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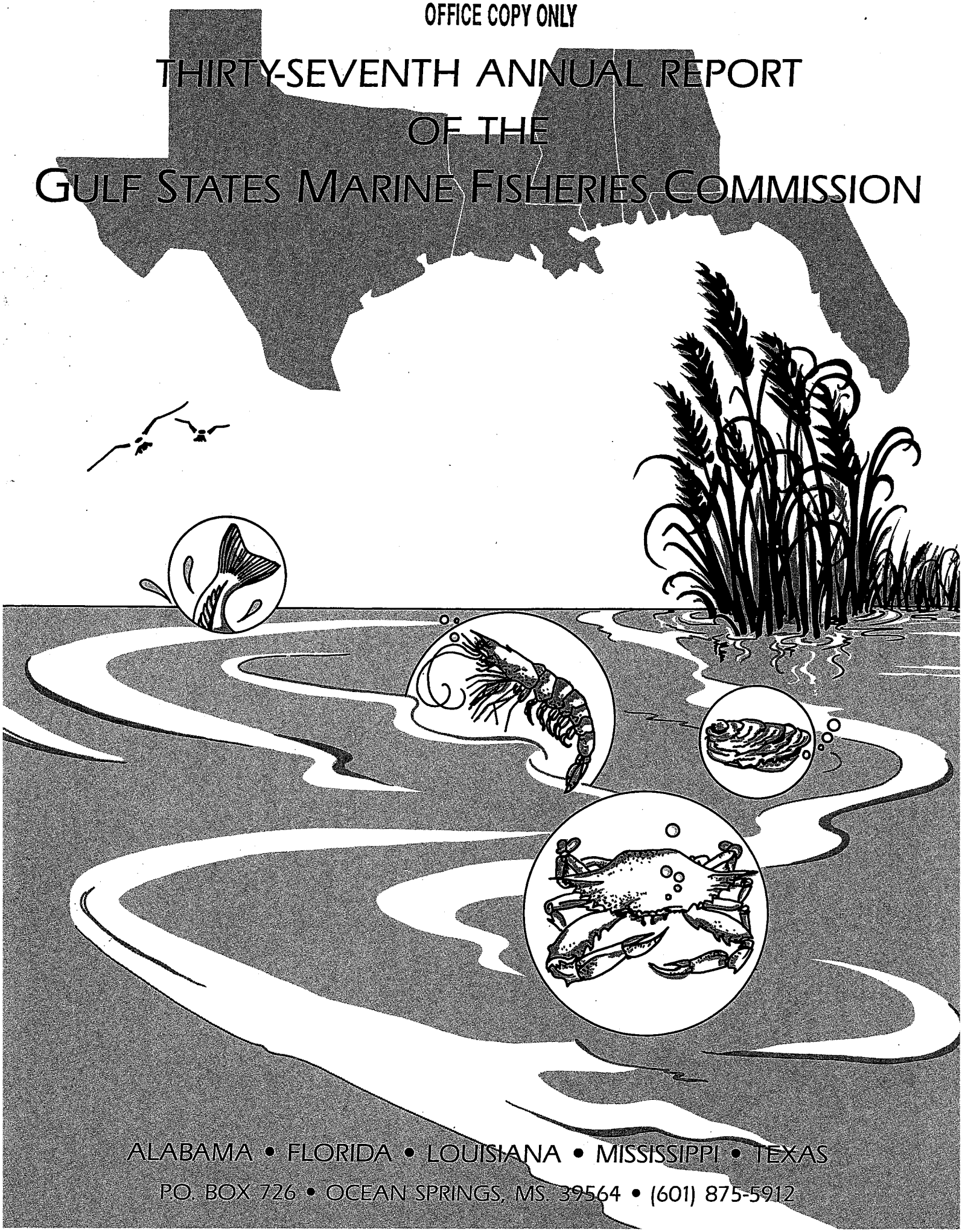
THIRTY-SEVENTH ANNUAL REPORT OF THE GULF STATES MARINE FISHERIES COMMISSION



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P.O. BOX 726 • OCEAN SPRINGS, MS. 39564 • (601) 875-5912

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-SEVENTH ANNUAL REPORT (1985-1986)

To the

CONGRESS OF THE UNITED STATES

And to the

GOVERNORS AND LEGISLATORS

of Alabama, Florida, Louisiana, Mississippi, and Texas

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

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

(601) 875-5912

ACKNOWLEDGEMENT

In submitting this Thirty-Seventh 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-seven years could not have been possible without such valued assistance. This acknowledgement 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,

Clyde Richbourg, Chairman
Frank J. Patti, Vice Chairman
Larry B. Simpson, Executive Director

Published August 1987

GULF STATES MARINE FISHERIES COMMISSION

Thirty-seventh Annual Report (1985-1986)

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Roster of the

GULF STATES MARINE FISHERIES COMMISSION

October 1, 1985 - September 30, 1986

Chairman: Clyde Richbourg

Vice Chairman: Frank J. Patti

COMMISSIONERS

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

ALABAMA

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

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

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

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Executive Director
Florida Department of Natural
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Tallahassee, FL

Sam Mitchell, Representative
State of Florida
Chipley, FL

Clyde Richbourg
Gulf Breeze, FL

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Executive Secretary
Louisiana Department of
Wildlife and Fisheries
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Belle Chasse, LA

Leroy Kiffe
Tom Kiffe & Sons Boats
Lockport, LA

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Mississippi Department of
Wildlife Conservation
Jackson, MS

Ted Millette, Representative
State of Mississippi
Pascagoula, MS

Holton D. Turnbough
WGUF Radio Station
Gulfport, MS

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Executive Director
Texas Parks and Wildlife
Austin, TX

H. Tati Santiesteban, Senator
State of Texas
El Paso, TX

Leslie E. Casterline, Jr.
Fulton, TX

STAFF

Larry B. Simpson
Executive Director

Virginia K. Herring
Executive Assistant

Nikki Bane
SEAMAP Coordinator

Lucia B. O'Toole
Publication Specialist

Eileen M. Benton
Staff Assistant

Dale Burgin
MARFIN Secretary

COMMISSION OFFICERS ELECTED FOR YEAR 1985-1986

Chairman: Clyde Richbourg succeeding Richard L. Leard

Vice Chairman: Frank J. Patti suceeding Clyde Richbourg

COMMITTEES

Executive Committee.....Clyde Richbourg, Chairman

Technical Coordinating Committee.....J.Y. Christmas, Chairman

- SEAMAP Subcommittee.....Walter Tatum, Chairman
- Crab Subcommittee.....Phil Steele, Chairman
- Statistical Subcommittee.....Henry "Skip" Lazauski, Chairman
- Anadromous Fish Subcommittee.....Larry Nicholson, Chairman

Industry Advisory Committee.....Robert Jones, Chairman

Recreational Fisheries Committee.....Fred Deegen, Chairman

Law Enforcement Committee.....Jerald Waller, Chairman

Gulf State-Federal Fisheries Management Board.....William S. Perret, Chairman

- Menhaden Advisory Committee.....John Merriner, Chairman

COMMISSION ACTIVITIES

OCTOBER 1985 - SEPTEMBER 1986

The Gulf States Marine Fisheries Commission (GSMFC) was created in 1949. The United States Congress in Public Law 81-66 granted consent and approval to an interstate compact relating to the better utilization of the fisheries (marine, shell, and anadromous) of the Gulf Coast. The purpose of the compact is the development of a joint program for the promotion and protection of such fisheries and the prevention of the physical waste of the fisheries from any cause.

Policy and guidance for the Commission's general affairs are provided by the 15 Commissioners - three from each state. The three state Commissioners are the head of the state marine agency, a member of the state legislature, and a private citizen with knowledge and interest in marine fisheries.

The GSMFC held two regular semi-annual meetings in October and March. The committees and subcommittees met more frequently on an as-needed basis. The October meeting was held in Orlando, Florida and the March meeting was held in Brownsville, Texas.

The October meeting of the Commission dealt with various regional issues of importance to the Gulf of Mexico. The mechanism used by the Commission to address in detail the scientific aspects of these issues is the Technical Coordinating Committee (TCC). The chairman of the TCC is Mr. J.Y. Christmas who for many years had previously served as vice chairman under chairman Dr. Ted B. Ford. After Dr. Ford's death, Mr. Christmas took the helm and continued to meet head-on the regional marine resources problems and issues. At the October meeting the committee dealt with the status of mariculture, especially shrimp, and the potential contributions to the U.S. fisheries economy. Recent petitions to the International Trade Commission (ITC) were made by the domestic industry to ease the burdens caused by the continued escalation of imported shrimp into the U.S. markets by foreign shrimp. The ITC was not moved to action at this time, however, on behalf of the domestic shrimp harvestors.

The TCC reviewed the status of controlled freshwater introduction into the Louisiana and Mississippi marshes. The project has been monitored on a long-term basis for the TCC by Dr. David Etzold, and members of the industry. Increased production of marine fisheries resources has been documented using this technique and the industry as well as the scientific community supports the project handled by the Corps of Engineers. The next hurdle is the securing of approval of construction money in the Federal budget for the Corps of Engineers. The Commission passed a resolution in support of this project and is hopeful that the Corps will begin the last phase (construction) next year in some of the proposed locations to divert Mississippi River freshwater back into the marshes in a controlled manner.

The mechanisms of State-Federal cooperative work, that is, contracts, was a topic that the States continue to have problems dealing with. The review and approval by the Department of Commerce (DOC) Federal Assistance Review Board (FARB) and the Central Administrative Support Center (CASC) and the Washington office of DOC continually frustrate those who wish quality and quantity of marine fisheries research to answer an ever expanding, complex series of basic management questions. In the future increasing users and the resulting pressure will require more sophisticated science to assure proper long-term management of our shared marine resources.

The TCC addressed the problems and actions of this region and other regions resulting from parasites and diseases that occur with the movement and introduction of non-native or hatchery raised shellfish.

A new fishery may have potential in the Gulf of Mexico. Data on the scientific cruises to determine location, abundance, and capture gear for butterfish were reported to the TCC by the National Marine Fisheries Service (NMFS) Pascagoula Laboratory. The Commission was involved with this effort that resulted in joint U.S.-Japanese cruises on butterfish. Congressman John Breaux (D) of Louisiana was instrumental in this endeavor along with Congressman Trent Lott (R) of Mississippi. Preliminary cruises showed a potential development of $19 million per year ex-vessel value for the Gulf with an export value of possibly $17 million per year. Since these scientific cruises Gulf fishermen and Northeast area processing vessels have tried with some initial success fishing the resource during the late spring.

In other committee activities the Industry Advisory Committee (IAC) was busy addressing the insurance problems associated with personal injury on fishing vessels. The IAC also began addressing the Spanish mackerel fishery. The problem being the largest majority of the commercial take is in Florida waters, much of this in State territorial waters and the competing demands by recreational and commercial fishermen as well as the fishery being compressed in a small geographic area and time. The hard questions of what regulations, state, federal, and interstate are needed to assure that supply of the resource is continued and healthy are the subject of future Commission activity.

The Commission is very pleased with the renewed vigor of the Law Enforcement Committee (LEC). This group actively seeks input into the various states management activities and has established a working joint committee with the Gulf of Mexico Fishery Management Council's Enforcement Committee. They are optimistic that their input concerning the enforcement regulations prior to enactment and even after the fact will help make the regulations and management actions more enforceable and effective in application. As a result of the October GSMFC meeting in which the LEC brought forth a variety of recommendations concerning enforcement and management, the Executive Director was to work with the LEC to address solutions to their concerns. A General Session on current marine fisheries issues was scheduled and held as the central focus of the October Commission meeting in Brownsville, Texas. The LEC as a panel chaired the General Session and interfaced with the public and invited panel members on three major topics: interstate enforcement problems with shellfish; red drum/spotted seatrout issues; and alien documentation.

In other actions of the Commission during the March meeting the staff and various committees finalized the Striped Bass Fishery Management Plan and distributed the document in the 1986 calendar year. A coordinating effort of the various states on Spanish mackerel was continued to complement the Federal Fishery Management Plan by the Gulf Council. The Commission at the March meeting was directed to proceed with the expanded recreational activity in the Gulf of Mexico under a Wallop-Breaux (Dingell-Johnson) program.

The increased offshore exploitation of red drum and the problems associated with nearshore pressure and its affect on that offshore stock prompted the Commission to initiate a Gulf-wide regional fishery management plan for red drum. During a flurry of activity in the summer of 1986, the NMFS under emergency action imposed Federal regulations on red drum with plans for a management plan to be implemented by the Secretary of Commerce before the end of the calendar year 1986. This action and the action of the Gulf Council to begin development of an FMP to amend or replace the

Secretary of Commerce's Plan began federal action in the FCZ. Since the states authority over its vessels and citizens will apply to the FCZ only in the absence of a federal fishery management plan, the Commission's activity was refocused to support obtaining the needed information to properly mange the resource outside state waters. The Commission generated through its established mechanisms a Three Year Cooperative State-Federal Research Plan for Red Drum to answer many of the data gaps that have existed for many years especially on the offshore adult stock. That program was funded through the Marine Fisheries Initiative (MARFIN) which the Commission was instrumental in developing the previous year. The first year activities are underway and the Commission has plans to hold a symposium of all the various participants to inform the public and other marine agencies of this coordinated effort at the October meeting in New Orleans.

MEETINGS/ACTIVITIES OF THE EXECUTIVE DIRECTOR

Gulf States Marine Fisheries Commission (GSMFC)

36th Annual Fall Meeting, Orlando, Florida - October 1985
36th Annual Spring Meeting, Brownsville, Texas - March 1986
SEAMAP Subcommittee Meeting, New Orleans, Louisiana - January 1986
T.C.C. Spanish Mackerel Subcommittee, Tampa, Florida - January 1986
MARFIN Program Management Board, Tampa, Florida - January 1986
MARFIN Program Management Board, Tampa, Florida - February 1986
Meeting with Chairman Richbourg regarding GSMFC March meeting, Pace, Florida - February 1986
MARFIN Program Management Board, Tampa, Florida - March 1986
Red Drum Fisheries Management Plan Meeting, Ocean Springs, Mississippi - April 1986
Meeting with Commissioner J. R. Nelson regarding MARFIN Proposals, Bon Secour, Alabama - June 1986
Judge Blessing of the Fleet, Pensacola, Florida - July 1986
Conference Call regarding MARFIN, Ocean Springs, Mississippi - July 1986
Conference Call with Commissioners regarding current issues, Ocean Springs, Mississippi - July 1986
Interviews regarding SEAMAP Coordinator's Position, Ocean Springs, Mississippi - August 1986
MARFIN Program Management Board, Tampa, Florida - August 1986
SEAMAP Subcommittee Meeting with PESCH, Mexico City, Mexico - August 1986
SEAMAP Subcommittee Meeting, Pascagoula, Mississippi - September 1986
Executive Committee Meeting with Richbourg, Patti and Leard, Pace, Florida - September 1986

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

Marine Fisheries Advisory Committee (MAFAC) DOC, Charleston, South Carolina - November 1985
Marine Fisheries Advisory Committee (MAFAC) DOC, Washington, D.C. - February 1986
GS-FFMB Meeting, Orlando, Florida - October 1985
GS-FFMB Meeting, Brownsville, Texas - March 1986
Marine Fisheries Advisory Committee (MAFAC) DOC, Miami, Florida - May 1986

Gulf of Mexico Fishery Management Council (GMFMC)

October 1985	Ft. Lauderdale, Florida	Joint South Atlantic/Gulf
January 1986	Houston, Texas	
March 1986	Tampa, Florida	
April 1986	Tampa, Florida	Joint South Atlantic/Gulf
July 1986	Miami, Florida	
September 1986	Brownsville, Texas	

Congressional Meetings

House Subcommittee on Appropriations Briefing regarding NMFS FY 87 Budget, Washington, D.C. - February 1986

House Appropriations Subcommittee Staff Meeting regarding NMFS FY 86/87 actions, Washington, D.C. - May 1986

Testimony before House Subcommittee on Fisheries and Wildlife Conservation and Environment regarding red drum, New Orleans, Louisiana - June 1986

Submitted written testimony to Senate Appropriations Subcommittee regarding Federal Marine Fisheries Budget - June 1986

Luncheon with Congressman Breaux/Japanese Delegation regarding cooperative work, New Orleans, Louisiana - August 1986

Other Meetings and Activities

Minerals Management Information Transfer Meeting, New Orleans, Louisiana - October 1985

Shrimp Industry Roundtable, New Orleans, Louisiana - November 1985

International Association of Fish and Wildlife Agencies (IAFWA), Washington, D.C. - December 1985

Texas Shrimp Association Annual Meeting, Houston, Texas - March 1986

Meeting with NOAA Administrator Calio regarding proposed turtle regulations, Washington, D.C. - August 1986

International Association of Fish and Wildlife Agencies Annual Meeting, Providence, Rhode Island - September 1986

NMFS Red Drum Public Hearing, Mobile, Alabama - September 1986

ALABAMA DEPARTMENT OF CONSERVATION AND NATURAL RESOURCES

MARINE RESOURCES DIVISION

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

The Division contains the Administrative, Fisheries and Enforcement Sections and had 38 full-time employees during FY 1985-86.

ADMINISTRATIVE SECTION

The Administrative Section contained the Division Director, six clerical and two custodial-mechanical personnel with offices maintained at Dauphin Island and Bayou La Batre (Mobile County) and Gulf Shores (Baldwin County).

FISHERIES SECTION

The Fisheries Section contained the Chief Marine Biologist, two Biologists III, three Biologists II, two Biologist Aides I, two Biologist Aides II, three Biologist Aides III and two biweekly laborers. The Section conducted applied marine fishery research, collected biological data from which management recommendations were made and provided supervision and recommendations on the maintenance and construction of public access areas and artificial reefs. The hatchery facility at Gulf Shores produced striped bass fingerlings for stocking in the estuarine area and additionally conducted mariculture research on the recreational and commercially important marine species of red drum and speckled trout, bull minnows (bait fish) and shrimp.

Sampling of the oyster reefs during August indicated the largest oyster population since the dive survey began in 1979. Hurricane Elena, however, devastated the reefs in September of 1985. A loss of 89 percent of the oysters on Cedar Point Reef, 84 percent on Buoy Reef and 48 percent on Kings Bayou Reef was documented. Two weeks following the hurricane, 14,458.77 cubic yards of clam shell was placed on the western edge of Cedar Point Reef and a $1.4 million federal grant was approved for restoration.

In addition to the normal state/federal cooperative research programs involving the Fisheries Section, Marine Resources Division nominated two projects for funding by the Marine Fisheries Initiative (MARFIN). Both of these projects, one dealing with mullet and the other with red drum, were selected for funding by the MARFIN Management Board with funding beginning in September 1986 for the red drum project and October 1, 1986 for the mullet project.

Fisheries Section employees entered into contract with the Southeast Fisheries Center of the National Marine Fisheries Service, to collect biological data on red drum and king mackerel and to conduct a tagging mortality study on red drum.

COMMERCIAL FISHERIES RESEARCH AND DEVELOPMENT

Work was completed October 1, 1985 through September 30, 1986 concerning the coastal fishery resources of Alabama. Shrimp, blue crabs and finfish were assessed and monitored during the year at 28 stations located throughout Alabama's estuarine waters. Oysters were assessed by SCUBA divers using transect line set on each of the producing reefs. Supplemental samples were taken as needed to obtain data for specialized problems as they arose. Monthly catch per unit effort (CPUE) figures were computed for each species taken in samples.

Postlarval brown shrimp began to appear in samples in February of 1986, with subsequent samples showing a strong potential year class. Juvenile samples supported this prediction. A growth equation was generated for brown shrimp and was successfully used to predict an opening day for the brown shrimp season.

White shrimp first appeared in samples in July with indications of a very good fall white shrimp crop. This was proven true with the best shrimp landings on record to date.

Blue crab CPUE was good throughout the year. Commerical lands were the best of any year surveyed except the record year of 1984.

Eight species of finfish were considered as target species this year. Of these, Gulf menhaden, sand seatrout, Atlantic croaker and striped mullet had the worst CPUE on record. Spot CPUE was the second lowest recorded in six years and southern flounder was lower than the previous two years. The 1985 year-class of redfish was the second lowest on record, but the 1986 speckled trout year-class was the second best on record.

Oyster assessment revealed Alabama's productive oyster reefs to have very low oyster populations. The dual impacts of Hurricane Elena in September, 1985 and high drill predation in spring-summer, 1986 decimated Alabama's oyster beds. A shell planting project funded by Section 4(b) of PL 88-309 was conducted to help increase the reef area in the state and improve overall oyster production in years to come. A total of 84,402 cubic yards of clam shell costing $1,153,744 was placed on Pass-a-Bar in Mississippi Sound during July 25 - August 24.

Creel clerks collected data from 4,374 interviews during the year. This data indicated that anglers spent 1,213,000 hours fishing within the areas surveyed. They spent $4,294,000 on expendable goods and $78,000,000 on durable equipment. Their effort resulted in landing 844,400 fish weighing 691,000 pounds. Of these, five species were of particular interest to resource managers. Fishermen caught 18,150 red drum weighing 32,580 pounds and ranging from 21 to 91 cm in size. Spotted seatrout ranged in size from 26 to 53 cm and 26,120 were caught weighing 32,030 pounds. The number of flounders caught was 16,020 weighing 16,540 pounds and sized from 28 to 45 cm. King mackerel were larger ranging from 46 to 93 cm. The number of kings landed was 5,178 weighing 41,910 pounds. Spanish mackerel was the most often caught target species with 45,860 fish weighing 48,590 pounds. These ranged from 33 to 50 cm in length.

All data was entered into computers at the Dauphin Island office of the Marine Resources Division and is available as reference for further work.

COOPERATIVE STATE/FEDERAL STATISTICAL PROGRAM

Two port samplers from the Marine Resources Division and one from the National Marine Fisheries Service made routine visits to all seafood processors/dealers in Alabama to

gather seafood landings statistics. These data are tabulated and forwarded to Dauphin Island Headquarters where they are entered into an "Alabama Landings" data file for storage and manipulation. This project additionally provides for the collection of biological data from certain fishery stocks (i.e. king mackerel, red snapper and mullet) from which crucial management data may be obtained.

STATE/FEDERAL COOPERATIVE SEAMAP

The SEAMAP program (Southeast Area Monitoring and Assessment Program) is a cooperative state/federal program which emphasizes a regional approach in the planning and execution of resource surveys in the Gulf of Mexico and its estuaries. Alabama participated in all SEAMAP-sponsored resource surveys including: (a) squid/butterfish cruise, (b) summer shrimp/groundfish survey, (c) late summer king mackerel ichthyoplankton survey, (d) fall groundfish survey and (e) fall juvenile king mackerel survey. The SEAMAP program was the nucleus for the formation of the MARFIN program's red drum research. The Marine Resources Division Fisheries Chief served as chairman of the SEAMAP subcommittee and two of its biologists were active members of work groups under the subcommittee.

WALLOP/BREAUX (EXPANDED DINGELL/JOHNSON)

During Fiscal Year 1985-86, the Marine Resources Division received $195,000 of the expanded Dingell/Johnson, or Wallop/Breaux funds for sportfish restoration projects in coastal Alabama. These funds were made available by a clause in the federal enabling act which required an equitable split between marine and freshwater management agencies. The equitable split was suggested by the U.S. Fish and Wildlife Service based on the 1980 national survey of hunting, fishing and wildlife associated recreation. The Marine Resources Division developed, submitted and had approved two Wallop/Breaux projects for Fiscal Year 1985-86:

F-45 - "The Enhancement of Recreational Fishery and Boating Access in Coastal Alabama." This project was designed to refine culture techniques for spotted seatrout, Cynoscion nebulosus, with an ultimate goal of spawning, rearing, tagging and releasing 20,000 tagged individuals. The second goal of this project was to develop a viable maintenance and renovation program for boat access areas in the coastal area.

F-47 - "The Installation of Impermeable Membranes Comprised of High Density Polyethylene into Production Ponds at Claude Peteet Mariculture Center." Seepage from culture ponds at the Division's Claude Peteet Mariculture Center, Gulf Shores, had become so severe over the past few years that almost constant pumping was required during the production season. Additionally, the possibility of contaminating shallow aquifers in the immediate area with salt water forced the Division to take immediate steps to control the seepage. After a thorough review of available seepage control products and their compatibility with fish cultural operations, a 60-mil, high density polyethylene liner was selected. A capital outlay project for pond liner installation was submitted to the U.S. Fish and Wildlife Service. A unique feature of the Wallop/Breaux Act enabled the use of federal funds for capital outlay projects utilizing an installment purchase. This approach was used in the pond liner installation, enabling up to 75 percent of the project costs to be borne by Wallop/Breaux funds.

ANADROMOUS FISH ACT PL 89-304

Project Number AFS-23-2 is a cooperative project between the states of Alabama and Mississippi and is jointly funded by the U.S. Fish and Wildlife Service and National Marine Fisheries Service and the states on a 66-2/3 to 33-1/3 match, respectively. The

cooperative project utilized facilities at the Gulf Coast Research Laboratory, Ocean Springs, Mississippi, to culture Phase I striped bass, after which the facilities at CPMC, Gulf Shores, were utilized to culture advanced striped bass fingerlings. Personnel from the two states then worked together in the harvest, tagging and releasing of the cultured fish.

In October 1985, 19,367 striped bass were tagged and released into Alabama and Mississippi waters under the cooperative program. Twelve ponds were stocked with Phase I fingerling striped bass reared at the Natchitochas, Louisiana fish hatchery operated by the U.S. Fish and Wildlife Service on May 29, 1986 at a stocking rate of 20,000 fish per acre. A total of 12,257 striped bass were harvested and tagged with 6,058 going to Alabama and 6,199 going to Mississippi.

Ninety-four striped bass were captured in Alabama and twelve in Mississippi during evaluation studies. The bass ranged in size from 1.0 to 19.5 pounds. Fifty-six tagged striped bass caught by fishermen were reported to the Marine Resources Division during the fiscal year.

ENVIRONMENTAL

Marine Resources Division personnel investigated 33 U.S. Army Corps of Engineers permit requests for construction in the coastal area for Departmental comments. Marine Resources Division personnel met with an inter-agency group comprised of representatives from the Environmental Protection Agency, U.S. Fish and Wildlife Service and National Marine Fisheries Service at bi-monthly intervals during Fiscal Year 1985-86. Division staff met with applicants on site when possible and revisited sites on numerous occasions with other commenting agencies and attended public hearings and briefings on the Mobile Ship Channel Deepening and Navy Homeporting.

Marine Resources Division staff participated in an Environmental Day Camp established at Gulf State Park. All Division biologists presented both a seminar and a field demonstration on sampling techniques.

Marine Resources Division personnel managed the recently established Weeks Bay National Estuarine Reserve. The National Reserve was officially dedicated in February of 1986 and the management plan was officially put into effect in January, 1986.

ENFORCEMENT SECTION

The Enforcement Section contains 14 Conservation Enforcement Officers, eight in Mobile County and six in Baldwin County. Officers patrolled the approximately 1,000 square miles of Alabama's brackish and salt waters, enforcing state and federal laws pertaining primarily to seafood protection. In addition, the officers conducted numerous search and rescue operations for overdue or disabled vessels and assisted various governmental and volunteer agencies with seafood festivals, fishing rodeos and sailboat races.

Marine Resources Division officers worked a total of 23,434.5 boat and shore patrol hours. Officers worked 120 hours on search and rescue missions and 1,266.5 hours patrolling the beach and dune areas of Dauphin Island. There were 366 citations issued for violations of Marine Resources laws and regulations with taking unculled oysters the major violation (30 percent) followed by shrimping in closed waters (23 percent). Citations were also issued for 91 violations of water safety and game and fish laws and regulations.

MARINE FISH KILLS

A total of four fish kills were investigated by Marine Resources Division biologists during the past fiscal year. Three of the four kills were thought to result from fishermen discard and one kill involving Spanish sardines was unexplained. In addition to the four fish kills investigated, Marine Resources Division biologists implemented a plan in January to evaluate cold-related fish kills. The plan was formulated as standard procedure for unusually cold weather during the winter months and although no mortality was associated with the severe weather on January 27 and 28 of 1986, the established protocol will be followed in subsequent years.

Marine Fish Kills FY 1986

Location	County	Date	Total Killed	Species
Gulf of Mexico	Baldwin	11-8-85	146	Atlantic croaker Hardhead catfish
Old River	Baldwin	8-25-86	105	Ladyfish
Gulf of Mexico	Baldwin	8-18-86	125	Menhaden
Gulf of Mexico	Baldwin	9-16-86	13,022	Spanish sardine Menhaden Hardhead catfish Hardtail Bluefish, Bonita Ladyfish
		Total	13,398	

COMMERCIAL FISHERIES LANDINGS

Commercial landings during 1985 totaled 29,900,000 pounds valued at $39.3 million, an increase of 13 percent in volume and a decrease of 10 percent in value compared to 1984. Shrimp landings were 20,430,000 pounds valued at $34.4 million dockside accounting for 68 percent and 88 percent of the 1985 volume and value, respectively. Shrimp prices were down considerably from 1984, resulting in a $6 million decrease in value even though the volume increased 2 million pounds. Oyster landings during 1985 were the highest since 1982 even though Hurricane Elena caused extensive damage in September. A total of 1,444,800 pounds of meats valued at $1,811,300 was reported, a 300 percent increase in volume and 266 percent increase in value over 1984. Finfish landings were up due to the increase in red drum landings from offshore federal waters. Red drum increased from 853,000 pounds during 1984 to 2,840,000 pounds in 1985. The offshore fishery was closed in 1986 due to increased demand for red drum.

PUBLICATIONS

Marine Resources Division personnel authored the following articles in the expanded May/June 1986 issue of Alabama Conservation: "Recreational Shrimping" by Steven R. Heath; "Fishing in Alabama's Estuarine Bays and Rivers" by Robert F. Helton, Jr.; "Coastal Beach and Pier Fishing" by Phillip L. Kilpatrick; "Offshore Reef Fishing" by Don M. Kelley; "Alabama's Marine Recreational Creel Survey" by Henry Lazauski; "Speckled Trout Tagging and Release in Coastal Alabama" by Vernon R. Minton; "Coastal Stripers: Tell Us If They're Tagged" by Madison R. Powell; "Crab Fishing for Fund and Food" by Walter M. Tatum; and "Marine Resources Enforcement" by Major Jerald K. Waller.

Additional articles and reports were published in the Alabama Department of Conservation and Natural Resources Mimeo File Reports of 1985 and 1986: "State/Federal Cooperative Statistics Program" by Henry Lazauski, Completion Report Project SF-18, 1986; "Alabama and Mississippi Cooperative Striped Bass Restoration Program" by Vernon R. Minton and Madison R. Powell, Completion Report AFCS-23, 1986; "Research and Management of Alabama's Coastal Fisheries" by Vernon R. Minton and Madison R. Powell, Completion Report Project 2-391-R, 1985; and "Alabama/NMFS Cooperative Southeast Monitoring and Assessment Program" by Walter M. Tatum, Semi-Annual Progress Report SM-12-1.

FLORIDA DEPARTMENT OF NATURAL RESOURCES

DIVISION OF MARINE RESOURCES

BUREAU OF MARINE RESOURCES

Biologists of the Florida Department of Natural Resources, Bureau of Marine Research, reviewed and commented on several Gulf of Mexico and South Atlantic fisheries management plans by supplying research data and critiques. Other advisory and research assistance was provided to various federal, state and local agencies. New programs in 1986 included 1) construction of the stock enhancement research facility, with snook as the first test species scheduled for 1987; 2) studies on hard clam resources; 3) Gulf of Mexico stone crab studies; 4) west coast mullet studies; and 5) initiation of a program to assess queen conch populations.

FINFISH

From December 1984 through June 1986, 1,886 Spanish mackerel were tagged off the Florida east and west coasts using internal anchor tags. Only twelve recaptures have been reported to date: nine from the west coast and three from the east. Two of these are the first Spanish mackerel tagged off the Florida west coast to document a fall southerly movement to overwintering grounds off south Florida. Both were tagged off Clearwater in October 1985; one was recaptured 27 days later off Venice and the other 70 days later off Key West. A similar movement was shown for an east coast fish tagged off Jacksonville in June 1986 and recaptured in early December 170 miles south, near Sebastian. Factors influencing the low return rates are unverified at this time. The Spanish mackerel tagging program has not been funded for 1986-1987.

A total of 507 red drum were tagged and released in Tampa Bay in 1986, continuing a life history study. Manuscripts on reproduction, growth and mortality and a tag/recapture study on the Gulf Coast are in review. In October 1986, MARFIN funding was secured to tag red drum in northwest Florida and validate ages of adult red drum along the east-central coast of Florida.

A study of spotted seatrout life history was initiated in February. In 1986, 5,720 spotted seatrout were sampled in Charlotte Harbor, Apalachee Bay and the Indian River. Sectioned otoliths and histologically prepared gonadal tissues have been processed for further study.

Studies of swordfish reproduction indicate spawning occurs from late winter through summer, with peak spawning April through July.

In addition to construction of ponds for stock enhancement studies, snook life history studies progressed. Lengths, weights, gonads and otoliths from 447 fish were recorded; length and sex data were collected from an additional 1,200 snook.

INVERTEBRATES

Investigations of spiny lobster growth rates and fishery-induced growth retardation and mortality were completed. Work continued on studies of migration, escape rates,

escape gap design, comparative bait assessments, and morphometrics. A study was initiated to investigate population dynamics, offshore recruitment, and comparative population assessment techniques at Looe Key National Marine Sanctuary.

A project to assess existing conch stocks and evaluate the feasibility of stock enhancement with hatchery-reared juveniles was funded and launched late in the year.

A project to develop information for management of hard clams (quahogs) in the Indian River Lagoon was initiated. Various sampling strategies and schedules are being employed to investigate age, growth, recruitment, reproduction, mortality and genetic composition of stocks.

A study of stone crab mortality induced by exposure during capture was completed, as was another on the genetic composition of the two stone crab species and their crosses in the northwest Florida hybrid zone. Field sampling began in October to compare population dynamics and life history strategies of the two species and hybrids in that zone; information obtained will allow more rational management of those stocks. A symposium on stone crab biology and management was sponsored to facilitate exchange of information among fishermen, biologists and resource managers.

Analyses and writing of results of blue crab field studies conducted during 1980-84 continued. Topics of four reports in preparation include population assessment (abundance, size structures, reproduction, and habitat associations) of blue crabs in Apalachee Bay, Tampa Bay and south Florida (Cape Romano to Biscayne Bay), and migration of blue crabs in west and south Florida.

HABITAT

Under contract with the Florida Department of Environmental Regulation, the Bureau has continued to assess coastal and estuarine fisheries habitat changes. Areal fisheries habitat component loss, e.g., mangroves, seagrasses, saltmarshes, mud flats and oyster reefs, is being documented through time series evaluations of aerial photographs, satellite imagery and maps for Charlotte Harbor, Tampa Bay, Indian River, Loxahatchee River, northeast Florida, the Big Bend area, Ponce Inlet and the Florida Keys. Techniques to establish the relationship of habitat to fisheries will be tested in order to define carrying capacity of wetlands. Completed reports are ready for publication.

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

Microcomputer Geographic Information Systems have been established for habitat manager and researchers. Preliminary activities indicate GIS products are feasible and useful.

PLANKTON

Studies of toxic dinoflagellates continue. Samples collected at a disturbed reef site (Molasses Reef) are being processed to determine relative abundance of potentially toxic dinoflagellates. Dinoflagellate studies include the culture of suspect toxic and/or locally dominant species, clarification of taxonomically important characteristics, and delineation of life histories.

A red tide bloom (Ptychodiscus brevis) was identified on the west coast of Florida on 12 September 1986 and monitored routinely through December. Shellfish beds were closed whenever the red tide was imminent inshore, and were reopened only when both the waters and shellfish meats tested free of toxins, to protect the public health.

ENDANGERED SPECIES

The green sea turtle headstart program, utilizing improved facilities, began an assessment of sex ratios of green turtle yearlings produced by Florida's population recovery project in Jensen Beach. This assessment was initiated in response to concerns that some hatchery practices may bias sex ratios of sea turtles reared in headstart programs.

The West Indian manatee recovery program established two additional boat speed regulatory zones, bringing the total to 21 zones, to reduce mortality associated with boat kills. During 1986, 21 manatees were tagged with radio transmitters and 8 were tagged with satellite transmitters. Manatee mortalities totaled 125 and fell into the following mortality categories: boat/barge collisions, 33; crushed/drowned in flood gates or canal locks, 3; other human related, 1; perinatal, 27; other natural, 13; undetermined, 42; verified but not recovered, 6.

FISHERIES STATISTICS

The fisheries statistics and data processing cooperative effort with NMFS continues. The state "trip ticket" program for commercial statistics started in December 1984 and had about 200 dealers reporting. The program now has about 650 reporting dealers. The purpose of these programs is to determine catch, effort and ex-vessel value of all marine commercial fishery resources landed in Florida. THe NMFS recreational catch statistics for 1979-1984 were used for stock assessment of mackerels, redfish and spotted seatrout. The first year of a state recreational fisheries program to inventory all fishing sites and shore based facilities (ramps, charter boats, etc.) using Wallop-Breaux funds is nearly complete. This inventory will allow further refinement of recreational surveys.

BUREAU OF MARINE RESOURCE REGULATION AND DEVELOPMENT

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

More than 16,000 shellfish growing water samples were tested for fecal coliform contamination to monitor Florida's shellfish harvesting areas. Ten Environmental Specialists routinely monitor all approved, conditionally approved, and prohibited areas. In addition to routine water monitoring, personnel are responsible for red tide sampling and comprehensive shellfish area surveys of reappraisals.

The Processing Plan Inspection Program is staffed by five Environmental Health Specialists responsible for ensuring that oyster, clam, and blue crab processing plants throughout Florida maintain strict adherence to sanitary standards. As of January 1987, a total of 227 shellfish processing plants and 44 blue crab processing plants were certified.

More than 2,300 acres of State-owned submerged lands are currently being leased for shellfish propagation. Leases located in the Indian River were used intensively during 1984 and 1985 to relay hard clams from closed areas to leases in open waters. This significantly increased hard clam landings.

The Artificial Reef Program, which provides funds to local governments to help defray the costs of constructing an artificial fishing reef, was enhanced by receipt of Wallop-Breaux funds from the U. S. Fish and Wildlife Service. Twenty projects were funded in 1986 and proposals for 23 new projects were received for review.

Nine staff members are assigned to the Oyster Culture Program and are responsible for the construction of artificial oyster reefs to enhance the production of oysters in selected areas around the State. Shucked oyster shells are collected from oyster shucking establishments, stockpiled, and "cured" before being used as cultch for the "planting" of these reefs. In addition to this ongoing program, the State of Florida received a $1,570,000 grant to reconstruct Apalachicola Bay oyster reefs damaged during Hurricane Elena. During spring 1986, $918,000 were spent to plant 56,470 cubic yards of clam shell; this recreated approximately 230 acres of oyster reef. Recovery is occurring slowly. The remainder of the grant will be expended spring 1987.

Legislative appropriations for relaying seed oysters and rehabilitating oyster reefs totaled $300,000 during fiscal year 1986-87. Funds were committed to programs in the following Florida counties: Bay County received $68,000; Wakulla County $55,000; Levy County $55,000; St. Johns County $25,000; Santa Rosa County $55,000; Dixie County $15,000; and Walton County $27,000. Funds were administered through contracts between the Department of Natural Resources and local fishermen's associations. Programs were supervised by representatives of the Division of Marine Resources.

Depuration is a process whereby bacteria-free water is circulated through shellfish harvested from polluted areas. After a minimum of 48 hours, the process will render shellfish safe for human consumption. Ultraviolet radiation is used to kill bacteria and viruses which are purged by the contaminated shellfish. Six depuration plants are currently permitted by the Department. It was estimated that depuration added more than $1 million to the 1985 hard clam ex-vessel values.

BUREAU OF MARKETING AND EXTENSION SERVICES

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

Consumers are made aware of Florida seafood through personally conducted group demonstrations, television demonstrations, radio spots, and interviews, plus newspaper and magazine articles containing recipes and photographs. However, education goes much

further than directly to the consumer. Marketing Specialists are in constant touch with food chain seafood merchandisers, brokers, wholesalers and retail seafood dealers making these people aware of species availability, promotional efforts and materials, "tie-ins", and market trends. Full knowledge of existing conditions in both Florida and the Nation's seafood industry, plus knowledge of and potential marketing possibilities is essential. This is accomplished by the continuous analysis of "catch" statistics, current market trends, and direct contacts with producers and processors. Also, marketing staff members engage in specific seasonal promotions three times a year.

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

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

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

The future for seafood marketing continues to focus on "change" and "new technology." The Bureau recently acquired video equipment which enables production of inhouse short-series video tapes to tell the story. Tapes will be introduced at seafood retail counters as point-of-sale information and will offer exciting graphics for seminars and consumer education programs. A tape library will be available for distribution of taped programs throughout the United States upon request and will contain a variety of subjects from "Catch to Kitchen" about the industry.

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

LOUISIANA DEPARTMENT OF WILDLIFE AND FISHERIES

OFFICE OF COASTAL AND MARINE RESOURCES

Since 1969, fisheries landings in Louisiana have consistently exceeded one billion pounds. In 1986, Louisiana once again led the nation in seafood production with landings of 1.7 billion pounds and a dockside value of $321.5 million. The Office of Coastal and Marine Resources is the office within the Department of Wildlife and Fisheries charged with managing and regulating Louisiana's marine and estuarine fisheries resources within the framework and policy established by the Louisiana Legislature. This office is supervised by one of two assistant secretaries within the Department of Wildlife and Fisheries who reports directly to the Secretary.

In 1986, scientists within the Office of Coastal and Marine Resources represented the department and have taken on leadership roles on numerous gulfwide and national resource management committees and task forces. Scientists within the office have also reviewed and commented on numerous environmental impact statements and fishery management plans developed by the Gulf of Mexico Fishery Management Council and the Gulf States Marine Fisheries Commission.

SEAFOOD DIVISION

The Seafood Division is the largest program within the Office of Coastal and Marine Resources. During 1986, efforts were made to streamline the operations of the division as the Fish Kill section was merged into the Finfish Management Section and the Seismic Section was merged into the Ecological Studies Section directly under the Office of Coastal and Marine Resources.

Personnel within the Seafood Division serve as technical advisers and represent the department on numerous national, gulfwide and State fisheries management organizations, i.e. the Gulf of Mexico Fishery Management Council, Gulf States Marine Fisheries Commission, MARFIN, Lake Pontchartrain Task Force, Task Force on Shrimp Management, the Seafood Promotion and Marketing Board, the Governors Economic Recovery Council, and the Legislative Task Force on Underwater Obstructions, etc.

ADMINISTRATIVE SECTION

The Administrative Section controls the fiscal, personnel and policy functions for the division as well as coordinating fisheries research, monitoring and management activities. This section also administers and issues permits to persons engaged in various activities. During 1986, 127 Scientific Collecting permits were issued to scientists to collect marine and estuarine fish and invertebrates for research and education; 25 Special Bait Shrimp permits were issued in accordance with R.S. 56:497; 47 Experimental permits were issued in accordance with R.S. 56:571; and 18 Pompano permits were issued in accordance with R.S. 56:406.

FISHERIES MANAGEMENT SECTION

MANAGEMENT AND RESEARCH

In 1986, this section maintained a vigorous shrimp monitoring program. Biological information on the distribution, density and average size of shrimp, blue crabs and bottomfish was collected at 109 stations across Louisiana in inshore waters as well as

Louisiana's offshore waters west of the Mississippi River. Hydrological readings were also taken each time a biological sample was collected. Other data which influence those biological populations such as Mississippi River discharge rates and coastal rainfall accumulations were collected and analyzed. In 1986, information from these monitoring activities were entered directly into the computer (P.C.) using newly developed data entry techniques for the P.C.

Data from these monitoring activities were used to formulate Department recommendations for opening and closing the spring shrimp season as well as a special shrimp season east of the Mississippi River following regular the fall season. Data from this monitoring program was also used to evaluate shrimp population shifts, i.e., the early offshore emigration of white shrimp in the western portion of Louisiana during late July and early August as well as long term trends in shrimp populations in Louisiana waters.

BLUE CRAB RESEARCH

The use of escape rings in crab traps to reduce the catch of small crabs was evaluated in 1986. Several different experiments were conducted to evaluate different ring sizes (2-1/4", 2-3/8", 2-1/2") ring locations and number of traps. Preliminary data suggest that the 2-1/2" rings were best in reducing the catch of sublegal (less than 5" in length point to point) size blue crabs. Sublegal catch in traps with 2-1/2" rings were reduced 65% and 72% from control levels in two different experiments. The number of legal crabs were roughly equal in the control traps and traps with 2-1/2" rings; however, weight of legal crabs increased 5.5% and 2.9% in the traps with 2-1/2" rings because of the larger average size of crabs in the experimental traps as compared to the control traps. Preliminary data from an experiment evaluating ring location (corner flush with the floor, mid-trap flush with floor, upper mid portion of trap) suggest that traps with rings located flush with the floor, either in the corners or in the middle, produced the best results. From control levels, sublegal catch was reduced 77%-78% while the legal catch increased 7.0% and 7.5.%. Data from the experiment evaluating ring number was inconclusive. The use of escape rings in crab traps as a management measure appears very promising. Research is continuing with the use of escape rings.

The impact of ghost traps was also evaluated in 1986. Many crab traps are abandoned or lost every year. These "ghost" or derelict traps continue fishing for an undetermined length of time. Twenty-five traps were baited once and then checked weekly. All crabs were tagged and measured and returned to the trap. Fiberglass screens were placed on the bottom of the trap to prevent tags from falling through the bottom of the trap. Three months of preliminary data collected during 1986 shows an average of 12.8 crabs per trap were initially attracted to the bait; after the initial bait was gone an average of 9.8 crabs were recruited to each trap. Recruitment of new crabs deceased as the total number of crabs in the traps decreased and the water temperature dropped. An average of 14.3 crabs died and 7.1 crabs escaped from each trap. The total number of crabs in the traps declined steadily from 12.8 to 2.7 due to escapement, mortality and decreased recruitment of new crabs. Crabs that escaped from the traps stayed an average of 14.7 days while crabs dying in the traps lived an average of 16.4 days. Length frequency data showed that the smaller crabs were more likely to escape from the traps than the larger crabs.

MENHADEN FORECAST

Meetings are held every year with menhaden industry personnel prior to the opening of the menhaden season to present catch forecasts and to discuss other matters relative to the menhaden industry.

Models for predicting commercial catches of gulf menhaden have been developed by Guillory and Bejarano (1980) and Guillory, Geaghan, and Roussel (1983). These predictive models are based on abundance of juvenile menhaden taken in the shrimp monitoring trawl samples the previous year and on hydrological/climatological data such as salinity, temperature, river discharge, wind direction, and tides, also from the previous year. Catch per effort of age I menhaden is predicted. Since age I menhaden normally comprise 90% and 67% of the catch in western and central Louisiana, the age I forecast also reflects on total catch.

In addition to the above models, optimum hydrological/climatological conditions have been identified for the critical early life history stages, usually some time during the December to March time frame. Relatively cold, dry winters are associated with good recruitment of age I menhaden into the fishery the following year. The cold, dry winter is characterized not only by low temperatures and low rainfall but also by low tide levels, low Mississippi River discharge, high salinity, low wind speeds, and low incidence of southeast winds.

Catch per effort forecasts generated by the two predictive models, as well as general hydrological/climatological conditions, indicated that a very weak year class of age I fish would be entering the menhaden fishery in 1986. No 1986 catch per effort data is available, but preliminary data by NMFS revealed that age I fish comprised only about 33% of the catch. This suggests a very weak age I year class, as age I fish normally comprise approximately 2/3 of the entire catch.

In 1986, the menhaden catch in the Gulf of Mexico was approximately 824,500 metric tons, or 1,818,000,000 pounds.

OYSTER

A number of oyster leases were examined during January and February of 1986 for the possibility of damages caused by Hurricane Juan. Most of the 52 leases, located in upper Plaquemines and St. Bernard Parishes were suffering from overburdens of sediments in association with varying amounts of vegetation and organic matter. These leases were located in bays and lakes rather than bayous.

Due to a combination of heavy fishing pressure during the previous season, adverse climatological conditions and pollution, the 1986-87 season was the poorest oyster harvest since 1966. Salinity, the prime determining factor for oyster production, was extremely high statewide due to drought conditions and low river discharges. Salinities were too high for production in normally high production areas, while areas normally low in salinities came into production, i.e. Vermilion/Atchafalaya Bays.

Seed oyster production for the 1986-87 season will total approximately 140,000 barrels with most of this production from Sister Lake and Vermilion/Atchafalaya Bays.

Market oyster production for the 1986-87 season will total approximately 327,000 sacks, off 40% from last year. With the supply down and the demand up, oystermen received high prices for their product (as high as $21.00 per sack).

Recognizing the need for freshwater diversion in the past as well as presently, the Seafood Division of the Department of Wildlife and Fisheries has made necessary repairs to restore the Bayou Lamoque freshwater diversion structures, and placed them into operation in an attempt to stimulate primary production within the ecological food chain in

California Bay and adjacent areas. By the introduction of nutrients via the diverted freshwater, the resulting increase in plankton production will stimulate the production of all fisheries resources including oysters.

The seed oyster production for the 1987 season will depend primarily on normalizing salinities. Although a general spat set was observed throughout the month of September, these oysters may not survive unless salinities decrease.

A State funded shellplant was conducted in Coastal Study Area II during May of 1986. Clam shell consisting of 25,000 cubic yards was sprayed at a rate of 50 cubic yards per acre over 500 acres in Black Bay and Bella Pass. These shellplants were examined in June, and spat were observed on the shell. Also, a general spat set in September caught on these shellplants and seed oyster production is expected providing improved environmental conditions.

Oysters were transferred from polluted and otherwise undesirable areas in Calcasieu Lake to more suitable areas in May, 1986. A transfer of 33,000 sacks to a suitable area of West Cove augmented the current stock resulting in the production of over 50,000 sacks of market oysters.

In 1983, House Concurrent Resolution 93 created the Oyster Management Task Force to advise and assist the State Health Officer on issues pertaining to the classification of oyster growing areas. This task force consists of members from the Senate, House of Representatives, Police Juries Association, Department of Health and Human Resources, Department of Wildlife and Fisheries, and representatives of the oyster industry. Within this task force are three subcommittees: Appeals, Legislative and Information, and Enforcement. Members of the Department of Wildlife and Fisheries serve on all three subcommittees.

LYLE S. ST. AMANT MARINE LABORATORY

The primary function of the Lyle S. St. Amant Marine Laboratory is to conduct applied research for the betterment of Louisiana's seafood resources. Problem specific studies as well as extensive monitoring programs are designed by the research staff who in turn are responsible for interpretation of the data and for recommendations concerning management alternatives. Major accomplishments and projects undertaken in 1986 are listed below by topic.

SHRIMP

Since 1981, inshore brown shrimp population in the Barataria Bay system have been sampled intensively before and after the opening day of the inshore season. This intensive sampling scheme is now used on an annual basis to evaluate the efficiency of the inshore fleet and to determine the success of the opening date with respect to the 100 count/pound criteria. In 1986, approximately 45% of the inshore brown shrimp population was 100 count or larger on opening day. The efficiency of the fleet was comparable to that observed in previous years with the marketable inshore population decreasing by 75% in the first week of the season.

Laboratory researchers have continued to analyze historical data sets generated by the Seafood Division's coastwide shrimp monitoring program. One such analysis involved determining the relationship between juvenile abundance, as measured by the Division's inshore trawl samples, and annual NMFS shrimp catch statistics. A strong relationship was found to exist and was used successfully in predicting brown shrimp catch in 1986.

Monitoring of an extensive shrimp farming operation in LaFourche Parish was continued in 1986. The purpose of the monitoring program is to determine the potential for, and the problems associated with, such operations in coastal Louisiana.

OYSTERS

In 1986, using a predictive model developed at the Laboratory, a forecast was made of seed oyster availability during 1987 on the primary seed grounds east of the river. Over the past four years these forecasts have proven reliable and have served as a basis for management recommendations concerning the seed grounds. Unfortunately, seed production on the primary grounds in 1987 is predicted to be no better than the poor production observed in 1986.

A survey of the Public Oyster Grounds in Atchafalaya and Vermilion Bays was conducted by Marine Lab researchers in September, 1986. From the high oyster densities and the vast reef areas observed, it was projected that full utilization of this resource could partially offset the poor production on the primary grounds east of the river.

Using data provided by the Louisiana Department of Health and Human Resources and the U.S. Army Corps of Engineers, Lab researchers identified relationships between Atchafalaya River stage and fecal coliform levels in Four League Bay, Atchafalaya Bay and Vermilion Bay. These findings have enabled DHHR to conditionally manage these important oyster producing areas.

At the request of oyster lease holders, Marine Lab personnel conducted thirteen lease investigations in 1986.

FINFISH

Sampling continued for a fourth year in a study to determine environmental parameters influencing distribution and abundance of young-of-the-year (YOY) spotted seatrout and red drum. While the abundance of YOY seatrout in 1986 was comparable to the previous three years, the number of YOY red drum collected in 1986 was greater than the combined total of the previous three years. These findings are noteworthy due to current concerns over the status of red drum spawning stock.

In 1986, a King mackerel tagging project was begun in conjunction with the National Marine Fisheries Service. A total of 900 mackerel will be tagged and 400 tissue samples collected.

CRABS

A study was begun in 1986 to determine the annual variability in blue crab populations in the Barataria Bay system. Historical trawl data from Coastal Study Area III is being used in the analysis.

FRESHWATER DIVERSION

Marine laboratory scientists continued to work in close cooperation with the Louisiana Department of Natural Resources and the U. S. Army Corps of Engineers to bring about large-scale controlled freshwater diversion from the Mississippi River into coastal Louisiana.

Since freshwater diversion is perhaps the most effective way to address coastal deterioration and enhance estuarine productivity, facilitating such projects has been given top priority at the marine laboratory.

COOPERATIVE STUDIES

In 1986, two cooperative studies were undertaken between marine laboratory scientists and LSU researchers. Such arrangements are mutually beneficial and allow for more complete utilization of the laboratory's facilities.

The purpose of one ongoing study is to determine the feasibility of, and the problems associated with, pond culture of red drum. The work is being conducted in the research ponds on the marine laboratory grounds. The other study was an investigation into triploidy and the genetic variability in oysters. The laboratory's hatchery contributed oyster larvae and broodstock for these experiments.

FINFISH MANAGEMENT SECTION

RESEARCH AND MONITORING

The Finfish Section became fully operational on January 1, 1986 throughout coastal Louisiana.

Samples were taken throughout the year with monofilament gill nets composed of various mesh-sized panels. These nets were designed to capture fishes of various lengths and weights so that year class strength of particular species could be ascertained. Sample sites are strategically located in order to identify species diversity and distribution.

Small mesh beach seines, 50 feet in length, were utilized to capture young-of-the-year fish in order to determine spawning periods and success, length of time these small fish remain in the shallow marsh and early growth rates.

Trammel nets were also used on a monthly basis to develop an index of relative abundance and standing crop of all species captured. These nets are designed to meet the legal specifications utilized by the commercial industry in order to better understand and follow commercial landings.

Section personnel were also involved in development of a finfish management plan which is now in a second draft stage. The plan contains an accumulation of research conducted on spotted sea trout, red drum, black drum, striped mullet, king mackerel, Spanish mackerel, southern flounder, Atlantic croaker, spot cobia, red snapper, Warsaw grouper, scamp, black grouper, yellowfin grouper, snowy grouper and Gulf butterfish.

A creel survey conducted in 1984 was also written up, and is in the second draft form. The survey, conducted along the entire coast of Louisiana, identifies the recreational catch and effort statistics placed on various species of fish encountered.

Finfish Section personnel are involved in tagging juvenile redfish and participating in the Marine Fisheries Initiative Program (MARFIN) to gather data to best manage the fisheries of the Gulf of Mexico. Tagging began in October and will continue throughout 1987. Tag returns from this project will help researchers better understand movement and migration patterns of redfish within the estuaries and into offshore waters. Finfish personnel also have the administrative duty to monitor four other MARFIN projects being conducted by the department and Louisiana State University.

A project entitled "Catch Effort and Bio-profile Sampling of Commercially Landed Red Drum In Louisiana" is being conducted to obtain fishery dependent data. The objectives of the project are to collect catch and effort data and length frequency composition of adult red drum caught by commercial vessels in both offshore and nearshore waters, and, to obtain otoliths, scales, and eye lenses from these sampled fish for age and growth and genetic structure determination. The second project "Age Structure and Growth Rates of Red Drum Landed in Louisiana" was designed to validate annulus formation in the otoliths of red drum as they occur in the landings. The third project will assess all information necessary to manage red drum resources in Louisiana and in the fishery operating in offshore waters. The project will determine mortality rates, sizes at recruitment, escapement in the fishery, and will develop an index of stock abundance to be used in managing red drum stocks. The fourth project deals with king mackerel and is entitled "King Mackerel Tagging and Tissue Sample Collection in Louisiana Waters". The purpose of the project is to tag and release 900 fish in the waters off the Louisiana coast in an attempt to identify the existence of one or more multiple stock(s) of King mackerel in the Gulf of Mexico.

LOUISIANA ARTIFICIAL REEF INITIATIVE (LARI)

Artificial reefs of any type are normally "fish enhancers" as habitat, more abundant food, and shelter are provided. The enactment of the National Artificial Reef Plan (NOAA Tech. Memo. NMFS of 6, 1985) created a vehicle for all states to adopt plans which would enable them to initiate a program for reef development. Guidelines could vary according to locality and need, but would generally conform to the requirements contained in the national plan.

Representatives of Louisiana Department of Wildlife and Fisheries, Louisiana Department of Natural Resources, LSU Sea Grant Legal staff, LSU Center for Wetland Resources, Coastal Fisheries Initiative, Louisiana Geological Survey, U. S. Department of the Interior, Minerals Management Service, Concerned Shrimpers Associations, Divers Association, Offshore Operators Commission, Louisiana Department of Culture, Recreation and Tourism, GCCA, and representatives of most major oil companies serve on an Ad Hoc committee to develop a plan for Louisiana. This group developed an artificial reef plan and submitted the plan to the Louisiana Legislature during the 1986 session which resulted in Act 100 (HB1111).

Since passage of this bill, the committee has developed a "donors agreement", allowing for donation of reef material to the State of Louisiana. Site selection has also been proposed, offers received for donation of platforms from petroleum producing interests, a tentative operating budget established, and public hearings scheduled. After all procedural requirements are satisfied, actual staffing will occur and work will begin.

The end result will be of tremendous benefit to Louisiana, her residents and all fishermen, divers, and users of the fishery resource. Those platforms associated with petroleum production in the Gulf of Mexico may remain as artificial reefs under this program, rather than be removed. Fishery resources associated with these structures will also remain and hopefully increase. All users will then be able to continue their hobby or livelihood which is dependent upon these structures.

COASTAL INVESTIGATION SECTION

HYRODLOGICAL MANAGEMENT

At the start of the year the section continued to operate 15 coastwide hydrographic data recorders. These data were used to address problems including the West Cove (Calcasieu Lake) brine spill, brown shrimp catch predictions, white shrimp catch variability, oyster contamination complaints in Caillou Lake and Vermilion Bay, wind transport of sand dunes in coastal areas, coastwide salinity changes since 1961 and menhaden catch prediction. However, due to lack of funds for repairs and maintenance, five recording stations were discontinued (Coastal Study Areas 1, 4, 6 and 7) and further reductions are expected as additional breakdowns occur. The section expanded its hydrographic data quality assurance program to cover all Coastal Study Areas.

Work continued on the Map Overlay and Statistical System (MOSS) habitat quantification and mapping project in cooperation with the U. S. Fish and Wildlife Service Coastal Wetlands Ecosystems Laboratory and the Louisiana Geological Survey Coastal Protection Section.

Hypoxia (low oxygen) was noted for the sixth year in a row on the central Louisiana shelf. The lack of tropical storms this year caused the condition to be continuous from May through September. An additional transect was added in June, giving information on the areal extent of the hypoxia. Work continued on the Department's technical report on shelf hypoxia, utilizing PC implemented contouring analysis with the six years of information this section has gathered on the phenomena.

The section continued its participation in the Governor's Task Force on Lake Pontchartrain, including evaluation of environmental changes which are occurring in the area and recommendation of guidelines to retard the destructive processes taking place.

The section established the LAMER coastal data repository, a source of biological and hydrographic data for scientists interested in the Louisiana coastal zone. The section used LAMER files in conjunction with the LSU Department of Experimental Statistics to determine the effects of environmental changes on commercial white shrimp catch, and provided data for a report entitled "Ichthyoplankton In Neritic Waters of the Northern Gulf of Mexico off Louisiana: Composition, Relative Abundance" using Mississippi River discharge data.

An annotated bibliography of publications of the Office of Coastal and Marine Resources was prepared for easy reference and distributed within the Department.

Personal computers continued to be integrated into daily operations, e.g., electronic spreadsheets for budget analysis, hydrographic data reduction and contouring, plankton database manipulation, and semi-automated water quality and primary productivity analyses. The section is developing statistical analysis capabilities, using PC SAS, on its newly acquired PC AT system.

SEAMAP

The department continued it's participation in the Southeast Area Monitoring and Assessment Program (SEAMAP), a cooperative State/federal program fund by the U.S. National Marine Fisheries Service through the Gulf States Marine Fisheries Commission. SEAMAP coordinates the collection and distribution of fishery-independent data from the northern Gulf of Mexico. SEAMAP work groups established guidelines and priorities for plankton

sampling, environmental sampling and red drum research. The SEAMAP subcommittee met with Mexican fisheries researchers to discuss common goals in the Gulf of Mexico.

Day and night nekton, plankton and environmental parameters were sampled in offshore waters to 15 fathoms on week long cruises in May, June, October and December. The contract research vessel R/V PELICAN was staffed with section biologists as well as personnel from other sections in the Seafood Division. Similar samples, but on a smaller scale, were taken by each coastal study area to depths of 5 fathoms in June and November. The department participated in a squid/butterfish exploratory cruise by contributing SEAMAP funds towards vessel time.

MISSISSIPPI DEPARTMENT OF WILDLIFE CONSERVATION

BUREAU OF MARINE RESOURCES

The Bureau of Marine Resources (BMR) is a very technical and complex division of the Department of Wildlife Conservation. The BMR's responsibilities include saltwater fisheries management, enforcement of seafood laws, management of coastal wetlands and the all encompassing effort to manage all coastal resources through the Mississippi Coastal Program.

Although the BMR's public image is often viewed to be regulatory, many of its functions are assistance and development oriented. The BMR offers technical assistance to the Department of Natural Resources and the Governor's Office on environmental matters regarding oil and gas exploration off-shore. The BMR provides grant and contractual monies through the Coastal Program for a variety of recreational, public works and developmental programs needed by local units of government, universities and other public institutions. Furthermore, the BMR provides technical assistance to individuals, small businesses and industries in the coastal area concerning aquaculture, pollution abatement, product development, waste utilization and many other functions.

The following sections provide a more specific glance at BMR activities during FY 1986.

SALTWATER FISHERIES

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

The monitoring and assessment work is intended to provide support data for the management of the state's fishery resources, to coordinate seasonal openings and closures of the various fisheries in the territorial sea. In addition to these fisheries-independent studies, division biologists participate in a regional commercial fisheries statistics program in which landings data are collected, processed and evaluated. The end result of these efforts include: publication of Mississippi Landings, the tri-weekly Market News Report and other miscellaneous landings-related reports.

The Division's annual program of oyster reef rehabilitation involved the planting of some 10,000 cubic yards of clamshells during the spring of FY 86, most of which was placed on the St. Joseph's Point and Henderson Point reefs. While oyster resources have been plagued by high salinities and oyster drills in recent years, the historical success of the rehabilitation work is evident from the 1983-84 oyster season when some 360,000 sacks were harvested from state reefs, much of which were found to be growing on clamshell substrate.

In FY 86, the Division of Saltwater Fisheries was awarded several new federal grants including a $60,000 grant to conduct a roving creel survey of Mississippi Sound and adjacent waters. Other grants will allow fisheries division biologists to conduct a mark/recapture study of brown and white shrimp in cooperation with the Louisiana

Department of Wildlife and Fisheries and a mark/recapture study of red drum in cooperation with the Gulf Coast Research Laboratory and the National Marine Fisheries Service.

DESCRIPTION OF FISHERIES

COMMERCIAL FISHERIES

Landings of commercial marine fish and shellfish during 1985 amounted to 432.7 million pounds valued at 38.00 million dollars. This represents a 1.2 percent increase in volume and a 12 percent decrease in value over the previous time period. The following is a brief summary of each of the state's major fisheries for which data are available and which can be released under existing confidentiality provisions:

Menhaden

Mississippi menhaden landings of 415.1 million pounds in 1985 represent an 11 percent increase over the landings in 1984. The total value of 11.214 million dollars was down over the total value in 1984. The unit cost (price per pound) for menhaden, at $.027 was down some 41 percent over the unit cost in 1984.

U.S. menhaden landings similarly declined in both volume and value during this period. The U.S. menhaden catch is slightly below that of the previous two record catches of 2.2 billion pounds in 1984 and 2.0 billion pounds in 1983. Southeast Fisheries Center scientists last year predicted that the fishery would be unable to sustain these record levels of harvest, and this year's sharp decline only serves to help validate that assertion.

The production of menhaden oil was 278.4 million pounds for 1985. This reflects a 24 percent decline in volume of this important product. The price of menhaden oil also declined by nearly 31 percent compared with 1984 levels. Menhaden oil, which is used in cosmetics, rust-proof paints, and fine machine oils among other things, accounts for 98 percent of the total volume of fish oil production in 1985.

Oysters

Mississippi oyster landings of 1.19 million pounds of oyster meats were down some 13 percent from last year's figures. The value also showed a decrease of 13 percent during the period, with unit costs falling to $1.25.

The unusual situation of having a decline in landings and a concomitant drop in unit price is probably the result of a heavy influx of oysters from out-of-state sources (i.e. Maryland, Virginia, Florida, Texas and Louisiana).

Neighboring Louisiana accounted for some 53 percent of the nation's total oyster production in 1984 with a total volume of 25.4 million pounds.

Harvest from state reefs accounted for only some 65,000 sacks during the 1984-85 oyster season.

Blue Crabs

Landings of hard, blue crabs declined to 1.648 million pounds in 1985. Processed crab meats were reported down at each of the principal ports of Pascagoula and Biloxi. The total value of blue crab landings fell to $538,024, down 15 percent from 1984. The

price-per-pound for blue crabs, however, rose to $0.33, presenting a 14.7 percent increase.

Total Gulf-wide landings of blue crabs were down to 49.4 million pounds, a three percent decline.

EDIBLE FINFISH

Fluctuating finfish landings are typical in northern Gulf of Mexico fisheries, and landings trends for Mississippi's major indicator species are reflective of such variations.

Black Drum: Landings fell from 2.56 million pounds in 1984 to 2.54 million pounds in 1985. Dockside value, however, rose from $388,473. to $503,225., an increase of 29.5 percent during the period. The 1985 price-per-pound for this species rose to $0.20, representing a 30.3 percent increase in unit price over the previous year.

Mullet: Landings of mullet for 1985 totalled only 46,353 pounds; and this reflects a dramatic 93 percent decrease in landings over 1984 levels. Average total value also decreased some 93 percent, and the unit price of fresh, whole mullet rose about 14.8 percent to $0.25. One possible explanation for the sharp decline in landings could be the intense purse-seine pressure on this species during the four previous years.

Red Snapper: Red snapper landings in 1985 underwent a decline of 8 percent, from 1.02 million pounds in 1984 to the current 937.3 thousand pounds. Total dockside value fell to $1.27 million from last year's $1.39 million. Average unit prices during 1985 stood at $1.36, up only a small fraction from last year's figure.

Spanish mackerel: 18,810 pounds of Spanish mackerel were reportedly landed at Mississippi ports in 1985. This represents a 600 percent increase over 1984. The unit price of this species was $0.36, up from last year's $0.32.

Spotted seatrout: Commercial landings of spotted seatrout during 1985 totalled 47,426 pounds valued at $54,679. If published figures are correct and the recreational catch of this species exceeds the commercial catch two to three-fold, the estimated combined sports and commercial catch of this species would total some 187,704 pounds for 1985. At $1.15 per pound in 1985, the unit price of this species increased some 16.8 percent during the period.

Red drum: Red drum landings in 1985 showed an increase of 15.9 percent, from 23,660 pounds in 1984 to 27,423 pounds. The total dockside value of red drum rose by 3.4 percent during the year, the final tally totalling some $13,076. The average price-per-pound for redfish in the rounds was $0.48 down 10 percent from 1984.

Flounder: Flounder landings in Mississippi actually represent several different species of the flatfish. In 1985 the landings volume of this species complex totalled 88,207 pounds, representing a 102 percent increase of 1984 landings. The total dockside value was up 89.1 percent from $21,796. to $41,223.

Kingfish: Landings of kingfish, or ground mullet as they are locally know, amounted to 235,440 pounds in 1985, valued at $79,422. The average price of ground mullet was up to $0.38/lb. from the $0.31 of 1984.

Grouper: Grouper landings, which included spotted, Nassau, and black grouper, totalled 41,541 pounds in 1985, up 8.4 percent from the 38,297 pounds in 1984. Total dockside value of grouper rose 12.3 percent from 1984 to 1985. The price-per-pound of this species complex averaged $1.03 in 1985, up 3.5 percent from 1984.

SHRIMP

Heads-off landings of Gulf shrimp were 10.44 million pounds in 1985, a 30 percent increase from heads-off landings in 1984. Traditionally Mississippi's most valuable fishery, total dockside value of the 1985 shrimp catch was 22.65 million dollars. The average dockside value of shrimp decreased from $2.48 per heads-off pound in 1984 to $2.17 in 1985.

The total shrimp landings in the 1985 shrimp season represents a better-than-average year based upon the 25-year-mean landings figure for Mississippi (4.9 million pounds).

The Mississippi Commission on Wildlife Conservation opened the 1985 shrimping season in June upon the recommendation of Saltwater Fisheries Division biologists who conducted a bi-weekly trawl sampling program. The data from this sampling effort were used to calibrate a least-squares regression model which was used to mathematically project the time at which shrimp could be expected to reach the legal minimum size of 100 millimeters (68 shrimp to the pound).

RECREATIONAL FISHERIES

Marine recreational fishing along the Mississippi Gulf Coast followed its normal seasonal trends. During January and February, good catches of black drum were reported from all along the front beach. In March and early April, inshore catches of spotted seatrout began to appear in increasing numbers, and lemon fish also began their annual appearance on the bar off the southwest tip of Horn Island. Throughout the summer months, catches of spotted seatrout, red drum, ground mullet, croaker, flounder and a host of other species were taken by nearshore anglers. Offshore fishermen enjoyed success with Spanish and king mackerel, jack crevalle, large red drum, sharks and other miscellaneous species.

The 1985 saltwater sportsfishing year in Mississippi was highlighted by five new state records. In June, Leo J. Muldoon of Bay St. Louis tied the existing record for a dolphin with a 62 pound fish. Several weeks later, Victor A. Davis of Long Beach recorded a 97 pound 12-ounce lemon fish, eclipsing the old mark of 89 pounds. In July, Shannon P. Reeves of Ocean Springs, landed a 62 pound king mackerel to take top honors in that category. Scott Walter's 1 pound 14-ounce ground mullet taken in November was yet another new state record in 1985. Finally, Nick Ashley of Ocean Springs brought in a 62 pound 2-ounce king mackerel to narrowly surpass the existing state record for this species.

Reports from the numerous low-profile fishing reefs along the coast indicate that these structures are a definite boon to recreational anglers. Saltwater Fisheries Division biologists continued their program of low-profile reef construction by developing several additional sites coastwide.

The 1985 fishing rodeo season in Mississippi was a successful one, with many new rodeo records being established. Fisheries Division biologists use such events to obtain valuable data on the length, weight and age of various important species of sports and commercial value.

The numbers of saltwater sportsfishermen in Mississippi increased some 5.5 percent during the fiscal year from an estimated 155,000 in 1984 to 164,000 currently. Of this total number, some 82,000 participants are estimated to be from out-of-state. The remaining one-half are in-state residents. It is also estimated that 70,000 residents of the three coastal counties participate in saltwater sportsfishing, and some 12,000 up-state residents also engage in this activity based upon telephone interviews. According to the latest study, the species of saltwater fish most sought after by fishermen in Mississippi marine waters are as follows:

SPECIES OF SALTWATER FISH MOST SOUGHT

Species	percent of fishermen seeking species *
Spotted Seatrout	58.42
Red Drum	9.12
Other Fishes	2.55
Groupers	2.50
Sea Basses	2.00
Red Snapper	1.53
Ground Mullet	1.48
Spanish Mackerel	1.45
White Seatrout	1.18
Sheepshead	1.06
Black Drum	.96
Drums	.88
Mullets	.84
King Mackerel	.78

* percentages do not total 100 percent

As expected, the species of fish actually caught do not, in most cases, coincide with the species most sought.

The estimated total number of fish caught by marine recreational fishermen by species, according to the 1985 Marine Recreational Fisheries Statistics Survey conducted by the National Marine Fisheries Service is as follows.

TOTAL FISH CAUGHT BY MARINE RECREATIONAL FISHERMEN

Eels	30,000
Herrings	131,000
Saltwater Catfishes	248,000
Pinfish	95,000
Sheepshead	35,000
Spotted Seatrout	183,000
White Seatrout	1,102,000
Ground Mullet	36,000
Atlantic Croaker	742,000
Red Drum	52,000
Mullets	275,000
Spanish Mackerel	471,000
Other	161,000
TOTAL	3,561,000

Other species not included in this listing were either not reported or consisted of fewer than 30,000 individuals.

The national survey for 1985 also reveals that the most productive mode of fishing is from private or rental boats with a mean catch of 8.7 fish per trip. Next most productive is the party/charter mode of fishing with a mean catch of 5.9 fish per trip, followed by beach/bank fishing (3.6 fish/trip) and fishing from man-made structures (3.2 fish/trip).

ORDINANCES ADOPTED IN FY 1986

During the 1986 fiscal year, the Mississippi Commission on Wildlife Conservation adopted ordinance numbers 1.001 through 9.001. These nine ordinances represent a consolidation of some 115 seafood ordinances that existed prior to the much-needed revamping of these laws.

Ordinance No. 1.001 deals specifically with all regulations pertaining to the harvesting, landing, unloading, transporting, opening and sale of oysters.

Ordinance No. 2.001 is similarly comprehensive in establishing rules and regulations for shrimping.

Ordinance No. 3.001 establishes regulations for menhaden fishing.

Ordinance No. 4.001 deals with crab regulations.

Ordinance No. 5.001 governs the use of nets, fish traps and pots for the taking of finfish.

Ordinance No. 6.001 regulates live-bait shrimping.

Ordinance No. 7.001 provides for certain regulations that pertain to sportsfishermen.

Ordinance No. 8.001 establishes official standards of measure for the seafood industry.

Ordinance No. 9.001 provides for mandatory reporting of fisheries statistics and also for maintenance of the confidentiality of collected data.

OTHER ACTIVITIES

GULF STATES MARINE FISHERIES COMMISSION

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

The Gulf States Marine Fisheries Commission provides a medium for the exchange of information and ideas concerning marine fisheries management, research and development and other critical fisheries-related issues. The principal species of concern to the Commission are those that clearly migrate across the boundaries of one or more states and

therefore are subject to multiple and varying regulatory policies and practices. In addition, the Commission assists in obtaining funding for numerous research and public information programs, projects, symposia, workshops and the like.

Mississippi's three members on the Gulf States Marine Fisheries Commission were Mr. Lon Strong, former executive director of the Mississippi Department of Wildlife Conservation, Representative Ted Millette, Legislative Commissioner and Mr. Holton Turnbough, Commissioner-at-large appointed by the governor.

In fiscal year 1986, Dr. Richard Leard continued as chairman of the Commission until October when the chairmanship rotated to Florida. Saltwater Fisheries Division personnel were again active in commission committees and workshops. Dr. Fred Deegen continues to serve as chairman of the Recreational Fisheries Committee and vice chairman of the statistical subcommittee of the technical coordinating committee. Tom Van Devender serves as an alternate member of the Technical Coordinating Committee.

This year, the Commission sponsored a workshop on Current Marine Fisheries Issues Affecting Enforcement; the workshop was held in Brownsville, Texas, on March 17-20. Chief Jerry Gollott of the Enforcement Division represented the state's views in an open panel discussion of these issues.

ENFORCEMENT

In fiscal year 1986, enforcement division recorded a 16 percent increase in charges against violators of the State of Mississippi. This level of effort represents another record surpassing FY 85 by 182 arrests. Arrests include violations of seafood laws and an occasional infraction of other laws. Also, some arrests were made in conjunction with other agencies which Bureau of Marine Resources Officers are not credited with. Several illegal oyster operations were shut down due to the enforcement division's efforts to protect the health, welfare and safety of the consumers of the State of Mississippi. Incidents as noted in previous reports include such things as assistance to other agencies and divisions, boating accidents, overdue vessels, capsized boats, drownings, marine mammal or sea turtle strandings or deaths, alligator investigations, rescue missions, "tow-ins", sinkings, other assistance to boaters and administrative duties.

During the fiscal year enforcement officers made 1,332 charges compared to 1,150 in FY 85. Additionally, officers handled 700 incidents. Although recorded incidences are down considerably from the 1,426 recorded in FY 85, this does not reflect a reduction in effort. During FY 85 enforcement procedures were changed to record the majority of such incidences in Daily Activity Reports.

As previously mentioned these figures constitute a new arrest record for officers in the Bureau of Marine Resources. In fact the number of arrests has increased every year since the formation of the Department in 1980 with the exception of 1983.

The reason for the slight reduction in 1983 is probably due to the exceptionally good oyster season that year. As a trend one typically sees fewer violations in years where oysters are plentiful. The reason is probably due to the fact that poorer fishermen are able to make a living during the winter, fishing legal areas when same have oysters; but they resort to illegal fishing to provide for their families when oysters are scarce.

As mentioned in the previous report these arrests have continued to increase (more than doubling since 1980) with no increase in manpower. Superior effort and dedication can be the only cause; however, increasing demands for assistance by other agencies and

increased numbers of fishermen will no doubt stabilize this trend at some point. If additional personnel and a stable source of funding are not available at such time then the trend will reverse due to overwork and a collapse of morale.

WETLANDS

Mississippi's coastline is made up of approximately 66,000 acres of tidal marsh and approximately 370,000 acres of submerged waterbottoms. These public trust wetlands serve as a valuable and irreplaceable natural resource of great economic and aesthetic value to the State of Mississippi.

During FY 86, the Bureau of Marine Resources' Wetlands Division processed 418 cases. This case load included the evaluation of several major development projects which may have had certain impacts on the integrity of the coastal resources. Working with the applicants, however, the Wetlands Division was able to incorporate modifications to these proposals to reduce serious environmental impacts.

The rapidly growing coastal region has suffered a loss in total acreage of coastal wetlands. Uncontrolled use and destruction of valuable wetlands areas in the past has resulted in the loss of over 10,000 acres of tidally-influenced wetlands.

Through the efforts of the Wetlands Division, the Bureau of Marine Resources has successfully limited the unnecessary alterations of the coastal wetlands by encouraging projects and activities which are environmentally acceptable.

Wetlands Division personnel are the stewards of the State of Mississippi Public Trust lands. These tidal marshes and shallow waterbottoms 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 material which in turn is consumed by finfish and shellfish. Furthermore, these marshes serve as a buffer, protecting the shoreline against erosion and helping to reduce damages resulting from 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 estimated capitalized value for an acre of marsh is $82,000.

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

During FY 86, Wetlands personnel developed a 20-minute video presentation which describes the permitting procedure and highlights some of the most common activities permitted by the BMR. The video has been shown to various civic groups as well as professional groups including realtors. The video presentation has received favorable reviews and will be upgraded and shown in the future.

The Wetlands Division put into place the Mississippi Coastal Zone Regional Permit for areas under Corps of Engineers (Vicksburg District) jurisdiction during FY 86. With this program in place, all areas along the entire Mississippi Gulf Coast are now covered by this streamlined permitting program.

MISSISSIPPI COASTAL PROGRAM

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

In early FY 86, BMR received a grant from OCRM in the amount of $540,000 for implementation of the MCP for a 12 month period.

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

The Coastal Program also contains the consistency provisions of the Coastal Zone Management Act, P.L. 92-583. These consistency provisions require that all federal activities that may affect land and water resources in the coastal area, including Federal Licenses and Permits, Direct Federal Activities and Development Projects, Outer Continental Shelf (OCS) Exploration, Development and Production Activities and Federal funded activities such as housing and highways, be consistent with the guidelines and the Wetlands Use Plan of the Coastal Program.

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

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

For eligibility of federal funding and coordination purposes, Fisheries Management is incorporated into the Coastal Program.

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

Because of their localized development problems and opportunities, many areas on the coast require site-specific planning and management. Such areas are designated as Special Management Areas. The Coastal Program 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 the specific areas for which they are adopted.

To complement the regulatory provisions of the Coastal Program, Affirmative Management Activities were development and include efforts in areas such as energy facility planning, shoreline erosion work, designation of preservation/restoration areas, the low cost construction and (306A) marine research and public education on marine and coastal resources.

POLICY COORDINATION PROCEDURES

From July 1, 1985 through June 30, 1986, 103 actions were subject to policy coordination procedures and submitted to the Governor's Office of Planning and Policy, the instrument used in state agency reviews for policy coordination activities. This number represents a slight increase over FY 85.

Of these actions, 43 involved activities which required a wetlands permit or were subject to formal wetlands review. These actions were determined to be consistent with the program and received either a wetlands permit or were issued a waiver of permit requirements.

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

SPECIAL MANAGEMENT AREA PLANNING

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

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

In FY 86, BMR focused SMA planning efforts on the Port of Pascagoula and as a result the Port of Pascagoula SMA was completed in March 1986. The SMA plan allows development of certain areas of the Port, establishes a long-range dredged material disposal plan and transferred approximately 3,200 acres of estuarine wetlands to the Department of Wildlife Conservation. This parcel known as the Bangs Lake Area is to be held in preservation.

Additional SMA planning efforts are anticipated in the upcoming fiscal year.

AFFIRMATIVE MANAGEMENT ACTIVITIES

BMR continued with its affirmative management efforts with the participation in three urban waterfront plan development, including Harbor Square in Gulfport, Point Cadet in Biloxi and Bay St. Louis. These plans are developed with special emphasis on waterfront

property to more efficiently utilize existing space within each area and upgrade existing facilities. The Gulfport and Biloxi waterfront plans are complete and are being implemented with various improvements such as a marina and additional boatslips. The Bay St. Louis study will continue into the next year.

The Sand Beach Master Plans for Harrison and Hancock Counties were completed and when implemented by the counties and adjacent cities will reduce shoreline and beach erosion, provide facilities such as restrooms, additional parking spaces and other amenities that will enhance tourist and local use. The plans for both county beach areas were developed by a number of consultants that had expertise in organizational structure, urban design, erosion and geology, plant science and ocean engineering. The consultant efforts were supplemented by a number of local citizens organized to review development proposals, assist in beach user surveys and provided other valuable assistance in beach plan development.

Other affirmative management efforts include BMR's continuing participation with the Governor's Office of Planning and Policy to provide funding for the clearinghouse to assist BMR in the notification of activities affecting the coastal area to other applicable state agencies.

Other activities center around BMR's information/education projects. The publication of the monthly newsletter continues. News releases, public speaking engagements, stories published in Mississippi Outdoors and distribution of DWC educational material were also part of BMR's ongoing public information/education efforts. An extremely popular poster with coastal and upland residents was developed during the year. The poster "Notes...on Important Fish Species of the Mississippi Gulf Coast" delineates and describes 30 commonly caught fish by coastal anglers. Description of the fish includes feeding habits as well as culinary qualities. Three thousand copies of the poster were distributed.

One other effort in affirmative management parts of the coastal program were initiated during this year were the low cost construction program generally referred to as the 306A Program. This program provides pass through funds to coastal cities and counties for low cost construction or land acquisition activities to increase access to coastal waters by providing items such as boat ramps, piers, bulkheads, parking facilities as well as other facilities to increase use and enjoyment of coastal waters. Projects that were awarded funds are Popps Ferry Ramp in Biloxi, Pearl River Recreation Area (Pearlington) and Curtis Johnson Park in Hancock County, the Gulf Park Estates Pier in Jackson County and Courthouse Road Pier in Gulfport.

OTHER MCP RELATED ACTIVITIES

The Coastal Programs Division (CPD) views the MCP as an ever changing program and as such constantly reviews and monitors the effects of the rules, regulations and guidelines of the MCP on the permitting actions and the coastal community. In FY 86 numerous changes to improve the MCP were adopted by the Commission on Wildlife Conservation (CWC) and are as follows:

Application Processing
Public Hearing Procedures
Coastal Wetlands Use Plan Text
Notification Requirements
Exclusions
Oil and Gas Development Guidelines

The CPD is responsible for changes or adjustments in the Coastal Wetlands Use Plan (CWUP) which is used in the wetlands construction permitting procedure. The CWUP establishes districts where only certain uses may occur. Projects not conforming to the district where the project is located must receive authorization to establish the appropriate district from the CWC. Only one project was granted a use change in FY 86. This change allowed a 200 boatslip marina to be constructed in Ocean Springs.

In FY 86 Gary Cuevas and Dickie Walters traveled to Baltimore, Maryland and presented their publication entitled "Special Management Area Planning in Mississippi's Coastal Zone: The Port Bienville Experience" at the Fourth Symposium on Coastal and Ocean Resource Management Coastal Zone 85 which was a multidisciplinary conference to exchange information and views on coastal related issues.

MARINE OIL AND GAS ACTIVITIES

The Bureau of Marine Resources through its Scientific-Statistical Division addresses environmental aspects of oil and gas activities proposed for and occurring within the state's coastal waters and the federal Outer Continental Shelf waters. In the past year, the staff of the Division continued to provide oil and gas-related guidance and technical support, from an environmental perspective, to the Commission, the Department and state and federal agencies. With respect to oil and gas operations, the Division's efforts through the Bureau are directed toward providing for the protection of the valuable and renewable coastal marine resources while at the same time allowing for the development of the valuable oil and gas resources in an acceptable manner.

MISSISSIPPI COASTAL WATERS: OIL AND GAS RELATED ACTIVITIES

Interest in the potential development of oil/gas resources within Mississippi's coastal waters continued during FY 86. As a result of this interest, the Bureau addressed environmental aspects of oil/gas leasing and operations within the state's coastal marine waters.

In FY 86 the state leased more than 20,000 acres of coastal waterbottoms for nearly $3 million to Chevron, USA. These leased lands surround Cat Island, a barrier island located 10 miles off the coastal mainland. Earlier in 1982, Chevron had leased 5,760 acres of submerged lands which are also located in the vicinity of Cat Island. The BMR has worked closely with Chevron in providing environmental guidance information which would be of use to the company relative to future oil and gas development activities on their leased lands. Chevron has not proposed any operations on any of their leased waterbottoms.

Another company, Sapphire Exploration and Production, Inc., has acquired a lease to some 20,000 acres of state waterbottoms located south of Ship Island. During FY 86, Sapphire was issued all necessary State and Federal permits relative to exploratory drilling operations. By the end of FY 86 no exploratory drilling has been initiated by Sapphire, however drilling is anticipated by the fall of 1986. Personnel of the Scientific-Statistical Division applied a considerable amount of time and worked very closely with the Mississippi Department of Natural Resources in developing the detailed specifications for the National Pollutant Discharge Elimination System (NPDES) Permit which was issued to Sapphire in FY 86. This permit received Mississippi Coastal Program Consistency. The permit provides for very limited discharging activities at a location which is 4.5 miles south of Ship Island. The discharging activities have been permitted only for exploratory drilling operations conducted by Sapphire. The finalized NPDES

permit contains some new approaches applicable to monitoring oil and gas activities in marine waters. These new approaches reflect input into the NPDES specifications from the Staff of the Scientific-Statistical Division.

The BMR, through its Scientific-Statistical Division, over the years has developed several documents and guidance publications which have management utility for coastal oil and gas activities. During FY 86 the Division completed several key publications and major documents. One major document was finalized and titled "Informational Requirements and Instructions for the Preparation of Evaluation Documents Pertaining to Oil and Gas Operations Within State-owned Coastal Waters of Mississippi." This document provides information useful to the lessee. Another is entitled "Environmental Monitoring Programs Applicable to Oil and Gas Activities in Coastal Waters of the State of Mississippi." This document provides oil and gas companies with information pertaining to the implementation of environmental monitoring programs relative to exploratory drilling and production operations. There are two major sections of the document. Only the section entitled "Drilling Phase Environmental Monitoring Program" was completed during FY 86. A key publication was finalized and its title is "Procedures and Responsible Agencies Regarding Leases, Permits and Other Approvals Applicable to Oil and Gas Operations Within the State-owned Coastal Waters of Mississippi."

To provide key economic information as it may relate to oil and gas activities, a publication was developed by the Division and titled "Average Annual Production from Mississippi's Oyster Reefs Located Within the Western Coastal Waters of the State." This publication provides statistics on the volume and value of oysters from the specified coastal waters. The publication was produced in response to several inquiries from oil and gas companies. Another publication produced by the Division is entitled "Considerations Pertaining to Oil and Gas Operations in the Coastal Waters of the State of Mississippi". This publication highlights potential impacts and benefits related to oil and gas operations conducted in coastal waters of the state.

Through FY 86 the staff of the Scientific-Statistical Division met with numerous state and federal agencies, e.g. the Mississippi Department of Natural Resources, U.S. Environmental Protection Agency, U.S. Coast Guard, Army Corps of Engineers, U.S. Fish and Wildlife Services and the National Marine Fisheries Service, which are involved in oil and gas developments in coastal waters. During FY 86, the Division's staff participated in 14 key technical meetings related to coastal oil and gas activities and developed 24 key responses/comments which pertained to environmental aspects of oil and gas activities within Mississippi coastal waters.

OUTER CONTINENTAL SHELF OIL AND GAS ACTIVITIES

The Outer Continental Shelf (OCS) begins at the seaward boundary of the coastal territorial waters of each state and extends seaward to the limit of the federal waters. The development of oil and gas resources in the Gulf of Mexico OCS Region has an influence upon the coastal states in this region. The influences, many of them indirect, affect the socio-economic and environmental conditions of the states whose coastal areas adjoin the Gulf of Mexico.

The Gulf OCS region is the major U.S. OCS region in oil and gas development, accounting for more than 94 percent of the oil and gas produced from all U.S. OCS regions. Fifty-two oil and gas lease sales have been held in the Gulf of Mexico since 1953. In that time more than 16 million OCS acres have been leased. Over 21,500 wells have been drilled in the Gulf, and over 6,000 of these wells were producing during FY 86. There are almost 3,000 platforms currently in place in the Gulf OCS waters and over 13,000 miles

of pipeline in support of this production effort. The greater percentage of Gulf OCS activity is located within the Gulf's Central Planning Area, that OCS area which includes the Gulf waters south of the State of Mississippi.

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

The BMR also represents the state on the Gulf of Mexico Regional Technical Working Group (RTWG). This OCS Working Group, comprised of state, federal, oil industry and private representatives, meets periodically to discuss and formulate technical information pertaining to the overall Gulf OCS Program. In October 1986, staff members of the Scientific-Statistical Division, representing the State of Mississippi, presented a paper during the plenary session of the Gulf of Mexico OCS Information Transfer Meeting in New Orleans, Louisiana. The paper was titled "Selected Growth and Development Trends in the Coastal Area of Mississippi".

The BMR continued its involvement with the OCS Environmental Studies Program for the Gulf region, as administered by the MMS. During FY 86, personnel of the Scientific-Statistical Division participated in the update and development of the MMS Environmental Studies Program for the Gulf Region. The process involved proposing study topics, reviewing new study proposals, providing advice and information regarding previously approved study projects, maintaining an awareness of the overall annual Studies Program components and attending related meetings. During FY 86, there were 24 on-going MMS environmental study projects within the Gulf. The Division's personnel took particular interest in and expressed strong support for two proposed environmental studies entitled, "Mississippi-Alabama Shelf Marine Ecosystem Study: Field Efforts" and "Impacts of Outer Continental Shelf Related Activities on Sensitive Coastal Habitats."

During FY 86, reviews and comments were made by the BMR pertaining to several future OCS sales for the Gulf Region, particularly the Central OCS Area. The BMR also continued to provide comments and information to the U.S. Environmental Protection Agency, Region IV, during the development of Region IV's General NPDES Permit for Gulf of Mexico OCS oil and gas operational discharges.

The staff of the Scientific-Statistical Division participated in a total of six key OCS-related meetings. The staff also developed a total of 11 major OCS-related written responses. In addition, the staff reviewed a number of documents to maintain an awareness of OCS oil and gas activities in the Gulf in order to be aware of those activities which may have an influence on Mississippi.

During 1986, the State of Mississippi received a special category of oil/gas-related funds in the amount of $14 million from the federal government. These funds, referred to as 8(g) funds, were the result of an agreement negotiated over a lengthly period between the coastal states and the federal government. The coastal states received a portion of

the funds which the federal government had received from oil and gas activities conducted in a zone of federal waters located adjacent to the territorial waters of the individual coastal states.

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. Technical advice and assistance provided by the personnel of the Scientific-Statistical Division are aimed at enhancing the quality and marketability of seafood (including underutilized species), encouraging intensive, cultured production of aquatic organisms in the coastal area to supplement the harvest of food from the natural marine environment, reducing pollution to the coastal marine environment by transforming wastewaters into saleable products, and for Mississippi citizens, enhancing their income and maintaining consistent, profitable income from the sale of products derived directly or indirectly from coastal and marine resources.

Though the demand was high, industry and private enterprise assistance rendered by the personnel of the Scientific-Statistical Division was somewhat curtailed during FY 86. This curtailment occurred because of a heavy workload required to meet the review and information development needs associated with marine oil and gas activities.

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

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

Requests for aquaculture assistance through the division continues to escalate from year to year. This indicates a growing interest in aquaculture in the coastal area and positive benefits from the educational emphasis of the Bureau's aquaculture program and the contacts made in association with it. During FY 86 the personnel of the Division worked with a number of individuals providing them technical aquacultural information, evaluating their available resources for aquacultural use and advising them on actual culture of organisms in the coastal area including relatively new species. All aquacultural assistance was rendered by the Bureau with the aim of enhancing job and income opportunities, increasing tax revenues to the state and offsetting dollars spent importing fish (second only to import of petroleum products), thus improving our trade balance.

The Division's personnel attended selected aquaculture seminars and technical meetings to gain new information which could be transferred in an appropriate format to enhance aquacultural opportunities and activities in the coastal area.

During FY 86, as examples, specific aquacultural assistance rendered by the personnel of the Scientific-Statistical Division included the following: aided an entrepreneur in obtaining brood stock freshwater shrimp from an out-of-state research facility; arranged

for several meetings in which aquaculture technology information was presented to a small group of entrepreneurs and during which valuable informal discussions occurred; provided technical information to several persons interested in saltwater shrimp culture; provided information and technical assistance to an entrepreneur who constructed a relatively large operation with the aim of commercially producing and growing redfish under cultured conditions. Also provided redfish culture information in response to numerous requests from other citizens of Mississippi. Additionally, developed the scope of work for analyzing Mississippi coastal and delta waters for their potential to grown redfish. The scope of work was developed in response to request by the Mississippi Water Resource Research Institute.

Additional examples of aquaculture assistance rendered by the Division were as follows: helped an investor to locate land in the coastal area of Mississippi which the investor purchased and developed into a catfish farm with an emphasis on fingerling production; met several times with the Mississippi Power Company officials at their request to provide information regarding redfish culture; provided technical assistance to an entrepreneur regarding the start-up of a soft-shell crawfish production system; helped a catfish farmer in the Mississippi Delta to locate a supplier of a good strain of the red tilapia which the farmer purchased and then stocked several thousand in his ponds for grow-out to market size; and continued to provide on-site technical advice to the South Mississippi Retardation Center pertaining to the culture of fish in conjunction with its therapeutic benefits to the mentally handicapped. The Division's personnel presented aquaculture information at a small farm meeting sponsored by the local county extension agent and additionally prepared technical aquaculture information which was incorporated into the newsletter produced by the Harrison County Soil Conservation Service.

In the area of seafood, the Division's personnel provided technical assistance to individuals interested in drying shrimp and providing the product to market outlets which they had identified. Technical information regarding procedures for catching sharks and processing them were given to a local shark fisherman with the result that his catch efficiency and the quality of his prepared shark meat were improved.

Information was supplied to two entrepreneurs regarding shrimp waste volumes produced in Mississippi and some potential market applications for the waste. Each entrepreneur, after an unsuccessful attempt to purchase suitable lands for operations in Mississippi, set up a drying plant in Alabama and obtained shrimp waste from Mississippi shrimp processors.

One Mississippi shrimp processor continues to produce dried shrimp shells based upon utilization of technology which was recommended by the Division about four years ago. These shells, when incorporated into soil, provide some valuable benefits for growing economically important plants. When incorporated into soils, the shrimp shells help prevent infections to plants caused by plant parasitic nematodes and plant pathogenic fungi. The prevention of such infections was earlier demonstrated through research efforts funded by the Bureau.

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

Ladner, Cornell M. January 1986. Micro-Porus Tubing for Inexpensively Aerating Aquaculture Ponds. Mississippi Bureau of Marine Resources, Long Beach, MS.

Ladner, Cornell M. May 1986. Flowchart Highlights Pertaining to the Production of Soft-Shell Crawfish, a Gourmet Food.

Ladner, Cornell M. September 1986. Predation of Pond-Cultured Crawfish--Conventional and Non-Conventional Solutions. Mississippi Bureau of Marine Resources, Long Beach, MS.

Loftus, John B. and Cornell M. Ladner. September 1986. Mist Spray System for Holding Harvested Crawfish. Mississippi Bureau of Marine Resources, Long Beach, MS.

In addition to the assistance previously described, the personnel of the Scientific-Statistical Division provided other professional assistance and responses. Personnel of the Division reviewed and rated research proposals submitted to the Mississippi Water Resources Research Institute for potential funding by the Agency. The same service was provided to the Mississippi-Alabama Sea Grant Consortium for a large number of proposals submitted to them for consideration for potential funding by the Consortium. In addition to the previously mentioned coordination and assistance activities, the Scientific-Statistical Division's personnel conducted several reviews and developed responses as a result of specific requests by various agencies/organizations.

TEXAS PARKS AND WILDLIFE DEPARTMENT

Texas Parks and Wildlife Coastal Fisheries Research Management Programs

The Coastal Fisheries Branch is responsible for making management recommendations regarding the State's saltwater fishery resources within the bays and estuaries and out to nine nautical miles in the Gulf of Mexico. More than $400 million is spent annually in Texas' 4 million acres of saltwater by approximately 15,000 commercial and over 1,000,000 recreational fishermen.

The goal of the Coastal Fisheries program is to develop management plans within the concept of optimum yield for selected fisheries that include harvest regulations, resource stock enhancements or habitat enhancements based on monitoring programs and the best scientific information available. The objectives of the Coastal Fisheries Branch are: 1) to recommend management strategies for the aquatic marine resources to the Division Director, Executive Director, Commission and Legislature based on the results of research and monitoring programs and the best scientific information available; 2) to determine the sizes and changes in the sizes of finfish and shellfish populations caused by environmental conditions and fishing; 3) to determine the landings of marine species and the associated social and economic characteristics of the fisheries; 4) to develop mariculture techniques for selected species and make the information available to commercial mariculturists in Texas; 5) to educate the consumer regarding high quality, wholesome seafood products. To achieve these objectives, the Branch is organized into five major functions or programs: Administration, Fisheries Resource Monitoring, Fisheries Harvest Monitoring, Marine Culture and Enhancement, and Seafood Marketing. In FY 86, a total of 31 technical reports, 14 scientific journal articles and 4 magazine articles about various aspects of the Texas coastal fishery resources were completed to aid in meeting the objectives.

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

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

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

The Perry R. Bass Marine Fisheries Research Station at Palacios was established to provide information and techniques necessary for the improvement of Texas fisheries management plans. Research effort is directed toward methods for spawning and rearing marine fish and shellfish.

Once developed, such techniques will be used to provide animals for stocking coastal bays and freshwater reservoirs and information on techniques will be made available to commercial mariculturists in Texas. Coastal fisheries personnel cooperate with other coastal states in marine fisheries enhancement efforts through the transmittal of information and supply of available fishes.

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

ACTIVITIES IN FY 86 INCLUDED:

Regulations were modified to protect king mackerel by requiring a two-fish daily bag and possession limit for retention in Texas waters. These regulations conformed to those approved by the Gulf of Mexico Fishery Management Council for federal waters.

The closure period for Gulf shrimping in State waters was coordinated with the National Marine Fisheries Service for closure of the Exclusive Economic Zone (EEZ) to increase yield and value for the shrimping industry. The season was closed 30 minutes after sunset on May 10 and opened 30 minutes after sunset on July 2. The EEZ was closed to 15 nautical miles instead of 200 miles.

There was no change in the November 1 - April 30 oystering season. The oyster program was expanded to provide broader coverage and increased efficiency coastwide.

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

A new field station was established in Sabine Lake to sample its bay and gulf waters in a similar fashion as the remainder of the coast. Permits to sample in Louisiana waters were obtained from the Louisiana Department of Wildlife and Fisheries. A new vessel was purchased for Sabine Lake and the adjacent Gulf of Mexico to complement the four new vessels put in service in 1985. They are faster and have a shallower draft than the former Gulf vessel and will result in wider and more efficient coverage of the State's bay and territorial sea.

The unbiased sampling scheme for all organisms was enhanced through the implementation of a coastwide grid system based on one-minute latitude and longitude lines. There were 760 gill net samples, 1,080 bag seine samples, 3,840 trawl samples, 4,492 oyster dredge samples, and 80 Southeast Area Monitoring And Assessment Program samples collected. A total of 1,144 survey days were spent to estimate landings and pressure of the recreational boat fishermen.

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

A statewide mail survey of over 6,000 holders of the saltwater sport fishing stamp was initiated. The survey examines species preference, participation and socio-economic aspects of saltwater fishermen in Texas.

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

The special studies of spotted seatrout and snook, culture and reproduction, and spotted seatrout/orangemouth corvina hybridization which were initiated in 1985 were continued. Methods for artificially inducing sexual maturity and spawning in orangemouth corvina, snook and Southern flounder were examined. Pond culture fry and fingerling, of several fish species, were stocked in Texas bays and inland reservoirs.

Several laboratory experiments initiated in 1985, which examined the hormonal control over maturation and spawning in spotted seatrout and Southern flounder were completed. Studies of the role of water temperature on red drum survival and growth were also completed. Technical information concerning aquaculture and commercial fish hatchery development was provided to other coastal states. Construction of the Perry R. Bass Marine Fisheries Research Station, a broodfish laboratory, was completed. Planning for future finfish/shellfish research projects was initiated.

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

GULF STATE-FEDERAL FISHERIES MANAGEMENT BOARD

During the period October 1, 1985 to September 30, 1986, two meetings were held by the Gulf State-Federal Fisheries Management Board (GS-FFMB): Kissimmee, Florida - October 1985 and Brownsville, Texas - March 1986.

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

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

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

The GSMFC, in accordance with provisions included in Cooperative Agreement #SF-31, provided for administration, travel, communication, planning and other activities for the administration and committee support of the GS-FFMB. This agreement in the amount of $41,500, provided financial support for the following.

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

A subcontract was issued to Louisiana State University, Coastal Fisheries Institute for the project titled "Proposal for Testing Surplus Production Models with Pre-MSY Data from Searching Fisheries". This proposal was recommended to be funded by the Menhaden Advisory Committee and was approved for funding by the Board. Richard Condrey was the principal investigator. Dr. Condrey reported to the Board at its semiannual meetings.

The Anadromous Fish Subcommittee met regularly during the time period covered by this report and made final revisions to their draft striped bass management plan. The draft was approved in October 1986 and published.

The Statistical Subcommittee attended a fisheries statistical workshop in Tampa, Florida on April 28-30, 1986. In addition to the workshop they made final editorial revision to the publication entitled "Design, Collection and Assessment of Angler Volunteered Information Programs". This publication was based on a symposium sponsored by the subcommittee in March 1985.

The Law Enforcement Committee met jointly with the Gulf of Mexico Fishery Management Council's Law Enforcement Panel on October 15, 1985 in Kissimmee, Florida. The committee invited an expert speaker to be present at this meeting. Mr. Luke Hause, South Carolina Department of Health and Environmental Control, provided a presentation on the duties of the Department of Health. He explained that the department identifies the sources of pollution in shellfish, and the function of the depuration plants which take in ocean water and purify it with an ultraviolet light system of ozone.

The Board elected Mr. I. B. "Buck" Byrd (NMFS) as Chairman and Dr. Richard Leard (Mississippi) as Vice-Chairman to serve in 1986-87.

SOUTHEAST REGIONAL OFFICE AND SOUTHEAST FISHERIES CENTER

NATIONAL MARINE FISHERIES SERVICE (NMFS)

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

Southeast Regional Office Highlights

Communications were improved with partners and constituents through the continued distribution of the NEWSBREAKER to approximately 5,000 individuals and organizations. In addition, numerous meetings were held with various regional committees and groups, including the following:

- Recreational Fisheries Steering Committee
- Commercial Fisheries Steering Committee
- State Fishery Directors
- Advisory groups for various endangered species, fisheries and environmental interests
- Sea Grant Directors

RECREATIONAL FISHERIES

Important strides were made in improving our MRF data collection program with the resolution of data collection problems in Texas, the implementation of a mandatory logbook data collection program for charter and headboats, and the readjustment of sample design under the national MRF statistics survey to improve the accuracy of boat-related data. Further, assistance was provided to the Southeast Fisheries Center in successfully expanding the headboat survey to the Gulf.

The region assisted in a program to help sportsmen make better use of their catches. This program involves the development of color brochures, posters, an underutilized species cookbook, a guide for tournament directors, and slide/tape/video programs that were designed to educate, encourage and assist anglers in making better use of species that they have historically discarded because of misconceptions regarding their desirability, edibility, and/or availability.

The first directory for charter, head, dive and guide boats was published in June 1986, and will be updated annually. Historical files on the universe of charter/headboats were established and updated to assist researchers in studying fleet stability, turnover and operation. A directory of marine recreational fisheries clubs in the southeastern U.S. was first published in August 1985 as a means of improving communications between clubs. An updated directory was published in July 1986.

Several significant MRF projects were funded under the Saltonstall-Kennedy and MARFIN programs. A major research initiative was launched to better understand charter/headboat fishing businesses in the region on terms of their operation, costs and earnings and problems and to help captains diversify their businesses and become better integrated with

state and local tourism programs. Two projects were funded to improve social and economic information on the recreational coastal pelagic fishery and an effort to develop an expanded snag/hang log for the Gulf was also initiated. Notably, two projects were also funded to design and implement a marine recreational fisheries development program for Puerto Rico and the U.S. Virgin Islands. This project complements regional office efforts to help Caribbean Basin countries develop saltwater sport fisheries as an integral part of their tourism and fisheries development programs.

Finally, regional office personnel assisted in arranging the establishment of marine recreational fisheries and artificial reef committees within the Atlantic States Marine Fisheries Commission. These committees complement a parallel effort in the Gulf States Marine Fisheries Commission.

STATE/FEDERAL

A state/federal partnership has been maintained with SER states that has yielded significant accomplishments in marine fisheries conservation, habitat protection, research, development and management. Positive results from cooperative state/federal data collections and fisheries management activities in the southeast have contributed to numerous successes and efficiencies of operations. Major emphasis is placed on our working with the states for the purpose of enhancing state/federal relationships to promote state/federal partnerships, and accomplish NMFS regional goals and objectives for the conservation and management of marine resources.

Excellent working relationships were developed and maintained with the Gulf State Marine Fisheries Commission and the Atlantic States Marine Fisheries Commission. These marine fisheries commissions have cooperated in developing and implementing interstate and interjurisdictional state/federal planning activities and in administering certain aspects of state/federal data collection and management programs. Federal funds provided to the states for grants and cooperative agreements under the PL 88-309, PL 89-304, SEAMAP, Cooperative Fisheries Statistics, MARFIN and other state/federal cooperative programs are utilized for projects that fully support the management of interjurisdictional fisheries. These cooperative programs provide the primary data base used for developing fisheries management plans under MFCMA. They also provide the major monitoring and assessment activities required to evaluate the success of federal and state fisheries management regimes.

The regional office established excellent working relationships with the states and U.S. Fish and Wildlife Service in screening and selecting Wallop-Breaux projects designed to provide maximum enhancement to recreational fisheries in the southeast. Workshops were conducted with the states and FWS to assist them in planning and developing high priority state/federal grants and cooperative agreements.

The excellent state/federal partnerships in the southeast have allowed NMFS, along with states, marine fisheries councils and commissions to better meet their goals and objectives for marine fisheries management and conservation with added efficiencies.

HABITAT CONSERVATION

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

The HCD was instrumental in the implementation of a cooperative agreement between NOAA and the Department of the Army for a pilot study to investigate the practicability of a national program for restoring and creating fisheries habitat. The HCD, the Southeast Fisheries Center (SEFC) and the Corps of Engineers' (COE) Galveston, Wilmington, and New Orleans Districts and Southwest, South Atlantic, and Lower Mississippi Valley Division have proposed pilot studies in Louisiana, North Carolina and Texas.

The HCD and the SEFC continue to coordinate closely in habitat-related matters. Examples include collaboration on a five-year review of habitat alterations involved in COE regulatory programs, the MOA between NOAA and the COE to initiate research on creating and/or enhancing fishery habitat, and coordination on numerous research proposals and papers, and coordination on wetland projects.

A new HCD field office was established in Baton Rouge, Louisiana. This will enable HCD to meet more with applicants and better coordinate project reviews in the state with the greatest amount of remaining salt- and brackish-water wetlands and the greatest annual wetland losses per year in the southeast.

The SERO continued its efforts under the Fish and Wildlife Coordination Act. During fiscal year 1986, at least 3,975 proposals to alter wetlands were reviewed. A sub-sample of these proposals indicate that at least 95,106 acres of wetlands were proposed for alteration, the SERO did not oppose the alteration of 56,247 acres, and thereby potentially conserved 38,859 acres. Also, recommended was the restoration, generation and enhancement of about 44,688 acres of wetlands.

The SERO increased its efforts to work more closely with applicants by attending more preapplication meetings. An example of the benefits of this approach are the agreements reached with Louisiana landowners to design management plans for marshes that are deteriorating. During 1986, more than 35,000 acres of wetlands were identified to be enhanced in this manner.

Habitat information was communicated to NMFS constituents and the public by numerous presentations and scientific papers. Examples include an annual report on habitat conservation efforts; a report on progress under the MOA discussed above for habitat restoration/creation pilot studies; a five-year analysis of HCD efforts; a detailed analysis of HCD efforts for calendar year 1985; and an analysis of how HCD habitat conservation recommendations have been treated by the various COE districts in the southeast.

FISHERIES MANAGEMENT

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

Notable activities during the year included the preparation and implementation of a Secretarial Plan for the red drum fishery of the Gulf of Mexico. This followed in the wake of an emergency closure of the red drum fishery in federal waters necessitated by a sudden upsurge in red drum landings that occurred in response to the increased consumer demand for "blackened redfish."

The Gulf of Mexico Reef Fish Plan was amended to provide for a wider selection of mesh sizes and materials used in the construction of fish traps. These changes brought the fish trap provisions more in line with those in place in the South Atlantic management

area, and thereby eliminated much of the confusion that existed for fishermen deploying traps in both areas, especially those fishing around the Florida Keys. From November 1984 through December 1986, 340 permits have been issued to fish trappers in the Gulf. The exemption for headboat fishermen to the red snapper size limit was extended for one additional year, i.e. to May 8, 1987.

On September 22, the annual incremental adjustment to the size limit for Nassau grouper and yellowtail snapper became effective under the Caribbean Shallow-water Reef Fish Plan. The minimum allowable sizes are now 13 inches total length for Nassau grouper, and 9 inches total length for yellowtail snapper. On the same date, a minimum mesh size requirement of 1.25 inches in the smallest dimension of the opening became effective for fish traps. This restriction was initially deferred for a period of one year to alleviate economic impacts on fishermen already in possession of traps with smaller mesh sizes.

Other major activities for the year included implementation of final regulations for the revised Atlantic Swordfish Management Plan; emergency rule reducing the allowable catch for the Gulf group of king mackerel and subsequent closure of the commerical fishery; final regulations changing the total allowable catch, permit requirements and bag limits for the Atlantic migratory group of king mackerel; final regulations adjusting the seasonal allowable catch and bag limits for the Gulf migratory group of king mackerel; final regulations implementing amendment 3 of our Stone Crab Fishery Management Plan to increase the survival rate of declawed crabs and eggbearing females; and an emergency rule reducing the boundary of the Texas closure to shrimp trawling from 200 to 15 nautical miles.

The Protected Species Management Branch conducts regional activities required by the Endangered Species Act and Marine Mammal Protection Act.

Trawling Efficiency Devices (TEDs): Proposed regulations are being developed which will require shrimp trawlers in certain areas, at certain times to use TEDs to release sea turtles. These regulations are in response to a mediation agreement reached by representatives of the environmental community and the shrimp industry. These individuals, with the assistance of a professional mediator, met to work out the best possible way to require the use of TEDs to conserve sea turtles with the least amount of adverse impact to the shrimp industry.

Section 7 Consultations: Section 7 of the Endangered Species Act requires all federal agencies to insure that their activities do not adversely affect endangered species. To do this they must consult with NMFS for their marine related activities. About 150 consultations are conducted each year. Significant consultations in 1986 involved dredging the Cape Canaveral, Florida ship channel and the removal of oil rigs with high explosives in the Gulf of Mexico.

Sea Turtle Recovery Planning: A U.S. Sea Turtle Recovery Plan prepared in 1983 is being implemented by federal and state agencies. A survey of plan activities was conducted. Many agencies are conducting activities designed to recover 5 species of sea turtles. Another recovery effort, preparation of a recovery plan for Caribbean countries continued. Six draft plans were accepted as part of a contract fulfillment.

Permitting: During the past year about 50 permit applications for research and other scientific activities were reviewed and commented on. The live capture of bottlenose dolphins for public display was coordinated with authorized collectors. These collectors are allowed to take a small quota of bottlenose dolphins from designated collection areas.

FISHERIES DEVELOPMENT DIVISION

The Fisheries Development Division administers a broad range of programs including domestic and foreign market development, market news services, fishery situation and outlook analyses, economic evaluation of fishery development projects, and the administration of a number of financial assistance programs to the commerical fishing industry. The division's programs, particularly the market development activities, are closely coordinated with a number of partners including the southeast coastal states, the Sea Grant community, the commerical fishing, processing and distribution industries, and other federal and state agencies as appropriate. The division's programs are the largest in the Fisheries Service with regard to area served, budget, staff, numbers of fish species, and the level of development activity.

The division has a major role in the Marine Fisheries Initiative (MARFIN). The first program cycle was recently completed, resulting in the awarding of approximately $2 million in completed projects, keyed in FY 86 to the expanded information needs of red drum, king mackerel, and marine turtle management as well as butterfish and other latent resources development. The division is currently administering the $3.5 million FY 87 MARFIN program addressing the same ongoing priorities. Similarly, the division managed the $1.3 million of FY 85 Saltonstall-Kennedy program awards and conducted the FY 86 award competition. This resulted in $1.7 million of new awards.

The division is organized into three branches, Financial Services, Commercial Development Service, and Fishery Development Analysis.

The Financial Services Branch administers the Fisheries Obligation Guarantee program and Fisheries Loan Fund. The branch also answers questions and provides advice for programs under the Washington Office auspices. These programs are the Capital Construction Fund, Fishermen's Protective Act and the Fishermen's Contingency Fund financial assistance programs. The southeast region accounts for 53% of the total financial assistance case activity nationally and our program has the largest servicing workload of all the regions as well as the greatest economic impact.

The Commercial Development Services Branch is experiencing a major change in mission. Historically, the branch conducted investigations of market potential for southeast fishery products both in the U.S. and abroad and organized and participated in a number of foreign and domestic food trade shows to introduce new southeastern species to potential buyers. The staff also published a monthly marketing newsletter, supplied fishery availability information, industry directories and educational materials to increase consumer, distributor and foreign importer awareness of seafood product options in the Southeast Region. The branch published the "Best Southeast Region Seafood Buyer Report," the "Market Opportunities Newsletter," the "Gulf and South Atlantic Seafood Companies Directory" and the "Directory of Gulf and South Atlantic Seafood Exporters." Under the new mission some of these same activities may continue, but the focus will be on the analysis of trade situations as they relate to the government's role in facilitating trade in seafood products. The new mission will focus on gaining a better understanding and appropriate documentation of trade issues, including tariff and non-tariff trade barriers and trade enhancement opportunities. This work will be conducted more closely with the International Trade Administration and other appropriate federal agencies concerned with trade policy development and implementation. The branch is currently developing plans to reflect these new responsibilities and will be shifting responsibility for seafood promotion activities to the private sector. Certain directory services may also be affected to some extent.

The Fisheries Development Analysis Branch is responsible for the New Orleans Market News Report, produces Situation and Outlook reports for southeast fisheries, provides economic services to other NMFS offices, acts as economic liaison with Sea Grant, produces occasional specialized reports on economic aspects of southeast fisheries and provides shrimp mariculture technology transfer services to U.S. investors. During 1986, a major effort was undertaken to "automate" the New Orleans Market News Report and by the end of the year the entire report was being composed entirely via computer/word processing. About 150 Market News reports were issued during the year to over 700 subscribers. The Situation and Outlook efforts were concentrated on shrimp while work proceeded on building data bases for finfish and shellfish reports. The branch wrote the Regulatory Impact Review for the Red Drum Fishery Management Plan and contributed to the writing of the plan. Several Sea Grant and Marine Fisheries Review manuscripts were reviewed, a roster of southeast fisheries economists was developed and the branch contributed to the writing of a shrimp economics research needs program published by Florida Sea Grant. Special papers on blue crabs, analog products, consumer attitudes and clams were completed. Several data compilations were produced for a variety of users. About ten foreign and domestic visits with accompanying trip reports were made for the shrimp mariculture technology transfer program.

LAW ENFORCEMENT

The Fisheries Service enforcement responsibilities include investigation of criminal and civil violations of all statutes and regulations within the service's enforcement jurisdiction. The division plans and participates with the Coast Guard, Customs Service and State agencies in patrol, inspection and investigative activities for maximum application of resources.

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

Accomplishments include participation with the South Carolina Departments of Wildlife and Marine Resources and Health and Environmental Control in an undercover operation investigating the illegal harvest and interstate shipment of clams. The investigation resulted in approximately 300 charges of federal violations, 900 charges of state violations and receipts for $775,147 worth of cherrystone, neck and chowder clams.

A joint investigation with the Florida Marine Patrol into the illegal harvesting of sea turtles uncovered the remains of 45 turtles. The defendent in this case received a sentence which included imprisonment.

One vessel was seized and its master charged with a criminal violation of the Lacey Act for repeatedly fishing illegally in Bahamian waters.

Seventeen violations of the Texas shrimp closure were documented. Special agents conducted 262 investigations during 1986.

GULF OF MEXICO FISHERY MANAGEMENT COUNCIL

ACTIVITIES OF THE GULF COUNCIL DURING 1986

SHRIMP

Responding to the requests of Texas shrimp fishermen and processors and the recommendation of its Scientific and Statistical Committee, the Council asked the National Marine Fisheries Service (NMFS) that the seasonal closure to shrimping off Texas not be implemented in 1986. The NMFS rejected this request but, after additional public comment, approved a second Council request for the closure to extend only 15 miles offshore. The 15-mile closure became effective May 10th and continued through July 9th. The modified closure allowed Texas fishermen and processors the opportunity to keep their vessels and processing facilities operating throughout the year and provided more current data for evaluating the effects of the closure. The NMFS stipulated that shrimp vessels could operate in the FCZ beyond the 15-mile closure provided their trawls were equipped with TEDs or provided trawling was limited to drags of no more than 90 minutes duration. This action was taken to protect endangered sea turtles.

At its September meeting the Council considered options for amendment to its Shrimp FMP. The following options were among those proposed by the Shrimp Management Committee.

1. Modify annual review process to eliminate requirement for annual publication of intent to change or not to change the Tortugas Shrimp Sanctuary.

2. Require six days notice for reopening of the "Texas Closure."

3. Establish a minimum count size of 100 whole white shrimp to the pound to facilitate enforcement of Louisiana law.

4. Limit trawl towing duration to 90 minutes or less for vessels with trawls 40 feet or greater in width without an approved device which excludes turtles in areas of the FCZ when and where turtles are known to occur frequently.

5. Require a minimum mesh size of 1-5/8 inch stretch measure for all shrimp trawls in the Gulf FCZ.

Next public hearings would precede submission of any plan amendment to implement the changes.

RED DRUM

The Council began the process of developing an amendment to replace the Secretarial Red Drum FMP in late 1987, or early 1988.

The Council asked that the Secretary of Commerce extend his emergency red drum rule for an additional 90 days but allow no harvest of red drum from the Gulf FCZ during that period. The Secretary's first 90-day rule (June 25th - September 23rd) provided an allowable directed net harvest of one million pounds which was taken in 25 days and the fishery closed July 20th. The second closure was implemented and the prohibition of harvest and retention of red drum from the FCZ by any means provided protection until the Secretarial plan could be implemented in December, 1986.

The Council also requested that the Gulf states modify their rules to provide that a minimum of 20 percent of juvenile red drum be allowed to survive to escape to the offshore adult stock. This could be done through more restrictive size and bag limits.

To assist in development of its Red Drum FMP, and in review of the Secretarial plan, the Council named individuals to serve on technical and advisory panels.

Appointed to the Scientific and Statistical Committee were:

Richard Condrey, Louisiana State University
Mike Murphy, Florida Department of Natural Resources
Roy Williams, Florida Department of Natural Resources
Gary Saul, Texas Parks and Wildlife
Walter Nelson, National Marine Fisheries Service
Mark Van Hoose, Alabama Department of Conservation and Natural Resources
Tom McIlwain, Gulf Coast Research Laboratory
Gerald Adkins, Louisiana Department of Wildlife & Fisheries

Named to the Advisory Panel were:

Albert Bankston, Baton Rouge, Louisiana
Kenneth Barhanovich, Biloxi, Mississippi
Bonnie Beall, Islamorada, Florida
Thad Brumfield, Jr., Pascagoula, Mississippi
Maumus Claverie, New Orleans, Louisiana
Pete Gerica, New Orleans, Louisiana
Ed Holder, Groves, Texas
Douglas Horn, Pascagoula, Mississippi
Harlon Pearce, Metairie, Louisiana
Bethlyn McCloskey, Metairie, Louisiana
Bobby O'Barr, Biloxi, Mississippi
James Reahard, Grand Bay, Alabama
Frank Schiraldi, Crystal River, Florida
Ron Young, Corpus Christi, Texas

The Gulf Council provided comment on revisions to the Secretary's Red Drum Fishery Management Plan (FMP) prior to its implementation in December, 1986, and adopted provisions for a Council amendment to replace the Secretarial plan.

The Council recommended that the federal FMP prohibit a directed fishery for red drum in federal waters, but allow bycatch (defined as no more than five percent by weight of each trips catch) to be landed from the FCZ provided such fish conform with the landing and possession laws of the state where landed. The total bycatch allowed from the fishery should be set at a level which would not impact the spawning stock biomass.

The Council requested that the research proposed under the FMP to examine 50,000 fish for tags be carried out by NMFS funding vessels to catch, examine and release the fish alive.

Among the options that were adopted for the Council amendment to the Secretarial FMP was a division of federal waters in the Gulf of Mexico into a primary management area (federal waters off Alabama, Mississippi and Louisiana) and two secondary management areas (federal waters off Florida and Texas). The Council proposed that there be no retention of red drum from either secondary area. This was done to protect the spawning stock biomass off these areas which the Council believes is reduced as a result of high fishing

mortality (harvest) which occurred in the estuaries of these states for many years. For the primary area where historically escapement to the offshore stock has been higher, the Council adopted a procedure whereby a total allowable catch (TAC) level could be set if stock assessment information indicates a surplus exists in the offshore stock. Under this procedure any allowable catch would be allocated between user groups. On completion of this draft amendment the Council was to have held public hearings to get comments on the measures proposed and any alternatives.

COASTAL PELAGICS

In conformance with the recommendations of their stock assessment panel the Gulf and South Atlantic Councils requested that the total allowable catch (TAC) for Gulf group king mackerel for the July 1986 - June 1987 fishing season be set at 2.9 million pounds. The allocations were distributed by formula specified in the mackerel plan.

In actions similar to those taken for king mackerel, the Gulf and South Atlantic Councils proposed reduced catches of Spanish mackerel for the 1987 calendar year. Based on additional scientific data provided by its Stock Assessment Panel, the Councils proposed a reduction of the maximum sustainable yield of Spanish mackerel to 18 million pounds. This is the amount of fish that could be harvested from the U.S. stock annually if the stock were fully recovered.

Meeting jointly on St. Simon's Island, Georgia, the Gulf and South Atlantic Councils agreed on provisions for Amendment No. 2 to their joint mackerel plan. Most changes which were expected to be implemented in the summer of 1987 concerned management of Spanish mackerel.

U.S. Spanish mackerel stocks were to be separated into two management groups: Atlantic and Gulf with the Dade-Monroe County line in Florida being the common boundary. This placed the Florida Key's stock in the Gulf group.

Total allowable catch (TAC) for the Gulf group Spanish mackerel was set at 1.8 million pounds (M), and was allocated on the basis of historic catch patterns at 1.3M (57%) for commercial, and 0.77M (43%) for recreational fishermen. For the Atlantic group the TAC was set at 2.9M with 2.2M (76%) for commercial and 0.7M (24%) for recreational fishermen.

Commercial fishing would close on a group when its quota was filled. The recreational bag limit was to be ten fish per person per trip in all states except Florida, where the limit was to be four fish (Florida had already established a four fish limit in its waters).

Councils clarified their intent that a bag limit was to apply as the control for recreational mackerel fishermen. However, if overfishing as defined in the plan was occurring on a stock, the bag limit would revert to zero when the recreational allocation for the year was taken.

Minimum size limits of 12 inches would continue to apply to Spanish mackerel, and gill nets for this species should be 3-1/2 inches in stretch measure. Purse seines were to be prohibited for mackerels.

All vessels fishing under the commercial quota for king or Spanish mackerel should obtain a permit which would be available throughout the year. Applicants for commercial permits should be able to prove that they derived at least ten percent of their earned income the previous tax year from commercial fishing.

Any charterboat fishing for mackerel should obtain a charterboat permit. Charterboats could also obtain a commercial permit to fish under the commercial quota when not under charter.

Because the proposed amendment to their joint mackerel plan could not become effective until the summer of 1987, the Gulf and South Atlantic Councils requested Secretarial implementation of an emergency rule to extend the effect of Florida's Spanish mackerel measures to federal waters off that state. The effect would be to close federal waters adjacent to Florida as commercial quotas are reached. A recreational bag limit of four fish per person per trip would apply in federal waters.

SWORDFISH

NMFS/NOAA/Commerce approved some and disapproved other management measures of the five-Council swordfish plan.

Approved measures:

1. Mandatory logbooks for commercial vessels - OMB approved for one year, during which it was to be carefully examined;

2. Procedure for consultation among the five Councils for developing management measures;

3. Onboard technician coverage for data collection on a voluntary basis; and

4. Prohibition of nighttime longlining (for foreign tuna fisheries) during the variable season Closure (VSC).

Disapproved measures:

1. Prohibition of swordfish imports during the VSC;

2. Caps on incidental swordfish catch by foreign longline and squid trawl fisheries;

3. Procedure for closure of Area 1;

4. Prohibition of drift entanglement nets; and

5. Onboard technician coverage for data collection on a mandatory basis. As indicated under approved measure number 3 above, the measure was approved on a voluntary basis.

The five Councils recommended to the National Marine Fisheries Service that the variable season closure (VSC) provisions of the Atlantic Swordfish Plan be implemented in 1986 as follows:

AREA	START	END	DAYS
New England/Mid-Atlantic	10/01	10/13	13
South Atlantic	10/01	10/14	14
Florida East Coast	09/01	10/06	36
Gulf of Mexico	09/01	11/10	71
Caribbean	09/01	11/30	91

The VSC was developed by the Councils as a method of controlling effort on small swordfish to increase economic returns and help prevent overfishing. The closures listed above are those calculated to be required to reduce the catch of fish less than 50 pounds dressed weight by approximately ten percent from the 1985 level. This reduction was required to limit the catch of small fish to 1980 levels.

BILLFISH

The Gulf Council adopted the recommendation of the five-Council billfish committee, which proposed gamefish status for billfish. Sale of sailfish, marlin and spearfish would be prohibited except in the Caribbean subsistence fishery. Billfish taken incidentally on commercial longlines could not be retained although there were to be no recreational possession limits.

Minimum sizes at the following levels were suggested to reduce overall mortality:

Sailfish - 34 pounds; white marlin - 49 pounds; and blue marlin - 190 pounds.

Logbooks were proposed for commercial swordfish and tuna longline vessels to collect catch and effort data for billfish. Catch reports from fishing tournaments would also be required.

SPINY LOBSTER

At their joint meeting in October, the Gulf and South Atlantic Councils agreed upon changes in their Spiny Lobster FMP which would bring federal management more closely in line with that of Florida where the fishery occurs. The following provisions were adopted:

- Lobster season would be closed from April 1st through April 5th, with a preseason soak period beginning August 1st.

- The two-day recreational nontrap season would be the first full weekend prior to August 1st. The catch and possession limit during this special season would be six lobsters per person per day.

- A commercial fishing permit would be required to harvest more than six lobsters per day or to sell lobsters. To obtain a commercial permit a fisherman must have derived ten percent or more of his income from commercial fishing.

- Onboard possession of undersized lobster for use as attractants would be limited to a maximum of 100 and they must be kept in a shaded live well that provides 3/4 gallons of aerated circulating sea water per lobster.

- All captured egg-bearing females must be released alive to open water and not be retained in traps as attractants.

- Harvesting spiny lobster with a carapace length less than three inches, or if the carapace and tail are separated, with a tail length less than 5-1/2 inches would be prohibited.

- A tailing permit would be required for the purpose of separating the carapace and tail at sea in the FCZ.

A proposal for inclusion of escape panels to allow escape of undersized lobsters was not included in the plan.

STONE CRAB

A request by south Florida shrimp fishermen that an area closed to shrimp fishing be reduced in size because of reduced effort of stone crabbers in the area was denied by the Council. Shrimpers acting through the Southeastern Fisheries Association noted there were few crabbers fishing the area south of Naples last season due to low abundance of crabs. Shrimpers favored the change while crabbers did not.

The Council decided that one year's data were insufficient evidence to change the line established to reduce conflict between different gear users. The Council will continue to monitor the situation and asks that the Association and advisory panels keep it advised.

REEF FISH

Fishing equipment manufacturers and fishermen have requested relief from some regulations specifying use of fish traps. The Council agreed to revise its minimum mesh size specified for Gulf fish traps to conform with regulations for South Atlantic waters. This would allow use of 1.5 x 1.5 inch square mesh, hexagonal mesh with 1.5 inches between parallel sides, as well as 1 x 2 inch rectangular mesh. This requirement of two 2 x 2 inch escape windows on each of two sides of a trap would still be a Gulf requirement.

Florida Bay fishermen requested that the outer limit of the "stressed area" off south Florida in the Everglades area be moved inshore from the 50 to the 30 foot contour. This proposal is to be considered by the Council in the next FMP Amendment.

HABITAT

At its July 1986 meeting, the Gulf Council took the position of opposing EPA's proposed issuance of permits to discharge phosphogypsum effluents into the Mississippi River. Four companies propose to discharge pollutants from fertilizer manufacturing facilities into the Mississippi River between Baton Rouge and New Orleans, Louisiana. Phosphoric acid production from the four facilities would result in a maximum daily discharge of up to 1.3M pounds of total phosphorous, 1.8M pounds of total floride, 40M pounds of total sulfate and 2,700 pounds of total uranium. The Council is concerned that the proposed discharges would adversely affect the valuable estuarine habitats of the lower Mississippi River.

The Council also requested the U.S. Army Corps of Engineers to honor the recommendation to the Corps by Louisiana's Plaquemines Parish not to fill, as planned, the outlet from the Mississippi River to the west at about mile 3.0 below Head of Passes. Maintaining this navigable channel would benefit fishing as well as oil and gas interest, and would enhance the development of environmentally valuable marsh in the active delta west of the river.

The Gulf Council reviewed the August 1986 combined Draft Feasibility Report and Environmental Impact Statement (DFREIS) for the Galveston Bay Area Navigation Study distributed by the Corps of Engineers (COE) on August 15, 1986. The Council reviewed the DFREIS with respect to the potential environmental effects on marine fishery resources for which the Council exercises management responsibility.

The comments of the Council delt with the items of: Bay bottom degradation; salinity increases; circulation disruption; turbidity increases; contaminant re-suspension; and the cumulative impacts resulting from other projects proposed or approved for the Galveston Bay estuarine complex. The Council expressed dissatisfaction with the failure of the COE to respond to an earlier request that the COE prepare an assessment of the cumulative impact of the several projects planned for the Galveston Bay estuarine system.

The Council's Habitat and Environmental Protection Committee and Advisory Panel met in New Orleans, Louisiana on November 17-18, 1986. The members heard presentations by NMFS representatives on habitat research and protection activities. A presentation on H.R. 5163 "Coastal Wetland Recovery Act", and other recent congressional action covered the NMFS-COE initiative to create and enhance wetlands.

Efforts to coalesce a "Gulf of Mexico Initiative" were described by Ms. Sally Turner of the Environmental Protection Agency. The Council Committee members and advisory panelists discussed ways that the Advisory Panels could more effectively assist the Council in its habitat and environmental protection activities.

GENERAL

Secretary of Commerce, Malcolm Baldrige, reappointed George Brumfield (Moss Point, Mississippi), John Green (Beaumont, Texas) and Mary Kumpe (Sarasota, Florida) to three year terms on the Gulf Council. Messrs. Green and Brumfield were original appointees to the Council having served since 1976. Ms. Kumpe began her second term.

Two Mississippians were named at the September meeting to head the Gulf of Mexico Fishery Management Council for the next twelve months. George A. Brumfield of Moss Point was elected Chairman and Frank Barhanovich, Jr., Vice Chairman.

Faced with budget reduction and increasing operating expenses the Council reduced the membership of its scientific and statistical committee and advisory panel membership. Membership on panels for the larger Gulfwide fisheries was reduced to 15 members and for the smaller regional fisheries to eight members. The Council endeavored to maintain geographical as well as user group balance among the remaining members.

1987 SEAMAP MARINE DIRECTORY

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

Agencies listed in the 1987 Directory were contacted in January 1987 and requested to provide current information or projected changes in their survey programs. As in past years, efforts were made to include all such programs operating in the Gulf. Tables 1, 2 and 3 are condensed summaries of information submitted by responding agencies and organizations, indicated as either Federal, State or university activities.

INTRODUCTION

The Southeast Area Monitoring and Assessment Program (SEAMAP) is a cooperative State/Federal/university program for the collection, management and dissemination of fishery-independent data (data collected without direct reliance on any commercial or recreational fishery) and information in the southeast region. Presently operational are the SEAMAP-Gulf and SEAMAP-South Atlantic programs; a SEAMAP-Caribbean program is currently in the planning stage.

This Marine Directory, incorporated into the Thirty-seventh Annual Report of the Gulf States Marine Fisheries Commission, updates information contained in the 1983, 1984, 1985, and 1986 SEAMAP Marine Directories, and describes survey activities (ongoing programs, vessel schedules, etc.) throughout the Gulf of Mexico. The SEAMAP Program is managed through the office of the Gulf States Marine Fisheries Commission.

Agencies responding to the 1986 Directory were contacted in March 1987 and requested to provide current information or projected changes in their survey programs. Tables 1, 2 and 3 are condensed summaries of information submitted by responding agencies and organizations, indicated as either Federal, State or university activities.

Representatives of agencies contributing information to past directories are listed alphabetically in Appendix A by organizational category. The SEAMAP Subcommittee would like to express its appreciation to all organizations responding to the request for information. Other organizations conducting fishery-independent marine or estuarine surveys are encouraged to contact the SEAMAP Program for inclusion in future listings. The Directory will be updated each year, with copies supplied to participating organizations.

Appendix B lists published documents which have been produced by the SEAMAP Program and are available through the Gulf States Marine Fisheries Commission. Questions and requests for detailed information concerning the Directory or the SEAMAP Program should be referred to:

Tom Van Devender
SEAMAP-Gulf Coordinator
Gulf States Marine Fisheries Commission
Post Office Box 726
Ocean Springs, Mississippi 39564
(601) 875-5912

TABLE 1. SUMMARY OF INFORMATION PROVIDED BY FEDERAL AGENCIES

			TYPES OF FISHERY-INDEPENDENT SAMPLING			ANNUAL EFFORT DEVOTED TO FISHERY-INDEPENDENT SAMPLING BY ACTIVITY IN:		TYPES OF GEAR				
AGENCY	TARGET SPECIES	LIFE STAGES SAMPLED	AREA SAMPLED	GEOGRAPHIC AREAS OF IMPORTANCE	TYPES OF PLATFORMS	NUMBER OF DAYS	NUMBER OF SAMPLES	FISHING, TRAWLING	PLANKTON	SAMPLE STRATEGY FOR DATA COLLECTION	ANTICIPATED CHANGES IN DIRECTION OF FISHERY-INDEPEND. ACTIVITIES OVER NEXT 5 YEARS	HIGH PRIORITY SPECIES PRESENTLY UNABLE TO SAMPLE
NOAA NMFS/SEFC Mississippi Labs, Pascagoula (MS)	Groundfish (shrimp, spot, croaker, catfish, trout)	Subadults-adults	Gulf of Mexico South Atlantic	Territorial; open ocean (EEZ)	172' OREGON II	102/yr toward target species; 102/yr total sea days	600/yr trawl stations, 180 plankton/yr 180 neuston/yr	Standard 40' semiballoon trawl; High-opening fish trawl	Bongo array with .333-mm mesh nets; 1 x 2-m neuston net with .947mm mesh	Random (stratified) 5-100 fm	None	None
	Reef fish (snapper, grouper, tilefish)	Adults	Gulf of Mexico; South Atlantic; Caribbean	Territorial; open ocean (EEZ)	OREGON II; 127' CHAPMAN	87/yr toward target species	150 longline sets/yr	Longline; traps	None	Random (stratified) 20-250 fm	None	None
	Latent resources (coastal herring, squid, butterfish)	Subadults-adults	Gulf of Mexico	Territorial; open ocean (EEZ)	CHAPMAN	145/yr toward target species; 160/yr total sea days	400/yr trawl stations	High-opening & midwater bottom trawls	None	Transects	Expansion	None
	Red drum	Subadults-adults	Gulf of Mexico	Territorial; open ocean (EEZ)	Charter purse seines;	60/yr	20,000 tagged red drum	Purse seine	None	Target fish schools	None	None
					Airplane	100/yr	None	None	None	Transects	None	None
	Mackerel	Subadults-adults	Gulf of Mexico	Territorial; open ocean (EEZ)	Airplane	24/yr	Unknown	None	None	Transects	None	None
NOAA NMFS/SEFC Miami Lab (FL)	All recreationally & commercially important species; reef fish	Larvae; juvenile; adult	Gulf of Mexico; SW FL; SE FL	Territorial; open ocean (EEZ); internal	OREGON II; CHAPMAN; various small boats	120/yr	3500/yr	Fish traps	Bongo nets 60 & 20 cm with .333-mm mesh; neuston 1 x 2-m with .947-mm mesh	Systematic, grid basis; long-term station selection; estuary entrances; reefs	Continuation of SEAMAP; continuation of SE FL monitoring	Billfishes; tunas
NOAA NMFS/SEFC Beaufort Lab (NC)	Atlantic croaker; spot	Subadults-adults	Charlotte Harbor; Tampa, Apalachicola, Escambia, Mobile, Barataria, Corpus Christi, Galveston Bays; MS Sound; MS Delta; Laguna Madre	Territorial	133' FERREL	70/yr	90 fish per sampling site	30' otter trawl	None	Samples representative of general contaminant levels at each sampling site (NOAA Status & Trends project; organic contaminants, trace metals, histopathology)	Project funded on yearly basis	None
NOAA NMFS/SEFC Galveston Lab (TX)	Bottomfish; penaeid shrimp; lane snapper; red snapper	Postlarvae-adults	Gulf of Mexico	Internal, EEZ	OREGON II (Texas Closure); small boats	39/yr; 78/yr		Standard 40' semiballoon trawl	Bongo nets 60 & 20 cm with .333-mm mesh; neuston 1 x 2-m with .947-mm mesh	Random stratified for Texas Closure; short-term special studies for estuarine ecology	None	None
	Sea turtles	Juveniles-adults	Gulf of Mexico Oil & gas platforms	Gulf of Mexico Oil & gas platforms							None	None
NOAA NMFS/SEFC Panama City Lab (FL)	King & Spanish mackerel	Subadults-adults; larvae	Gulf of Mexico; South Atlantic	Territorial; open ocean (EEZ)	OREGON II; CHAPMAN; small boats	50/yr	Various	Trawls	Bongo nets 60 & 20 cm with .333-mm mesh; neuston 1 x 2-m with .947-mm mesh	Systematic, grid basis; long-term station selection; oceanic discontinuities	Continuation of SEAMAP;	None

TABLE 1. (CONTINUED)

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

TABLE 2. SUMMARY OF INFORMATION PROVIDED BY STATE AGENCIES

			TYPES OF FISHERY-INDEPENDENT SAMPLING			ANNUAL EFFORT DEVOTED TO FISHERY-INDEPENDENT SAMPLING BY ACTIVITY IN:.		TYPES OF GEAR				
AGENCY	TARGET SPECIES	LIFE STAGES SAMPLED	AREA SAMPLED	GEOGRAPHIC AREAS OF IMPORTANCE	TYPES OF PLATFORMS	NUMBER OF DAYS	NUMBER OF SAMPLES	FISHING, TRAWLING	PLANKTON	SAMPLE STRATEGY FOR DATA COLLECTION	ANTICIPATED CHANGES IN DIRECTION OF FISHERY-INDEPEND. ACTIVITIES OVER NEXT 5 YEARS	HIGH PRIORITY SPECIES PRESENTLY UNABLE TO SAMPLE
Texas Parks & Wildlife Dept.	All penaeid shrimp; all other species	Juveniles-adults	TX internal coastal waters; territorial sea	Internal; territorial	30' inboard & 18' outboard skiffs; 40'-45' inboards	365/yr	1080/yr 1680/yr 960/yr 756/yr 5232/yr	60' bag seines (shoreline); 20' trawl (bay, open water); 20' trawl (Gulf waters); gill nets for adult finfish (along shore); oyster dredge	None	Random, grid basis	None	Adult finfish in open Gulf waters
Louisiana Dept. of Wildlife & Fisheries	All penaeid shrimp; groundfish	Larvae-adults	LA inshore waters; territorial seas; EEZ	Internal; territorial	13-17' outboards for 6' trawl; 30' inboards for 16' trawls; 85' vessel (LOOP) for 50' trawl Leased vessel 40' trawl	167/yr state 92/yr LOOP 16/yr	Plankton, 1285/yr; Benthos, 56/yr; Trawls: 1225/yr 1288/yr 494/yr 72/yr 12/yr 96/yr	Otter Trawls: 6' (inshore) 16' (inshore) 16' (offshore) 50' (offshore) 50' (inshore) 40' (offshore)	1/2-m surface ring nets (.153-mm & .363-mm) 1-m surface ring (363-mm) 60-cm bongo nets (.333-.363-mm) neuston (.948-mm)	Long-term station selection, LOOP monitoring, and stratified random sampling for SEAMAP (40' trawls and plankton)	Increase territorial sea sampling; increase emphasis on commercial finfish	Most of the important commercial & recreational catch
Mississippi Bureau of Marine Resources	All penaeid shrimp; speckled trout; redfish; mullet; black drum; flounder; snapper; grouper; white trout; so. kingfish; menhaden; blue crab	Juveniles-adults	MS territorial sea	Internal; territorial; (EEZ)	32' Laffitte; 19' Cobia; 65' oyster dredge boat	50/yr; 10/yr; 50-60/yr	Varies; oyster 6/mo; shrimp 10-15/mo	16' trawl; oyster tongs and dredge; gill nets	None	Long-term station selection, varies with opening and closing of areas	Increase tagging activities	Juvenile red drum; cobia
Alabama Dept. of Conservation & Nat. Resources	All penaeid shrimp; southern flounder; Gulf menhaden; spot; croaker; red-drum; seatrout; blue crab	Larvae-adults	AL marshes to territorial sea	Internal; territorial	22' Tiara, (2) 90-hp; 23' Seacraft, (2) 150-hp; 32' Laffitte	110/yr	450/yr	50' bag seine; 16' otter trawl	6' beam plankton trawl	Long-term station selection	Increase effort to determine year-class strength of target species	Increase level of sampling in AL territorial sea
Florida Dept. of Natural Resources	Red drum; spotted trout; snook; king mackerel; mullets; gag grouper; tarpon; stone crab; blue crab; spiny lobster; oysters; hard clam	All stages, larvae-adults	FL waters & offshore	Internal; territorial; EEZ	37' BONNIE "E"; 27' Sea Star twin i/o; 24' T-craft inboard; 2 small outboards used for inshore sampling; 2 mullet skiffs; 34' Allmand; 24' tunnel boat; 19' Monark; 3-17' Boston Whalers 85' HERNAN CORTEZ II	Varies Weekly intervals (annually)	Varies with project	35' trawl 100' bag seine; benthic sled with net; 600' x 8' trammel net; lobster & crab traps	bongo array	Systematic, random (stratified), grid basis; long-term station selection, short-term special studies	As per Florida Marine Fisheries Commission	Mainly applies to implementation of research phases on current species or topics with additional personnel and increased funding

TABLE 3. SUMMARY OF INFORMATION PROVIDED BY UNIVERSITIES

			TYPES OF FISHERY-INDEPENDENT SAMPLING			ANNUAL EFFORT DEVOTED TO FISHERY-INDEPENDENT SAMPLING BY ACTIVITY IN:		TYPES OF GEAR				
UNIVERSITY	TARGET SPECIES	LIFE STAGES SAMPLED	AREA SAMPLED	GEOGRAPHIC AREAS OF IMPORTANCE	TYPES OF PLATFORMS	NUMBER OF DAYS	NUMBER OF SAMPLES	FISHING, TRAWLING	PLANKTON	SAMPLE STRATEGY FOR DATA COLLECTION	ANTICIPATED CHANGES IN DIRECTION OF FISHERY-INDEPEND. ACTIVITIES OVER NEXT 5 YEARS	HIGH PRIORITY SPECIES PRESENTLY UNABLE TO SAMPLE
FLORIDA												
Florida State Tallahassee	Benthic infauna; epibenthic fishes & invertebrates	Larvae-adults	NE Gulf of Mexico	Internal; territorial	(3) 55-hp 25' skiffs; outboard	48/yr	Monthly samples, both trawl & environ.	Standard 5-m otter trawl	80-um plankton net	Systematic, random long-term station selection; short-term special studies	More environmental experimentation	Areas: Apalachicola Bay system & Apalachee Bay; species: all species in those areas
Univ. West Florida Pensacola	Snappers; groupers; triggerfish	Subadults-adults	NE Gulf of Mexico	Internal	23' ARGONAUT	7/yr trawl; 14/yr plankton neuston	50/yr; 140/yr	16' otter trawl	2 (1-m) bongos 3 (1-m) neustons	Systematic, random (stratified)	None	None
Florida Sea Grant Gainesville	Oysters; spiny lobster; swordfish; tilefish; snowy grouper; shark; clams; shrimp; scallops; golden crabs; snook	All stages	FL waters	Estuarine; offshore	Industry, NMFS and F.I.O. contract vessels	Varies with project	Varies with project			Varies with project	None	None
Florida Institude of Oceanography St. Petersburg	All species	All stages	Gulf; Caribbean; South Atlantic	Internal, territorial	SUNCOASTER: BELLOWS	20-30/project	Varies	40' otter trawl: Tucker trawl; shellfish dredge	Various plankton nets	Random, long-term station selection; short-term special studies	To continue with SEAMAP; Expanded environmental sampling	None
University of Florida Gainesville	Offshore: deepwater crabs & lobsters; nearshore: stone crabs	Offshore: adults, juveniles; nearshore: adults, subadults	Offshore & nearshore, eastern Gulf of Mexico	Offshore: continental slope nearshore: internal, territorial	Offshore: SEWARD JOHNSON; OREGON II; industry vessel; sumersible; nearshore: 24' inboard-outboard	Offshore: 7/yr; nearshore: 30+/yr	Offshore: 96 transects 2 trawl tows 5 trap lines nearshore: 5 transects/day	Otter trawl; various traps; scuba and 250-m transect line		Offshore & Nearshore: intensive sampling during mating season	None	None
ALABAMA												
Marine Environmental Sciences Consortium (Dauphin Is. Sea Lab & U. Alabama)	Spotted seatrout; white sand trout; croaker; red drum	All stages	MS Sound; Mobile Bay; Perdido Bay	Estuarine	40' DEBORAH "B"; 14' skiff; 23' outboard	At least monthly, April 85 through March 86	Monthly at 4 sites & supplemental	Fyke net; drop net; bag seine	.505-mm mesh beam trawl	Target areas: grass beds	None	None
Mississippi-Alabama Sea Grant Consortium Ocean Springs (MS)	Red drum; blue crabs; stone crabs; oysters	Vertebrates: larvae; invertebrate: all stages	Northern Gulf of Mexico; MS Sound; Mobile Bay	Territorial; FCZ; estuarine; coastal	96' TOMMY MUNRO; skiffs; industry	Varies with project	Varies with project	Various types of crab pots; tonging for oysters; closed, recirculating seawater system for crabs; opening/closing plankton trawl	Tucker trawl (.202-mm and .333-mm mesh nets); 60-cm bongo net	Varies with project	None	None

TABLE 3. (CONTINUED)

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

TABLE 3. (CONTINUED)

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

TABLE 3. (CONTINUED)

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

APPENDIX A

MARINE AGENCY CONTACTS

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APPENDIX B

SEAMAP DOCUMENTS

SEAMAP DOCUMENTS LIST, 1982 - CURRENT

1) SEAMAP Strategic Plan, January 1981. The initial planning document describing the intent to develop the SEAMAP Program and outlining the preliminary goals and objectives, assessment requirements and priorities, research strategies, and funding requirements.

2) SEAMAP Quick-Reports (Data Summaries): six summaries, June-July 1981; seven summaries, June-July 1983; seven summaries, June-July 1984; five summaries, June-July 1985. Summaries of catch rate information from the SEAMAP Summer Shrimp/Groundfish surveys (Squid/Butterfish Survey, 1985 only) in the northern Gulf of Mexico, indicating stations sampled, catch rates, assessment of shrimp and finfish yields, and synopses of hypoxic conditions in the survey areas.

3) 1983, 1984, 1985 SEAMAP Marine Directories: May 1983, March 1984, and March 1985. Inventories of marine agency contacts (State, Federal and university) concerned with fishery research in the Gulf, and summaries of information provided by these organizations: target species, types of fishery-independent sampling gear and platforms, annual sampling effort and other material.

4) SEAMAP Information System Manual, Fall 1983. A description of the data management program supporting SEAMAP surveys and collecting activities, detailing the data processing and quick-report subsystems and presenting data formats for SEAMAP surveys and sample documentation and transmittal forms.

5) SEAMAP-Gulf Operations Plan, October 1983. A description of the SEAMAP Program, its goals and objectives, program accomplishments, survey and information systems operations, survey plans and schedules, program management, and funding requirements. Includes figures and tables detailing system functions, platform and funding needs, and information utilization.

6) SEAMAP-Gulf Operations Plan Executive Summary, March 1984. A summary of the features of the Operations Plan.

7) SEAMAP Environmental and Biological Atlases of the Gulf of Mexico, 1982, 1983, January 1985; February 1986. Compilations of information obtained from the 1982 and 1983 SEAMAP surveys. Included are dominant finfish and invertebrate catches from the shrimp/groundfish surveys, results of the plankton surveys, environmental data taken during both surveys, and methodology used in SEAMAP surveys.

8) SEAMAP 1982, 1983 Ichthyoplankton Atlases. NOAA Technical Memoranda NMFS-SEFC-144 (1985) and NMFS-SEFC (1986) summarizing in plots the larval distribution and abundance of the families Engraulidae, Carangidae, Clupeidae, Lutjanidae, Serranidae, Coryphaenidae, Xiphiidae, and Scombridae taken on SEAMAP surveys in 1982 and 1983.

9) 1986 SEAMAP Marine Directory, March 1986

10) Proceedings: SEAMAP Shrimp and Bottomfish Sampling Gear Workshop, August 1985. A summary of seven technical papers and a panel discussion on shrimp/groundfish sampling gear, presented at the 33rd Annual Spring Meeting of the Gulf States Marine Fisheries Commission. Included are recommendations for standardizing and calibrating bottom trawl survey activities and for satisfying future research requirements.

Biological and environmental data, and ichthyoplankton specimens sorted to the family level from SEAMAP surveys in the Gulf of Mexico, are available to researchers upon request to the SEAMAP Coordinator, Gulf States Marine Fisheries Commission (601/875-5912).

GULF STATES MARINE FISHERIES COMMISSION

Financial Statements
September 30, 1986

BOUTWELL AND COMPANY, LIMITED
Certified Public Accountants
Pascagoula, Mississippi

Boutwell and Company, Limited

Certified Public Accountants

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MEMBER
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MILLETTE BUILDING
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January 26, 1987

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

Gentlemen:

We have examined the balance sheet of Gulf States Marine Fisheries Commission as of September 30, 1986, 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, 1986, and the results of its operations and changes in fund balances for the twelve months then ended, in conformity with generally accepted accounting principles applied on a consistent basis.

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

Respectfully submitted,

Boutwell and Company, Limited

BOUTWELL AND COMPANY, LIMITED
Certified Public Accountants

GULF STATES MARINE FISHERIES COMMISSION
Balance Sheet
September 30, 1986

ASSETS		
Cash		$ 50,821
Furniture, Fixtures and Equipment	$ 41,201	
Automotive Equipment	13,661	
Total	$ 54,862	
Less: Accumulated Depreciation	(21,599)	33,263
Total		$ 84,084
LIABILITIES		
Payroll Taxes Withheld and Accrued		$ 2,917
FUND BALANCES		
Operating Fund	$ 99,962	
State-Federal Management Funds	17,864	
State-Federal Administrative Programmatic Funds	(8,090)	
State-Federal SEAMAP Funds	(21,263)	
State-Federal Council Funds	6,753	
Marine Fisheries Initiative Funds	(14,059)	81,167
Total		$ 84,084

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

GULF STATES MARINE FISHERIES COMMISSION
Statement of Revenues, Expenses and Changes in Fund Balances
Fiscal Year Ended September 30, 1986

	Operating Fund	State-Federal Management Funds
REVENUES:		
Member States Appropriations		
Alabama	$ 11,250	
Florida	-0-	
Louisiana	22,500	
Mississippi	11,250	
Texas	22,500	
Grants - Current Year		
Grants - Previous Year		
Interest Earned	6,129	
Miscellaneous - Insurance Claim	208	
Total Revenues	$ 73,837	$ -0-
EXPENSES:		
Salaries	$ 35,672	
Contract labor	2,952	
Insurance - Hospital	8,381	
Retirement Plan	2,570	
Taxes - Payroll	6,801	
Office Rental	950	
Office Supplies	1,390	
Postage	1,510	
Professional Fees	1,245	
Travel and Entertainment	9,448	
Telephone	3,354	
Equipment Rental	4,550	
Printing	-0-	
Meetings	3,014	
Dues and Subscriptions	816	
Auto Expense	278	
Insurance - Auto and Bond	1,110	
Maintenance and Repairs	2,162	
Courtesies	184	
Depreciation	3,325	
Miscellaneous	292	
Office Equipment		
Total Expenses	$ 90,004	$ -0-
Excess of Revenues Over (Under) Expenses	$ (16,167)	$ -0-
Fund Balances, October 1, 1985	116,129	17,864
Fund Balances, September 30, 1986	$ 99,962	$ 17,864

1. To receive $17,833 in next fiscal year on $41,500 contract.
2. To receive $60,406 in next fiscal year on $100,100 contract.
3. To receive $44,100 in next fiscal year on $62,099 contract.

The accompanying notes are an integral part of these financial statements

State-Federal Administrative Programmatic Funds	State-Federal SEAMAP Funds	State-Federal Council Funds	Marine Fisheries Initiative Funds	Combined Funds
				$ 11,250
				-0-
				22,500
				11,250
				22,500
$ 23,156	$ 39,693	$ 25,000	$ 17,999	105,848
4,936	57,245	7,212		69,393
				6,129
				208
$ 28,092	$ 96,938	$ 32,212	$ 17,999	$ 249,078
$ 9,000	$ 18,649	$ 19,001	$ 7,727	$ 90,049
3,890	40,283		1,093	48,218
				8,381
				2,570
				6,801
			50	1,000
513	1,196	996	868	4,963
614	3,195	700	1,289	7,308
				1,245
13,254	27,276	1,012	5,356	56,346
900	3,519	903	1,304	9,980
931	3,118	719	1,519	10,837
15	4,307			4,322
848	3,226		922	8,010
				816
		214		492
				1,110
				2,162
				184
		221		3,546
		1,140	3,162	4,594
	1,321		8,768	10,089
$ 29,965	$ 106,090	$ 24,906	$ 32,058	$ 283,023
$ (1,873)	$ (9,152)	$ 7,306	$ (14,059)	$ (33,945)
(6,217)	(12,111)	(553)	-0-	115,112
$ (8,090)	$ (21,263)	$ 6,753	$ (14,059)	$ 81,167

GULF STATES MARINE FISHERIES COMMISSION
Notes to Financial Statements
September 30, 1986

NOTE 1: SUMMARY OF SIGNIFICANT ACCOUNTING POLICIES:

(A) The accounting and reporting practices of the Commission conform to generally accepted accounting principles applicable to governmental units applied on a consistent basis between periods. The accrued basis of accounting is followed with these modifications:

(1) Revenues from members states' appropriations are recorded when received in cash.

(B) Depreciation of furniture, fixtures, equipment and the commission vehicle is calculated using the straight-line method.

NOTE 2: ORGANIZATION:

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

NOTE 3: STATE-FEDERAL FISHERIES MANAGEMENT PROGRAM:

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

NOTE 4: STATE-FEDERAL FISHERIES ADMINISTRATIVE SUPPORT PROGRAM:

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

NOTE 5: STATE-FEDERAL FISHERIES COUNCIL SUPPORT PROGRAM:

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