subcommittee but has not been acted on by the full committee or the senate. Efforts thus far to aid the industry have not been very rewarding. We shall continue to assist wherever our services are requested.

The 31st Annual Fall meeting of the Commission was held in Orlando, Florida in October 1980. The theme of the meeting was the new State-Federal approach to management of our resources. The plan entailed coordinating National Marine Fisheries Service, Sea Grant, Coastal Zone Management and State related activities so that maximum results could be obtained from the available funding. Although the plan proposes coordination and maximum benefit, there never did seem to be the enthusiasm at the Washington level that should have been evident in a program of this kind.

The 31st Annual Spring meeting was held in Brownsville, Texas in March 1981. Since the shrimp industry was then in rather severe financial difficulties and still is, and since one of the complaints against the industry is that it is heavily overcapitalized, or too many units for the extent of the resource, it was thought timely to deal with the question of limited entry in the shrimp industry. A number of well qualified scientists in the field of limited entry was arranged including persons experienced in administering a limited entry program. The subject was thoroughly discussed with the resulting opinion of those present that limited entry is certainly desirable and will be necessary and inescapable later on, but the industry is not now ready for it. The proceedings of this meeting will be published as a formal document at a later date.

Early in 1981, as the Reagan administration took office it became abundantly clear that severe cuts in fishery research and services would become a reality unless steps were taken to offset this drive to lower government spending. Two themes seemed to be clearly apparent. First, there

would be across the board cuts of a specified percent. This meant that a program such as the Legal Defense Fund which had grown from a few million in the late 60's to over \$300 million by 1981 would receive its percent cut the same as fishery research programs that had specific objectives related to management of the resource. Second it was also apparent that the philosophy of the administration boiled down to "the reality of a program's success being less important than whether or not it fits into the administration's theological creed". These two criteria made for a very bad picture for fisheries work. Of first consideration was the fact that National Marine Fisheries Service budget had been almost level funded in constant dollars since the early 70's and the numbers of permanent personnel remained unchanged. During this same period, responsibilities mandated to the agency by the Congress had increased enormously. Some of these are the Marine Mammal Act, P.L. 97-58, the increased responsibilities under the Endangered Species Act, P.L. 93-205, the Fishery Conservation and Management Act of 1976, P.L. 94-265, and increased habitat protection responsibilities. Research and services have suffered severely because of these increased responsibilities with no increase in personnel or funding. Evidence of this effect can be found in the fact that National Marine Fisheries Service is now producing fewer scientific reports than at any time in the history of the agency, publication of the Statistical Digest has been held up since the 1976 issue and all current monthly Statistical Bulletins have been discontinued, and many more services to the fishing industry that have been discontinued. Since this is a world of technology, the fishing community suffers.

The proposed cuts required that this Commission advise Congress of the affect of these cuts on an already crippled fishery service. Considerable correspondence was dispatched showing the affects and numerous appearances were made before Congressional Committee's as well as visits with Congressmen and congressional staffs. The fishing industry was informed of the facts and support enlisted to halt the ax swinging on fishery budgets. We were somewhat successful as we have thus far prevented some of the proposed actions from becoming reality. The work is continuing.

The Gulf States Marine Fisheries Commission took an active part in getting Title IV of the Outer Continental Shelf Bill through Congress. The Bill proposed to pay fishermen for damages to fishing gear and vessels caused by oil exploration or harvest. While the Bill was poorly written, it could have been administered, provided there was dedication to the intent of Congress by those selected to administer it. Neither of these ingredients seemed to be prevalent and so for several years the law has languished in the labyrinth of bureaucracy while few claims have been paid.

The Executive Director attended oversight hearings on the law and proposed certain changes which were subsequently passed by the House (H.R. 2792). The legislation now awaits Senate action. We shall continue to push the matter.

We continue to support and cooperate with all agencies concerned with the fishing community.

MEETINGS/ACTIVITIES OF EXECUTIVE DIRECTOR

Gulf States Marine Fisheries Commission Meetings

31st Annual Fall Meeting, Orlando, Florida - New State/Federal Program  
October 1980

31st Annual Spring Meeting, Brownsville, Texas - March 1981

Gulf of Mexico Fishery Management Council (GMFMC)

October 1980                      New Orleans, Louisiana

January 1981                      New Orleans, Louisiana

Gulf State-Federal Fisheries Management Board (GS/FFMB)

GS-FFM Board Meeting, Orlando, Florida - October 1980

Meeting with Richard Schaefer and William Stevenson regarding the status  
of the State-Federal Program and the future of the program  
Washington, D.C. - November 1980

GS-FFM Board Meeting, Brownsville, Texas - March 1981

Meeting with the GS-FFMB Menhaden Advisory Committee, New Orleans,  
Louisiana - July 1981

Meeting with Larry Strasburger regarding blue crab history  
Diamond Head, Mississippi - September 1981

Meeting with fishermen regarding blue crab history

Lafitte, Louisiana - September 1981

Industry Meetings

Meeting with National Shrimp Congress regarding shrimp marketing and  
research and development needs in the shrimp industry  
New Orleans, Louisiana - November 1980

Meeting with Marketing Committee of the shrimp industry  
Atlanta, Georgia - December 1980

Meeting with Tariff Committee of the shrimp industry  
New Orleans, Louisiana - January 1981

Texas Shrimp Association Meeting, Austin, Texas - February 1981

Meeting with Concerned Shrimpers regarding activities of the GSMFC  
Thibodeaux, Louisiana - February 1981

Louisiana Shrimp Association Annual Convention  
New Orleans, Louisiana - March 1981

Meeting with Shrimp Coalition, New Orleans, Louisiana - April 1981

American Shrimp Cannery and Processors Association Meeting  
Biloxi, Mississippi - April 1981

Meeting with President of the Louisiana Shrimp Association  
Lockport, Louisiana - April 1981

Meeting with Board of Directors of the Louisiana Shrimp Association  
New Orleans, Louisiana - April 1981

Meeting with members of the Louisiana Shrimp Association  
Galiano, Louisiana - August 1981

Meeting with National Shrimp Congress, Orlando, Florida - August 1981

Congressional Meetings

Meeting with Congressman John Breaux regarding shrimp industry and Title  
IV, OCS Bill, Washington, D.C. - November 1980

Meeting with Congressman Trent Lott regarding information to be transmitted to the transition team of the President-Elect Reagan Washington, D.C. - November 1980

Meeting with Gulf Coast Congressional members regarding proposed legislation by Senator Weicker which would take away the authority of the States to manage their natural resources Washington, D.C. - March 1981

Meeting with Congressmen Tauzin and Livingston and staff members of Congressmen Breaux and Lott to discuss PL 88-309 funding Washington, D.C. - March 1981

Meeting with Senate Committee on State, Commerce, Justice and the Judiciary, Washington, D.C. - April 1981

Meeting with staff of Senator Weicker's office Washington, D.C. - April 1981

Meeting with Senator Tower's staff regarding NMFS budget cuts Austin, Texas - April 1981

Present testimony before Merchant Marine and Fisheries Committee regarding Title IV, OCS Bill, Washington, D.C. - May 1981

Present testimony before House Appropriations Committee for State, Justice, Commerce and the Judiciary regarding budget cuts Washington, D.C. - May 1981

Meeting with Gulf Coast Congressional members regarding fishery program budget cuts for FY82, Washington, D.C. - May 1981

Present testimony before Merchant Marine and Fisheries Committee regarding Title IV, OCS Bill, Washington, D.C. - June 1981

Present testimony before Merchant Marine and Fisheries Committee regarding amendments to PL 88-309, Washington, D.C. - June 1981

Present testimony before Subcommittee on Fisheries, Wildlife Conservation and the Environment regarding problems facing the shrimp industry and comments on the Breaux Bill, Washington, D.C. - July 1981

#### Other

Meeting with shrimpers regarding current shrimp situation Corpus Christi, Texas - November 1980

Meeting with Commissioner Colson regarding directives of the Executive Committee, New Orleans, Louisiana - November 1980

Meeting with William Stevenson regarding discontent with administration of Title IV, OCS Bill, Washington, D.C. - November 1980

Meeting with Commissioner Gissendanner regarding GSMFC activities Ocean Springs, Mississippi - December 1980

Meeting with Earl Conrad regarding administration of NOAA Houston, Texas - January 1981

Meeting with Gulf State resource agencies, NMFS and Southeastern Fisheries Association regarding budget cuts in PL 88-309, Councils, and S-F programs, Metairie, Louisiana - January 1981

Meeting with Louisiana Department of Wildlife and Fisheries regarding strategy for funding PL 88-309, New Orleans, Louisiana - January 1981

Meeting with Commissioner Carron regarding his appointment to the GSMFC Gulfport, Mississippi - January 1981

Meeting at the Louisiana Department of Wildlife and Fisheries to hear testimonies regarding the loss of wetlands in Louisiana and Western Mississippi, New Orleans, Louisiana - February 1981

Present testimony in the Louisiana Legislature before Joint Subcommittee on Wildlife and Fisheries regarding the State's right to administer all fisheries management in waters of the Gulf of Mexico out to the three mile limit, Baton Rouge, Louisiana - February 1981

Meeting at Louisiana Department of Wildlife and Fisheries regarding SBA loans to fishermen, New Orleans, Louisiana - February 1981

Ocean Springs Chamber of Commerce Meeting  
Ocean Springs, Mississippi - March 1981

Meeting with Commissioner Mehos regarding President Reagan's proposed budget cuts, Houston, Texas - April 1981

Attended demonstration of surimi plant  
Bayou La Batre, Alabama - April 1981

Present testimony in the Mississippi State Legislature regarding purse seines, Jackson, Mississippi - June 1981

Meeting with Dr. Ted Ford and Gary Knight regarding program for GSMFC Annual Fall Meeting, Baton Rouge, Louisiana - July 1981

Meeting with Dr. Gary Perkins, Ocean Springs, Mississippi - July 1981

Attended meeting of Gulf South Research and Development Foundation, Inc. Atlanta, Georgia - August 1981

Meeting with Texas Shrimp Association, NMFS, Louisiana Shrimp Association and Japanese delegation regarding joint ventures  
New Orleans, Louisiana - August 1981

Attended meeting of American Fisheries Society  
Albuquerque, New Mexico - September 1981

MEETINGS/ACTIVITIES OF ASSISTANT TO THE DIRECTOR

Gulf States Marine Fisheries Commission Meetings

31st Annual Fall Meeting, Orlando, Florida - October 1980  
31st Annual Spring Meeting, Brownsville, Texas - March 1981  
Meeting with Commission Chairman regarding programs for year  
Ocean Springs, Mississippi - December 1980  
Meeting with State Agencies regarding P.L. 88-309 Cuts  
New Orleans, Louisiana - January 1981  
Meeting with Technical Coordinating Committee regarding statistics  
Kenner, Louisiana - January 1981  
Meeting with Commissioner regarding new appointment  
Gulfport, Mississippi - January 1981  
Meeting with Commissioner regarding new appointment  
New Orleans, Louisiana - January 1981  
Meeting with Technical Coordinating Committee regarding State/Federal  
Fisheries Management Program, Kenner, Louisiana - May 1981  
Meeting with Gary Knight regarding Program for October GSMFC Meeting  
Baton Rouge, Louisiana - July 1981

Gulf of Mexico Fishery Management Council (GMFMC)

October 1980	Panama City, Florida
October 1980	New Orleans, Louisiana
December 1980	Jacksonville, Florida
January 1981	New Orleans, Louisiana
March 1981	Biloxi, Mississippi
March 1981	Tampa, Florida
May 1981	Washington, D.C.
May 1981	Clearwater, Florida
July 1981	Naples, Florida
August 1981	Tarpon Springs, Florida
August 1981	Tampa, Florida

Gulf State-Federal Fisheries Management Board (GS/FFMB)

GS/FFM Board Meeting, Orlando, Florida - October 1980  
Meeting with NMFS regarding Review State/Federal Programs  
Washington, D.C. - October 1980  
GS/FFM Board Meeting, Brownsville, Texas - March 1981  
GS/FFM Board Call Meeting, Kenner, Louisiana - May 1981  
GS/FFM Board Menhaden Advisory Committee  
Kenner, Louisiana - July 1981

Industry Meetings

Shrimp Disaster Relief Meeting, New Orleans, Louisiana - November 1980  
Louisiana Shrimp Association Meeting  
Thibodeaux, Louisiana - December 1980  
Louisiana Shrimp Association regarding Convention Program  
New Orleans, Louisiana - December 1980  
Louisiana Shrimp Association Convention  
New Orleans, Louisiana - March 1981  
American Shrimp Cannery and Processors Association Convention  
Biloxi, Mississippi - April, 1981  
Shrimp Coalition Meeting, New Orleans, Louisiana - April 1981

Surimi Plant Demonstration, Bayou La Batre, Alabama - April 1981  
Sport Fishing Workshop, Biloxi, Mississippi - April 1981  
Texas Shrimp Association, National Marine Fisheries Service, Louisiana  
Shrimp Association with Japan Industry Delegation regarding joint  
ventures, New Orleans, Louisiana - August 1981

#### Congressional Meetings

Testimony before House Subcommittee on Outer Continental Shelf regarding  
Fishermen's Contingency Fund, Washington, D.C. - May 1981  
Attended House Appropriation Committee for State, Justice, Commerce and  
the Judiciary, Washington, D.C. - May 1981  
Meetings with Gulf Coast Congressional Members and Staff regarding  
Fishery Program Cuts in fiscal year 1982, Washington, D.C. - May 1981

#### Other

Marine Fisheries Advisory Committee, Washington, D.C. - October 1980  
Louisiana Department of Wildlife and Fisheries regarding changes in  
Outer Continental Shelf Act, New Orleans, Louisiana - November 1980  
Louisiana Department of Wildlife and Fisheries Commission regarding  
set shrimp season, Kenner, Louisiana - April 1981  
Lanier Word Processor/Computer Demonstration  
Ocean Springs, Mississippi - May 1981  
IBM Word Processor/Computer Demonstration  
Ocean Springs, Mississippi - June 1981  
Meeting with Fairmont Hotel Personnel regarding GSMFC arrangements  
New Orleans, Louisiana - July 1981  
MEXUS-GULF Meeting, New Orleans, Louisiana - September 1981

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 the availability of fishery resources, the accessibility of coastal waters to resource users and provides protection of these resources through enforcement of laws and regulations. The Division contains the Administrative, Research and Management, and Enforcement Sections and had 37 employees during fiscal year 1981.

The Administrative Section Contains the Director, six clerical, and two custodial-mechanical personnel. Offices are maintained at Dauphin Island, Gulf Shores, and Bayou La Batre.

The Research and Management Section contains the Chief Marine Biologist, one Biologist III, four Biologist II's, and six Biologist Aides. The section conducts applied fishery research and manages the marine fishery resources of the state. The hatchery facility at Gulf Shores produces striped bass for stocking into coastal waters and conducts research on pond production of commercial species including shrimp, pompano, red snapper, redfish, bait minnows, and other species. Federal funds reimbursed the state for approximately 65% of the operations of this section.

The Enforcement Section contained one CEO IV, two CEO III's, five CEO II's and five CEO I's. Officers patrol the 780 square miles of brackish and salt waters of the state while enforcing laws and regulations pertaining to seafoods and boating safety and conducting search and rescue operations.

Accomplishments during the year included constructing several artificial fishing reefs in the Gulf of Mexico. Sections of the old U.S. 98 bridge at Lillian were sunk in two locations off Gulf Shores in April 1981. Red snapper and other reef fishes began to utilize these reefs by late July. Eight small reefs made from tires were made near artificial reefs constructed several years ago off Orange Beach. Very good catches of red snapper were taken from the Dauphin Island bridge reef complex constructed during fiscal year 1980. Catches of 300-800 pounds per day were reported. Negotiations with Alabama Dry Dock and Shipbuilding Co. of Mobile to obtain a 340-foot drydock for an artificial reef 15 miles south of Gulf State Park are progressing. A \$450,000 contract was let for repairs of six Baldwin County boat ramps destroyed by Hurricane Frederic.

An Economic Development Administration grant of \$102,000 was obtained to relay oysters from Dauphin Island Bay, which was closed for oyster harvesting, to approved growing waters. Oyster fishermen, who had been out of work since Hurricane Frederic destroyed the state's oyster crop in September 1979, were hired by the Marine Resources Division to move these oysters during November 1980. Ninety-eight oyster fishermen were paid \$119,252 to relay 29,813 barrels of oysters with a retail value of \$3 million. The areas where the oysters were placed were reopened to harvest on December 15 after the oysters had depurated. Through cooperative efforts of the Marine Resources Division



and the Department of Public Health, Dauphin Island Bay was opened to oyster harvest on February 6 for the first time in five years. Approximately 100,000 barrels of oysters with a retail value of \$10 million were harvested. To avoid glutting the market a daily quota was placed upon each fisherman and oystering was banned on Sundays.

A method for early prediction of the opening date of the summer shrimp season based upon several years of growth rate data on juvenile brown shrimp was perfected. This allows early notification of the opening date to the Alabama shrimp fishermen who are usually shrimping in Louisiana prior to the Alabama opening as well as to coordinate with the state of Mississippi so both states can open their contiguous waters on the same date. The shrimp management program also perfected a predictive model which determines the relative commercial catch to be expected during the summer based upon relative abundance of postlarval shrimp during the early spring. This predictive ability aids both the commercial and recreational shrimpers as well as the processors in planning for activities well in advance.

The fishery monitoring and assessment study designed to systematically monitor the abundance and distribution of fishes, shrimp, crabs, and oysters in coastal waters was modified in response to the oil and gas lease sale in Mobile Bay. Certain sampling stations were relocated to future drilling sites in order to obtain before-and-after biological data. Speckled trout serum estrogen analyses indicated that spawning began in mid-June when water temperatures reached 84° and continued through early September. Larval speckled trout were taken in the bays and sound but not in the Gulf, possibly refuting the belief that major spawning occurs along the Gulf beaches.

Red snapper were spawned for the second consecutive year at the hatchery facility at Gulf Shores. A suitable food supply continues to be a problem because of the minute size of the larval snapper. Progeny of the Gulf Coast strain of striped bass collected from the Alabama River and spawned as a joint venture with Game and Fish showed evidence of mixed lineage with Atlantic Coast strains possibly indicating that the Gulf strain is no longer pure. The Gulf strain had been considered as a nominee for endangered species status by the U.S. Fish and Wildlife Service because of its rarity. However, if the stock is no longer pure, protection would accomplish nothing other than to disrupt this budding recreational fishery. A manuscript on pond production of bull minnows is nearly completed. This bulletin summarized five years of experimental work on production of this important coastal bait minnow. The Division received more than \$5,000/year from local sales of these minnows. A large privately owned bull minnow hatchery near Gulf Shores is being constructed which will utilize the production techniques developed by the Division.

A cooperative agreement for gathering fisheries statistics was signed with the National Marine Fisheries Service. A computer will be provided to the Division which eventually will be connected to a nation-wide network.

More than 16,000 hours of shore and boat enforcement patrol were accomplished. Shrimping in closed waters was the most common offense followed by netting without a license. Three vacancies were filled by intradepartmental transfer.

A four-room addition was begun on the office building at Gulf Shores under the YACC program.

#### COMMERCIAL FISHERIES LANDINGS

Commercial landings were down considerably from 1979. There was 17% less pounds and 39% less value landed at Alabama ports during 1980 (Table I). Shrimp prices were lower than any year since 1977, accounting for the major portion of the decrease in total value. Higher fuel prices together with the poorest shrimp crop since 1975 and low prices caused many boats to remain in ports and a number of boats were lost because monthly payments could not be met. All Alabama waters were closed to shrimping on May 7, 1980 except for bait north of the Intracoastal Waterway. The Gulf waters were reopened on June 16 and all inside waters except Weeks Bay were reopened on June 23.

Oyster landings were the lowest (54,800 lbs) in history because of the almost total loss of this resource from Hurricane Frederic in September 1979. All harvest for 1980 was oysters relayed from Dauphin Island Bay under the EDA grant. Finfish landings were up slightly from 1979, Atlantic croaker being the principal species landed.

#### COMMERCIAL FISHERIES RESEARCH AND DEVELOPMENT P.L. 88-309

During fiscal year 1981 all 88-309 federal funds were obligated under the fishery monitoring and assessment program and mariculture studies conducted at Gulf Shores. A total of 325,000 fish was collected comprised of 103 species. Abundance and distribution data were entered upon computer tapes for analyses. New information was obtained on the occurrence of speckled trout larvae. The 3-year study on the distribution of oyster larvae and spat setting was completed and will be used in determining future reef development. The wintering areas of speckled trout in Mobile Bay and certain tidal rivers were investigated. Most fish leave the upper bay and rivers by March apparently moving to the lower estuaries for spawning. Spawning was first detected in mid-June which was several weeks later than in 1980.

#### ANADROMOUS FISH PROJECT - P.L. 89-304

A total of 15 adult striped bass brood fish was collected from the Alabama River system during the 1981 spawning season. Six of the brooders were mature females and all were successfully ovulated producing a total of 10,496,000 eggs. The brood collection and spawning operation was a cooperative effort with the Game and Fish Division, with captured brooders "live-hauled" to Marion Fish Hatchery for spawning. Slightly over 5,000,000 eggs survived through the 12-hour "die-off" period at Marion and Marine Resources Division received 2,633,700 of the 16- to 26-hour eggs. Approximately 50% of eggs received at CPMC (or 1,383,000) hatched and from those approximately 553,000 survived to stocking.

A total of 355,194 fingerling striped bass was harvested from CPMC culture facilities which included fish from Alabama and South Carolina from which 41,901 were restocked into production ponds for advanced fingerling culture with the balance or 301,857 being stocked into tidal streams in Mobile and Baldwin counties.

Table 1

## A SUMMARY OF COMMERCIAL FISHES LANDED IN ALABAMA

Year	Quantity - thousand of Pounds <sup>1/</sup>								% increase in quantity from previous year	2/ thousands of dollars	%increase in value from previous year
	Shrimp	Oysters	Crabs	Red Snapper	Mullet	Flounders	Others	Total Pounds			
1961	3,525	509	838	1,784	897	98	807	8,458	-	1,991	-
1962	3,748	443	634	1,893	1,477	98	818	9,081	1.4	2,509	26.0
1963	7,760	995	1,297	2,315	1,390	107	1,024	14,888	63.9	3,714	48.0
1964	7,215	1,005	1,762	2,393	1,072	162	1,458	15,067	1.2	3,975	7.0
1965	9,624	492	1,812	2,495	1,508	301	1,556	17,789	18.1	4,986	25.4
1966	10,608	1,304	2,183	2,701	1,697	383	1,686	20,562	15.6	6,807	36.5
1967	14,456	2,088	2,353	2,288	3,169	480	1,578	26,412	28.4	8,300	21.9
1968	15,450	1,212	1,980	1,214	2,840	533	3,432	26,661	0.9	9,617	15.9
1969	14,977	481	1,920	1,163	3,193	540	6,242	28,547	7.1	10,557	9.8
1970	15,031	279	1,407	983	3,111	780	8,030	29,601	3.7	9,925	-6.0
1971	16,709	249	1,997	939	2,361	951	11,028	34,234	15.7	13,810	39.1
1972	17,548	1,069	1,612	1,051	1,513	1,169	12,080	36,042	5.3	17,728	28.4
1973	12,019	590	2,098	960	2,786	708	17,583	36,744	0.8	17,667	-0.3
1974	13,922	733	1,826	891	3,013	916	13,644	33,945	-7.6	16,580	-6.2
1975	14,056	683	1,639	833	1,618	832	11,886	31,547	-7.0	20,986	27.0
1976	18,700	1,236	1,300	635	865	803	8,321	31,849	1.0	33,631	60.0
1977	25,000	1,549	2,174	520	877	599	3,850	34,589	9.0	36,787	10.0
1978	21,133	768	2,009	426	933	639	3,834	29,742	-16.3	35,412	-3.9
1979	20,500	455	1,300	N/A	N/A	N/A	7,700	29,955	0.7	52,000	-47.0
1980	15,030	55	1,600	N/A	N/A	N/A	8,100	24,800	-17.3	31,800	-38.8

<sup>1/</sup> Shrimp weights are heads-on weight, oyster weights are reported in pounds of oyster meat (8.75 pounds per gallon).

<sup>2/</sup> Dockside wholesale value.

## MARICULTURE

Species of fish successfully spawned or eggs hatched during the past fiscal year include speckled trout, red drum, red snapper, bull minnows, and striped bass. Species on which culture experiments were conducted include speckled trout, red drum, bull minnows, striped bass, pompano, penaeid shrimp, red snapper, and rainbow trout.

Research in bull minnow production has remained a high priority during the past year because of the growing commercial interest being stimulated in the area. One commercial bull minnow operation is presently under construction and a second facility in the conceptual planning stage. Both facilities are located in Baldwin County with construction interests stimulated from research at CPMC. Research during the 1980-81 fiscal year has demonstrated the ability to produce three successive crops of marketable bull minnows at approximate 55-day intervals in coastal Alabama. Crops of 676, 754, and 800 pounds/acre, respectively, were produced in a single growing season, a total production of 2,230 pounds/acre. This weight translates to over 250,000 fish with a current wholesale value of \$18,966.00/acre. Polyculture studies with pompano and penaeid shrimp produced a total weight of 1,363 pounds/acre (828 pounds/acre pompano and 535 pounds/acre shrimp) during this past growing season. In a series of experiments testing pompano diets those replicates receiving a dry feed fortified with menhaden oil grew 40% larger than those receiving dry feed.

## LAW ENFORCEMENT ACTIVITIES

Three officers transferred from the Marine Police Division to fill vacancies. A total of 16,103 boat and shore patrol hours were worked. Twenty-three search and rescue missions were made and 304 citations were given for violations of seafood laws and boating safety. Shrimping in closed waters was the major violation (44%), followed by unlicensed gill and trammel nets and taking undersized oysters. Eighty-nine percent of the citations resulted in conviction.

Fish Kills: Five fish kills were investigated during fiscal year 1981. Locations are given in the following table:

Location	County	Date	Total Killed	
			Number	Weight
Nolte Creek	Baldwin	1/13/81	300	60
Tributaries of Little Lagoon <sup>1/</sup>	Baldwin	January	100	200
Navy Cove	Baldwin	5/01/81	-	-
Alabama Point	Mobile	6/ 2/81	10,900,000	7,000
Bayou La Batre	Mobile	8/20/81	576,000	1,700

<sup>1/</sup> Winter Kill of white mullet

ARTICLES AND PAPERS

- Hawke, John P., A. C. McWhorter, A. G. Steigerwalt, and D. J. Brenner. 1981. Edwardsiella ictaluri sp. nov., the Causative Agent of Enteric Septicemia of Catfish. International Journal of Systematic Bacteriology. 31(4):396-400.
- Hawke, John P., S. R. Heath, W. J. Eckmayer and C. William Wade. 1980. Research and Management of Alabama Coastal Fisheries. Alabama Department of Conservation and Natural Resources, Marine Resources Division. Federal Aid Annual Progress Report 2-330-R-2. Mimeograph File Report. 97 p.
- Minton, R. Vernon. 1981. Striped Bass, *Morone saxatilis*, Production and Stocking Experiments in Coastal Alabama. Alabama Department of Conservation and Natural Resources Division. Annual Progress Report AFCS-12-1. 25 p.
- Minton, R. Vernon., J. P. Hawke, and W. M. Tatum. In Press. Hormone Induced Spawning of Red Snapper, Lutjanus campechanus. Aquaculture.
- Tatum, Walter M. In Press. The Possibilities and Limitations of Utilizing Artificially Propagated Scianids as a Management Tool. Marine Recreational Fisheries. Vol. 6.
- Tatum, Walter M. In Press. The Mariculture Potential in Coastal Alabama. Trans. National Association of Conservation Engineers.
- Tatum, Walter M. 1981. The Effects of Fisheries Management on Resources Users. Alabama Conservation Magazine. 51(1):10-12.
- Wade, C. W. In Press. Fishing Alabama's Inshore Coastal Waters. Alabama Conservation Magazine.
- Wade, C. W. In Press. Fishing Alabama's Offshore Coastal Waters. Alabama Conservation Magazine.
- Wade, C. W. In Press. Age and Growth of Spotted Seatrout and Red Snapper in Alabama. Proceedings of the Southeastern Association of Fish and Wildlife Agencies.

## FLORIDA DEPARTMENT OF NATURAL RESOURCES

Division of Marine Resources  
Bureau of Marine Science & Technology  
Bureau of Marine Resource Regulation and Development

The Florida Department of Natural Resources' Bureau of Marine Science and Technology activities in Gulf and Atlantic fisheries management plans included supplying research data and critiques for coral, swordfish, stone crab, lobster and other plans. Other fisheries councils and commissions were also served by providing species bioprofiles, reviews, and testimony on State fisheries resources. The 1979 Florida Legislature created a 13 member independent Saltwater Fisheries Study and Advisory Council and charged it with recommending a comprehensive saltwater fishery conservation and management policy for territorial salt waters of the State. The final recommendations are due February 1, 1982 and address standards for conservation and management of saltwater fisheries, recommendations for new or amended legislation, an administrative body, funding, enforcement, research, and habitat improvement. The Department of Natural Resources provided staff and administrative support to the Council.

Fisheries and habitat research addressed a variety of current topical issues in habitat restoration techniques, habitat assessment and species distributions, invertebrate and finfish fisheries resources and fisheries practices, culture and rearing of finfish, and environmental perturbations. Twenty-two research publications were published in Calendar Year 1981.

### FINFISH

Continuing king mackerel tag returns (more than 14,000 fish tagged) from Florida and Texas lend further support to our observations that king mackerel between Cape Canaveral and Key West in winter will migrate into the Gulf of Mexico in spring, summering as far west as Texas with a return migration in fall and winter. Fish present in southeastern Florida in spring appear to migrate into this area from further north in the Atlantic. Fish tagged in Florida have been captured as far north as Virginia and as far west as Mexico. Over 2,750 scombrid larvae were identified from east coast plankton hauls (off Palm Beach and Stuart, Florida and Savannah, Georgia) taken between June 1970 and October 1971. Of these, 36 were king mackerel larvae measuring 2.5 to 5.8 mm and caught from May to August. Identification of king mackerel stocks from fish caught off the Carolinas, Texas and Florida using isozyme electrophoresis continued. To date, seven isozyme systems have been used with esterase showing the best resolution.

Over 5,490 snook have been tagged with internal anchor tags in the Collier County area with a 22.2% return rate since 1976. This year's results showed a further population decline and few 18"-20" fish were caught supporting the prediction that there was a spawning failure in 1978. Research is continuing on aging (using otoliths) and determining spawning areas, juvenile habitat, and food preferences. Population assessment will continue as directed by the 1980 Legislature. Sampling for larval and juvenile gag grouper continued in order to assess their estuarine requirements. Some grouper, although reef fish, are estuarine dependent at juvenile stages.

Collections of adult gag, grouper, scamp, and yellowedge grouper for age, growth and reproduction were completed. These studies documented that these three grouper become reproductively mature at larger sizes, greater than 20"; all are hermaphrodites. A major life history study on red drum was initiated this year to determine age, growth, mortality, reproduction characteristics, spawning times and areas, larval recruitment, and habitat requirements. Areal habitat loss for estuarine and coastal bottoms is being documented through time series evaluations of aerial photographs and maps. Such losses will eventually be compared to fisheries data to study trends and impacts.

Studies on fish eggs and larvae continued with field collections, analyses and laboratory spawning. Red drum and gag grouper were successfully conditioned and spawned, thus producing eggs and larvae for detailed descriptive and analyses and physiological experiments. Red drum were conditioned without hormones. Two female gag grouper were sexually reversed with hormones to produce fertile males. Offshore net sampling in June 1981 for tarpon larvae was successful (35 specimens) and supported the contention of offshore spawning at greater than 120 miles.

A description of the fish trap fisheries in Monroe and Collier counties was completed. In Monroe County (1979-1980) there were about 60 vessels fishing seasonally with a mean CPUE (per haul) of 4.9 Kg or 6 fish; 69% of the weight represented target species. Percentage of lost traps per year was estimated to range from 4% to 200% (mean 63%) based on interview information. Injury and death amounted to 4% of all fish observed. A completed description of the commercial swordfish fishery in Florida in cooperation with the University of Miami showed that there may be 200 boats involved with an average amount of gear of 10 miles and 200 hooks and a mean CPUE (per 100 hooks) of 3.38 for 1980 for the Florida longliner. A description of the silver mullet bait fishery from Key West to Fernandina Beach during 1978-1979 revealed: three species in the fishery, cast nets as preferred gear, annual landings of up to 1400 Kg, and that habitat destruction appears to be a significant problem to this resource. In 1979-1981, collections were made for age, growth, reproduction, and systematics data.

#### INVERTEBRATES

Lobster: Data from 19,180 spiny lobsters trapped and tagged in the upper and middle Florida Keys from April 1978 through March 1979 showed that mean and modal carapace length (CL) were approximately 73 mm, less than legal size (76 mm). Lobsters at deep reef (30m) stations were the largest caught. Distribution of lobsters was age- and habitat-related; immature, principally sublegal lobsters in year class 2+ occupied southern Florida Bay stations, then moved gradually to nearshore oceanside Keys stations; lobsters in year class 3+ migrated seaward in response to onset of maturity or declining late fall-early winter temperatures. Stations on the north sides of Keys were within the Florida Bay nursery area, where fishery-induced damage to sublegal lobsters probably exceeded legal catch from the area.

Movement information was obtained from 980 returns; 266 (27.1%) moved 1-2 nautical miles (n.m.), 314 (32.0%) moved 2-6 n.m., 202 (20.6%) moved 6-15 n.m., and 198 (20.2%) moved more than 15 n.m. Movement patterns were documented for upper and middle Keys lobsters and involved different directional migrations.

Virtually all mating, evidenced by external spermatophores on females, occurred among oceanwide lobsters from April through June. Spawning occurred only at oceanside stations. All females evidencing reproductive maturity, i.e., developed or ripe eggs in ovaries or eggs carried externally on abdomen, possessed pleopodal setae more than 9mm, so setae of that length or greater may be considered "mature." Pleopodal setal elongation begins in the 61-65 mm CL class, and is underway for 50% of females attain maturity at 91-95 mm CL. Two of 13 egg-bearing females evidenced multiple spawning as indicated by possession of external brown eggs in addition to internal ripe ovaries.

Standard wooden commercial lobster traps were baited with cowhide, cowhide and one lobster, and cowhide and three lobsters. Catches from traps baited with cowhide plus lobsters were significantly greater than those from traps baited with cowhide only. Bait in traps grew significantly less (26.7%) than non-bait lobsters, suggesting that growth of bait was stunted while in traps. Rates of escape and mortality among sublegal lobsters used to bait traps and the design of lobster trap escape gaps are also being studied.

A university contracted study to evaluate the origin of Florida spiny lobster stocks was successful in isolating mitochondrial circular DNR and using restriction enzyme analyses to compare base pair sequence patterns in adults. The technique can also be used for younger planktonic stages (small whole animals) through hybridization.

Stone crab research on natural handedness, claw reversal, and regeneration showed that crabs when young are right handed, i.e., the right claw is the crusher. Reversal often occurs after claw removal or autotomy in juveniles on the first regenerative molt. Adult crabs generally require three or more molts to complete claw reversal. Therefore, relying on claw reversal as a fishery management practice is not advised.

Studies on reversal frequency, regeneration patterns and growth continued and expand earlier observations. Adult crabs do not regain a normal pattern on the regenerated claw, contrary to previous assumptions. Experiments to test and evaluate current and potential fishery practices on claw removal and on-board handling and initial processing were initiated.

"A Synopsis of the Biology of the Blue Crab Callinectes sapidus (Rathbun) in Florida" was prepared for the Gulf States Marine Fisheries Commission for inclusion in a colloquium proceedings. Blue crab is a valued commercial and recreational species of shallow water harvested from all coastal counties; peak landings are in summer through fall. A one year survey of the Tampa Bay blue crab population was completed. Over 15,000 crabs were trapped; analyses on size, sex, presence of eggs, injuries, parasites, and seasonal and long term fluctuations are ongoing. The second year survey includes Tampa Bay and east coast site to compare data sets.

The fifth year of a cooperative program with the National Parks Service in Biscayne National Park (BNP) on eight reefs yielded additional data on coral diversity, abundance, reproduction, growth, and man-made impacts to the system. In total, 30 species of octocorals and 42 species of stony corals have been identified with densities (per m<sup>2</sup>) up to 26 for species and 105 for colonies. Gall nodules of gorgonian corals from BNP infected with filamentous green algae are being investigated from the aspect of algal identity and life



history, and the symbiotic relationship. Protuberances on Acropora palmata are also being studied.

Plants, Plankton and Culture of Marine Animals: Mangrove airlayers from fall 1980 and spring 1981 were removed from trees and planted. White mangrove airlayers survived better than blacks or reds when planted, and potter airlayers appeared healthier than "at site" plantings. Spring airlayers were more successful at rooting than fall airlayers. Airlayering and planting trials will be continued to establish the usefulness of this technique in coastal restoration programs.

Seagrass studies in situ and in vitro revealed; growth and morphological differences in Thalassia (turtle grass) from different Florida locations; turtle grass is a dioecious species exhibiting dimorphic sex characteristics (leaf blade widths); Tampa Bay populations of turtle grass appear to be intermediate day plants with floral induction probably occurring in late August or September (based on 5,700 observations); spatial fluctuations (fringe vs. mid grass bed) in biochemical levels have been shown to significantly alter apparent seasonal patterns. Additionally, a new mitigation/restoration technique of planting turtle grass seeds in peat pellets proved promising in a cooperative demonstration project in the Florida Keys. Incidental to seagrass in situ studies, benthic production of gas bubbles by photosynthetic benthic microalgae in grass beds was shown to transport sediment particles vertically in the water column. This activity may be a significant estuarine transport and recycling process since resuspension accounted for 307.9 ml gas and .097 g dry wt. per m<sup>2</sup> per 24 hr period. The microalgae were principally dinoflagellates.

Red tide occurred in October and affected areas from Manatee to Lee Counties, temporarily closing three counties to oyster and clam harvesting. A paper, "Biologic and Hydrographic Aspects of Red Tides" appeared in BioScience and documented the association of Loop Current intrusions on the West Florida Shelf with the offshore initiation of Florida red tides using ground truthing and satellite imagery. The life cycle of the causative dinoflagellate, Pytychodiscus brevis (= Gymnodinium breve) was partially characterized and verified that this species has a sexual cycle; it therefore has the potential to produce bottom resting stages that can "seed" outbreaks. Toxic and nontoxic dinoflagellates associated with ciguatera localities were identified from Caribbean and Florida macroalgae in a cooperative program with the University of Miami. Several of these bottom dwelling and epiphytic species are new to science.

Other planktonic algae were continually mass cultured in large plastic, sterile bags to supply food for red drum larvae, rotifers, and brine shrimp. Additionally, lug worms and nematodes were cultured as potential food organisms in finfish rearing programs. Acceptable and nutritious food organisms are critical for successful artificial larval rearing regimes as are water quality, stocking density, temperature, and other factors.

Prawn culture, a 10 year plus program, was terminated this year after a solar nursery experiment using flat-plate solar collectors to provide heated culture water. Postlarval prawns stocked 100 and 1000 per m<sup>2</sup> had survival rates of 87.4% to 97.3%. Prawn culture in Florida is a viable prospect but profitable success depends on water quality, prawn stocking size, extremes in

winter weather, costs of land and labor, and a dependable supply of postlarvae.

A sea turtle workshop was hosted by the Department in Jacksonville in early April to update regional researchers and administrators on turtle activities. In 1980, 13,033 sea turtle nests were sited and 909 green turtle yearlings (hatched in 1980) were tagged and released this year from various east coast sites. Permit activities for endangered and threatened sea turtles were coordinated through the Bureau to insure nesting success and egg hatch either at the nest site, through nest transplanting, or by artificial nest incubation.

Shellfish Environmental Assessment: Almost 10,000 sea water and meat samples were tested for fecal coliform contamination to monitor Florida's shellfish growing waters. Florida has, as of 1980, 512,277 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 Service Unit. Six environmental specialists routinely (monthly or weekly) monitor open and Prohibited areas (40%). In addition to routine water monitoring, personnel are responsible for red tide sampling and comprehensive shellfish area surveys or reappraisals. Such surveys were initiated for Ochlockonee Bay (5,837 acres), East Bay, Bay County (3,074 acres), Pensacola Bay (more than 6,000 acres), Myakka River (5,074 acres), Citrus County (37,721 acres), and the Apalachicola Bay System (more than 100,000 acres). A comprehensive survey for Ft. Pierce to Vero Beach was updated, completed, and approved resulting in the reclassification and opening of 1,638 acres to shellfish harvesting. Potential use of aerial photographs and land use maps has been encouraging; these data will be incorporated into the shoreline survey when applicable. Equipment was purchased for all field offices to expand the water quality data base to include not only bacteria, temperature, and salinity, but turbidity, light penetration, and dissolved oxygen as well. A more informative format for Shellfish Harvesting Area Atlas maps was adopted; the Atlas should be completely updated and revised in 1982.

The 25th Annual Gulf States Shellfish Conference and the 1981 FDA Shellfish Sanitation Training Course were hosted by the Department of Natural Resources and held at their St. Petersburg facility. In addition to hosting and/or organizing these meetings, staff assisted or supported federal and university research on the occurrence of pathogenic Vibrio bacteria in Florida coastal waters and shellfish. This research is designed to evaluate sources, reservoirs, and significance of such bacteria in estuaries.

#### BUREAU OF MARINE RESOURCE REGULATION AND DEVELOPMENT

The Florida Department of Natural Resources, Division of Marine Resources, established a fourth bureau on December 1, 1980. The newly established Bureau of Marine Resource Regulation and Development has as its primary responsibilities the inspections of Shellfish and Blue Crab Processing Plants to insure that shellfish and blue crabs are processed in a sanitary manner. The other programs are the Oyster Culture Program, Shellfish Leasing Program, Derelict Vessel Program and the Artificial Fishing Reef Program.

The "Processing Plant Inspection Program" has a staff of five sanitarians responsible for ensuring that the oyster, clam and blue crab processing plants throughout Florida maintain strict adherence to standards as provided by Florida law in the harvesting and processing of shellfish for consumer use.

One full-time staff member is utilized in the "Shellfish Leasing Program", and is responsible for inspection of existing shellfish leases for compliance with state law in the cultivation of oysters or clams in state waters, and for investigations of applications for new leases in an effort to ensure that the requested lease areas are compatible with those conditions favorable for oyster or clam cultivation.

The "Artificial Fishing Reef Program" was implemented by the governor and State Cabinet action on August 7, 1979. Financial assistance for the most costly aspect of reef construction--the transportation of reef materials--was approved to local governments for twelve (12) projects. Actual construction began in the Spring of 1980. Of these projects, six were completed as of December 31, 1981; the others are in various stages of accumulating materials for eventual placement at a reef site.

Several additional reefs were located:

(1) As a result of a donation from the Exxon Corporation of a large oil drilling structure, transferred by Exxon from Louisiana to a point some thirty (30) miles offshore from Carrabelle, Florida on June 5, 1980.

(2) The last vessel in the Liberty Ship Program was sunk by the Department off Daytona Beach, Florida in October, 1980.

(3) The U. S. Coast Guard Cutter, Blackthorn, was sunk 24 miles offshore from Pinellas County as a fishing reef.

(4) Two experimental Japanese reefs were sunk off Panama City and Jacksonville in August and September, 1981 along with American-type comparison reefs, in a two-year study program.

(5) The sea-going tug, Orion, which had been abandoned in Miami River since 1968, was sunk December 22, 1981, at a Dade County Artificial Reef Site.

(6) A number of other projects are taking advantage of barges being removed from bodies of water all over Florida as Derelict Vessels. These are being sunk at other reef sites.

The "Derelict Vessel Removal and Disposal Program" makes use of one full-time staff member and assistance of the Division of Law Enforcement Marine Patrol to accomplish the program goals. The program is responsible for the cleanup of junked, abandoned and dismantled vessels in state waters. To date, the program has proposed the removal of over 400 such vessels since its start in 1980. The program attempts to make use of as many of these vessels as possible for construction of artificial marine habitats, and looks to a time when state waters will be clear of all such potential hazards to public health and safety.

The eight staff members assigned to the "Oyster Culture Program" are responsible for the construction of artificial oyster reefs to enhance the production of oysters in selected areas around the state. They also collect shucked oyster shells from selected oyster shucking establishments, to stockpile and "cure" before using as clutch in "planting" these reefs. During the fiscal year beginning October 1, 1980, and ending September 30, 1981, approximately 40 acres of oyster reefs were planted by the oyster culture

staff, utilizing 271,596 bushels of clutch. All of these oyster reefs were planted in Franklin County in Apalachicola Bay at pre-selected locations. First round surveys of these reefs show good results and all indications are positive for successful plants. During this period the oyster culture staff collected 348,756 bushels of oyster shells from shucking houses.

## LOUISIANA DEPARTMENT OF WILDLIFE AND FISHERIES

### Seafood Division

#### OFFICE OF COASTAL AND MARINE RESOURCES

Responsibility for managing the vast coastal and marine fishery resources of Louisiana lies with the Office of Coastal and Marine Resources. The active arm of this office is the Seafood Division, which traces its roots back to a program initiated in 1879 in recognition of the value of Louisiana's renewable oyster resources. Subsequent programs were later developed to protect, manage, study, and effectively utilize all commercially valuable marine resources of the state. Seafood resources have an annual dockside value in excess of \$100,000,000. Programs of the Seafood Division are designed to promote effective utilization of these valuable resources through the proper understanding, conservation, management, enhancement, and protection of the numerous important commercial and recreational marine species.

The activities of the Seafood Division can be divided into eight distinct sections: statewide monitoring of seismographic activities; survey and control of oyster leases; coastal study area activities; monitoring of the Louisiana Offshore Oil Port; evaluation of Corps of Engineer Permits for the coastal zone management program; federally funded research and development projects; Marine Laboratory; and aquatic kill investigations.

#### SEISMIC SECTION

Louisiana has an abundance of wildlife, including the highly valuable furbearers, oysters, shrimp, and waterfowl. Natural processes responsible for this high production of wildlife also created vast deposits of oil and gas, concentrated around deeply buried structures with little or no surface indication of their presence. Of the many types of instruments used in discovering these structures, the seismograph is the most widely used in Louisiana. Seismographic exploration consists of the measuring of shock waves created by dynamite or other energy sources. Thus, the state was initially confronted with two apparently irreconcilable forces. On one hand were the trappers and fishermen, utterly dependent on forms of renewable wildlife resources thought to be highly sensitive to dynamite shock waves; and on the other, the oil and gas companies whose very existence depended on the discovery of new reserves. A compromise was worked out between the oil and gas companies and representatives of the trappers and fishermen, and regulations governing seismic work in Louisiana promulgated. This compromise permitted the oil and gas companies to continue seismographic work in the state, and at the same time safeguarded natural resources by imposing certain restrictions.

As of this date, there are 103 seismographic crews currently permitted to work in Louisiana; however, at present, the Seismic Section has only 28 seismic agents, three field supervisors, and a section head, with authorization to hire two more agents.

The seismic agent's duties are to inspect the work of field survey crews engaged in searching for oil formations in order to prevent the destruction

of, or injury to, fish, oysters or other natural resources; he checks the discharge of explosives and other energy sources for compliance with the rules and regulations governing seismic operations set by the Department of Wildlife and Fisheries.

#### OYSTER SURVEY

The department administers the waterbottoms of the state for the purposes of oyster cultivation. The oyster industry in Louisiana is based on private leases of public water bottom given to individual fishermen or corporations. Currently the Oyster Survey Section is in the midst of a development project which at its completion, will result in a series of precisely placed monuments by which oyster leases can be accurately surveyed or resurveyed. These monuments will aid the department in preventing conflicts between leasees, and will insure that the waterbottoms are used to maximum potential in the future; during the year, 300 monuments were traversed, resulting in the control of approximately 200 square miles of oyster-producing area.

This section surveys lease applications, providing the leasee with a legal claim to the waterbottom leased from the state. The entire structure of Louisiana's oyster industry is dependent on the activities of the Oyster Survey Section.

#### COASTAL STUDY AREAS AND COASTAL HYDROLOGY SECTION

The Seafood Division extends its public services across the entire coast of Louisiana through a framework provided by seven coastal study areas. Each of these seven coastal study areas is supervised by a marine fisheries biologist, who, in addition to managing the division's environmental monitoring activities in that area, and leading research projects, also provides services to the public. These services range from simply answering questions from the general public, to performing technical surveys for oyster fishermen, to determining the nature of damages to oyster grounds. Along with the coastal study areas, the Coastal Hydrology Section monitors the environmental and fisheries conditions in the estuaries and near-shore waters.

Shrimp Monitoring: The monitoring of the marshes and estuaries for juvenile shrimp occupies a significant portion of the total work of the coastal study areas. The monitoring is carried out primarily with trawls and plankton nets. The information gathered in this activity forms the basis for technical recommendations concerning the opening and closing of shrimp seasons. It has also provided a historical data base which has contributed significantly to our general understanding of the marsh and estuarine environment.

Prior to the 1981 brown shrimp season, coastwide primary environmental factors which influence the shrimp harvest were compiled, correlated and compared to previous years. A comparison of environmental parameters from 1967 through 1981 indicated that the spring of 1981 had the largest shrimp nursery, low rainfall, highest north and south Barataria Bay salinities, lowest river discharge, zero hours below 20°C, and the second highest April water temperature. Based on these results, it was predicted that the 1981 brown shrimp harvest would be high and this information was utilized by the administration in recommending the seasons.

Oyster Monitoring: Monitoring of the oyster seed grounds and public reefs is another major activity to which field personnel of the Seafood Division devote considerable time. The information gathered in these activities is used to make technical recommendations concerning the opening and closing of seasons. In addition to collecting production data from the seed grounds, personnel are active in collecting both biological and hydrological data. Spat (young oysters) are monitored through devices called Butler Plates which are deployed and collected weekly. Oyster mortality and size distribution on specific reefs is monitored by a series of dredge samples which are taken monthly. Both live oysters and recent dead shells taken in these samples are analyzed. Hydrological readings are also taken at a series of permanent stations on the seed grounds. These weekly readings provide documentation of both short-term and long-term changes in water quality, which may affect the oyster production on the seed grounds.

Both Sister Lake and Bay Junop were open to commercial fishing during 1981. As a result of shell planting activities in Sister Lake during 1979 and improved environmental conditions on both seed grounds, oyster production was higher than in recent years.

Bay Gardene was also opened to oyster fishing by permit on October 12, 1981.

Shellplants consisting of approximately 50,000 cubic yards of clam shell spread over 1,000 acres of waterbottoms in West Black Bay and Bay Craba were conducted by May and June, 1981. These shellplants are not in production as of this time.

In Calcasieu Lake, the transfer of 20,000 sacks of harvestable grade oysters from polluted waters to fishable areas was supervised by the division.

Research: Detailed analysis of Barataria Bay's 6-foot trawl data taken from 1962-present was initiated in 1981, with cooperation from Louisiana State University's Department of Experimental Statistics. These analyses will help better our understanding of the dynamics of inshore shrimp populations.

The use of wing nets and channel nets in coastal Louisiana to harvest shrimp is perhaps the single most significant change in the shrimp fishery since the introduction of motorized vessels. With its appearance in the industry in the 1950's, this technique has restructured the shrimp industry in certain areas of the coast. Some parts have become almost entirely dependent on this method of fishing. With this in mind, field work on a project entitled "A Study of the Wing Net Fishery in Louisiana" was initiated in 1981. Objectives of this study are (1) to develop a profile of the wing net fishery in Louisiana, (2) to monitor shrimp catch/effort and bycatch, (3) to examine inter-estuarine movement and emigration patterns of commercial saltwater shrimp, and (4) to correlate shrimp and bycatch data with specific physical and hydrological parameters. In 1981, samples were taken on randomly selected days during each moon phase (full moon and new moon) for the months of April through December.

Underutilized Species: Biologists monitored the developing purse seine fishery for underutilized species. The majority of fish caught by the purse seiners was mullet, but black drum were also caught in large numbers.

Fishermen were confronted with several problems including the handling of the large volume of fish caught, receiving payment for fish shipped to processors in other states, and also legal problems.

Crabs: Division personnel were involved with the Blue Crab Subcommittee of the Gulf States Marine Fisheries Commission. This subcommittee was charged with the responsibility of developing a fisheries profile of the blue crab and to coordinate efforts with other Gulf Coast states so that a future Gulfwide management plan for blue crabs may be realized. This work phase included meetings, workshops, and miscellaneous other duties.

Shell Dredging: The shell dredging industry in Lakes Pontchartrain and Maurepas, which provides 1.3 million dollars in revenue annually to this department, is managed by a zone concept on a yearly basis. This concept allows for a large percentage of the lakes to be fished by all user groups without interference and allows for an adequate notice before dredging companies move into areas.

The privilege of taking shell deposits from any water bottoms within the boundaries of this state is granted by the Wildlife and Fisheries Commission based on the recommendation of the technical staff of the department and input from the general public. Contracts for shell dredging are let on a long-term basis at a fixed price of not less than 7½¢ per cubic yard. Lakes Pontchartrain and Maurepas are the primary areas for shell dredging.

#### LOUISIANA OFFSHORE OIL PORT PROJECT

Environmental monitoring of the Louisiana Offshore Oil Port (LOOP) by the department's Seafood Division began in 1978 and will continue as long as LOOP is in operation (an estimated 30 years), as mandated by state and federal licenses issued to LOOP. LOOP is a common carrier of crude oil built to accept oil from supertankers and distribute it to refineries. Facilities consist of an offshore pumping platform, pipelines and an inshore salt dome storage complex. The first supertanker offloaded oil at the offshore platform in May 1981.

As the entire LOOP system is constructed in the sensitive coastal and estuarine area of Louisiana, extensive sampling is done to determine the impact on waters and wetlands and to provide consultation and expert recommendations to reduce adverse impacts caused by the operation of LOOP. In 1981, regularly scheduled periodic sampling throughout the LOOP corridor to document existing conditions and to compare with past and future conditions continued. This included the sampling of biotic factors (demersal nekton, zooplankton, benthos) and abiotic factors (temperature, tide, winds, currents, sediments, and water chemistry). Aerial observations of the LOOP corridor also continued.

Offshore brine (a product of the leaching of the salt dome storage caverns) disposal by LOOP, Inc. continued at levels of approximately 400,000 barrels per day and concentrations of 200 parts per thousand. The department's monitoring of the brine disposal continued; no large scale impacts of brine on marine organisms have been found. Data from 1981 is currently being statistically analyzed to determine if any impacts have occurred. In 1981, a sampling program to determine the effect of brine



disposal on the zooplankton throughout the water column began. Preliminary data indicated that zooplankton is abundant at all depths in the brine discharge area. Also initiated in 1981 was a sampling program to determine salinity and temperatures at different depths in the offshore area. This cross-shelf profiling will provide helpful information on oil spill contingency planning.

#### PERMIT REVIEW

The Louisiana Department of Wildlife and Fisheries (WLF) is presently under contract with the Louisiana Department of Natural Resources (DNR) in a project for "Implementation of Procedures for Evaluation, Enforcement, Monitoring and Coordination of Coastal Use Permits." The main activities of this project consist of field investigation of proposed permitted activities in the Louisiana coastal zone. The Coastal Use Permit Section of the Seafood Division has the primary responsibility for conducting field investigations and coordinating other permit activities with DNR.

During 1981, a total of 207 field investigations were made on permit applications. Eighty percent of these were related to petroleum development. Dredging was included in 77% of those field investigations and pipelines were included in 19%. The parish with the highest number of field investigations was Cameron, followed by Plaquemines, Vermilion, Terrebonne, and Lafourche. During this time, DNR had received approximately 2,050 permit applications.

In addition to the DNR permits reviewed and investigated by Permit Section personnel, permit applications to the U.S. Army Corps of Engineers were reviewed and department comments were prepared considering comments by other staff biologists, oyster leases and other wildlife and fisheries resources.

#### FEDERALLY-FUNDED RESEARCH AND DEVELOPMENT

The annual budget for federally-funded projects has been \$400,000, 75% of which has been provided by federal funds under P.L. 88-309. Recent reductions in federal funding have reduced this source of revenue. This section has been a major factor in development of sampling programs and the development of scientific information. The department has asked for an increase in state funding to compensate for the loss of federal funding.

Biological research during 1981 included the completion and publication of Technical Bulletin Number 33 entitled "A Survey of the Recreational Shrimp and Finfish Harvest of the Vermilion Bay Area and its Impact on Commercial Fishery Resources." That study was jointly funded by Louisiana Department of Wildlife and Fisheries and the U.S. Department of Commerce, National Oceanic and Atmospheric Agency, National Marine Fisheries Service, under P.L. 88-309 (Project Number 2-318-R).

For the federal-state project, "An Evaluation of Gill Nets of Various Mesh Sizes," field sampling terminated on March 31, 1981, and data accumulation, tabulation, and analysis began. These data were gathered over a two-year period, April 1, 1979 through March 31, 1981.

A federally-funded project entitled "A Study of Areal and Seasonal Abundance of the American Eel at Selected Sites in Southeastern Coastal Louisiana" was completed during 1981. The project duration was from April 1979 through March 1981. A technical bulletin to be published in 1982 will provide information on the eel populations of the areas studied and insight into the problems of developing this fishery as a feasible economic venture to fishermen and marketing interests.

#### MARINE LABORATORY

The Marine Lab facility on Grand Terre has been in existence since the early 1960's. Although the direction and emphasis has changed over the years, the main function of the Marine Lab staff is to conduct applied research on economically important fish and invertebrates and on other pertinent marine ecological studies. Results from these research efforts are used to help manage, improve, and protect our marine resources. Besides research, the lab staff was also involved in many other activities. The major lab research undertaken in 1981, grouped by species, includes:

1. Oysters--The spat catching ability of clam shell versus limestone was analyzed in one pilot study. Limestone was superior to clam shell with respect to spat catch. Limestone is more expensive, but the cost-benefit ratio (cost of product per spat caught) was superior with limestone. This may have implications for future shell plants.

The relationship of seed production and salinity regimes during the previous year was evaluated in another study. Optimum salinity regimes were defined. Such data is very important for making recommendations concerning freshwater diversions from the Mississippi River.

A shellfish hatchery was designed and constructed and hatchery techniques were developed for production of oyster spat and clam larvae. Several research projects are presently dependent on spat and/or larvae supplied from the hatchery.

2. Shrimp--The effect of the opening of the brown shrimp season on inshore brown shrimp populations was monitored. Preliminary findings imply that the opening date could have important bearing on total shrimp landings.

3. Stone Crab--Preliminary analysis of data showed that there was no commercial concentration of stone crabs at the study site; however, interviews with commercial fishermen revealed that they occasionally catch a fair number of stone crabs and that there is a limited local market.

4. Menhaden--In one study, the incidental bycatch in the menhaden purse seine fishery was evaluated. An average value of 2.7% by number and 2.4% by weight was obtained for the bycatch. The effects of the menhaden fishery on other species was considered insignificant.

In another study, the influence of environmental parameters (Mississippi River discharge, temperature, salinity, tide level, rainfall, and wind speed) on menhaden recruitment and oil yield was considered. Results of the study will help biologists predict quantity and quality (maximum oil yield) of the product; this is of great benefit to the industry.

About 15 papers were either published or submitted for publication by lab biologists. It is anticipated that numerous important publications will result from research activities previously outlined. Biologists also gave oral presentations at five different scientific meetings, and attended several others.

#### AQUATIC LIFE MONITORING INVESTIGATIONS

All fish kill complaints reported to the Seafood Division are investigated by the newly-established Fish Kill Section which replaces the Pollution Section which transferred to the Department of Natural Resources. The Fish Kill Section provides personnel to immediately investigate fish kills which are sporadic and widespread.

From May 1981, when the section was established, through December, twenty-seven fish kills were investigated, with locations and probable causes recorded.

## MISSISSIPPI DEPARTMENT OF WILDLIFE CONSERVATION

### Bureau of Marine Resources Saltwater Fisheries Management Division

#### SALTWATER FISHERIES

In the past year, fisheries division personnel have continued to provide technical support to the Commission in all areas of marine fisheries science. In order that the division's recommendations can be based upon the best existing scientific information, fisheries staff members conduct a weekly survey of new scientific literature, extracting and cataloging any information that might have application to the activities of the Bureau. In addition, liaison is maintained with scientists at the Gulf Coast Research Laboratory, the Southeast Fisheries Center and other agencies and institutions involved in marine fisheries science, including the Gulf of Mexico Fisheries Management Council and the Gulf States Marine Fisheries Commission.

In other activities, the staff has been involved in shrimp sampling, oyster sampling, shell planting and other aspects of data gathering to provide a basis for sound management decisions. Also, in cooperation with the National Marine Fisheries Service, we have reached an agreement whereby the state will receive a small computer terminal to store and retrieve data from numerous sources. This will give the Bureau the instant access capability necessary for timely management decisions.

#### DESCRIPTIONS OF FISHERIES

Landings of commercial marine fish and shellfish in Mississippi during fiscal year 1981 amounted to 244.7 million pounds valued at \$28.9 million. This represents a 15.7 percent decline in volume and a 6.5 percent decline in value over the previous fiscal year. The following is a brief summary of each of the state's major fisheries for which data are available and which are publishable.

Shrimp: Heads-off shrimp landings in fiscal year 1981 of 5.1 million pounds, represented a 10.1 percent increase over pounds landed in fiscal year 1980. Shrimp remained Mississippi's most valuable marine fishery in fiscal year 1981 with a value of \$15.8 million, despite a drop in average dockside price from \$3.82 to \$3.13 per heads-off pound.

The 1981 season opened June 9 after analysis of population samples taken by Bureau biologists in cooperation with the Gulf Coast Research Laboratory indicated minimum legal size (68 whole shrimp/pound) would be achieved during the first week of June. Optimum growing conditions on the nursery grounds throughout the spring led to this earlier than usual opening date and to the near record 2.3 million pounds landed in June.

The following table summarizes shrimp licenses issued during fiscal year 1981:

State	Under 30'	30' - 45'	Over 45'	Total
Florida	13	35	59	107
Alabama	130	59	67	256
Mississippi	3,378	338	202	3,918
Louisiana	373	84	46	503
Texas	5	5	11	21
Other	2	1	1	4
TOTAL	3,901	522	386	4,809

Oysters: Landings of 18.3 thousand barrels of which 16.4 thousand barrels were landed from out-of-state represent a 67.8 percent increase over the 10.8 thousand barrels landed last year. The Mississippi catch rose from 248 barrels in fiscal year 1980 to 492 barrels in fiscal year 1981. The overall scarcity of Mississippi oysters is attributed to the heavy mortalities suffered in the spring of 1979. Sampling results indicate that the Bureau's intensive shell planting efforts in 1979, 1980, and again in 1981, totalling over 100,000 cubic yards of clamshells, will result in a significant oyster harvest in the coming fiscal year.

In addition to the cultch planting operation, the Bureau purchased and planted 2,000 + cubic yards of oyster shells and relayed some 22,950 barrels of seed oysters from closed waters to approved state reefs.

Edible Finfish: Landings of edible finfish amounted to 5.46 million pounds, up 3.0 percent over those of the previous fiscal year. The landings value of \$816,600 represents a 51.4 percent decrease over that of fiscal year 1980. This is totally attributable to increased landings of relatively low-priced species (i.e. croaker, up 156%; black drum, up 34%; and sheepshead, up 89%) and a concomitant decline in the landings of premium market species (i.e. red drum, down 67%; spotted seatrout, down 90%; red snapper, down 18%; groupers, down 22%; and flounders, down 52%).

Black drum landings have reached a record high at 2.8 million pounds while mullet landings have declined 34 percent from the record catch of last year. It is speculated that the decline in mullet landings may be indicative of excessive fishing pressure which has been consistently high since 1978 when purse-seining for this species became popular.

In contrast, five-year lows were reported for both spotted seatrout and red snapper at 2.3 thousand and 725.8 thousand pounds, respectively. It is emphasized that these landings data represent reported landings and that the actual landings probably far surpass the indicated figures. The landings data collection and analysis program which is to be implemented in the coming fiscal year should do much towards improving the timeliness and reliability of landings information.

The following listing summarizes the landings trends for each of the major edible finfish species over the past five years (in 1,000 pounds):

	1977	1978	1979	1980	1981
Black drum	20.1	52.9	783.0	2103.0	2813.2
Mullet	389.7	840.8	1355.9	1603.0	1064.4
Red snapper	1805.3	1372.4	1125.2	889.0	725.8
Red drum	63.2	105.2	516.2	90.7	30.0
Flounder	87.0	77.0	85.0	44.9	21.5
Kingfish	167.0	131.0	235.0	137.0	63.5
Sheepshead	56.0	41.0	76.0	50.4	95.2
Spanish mackeral	376.0	268.0	48.0	69.8	17.0
Groupers	93.0	100.0	58.0	35.0	27.4
Pompano	26.0	2.0	7.0	22.7	16.9

Of these indicator species, sixty percent were landed at their lowest levels in five years. The reason for this is unclear; however, it is believed that an increasing amount of the fish caught in Mississippi waters is landed in Bayou La Batre, Alabama, where a large finfish processing sector has developed. These fish would, therefore, not be included in the reported landings for Mississippi although they might actually have been harvested from the waters of this state.

Industrial Bottomfish: Landings data for the industrial bottomfish fishery are not available for publication because of confidential agreements between industry and the National Marine Fisheries Service which is currently collecting the landings statistics. However, industry representatives and NMFS port agents indicate that the decline in landings for the previous two years has continued through the current fiscal year. Landings during the winter months were generally down from last year but spring months experienced gains over the previous year's data. This gain could be the result of the recruitment of harvestable size fish onto the fishing grounds or the fact that the shrimp fleet expanded their operations to include sale of bycatch of ground fish as a result of poor market conditions of the shrimp fishery and exerted additional fishing pressure on the ground fish stocks this spring.

Crabs: Hard blue crab landings continued to decline gradually from the excellent 1978 season. Landings decreased 11 percent from last year, and average price per pound dropped slightly. The lower average price this past year in Mississippi may have prompted fishermen to seek out-of-state markets, thus resulting in a possible artificial decline in crab fishing catch and efforts in state waters.

Menhaden: Menhaden landings during fiscal year 1981 totaled 232,575,200 pounds with an estimated dockside value of \$10,611,680. Landings were down 16.5 percent from last year and 28.9 percent from the year before. Decreases in landings for fiscal year 1981 appear to be the result of fewer fish available for harvest during the opening months April, May and June of the 1981 season. The decline in harvestable fish should not be construed as a permanent deterioration of the fishery as annual fluctuations of fish stocks are considered normal phenomena. Dockside value was down during the 1980 fiscal year when compared with the previous year. This decline was attributed to increases in world supply of all high-protein meals, high exports of fish oil and general trends of economic slowdown in the fishery. Total value for

the fiscal year 1981 landings remained relatively the same as the previous year; however, value per pound of menhaden was elevated to that of fiscal year 1979. The increased price per pound this past year probably reflects an increased demand for the products due to somewhat limited supply.

#### RECREATIONAL FISHERY

Sportsfishing activities followed the usual seasonal trends. Charter catches consisted mostly of bonito, mackerels, and other migratory pelagic species. Reported catches of red drum were conspicuously few. The spring run of lemon fish was better than average with good numbers of medium-sized fish being landed. The reported largest lemon was in the 90-pound class and several 80-pound specimens were also caught. Inshore sportsfishing varied from average to poor. Spotted seatrout, which constitute the principal and most popular inshore game species, were at lower than average densities. Reported catches consisted mostly of small fish averaging under a pound. Even the largest reported specks caught were only in the 6-pound class, and trout of this size frequently took top honors in fishing rodeos. Scant rainfall resulted in heavy saltwater intrusion into the sound; this increased salinity brought mackerels, jack crevasses, and other offshore species well within the range of front-beach wade and pier fishermen. Increased catches of both of these species, as well as small sharks were reported this year. Generally, however, outdoor writers, charter operators, and local fishermen interviewed, agreed that 1980 was certainly not a banner year for saltwater sportsfishing. There appears to be a continuing decline in the catch of individual sportsfishermen; however, this may be largely the result of an increase in the total number of recreational fishermen rather than any specific decline in fisheries stocks.

In June 1981, the National Marine Fisheries Service published a study on big game fishes (blue marlin, white marlin, and sailfish) in the Northern Gulf of Mexico. In contrast to last year's season, recorded fishing effort for these species increased 11 percent. Also, compared to the previous year, there was a 33 percent increase in the number of reported catches in the entire Northern Gulf. Most notable in 1980 was the high catch of white marlin. More white marlin (1,048 fish) were reported caught in 1980 than all three species together (1,029 fish) reported in 1979. The largest reported catches were as follows: blue marlin (738.0 pounds) taken from South Pass; swordfish (310.0 pounds) also from South Pass; sailfish (83.0 pounds) taken off Texas; and white marlin (97.0 pounds) taken off Mobile. Among the best areas for catching billfish in the Northern Gulf, an area due South of Dauphin Island on the 100 fathom curve in which .708 billfishes were raised per hour of trolling and a second area due south of South Pass in which .169 fishes were raised per hour showed the most promise for Mississippi-based anglers this year.

The 1981 Mississippi Deep Sea Fishing Rodeo resulted in two new state records: Bull Dolphin (62 pounds), breaking the previous mark of 49 pounds set in 1974; and White Marlin (74 pounds), breaking the old mark of 55 pounds set in 1978. Both of these fishes were caught off South Pass in Louisiana.

The task of managing recreational fisheries remains exceedingly difficult in the absence of a licensing program for marine sportsfishing. The division of saltwater fisheries can only approximate the number of participants in the

MISSISSIPPI LANDINGS  
(Commercial)

Species	FY 1980 Landings		FY 1981 Landings	
	Pounds	Dollars	Pounds	Dollars
Bluefish	3,800	\$ 825	7,500	\$ 1,627
Blue Runner	8,900	864	9,000	873
Cobia	280	56	---	---
Crevalle	12,300	1,230	1,000	100
Croaker	194,700	48,228	499,200	123,801
Drum, Black	2,103,000	235,972	2,813,200	315,078
Drum, Red	90,680	43,685	30,000	14,460
Flounders	44,900	11,318	21,500	5,418
Groupers	35,020	17,486	27,400	13,673
Kingfish	137,000	28,205	63,500	13,081
Menhaden	278,544,000	10,926,580	232,575,200	10,611,680
Mullet	1,603,000	275,113	1,064,400	183,077
Pompano	22,700	60,025	16,900	44,616
Sea Catfish	850	102	---	---
Seatrout, Spotted	23,480	18,204	2,300	1,785
Seatrout, White	25,120	4,783	16,800	3,192
Sharks	1,530	229	---	---
Sheepshead	50,430	5,703	95,200	10,758
Snapper, Red	889,000	904,296	725,800	740,316
Spanish Mackerel	69,800	16,861	17,000	4,114
Spot	400	60	---	---
Unclassified	13,800	1,904	49,800	6,872
<b>Total Fish</b>	<b>283,874,690</b>	<b>\$12,607,271</b>	<b>238,035,700</b>	<b>\$12,094,521</b>
<b>Shellfish:</b>				
Crabs, Blue, Hard	1,755,000	\$ 417,975	1,560,600	\$ 371,422
Shrimp	1,595,000	17,535,445	5,059,000	15,818,665
Oysters (barrels)	*10,891	392,076	*18,279	658,044
Squid	700	115	---	---
<b>Total Shellfish</b>	<b>6,350,700</b>	<b>\$18,345,611</b>	<b>6,619,600</b>	<b>\$16,848,131</b>
<b>GRAND TOTAL</b>	<b>290,225,390</b>	<b>\$30,952,882</b>	<b>244,655,300</b>	<b>\$28,942,652</b>
*Includes out-of-state oysters landed in Mississippi (10,643-FY80; 16,356-FY81)				

fishing from boat registration and freshwater fishing license information. While the total numbers of participants is unavailable, the composition by residence is documented based upon a 1979 intercept survey. Seventy-four percent are coastal residents of Mississippi; eight percent are residents of non-coastal counties; and twelve percent are residents of other states, principally Alabama and Louisiana. Ten percent of the total sportsfishing catch was found to consist of spotted seatrout. Some 33 percent of the recreational catch is taken from public piers and off the front beaches; 38 percent is accounted for by party and charter vessels; and 29 percent is caught from private or rental boats. Based upon the increase in Mississippi



boat registrations, the latter catch can be expected to increase significantly in the coming years.

ORDINANCES ADOPTED IN FY 81 BY THE COMMISSION ON WILDLIFE CONSERVATION

August 19, 1980 - No. 104: An Ordinance to exempt eel fishing from certain regulations outlined in Ordinance No. 102 to prescribe regulations for the catching of eels.

January 20, 1981 - No. 105: An Ordinance amending Ordinance No. 71 and requiring additional statistical reporting requirements for oysters.

May 22, 1981 - No. 106: An Ordinance to repeal Ordinance No. 92, governing the taking of sponge crabs, and reinstating the language contained in Ordinance No. 74.

ENFORCEMENT

The enforcement Division of the Bureau of Marine Resources collected \$9,605 in fines during fiscal year 1981. Fines collected during this fiscal period were approximately double those collected for the previous year. As in the past, seafood violations accounted for the majority of the fines. The following tables indicate monthly and yearly totals for incidents and arrests.

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ARREST SUMMARY FISCAL YEAR 1981

Year	Seafood Related	Game & Fish Related	Boat & Water Related
July 1980	52	4	20
August 1980	27	2	23
September 1980	31	3	15
October 1980	33	0	1
November 1980	15	9	1
December 1980	11	7	8
January 1981	20	6	1
February 1981	4	0	1
March 1981	3	0	12
April 1981	6	28	23
May 1981	16	7	43
June 1981	120	1	56
Totals	338	58	204

PLUS: Approximately 80 arrests were made in district five during deer season in addition to the 600 total arrests listed above.

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INCIDENT SUMMARY FISCAL YEAR 1981

Incidents (other than arrests; i.e., towing disabled vessels, searching for overdue vessels, recovering bodies of drowning victims, and assisting other enforcement agencies):

July 1980.....	67
August 1980.....	65
September 1980.....	54
October 1980.....	35
November 1980.....	28
December 1980.....	24
January 1981.....	16
February 1981.....	33
March 1981.....	76
April 1981.....	86
May 1981.....	127
June 1981.....	153
TOTAL.....	764

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As indicated in the above tables, the enforcement division is involved in a number of other public assistance activities besides its primary function of enforcing seafood laws. Enforcement officers routinely conduct public relations talks, provide information on laws and licensing, assist owners of waterfront property and other activities. Also, since they have full public powers by statute, conservation officers are always present at water-related functions such as fishing rodeos, regattas, beach parties, church bazaars and others to provide police assistance to participants.

The enforcement division coordinates activities with federal enforcement agencies including the National Marine Fisheries Service, the U.S. Fish and Wildlife Service, the U.S. Coast Guard and the Gulf Islands National Seashore of the National Park Service. This cooperation will insure effective enforcement of endangered species regulations, waterfowl regulations and park restrictions.

#### WETLANDS

Approximately 436,379 acres of tidally influenced waterbottoms and marsh form the coastal wetlands of the State of Mississippi. These tidal marshes serve as a natural habitat and nursery area for approximately two-thirds of the state's commercial and recreational fish and shellfish. Additionally, these areas provide shelter and habitat for numerous species of waterfowl and mammals. Tidal wetlands produce large quantities of plant material annually which serve as a source of organic materials which are in turn consumed by finfish and shellfish. These species make up a significant commercial crop. Furthermore, these marshes serve as a buffer in protecting the shoreline against erosion and help reduce the damages as a result of floods. Perhaps more importantly, they protect the public health and welfare by absorbing silt and certain types of pollutants in our estuarine waters. The overall value of

wetlands is well documented in the scientific literature and has an estimated capital value of \$82,000 per acre. As a result of development projects taking place in our rapidly growing Gulf Coast area, the State was losing valuable coastal wetlands acreage prior to the passage of the Coastal Wetlands Protection Act in 1973. With the passage of the Wetlands Law, the State of Mississippi, working through the Bureau of Marine Resources, has been able to limit the alterations in the coastal area to the projects that were in the public's interest and environmentally acceptable.

Under provisions of the Wetlands law, the Commission on Wildlife Conservation issues permits to applicants wishing to perform dredge and fill operations in the wetlands or to undertake major construction in the wetlands. The Bureau reviewed 14 projects to determine if permits were necessary under the Wetlands Law during fiscal year 1981 and processed 215 applications. Under the provisions of the Wetlands Law, the Bureau is charged with the responsibility of inspecting the coastal wetlands to determine whether or not violations of the law have been or are being committed. During fiscal year 1981, 31 violations of the law were discovered and appropriate actions were taken to restore the coastal wetlands to natural conditions prior to the unregulated activity taking place. During fiscal year 1981, the Wetlands Division worked closely with the U.S. Army Corps of Engineers in carrying out the regulatory process under Section 404, Clean Water Act of 1972 and Amendments. The Bureau participated in the review of the proposed projects advertised by the U.S. Army Corps of Engineers under their Public Notice System, by coordinating reviews and developing comments for Corps of Engineers consideration. A total of 70 Corps of Engineers Public Notices were reviewed and commented on during fiscal year 1981.

The Bureau also worked closely with the Corps and the Bureau of Pollution Control in revising the existing General Permits/Waiver Program. This program molds together the existing federal and state programs for permitting work in the wetlands and waterbottoms of Mississippi for projects of a minor and routine nature. The revisions to the program made during fiscal year 1981 should go a long way toward streamlining the permitting of these minor projects in the coastal area.

The following is a summary of the wetlands activities in which the Bureau of Marine Resources was involved during fiscal year 1980 - 1981.

Project Reviews.....	BMR 14
Applications.....	215
Corps of Engineers Reviews.....	70
Federal/State A-95 Reviews.....	1
Violations.....	31
 Total Cases.....	 331

#### MISSISSIPPI COASTAL PROGRAM

The Mississippi Coastal Program (MCP) was granted full approval early in this fiscal year, culminating several years of effort by Bureau personnel. Governor Winter and the Commission on Wildlife Conservation approved the program as state policy and thereafter the federal Office of Coastal Zone

Management, NOAA and the Department of Commerce concurred with the state's decision. In approving the program, the Governor established an advisory committee whose composition reflects that of environmental, developmental and governmental interests, in addition to providing a means through which the Governor's office can be directly involved with program implementation.

Coastal program implementation became effective October 1, 1980. This program, applicable to various activities in the three coastal counties, received \$800,000 in federal funding for the first year.

The responsibilities of the Bureau of Marine Resources BMR in program implementation can be divided into five areas. These are:

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, national interest, assistance to local government 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 recognizes 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 in the specific areas for which they are adopted.

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

Following implementation, the Bureau initiated numerous projects with local governmental entities and state agencies. Support was given via contract to the Governor's Office of Federal-State Programs, Department of

Planning and Policy (DPP). The contract between the DPP and the Bureau was approved by the Commission effective January 1981. The DPP is responsible for listing and coordinating state and federal coastal actions through regular clearinghouse procedures and notifying state agencies of these activities so appropriate agency comment can be made. Through this procedure, known as policy coordination, all state agencies have the opportunity to comment on public decisions affecting the coast. BMR reviews and assembles all comments to develop a consolidated coastal program consistency statement. In the period October 1, 1980 to June 30, 1981, approximately 150 proposed activities were reviewed under the policy coordination procedure. The majority of these reviews were applications for wetlands permits and requests for federal assistance to local and state governments.

To enhance policy coordination procedures and to expedite the review on activities, the Bureau worked with the U.S. Coast Guard to establish policies and procedures for dealing with Coast Guard activities subject to review under the program. A Memorandum of Understanding was developed by both parties in March, 1981. The Memorandum of Understanding contains a list of actions determined to be consistent with the coastal program.

Two subgrants totaling \$83,500 for Special Management Areas (SMA) were awarded during fiscal year 1981. SMA planning work has begun on the Pascagoula Urban Waterfront and the Moss Point Industrial Park. BMR provides grants to governmental entities for the planning of these areas. The advance planning in the SMA's insures that development will occur in an orderly manner avoiding the problems of piecemeal growth.

Through the coastal program, BMR has initiated a number of changes which will insure more efficient state management of coastal resources. One change has been the Bureau's development and application of the Wetlands Use Plan and Guidelines. This plan is a very effective guide for managing all coastal wetlands because it specifically indicates where activities in the coastal wetlands may be conducted. Guidelines exist which show how activities located in coastal wetlands should be conducted. The Wetlands Use Plan designates certain areas as preservation areas based upon their biological productivity while other wetlands are clearly identified for navigation, recreation, commerce, industry, and preservation of scenic qualities. The use plan and guidelines serve as the basis for permit decisions.

Another positive change has been the Bureau's efforts toward one-stop permitting. Some progress has been made in this area through the use of joint permitting applications for wetlands permits by BMR, the Corps of Engineers and the Bureau of Pollution Control. However, future efforts should result in promoting simultaneous reviews of activities in the coastal area by several permitting agencies.

The coastal program very clearly recognizes the public's interest in the protection and appropriate utilization of the coastal resources. In this respect, changes were made to the MCP during the year to accommodate particular projects which indeed served a higher public interest. Modifications to the program included word changes to the text for increased clarity and a technical revision to allow sand and gravel mining in general use areas after certain requirements are met.

The Federal Office of Coastal Zone Management (OCZM) reviewed the program implementation performance of the State for the period of September 1980 through April 1981 and found "that the State of Mississippi is doing a commendable job in implementing the provisions of the coastal management program and substantially adhering to the approved program. ...as a result significant achievements in improved resource protection and coastal management are occurring." Based on the evaluation, OCZM recommended improvements to the program which should strengthen the ability of the Bureau to deal with more complex coastal issues.

Coastal Energy Impact Program

This program is designed to provide grants and loans to communities affected by the siting of energy facilities. In the fiscal year 1981 funding cycle, the BMR awarded CEIP assistance to eight construction and four planning projects. Projects designated to receive assistance include:

CONSTRUCTION PROJECTS

Title	Amount
Moss Point Boat Launch.....	\$ 56,000
Ocean Springs Inner Harbor Park.....	111,880
Hancock County Road Project.....	260,000
Pass Christian Harbor Project.....	61,000
Marble Springs Restoration.....	37,360
Harbor Square Sewer Line.....	88,908
Ocean Springs Recreation Center.....	67,000
Biloxi School Fan Project.....	27,000

NON-CONSTRUCTION PROJECTS

Title	Amount
Mississippi State University Biological Study.....	31,429
Jackson County Drainage Study.....	76,000
Hancock County Drainage Study.....	33,696
Hancock County Beach Road Study.....	9,250

Outer Continental Shelf Program

The Outer Continental Shelf (OCS) begins at the coastal territorial waters of each state and extends seaward to the limits of the federal waters. The development of oil and gas resources in the Gulf of Mexico OCS region significantly impacts the coastal states in this region. The impacts are largely indirect; however, they affect the socio-economic and environmental conditions of the states whose coastal areas adjoin the Gulf of Mexico. Management of OCS oil and gas exploration, development and production is under the direction of the U.S. Department of the Interior, mainly through the Bureau of Land Management and the U.S. Geological Survey.

Since OCS oil and gas development and production have an influence on the states in the region in which these activities occur, it becomes important for

the affected states to have an avenue to participate in the formulation of decisions pertaining to management of the oil and gas resources of the OCS. For management purposes, OCS activities are divided into three categories: (1) oil and gas leasing, (2) oil and gas transportation, and (3) environmental studies.

State participation is in an advisory role through the Intergovernmental Planning Program. The value of the program is that it provides the State of Mississippi the opportunity for input into OCS management matters. This participation ensures the state maximum benefits from oil and gas activities that affect the state socio-economically and that have the potential to impact the living coastal resources of the state.

It should be noted that 80 percent of the leased OCS acreage and 90 percent of the entire OCS production have been in the Gulf of Mexico. In the first seven months of 1981, the OCS program generated approximately \$6.7 billion in federal revenues.

During fiscal year 1981, the Bureau of Marine Resources staff participated in five OCS-related meetings. In addition to attending the OCS-related meetings, the staff prepared, at the request of the Bureau of Land Management, a report titled Transportation of Oil and Gas in the Coastal Area of the State of Mississippi. This report was prepared as part of the Oil and Gas Transportation Management Plan for the Gulf of Mexico Regional Planning Area. In addition to the above described activities, the staff reviewed a number of documents to remain abreast of OCS oil and gas activities in the Gulf of Mexico Region that may influence the economic and environmental resources of Mississippi. The staff prepared comments to federal agencies on several OCS documents and activities on behalf of the State of Mississippi.

During fiscal year 1981 there were two oil and gas lease sales (62 and A62) in federal waters of the Gulf of Mexico. Sale A62 established a new bidding record of \$7.1 billion which were generated subsequent to the \$6.7 billion in federal revenues previously mentioned.

Regarding future developments, a new 5-year OCS Leasing Program has been proposed. The new program provides for the leasing of 1 billion OCS acres in the next five years. This figure contrasts sharply with the 42-million-acre total which has been leased since 1952.

#### 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 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 waste waters into saleable products, and for Mississippi citizens, enhancing their income and maintaining consistent, profitable income from the sale of products derived or produced from coastal and marine resources.

During fiscal year 1981 the staff of the Bureau identified, collected and reviewed a variety of scientific and technical publications containing information applicable to the management of coastal and marine resources. Information in the publications is largely presented from an academic viewpoint. Thus, the staff has to review, interpret and transform much of the information so that it has practical utility in the management of resources. We also interpret and condense the data so it can be readily understood by persons whose interests and business operations are concerned with development and utilization of coastal and marine resources.

During fiscal year 1981 the staff worked with the seafood processors in addressing methods and means for managing solid waste produced during the processing of shrimp. Efforts were concerned with compacting and drying the waste and were aimed at developing a market for the compacted or dried waste. The staff identified a manufacturing company and assisted the company in designing a prototype compactor to remove a large percentage of free water from the shrimp waste solids and to reduce the volume of the waste. Both effects are important factors in reducing the cost of transporting the waste solids or drying them. As of late fiscal year 1981, the prototype compactor was still being tested to identify any modifications needed prior to commercial production of the compactor.

Also, during fiscal year 1981, the staff collected information on a variety of methods for drying shrimp waste solids in order to stabilize it. Stabilizing the waste would provide greater opportunity for marketing it. Several drying methods were listed as possibilities and one seafood processor actually installed a drying system which was listed as one of the possibilities by the Bureau staff. The drying system chosen by the processor was based upon the utilization of infrared heat. Though the capital investment is relatively small compared to other more conventional drying systems, the economics of the system selected by the processor is not fully known.

In addressing the management of shrimp waste solids, the BMR staff's efforts emphasized identification of viable applications for the waste. Contacts were made with nursery operators, coastal farmers through the Mississippi Farm Bureau, and a research-oriented company which is interested in further developing some research efforts which were initially sponsored by the BMR. These initial research efforts showed that the shrimp waste solids have a potential application as a coating for seeds to protect them against invasion by pathogenic soil fungi and bacteria. Also, as a result of another contact, an organization which cultures aquatic organisms has shown an interest in the shrimp waste.

During fiscal year 1981, leaflets containing information on shrimp waste solids production, compacting, drying and composition were prepared and provided to Mississippi seafood processors. For fiscal year 1982, further efforts will be aimed at developing a viable market or application for compacted waste solids produced by Mississippi seafood processors.

Assistance was provided by the Bureau staff to persons interested in becoming involved in aquaculture in the coastal area of Mississippi. Aquaculture is the controlled cultivation of aquatic animals and plants. Because of the longer growing season in the Gulf Coast area, the potential for



the cultivation of selected organisms having a high sale price is considerable for this area. During fiscal year 1981 the Bureau had several requests for aquaculture assistance and interest in aquaculture is growing in the coastal area. Because of the lack of available staff time to apply to its aquaculture program, the Bureau has been unable to aggressively encourage and advertise aquaculture activities in coastal Mississippi. In fact, during the latter part of fiscal year 1981, the staff was unable to keep fully abreast of the increasing requests for aquaculture assistance. Most of the persons who contacted us became aware of our involvement in aquaculture assistance through word of mouth. During fiscal year 1982 we will enact changes in the Bureau's program activities which will allow the staff to apply more time toward encouraging aquaculture efforts in the coastal region of Mississippi. The early efforts have been and continue to be aimed at developing aquaculture operations which diversify and supplement income from an existing business. For the coastal area, organisms other than catfish are emphasized in the Bureau's aquaculture program. Highly technical information developed by research organizations has been reviewed, evaluated and is being transformed by the Bureau staff into information which can be readily understood and applied by aquaculturists in the coastal region of Mississippi.

#### INTERAGENCY COORDINATION AND ASSISTANCE

During the course of a given fiscal year, the Bureau staff becomes involved in a number of special projects which usually are of short duration. Most of these special projects are at the request of an agency and involve participation in their program, usually by providing professional advisory service and consultation.

During fiscal year 1981, the Bureau staff participated in the Water Resource Research (WRR) Program. The WRR is headquartered at Mississippi State University and BMR participation involved providing professional advice regarding long-range program plans for the WRR and review and comment on proposals submitted to the WRR for funding.

Coordinated efforts between the Mississippi Bureau of Pollution Control and BMR occurred during fiscal year 1981 and included work toward the Development of an oil spill contingency plan for the State of Mississippi in addition to wetlands permits and coastal program commitments previously mentioned.

The Bureau was involved in communications with the U.S. Fish and Wildlife Service located in Slidell, Louisiana regarding the development of their project entitled "Mississippi Deltaic Plain Characterization Study." The Service requested that we review progress on the study and the Bureau has requested information which was developed during the study and which is useful to the Bureau.

The Bureau staff participated in the Mississippi-Alabama Sea Grant Consortium Program during fiscal year 1981 by serving on the Consortium's advisory Committee. Assigned by the Bureau Director to serve on the Committee, the staff provided advice for program direction and reviewed and commented on research proposals which were submitted to the Consortium for funding.

In addition to the previously mentioned special projects, the staff conducted numerous other reviews and provided comments on a variety of special topics, proposals and papers as responses were needed.

#### PUBLIC AWARENESS

Public education/information efforts increased during fiscal year 1981. The BMR expanded its circulation of its newsletter while providing additional news releases when exceptional activities were conducted. We also developed numerous brochures and posters.

The Bureau co-sponsored and participated in several workshops/seminars dealing with marine-related topics which reached a wide variety of citizens. The Bureau maintained a public information booth at the Mississippi Deep Sea Fishing Rodeo on July 4th. Brochures, coastal program information, Mississippi Outdoors and other literature were distributed to the general public through these forums.

The writing of a booklet detailing the Mississippi Coastal Program was initiated and a final draft completed. Also, a wetlands informational poster was designed by the commercial art department at the University of Southern Mississippi. Brochures dealing with shrimping and crabbing were designed, printed and made available for distribution.

The Saltwater Fisheries Division made numerous talks at symposia as well as local Rotary, Kiwanis, Lions and other clubs and Chambers of Commerce. They also developed "A Guide to Saltwater Fishing Regulations," as well as a comprehensive guide to sportsfishing in the coastal waters of Mississippi.

Staff members from the Wetlands, Scientific/Statistical, and Coastal Program Divisions continue to work with applicants for wetlands permits as well as new industrial development to assure timely permitting procedure.

TEXAS PARKS AND WILDLIFE DEPARTMENT

Texas Parks and Wildlife Coastal Fisheries  
Research Management Programs

There were three major projects during fiscal year 1981 dealing with finfish resources. These included: (1) monitoring the availability of adult and juvenile finfishes, (2) monitoring the commercial and recreational harvest of finfish, and (3) the enhancement of red drum in Texas Bays.

To monitor the relative abundance of adult finfish, 600-foot-long gill nets with individual 150-foot sections of 3-, 4-, 5-, and 6-inch stretched mesh were used in eight Texas bays. Trammel nets also were used to determine the availability of adult finfishes. Bag seines (60 feet long) were used to determine the abundance of juvenile finfishes. Over 4,500 fish were tagged including 3,643 red drum. Growth, movement, and mortality data were obtained from returned tagged fish.

Catch rates and minimum finfish harvest by commercial fishermen were determined from Individual Sales Transaction receipts. Catch rates and minimum finfish harvest by recreational fishermen fishing from boats were determined through interviews.

Techniques for obtaining predictable spawns of adult red drum were refined during 1981. Growth and dispersion of fingerlings stocked into Texas bays were monitored through the use of various sampling gear.

Data collected from these projects were relied upon heavily in the legislative process through which the prohibition of sale of native red drum and spotted seatrout resulted. Additional size, bag, and possession limits applicable to both species for all fishermen were also included in the legislation designed to protect these species.

The shellfish program consisted of five major projects including: (1) penaeid shrimp population monitoring in bays for availability, size, and movements; (2) penaeid shrimp population monitoring in the Gulf of Mexico; (3) oyster population monitoring and enhancement; (4) blue crab population monitoring; and (5) monitoring of mud-shell operations to ensure that damage to fish and wildlife did not occur. Population monitoring of valuable commercial and sport species was carried out to determine trends in relative abundance, and to determine the factors that affect abundance in order to recommend closed seasons and other management options.

For many years Texas has closed its Gulf territorial waters (9 nautical miles) in the Gulf of Mexico to shrimping during June 1 - July 15 to allow small shrimp leaving the bays to grow to a larger size before harvest and minimize waste from discarding. This season date may be changed if biologists find that there may be an earlier, later or prolonged emigration of brown shrimp. In 1981 an early emigration occurred and the season was set at May 22 through July 15.

The state closure which served well to protect small shrimp, was only partially effective because small shrimp were still captured beyond the

State's territorial sea. This year U.S. waters were closed out to 200 miles to complement the state's management program. This was done through the Gulf of Mexico Fishery Management Council's plan for shrimp. Preliminary results indicate that the closure off Texas was a success and record to near record catches have been reported.

## GULF STATE-FEDERAL FISHERIES MANAGEMENT BOARD

During the period October 1, 1980 to September 30, 1981 three meetings were held by the Gulf State-Federal Fisheries Management Board: (1) October 15, 1980 - Orlando, Florida, (2) March 18, 1981 - Brownsville, Texas, and (3) May 29, 1981 - Kenner, Louisiana.

The Gulf State-Federal Fisheries Management Board is comprised of Gulf States Marine Fisheries 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, and the executive director of the Gulf States Marine Fisheries Commission are nonvoting 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 National Marine Fisheries Service.

The Gulf States Marine Fisheries Commission 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:

Despite the need and request for an additional \$8.5 K to support the Board's programmatic functions, its request was denied and that support remains at \$16.5 for fiscal year 1981.

During the year the contract for legal ramifications of the discussion and implementation of various management options for Gulf of Mexico Menhaden was monitored. The contractor and the Menhaden Advisory Committee had detailed discussions of all the drafts submitted. These modifications were not of substantive nature and were incorporated by the contractor. The final report was submitted, accepted, and the contract completed. A final report was distributed to State, Federal, and other interested agencies and parties.

The second year contract for recreational shrimp data was also monitored. Few changes were needed since this was the second year of the study and the problems identified during the first year were therefore avoided. The final report was submitted, accepted, and the contract completed. This information was distributed by the Commission in published form to States, Federal agencies and universities as well as interested individuals. The raw data gathered was stored with the National Marine Fisheries Service Washington office as part of the overall National Recreational Survey they conducted using the same contractors.

The Board supported the Blue Crab Subcommittee (of the Technical Coordinating Committee) in its workshop on the recognition, handling and shedding of soft shells for that species. This support, while minimal in dollar amount, has enabled the blue crab studies in the Gulf to coordinate and advance the knowledge of this species greatly.

Programs for fiscal year 1982 funding and work were submitted to the Technical Coordinating Committee for their review and recommendations to the Board. Based on this input, the Board acted at the Call Meeting of May 19, 1981 in Kenner, Louisiana to fund the following projects:

- (1) Fund the Blue Crab proposal for larvae studies at \$14.6 K.
- (2) Fund a study to determine estimates of natural and fishing mortality and shrimp recruitment at \$19.6 K.
- (3) Develop a Blue Crab planning profile or feasibility study at \$10 K plus travel expenses at \$5 K.

During the project year the Technical Coordinating Committee and the Board were given an overview of a new State/Federal initiative for coordinated monitoring and assessment in the Southeast. The Southeastern Area Monitoring and Assessment Program (SEAMAP) was discussed at both the fall and spring meetings of the Gulf States Marine Fisheries Commission and a new initiative in this area will probably take place in the fiscal year 1982 time frame.

The Commission again supplied the administrative support for all the GS/FFMB actions including meeting arrangements, travel payments, contract development, contract monitoring and information distribution from meetings and the contracts as well as other necessary functions as prime contractor for the GS/FFMB.

The Board elected Mr. Richard K. Yancey (Mississippi) Chairman, and Mr. Harold Allen (NMFS/St. Petersburg, Florida) Vice-Chairman to serve in 1981.

## SOUTHEAST REGION

### NATIONAL MARINE FISHERIES SERVICE

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

#### INTRODUCTION

This consolidated report of the Southeast Regional Office and the Southeast Fisheries Center highlights the year's activities and accomplishments of the National Marine Fisheries Service (NMFS) organizations located in the southeastern United States.

SOUTHEAST REGIONAL OFFICE  
St. Petersburg, Florida

Activities of the Southeast Regional Office have been carried out through four principal divisions: Fisheries Development Division, Fisheries Management Division, Environmental and Technical Services Division, and Law Enforcement Division.

#### FISHERIES DEVELOPMENT DIVISION

The Fisheries Development Division began its third full year of implementation of a regionwide cooperative program for coastal pelagic and demersal underutilized species involving several state agencies, academic institutions, other federal agencies, and industry. The Division administered \$1.3 million of Saltonstall-Kennedy projects in the Southeast Region. Projects were selected according to their importance to both commercial and recreational fisheries by a public advisory panel.

The Financial Services Branch was processing its 697th Fishing Vessel Obligation Guarantee application by the year's end. New case activity and new vessel construction continued at a slow pace due to current economic problems affecting the southern shrimp fleet. The Branch processed 19 new Capital Construction Fund agreements in Fiscal year 1981. The Region presently has 425 active Capital Construction Fund agreements with total objectives of \$227 million. There were seven Section 10 claims during the period requesting \$33,000 in damages. There were 29 cases processed under Title IV claims, requesting \$163,000 in damages.

The Fisheries Loan Fund program was reactivated on January 2, 1981. To date the Branch has received 193 applications, with 93 being funded and total disbursements amounting to \$4.6 million.

The Commercial Development Services Branch published a Directory of Southeast Region Exporters and a fact sheet booklet for use in domestic marketing campaigns. A market opportunities newsletter was published throughout the year. Personnel participated in international food shows in Paris, France and New Orleans, Louisiana. Thrice weekly, satellite charts of the Gulf Stream were mailed to about 20 fish buying establishments who posted

them for longline fishermen. The Branch monitored exporting activity and recorded increased exports to Venezuela, Nigeria, and Egypt.

The Fisheries Development Analysis Branch has been actively developing its analytical capability to provide economic analyses of fisheries development projects conducted by NMFS. The Branch also commented on regulatory analyses for fishery management plans, conducted the Fishery Market News Service in the southeast and administered provisions of the Fishermen's Contingency Fund.

The Recreational Development Services Branch continued its efforts during the past year to address problems of concern to the marine recreational fishing community. The charter and headboat fishing fleet was inventoried in Texas and Florida to update our mailing list and ultimately improve communication with this important industry. As in previous years, the Branch assisted in implementation of the National Marine Recreational Fishing Survey, assisted Southeastern states in their artificial reef development programs and participated in the activities of numerous sport fishing organizations. Most importantly, the Branch participated in a NMFS Task Group that developed and is now implementing the Agency's first formal marine recreational fisheries policy.

#### FISHERIES MANAGEMENT DIVISION

##### Magnuson Fisheries Conservation and Management Act (MFCMA)

A total of 23 fishery management plans (FMPs) are currently in some phase of development. The Shrimp Plan for the Gulf of Mexico was implemented in May 1981 and is presently being amended to allow for future modification of the Texas and Tortugas closed areas. An amendment is also being proposed for the preliminary fishery management plan for Atlantic billfishes and sharks that will reduce gear conflicts between domestic and foreign fishermen, increase the availability of billfishes to domestic fishermen, and aid in rebuilding the overfished blue marlin stock. The Stone Crab Plan that was implemented in September 1979 is also undergoing amendment to provide for greater management flexibility and procedures for modification of the shrimp/stone crab line of separation.

Both the Spiny Lobster Plan (Gulf and South Atlantic) and the Coastal Migratory Pelagics Plan (Gulf and South Atlantic) have been recommended for approval, and implementation is expected early in calendar year 1982. FMPs for Reef Fish (Gulf) and Spiny Lobster (Caribbean) are undergoing Secretarial Review and the Coral Plan is projected for submission to the Secretary during 1982. The Operations and Monitoring System has been implemented and is currently being used to evaluate the Stone Crab and Shrimp FMPs.

##### Foreign Fishing Permits

Permit applications for 25 U.S. snapper/grouper vessels were received and approved for fishing in the Mexican Economic Zone for the period from August 1 through December 29, 1981. The U.S./Mexican Fishing Agreement expired on December 29, 1981.



## Endangered Species and Marine Mammal Permits

Twenty-three (23) permit applications for endangered species and marine mammals were reviewed and recommended for approval during the past year. Of that total, 15 permits have been granted and one was denied; action is still pending regarding the others.

## ENVIRONMENTAL AND TECHNICAL SERVICES DIVISION

### Environmental Assessment Branch

During the past year, the Environmental Assessment Branch received for review 6,399 applications for permits to perform work in navigable waters, 39 environmental impact statements, 135 federal water development projects, and 1,016 permit applications for discharge of various pollutants into U.S. waters under the Environmental Protection Agency's National Pollutant Discharge Elimination System Program. The Branch also reviewed and commented on eight documents concerning Coastal Zone Management/Marine Sanctuary plans being developed by the coastal states, Puerto Rico, and the Virgin Islands.

### Information Management and Analysis Branch

The Information Management and Analysis Branch continued to work toward improving information flow throughout the fishing community. Additional terminals are being set up within the Regional Office to improve access to data stored in the Regional data bases. An automated list of members of the fishing community is now in operation to speed up the process of getting information to the community. Additional equipment is being put in place to further improve this service. Plans to transfer the Regional Office data bases presently on the Macon computer to the NMFS computer located in Seattle, Washington, were made. This transfer should be completed in 1982.

### Grant Program Administration Branch

The Grant Program Administration Branch assists states with the execution of grants and cooperative agreements funded under the Commercial Fisheries Research and Development Act (P.L. 88-309) and Anadromous Fish Conservation Act and the Regional State/Federal Fisheries Management Program. The eight Gulf and South Atlantic states obligated \$1,642,400 of P.L. 88-309 Federal funds on 20 projects in fiscal year 1981. P.L. 89-304 Federal funds in the amount of \$331,800 were utilized for seven projects. These grants-in-aid supported activities to provide for management of fishery resources in the Territorial Sea and the Fishery Conservation Zone.

State/Federal Cooperative Agreements with the Gulf States Marine Fisheries Commission and the States of Georgia, North Carolina and South Carolina provided funding for a Cooperative Statistics Program in the South Atlantic and for the continuation of Interjurisdictional Conservation and Management Programs in the Gulf of Mexico.

### Marine Mammals and Endangered Species Branch

During fiscal year 1982 major Marine Mammals and Endangered Species Branch activities revolved around the incidental take of sea turtles in the shrimp fishery, the protection of sea turtles which could be adversely impacted by dredging, preparation of a sea turtle recovery plan, and development of a sea turtle poster.

Significant efforts went into distributing information on an excluder device which, when installed in shrimp trawls, virtually eliminates the incidental take of sea turtles as well as other unwanted by-catch.

Regulations were issued which modified sea turtle resuscitation techniques. These new regulations allow an alternate method of resuscitation, permit the relocation of sea turtles, and specify procedures for release of turtles from vessels.

#### LAW ENFORCEMENT DIVISION

During 1981, the Law Enforcement Division has documented 92 violations of the Magnuson Fishery Conservation and Management Act of 1976 (MFCMA); 26 violations of the Marine Mammal Protection Act of 1972 (MMPA) with \$16,000 proposed penalties; 2 Bluefin Tuna violations with \$3,000 proposed penalties; and 150 violations of the Endangered Species Act of 1973 (ESA) with proposed penalties amounting to \$104,250 and 1,046 pieces of property forfeited.

Of the 270 violations detected in fiscal year 1981, twenty-one percent were criminal charges.

#### Significant Magnuson Fishery Conservation and Management Act Cases

Of the 92 MFCMA cases, there were 43 violations of the Shrimp Fishery Management Plan and 22 violations of the Stone Crab Fishery Management Plan detected with proposed penalties amounting to \$52,155 and \$33,000 respectively.

The Federal Grand Jury in Tampa, Florida has indicted 2 commercial fishing corporations owned by Taiwanese nationals and 4 Taiwanese citizens. These corporations and their officers and agent are charged with conspiring to defraud the people of the United States and its governmental agencies, i.e., the Department of Commerce, the National Oceanic and Atmospheric Administration, the Department of Transportation and the United States Coast Guard. The agent is further charged with felony violations of making false and fraudulent statements to the U.S. Coast Guard in order to fraudulently obtain U.S. flag status for 6 fishing vessels. The defendants are further charged with violations of the MFCMA. One defendant has been arrested and is currently out on \$100,000 bond. Penalties totaling from 5 to 37 years imprisonment may be levied against the various individuals charged. One corporation faces a maximum fine of \$710,000 while another \$510,000. The U.S. Attorney stated that this was one of the first prosecutions of its type to be brought in the United States. The defendants are alleged to have obtained gross proceeds of approximately \$1.5 million from the sale of fishery resources reserved solely to American citizens. The investigation was a joint effort by NMFS, Coast Guard Intelligence, Customs, and Office of Audit of the Department of Commerce (Inspectors General Office). The investigation was initiated and led by a NMFS Special Agent.

### Significant Marine Mammal Protection Act Cases

Two men pleaded guilty in North Carolina for killing an Atlantic Bottlenose Dolphin. Each individual was given sentences of: 1 year (suspended), \$2,000 fine (suspended), active probation for 1 year and community work for 120 hours at the NMFS Laboratory, Beaufort, North Carolina.

### Significant Endangered Species Act Cases

Three defendants were arrested and convicted in Miami District Court for violating the ESA by illegally importing 2 Hawksbill sea turtles and were assessed \$2,500 in fines.

Three fishermen aboard their vessel off the island of Culebra were arrested by NMFS for taking a Hawksbill sea turtle with a spear. In the first action of its kind in the Caribbean, the three men were tried in U.S. District Court, San Juan, and convicted on all charges. One of the subjects was found guilty of felony immigration violations and deported.

The joint task force between NMFS, Customs, Fish and Wildlife Service, and the Department of Justice implemented in 1979 resulted in a 14 count indictment. All defendants pleaded guilty with \$73,000 in fines collected and an additional \$30,000 suspended. Approximately 115 cases are expected to be processed civilly in the near future. These cases involve the illegal importation of sea turtle meat, totaling \$1 million in retail sales.

### Other Significant Events

During an enforcement boarding of a U.S. tuna vessel at Mayaguez, Puerto Rico, a NMFS Special Agent was assaulted by the captain of the ship. The captain was subsequently tried, convicted, and fined in U.S. District Court, San Juan.

While making fisheries boardings off Everglades City, Florida, a NMFS Special Agent and 2 officers of the Florida Marine Patrol arrested 9 individuals and seized 2 boats and 27,000 pounds of marijuana. Cases were tried in Federal District Court, all defendants were found guilty and are currently awaiting sentencing.

### SOUTHEAST INSPECTION OFFICE St. Petersburg, Florida

The Southeast Inspection Office provides a voluntary fee-for-service inspection for brokers, wholesalers, importers, exporters, distributors, transporters, processors, military, schools, and institutions.

Inspections are made in warehouse and processing establishments. Sanitation inspections are performed and examinations are made on fishery products including shrimp, scallops, oysters, lobsters, finfish, and canned or smoked fishery products.

Thirty-three fishery establishments, located throughout the southeastern region and Puerto Rico, participate in the inspection program.

Federally inspected plants in the southeast region produced 197 million pounds of product of which 107 million pounds were federally inspected. Inspectors inspected 32 million pounds of product located in warehouses and cold storage facilities throughout the region of which 22 million pounds were certified for export out of the United States to Europe, Africa, and South America.

NATIONAL MARINE FISHERIES SERVICE

Southeast Regional Office - Fiscal Year 1981 Fund Allocation  
(dollars in thousands)

Conserving marine resources		1549
Environmental impact analysis	1218	
Marine mammals conservation	176	
Endangered species conservation	155	
Restoring and increasing fishery resources		489
Anadromous fisheries grants	332	
Aquaculture research and development	157	
Fisheries development and utilization		2034
Fisheries development research and services	554 <sup>1</sup>	
Fisheries development and utilization projects	1480 <sup>1</sup>	
Managing and using fishery resources		3581
International fisheries management	66	
State-federal fisheries management	502	
Fisheries grants to states	2296	
Fisheries enforcement and surveillance	545	
Economics and commercial fisheries statistics	93	
Marine recreational fisheries	79	
Fisheries financial support services		201
Capital construction fund	21	
Federal ship financing fund	180	
Administration		970
Allocation for space rental costs		132
Total		8956

<sup>1</sup>One-time allocation for special projects under Saltonstall-Kennedy Act.

SOUTHEAST FISHERIES CENTER  
Miami, Florida

The NMFS Southeast Fisheries Center (SEFC) is comprised of the Center Director, his staff, the Technical and Information Management Services (TIMS), and six supporting laboratories. The Center headquarters is located in Miami,

Florida, near the coastal geographical center of the area of its responsibilities. The principal area in which the SEFC is responsible for NOAA/NMFS research extends from the U.S. Mexican border through the Gulf of Mexico and the Caribbean Sea to the Atlantic coast of South America (to the southern extent used by U.S. fishermen) and up the U.S. Atlantic coast to Cape Hatteras, North Carolina. In order of their location, from west to east, the SEFC laboratories are:

1. Galveston Laboratory - Galveston, Texas
2. Mississippi Laboratories - facilities at Bay St. Louis and Pascagoula, Mississippi
3. Panama City Laboratory - Panama City, Florida
4. Miami Laboratory - Miami, Florida
5. Charleston Laboratory - Charleston, South Carolina
6. Beaufort Laboratory - Beaufort, North Carolina

The permanent staff comprises 277 full-time scientific, technical, and support people. As many as 100 additional people provide support on a less than full-time basis. The total budget from all sources in fiscal year 1981 was \$18.3 million. Other federal agencies provided \$2.9 million of the total for research of mutual interest. The FRS OREGON II and R/V ONSLOW BAY research vessels were available for SEFC work in fiscal year 1981. The MISS JEANIE provided a platform for sea turtle surveys and turtle excluder trawl work.

Species research programs concentrated on groups of like fishes. Each program makes an effort to collect catch-and-fishing effort, socio-economic, and environmental data, and biological samples in areas where the fish occur. In the laboratory, each program conducts fishery analyses of samples and evaluates field data to determine age, growth, sex, maturation, food habits, migration patterns, stock densities, etc. These data are placed into the computer data base and then used to describe the stocks, and to develop models that will permit predictions of maximum sustainable yield (MSY) and optimum yield (OY).

Each research program is planning to provide the necessary information (1) to support the fisheries management councils and the Secretary of Commerce for fishery management plan formulation and review, implementation and operation, and evaluation; (2) to support the United States in international negotiations regarding use of fisheries resources; and (3) to provide constituency services for effective use of fishery resources.

Research was concentrated in species oriented programs for shrimp and groundfish, coastal pelagics, marine mammals and endangered species, menhaden and herrings, oceanic pelagics, reef fish, and functional programs for aquaculture, habitat protection, marine contaminants, and fishery development and utilization. The national program research areas included fisheries engineering research and the National Microconstituents Task.

The Aquaculture Program addressed the economic studies of various aquaculture industries that can be used by investors to evaluate investments and improvements in permit procedures, as well as the general advancement of U.S. aquaculture. The program consisted of an aquaculture nutrition program at Charleston and a comprehensive shrimp aquaculture program at Galveston.

The major user groups for the information generated in the program were private companies with ongoing aquaculture programs, private citizens interested in smallscale aquaculture operations, related state and federal programs, and third world countries with active aquaculture programs.

The maturation and spawning of one species of shrimp were successful and, in cooperation with Texas A & M University, a study was initiated to evaluate a 2-crop system in south Texas. Results indicate that it is possible to grow out two crops of shrimp with production up to 1,000 pounds/acre for each crop.

The Coastal Pelagics Program conducted studies on the age and growth, reproduction, food, and stock identity of king mackerel, Spanish mackerel, and bluefish. Studies on the effects of temperatures on recreational catches of coastal pelagic fishes in the northeastern Gulf were completed. Exceptionally cold winters were followed by poor king mackerel catches. A special project on the by-catch of small king mackerel in the Spanish mackerel fishery was also completed. King mackerel comprised less than one percent of total Spanish mackerel landings. Manuscripts on several aspects of the biology of coastal pelagics were in various stages of preparation for publication. These included food habits of mackerels, age and growth of king mackerel, reproduction in Spanish mackerel, size and sex composition of king mackerel, age and growth of Spanish mackerel, and heavy metals in otoliths of king mackerel.

The purpose of the Fisheries Development and Utilization Program is to facilitate the positive, economic growth and stability of the fisheries industries of the southeast region of the U.S. and to encourage the rational mobilization of underutilized fishery resources to satisfy consumer needs and desires for a variety of high quality and economically priced seafood products.

The goals of this program for fiscal years 1981-1984 are to: (1) develop engineering, technological and economic information on the application of conventional and/or new handling and processing systems for better utilization of southeast species; (2) develop information on the chemical composition and nutritional value of underutilized southeast species and on the edibility, physical and storage characteristics of product forms appropriate for domestic and export markets; and (3) provide utilization information and demonstrations to assist in the development and maintenance of the fishing industries of the southeast region.

The Habitat Protection Program was continued in the northern Gulf of Mexico during 1981 in a joint National Oceanic and Atmospheric Administration research effort by the Southeast Fisheries Center's Beaufort Laboratory and the Atlantic Oceanographic and Meteorological Laboratory (AOML). This program utilized chemical and biological expertise from both laboratories to determine the effects of contaminants (particularly trace metals) on larval fish food web dynamics. Primary study areas are continental shelf waters off Cape San Blas, the Mississippi River and Galveston and target species of larval fish are Gulf menhaden (Brevoortia patronus), Atlantic croaker (Micropogonias undulatus), and spot (Leiostomus xanthurus). Studies were conducted to determine the age structure, growth rate and food habits of these three species as well as the sensitivity of important food items of larval fish to trace metal additions. In 1981, two 15 day and one 30 day cruises were

conducted in the northern Gulf of Mexico to (1) obtain samples of larval fish and their food, (2) obtain estimates of primary productivity and (3) conduct experiments on shipboard to determine the sensitivity of phytoplankton and bacteria to trace metal additions.

The Invertebrates (Excluding Shrimp) Program was reactivated after a one year lapse because of the development of FMP's for stone crab and spiny lobster. A stock assessment was done for stone crab, aspects of the spiny lobster were investigated. A brief investigation was made on the magnitude of the precious coral fishery.

The Marine Contaminants Program addressed contaminant problems as they were perceived at the regional level to impact indirectly on human health. In doing so, problems common to habitat and related investigations were subjected to critical examination from a somewhat different perspective. This approach constituted a vital link between the environmental and public safety aspects of pollution-induced damage, and provided a frame work for improved transfer of scientific and technical information between these two major research areas.

The goals of this program for fiscal years 1981-1984 are to: (1) determine the significance of the chemical forms and biochemical interactions of critical heavy metals (mercury, selenium, cadmium and lead) in relation to the safety of specific seafoods; (2) determine the occurrence, environmental fate and ultimate dietary forms of petroleum hydrocarbons, PCB's and chlorinated pesticides in representative species of the South Atlantic and Gulf of Mexico; (3) determine the selective toxic actions of specific petroleum hydrocarbons on mammalian cells cultured in vitro, in reference to contaminated seafoods; (4) develop and promulgate through technology transfer reliable procedures for measuring viral contamination in the molluscan shellfish resources of the southeast region, with emphasis on Hepatitis A; and (5) develop and apply a predictive capability to assess potential human health hazards from bacterial pathogens and chemical pollutants in estuarine areas of the southeast region.

The Marine Mammals and Endangered Species Program conducted research to provide methods for the conservation and protection of endangered and threatened species of animals. The major endangered and threatened species in the southeast are five species of sea turtles.

The sea turtle population model and population estimates for the Cape Canaveral Ship Channel (where sea turtles in this area have their greatest abundance) were updated, based on additional survey cruises.

A Sea Turtle/Dredging Task Force was organized and operated to reduce incidental mortality by channel dredging.

Coordination of the IOCARIBE sponsored Western Atlantic Turtle Symposium (WATS) and its research efforts continued, with 27 countries joining the effort. Headstart research continued on Kemp's ridley sea turtles.

A Turtle Excluder Device (TED) was developed and tested; the TED reduces incidental catch and mortality of sea turtles by shrimp trawling, with no

significant shrimp loss resulting from its use; the technique is being made available to the shrimp industry.

A limited project of monitoring incidental catch of sea turtles by shrimp trawls was continued.

Samples of sea turtle meat were identified biochemically for law enforcement purposes, and the identification technique was documented.

Initial impacts of habitat alteration on sea turtles were studied.

Small contracts were developed for R & D investigation of unknown aspects of sea turtle life history that are necessary for assessment of endangered and recovery status (sex identification, behavior, physiology, age and growth, and cause of death).

A sea turtle and marine mammal stranding and salvage network for the southeastern United States was maintained.

The principal marine mammal species researched was the bottlenose dolphin. Contract work evaluated the inshore populations of porpoises and determined local herd biology.

Aerial surveys to count dolphins (and sea turtles) in 7 priority inshore areas of the southeastern U.S. were conducted; population estimates were made for four of these areas.

A resighting and marking study of bottlenose dolphins in the Indian and Banana River complex of Florida was completed.

The Menhaden and Herrings Program continued with research on Gulf and Atlantic menhaden. Preliminary and final forecasts of 1981 purse-seine catches for Gulf and Atlantic menhaden were circulated.

A report to state and industry members on the biological status of Gulf and Atlantic menhaden fisheries and resources was prepared.

A manuscript on basic population and fishery characteristics estimates for the Gulf menhaden fishery was submitted for publication.

A data bank was created on: (1) daily landings of purse-seine catches for age and size of Gulf and Atlantic menhaden throughout fishery and season; (2) daily vessel catch statistics from all active plants throughout fishery and season; (3) numbered ferromagnetic tags recovered from Gulf and Atlantic menhaden at all reduction plants throughout fisheries and season; (4) recovered injected "salted" numbered tags from all Gulf and Atlantic menhaden reduction plants for determining "wild" tag recovery efficiency rates; and (5) purse seine fleet fishing activity, fleet composition and reduction plant activities.

Contracts dealing with captain's daily fishing reports, Atlantic menhaden simulation model, and nominal-effective effort were developed and monitored.



Calculations of fishing mortality, exploitation rates, and population size in the Atlantic and Gulf fishery were updated through 1980.

The National Microconstituents Program provided information that assisted in prudent management and utilization of fishery stocks and assured the safety of fishery products.

The fiscal years 1981-1984 goals are: (1) develop and maintain a comprehensive, unified national contaminants data management system; (2) determine the relative risk to consumers of selected trace elements (heavy metals) in seafoods; (3) determine the potential significance of petroleum hydrocarbon residues in selected fish and shellfish from a public health perspective; (4) develop a sensitive and specific test for ciguatoxin; and (5) determine the potential significance of seafoods to dietary intake of selected contaminants by U.S. consumers.

The Oceanic Pelagics Program studies Atlantic Bluefin tuna and billfishes. Its primary goal is to provide scientific information on the status of stocks of these species for U.S. Commissioners of the International Commission for the Conservation of Atlantic Tunas (ICCAT), the regional fishery management councils, and the director of the NMFS Northeast Region, who is responsible for management of the United States bluefin tuna fisheries.

Bluefin tuna research is directed at tagging, aging catch/effort, and catch composition studies of United States fisheries. The resulting data are used to make population analyses which continue to show downward trends in the size of the bluefin populations.

Stock assessment documents on bluefin tuna, blue marlin, white marlin, and sailfish were prepared for the 1981 ICCAT meetings.

At the 1981 ICCAT meeting the Commission voted to stop all fishing for bluefin tuna in the Western Atlantic Ocean except for 800 metric ton scientific quota. This decision was based on the continued downward trends shown by the scientific studies.

The Reef Fish Program conducts research on fish which inhabit rough bottom and reef areas on the Continental Shelf. Life histories, population dynamics, food, feeding habits, kinds and numbers of fish on a reef are among the data parameters being collected. The reef communities are extremely complex, with more than 50 species being important.

A reef fishery management workshop was conducted to bring the newest and most effective ideas and techniques to reef fishery research.

Estimates were developed of the magnitude of the 1979 South Atlantic headboat catch.

A relationship was developed between the capture depth and mortality of reef fish for red pogy, vermilion snapper and red snapper.

The Shrimp and Bottomfish Program is responsible for research on shrimp and bottomfish in the Gulf of Mexico, South Atlantic Ocean and Caribbean Sea. Major resources investigated were the white, brown and pink shrimp stocks in

the Gulf of Mexico, the brown and pink shrimp stocks off northeastern South America and the bottomfish stocks off the northcentral Gulf of Mexico.

The overall thrust of this research program is to provide the best scientific information possible to the appropriate Fishery Management Councils for developing and monitoring of Fishery Management Plans. Major research priorities established by the Councils are information on growth, mortality, migration, update estimates of MSY and ecology of the major shrimp and bottomfish species, along with continued collection of reliable recreational and commercial catch statistics and pertinent economic information.

The Shrimp Fishery Management Plan was approved and implemented in 1981.

The management measure to close the offshore waters off Texas from June to July was monitored and evaluated by conducting extensive cruises and utilizing catch and effort data to determine the impact of this management measure.

The Fishery Management Program acquired knowledge and information, including statistics, on fishery conservation and management as required by the Magnuson Fishery Conservation and Management Act. The Center carried out investigations to provide the information and data required to operate fishery management plans and conducted research to improve knowledge of fishery resources and to develop new techniques and scientific principles of fishery management.

In 1980 and 1981 fishery management plans were implemented in the southeast for the stone crab and Gulf shrimp fisheries. Plans were considered or proposed for other management units.

Information was provided for planning research programs and for reviewing research data and reports for provision to conservation agencies and fishery managers. In 1981, the Office conducted management analyses of the Gulf shrimp and stone crab regulations and provided reports on the status of stocks and on the impacts of the Texas closure shrimp regulation. Draft fishery management plans, proposed regulations, regulatory impact analyses, and environmental impact statements were reviewed. Fishery economic research was conducted on reef fish, mackerel, and shrimp fisheries and the 1981 section of the five-year economics plan was completed.

The Office of Technical and Information Management Services (TIMS) is responsible for the Center's Fishery Statistics and Management Information Programs. TIMS operates a regional information management system and provides automated data processing capabilities to systems users. TIMS is also responsible for the design of statistical sampling surveys and the collection of fishery-dependent data throughout the Southeast Region.

The National Fisheries Engineering Program coordinates engineering needs of all NMFS organizational elements; promotes technological advancements in fisheries research, management, and utilization; and applies engineering expertise to fishery problems where technology is a major constraint to attainment of NMFS goals.

A satellite image analysis system was installed at NSTL for use by NMFS and other fisheries investigators. Several training programs in the operation of the system were conducted.

Scatterometer data from the satellite SEASAT-A were acquired and processed for incorporation into a surface layer transport model for the northwestern portion of the Gulf of Mexico. This model is being developed as an aid to predicting recruitment for shrimp and other coastal fishery resources.

Computer software for processing synthetic aperture radar data were documented and archived at NSTL. This software is designed specifically for detecting and classifying fishing vessels from radar data.

The Pascagoula resource survey and exploratory fishing data bases were edited and upgraded for transfer to the GSA computer system in Macon, Georgia.

An initial analysis of time and fuel budgets from South Atlantic and Gulf of Mexico states shrimp vessels was completed. These analyses were based on observer collected data on vessel activities as functions of time and fuel consumption.

Two NIMBUS-6 porpoise satellite transmitters for the Southwest Fisheries Center were fabricated and demonstrated. These transmitters were successfully field tested by the Southwest Fisheries Center on two wild pelagic porpoises.

A study on current profiles and cold water intrusions and upwelling near Cape Canaveral, Florida, was completed.

Efforts continued to maintain communications in gear and remote sensing technology with ICES-member countries. Applicable information was provided Federal and State organizations.

A new electronics laboratory was designed and installed at NSTL. The laboratory represents a combination of electronic equipment from Pascagoula and NSTL. Its purpose is to support engineering research and development activities and to provide operational electronics support for OREGON II research cruises.

SOUTHEAST FISHERIES CENTER BUDGET SUMMARY

Fiscal Year 1980-1981

SEFC Programs	Total Estimated Obligations (thousand of \$)	Estimated Distributed of Funds to Impact Areas		
		Atlantic Ocean (%)	Gulf of Mexico (%)	Other Areas (%)
Aquaculture Program	\$ 499	20	80	-
Coastal Pelagics Program	663	50	50	-
Fisheries Development and Utilization Program	657	25	60	15
Habitat Program	4,707	20	80	-
Invertebrates (excluding shrimp) Program	135	20	50	30
Marine Contaminants Program	1,115	40	50	10
Marine Mammals and Endangered Species Program	2,348	65	32	3
Menhaden and Herrings Program	885	50	50	-
National Microconstituents Task Program	661	10	15	75
Oceanic Pelagics Program	1,307	55	40	5
Reef Fish Program	1,181	50	50	-
Shrimp and Bottomfish Program	2,469	9	90	1
Fishery Management Program	244	30	50	20*
Fishery Statistics Data Collection and Management Information Programs	949	80	20	-
National Fisheries Engineering Program	<u>451</u>	<u>20</u>	<u>70</u>	<u>10</u>
TOTAL	\$18,271			

\* Caribbean

## GULF OF MEXICO FISHERY MANAGEMENT COUNCIL

### SIGNIFICANT ACTIVITIES RELATED TO MANAGEMENT

During 1981, the Gulf of Mexico Fishery Management Council submitted the final fishery management plan for spiny lobster and amendments to the shrimp and stone crab plans to the Secretary of Commerce for implementation. The spiny lobster plan will manage the fishery off Florida, but certain provisions are applicable to the entire Gulf.

An amendment to the shrimp plan provides a mechanism by which the closure of FCZ waters off Texas and the Tortugas Sanctuary established off Florida can be modified by regulations, should this become necessary in the future. A second amendment is an updated revision of the plan which describes recent economic changes in the industry. It does not change any regulations.

The two amendments to the stone crab plan provided for a change in the size of degradable panels, a reduction in statistical reporting requirements and a mechanism for revising the line separating shrimpers from stone crabbers.

The final fishery management plan for billfish was submitted to the South Atlantic Council (SAC) for approval and filing with the Secretary of Commerce for implementation. The South Atlantic Council is acting as administrative leader for development of this multi-council plan. The Council gained additional voluntary concessions from the Japanese which substantially reduced their fishing effort during the period when billfish are most abundant in the Gulf.

The final fishery management plans (FMPs) for mackerel and for reef fish, which were submitted to the Secretary in 1980 for implementation, continued under secretarial review for the entire year of 1981 without secretarial action. Approval of these plans and implementation is expected in 1982.

Public hearings were held on the draft groundfish FMP during 1981. At the conclusion of these hearings, the Council decided to take no further action toward implementation of the FMP at this time. This action was taken since it was concluded that management of the fishery is not needed at this time.

The draft FMP for calico scallops was completed, and the Gulf and South Atlantic Councils elected to postpone any further action toward implementation until problems requiring management arise. A large influx of scallop vessels from the mid-Atlantic states applied heavy fishing pressure to the resource late in the year and landed significant quantities of juvenile scallops. The impact of this event is being evaluated in relation to the need for management.

The draft coral FMP was submitted to the Secretary for review and public hearings were scheduled for early 1982. The plan provides for management of the resource from Texas to North Carolina.

National Marine Fisheries Service provided the Council with an assessment of the impact of the 45-day closure of the FCZ off Texas to shrimping. This

measure in the shrimp FMP provided a very beneficial impact by increasing the poundage of shrimp available immediately following the closure by 12 million pounds. No adverse impacts on the shrimp fisheries of adjacent states occurred as a result of the closure.

#### SUMMARY OF GULF COUNCIL MEETINGS

##### January 7, 1981 - NEW ORLEANS, LOUISIANA

The Gulf segment of the Billfish Plan was approved and forwarded to the South Atlantic Council for their submittal to the Secretary of Commerce for formal approval. Public hearings sites and dates were established. Amendment 1 to the Shrimp FMP was approved for formal review by National Marine Fisheries Service (NMFS). An Artificial Reef Management Committee was formed and its objectives were established. A workshop to discuss enforcement of FMP regulations was scheduled for February. Research Project proposals for shrimp, billfish and reef fish to be prepared by the Southeast Fisheries Center (SEFC) were reviewed. Council will request additional programmatic funds to transfer to the Center to fund these data requirements.

##### March 4-5, 1981 - SAN ANTONIO, TEXAS

The joint Gulf and South Atlantic Council (SAC) mackerel FMP was disapproved by NMFS because of the following management measures: (1) prohibition of sale and processing for commercial use of king mackerel less than 25 inches (which applies to the SAC area); (2) a 4 3/4 inch mesh gill net required for king mackerel fishing in the FCZ; and (3) prohibition of the use of purse seines in the FCZ off the south Atlantic coast. The Council reviewed and approved some changes in this plan. Amendment 1 and the Environmental Assessment to the Stone Crab FMP were reviewed and approved for Secretarial review and implementation. Council participants for the four Shrimp Amendment 1 public hearings were selected. Transfer of funds to the SEFC to support the Billfish Recreational Survey were approved. A letter will be forwarded suggesting improvements in the survey. Another letter will be sent to Secretary of Commerce Malcolm Baldrige in support of state fishing jurisdiction in enclave areas. A request that an Environmental Impact Statement be prepared will be forwarded to the Corps of Engineers regarding a 36-inch outfall pipe proposed by the City of Panama City in St. Andrews Bay.

##### March 25, 1981 - TAMPA, FLORIDA

The Gulf segment of the billfish plan was reviewed and a requirement for transponders aboard all foreign tuna vessels was deleted. Since the public expressed concern at the groundfish public hearings over anticipated regulations pertaining to development of selective gear, a list of the major defects and criticisms from these hearings will be compiled along with procedures for developing a planning document in lieu of final completion and implementation of a FMP.

##### May 13, 1981 - CLEARWATER BEACH, FLORIDA

The Gulf Billfish FMP was approved and will be forwarded to the SAC for its approval. Council has requested that they forward it to the Secretary for implementation. Several proposed revisions to the Inter-Council Mackerel Plan

were approved and sent to the South Atlantic Council for review. The draft Coral and Coral Reef FMP will be revised to incorporate cost/benefit ratios and plan reviews by the Scientific and Statistical Committee and Advisory Panel has been scheduled. Council was advised by the Regional Director of NMFS that during their review of the Reef Fish FMP several management measures will be recommended for disapproval. A discussion meeting is scheduled in Washington in May. Transfer of funds to the Southeast Fisheries Center was approved for three reef fish research projects. NOAA General Counsel advised that the Draft Artificial Reef Work Plan does not fall within the scope of a management plan and further action was suspended. Further action on implementation of the Draft Groundfish FMP was formally suspended until there is a greater need. Development of shrimp excluder gear and collection of catch statistics in the directed and nondirected fisheries was a recommendation to NMFS. A decision was reached that no further action be taken on development of the FMP for calico scallop due to its low priority and lack of need for management at this time. An Enforcement Advisory Panel was established and specific objectives for its activities were developed. Suggested amendments to the Fishery Conservation and Management Act, which are being reviewed by Congress were considered. A certified public accounting firm was selected to perform an audit of Council funds and accounting procedures.

#### July 7, 1981 - NAPLES, FLORIDA

The Mackerel FMP was approved and forwarded to National Marine Fisheries Service for formal review and implementation. A Stone Crab Plan Amendment 1, which provides a procedure for adjustment of the shrimp/stone crab line was adopted and two public hearings were scheduled to take place in August. A Request for Proposal (RFP) was developed and NMFS will contract for vessels to perform research to evaluate the line of separation between shrimpers and stone crabbers in the Dry Tortugas area. Participants in the shrimp and stone crab fisheries were selected to serve as voluntary consultants for research to be conducted concerning this line. They will also review the contracts and make recommendations on changes to improve data collection. A request to interrupt review of the Reef Fish FMP was sent to the Secretary of Commerce so that supporting rationale could be reconsidered. The Department of State was advised of Council's objection when more foreign fishing permits are issued for vessels than those required to take an allocation. During July, Council continued its review of the FCMA for possible recommendations for amendment. NMFS was formally advised of Council's deep concern over extensive delays experienced during NMFS/NOAA review and approval process for FMPs. The Corps of Engineers will be advised of Council's opposition to the proposed filling of a spoil disposal area in Mobile Bay.

#### August 5-6, 1981 - TARPON SPRINGS, FLORIDA

The Secretary of Commerce was asked to resume review of the Reef Fish FMP because of its urgency. Council developed additional rationale for some of the measures that have been questioned by NMFS. Council approved the preparation of a Gulf Swordfish FMP. Four participants in the shrimp and stone crab fisheries were selected to serve on a screening committee to aid in development of a contract for research related to the Tortugas shrimp/stone crab line. Additional FCMA amendment recommendations were considered. The Corps of Engineers will be advised of Council's recommendation in support of a

straight-line levee rather than a ring levee which is being considered in the channelization of the Atchafalaya outfall in Louisiana. A dental plan for the administrative staff was approved by Council.

September 1-2, 1981 - TAMPA, FLORIDA

Shrimp FMP Amendment 1 was approved to be submitted to the Secretary which provides a procedure for a shorter than normal period for changing the regulations. The Stone Crab FMP Amendment 1 was approved providing a procedure for amending the shrimp/stone crab line of separation, changing reporting requirements, deleting an exception for live bait shrimping and adding a provision whereby federal officers can confiscate or destroy illegal traps during the closed season. Appropriate letters expressing the concerns of fishermen due to lack of enforcement of FMP regulations will be sent. Council advised the Corps of Engineers of its preference for a disposal site for material dredged from the Corpus Christi Inner Harbor Navigation Channel. A Council representative will attend a public hearing scheduled in September. Additionally, a request was made to the Corps for a response addressing the issues identified by Council on the Brookley Project in Mobile Bay as a previous response failed to address these issues. The proposed Japanese tuna fishing voluntary measures for fishing restrictions in the Gulf were reviewed and approved by Council. Council advised NMFS of its acceptance of the cooperative agreement grant for fiscal year 1982 under protest due to the requirement that Council perform travel in accordance with NOAA Travel Guidelines.

October 6-8, 1981 - PANAMA CITY, FLORIDA

The updated Coral and Coral Reefs FMP was approved as a discussion paper. Revisions to the draft Inter-Council Mackerel Plan were developed and sent to the South Atlantic Council for their consideration. The draft Inter-Council Spiny Lobster Plan was updated to include requirements of Executive Order 12291 calling for inclusion of cost/benefit ratios and adding to the plan the issue of harvest during the spawning season. Subject to approval of these revisions by the SAC, the plan will be forwarded to the Secretary of Commerce for review and implementation. A request is to be forwarded to NMFS, Washington, that two representatives each from Council and staff be authorized to attend their decision meeting. A policy was established whereby appropriate representation at NMFS decision and issues meetings will be requested. Council approved transfer of funds to SEFC to perform four proposed shrimp research projects. Council expressed its grave concern to NMFS/NOAA over the possible closure of their Galveston Laboratory. A delegation of Japanese fishermen met with Council to discuss tuna fishing procedures in the Gulf of Mexico. Council requested an extension of the 90-day review period for comments on revision of the National Standards Guidelines. Council was advised of the highly favorable results of the recent audit of its programmatic and administrative grants.

December 9-10, 1981 - BILOXI, MISSISSIPPI

Council reviewed information developed by the SEFC during monitoring of the 45-day seasonal closure in Texas under the shrimp FMP. Results indicated a very beneficial outcome by yielding an additional four million pounds of shrimp and the closure will be continued in 1982. Amendment 2 of this plan



was approved which describes recent economic changes in the fishery. Four public hearing locations were selected for the draft coral FMP for January, 1982. The Gulf segment of the billfish FMP was revised to modify the optimum yield description, the catch allocation and Gulf closure for foreign fishermen; framework measures for Gulf bag limits and future restriction of domestic longliners were approved. Action on the draft swordfish plan included consideration of options for a closed season in the Gulf and provision for modification of this closed season. A Council decision was reached not to participate in an official capacity at NMFS's public hearings on their revised billfish/shark PMP. Concerns were expressed regarding the PMP's effect on voluntary agreements with the Japanese reached during the Gulf Council's negotiations over the past several years. A profile of the red drum fishery will be developed in-house for informational purposes and there are no plans for preparation of an FMP. Further recommended changes were developed for the draft National Standards Guidelines.

FINANCIAL REPORT

GULF STATES MARINE FISHERIES COMMISSION

Ocean Springs, Mississippi

For the Fiscal Year Ended September 30, 1981

Roberts and Rasor  
Certified Public Accountants  
Biloxi, Mississippi

**ROBERTS & RASOR**  
CERTIFIED PUBLIC ACCOUNTANTS  
601 WEST JACKSON STREET  
BILOXI, MISS. 39530

(601) 374-0136

PAUL E. ROBERTS, JR., C.P.A.  
CHARLES EDGAR RASOR, C.P.A.

MEMBERS:  
AMERICAN INSTITUTE OF CPA'S  
MISSISSIPPI SOCIETY OF CPA'S

To the Commissioners  
Gulf States Marine Fisheries Commission  
c/o Mr. Charles H. Lyles, Executive Director  
P.O. Box 726  
Ocean Springs, Ms 39564

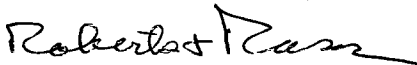
Gentlemen:

We have examined the balance sheet of Gulf States Marine Fisheries Commission as of September 30, 1981, 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, 1981 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 to the Executive Director.

Respectfully yours,

  
ROBERTS & RASOR  
CERTIFIED PUBLIC ACCOUNTANTS

January 7, 1982  
Biloxi, Mississippi

GULF STATES MARINE FISHERIES COMMISSION  
BALANCE SHEET  
September 30, 1981

<u>ASSETS</u>		
Cash		\$136,883.51
Furniture, fixtures and equipment	\$ 11,499.81	
Automotive equipment	5,570.43	
Total	<u>\$ 17,070.24</u>	
Less: Accumulated depreciation	<u>11,655.85</u>	<u>5,414.39</u>
Total		<u>\$143,297.90</u>
 <u>LIABILITY</u>		
Payroll taxes withheld and accrued		\$ 1,824.43
 <u>FUND BALANCES (page 3)</u>		
Operating Fund	\$111,356.02	
State-Federal Fisheries-Studies and Analysis Fund	5,600.58	
State-Federal Fisheries-Council Fund	7,988.66	
State-Federal Fisheries-Management Fund	<u>15,528.21</u>	<u>140,473.47</u>
Total		<u>\$142,297.90</u>

See the accompanying Notes to Financial Statements (pages 4 & 5).

STATEMENT OF REVENUES, EXPENSES AND  
CHANGES IN FUND BALANCES

Fiscal Year Ended September 30, 1981

	<u>Operating Fund</u>	<u>Fisheries Studies and Analysis Fund</u>
<b>REVENUES:</b>		
Member states appropriations:		
Alabama	\$ 7,500.00	\$
Florida	37,500.00	
Louisiana	22,500.00	
Mississippi	-0-	
Texas	15,000.00	
Grants		34,950.75
Interest earned	<u>6,288.58</u>	
 Total revenues	 <u>\$ 88,788.58</u>	 <u>\$ 34,950.75</u>
 <b>EXPENSES:</b>		
Salaries	\$ 34,638.18	\$ 3,750.00
Auto	1,700.20	
Dues and subscriptions	493.20	
Indirect costs		975.00
Insurance	3,262.12	618.75
Maintenance and repairs	99.25	
Meetings	2,212.35	
Office supplies and expense	1,413.74	1,661.25
Postage	1,583.22	
Printing	1,888.85	
Professional fees	1,350.00	
Rental of equipment	5,458.39	
Sub-contracts		27,171.00
Taxes - payroll	3,882.47	
Telephone	3,577.59	
Travel and entertainment	9,434.14	774.75
Depreciation	<u>1,599.00</u>	
 Total expenses	 <u>\$ 72,592.70</u>	 <u>\$ 34,950.75</u>
 Excess of revenues over (under) expenses	 \$ 16,195.88	 \$ -0-
Fund balances, October 1, 1980	85,157.79	5,600.58
Transfer Eastland Fund, March 1981	<u>10,002.35</u>	
Fund balances, September 30, 1981	<u>\$111,356.02</u>	<u>\$ 5,600.58</u>

<u>State-Federal Fisheries Council Fund</u>	<u>State-Federal Fisheries Management Fund</u>	<u>Combined</u>
\$	\$	\$ 7,500.00
		37,500.00
		22,500.00
		- 0-
		15,000.00
29,321.24	14,774.42	79,046.41
<hr/>	<hr/>	<hr/>
\$ 29,321.24	\$ 14,774.42	\$167,834.99
\$ 19,470.72	\$ 4,971.64	\$ 62,830.54
		1,700.20
		493.20
		975.00
		3,880.87
		99.25
	1,089.31	3,301.66
565.56	769.87	4,410.42
	300.01	1,883.23
	2,378.00	4,266.85
		1,350.00
		5,458.39
		27,171.00
		3,882.47
1,489.58	674.99	5,742.16
297.41	5,305.71	15,812.01
917.00	<hr/>	<hr/>
\$ 22,740.27	\$ 15,489.53	\$145,773.25
\$ 6,580.97	\$( 715.11)	\$ 22,061.74
1,407.69	16,243.32	108,409.38
<hr/>	<hr/>	<hr/>
\$ 7,988.66	\$ 15,528.21	\$140,473.47

See the accompanying Notes to Financial Statements (pages 4 & 5).

## NOTES TO FINANCIAL STATEMENTS

### 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 member 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 - Eastland Resolution Study Grant

In June, 1975, the Commission received a grant-in-aid award entitled "Eastland Resolution Study" from the U.S. Department of Commerce. The grant provided for the survey of Federal agencies concerned directly or indirectly with the fishing industry for the period from June 1, 1975 to December 1, 1976 for an amount not to exceed \$200,000.00. The balance of the amount allocated for indirect costs of this grant amounting to \$10,002.35 have been transferred to the Commission's Operating Fund effective March 1981 per authority of the Grants Officer, NOAA.

### Note 4 - 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.

NOTES TO FINANCIAL STATEMENTS  
(continued)

Note 5 - State-Federal Fisheries Council Support Program

Effective in a prior fiscal year, the Commission entered into a contract with the U.S. Department of Commerce to provide administrative support of the State-Federal Fisheries Council in the Gulf of Mexico coastal states.

Note 6 - State-Federal Fisheries Studies and Analysis Program

Effective in a prior fiscal year, the Commission started receiving funds from a contract with the U.S. Department of Commerce to provide administrative support of the State-Federal Studies and Analysis Program in the Gulf of Mexico coastal states.





