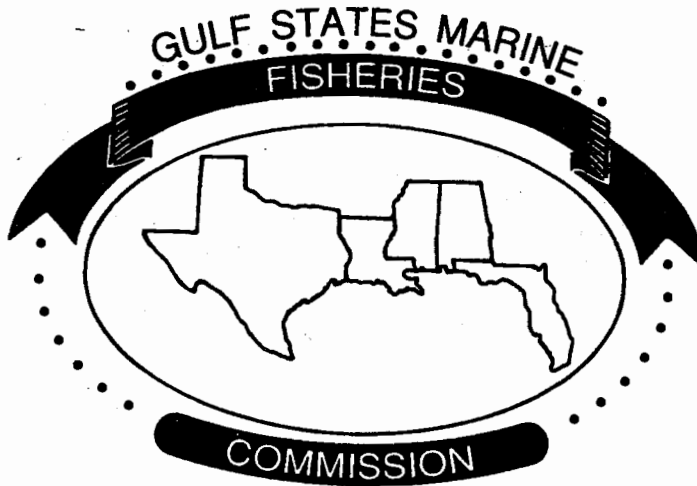


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FORTY-THIRD ANNUAL REPORT



GULF STATES MARINE FISHERIES COMMISSION

P.O. Box 726

Ocean Springs, MS 39566-0726

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
FORTY-THIRD ANNUAL REPORT (1992)

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 39566-0726

(601) 875-5912

ACKNOWLEDGMENT

In submitting this Forty-third 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 forty-three years could not have been possible without such valued assistance. This acknowledgment is also extended to the directorates and staffs of federal, state and interstate agencies, and to representatives of all organizations and individuals who have contributed toward the realization of the objectives of the GULF STATES MARINE FISHERIES COMMISSION.

Respectfully submitted,

Leroy Kiffe, Chairman FY92
Taylor Harper, Vice Chairman FY92
Larry B. Simpson, Executive Director

GULF STATES MARINE FISHERIES COMMISSION

Forty-third Annual Report (1992)

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Roster of the
GULF STATES MARINE FISHERIES COMMISSION
January 1, 1992 - December 31, 1992

Chairman: Leroy Kiffe

Vice Chairman: Taylor Harper

COMMISSIONERS

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

ALABAMA

James D. Martin, Commissioner
AL Department of Conservation
and Natural Resources
Montgomery, AL
Taylor F. Harper, Representative
State of Alabama
Grand Bay, AL
Chris Nelson
Bon Secour Fisheries, Inc.
Bon Secour, AL

Frank J. Patti, Representative
State of Louisiana
Belle Chasse, LA
Leroy Kiffe
Tom Kiffe & Sons Boats
Lockport, LA

FLORIDA

Don Duden
Acting Executive Director
FL Department of Natural Resources
Tallahassee, FL
Sam Mitchell, Representative
State of Florida
Chipley, FL
Hans G. Tanzler, III
Jacksonville, FL

MISSISSIPPI

Sam Polles
Executive Director
MS Department of
Wildlife, Fisheries & Parks
Jackson, MS
Tommy Gollott, Senator
State of Mississippi
Biloxi, MS
George Sekul
Biloxi, MS

LOUISIANA

William S. "Corky" Perret
Assistant Secretary
LA Department of
Wildlife and Fisheries
Baton Rouge, LA

TEXAS

Andrew Sansom
Executive Director
TX Parks and Wildlife Dept.
Austin, TX
Robert Saunders, Representative
State of Texas
Austin, TX
Charles E. Belaire
Fulton, TX

STAFF

Larry B. Simpson
Executive Director

Ronald R. Lukens
Assistant Director

David M. Donaldson
SEAMAP Coordinator

Richard L. Leard
IF Program Coordinator

Virginia K. "Ginny" Herring
Executive Assistant

Lucia B. Hourihan
Publication Specialist

Nancy K. Marcellus
Administrative Assistant

Cynthia D. Bosworth
Staff Assistant

Cheryl R. Noble
Staff Assistant

**COMMISSION OFFICERS ELECTED FOR
FISCAL YEAR 1992**

Chairman: Leroy Kiffe succeeding Don Duden
Vice Chairman: Taylor Harper succeeding Leroy Kiffe
1st Vice Chairman: Rudy Rosen
2nd Vice Chairman: Joe Gill

COMMITTEES

Executive Committee Leroy Kiffe, Chairman
Technical Coordinating Committee Ed Joyce, Chairman
SEAMAP Subcommittee Walter Tatum, Chairman
 Crab Subcommittee Harriet Perry, Chairman
 Data Management Subcommittee Henry "Skip" Lazauski, Chairman
 Anadromous Fish Subcommittee J. Alan Huff, Chairman
Commercial Fisheries Advisory Committee Chris Nelson, Moderator
Recreational Fisheries Management Committee Virginia Vail, Chairman
Law Enforcement Committee Jerald Waller, Chairman
State-Federal Fisheries
 Management Committee Larry Simpson, Moderator
 Menhaden Advisory Committee John Merriner, Chairman

GULF STATES MARINE FISHERIES COMMISSION ACTIVITIES

The big issue for 1992 was bycatch. On behalf of the Commission I participated in the Gulf and South Atlantic Fisheries Development Foundation's (GSAFDF) Steering Committee for their bycatch project. I served as chairman of the bycatch characterization subcommittee. The importance of the shrimp fishery in the Southeast is without question tremendous. In 1991, 265.5 million pounds valued at dockside at \$478.4 million, were landed in the Gulf and South Atlantic area. The shrimp fishery was first in value of all U.S. fisheries.

For the last fifteen or twenty years bycatch in the fishery has been of some concern to segments of the marine community. Underutilized value and protein were initial concerns followed by interactions with endangered sea turtles and lately interactions with regard to finfish.

A three-year program by industry through the GSAFDF in close partnership with National Marine Fisheries Service, States, Sea Grant, and universities was passed in Federal legislation. The various groups all worked toward a cooperative goal -- an acceptable method, whether gear or management practice, which would reduce the bycatch to a commonly agreed-upon level.

Amazingly the groups developed a research plan which includes a data collection protocol and actions to increase our knowledge of the following:

- Bycatch Characterization
- Bycatch Species Assessment
- Gear Modification
- Non-Gear Management Options
- Impacts
- Information/Education
- Other Sources of Mortality
- Data Base Management

Groups such as the Texas Shrimp Foundation and the Southeastern Fisheries Association contributed hard data on bycatch and international perspectives on how bycatch is addressed. National bycatch workshops were held which fostered an understanding of the bycatch issues faced on east, west and gulf coasts of the United States. We now have a plan and data are being collected. Solutions will be found and the resulting management measures should be based on new and more robust data. What a year!

Larry B. Simpson
Executive Director

MEETINGS/ACTIVITIES OF THE EXECUTIVE DIRECTOR

Gulf States Marine Fisheries Commission (GSMFC)

Speech to Fish and Wildlife Foundation re: Gulf problems and project opportunities, Washington, DC - January 1992
Black Drum Technical Task Force Meeting, Mobile, AL - February 1992
Meeting with Commissioners Minton and Tatum re: RecFIN, Dauphin Island, AL - April 1992
GSMFC Annual Meeting, Biloxi, MS - April 1992
Habitat Education Meeting with Pacific States Marine Fisheries Commission and Fish and Wildlife Service - Washington, DC - April 1992
Marine Fisheries Advisory Committee (MAFAC) Department of Commerce, Washington, DC - April 1992
Speech to Eastern Lands and Resources Council, Washington, DC - April 1992
Conference Call with three Interstate Commission Directors re: joint issues, Ocean Springs, MS - April 1992
Speech to Moss Point Rotary re: GSMFC, Moss Point, MS - June 1992
Conference Call re: American Fisheries Society Contract, Ocean Springs, MS - August 1992
Marine Fisheries Advisory Committee (MAFAC) Department of Commerce, Washington, DC - September 1992
Meeting with Commissioner Rosen and Fish & Wildlife Service (FWS) Director Turner re: GSMFC Wallop/Breaux Program Issues, Washington, DC - October 1992
New Commissioner Briefing (Rep. Saunders), Austin, TX - October 1992
Speech to Southeastern Fisheries Association re: GSMFC, Corpus Christi, TX - October 1992
Speech to Personnel Managers Association re: GSMFC, Pascagoula, MS - November 1992

Gulf of Mexico Fishery Management Council (GMFMC)

January 1992	Houston, TX
May 1992	Tampa, FL
July 1992	Islamorada, FL
September 1992	New Orleans, LA
November 1992	Sarasota, FL

Other Meetings and Activities

Participated in Sandhill Crane Census, FWS, Gautier, MS Refuge - January 1992
National Industry Bycatch Meeting, New Port, OR - February 1992
Louisiana Department of Wildlife and Fisheries Menhaden Meeting, New Orleans, LA - February 1992
Visit with Noreen Clough, Deputy Assistant Director for Fisheries of FWS re: Gulf of Mexico issues, Ocean Springs, MS - March 1992
Bycatch Steering Committee Meeting (G&SAFDFI), Atlanta, GA - March 1992
MS Department of Wildlife, Fisheries & Parks meeting re: confidentiality of statistics, Jackson, MS - April 1992

Louisiana Shrimp Association Convention, New Orleans, LA - May 1992

International Bycatch Symposium SEFA, Orlando, FL - May 1992

Hancock Bank Symposium, Gulfport, MS - July 1992

International Association Fish & Wildlife Agencies Annual Meeting, Toledo, Ohio - September

1992

Fishermen Involved in Saving Habitat (FISH) Meeting, Washington, DC - October 1992

Save America's Seafood Association Meeting with Jean Williams, Ocean Springs, MS - November

1992

Save America's Seafood Association's Briefing for State Elected Officials, Orange Grove, MS -
December 1992

Congressional Meetings

Testimony before House Appropriations Subcommittee re: Gulf fishery programs, Washington,
DC - April 1992

Marine Fisheries Initiative (MARFIN) Program Steering Committee Meetings

May 1992

Tampa, FL

September 1992

St. Petersburg, FL

October 1992

Corpus Christi, TX (Principal Investigator's Conference)

SOUTHEAST AREA MONITORING AND ASSESSMENT PROGRAM (SEAMAP)

INTRODUCTION

The Southeast Area Monitoring and Assessment Program (SEAMAP) is a State/Federal/university program for collection, management and dissemination of fishery-independent data and information in the southeastern United States. The program presently consists of three operational components, SEAMAP-Gulf of Mexico, which began in 1981, SEAMAP-South Atlantic, implemented in 1983 and SEAMAP-Caribbean, formed in 1988.

Each SEAMAP component operates independently, planning and conducting surveys and information dissemination in accordance with administrative policies and guidelines of the National Marine Fisheries Service's Southeast Regional Office (SERO).

Federal programmatic funding for SEAMAP activities and administration was appropriated in Federal Fiscal Years 1985-1992 (October 1 through September 31). State and Gulf States Marine Fisheries Commission (GSMFC) funding allocations for FY1985-FY1992 were handled through State-Federal cooperative agreements, administered by SERO and the Southeast Fisheries Center (SEFC), National Marine Fisheries Service (NMFS).

In FY1992, SEAMAP operations continued for the eleventh consecutive year. SEAMAP resource surveys included the Fall Shrimp/Groundfish Survey, Spring Plankton Survey, Spring Reef Fish Survey, Summer Shrimp/Groundfish Survey, Fall Plankton Survey and plankton and environmental data surveys. Other projects and activities for FY1992 consisted of the Status and Trends Benthic Surveillance Project, SEAMAP data management, information services and program management.

RESOURCE SURVEYS

Fall Shrimp/Groundfish Survey

The Fall Shrimp/Groundfish Survey was conducted from September 30 to November 22, 1991, from off Mobile, Alabama to the U.S.-Mexican border. Vessels waters to 60 fm, covering a total of 353 trawl stations, in addition to plankton and environmental sampling.

Sampling design was similar to the summer shrimp/groundfish cruise; objectives of the survey were:

- (1) sample the northern Gulf of Mexico to determine abundance and distribution of demersal organisms from inshore waters to 60 fm;
- (2) obtain length-frequency measurements for major finfish and shrimp species to determine population size structures;
- (3) collect environmental data to investigate potential relationships between abundance and distribution of organisms and environmental parameters;
- (4) collect ichthyoplankton samples to determine relative abundance and distribution of eggs

and larvae of commercially and recreationally important fish species.

During the survey the NOAA Ship OREGON II sampled 208 stations in offshore waters and territorial Louisiana and Texas waters. The R/V VERRILL sampled 7 stations in Alabama territorial waters. The R/V TOMMY MUNRO sampled 27 stations in Mississippi territorial and offshore waters. The R/V PELICAN sampled 31 stations in Louisiana territorial and offshore waters. And Texas vessels sampled 80 stations within their territorial waters.

Ichthyoplankton data were collected by NMFS and Louisiana vessels, at sample sites occurring nearest to half-degree intervals of latitude/longitude. A total of 46 stations was sampled with bongo and/or neuston nets, as encountered along cruise tracks. NMFS completed 40 ichthyoplankton stations and Louisiana completed 6 stations. The samples, except those taken by Louisiana, will be sorted by the Polish Sorting Center. Once sorted, the specimens and data will be archived at the SEAMAP Archiving Center.

Spring Plankton Survey

For the tenth year, plankton samples were collected during the spring in the northern Gulf of Mexico. The NOAA Ship OREGON II and Florida's R/V HERNAN CORTEZ II sampled offshore waters from the western edge of the West Florida Shelf to the Texas-Louisiana border from April 15 to May 25, 1992. A total of 194 stations was sampled. The OREGON II sampled 173 stations and the R/V HERNAN CORTEZ II sampled 21 stations along the west Florida shelf.

Plankton samples were taken with standard SEAMAP bongo and neuston samplers. The bongo sampler consisted of two conical 61-cm nets with 333-micron mesh. Tows were oblique, surface to near bottom (or 200 m) and back to surface. Wire angle was maintained at 45°. Neuston samples were taken with 947-micron mesh nets on 1 x 2-meter frames towed at the surface for ten minutes. Right bongo and neuston samples were initially preserved in 10% buffered formalin and after 48 hours were transferred to 95% ethyl alcohol for final preservation. Left bongo samples were preserved via an ethanol/ethanol transfer to aid in preservation of larval otoliths. Hydrographic data which included surface chlorophylls, salinity, temperature and dissolved oxygen from surface, midwater and near bottom and forel-ule color were collected at all stations.

Right bongo and neuston samples collected by NMFS and Florida from SEAMAP stations will be transhipped to the Polish Sorting Center (PSC). Left bongo samples will be archived at the Gulf Coast Research Laboratory in Ocean Springs, Mississippi. Salinity data from the Florida vessels were sent to the NMFS Mississippi Laboratories for interpretation.

Spring Reef Fish Survey

The first Spring Reef Fish Survey was conducted from May 14 to September 11, 1992. Vessels from NMFS, Mississippi and Alabama sampled inshore and offshore waters, covering a total of 169 stations, in addition to plankton and environmental sampling. Randomly selected sites from Brownsville, Texas to Key West, Florida are chosen from known hard bottom locations. The objectives of the survey are:

- (1) assess relative abundance and compute population estimates of reef fish using a video/trap technique;
- (2) determine habitat using an echo sounder and video camera;
- (3) determine if bioacoustics assessment methodology can be applied to reef fish communities;

- (4) collect environmental data at each station;
- (5) collect ichthyoplankton samples at selected reef sites.

The primary purpose of this survey is to assess the relative abundance and compute population estimates of reef fish. Stations are randomly-selected 100 m² sites which are designated as "reef areas". There are several aspects of the reef fish survey: 1) locating and compiling known hard bottom reef habitat locations; 2) survey site selection; 3) sampling protocol using a fish trap and video camera and 4) analyses of video records. Data is collected using the trap/video methodology where a fish trap containing a video camera is deployed onto the selected reef site. Trap soak time is one hour. After trap deployment, hydrographic data including a STD/light meter, transmissometer drop, secchi disk reading and surface chlorophyll samples will be collected. Also, after the last trap/camera set, one ichthyoplankton station will be completed each day with a surface neuston net and Tucker trawl. Environmental and plankton samples collected will use established SEAMAP protocols and plankton samples will be transshipped to the Polish Sorting Center (PSC).

Final analyses of video tapes are accomplished at the Pascagoula Laboratory, where data is recorded onto standard SEAMAP forms. Tapes are analyzed either in their entirety or by randomly-selected one minute intervals. The determinant factors for sampling are based on whether the reader can identify and count fish entering the camera field of view and record the data.

Summer Shrimp/Groundfish Survey

A planning meeting of the Shrimp/Groundfish Work Group was held in March 1992 to examine the design for the Summer Shrimp/Groundfish Survey and determine the random station locations for each participant. Objectives of the survey were to:

- (1) monitor size and distribution of penaeid shrimp during or prior to migration of brown shrimp from bays to the open Gulf;
- (2) aid in evaluating the "Texas Closure" management measure of the Gulf Council's Shrimp FMP;
- (3) provide information on shrimp and bottomfish stocks across the northern Gulf of Mexico from inshore waters to 50 fm.

The overall sampling strategy during the SEAMAP survey was to work from the eastern Gulf to the Texas/Mexico border, in order to sample during or prior to migration of brown shrimp from bays to the open Gulf area. The survey occurred from June 3 to July 13, 1992.

During the survey, the NOAA Ship OREGON II and R/V TOMMY MUNRO sampled offshore and inshore Gulf waters with 40-ft trawls. Alabama's R/V VERRILL sampled offshore Alabama waters with 40-ft trawls. The R/V PELICAN sampled both Louisiana state waters and offshore waters with 40-ft trawls, and Texas vessels sampled Texas state waters and offshore waters with 20-ft trawls.

A total of 326 trawl samples was taken from coastal and offshore waters out to 50 fm from Mobile Bay, Alabama, to Brownsville, Texas. All vessels took environmental data, including temperature, salinity, oxygen, and chlorophyll at each station.

In June, catch rates of brown shrimp east of the River were very low, with a maximum catch of 5.0 lb/hr of 25-count shrimp. White shrimp catches east of the River were all less than 2 lb/hr. The largest pink shrimp catch rate east of the River was 15.3 lb/hr of 33-count shrimp taken in 18 fm of water

off Mississippi. Finfish catch rates east of the River were moderate, with the largest catch of 3,517 lb/hr with Atlantic croaker predominating.

Moderate catches of brown shrimp were made off Texas from June 3 to July 1. The largest catch rate occurred June 24 in waters off Corpus Christi in 10 fm (109.6 lb/hr of 88-count shrimp). White shrimp catches off Texas were low with the largest catch, 59.5 lb/hr of 14-count shrimp, taken off of Brownsville in 9 fm. Catch rates for pink shrimp were low off Texas, with the largest catch, 18.0 lb/hr of 47-count shrimp, taken off Laguna Madre in 8 fm. Finfish catch rates were low in Texas inshore and offshore waters. The largest catch of finfish was 1,737 lb/hr in 7 fm off Matagorda Island with Atlantic croaker predominating.

In July's samples west of the river (Louisiana) brown shrimp catches were low with the largest catch rate of 21.7 lb/hr of 32-count shrimp occurring southwest of Vermilion Bay in 16 fm. White shrimp catches were extremely low, with a maximum catch rate of 3.1 lb/hr of 19-count shrimp taken in 15 fm southeast of Barataria Bay. Catches of pink shrimp were all less than 1 lb/hr off the Louisiana coast. Finfish catch rates were also low with the largest catch rate of 1,526 lb/hr taken on July 5 with Atlantic croaker predominating.

Several areas of low bottom dissolved oxygen (less than 2 ppt) occurred off Louisiana between Cameron, Louisiana and the Mississippi River in depths of 6 to 22 fms.

Fall Plankton Survey

The first fall ichthyoplankton survey to assess abundance and distribution of king mackerel eggs and larvae occurred in August 1984. No sampling survey was conducted in 1985, however expanded surveys in 1986-1991 and in the current year covered Gulf waters from Florida Bay to Brownsville, Texas. Vessels from Florida, Alabama, Mississippi, Louisiana and NMFS conducted the survey from September 8 to October 2, 1992.

The NOAA Ship OREGON II sampled stations from Tampa Bay, Florida to Brownsville, Texas at depths from 5 to 100 fm. Chlorophyll samples were filtered at each station. Florida's R/V HERNAN CORTEZ sampled stations from off Tampa Bay south to the Florida Straits area. Stations were located along a 30-minute latitude/longitude grid from inshore waters to the shelf edge. An Alabama vessel sampled stations at the mouth and outside Mobile Bay. The R/V TOMMY MUNRO sampled stations south of Mississippi Sound along a 30-minute grid. And the R/V PELICAN sampled stations in Louisiana territorial waters.

Stations were sampled with standard SEAMAP bongo nets with 333-micron mesh and/or 1 x 2-meter neuston nets fitted with 947-micron mesh. Hydrographic sampling included chlorophylls, salinity, temperature and dissolved oxygen from surface, mid-water, and bottom, water transparency and water color. Right bongo samples collected by NMFS and the Gulf States will be transshipped to the Polish Sorting Center. Left bongo and neuston samples will be stored at the SEAMAP Invertebrate Archiving Center at the Gulf Coast Research Laboratory for possible future sorting. Louisiana plankton samples will be sorted by LDWF according to SEAMAP protocols and specimens and data provided to the SEAMAP Archiving Center.

Plankton and Environmental Data Surveys

As in previous years, plankton samples and environmental data were collected routinely during most SEAMAP trawling surveys. During the Summer Shrimp/Groundfish Survey, plankton tows were piggybacked on the NMFS and state vessels, sampling randomly generated trawl stations within the standard 30-minute SEAMAP grids. Plankton and environmental data were also taken by Louisiana at

all of its seasonal day/night survey stations. Samples were taken by participants with a 60-cm bongo net and a standard NMFS neuston net.

Objectives of these piggybacked surveys were: (1) to collect plankton samples throughout the survey area; and (2) to collect associated hydrographic and environmental data at each plankton station. Additionally, environmental data (salinity, temperature, and oxygen from surface, mid-depth and bottom waters, and chlorophyll from surface and bottom waters) were collected during the shrimp/groundfish surveys. Wind direction, wind speed and wave height were taken at all trawl stations.

Samples from the right side of the bongo nets and neuston samples were shipped to the NMFS-Pascagoula Laboratory for transshipment to Poland, where they will be sorted to the family level (both ichthyoplankton and selected crustacean and molluscan species). The left bongo sample from each station is retained as a back-up in the event of damage or loss of the specimens and maintained at the Gulf Coast Research Laboratory.

Chlorophyll samples were filtered at each station using GF/C filters. All filters were put in petri disks and wrapped in foil for onboard storage in the freezer. Chlorophyll analysis will be completed ashore. Preservation of plankton samples was in buffered formalin prior to transfer to ethanol.

In addition to these piggybacked surveys, two major SEAMAP plankton surveys were conducted in FY1992, as detailed earlier.

Status and Trends Benthic Surveillance Project

For the ninth year, the SEAMAP Program actively participated in the nationwide sampling for contaminants in coastal fishes and sediments, as part of the NOAA National Status and Trends Benthic Surveillance Project. Both SEAMAP-Gulf of Mexico and SEAMAP-South Atlantic supplied personnel from state fishery management agencies to provide guidance in locating concentrations of the target species, Atlantic croaker and spot.

Sampling methodologies in the 1992 Benthic Surveillance Project were identical to those of the previous surveys. Gulf sites included: Tampa Bay (FL), Lake Pontchartrain (LA), Barataria Bay (LA), Calcasieu Lake (LA), Galveston Bay (TX), Lavaca Bay (TX) and Arroyo Colorado (TX). South Atlantic sites sampled in 1992 included: Savannah River (GA) and Biscayne Bay (FL).

Sampling was conducted from August 11 to October 8, 1992, with the NOAA Ship FERREL serving as the primary platform. Analyses of trace metals, aromatic and chlorinated hydrocarbons, and other contaminants in fish tissues and sediments are coordinated by the NMFS Beaufort (NC) Laboratory.

A list of publications produced under NOAA's National Status and Trends Program is available from NOAA, National Status and Trends Program, N/OMA32, 11400 Rockville Pike, Rockville, MD 20852.

DATA MANAGEMENT

The requirements report for an integrated data system, Data Management System Design Study for Gulf and South Atlantic, 1987, was completed in March 1987. The document identifies the high-level design specifications and recommended implementation plan for a module-based SEAMAP Data Management System (DMS). The design is based on information contained in the SEAMAP Gulf and South Atlantic DMS Requirements Document developed through a cooperative effort between NMFS and other SEAMAP participants. The document has five sections: (1) background and brief descriptions of

current centralized and proposed distributed systems; (2) summary of the Requirements Survey; (3) overview of the system's architecture; (4) description of developmental modules constituting the DMS design; and (5) modular implementation plan which includes costs and schedule.

Work was completed during FY1990 on the new distributed SEAMAP Data Management System. New modules completed include those for data entry, edit, upload, data query and download. Delivery of the remaining PS/2's has been completed and all of the Gulf States are now equipped with the necessary computer hardware and software.

The new system is decentralized, i.e., distributed. Thus, the SEAMAP users are able to locally, and directly, enter and retrieve data. Software for the system has been distributed to participants for trial runs of data input.

This new system overcomes the deficiencies of the old system (i.e., the time necessary to enter and retrieve data) and provides powerful and flexible local data analysis and display capabilities. Under the new system, each SEAMAP site enters, verifies and edits their data, eliminating the mail-oriented loop necessary to enter/edit/verify data under the old system. Secondly, each site has the capability of locally accessing SEAMAP data, utilizing a user-friendly system. Local data retrieval allows the data to be accessed in a timely manner with a minimum amount of effort and programming skills.

Under the new system, outside users (e.g., Minerals Management Service, U.S. Army Corps of Engineers, etc.) may continue to request special data sets for research or study. The outside users submit the request to the SEAMAP Subcommittee through the SEAMAP-Gulf Coordinator for approval to proceed. Once the request is approved, the information is provided by the Data Manager and staff members through a priority-based, mail-oriented system. Also, SEAMAP participants may use the Special Request mechanism for data sets too large for economical downloading by telephone. These requests will be handled by a Central Operations staff in the same priority-based, mail-oriented manner as noted above.

Requested SEAMAP data were used for a multitude of purposes in FY1992:

- Evaluating the abundance and size distribution of penaeid shrimp in Federal and state waters to assist in determining opening and closing dates for commercial fisheries.
- Assessing shrimp and groundfish abundance and distribution and their relationship to such environmental parameters as temperature, salinity, and dissolved oxygen.
- Identifying environmental parameters associated with concentrations of larval finfish.
- Compiling the 1989 SEAMAP Biological and Environmental atlas.
- Comparing catches of shrimp and groundfish captured by 40-ft versus 20-ft trawl nets.

INFORMATION SERVICES

Information from the SEAMAP activities is provided to user groups through the program administration and three complementary systems: the SEAMAP Information System (SIS), SEAMAP Archiving Center for ichthyoplankton (SAC) and SEAMAP Invertebrate Plankton Archiving Center (SIPAC). Products resulting from SEAMAP activities can be grouped into two major categories, data sets (including broadly, digital data and collected specimens) managed by SIS, SAC and SIPAC and program management.

Biological and environmental data from all SEAMAP-Gulf surveys are included in the SEAMAP Information System, managed in conjunction with NMFS-SEFC. Raw data are edited by the collecting agency and verified by the SEAMAP Data Manager prior to entry into the system. Data from all SEAMAP-Gulf surveys during 1982-1990 have been entered into the system and data from 1991 and 1992 surveys are in the process of being verified, edited, and entered for storage and retrieval. Verified, non-confidential SEAMAP data are available conditionally to all requestors, although the highest priority is assigned to SEAMAP participants.

A major function of the SEAMAP Information System in 1992 was the processing of catch data from the Summer Shrimp/Groundfish Survey as near-real-time data. Data were transmitted three times weekly via cellular phone to the NMFS Mississippi Laboratories from the NOAA vessel, while the states' data were entered into the system weekly. Plots of station locations and catch rates of shrimp, squid and dominant finfish species were prepared and edited at the NMFS Mississippi Laboratories, and processed by GSMFC for weekly distribution to management agencies, fishermen, processors and researchers. Management agencies also received comprehensive data listings showing penaeid shrimp length frequencies, sampling parameters and environmental conditions.

SEAMAP Archiving Center

Larval fish and fish egg samples sorted to the family level by the PSC are returned to the SAC for archiving and loan to researchers. Data entry for most of the returned sorted samples is completed in an improved and simplified information management system. All data are now managed by a dual microcomputer/mainframe program which eliminates coding errors and facilitates faster data entry. Samples cataloged to date represent 18 orders, 125 families, 234 genera and 244 species.

The SAC is managed in conjunction with Florida Department of Natural Resources in St. Petersburg, and processes both specimen loans and requests for associated plankton survey environmental data. Merging of these files within the SEAMAP Information System will greatly facilitate managing the environmental data, presently a cumbersome manual procedure. Currently, the SAC is without a collection manager or assistant. The curator has shifted job responsibilities within his section at the Department of Natural Resources, although he will continue to be involved with the SAC in supervisory, training and administrative capacities. This has created a large backlog of uncatalogued samples from 1987 and later years. The Department is in the process of advertising and attempting to hire replacement personnel. When new staff are hired, accessioning of backlogged material will be the main priority until the SAC is caught up on cataloging the collection.

The SAC curator and four staff members from FDNR completed the Florida spring ichthyoplankton cruise in May. Additionally, the curator has sent the final data sets for SEAMAP ichthyoplankton collections from 1984 to 1985 to the National Marine Fisheries Service personnel in Miami preparatory to publication of SEAMAP Ichthyoplankton Atlases for those years.

SEAMAP Invertebrate Plankton Archiving Center

With the determination in 1985 by SEAMAP-Gulf that the retained "back-up" bongo collections also contain valuable research materials, the SEAMAP Invertebrate Plankton Archiving Center (SIPAC) was established and is managed in conjunction with Gulf Coast Research Laboratory in Biloxi, Mississippi.

The entire collection of SEAMAP plankton samples catalogued at SIPAC has been moved from its old location at Point Cadet, Biloxi to new facilities on the main campus of Gulf Coast Research

Laboratory in Ocean Springs. All SIPAC activities including sample management, curation and sorting will be conducted from this new location.

During the FY1992, 250 unsorted SEAMAP samples were received and catalogued at SIPAC. As of September 4, 1991, a total of 4,867 unsorted fish larvae samples are held at SIPAC. In an effort to limit the space and costs of curating the growing SIPAC collection of unsorted samples, a protocol was adopted to retain only a 1/4 aliquot of samples that are more than 7 years old. To date, 1,022 samples were aliquoted and retained in the collection. A request from Joanne Shultz (NMFS) for a printed list of all SEAMAP plankton samples held at SIPAC and those samples shipped from SIPAC to NMFS or PSC was received and the information provided.

A total of 1,118 SEAMAP samples have been sorted for selected invertebrate taxa by the SIPAC and the PSC following established protocol. A total of 4,765 lots were obtained from these samples. Portunid megalopae from the sorted samples have been further identified to the lowest possible taxonomic level. Data from these samples have been provided to the GSMFC Crab Subcommittee to develop an atlas of portunid megalopal distribution in the northern Gulf of Mexico.

During the next fiscal year, the SIPAC collection will continue to be maintained and additional samples will be sorted for invertebrates. Particular emphasis will be placed on providing data on the megalopae of Callinectes sapidus and postlarval Penaeus spp. as requested by several researchers. A substantial data base has been generated on the distribution of blue crab megalopae and postlarval shrimp and is available to researchers upon request.

PROGRAM MANAGEMENT

The SEAMAP program is administered by the SEAMAP Subcommittee of the Technical Coordinating Committee through the SEAMAP Coordinator, who is under the technical direction of the Subcommittee Chairman and administrative supervision of the Gulf States Marine Fisheries Commission's Executive Director. Personnel associated with SEAMAP program management included the Coordinator, Data Manager, SAC Curator, SIPAC Curator and the NMFS-Mississippi Laboratories Director, serving as Program Manager.

Major SEAMAP-Gulf Subcommittee meetings were held in October 1991 and April 1992, in conjunction with the Annual Fall and Spring Meetings of the GSMFC. Also, a planning meeting to discuss the upcoming year was held in January 1992. Representatives from the Gulf program also met with the South Atlantic and Caribbean representatives in August 1992 to discuss respective program needs and priorities for FY1993.

SEAMAP-Gulf work groups met this past year to provide recommendations to the Subcommittee for survey and data management needs. The Plankton Work Group met in November 1991. And the Shrimp/Groundfish Work Group met in March 1992. Where additional discussion was needed, the Subcommittee and work groups also deliberated plans and needs via telephone conference calls.

Coordination of program surveys and distribution of quick-report summaries of a Gulf-wide survey to management agencies and industry were major functions of SEAMAP management in FY1992. Other important management activities included coordinating data provision and specimen loans, preparing publications and documents and assisting in the preparation of State-Federal cooperative agreements, including amendments to permit extension of activities previously not detailed in the agreements.

PUBLICATIONS

The following reports were published and distributed in FY1992:

- 1992 SEAMAP Marine Directory: 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 materials.
- SEAMAP Subcommittee Report to the GSMFC Technical Coordinating Committee -October 1, 1991 to September 30, 1992 : a detailed summary of program accomplishments, emphasizing survey design, material collected, data dissemination, budget information, and future survey activities.
- Annual Report of the SEAMAP Program - October 1, 1990 to September 30, 1991: a summary of 1991 activities and proposed 1992 events for the SEAMAP-Gulf, South Atlantic, and Caribbean Programs.
- 1989 Environmental and Biological Atlas: a compilation of information obtained from the 1989 SEAMAP surveys including catch rates of shrimp and finfish, abundance and distribution of plankton in the Gulf of Mexico and environmental data from all surveys.

David M. Donaldson
SEAMAP Coordinator

COOPERATIVE INTERSTATE FISHERY MANAGEMENT IN THE TERRITORIAL SEA OF THE GULF OF MEXICO

January 1, 1992 - December 1992

The Gulf States Marine Fisheries Commission (GSMFC) provided administrative support for "Cooperative Interstate Fishery Management in the Territorial Sea of the Gulf of Mexico," FWS Grant Agreement No. 14-16-0009-90-1211. GSMFC furnished services, qualified personnel and materials, equipment, and facilities as needed to perform required duties.

During the period covered by this report, the Program Coordinator attended and/or participated in several meetings and planning and development activities pertinent to carrying out responsibilities of this Grant Agreement. GSMFC arranged and paid expenses for appropriate personnel to attend and participate in selected activities. Minutes, general correspondence, meeting notices, agendas, and other required materials were prepared and distributed to the appropriate persons. Persons authorized to travel have been reimbursed. A brief report on program progress follows.

Recreational Fisheries Activities

The primary activity of the Recreational Fisheries Management Subcommittee during this project year was to compile the most up-to-date data base on permitted artificial reefs in the Gulf of Mexico region and to prepare a publication regarding the data base. As of December 31, 1992, the data base has been compiled, state program narratives have been written, and the table format for the data tables in the publication have been developed. Maps showing the location of artificial reefs off each state will be included in the publication which will be printed in early 1993; however, 95% of the information to be contained in the document is complete. Draft information to be included in the document is available upon request.

Fishery Data Activities

Through the TCC Data Management Subcommittee, in-depth analyses of fishery data programs have resulted in a number of areas of progress. The Subcommittee has completed a report which analyzes and provides recommendations for improvement of recreational fisheries data collection and management. The report includes three years of activities undertaken by the Subcommittee, including standards for quality control, priorities for the for-hire fishery, and a delineation of data elements.

Related to the Subcommittee's activities regarding recreational fishery data programs, work has progressed on the establishment of a southeast regional state-federal cooperative fishery data collection and management program called the Recreational Fisheries Information Network (RecFIN). In October, in conjunction with the GSMFC Annual Fall Meeting, a Memorandum of Understanding (MOU) was presented to the Commissioners and State Directors for their approval and signature. The MOU was approved and by December was signed by the Commission and each State Director.

In other areas of fishery data, the Subcommittee is nearing completion of a Memorandum of Agreement (MOA) among the five Gulf States and the National management purposes. Currently there are legal barriers which bar such sharing, a situation which exacerbates development of regional management strategies. The MOA will make it possible to have unhindered exchange of these data under

strict confidential provisions. Currently, the MOA language has been reviewed by each state and the National Marine Fisheries Service and will be distributed for signature as soon as possible.

Anadromous Fish Activities

The TCC Anadromous Fish Subcommittee worked on three initiatives during this project year, all related to striped bass and Gulf sturgeon. Each state has had some form of striped bass monitoring activity ongoing during the past several years. During 1990, the Subcommittee developed a publication entitled "Guidelines for Monitoring and Assessment of Eggs, Larvae, Juveniles, and Adults of Striped Bass." This document is intended to provide standard methodologies for acquiring the pertinent information.

In 1986, the Subcommittee developed, and the GSMFC adopted, an interstate fishery management plan (FMP) for striped bass in the Gulf of Mexico region. During 1990 and 1991 the Subcommittee completed an amendment to the FMP, addressing regulatory issues and goals, objectives, and tasks deemed necessary to accomplish restoration of striped bass. Amendment 1 to the Striped Bass FMP was adopted by the GSMFC in 1992. This document is intended to provide uniform goals and objectives so that compatible regulatory measures can be established in each Gulf State which will contribute to rebuilding the stocks.

During the project year, selected representatives of the Subcommittee have participated with the U.S. Fish and Wildlife Service and the National Marine Fisheries Service to develop the first draft of a Recovery Plan for the Gulf sturgeon, listed as threatened under the Endangered Species Act. Work of the Recovery Team has resulted in a draft Recovery Plan which has been distributed for technical review. It is anticipated that the plan will be complete and offered for adoption during 1993.

Interjurisdictional Fishery Management Activities

During the project year, the Program Coordinator and selected individuals representing recreational fishing interests participated in the interstate fishery management planning process to develop an interstate FMP for black drum. Work has progressed on the FMP for black drum partly as a result of collaboration of recreational fishery interests through both technical and public participation. The FMP was presented to the GSMFC in October 1992 for their consideration for adoption. At that time, adoption was tabled until the stock assessment, which assisted in formulation of the regulatory recommendations, could be reconsidered.

Regarding FMP development, the GSMFC is pursuing stock assessment training for state fishery scientists. During March 1992, selected state biologists were selected to participate in a stock assessment workshop held in Georgia. Resulting from that first effort, it was agreed that subsequent workshops would be helpful in training state scientists in the use of the most up-to-date stock assessment techniques. It is anticipated that a workshop will be implemented in early 1993 to further assist in the understanding of the methods and application of stock assessment techniques to marine fishery management.

Miscellaneous

During this project year, the Program Coordinator participated in the activities of the Mississippi Wildlife Federation, which has a number of ongoing activities which are of importance to marine recreational fisheries in the State of Mississippi. Those include striped bass and Gulf sturgeon condition in the Pearl River, licensing of marine recreational anglers, and possible marine sanctuary status for Mississippi Sound.

The Program Coordinator participated in an exhibition session for the National Management

Association during which GSMFC programs were displayed, including the Sport Fish Restoration Administrative Program.

The Program Coordinator attended and participated in several meetings of the Gulf of Mexico Fishery Management Council regarding programmatic activities. Also attended were the annual and mid-year meetings of the International Association of Fish and Wildlife Agencies regarding the GSMFC project and other pertinent Sport Fish Restoration Program issues.

Ronald R. Lukens
Assistant Director

INTERJURISDICTIONAL FISHERIES MANAGEMENT PROGRAM

January 1, 1992 - December 31, 1992

In 1992, the Gulf States Marine Fisheries Commission (GSMFC) continued to coordinate and facilitate the development of fishery management plans (FMPs) among the five Gulf States. This effort was authorized by PL 99-659, the Interjurisdictional Fisheries Act of 1986 (IJF) and was supported by funding from the Department of Commerce, National Oceanic and Atmospheric Administration, National Marine Fisheries Service (NMFS).

Planning of the IJF Program in 1992 focused on black drum, Pogonias cromis, and striped mullet, Mugil cephalus; however, activities associated with interjurisdictional management of other fisheries were also conducted. The following is a discussion of IJF activities and accomplishments during FY 92.

Blue Crab

During the year the Technical Coordinating Committee's (TCC) Crab Subcommittee continued to review research efforts and publications with regard to their effect on addressing data needs identified in the Blue Crab FMP. It was also noted that both Louisiana and Texas had used the IJF FMP as a major reference document in the development of their respective state FMPs for blue crabs. These FMPs contain a great deal of literature that will be useful in future updates of the IJF Blue Crab FMP.

With regard to states' implementation of management measures for the FMP, it was noted that Louisiana had passed a mandatory trap tagging regulation and that Texas has proposed requiring escape panels in traps. Copies of the FMP continued to be distributed on request.

Oyster

The Oyster FMP continues to be distributed to interested persons, and several publications have been developed or are in the process of development as a result of the IJF FMP. "Folk Management in the Oyster Fishery of the United States Gulf of Mexico," by Dr. Christopher L. Dyer and Dr. Richard L. Leard has been accepted as a chapter in a book to be published by the University Press of Colorado. "Limited Entry in the Oyster Fishery of the U.S. Gulf of Mexico" by Dr. Richard L. Leard and Dr. Christopher Dyer has been submitted to the Journal of Shellfish Research for consideration for publication. Additional publications that are being developed include: (1) Historical and Future Uses of Cultch Materials; (2) A Description of Resource Management Programs in the Gulf States and (3) A Historical Analysis of Oyster Production in the Gulf.

Black Drum

Having completed the stock assessment for black drum in late 1991, the Technical Task Force (TTF) met on February 26-27, 1992 to address recommendations of the Stock Assessment Team (SAT) for incorporation of the assessment into the FMP and other plan deficiencies. From March to July 1992, the TTF and staff worked to compose a complete draft of the FMP which was distributed to the TTF in early August. The black drum TTF met on September 10-11, 1992, to review any comments on the plan and to approve recommendations. The TTF approved the plan with allowance for editorial changes, and it was immediately sent to the TCC for review and approved.

Based on concerns expressed by Texas' representatives regarding the stock assessment (Section 9) and the management recommendations (Section 11), the TCC at its October 14, 1992 meeting requested that the SAT review the assessment. The SAT met on October 22-23, 1992, and with the assistance of Dr. James Geaghan, who performed the original stock assessment, made minor changes to Section 9.3 thereby addressing expressed concerns. Afterwards, the TTF readdressed the recommendations (Section 11), and readied the FMP for publication.

Mullet

Although the development of the Mullet FMP got off to a slow start in 1991, work escalated in 1992. The Mullet TTF met on March 24-25, 1992, to review descriptions of the biology, habitat and laws, regulations and policies. They also reviewed data needs and deficiencies of other sections, in particular those data that would be needed for the stock assessment. A data collection effort was subsequently initiated to compile needed data for the stock assessment.

The Mullet TTF met on October 21-22, 1992 to review progress and needs. The SAT met immediately after the TTF to address the data compiled for the assessment and various questions including "who," "how," "what" and "when" the stock assessment will be developed. The TTF and SAT se January 1, 1993, as a goal for completion of assignments from the October meetings, and most assignments were complete prior to that date. A technical working session of the SAT was tentatively scheduled for March 14-15, 1993, to initiate the stock assessment.

Menhaden

The Menhaden FMP that was completed in 1978 has undergone revisions at five-year intervals since that date. At the October 14, 1992, meeting of the State-Federal Fisheries Management Committee (S-FFMC), the committee approved a request from the Menhaden Advisory Committee (MAC) to continue this trend and initiate a revision in 1993. The request was approved. Afterward, IJF staff began initial efforts to reorganize the 1988 revision; NMFS began work on the stock assessment; and the industry and states began to look at changes that have occurred to laws, regulations and the overall fishery since 1988.

The IJF FMP development and review program of the GSMFC continues to provide the Gulf States with quality information and recommendations for interstate management of fisheries that are being used by the states in their respective programs. Work will escalate in 1993 as spotted seatrout, *Cynoscion nebulosus*, is added as the next priority species for FMP development.

Richard L. Leard
Interjurisdictional Fisheries Program Coordinator

ALABAMA DEPARTMENT OF CONSERVATION AND NATURAL RESOURCES

MARINE RESOURCES DIVISION

The Marine Resources Division is responsible for management of Alabama's marine fisheries resources through research and enforcement programs. Three division facilities supported an average of 40.68 employees of the Administrative, Enforcement and Fisheries sections during FY92. A total expenditure of \$2,055,936 was made from the approved budget of \$2,237,000. Revenue of \$2,044,185 was made up from federal aid (37%), license fees (475), marine gas tax (12%) and other sources (4%).

ADMINISTRATIVE SECTION

Responsibilities and Functions

The Administrative Section provides supervision, clerical, purchasing and general administrative support for the two operational sections; supervises state seismic activities and coordinates with other state, federal and regional agencies on fisheries and environmental matters.

Facilities and Personnel

The Administrative Section consisted of the division director, six clerical, one custodial and one mechanical employee. Offices are maintained at Dauphin Island, Gulf Shores, Bayou La Batre and Montgomery.

Budget and Expenditures

The Administrative Section expended \$465,940 on salaries and operational expenses for division activities, part of which was reimbursed under federal aid to fisheries programs.

Accomplishments

Legislation was introduced and passed that created a saltwater fishing license. The saltwater license is required for residents between the ages of 16 and 65 who fish below a geographic line. All of the revenue from the sale of the license will be utilized solely for research, management and development of saltwater fisheries. Prior to the passage of this legislation the Marine Resources Division received 10% of the revenue from the sale of freshwater fishing licenses. That revenue will now be retained by the Game and Fish Division for use in the management of freshwater fisheries. Regulations were drafted and approved by the commissioner on the commercial harvest of red snapper, king mackerel and mullet. These regulations brought the state into compliance with the federally approved fishery management plans for red snapper and king mackerel. Regulations on the harvest of mullet, initially drafted in 1991, were modified after meetings with fishermen, seafood dealers and the division's Biological Section.

Future Plans

Legislation will be introduced to create a resident trip fishing license for saltwater and a resident

trip fishing license for freshwater. Presently, trip fishing licenses are available only for nonresidents. The trip license will allow the angler who fishes only occasionally in saltwater or freshwater to purchase a less expensive license. Legislation will be introduced to increase the fee for nonresident fishing licenses for both fresh and saltwater. This will solve the present inequity where residents are, in some cases, charged more than nonresidents for their fishing licenses. Legislation will also be introduced to eliminate the loophole where nonresidents are allowed to purchase a resident gill net license.

ENFORCEMENT SECTION

The Enforcement Section patrols Alabama's coastal waters, enforcing state and federal rules on conservation and protection of marine resources. Officers also enforce rules pertaining to boating safety and freshwater fishing and hunting, conduct search and rescue missions and participate in drug interdiction operations.

Facilities and Personnel

Facilities and personnel included headquarters at Dauphin Island and district offices in Bayou La Batre and Gulf Shores. At the beginning of FY1992 the section consisted of 14 enforcement officers, 8 stationed in Mobile County, 5 stationed in Baldwin County and the Chief Enforcement Officers stationed at division headquarters at Dauphin Island.

Budget and Expenditures

Expenditures during the year totalled \$704,553 of which \$25,000 was reimbursed by a grant from the National Marine Fisheries Service. Other expenses for shared services and material such as utilities and gasoline were paid by the Administrative Section.

Accomplishments

Enforcement officers conducted 23,857 hours of boat and shore patrol, made 24,808 boat checks, 717 seafood shop inspections and issued 580 citations for illegal activities. Violations of rules concerning finfish made up the majority of the citations, followed by shrimp, oyster and other (which included boating, hunting and other state law violations). An officer was elected chairman of the Gulf States Marine Fisheries Commission's Law Enforcement Committee. Two new vehicles were purchased to replace worn-out models. Officers attended schools and courses on fish identification, firearms instruction, boating safety and other state and federal agency law enforcement programs. An officer also attended meetings of the Gulf States Marine Fisheries Commission and the Interstate Shellfish Sanitation Conference.

Significant Problems/Solutions

The most significant problem was the continued lack of sufficient personnel to adequately monitor commercial and recreational fishing activities. Lack of sustained funding for purchase of necessary equipment continues to be a problem.

Future Plans

Future plans include formulation of programs to upgrade performance, maintain adequate equipment and personnel and effectively conduct operations.

FISHERIES SECTION

Responsibilities and Functions

The activities of the Fisheries Section are directed toward management of commercial and recreational fisheries in Alabama's marine waters. These activities are mostly funded through federal aid programs of the U.S. Departments of Commerce (National Marine Fisheries Service) and Interior (Fish and Wildlife Service). Biological responsibilities not covered by federal aid programs such as fish kill investigations and pollution reports are supported by commercial and recreational license fees.

Facilities and Personnel

Facilities consist of the Claude Peteet Mariculture Center at Gulf Shores and the Marine Resources Laboratory at Dauphin Island. Personnel included one Biologist V, two Biologists IV, one Biologist III, two Biologists II, four Biologist Aides III, two Biologist Aides II, four Biologist Aides I, one data entry Clerk Typist II, one biweekly laborer and four temporary laborers.

Budget and Expenditures

Expenditures totalled \$885,443 consisting almost entirely of funds from six federal aid programs. State funds for required match varied from 0% to 50% of program costs.

Accomplishments

The recovery of oyster resources and subsequently the oyster industry has to be considered a major accomplishment during the past year. The industry was devastated in 1987/1988 and reached a record low production of less than 20,000 pounds in 1989 with only slight improvement in 1990/1991. Production in 1992 has recovered substantially and will easily exceed the 30-year average by year's end. The recovery process has certainly been aided by favorable environmental conditions for oyster production in the coastal area, but equally important have been the management measures implemented that have sustained the harvest while not endangering future harvests. Both fishery independent and fishery dependent data have been collected from the resource and resource users, respectively, and this data has dictated the desirable management measures required and adapted to sustain the resource.

Federal Aid

Wallop-Breaux - Wallop-Breaux funds were used to rear, tag and release striped bass and red drum; to evaluate effectiveness of fish excluder devices in reducing bycatch in shrimp trawls; to evaluate reef fish catch from Alabama charter boats; to spawn and rear red snapper; to develop juvenile abundance indices for important finfish species and to maintain equipment and facilities in Baldwin and Mobile counties necessary to carry out project objectives. Fourteen offshore artificial reefs were also constructed in the general permit area off Baldwin County with surplus property obtained from the Navy. Wallop-Breaux funds were utilized during 1991 and 1992 for habitat evaluations of construction permit requests from the U.S. Army Corps of Engineers for either placement of structures in the U.S. navigable waters (Section 10) or for dredge and fill activities (Section 404).

Anadromous Fish - Anadromous fish funds were used for field work to document occurrence of natural striped bass reproduction and characterize genetic makeup of the adult population. Natural reproduction was found in the Alabama River during spring 1989, 1990, 1991 and 1992. The work was expanded in 1990 and 1991 to include the Tombigbee River and to develop an estimate of the number of

eggs and larvae in each system. Initial analysis of genetic work indicated striped bass stocks in Alabama are closely related, but subtle differences were detected.

Marine Fisheries Initiative (MARFIN) - On October 1, 1992, the Marine Resources Division began collection of daily catch records from the logbooks of Alabama charter boat fishermen as a part of a MARFIN project. The purpose of this project is to validate or invalidate the use of log books information from the Alabama charter boat fleet. Randomly selected trips were intercepted by the Marine Resources Division personnel from which catch data (all species), angler hours fished, fishing method, number of hooks, lengths on individual fish and number of fish thrown back were recorded. Comparisons of the logbooks and ground truth information indicated that Marine Resource Division intercepts were the same as the logbook information. Thus, the data for the logbooks could safely be included in the Gulf of Mexico fishery databases and used in management plans.

Interjurisdictional Fisheries - This project collected additional data from fishermen about the length and catch of recreational finfish. Beginning in May these funds provided for the development of a large range management plan for striped mullet in Alabama. A rough draft of this plan is nearing completion. The rough draft will be reviewed by industry representatives and other interested parties before the final plan is completed.

Statistics - The State-Federal Cooperative Statistics Project, in cooperation with the National Marine Fisheries Service, collects commercial shrimp, oysters, crab and finfish landings information. Information on processed seafood (e.g., picked crab meat) are collected. Additionally, data on fishing trips for a particular species are gathered. Two Alabama port agents, a clerk/typist and a fisheries statistician are involved with this project. The National Marine Fisheries Service has a port agent involved with the project in Mobile County. All landings are processed on a monthly basis for inclusion in Alabama's data base and forwarded to the National Marine Fisheries Service for their fisheries work.

Southeast Area Monitoring and Assessment (SEAMAP) - This cooperative state-federal program provided funding for our monitoring and assessment program. Data generated from this project provided information to manage the shrimp fishery and evaluate spawning success and juvenile survival for important recreational and commercial species. The shrimp fishery opened June 9, 1992, in portions of the estuarine system with periodic openings of additional areas thereafter. The shrimp harvest during the summer months was the best since 1989 and 10% higher than the average since 1986.

Non-Federal Aid

Considerable time and effort was expended by the Biological Section in preparing brochures, constructing and manning booths and speaking to organizations on the "Forever Wild" amendment. Time and effort were utilized to illustrate the positive impact of the program's passage to the well-being of Alabama coastal resources. There were only five fish kills reported to the Marine Resources Division during FY1991/1992, all of which were associated with either isolated low pockets of dissolved oxygen or discards from trawls or gill nets. Only one of the five kills involved over 1,000 (1320 specifically).

Enforcement and Biological Section personnel worked together in collecting data at oyster check points. Data derived from the ad hoc check-points has aided considerably in evaluating the general health of the Alabama oyster reefs, thereby enabling the development of sound management measures for sustaining the resource. Marine Resources Division's Biological Section initiated and monitored a voluntary oyster shell pick-up and planting activity during the spring; the effort yielded a planting of just over 1,200 yards in Portersville Bay and Cedar Point.

Significant Problems/Solutions

The oyster resources and its management remains one of the foremost problems in the coastal area. Even though the recovery of the fishery during 1992 is remarkable, the future of the industry remains uncertain. A stable supply of cultch material is of primary concern as is the adverse impact on the industry from public health concerns. The solution to the former problem is being addressed by a research project funded by the "Gulf America" program aimed at evaluating alternative cultch material to the historically used (but now scarce) clam and oyster shell. This material being tested is archaeological coral and is readily available. Another problem facing the oyster resources is the physical damage to the reefs imposed by shrimp trawls and barge and tug grounding. This problem is also being addressed by a grant from the "Gulf America" program which will partially defray the cost of marking all oyster reefs with permanent perimeter signs warning the boaters of submerged oyster reefs. While the public health concerns are more of a problem for the Department of Public Health, the Marine Resources Division represents the enforcement arm of the Public Health Department in regard to shellfish and therefore must assume considerable responsibility for ensuring that oyster catchers and openers comply with rules and regulations enacted by the Department of Public Health.

Future Plans

A fishery management plan for mullet is now being developed by the Biological Section and should be completed and published during FY1993. User conflicts between crab fishermen and others who utilize waterways where crab fishing occurs have become volatile in recent months, necessitating serious consideration to the development of a blue crab management plan as soon as the mullet plan is complete.

FLORIDA DEPARTMENT OF ENVIRONMENTAL PROTECTION

DIVISION OF MARINE RESOURCES

FLORIDA MARINE RESEARCH INSTITUTE

FINFISH

SEAMAP Archiving Center (SAC) personnel have catalogued an additional 3,203 ichthyoplankton samples from eleven different cruises/collections. Collection years include 1990 through 1992. Data entry backlog has been virtually eliminated. All processed samples have been shelved; however, it should be noted that the SAC will need to find additional space for storage of future samples. Preparations are underway for the Fall 1993 SEAMAP ichthyoplankton sampling research cruise which is scheduled for October 11-18. The updated version of the SEAMAP Data Management System (DMS) for ichthyoplankton samples data entry has been received and utilized, but due to minor problems and corrections, its use has been limited.

Analysis of SEAMAP population estimates of tropical reef fishes in Dry Tortugas collected last quarter is underway. The video count estimates remain to be edited. Preliminary inspection of field data suggests that observers using video methods, count fewer number of individuals of all species than visual counts. Both techniques have attractive attributes so that the optimal method probably will be one that incorporates some combination of methods.

Tarpon tournaments in Boca Grande and Tampa Bay were examined for life history studies. Processing of otoliths for aging studies and gonad samples for reproduction studies is ongoing. Data analysis and manuscript preparation is underway. Live tarpon were maintained at SERF for age validation studies.

A paper on the use of acoustic techniques to determine tarpon densities in Boca Grande Pass was presented at the meeting of the American Fisheries Society in Portland, Oregon.

Bonefish collections continued in the Florida Keys. Otoliths and gonad samples are being processed at FMRI.

Snook early life history work continued with ichthyoplankton sampling in the Naples area during August and September. Over 200 plankton samples were collected to look at the size distribution of snook larvae around the mouth of the estuary. These samples are currently being sorted for snook larvae.

The annual abundance surveys are complete. On the west coast, 130 common snook were tagged and released and 39 marks were recaptured. In the MacDill area, 524 snook were marked, 780 censused and 35 marks were found. The 1993 estimates are not significantly different from the 1992 estimates.

In the Port Manatee area, there were 1,665 marks, 997 snook censused and 58 recaptures. The 1993 index is not significantly different from the 1992 estimate.

Sectioning of adult pompano otoliths for age and growth analyses continue and a project number has been assigned to the pompano study so that processing of gonads can begin. Biweekly collections of juvenile pompano and permit at Treasure Island has continued. These collections have proved important because this site was one of the locations where oil from the August 10 spill was heaviest. Collections are presently being conducted at Treasure Island, the oiled site, and at Indian Shores Beach, an unaffected site, to look at the recovery rate by fish to the spill. In addition, collections for benthic macrofauna are being taken at both sites. These collections will continue into the next quarter.

The baitfish program completed the second year of an expanded pilot fisheries acoustic program this quarter. Results are encouraging, indicating that this technology provides a realistic mechanism to provide near real-time estimates of baitfish densities in the shallow coastal waters of the west coast of Florida. A rough draft of the Spanish sardine life history work is now nearing completion. Otoliths and gonads collected from thread herring are now being analyzed. Field collections for scaled sardines are ongoing, with concurrent processing of otoliths and length frequencies.

A specimen of the comb grouper, *Mycteroperca rubra*, was captured recently in the eastern Gulf of Mexico. The occurrence of this species in the eastern gulf is unusual in that the comb grouper's normal range is off Cuba and in the western gulf.

Fecundity estimates were made for the graysby, *Epinephelus cruentatus* and the creole fish, *Paranthias furcifer*. An age validation study for graysby is continuing at the Keys Research Laboratory.

The mullet project has been working exclusively with the Florida Marine Fisheries Commission, the Office of Fisheries Management and Assistance, and various user groups to provide stock assessments and population abundance information.

A manuscript on the early life history of two Florida mullet species (*Mugil cephalus* and *M. gyrans*) was submitted for in-house review.

The efforts of the Surveys and Inventories program have been directed at developing a distributional data base for Florida fishes and at developing a pilot marine GAP Analysis study in Florida. Florida records of more than 1,050 species of fish (not yet a complete list) have been entered into the distributional data base, and a proposal is being developed to conduct GAP Analysis in the Florida Keys.

The illustrations of Florida juvenile fishes (families Cyprinodontidae, Sciaenidae and Gerreidae) continue to be evaluated and improved for the development of a larval and juvenile fish atlas and identification sheets. Original and published systematic, ecological and meristic data are being compiled for this atlas and for eventual inclusion in an inventory of coastal fishes of Florida. Selected illustrations have been scanned into IBM computers and developed into juvenile fish identification sheets.

Identification of voucher specimens and data analyses continue for the Little Manatee River juvenile fish survey. We are currently analyzing data on bay anchovies to be used in a stock assessment of this species. Quantitative collections from seagrass beds at the river mouth are being evaluated for species composition and relative abundance.

A second draft of the *Bothus robinsi* paper is nearly complete. Due to a shortage of funds for illustrations, an attempt will be made to produce publication quality photographs of the species covered in the paper.

INVERTEBRATES

For coral reefs, we presented results of a three-year FDNR-NPS cooperative monitoring study of five reef sites at Dry Tortugas, Florida, and presented preliminary results of a study to determine if restoration is enhanced by transplanting reef biota into an area damaged by a ship grounding at a symposium in Miami on the Florida Keys regional ecosystem. We continued monitoring three of the five reef sites and monitoring and restoration research at the site damaged by the grounding. We met with federal and other state officials on coordination of response to vessel grounding in the Florida Keys National Marine Sanctuary, and we participated in litigation and damage assessment for the grounds of the JACQUELINE L and the M/S MS BEHOLDEN at Western Sambo Reef and damage to reefs off Ft. Lauderdale caused by the USS MEMPHIS. We assisted the National Park Service in installing boat mooring buoys at Dry Tortugas National Park, provided information on coral reef habitat and live rock collection to the Gulf of Mexico and South Atlantic Fishery Management Councils, commented on the revision of the state aquaculture rule for live rock, participated in a workshop sponsored by the National Sanctuary Office and the National Undersea Research Program on coral reef restoration, and reported to the Florida Marine Fisheries Commission on growth and recruitment of corals, and on harvest of incidental corals on aquaculture rock. We participated in a review, assessment, and area with staff of the Institute, the Bureau of Sanctuaries and Research Preserves and the Division of Recreation and Parks, and we met with USGS staff to review their draft cooperative research proposal on "Coastal geological processes in south Florida and their influence on the Florida Keys National Marine Sanctuary." The SEAMAN oceanographic and meteorological data station at Dry Tortugas funded by the department is now on line.

Our ecology staff participated in a planning meeting on Gap Analysis in Florida sponsored by the Cooperative Fish and Wildlife Unit (UF, USFWS, FGFWFC) at the University of Florida, and a meeting of the South Atlantic SEAMAP Bottom Mapping Work Group in Charleston, South Carolina. We submitted a manuscript on common and scientific names of North American stomatopod crustaceans for publication by the American Fisheries Society, completed revision of the sections on gastropods and chitons for the American Fisheries Society list of common and scientific names of North American mollusks and submitted it to review by outside malacologists, presented a paper on two new species of polychaetes of the Genus *Ophelia* at the spring Southeastern Estuarine Research Society meeting, and published a paper describing late Neogene molluscan assemblages in western Florida (Florida Geological Survey, Special Publication No. 36). We continued to work with the department planning staff to develop a policy on surveys and inventories and with the Tampa Bay National Estuary Program to develop a benthic monitoring program for Tampa Bay.

Using literature and data from our Invertebrate Collection, we completed lists of species from the Florida Keys National Marine Sanctuary of the following groups: crustaceans, sponges, bryozoans, entoprocts, mollusks, echinoderms, annelids, sipunculans and cnidarians. Large loans of specimens for study of Florida hermit crabs were made to Linert Sandburg, Swedish State Natural History Museum and Raphael Lamaitre, Smithsonian Institution. Data for accessioned lots of all major phyla except mollusks are now entered either on primary collection electronic data files or on temporary electronic data files. Data for mollusks from Monroe County accessioned into the collection are now entered on temporary electronic data files, and data for mollusca maintained in micropaleo slides are entered on temporary electronic data files and are being proofed. The collection now holds 52,499 accessioned species lots from 11,516 collections.

For crustacean fisheries, a manuscript on geographic variation in allozyme frequencies of the blue crab throughout its range in North America has been accepted for publication in Marine Biology, and a manuscript on population dynamics of the blue crab in Tampa Bay has been accepted for publication in Florida Marine Research Publications. Manuscripts published include "Growth of Postsettlement Juveniles

of the Florida Stone Crab, *Menippe mercenaria*, in the Laboratory," in Bulletin of Marine Science and "Effects of Temperature and Salinity on Molting and Survival of *Menippe adina* and *M. mercenaria* Postlarvae Juveniles," in Marine Ecology Progress Series. With other members of the Technical Coordinating Committee's Crab Subcommittee of the Gulf States Marine Fisheries Commission, we also completed a regional species profile for *Menippe adina*. We reported on variation in aspects of reproduction between the two stone crab species in the northwest Florida hybrid zone at the annual Benthic Ecology meetings. We completed laboratory and data analyses for a paper comparing effects of salinity and temperature on postsettlement juveniles of the two species of stone crabs and their hybrids. We are preparing manuscripts on "Levels of Phylogenetic Resolution and Ingression in Morphological and Genetic Characters of Stone Crabs, *Menippe mercenaria*, *M. adina* and Their Hybrids" and "Comparison of Aspects of Reproduction in the Two Stone Crab Species and Their Hybrids in the Northwest Florida Hybrid Zone." We completed analysis of mtDNA RFLP of stone crabs from Texas to South Carolina, including Florida, and data on the effects of soak time on the catchability of stone crab traps, and we continue to analyze data on size-related fecundity of *Menippe mercenaria* from Tampa Bay.

Based on our recommendations for management of the blue crab fishery and subsequent regional workshops with our participation, the Florida Marine Fisheries Commission approved restricted species status, use of escape rings, trap configurations, use of biodegradable panels for traps, and several measures pertaining to the recreational fishery, and the rule is now ready for final public hearing. Invertebrate Section, CAMRA and Marine Fisheries Commission staffs completed the Big Bend area shrimping-zone (habitat-impact) maps, which are now scheduled for approval by the Governor and Cabinet. Shrimp fishing-zone maps for northwestern Florida have been completed, and mapping for southeast Florida has been initiated. The stock assessments for blue crabs and for shrimp (pink, brown, white) to be presented to the Governor and Cabinet as a part of a multiple species assessment of nearshore species have been completed.

For bivalve fisheries, we submitted manuscripts for publication on "The Nature Selection in a Hard Clam Hybrid Zone" to Evolution and on "Genotype-Specific Growth of Hard Clams in a Hybrid Zone: Variation Among Habitats" to Marine Biology. A manuscript on high frequency of gonadal neoplasia in a hard clam hybrid zone was accepted for publication by Marine Biology. We presented a talk on applications of lagoonal-wide modeling in the Indian River to studies of bivalve dynamics at the Indian River National Estuary Program Circulation Modeling Workshop. We prepared a report and presented testimony before the Florida Marine Fisheries Commission toward resolving conflicts between open-water hard clam fishermen and clam aquaculture interests in the Indian River, and we also conducted a clam recruitment survey in the Indian River. We continued studying aspects of reproduction, recruitment and dynamics of bay scallop populations along the Florida west coast; studies included an aerial survey on the July 4th weekend of the numbers of boats and areas being fished.

In studies of sponges in cooperation with Florida Sea Grant staff, we completed a manuscript on a study of populations in the Florida Bay area prior to the current die-off. We also participated in a workshop on the sponge die-off sponsored by Florida Sea Grant.

In biochemical systematics studies of fish, a manuscript on the genetics of the baitfish *Sardinella aurita* has been accepted for publication in Marine Biology. Analyses of allozyme frequencies and analyses of mitochondrial DNA (mtDNA) restriction fragment length polymorphism (RFLP) of Florida east and west coast populations of the common snook indicate that the populations can be identified as separate stocks. Talks were presented on this subject at the snook organizations, and at the annual meeting of the Society for the Study of Evolution, and a manuscript has been initiated. We have initiated a study of the genetic structure of hatchery reared redfish with staff of the Stock Enhancement Research Facility (SERF). We have completed sequencing of most of the cytochrome *b* gene of five species of western Atlantic

snook, the nile perch and the baramundi. For tarpon, we have completed analyses of mtDNA RFLP and, the data has been combined with electrophoresis data in a study of genetic stock structure.

SOUTH FLORIDA REGIONAL LABORATORY

Two lobster papers were presented at symposia and submitted to journals. Both were completed jointly with colleagues at Florida State University and Old Dominion University. One paper details the loss of sponges at our Arsnicker Key research site and the relationship of sponge abundance to juvenile lobster abundance (submitted to Marine Ecology Progress Series) and one summarizes a one-year tag-recapture study and cohort analysis for juvenile lobsters in Florida Bay (accepted in Bulletin of Marine Science).

A pilot mail-survey of the recreational sector of the lobster fishery has revealed that recreational harvesters captured about 435,000 pounds of lobster statewide during the 1992 special sports season, and about 1,283,000 pounds statewide during the first month of the regular season. Recreational harvesters captured about 20% of the total lobster harvest.

The queen conch stock assessment program completed another stock monitoring year, and the surveys detected no increase in the conch population.

Technical problems in the conch restoration were resolved and the first juvenile conch releases occurred during the summer. Mortality rates of released conch were high. Future tests will examine release techniques designed to increase survival.

PLANKTON BLOOMS

The cyanobacterial algae blooms (*Synechococcus elongatus*) spread across 630 square miles of Florida Bay. Mass mortality of sponges caused by the bloom reached 100% in much of this region. Juvenile lobster abundance within the bloom/sponge dieoff area was 50%-70% lower than an adjacent unaffected area.

ENDANGERED SPECIES

Sea Turtles

The Florida Department of Environmental Protection's (FDEP) marine turtle conservation goals, responsibilities and program direction promote the recovery of the five species of marine turtles occurring in Florida. The overall approach is twofold: (1) to develop the scientific information (research) that will guide recovery efforts and (2) to minimize human impacts (management) which result in increased mortality, degrade habitat and impede recovery of listed turtle species.

The current FDEP program is divided into six major components: (1) recovery program planning, management and administration, (2) biological/ecological research and population assessment, (3) coordination of research and management activities, (4) assessment of mortality factors, (5) habitat protection and (6) education.

Recently approved recovery plans of the United States Fish and Wildlife Service (USFWS) for the loggerhead turtle (*Caretta caretta*) and green turtle (*Chelonia mydas*) identify approximately 64 tasks, most of them overlapping, to promote the recovery of each of these species. FDEP is listed as the lead agency or a cooperating agency for implementation of 27 of these recovery actions.

Ongoing research topics include:

- determination of distribution, abundance, life history and ecology of marine turtles in Florida and contiguous South Atlantic and Caribbean waters;
- assessment of population status and trends of loggerhead, green and leatherback turtle nesting populations in Florida;
- identifying genetic stocks of marine turtles utilizing Florida's nesting beaches and foraging habitats;
- developing reliable sex determination techniques for marine turtles;
- evaluating the impacts of artificial lighting on marine turtle hatchlings and nesting adults;
- evaluating the extent, quality and long-range future of nesting habitat; and
- evaluating mortality factors affecting marine turtles in Florida waters, focusing on data requests for east coast standings to provide the Florida Marine Fisheries Commission information required for fishing regulations and rule development.

Manatees

The Florida Marine Research Institute's staff perform manatee research related to manatee biology and health, habitat requirements, movement, behavior and population size. The FDEP management staff reviews of state land leases, large development projects, coordination with 33 counties on the development and implementation of area-specific manatee protection and comprehensive plans and development of habitat protection strategies. The FDEP research and management strategies reflect and are driven by the Florida Manatee Recovery Plan.

Ongoing research topics include:

- Telemetry - Satellite tags were placed on 19 manatees on Florida's west coast. Two of the 19 were tagged and released following rehabilitation at Sea World and the Miami Seaquarium for injuries inflicted by crab trap lines. Both manatees appear to be adequately readjusting by exhibiting normal movement and behavior pattern. At the end of 1992, seven manatees still had tags: four tagged in Tampa Bay, two in Charlotte Harbor and one in the Everglades.
- PIT Tags - Passive integrated transponder (PIT) tags were implanted in five captive male manatees in February, June and August 1991. Two tags were implanted in each animal, one on either side of the upper head region, behind the ear opening. The animals were also marked with freeze brands around the implantation site to monitor tag migration. These manatees have been monitored from 17-23 months, every two weeks for the first two months, once a month for an additional year and then quarterly. No health complications have been observed. All the tags function properly, and no apparent migration of the tags has been noted. Testing of PIT tags on captive manatees has shown that these tags are a safe and accurate permanent identification marker for manatees and that this marking technology can be applied to the wild manatee population. Manatees will be implanted with PIT tags under a permit from the U.S. Fish and Wildlife Service. The tags will be implanted in captive manatees, free-ranging manatees during captures for ongoing telemetry studies and in rescued and rehabilitated manatees prior to release.
- Aerial Surveys - Twice-monthly aerial surveys for manatee distribution are currently being conducted in four areas: St. Johns, Flagler and Volusia counties; St. Lucie and Martin counties; Collier County and Tampa Bay. The FMRI is jointly sponsoring aerial surveys with Palm Beach County and Everglades National Park. All aerial survey data are mapped into the Marine Resources GIS system and used as a primary source of data for management planning.

Global Positioning System (GPS) data unit is now being used to accurately record the aircraft's flight path and locations of animals sighted during selected aerial surveys. Locations are then downloaded to a microcomputer and used to create GIS maps of the sightings and the flight path displayed against a GIS background map.

Last year's statewide two-day synoptic survey in January 1992 counted 1,856 manatees, more than had ever before been counted at one time.

- Carcass Salvage and Necropsis - The yearly total manatee mortality in Florida was 161 (38 watercraft-related). An additional 3 animals were recorded from outside the state (1 in Alabama, 2 in Georgia) during 1992. The total mortality for 1992 was below that of the previous year (175 in 1991).

The new FDEP Marine Mammal Pathobiology Lab was dedicated November 20, 1992, on the Eckerd College in St. Petersburg. This will serve as a state of the art facility for marine mammal necropsies.

COASTAL VEGETATIVE HABITAT RESTORATION

This program implements projects designed to evaluate and functionally restore, enhance and/or create vegetative marine fisheries habitats; seagrasses, saltmarsh and mangroves. Staff investigate enhancement strategies by designing projects to improve existing or create new critical habitat area, quality, and biological diversity. Projects often involve redesign and engineering of existing landscapes to support the desired habitats and to improve access of fisheries organisms to these habitats. Staff conducted independent research to address scientific issues related to environmental requirements of different coastal plants as well as management questions relating to restoration, creation and enhancement of emergent and submergent habitats. Staff development requests for proposals, supplemental contracts and cooperative agreements to monitor and assess both natural and manipulated habitats.

The FMRI currently utilizes annual revenues from gill-net licenses issued to commercial fishermen in Pasco, Pinellas, Hillsborough, Manatee and Sarasota counties to provide the salary base for the program and to implement restoration projects and associated research. Staff supervise and work directly with contractors and frequently citizen volunteer groups to implement projects; implementation frequently involves coordination with the Southwest Florida Water Management District (Tampa Bay SWIM Program), the Department of Environmental Protection (Pollution Recovery Program), the National Marine Fisheries Service, the Tampa and Sarasota Bay National Estuarine Programs, the Tampa Bay Regional Planning Council, the Tampa Bay Environmental Action Team, the FDEP Aquatic Preserves, the Tampa Bay National Audubon Preserves, county and municipal governments.

FISHERIES STATISTICS

The Commercial Fisheries Statistics Cooperative effort with the National Marine Fisheries Service continues. The state Marine Fisheries Trip Ticket Program has approximately 690 dealers who report 30,000 to 40,000 fishing trips monthly. This program provides catch and effort data on all state fisheries and real time effects of management decision. Trip ticket data on gear employed on each individual trip are now being collected on a routine basis. Data on marine tropicals are now sufficient for us to examine year specific trends in catch for the marine life fishery. Fisheries independent monitoring of juvenile fishes continues in the Tampa Bay, Charlotte Harbor, Indian River and the Florida panhandle (Ft. Walton Beach) lagoon/bay systems. West central coast (Cedar Key) was discontinued due to budget cuts. The Florida Keys/Florida Bay area was added beginning in 1993, primarily because of the resource problems associated with Florida Bay. Testing continues for quantitative and efficient sampling methods. Recreational fishing sites continue to be visited on a random basis to update fishing activity levels and

facilities. The data acquired are the basis for future surveys on recreational fishing and boat traffic and their effects on endangered marine species, as well as planning of state surveys of recreational fishermen and their catch.

STOCK ENHANCEMENT RESEARCH

Hatchery Production

Fall 1992 Pond Production

Approximately 1.2 million first feeding larvae were stocked in six one acre ponds during fall 1992, and 523,021 phase 1 fish were recovered for an overall survival rate of 44%. The University of Miami and Florida Institute of Technology received 47,000 and 30,000 fish, respectively, for intensive growout to phase 3. These fish were stocked into Biscayne Bay as part of fishery dependent and fishery independent assessment surveys.

Approximately 320,000 phase 1 red drum fingerlings were stocked into seven one acre and five quarter acre ponds for production of phase 2 fish. Three west coast ponds were harvested and 34,000 phase 2 fish were tagged with internal coded wire tags (cwt) and released to Bishop Harbor, Tampa Bay and Sarasota Bay, respectively. Later in mid-March 1993, four one acre and five quarter acre ponds were harvested and approximately 63,000 east coast phase 2 fish were released in Volusia County for a "Size at Release" study.

Spring 1993 Pond Production

Approximately 1.6 million larvae were stocked into eight one acre ponds and 641,367 phase 1 fish were recovered for a mean survival rate of 35.5%. The University of Miami and FIT received 41,000 and 20,500 fish, respectively. There were three releases of untagged phase I fish into Biscayne Bay during July. These fish were released to assess optimal size at release in Biscayne Bay. Recaptured fish will be identified using a discriminant otolith technique. This procedure allows pattern comparisons of recaptured fish and images of reference specimens reared at the hatchery.

A release was implemented during July to assess optimum size at release in Volusia County. Of the 109,000 fish harvested, 54,000 were tagged and released into Volusia County. An additional 6,000 east coast fish were tagged and released into Biscayne Bay. There was only one stocking of west coast phase II fish in Sarasota Bay in August with approximately 3,000 fish.

Fall 1993 Pond Production

Ponds were stocked in early October to raise fish for release into Biscayne Bay and supply fish to the University of Miami and Florida Institute of Technology for advance fingerling production for Biscayne Bay fishery dependent and fishery independent monitoring and assessment.

Assessment

The FMRI conducts stock enhancement research in the Indian River Estuary and Tampa Bay. In addition, the FDEP supports cooperative work in Biscayne and Sarasota bays. Fishery independent and fishery dependent assessment programs are ongoing in each watershed system. A total of 1,160,794 tagged fish have been stocked in Florida estuaries.

The most comprehensive assessment effort is in the Indian River in Volusia County. There were 226,463 phase 2 cwt red drum released in Volusia County since April 1989. There were 17,101 internal anchor tagged (IAT) fish stocked in Volusia County since November 1989. There have been 449 iat returns to date. This is a 2.6% return rate. Maximum days at large is 1,396 days. This fish was caught in the Indian River near Titusville. Trammel net recaptures over the last year were 6 swt red drum out of 116 total capture. This is a 6.9% return rate. A creel survey over one year yielded 540 intercepts. There were 42 red drum reported, and 6 were tagged. The other 36 were released by the fishermen without being scanned for presence of cwt. This represents a 19% tag return rate for cwt by creel. When juvenile fish were released during the natural spawning season, 1,123 cwt fish and 312 wild red rum were recovered over a 185 day period after release in a fishery independent stratified random survey. The hatchery fish made up 78% of the juvenile red drum population sampled in the test area. Analysis of variance of estimates of wild and hatchery populations over time in the study area was not significantly different. Feral and hatchery fish school together and left the nursery area at the same time. Currently 85.8% of red drum juvenile stock in the study area (Murray Creek) are hatchery fish. There have been over 2,240 cwt red drum recaptured overall to date. The out-of-season releases disappear rapidly compared to fish released during the natural recruitment season. Few cwt or wild red drum were recovered during the summers of 1992 and 1993. In summer of 1992 there were 12 cwt and 15 wild red drum collected over a 95 day assessment period. This represents a 44.4% segment of the total juvenile red drum population in Murray Creek. In summer 1993, there were 4 cwt and 2 wild red drum collected over a 72 day assessment period. This represents 66.6% of the total red drum catch over a 72 day period.

Additional work on fish health and disease, clinical protocols, disease prevention and treatment, continued this year.

BUREAU OF MARINE RESOURCE REGULATION AND DEVELOPMENT

The primary responsibility of the Bureau includes the classification and monitoring of shellfish growing waters, the inspection of shellfish and blue crab processing plants, resource assessment and resource rehabilitation and development. Sections 20.06(4), 20.56(6), 370.021, 370.071 and 370.16, F.S., and Chapters 381 and 386, F.S., set forth the department's responsibilities in management of shellfish resources and the public health protection aspects of the shellfish industry.

Accordingly, under the mandate provided in Section 370.16(12), F.S., to "improve, enlarge, and protect the oyster and clam resources of this state," the department is actively engaged in collecting oyster shell from processing plants and constructing and restoring oyster reefs on public bottoms. Through September 1993, the Shellfish Assessment and Enhancement Section collected 66,888 bushels of shucked oyster shells and 200,568 bushels of processed calico scallop shells, and planted 37,500 bushels of oyster shells and 108,420 bushels of scallop shells to restore approximately 30 acres of oyster reefs in Apalachicola Bay and East Bay (Bay County).

In 1993, \$429,400 was appropriated by the legislature as part of a statewide commitment to rehabilitate and develop productive shellfish resources. Funding was allocated among seven coastal counties, including Levy, Dixie, Wakulla, Franklin, Bay, Okaloosa and Santa Rosa. In FY1992-1993, 143,052 bushels of live oysters and 149,328 bushels of dredged shell (mud clam and oyster) were planted during resource development projects in these counties.

Marine Resources Information System statistics (unedited data) showed statewide oyster landings increased sharply in 1992 to 5.9 million pounds valued at \$18.8 million. Franklin County landings increased from 1.5 million pounds in 1991 to 4.1 million pounds in 1992. Increased landings since 1990 in Apalachicola Bay reflect an upward trend in statewide production. The department issued 872

Apalachicola Bay Oyster Harvesting Licenses generating \$87,200 in user fees for the Apalachicola Bay Conservation Trust Fund (FY1992-1993).

Preliminary reports indicated that hard clam landings in 1992 showed a modest increase to 0.8 million pounds with an approximate value of \$5.8 million. Production trends suggest that landings will continue to increase over the short term, as harvesters continue to harvest from a set of hard clams in Body C of the Indian River. Brevard County, which produces the majority of Florida's hard clam landings, is also the center of the hard clam aquaculture industry. This emerging industry is expected to contribute substantially to hard clam production during 1993 and 1994.

Hard clams harvested from waters classified as restricted or conditionally restricted must be processed through relaying and depuration activities rigorously controlled by the Division of Marine Resources. The division has promoted depuration as a practical method for cleansing potentially contaminated shellfish, ensuring product quality and protecting public health. In 1993, the division issued 62 Special Activity Licensees to relay shellfish to private leases and one license was issued to a depuration facility using controlled purification methods.

During 1993, 325 Special Activity Licenses were issued to promote shellfish aquaculture activities, including exemptions for aquaculture products below the minimum size, bag limits and harvesting seasons. During a cooperative aquaculture demonstration program, 64 Special Activity Licenses were issued to leaseholders to relay oysters from restricted waters to leases located in approved waters in Dixie and Levy counties.

Provisions of Section 370.16(1)-(11), F.S., allow leasing sovereign submerged bottoms for cultivation of oysters and clams. In 1993 there were 154 shellfish leases in effect totaling 2,000 acres. Additionally, 150 aquaculture leases (Chapter 253, F.S.) are in effect (650 acres), and another 50 aquaculture leases are in the review process. Cultivation of hard clams and oysters offers a technically feasible and economically practical alternative to increase shellfish production in Florida.

Nearly 50% of Florida's 2.4 million acres of coastal waters have been classified in 58 shellfish harvesting areas (SHA). In 1992, five comprehensive shellfish surveys were completed as part of continuing efforts to maintain proper classifications in all shellfish harvesting areas. The shellfish laboratory analyzed 180 shellfish meat samples, 18 crab meat samples, 15,175 SHA water samples and 507 potable water samples to insure shellfish quality during FY1992-1993. The division certified 159 shellfish processing plants in FY1992-1993.

OFFICE OF FISHERIES MANAGEMENT AND ASSISTANCE SERVICES

The major objectives of the Office of Fisheries Management and Assistance Services (OFMAS) are to: (1) act as the FEDP liaison to the FMFC, (2) continue the operations of the state artificial reef program, (3) establish a fisheries independent data collection program for the recreational fishery, (4) establish an in-house trip ticket auditing section to monitor and evaluate the accuracy of the reporting process using the Marine Fisheries Trip Ticket Program, (5) improve and expand an informational outreach program for distributing FDEP and FMFC rules and regulations and information regarding marine resources to sport and commercial fisherman and (6) act as technical liaison for the FDEP to Florida's local mosquito control program.

The OFMAS has produced four editions of the Saltwater Sportfishing Report Newsletter. The purpose of this newsletter is to provide the fishing public with an explanation of the saltwater fishing license, sales, expenditures and research issues. The newsletter also provides information such as fish

identification and other topics of interest to anglers. The OFMAS receives and answers a large number of calls from the fishing public. Questions such as "where is the best place to fish," "what can I catch," "which is the best season for 'x' species of fish," etc., are answered from various sources of information the OFMAS has access to. The OFMAS has distributed approximately 25,000 "Know Your Fish" and "Angling Smart" posters to all county tax collector's offices and interested general public.

The Artificial Reef Summit '93, hosted by the OFMAS and the Organization for Artificial Reefs (OAR) was held in Tallahassee on May 4-6, 1993. There were 96 participants from across Florida, and participants from several other states attended the meeting and were introduced to Florida's two new artificial reef management plans developed by the OFMAS, The Florida Artificial Reef Development Plan and The Florida Artificial Reef Monitoring Plan. The new OFMAS Artificial Reef Assessment Dive Team was also introduced to the participants. The second half of the meeting consisted of research papers presented on artificial reef projects in many parts of the state. Reports on the progress of research projects by the University of Florida, Nova University, the University of Miami and the University of West Florida were presented. There were also presentations on unique reef projects in the Florida Keys, Tampa Bay and the Dade County area. Proceedings of the meeting are being drafted by the OFMAS.

The OFMAS oversees and coordinates the Lobster Trap Certificate Program. The Lobster Trap Certificate Reduction Program has been implemented and certificates issued to fishermen based on the laws' requirements. Three hundred and fifty appeals have been heard to date by the Appeals Board and approximately 156,000 additional certificates have been allocated to fishermen found entitled to them by the Board. The deadline to appeal initial allocation of certificates ended October 1, 1993. The Appeals Board is scheduled to hear the last appeals in this process at their meeting November 3-5, 1993.

The OFMAS worked in cooperation with the FDEP's Office of Communications to develop a magazine, Fishing Lines - Angler's Guide to Florida's Marine Resources, for the public which provides information on habitat, fishing ethics, fisheries management and illustrations. The OFMAS, in coordination with the FMRI and Diane Rome Peebles (artist), worked to produce 32 scientifically correct illustrations of regulated fish species (and look-a-likes). One million copies of this publication were printed and approximately 800,000 copies have been distributed.

The OFMAS is in the process of producing a newsletter which will inform the public of activities of the Artificial Reef Program. Information will include which counties receive grants, innovative programs (large area permit) and artificial reef locations. Also included will be the activities of the reef assessment dive team. This newsletter is expected to be available in January 1994.

The OFMAS coordinates the FDEP mosquito policy between divisions. The OFMAS also serves on the Technical Subcommittee on Managed Marshes.

OFFICE OF PROTECTED SPECIES MANAGEMENT

The major objectives of this office are to: (1) coordinate the department's efforts of undertaking the tasks and realizing the objectives of the U.S. Fish and Wildlife Service Florida Manatee Recovery Plan, (2) enhance coordination of the department's marine turtle management programs and develop additional funding sources for expansion of those programs, (3) provide coordination of ongoing habitat protection efforts with emphasis on preservation of essential manatee and marine turtle habitat. The office also monitors the status of other marine mammal populations.

Staff continued to work closely with key counties in the development of comprehensive manatee protection plans. Boating studies were conducted in Collier and Indian River counties and a boater

compliance study initiated in Broward counties as well as amendments to the Palm Beach rule were developed and adopted. An emergency rule and proposed permanent rule were approved to repromulgate Volusia County zones after existing zones were nullified in a local county court ruling. Sign plan reviews were coordinated between staff, the Florida Marine Patrol and inland navigation districts and manatee protection sign plans were posted in Sarasota, Dade, Citrus and Indian River counties. The office filled hundreds of general information requests as well as numerous requests for technical data and computer generated maps. Hundreds of permit applications and associated correspondence for marine related construction, marine events and beach renourishment were reviewed, and recommendations to reduce impacts to manatees and marine turtles and associated habitat of these species were made as appropriate. A rule regarding model beach lighting ordinance for marine turtle protection was promulgated.

BUREAU OF SANCTUARIES AND RESEARCH RESERVES

Florida Marine Patrol officers patrol the Florida Keys National Marine Sanctuary and investigate and enforce violations of the Marine Protection, Research and Sanctuaries Act. Officers also participate in activities to educate the public on protection of the resources of the sanctuary. Patrol and education activities are closely coordinated with state and federal sanctuary staff. Enforcement actions are conducted in cooperation with federal attorneys.

Marine Patrol Officers enforce federal regulations in waters beyond state jurisdiction through a cooperative agreement with the National Marine Fisheries Service for the protection of the state's marine fishes.

Marine Patrol Officers enforce state regulations with authority under Section 370.021(5)(a) and Chapter 253, F.S., in the National Estuarine Research Reserves. They cooperate with Reserve managers to determine major resource management problems that can be addressed by better focus of patrol and enforcement activities. These activities include damage to state lands, illegal fishing, disturbance of critical wildlife areas, etc.

Marine patrol aircraft and pilots are available to assist sanctuary and reserve staff with aerial resource surveys and management activities.

Sanctuary and reserve staff are available to marine patrol officers to provide identification of marine organisms, to assist with rescue and care of injured animals and to provide information on handling toxic materials.

Sanctuary and reserve staff are available to provide environmental training to marine patrol officers and trainees.

LOUISIANA DEPARTMENT OF WILDLIFE AND FISHERIES (LDWF)

OFFICE OF FISHERIES

The Office of Fisheries manages, protects, and enhances the fishery resources and associated aquatic habitat of the State of Louisiana to provide maximum biological, social, economic, commercial and recreational benefits for Louisiana and the nation. Subprogram activities in support of these goals are described as follows:

SHELLFISH SUBPROGRAM

The Marine Fisheries Division continues its fishery independent trawl sampling throughout coastal Louisiana. Data from these samples are used to set season frameworks for both the fall and spring inshore shrimp seasons and the winter offshore shrimp season closure. Additionally, a special spring pink shrimp season was set for a portion of Breton and Chandeleur Sounds.

SHRIMP SEASONS

Spring Inshore Shrimp Season - Zone 2

A portion of Zone 2, from the Mississippi River and South Pass to the Atchafalaya River Ship Channel out to Eugene Island, opened as scheduled at 6 a.m. Monday May 31, 1993. Preliminary reports indicate that the number of boats fishing on opening day was fewer than normal and the shrimp taken were generally small. Marine Fisheries Division personnel conduct interviews at marinas and seafood docks on opening day. Early indications from this year's interviews show that the majority of shrimp landed were in the 80/100 count per pound size range. Department staff also indicated that the numbers of both commercial and recreational boats were down as compared to previous years.

Along the Mississippi River from Lake Hermitage down river to Venice, catches of brown shrimp were plentiful. Most recreational shrimpers had caught their legal limit (100 pounds) by 10 a.m. and most commercial fishermen were reporting good catches. The size of shrimp taken ranged from 60/70's to 100/120's, with 80/100's being the most common size. There were few reports of any large white shrimp being landed. Price per pound in this area was as follows:

Count	Price	Count	Price
100+	\$.50	36/40	\$ 1.45
80/100	.70	31/35	1.65
70/80	.80	26/30	1.85
60/70	.90	21/25	2.00
50/60	1.05	16/20	2.50
40/50	1.20	10/15	3.00

Reports from the area around Grand Isle and Barataria Bay were mixed. Most boats reported poor catches of small shrimp. Only those boats fishing the upper reaches of the Barataria Bay system reported good catches, although those shrimp were also small. The sizes landed generally ranged from 60/70's to 100/120's count per pound, with the majority being 80/100's. There were few reports of any large white shrimp being landed. Prices in this area were slightly higher than those listed above (approx. \$.10 per pound more on each count size).

Reports from the area from Bayou Lafourche west to Cocodrie indicated good catches of shrimp from the upper marsh areas. The shrimp in those areas also ranged from 60/70's to 100/120's, with the majority being 80/100's. Fishermen from this area reported large numbers of fish which made culling difficult and excessive amounts of debris apparently left behind in the wake of Hurricane Andrew. Some fishermen reported catching a few large white shrimp, which were mixed with very small brown shrimp which were discarded.

The area from Cocodrie west to the Atchafalaya River produced very few shrimp. Catches were very poor and the size of brown shrimp was small, averaging 80/100's and 100+ to the pound. A few boats caught some large white shrimp, however none of those interviewed had more than 40 to 50 pounds of white shrimp. Many boats in this area reported culling out only the white shrimp and discarding the browns. Larger commercial vessels had not returned to dock during these interviews.

Spring Inshore Shrimp Season - Zones 1 and 3

The 1993 inshore shrimp season in Zones 1, 3 and the remaining portion of Zone 2 opened as scheduled at 6 a.m. June 7, 1993. Preliminary reports have indicated that the catches in both zones were fairly good on opening day and continued to be adequate throughout the first week. In Coastal Study Area I there were two concentrations of vessels fishing on opening day, one in Lake Borgne and another along the upper edge of Chandeleur Sound. The commercial boats fishing Lake Borgne were catching approximately 200 to 1500 pounds of 50/60 count per shrimp after culling. Recreational boats were taking from 20 to 100 pounds of shrimp. Most of the boats fishing Chandeleur Sound were commercial double riggers and they were catching mostly overwintering white shrimp in the 21/25 count per pound range. Most of these boats landed 500 pounds and up on opening day. The interior of the Biloxi marsh produced 80/100 and smaller shrimp and the effort in that area was very low. Overall effort by recreational fishermen was very low and commercial effort was down by perhaps 25%. In general the fishermen in Area I were pleased.

In Coastal Study Area II, effort was very low. There were very few fishermen throughout the area. The best location in this area was Delacroix Island and Lake Lery. Catches ranged from 20 to 350 pounds of mostly 50/60 count per pound shrimp after culling. There were very few commercial vessels in the area, most of the fishing was by recreational fishermen. Generally this area did not produce many shrimp and most of those interviewed were not pleased. This is not unusual for this area since the area to the northeast of the MRGO generally produces most of the shrimp in Zone 1.

By the end of the first week, fishermen throughout Zone 1 were reporting catches approximately one half of opening day. There were very few skimmers being used in Zone 1.

In Vermillion Bay in Coastal Study Area VI located in Zone 2, good catches of overwintering white shrimp were reported. Commercial shrimpers were reporting catches of 73 pounds per hour of 36/40 count per pound white shrimp along with 10 pounds per hour of 60/70 count per pound brown shrimp. Quasi-commercial (recreational boats pulling larger trawls) averaged 95 pounds of 36/40 white shrimp for the day. Many shrimpers were discarding all of the small brown shrimp. A count of trailers revealed that effort was down by about 33% among recreational fishermen. High winds in the area kept

fishermen out of the open areas of Vermillion Bay. In general most fishermen were pleased with their results. Only about 3% of the boats were using skimmers.

In Coastal Study Area VII, located in Zone 3, most of the fishermen were catching 15/20 and 31/35 white shrimp. Large commercial vessels were catching 45 to 50 pounds per hour of whites and 20 pounds per hour of browns. Small boats were catching about 16 pounds of whites and 10 pounds of browns. Most everyone was discarding all of the brown shrimp which counted in excess of 160 count per pound. Some 80/100 count per pound brown shrimp were taken. Effort was very low with a total of only 149 boats fishing in the area. Only one recreational boat was encountered. There were no skimmers in use in the area.

Fall Inshore Shrimp Season

The Fall Inshore Shrimp Season opened statewide, as scheduled, at 6 am August 16, 1993. As expected, the size of the shrimp taken on opening day were in the 40/50 and 50/60 count per pound range. Catches, however, were somewhat less than what had been expected, particularly in the central portion of the state and in Zone 3. The reason for these low catches were apparently linked to an offshore movement of the larger white shrimp during the later part of the week before the season opened. A brief summary of opening day results in each of the Coastal Study Areas is as follows:

Zone 1

Area I - Catches varied greatly throughout the area. Commercial catches ranged from 100 pounds to as much as 2,000 pounds, with the largest catches coming from the Chandeleur Sound area. Brown shrimp made up 25% of the catch and averaged 40/50 count per pound. White shrimp ranged from 21/25 to 80/100 count per pound, with the average being 60/70 count per pound. Recreational fishermen caught shrimp in the same size range but catches were rather poor with the average catch being about 25 pounds. Recreational turnout was very low.

Area II - Catches in this area were very poor. Commercial catches averaged 100 pounds of 40/50 and 50/60 count per pound white shrimp. Recreational fishing was practically non-existent. This is not unusual for this area which seldom produces white shrimp at the beginning of the season.

Zone 2

Area III - Catches were very poor. Many commercial boats reported catches of less than 100 pounds. However, interviews showed that the average catch was between 100 and 150 pounds. White shrimp throughout the area were 40/50 and 50/60 count per pound. Recreational effort was very low and catches were poor.

Area IV - Originally, this area held good numbers of white shrimp. However, on opening day catches were very poor. It is thought that many of the shrimp had moved offshore before the opening. Commercial catches ranged from 50 to 200 pounds of mostly 50/60 count per pound shrimp. Recreational trawlers averaged about 20 pounds.

Area V - A movement of shrimp to the offshore areas is suspected as the cause for poor catches in this area. Commercial vessels caught from 100 to 200 pounds of mostly 60/70 count per pound shrimp. Recreational trawlers caught about 25 to 30 pounds of mostly 70/80 count per pound shrimp.

Area VI - This area produced the largest catches reported on opening day. Commercial vessels were catching about 115 pounds per hour of 31/35 count per pound white shrimp. Recreational effort was below normal and it was speculated that this was due to the fact that the New Iberia newspaper did

not print the opening date. Recreational catches averaged 93 pounds of 31/35 count per pound white shrimp.

Zone 3

Area VII - Both commercial and recreational effort in this area was the lowest ever recorded and catches were very poor. Low catches were the result of a large offshore movement of shrimp the week prior to the opening. Boats fishing the near-shore areas reported good catches during the later portion of the week prior to the opening day. Commercial vessels in Calcasieu Lake reported catches of about 40 pounds of mostly 40/50 count white shrimp. Boats fishing the Ship Channel did well, averaging 740 pounds of white shrimp ranging from 40/50 to 70/80 count per pound. The largest catch reported from one boat was 7,000 pounds of 40/50 and 60/70 count per pound shrimp.

Overall the opening can be classified as poor. However, this is not an uncommon occurrence for the fall season. The most significant catches of white shrimp during the fall season generally begin with the passage of cold fronts in late September or early October with the bulk of the white shrimp crop being landed from October through November.

Task Forces

The Marine Fisheries Division provided technical support to two industry task forces. The Governor's Task Force on Shrimp Management was established by Governor Edwards' Executive Order No. EWE 92-22. The Shrimp Task Force consists of industry members from across coastal Louisiana and has been reviewing management of shrimp resources in Louisiana.

The Marine Fisheries Division also provides technical support to the Crab Task Force. The Crab Task Force was set up by the crabbing industry and is made up of members of that industry. The Crab Task Force has been reviewing management of Louisiana's crab resources and has been working on resolving conflicts between crabbers and shrimpers.

MOLLUSC SUBPROGRAM

OYSTER SEASONS

The 1992-93 oyster season on Louisiana's public oyster seed grounds, except for "Sister Lake Oyster Seed Reservation", began 1/2 hour before sunrise on October 15. The Calcasieu and Sabine Lake public tonging reefs were also opened at that time.

The public grounds in Calcasieu and Sabine Lakes opened 1/2 hour before sunrise on October 15 and remained open through April, 1993. Gear was restricted to tongs only as prescribed by law. Provisions were made to prohibit the harvest if the State Department of Health and Hospitals declared those waters closed to shellfish harvesting.

LEASE AUCTION

The Department during the period has lifted the moratorium on the taking of new oyster lease applications. From the beginning of 1993 through the end of July, 431 applications were filed and 453 new leases issued and the process is still continuing. An auction of all delinquent oyster leases was held on March 30, 1993. The auction included oyster leases on which rent was delinquent. Opening minimum bid for each lease was rental and penalty due.

FINFISH SUBPROGRAM

The major objective of the finfish program is to develop and maintain a database of scientific information which can be used to make rational recommendations for the management of coastal finfish stocks. Draft "Biological and Fisheries Profile" documents have been developed for the following species: spotted seatrout, red drum, black drum, striped mullet, souther flounder, sand seatrout, and sheephead. These profiles include information on: nomenclature, taxonomy, morphology, distribution, reproduction, nutrition and growth, behavior, environmental tolerances, habitat, and directed fishing activities. These profiles are used as source documents for the development of individual Fishery Management Plans (FMPs), as well as for maintaining a current reference document on the biology of a species. The FMPs for the black drum and striped mullet have been completed, and are now being used as a basis for the management of these resources. Final drafts of the spotted seatrout and red drum FMPs have been produced, reviewed by external referees, and presented to the Louisiana Legislature and the Wildlife and fisheries Commission. The spotted seatrout FMP has also been reviewed by the Marine Fisheries Panel. Drafts of the biological and fishery profile sections of the FMPs have been produced for sand seatrout and sheephead, and these are in the process of in-house review. The stock assessment and recommended management measures for these species are in preparation.

MONITORING

A comprehensive monitoring program was developed in 1985 to protect or enhance these valuable resources by providing information regarding the status of fish stocks that occur in the coastal waters of Louisiana at some time during their life cycle. Three gear types are used coastwide to sample various year classes of estuarine dependent fish. A bag seine is used to sample young of the year and provide information on growth and movement. The seine is 50' in length, 6' in depth and has a 6' x 6' bag as an integral part of and midway the length of the net. The mesh size for this seine is 1/4" bar, 1/2" stretched, Delta 44 knotless mesh. A gill net is used to sample juvenile, sub-adult and adults and provide information on relative abundance, year class strength, movement and gonadal condition. The gill net is 750' in length, 10' in depth and constructed of monofilament. The net is composed of 5 panels, each of the following mesh sizes: (1) 150' x 10', 1" bar, 2" stretched mesh, 0.4 mm diameter filament; (2) 150' x 10', 1 1/4" bar, 2 1/2" stretched mesh, 0.52 mm diameter filament; (3) 150' x 10', 1 1/2" bar, 3" stretched mesh, 0.52 mm diameter filament; (4) 150' x 10', 1 3/4" bar, 3 1/2" stretched mesh, 0.52 mm diameter filament; and (5) 150' x 10', 2" bar, 4" stretched mesh, 0.52 mm diameter filament. A trammel net is used to provide information on relative abundance, standing crop and movement. The trammel net is 750' in length, 6' in depth and constructed of nylon. The entire net has a 2:1 sag, and the mesh sizes are as follows: inner wall - 1 5/8" bar, 3 5/8" stretched, number 6 twine; outer wall - 6" bar, 12" stretched, number 9 twine. Gill net samples are taken semi-monthly from April through September, and monthly from October through March; trammel net samples are taken monthly from October through March, and seine samples are taken monthly from January through August, and semi-monthly from September through December. Hydrological readings (conductivity, salinity, and water temperature) are taken each time a biological sample is taken. Also, estimates of cloud cover, sea state, tide, wind direction and speed are taken each time a biological sample is taken. Samples are taken at specific locations arranged in such a manner so as to cover the beach, mid-marsh and upper marsh areas of all major bay systems throughout coastal Louisiana. The catch and hydrological information is summarized for each coastal area on a monthly basis to give the resource managers information as to the current condition of the resource. The pertinent life history information for the important species is also used in developing analytical and predictive models.

SPOTTED SEATROUT

Legislation passed in 1991 gave the Wildlife and Fisheries Commission authority to set sizes, possession limits, seasons, times, places and quotas for all marine fish species, including spotted seatrout.

These rules are to be based on biological and technical data with the objective of conservation and management of the species for maximum benefit to the state without overfishing that leads to biological damage to the species. Effective February 20, 1992 the Commission enacted rules concerning the commercial harvest of spotted seatrout. These rules established a season, to run from 12:01 am, September 15 of each year until midnight, April 30 of the following year. The rules also set the commercial quota for spotted seatrout at one million pounds, and stated that the season would be closed if the quota was reached before the established ending date. The rules also prohibited the commercial take or possession of spotted seatrout on a vessel possessing or fishing a seine, gill net, trammel net, or hoop net, from sunset, Friday through sunset Sunday of each weekend of the commercial season. This last provision was legally challenged, and was not in effect for the 1992-1993 commercial season. The final resolution to this challenge is still uncertain.

The commercial harvest of spotted seatrout in state territorial waters was halted at 12:01 am, May 1, 1992. The closure prohibited the commercial harvest, purchase, barter, trade and sale of spotted seatrout taken from Louisiana waters but did not prohibit dealers from possessing spotted seatrout legally taken prior to the date of the closure if appropriate records were maintained. Commercial mesh sizes for gill nets, trammel nets and seine nets other than strike nets increased to a minimum of 4 1/2 inches once the commercial spotted seatrout season was closed. Commercial harvest for the 1991-92 season was 795,017 pounds.

Recreational harvest of spotted seatrout in 1992, as measured by the Marine Recreational Fishery Statistics Survey, was a record for the period since the imposition of the present length (12" TL) and creel (25/person) limits of 1987. The harvest was estimated as 7,394,505 fish, with an average weight of about 0.94 pounds. The average size was smaller than any other year since 1987.

RED DRUM

Red drum is designated as a recreational fish in Louisiana. Recreational harvest of red drum in 1992, as measured by the Marine Recreational Fishery Statistics Survey, was a record for the period since the imposition of the present length (16" TL) and creel (5/person) limits in 1988. The harvest was estimated as 2,258,373 fish, with an average weight of about 3.99 pounds. The average size was one of the smallest since 1987. The size of the recreational harvest was attributed to the very large 1990 year-class.

MENHADEN

In addition to opening and closing the shrimp seasons, information from LDWF trawl samples is used each year to develop a forecast for menhaden production. 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.

The predictive models for earlier menhaden forecasts were based on 1965-1977 temperature (Guillory et al., 1983) and juvenile menhaden (Guillory and Bejarano, 1980) data. The availability of nine additional years (1979-1987) of commercial harvest data allowed the earlier predictive models to be updated and refined. This model has been used to project catch per unit effort, harvest of age-1 fish, and total harvest by number and weight since the 1989 menhaden season. A major advantage of these new and updated predictive models is that total harvest, not just catch-per-effort, can be estimated. Effort was used in conjunction with juvenile indexes, environmental factors, or commercial harvest statistics in multiple regression equations. A forecast was made for an average or below average 1991 year class (age-1s in 1992) and an average 1990 year class (age-2s in 1992) to enter the fishery in 1992. The projected Louisiana menhaden landings was in the 350,000-400,000 MT range. The 1991 forecast was for the fishery

to be composed of two weak year-classes, and for Louisiana landings to be in the range of 400,000 to 450,000 metric tons. The 1991 menhaden landings for Louisiana were actually 453,000 metric tons.

BLACK DRUM

A fishery management plan for the black drum fishery in Louisiana has been completed and implementation began in early 1990. Permanent rules, effective September 1, 1990, established a recreational minimum size limit of 16 inches total length with possession of no more than one over 27 inch total length. The recreational daily creel limit and possession limit was set at 5. The commercial fishery is required to operate under two separate annual quotas. A quota of 3.25 million pounds was established for 16 inch to 27 inch fish and a 300,000 fish quota for fish over 27 inches. Commercial fishermen who harvest black drum over 27 inches are required to possess an annual "Special Black Drum Permit" and are also required to report monthly the number of black drum taken during the previous month. The fishing year was established as September 1 to August 31 of each year.

In fishing year 92-92 (September 9-August 1992) figures from bull drum permit reports indicate a harvest of about 93,056 drum over 27". At an average of 15 pounds each, this translates to 1,567,590 pounds of bull drum. No figures for harvest of drum less than 27" are available from this source. Data from landings reports of black drum are not reliably separable by size. Estimates of the numbers of black drum included in the harvest are subtracted from dealer reports, based on average prices and knowledge of the fishery. These estimates do not precisely coincide with the reports from the bull drum permit reports. Based on these estimates, about 1,149,534 pounds of drum under 27 inches were landed over the fishing year. Preliminary landings data indicate total landings of about 2,509,544 pounds of black drum for the September 1991-August 1992 period.

ARTIFICIAL REEFS

Louisiana's Artificial Reef Program, based within the Department of Wildlife and Fisheries, began in 1987 with the legislature's acceptance of a comprehensive plan for siting artificial reefs in both state and federal waters. The first reef was created in October of 1987 when Oxy Corporation donated the jacket of a large eight-pile structure. The structure, located in South Marsh Island-146, was toppled in place in one of the eight planning areas selected by the Artificial Reef Council. In addition to the structures, the participating companies donate half of their savings realized through participation in the program. These monies are placed into a trust fund for administration of the program and maintenance of the reefs.

Several other oil and gas companies have come forward and participated in the program. These companies, including CNG, Kerr McGee, Odeco, Chevron, Forest Oil, Kirby Offshore, Exxon, Shell, E.L.F., and AGIP abandoned structures between 1990-1993. The jackets from these structures have been converted into artificial reefs.

Currently the Program is conducting a side scan and ROV survey of the artificial reefs which may have been impacted by Hurricane Andrew in August of 1992. Working with scientists from LSU, potential movement and structural integrity of the reef material is being evaluated.

The Program is also working on a project to create inshore artificial reefs from clam shell. Each reef will be approximately one acre in size and have two feet of relief.

STATE/FEDERAL COOPERATIVE FISHERY STATISTICS

Since 1990, Louisiana has collected commercial monthly landings statistics with the exception of shrimp and menhaden, which are currently collected by National Marine Fisheries Service (NMFS). Landings are self-reported by wholesale/retail dealers licensed to purchase fish in Louisiana. Louisiana

also participates in the collection of trip interviews (TIP). Port samplers obtain interviews in Plaquemines, St. Bernard, Lafourche, Jefferson, and Terrebonne Parishes. The information provided by landing statistics and trip interviews has been used by NMFS, LDWF, GSMFC and GMFMC to evaluate the status of various species currently under intensive management. The continuing goal of the program is to collect commercial fisheries data necessary to better manage those species of concern.

SPORT FISH RESTORATION PROGRAM

In 1992-93, Louisiana used the marine share of its Sport Fish Restoration Funds in two activities; development of boat ramps to create access for fishermen and support of research on marking techniques for hard parts of fishes. This latter project, through Louisiana State University, has experimentally demonstrated the utility of several procedures for the marking of hard parts of large numbers of fish. However, field use of these techniques has been delayed due to difficulties with gaining approval from the Food and Drug Administration for the use of the chemicals in fish that might be used for food.

HABITAT SUBPROGRAM

LOUISIANA OFFSHORE OIL PORT (LOOP) ENVIRONMENTAL MONITORING

The LDWF's monthly environmental monitoring of LOOP facilities and operations continued into the fifteenth year. Demersal nekton, zooplankton, sediment, benthos, water chemistry, and hydrographic parameters are sampled along a transect from the Gulf Intracoastal Waterway to the marine terminal located 18 miles offshore from Grand Isle. Incidents of controlled discharges of supersaturated brine solutions and of oil spills are also monitored. The Department is also participating in planning activities for oil spill response. The preparation of a long-term trends analysis technical report continues.

DEPARTMENT OF ENERGY (DOE)

Field sampling, data analysis and reporting for the brine discharge aspect of the project have been completed. Once discharges have ceased for a continuous period of 12 months a recovery sampling program will be initiated. Meanwhile, a data consolidation project is underway.

SOUTHEAST AREA MONITORING AND ASSESSMENT PROGRAM (SEAMAP)

Louisiana's participation in this National Marine Fisheries Service-funded cooperative program continued in its twelfth year with seasonal sampling of shrimp/groundfish, zooplankton, and associated environmental parameters. The study area covers the Territorial Sea and nearshore EEZ from the Mississippi River to Atchafalaya Bay. Summer and Fall cruises coincide with NMFS' annual resource survey shrimp/groundfish samples.

CAERNARVON BIOLOGICAL MONITORING

The U.S. Army Corps of Engineers, with support from the Louisiana Department of Natural Resources and the LDWF, has developed a project for the controlled diversion of freshwater from the Mississippi River into the Breton Sound Estuary. The diversion structure is located in the mainline Mississippi River levee at Caernarvon, Louisiana, and has a design flow capacity of 8,000 cubic feet per second. The effect of the diversion on the estuary's ability to support wildlife and fisheries resources is expected to be significant. Diversion of nutrient and sediment-rich freshwater will rejuvenate existing marsh, significantly reduce dependence on local rainfall as the principle source of freshwater input to the estuary, reduce peak salinities and induce more regularity in the seasonal salinity pattern. Project benefits involve reducing land loss rate and increasing fish and wildlife production.

The LDWF conducts extensive monitoring activities in the Breton Sound Estuary. It has undertaken a biological monitoring program to accurately measure the success of the diversion project. In 1991, the LDWF began the first year of the four-year, post-diversion monitoring program to assess the immediate and short-term effects of the diversion on oyster, crab, shrimp, finfish, waterfowl, wildlife and vegetation. These studies are designed to gather both fishery dependent and fishery independent data.

1992 marked the first year in which the Caernarvon Freshwater Diversion Structure was in operation for an entire year. During this year a minimum flow rate of 500 cubic feet per second was adopted by the Caernarvon Interagency Advisory Committee in order to achieve maximum benefits to the upper marsh. The structure was open for a total of 255 days, during which time approximately 169 billion gallons of water were diverted into the basin. The average discharge rate for the year was 714 cfs, with a maximum peak flow of 5,777 cfs.

BONNET CARRE' FRESHWATER DIVERSION PROJECT

During 1993, the LDWF was designated as local sponsor for the Bonnet Carre' Freshwater Diversion Project. During 1993, the U.S. Army Corps of Engineers conducted an environmental assessment of the project. This assessment found that the water quality in the Mississippi River was improved over what was observed in 1984 when the original FEIS was conducted and concluded that impacts of the project to Lake Pontchartrain and the Pontchartrain basin would be no greater than those described in the FEIS.

Currently, the LDWF is in the process of negotiating a project cost agreement with the U.S. Army Corps of Engineers with a target signing date of December, 1993.

COASTAL WETLANDS RESTORATION

During 1993, coastal wetland restoration activities have increased significantly in Louisiana. The Marine Fisheries Division has evaluated the third priority list projects submitted for consideration under the Coastal Wetlands Planning, Protection and Restoration Act (CWPPRA), that was passed by Congress in 1990. Additionally, the Marine Fisheries Division has evaluated and commented on the Comprehensive Coastal Restoration Plan developed under CWPPRA.

MISSISSIPPI DEPARTMENT OF WILDLIFE, FISHERIES & PARKS

Coastal Operations

Bureau of Marine Resources (FY92)

The Bureau of Marine Resources (BMR) is a technically and functionally diverse division of the Mississippi Department of Wildlife, Fisheries and Parks, with responsibilities that include saltwater fisheries and coastal wetlands' management and the promulgation and enforcement of state and federal laws that pertain to the regulation of the use and harvest of coastal, estuarine and marine resources.

Division Objectives

Although the BMR's public image is typically linked to its regulatory functions, much of the organization's activity is in fact centered about assistance, development, and public education regarding the wise use and conservation of coastal resources. Providing liaison between the state and the U.S. Department of Interior Minerals Management Service, the BMR offers technical assistance to the Department of Environmental Quality and the Office of the Governor with regards to environmental issues pertaining to offshore oil and gas exploration and development activities. The BMR also administers grant and contractual monies that are made available through the Coastal Zone Management Program and the Dingell-Johnson, Sportfish Restoration Act for a variety of recreational, public works, and developmental programs that support local governments, universities, and other public institutions. Furthermore, the BMR also provides technical assistance to individuals, small businesses, and industry in the coastal region in the areas of aquaculture and mariculture, pollution abatement, product development, and waste treatment to name a few.

The agency's regulatory functions, of course, are not to be overlooked. In concert with the Alabama Department of Natural Resources and the Louisiana Department of Wildlife and Fisheries and through its active roll as a participant in the Gulf States Marine Fisheries Commission and the Gulf of Mexico Fisheries Management Council, the BMR's fisheries management program is geared towards providing for the continued wise utilization of fisheries resources while at the same time ensuring the health and vitality of the state's valuable renewable marine resources. Working jointly with scientists of the Gulf Coast Research Laboratory in Ocean Springs and the National Marine Fisheries Service, Bureau biologists continually monitor shellfish and finfish stocks in state waters and both sports and commercial harvest levels in order to provide the Mississippi Commission on Wildlife, Fisheries and Parks with the best available scientific information on which to base its management decisions. Staff biologists work in cooperation with the U.S. Food and Drug Administration to provide a shellfish management program that is in full compliance with all applicable federal guidelines.

Regulation of wetlands activities is similarly accomplished in cooperative fashion as the BMR reviews and assesses each such proposed action in concert with the U.S. Army Corps of Engineers and the U.S. Fish and Wildlife Service through a regional permitting system.

The BMR's strong enforcement arm is committed to ensuring compliance with all state and federal rules and regulations that apply to the coastal zone. In particular, enforcement of federal laws associated

with the Lacy Act and investigation of incidents involving both marine mammals and endangered marine turtles has gained increased emphasis in recent years.

The following narratives provide a brief description of each of the major programs and projects within the Bureau of Marine Resources highlighting the principal objectives and accomplishments of each during the past fiscal year.

Marine Division Administration

The principal objective of this project is to provide the necessary administrative support services for Bureau of Marine Resources operations along the coast. While this project is largely one of providing maintenance services for existing agency activities, there were a number of developmental activities pursued over the fiscal year that will ultimately serve to improve overall agency function.

Support services over the past fiscal year included data-processing and microcomputer support for day-to-day Bureau activities. A new time accounting system for federal grants administration was implemented during this fiscal year. Acquisition of additional computer support was also accomplished during this time frame. This additional equipment should enable the BMR to increase both the timeliness and efficiency of its response to both in-house and public requests for support assistance.

Routine staff meetings and briefings were also conducted throughout the fiscal year to provide staff with updates on legislative developments and other information relevant to the overall mission of the Mississippi Department of Wildlife, Fisheries and Parks.

Marine Fisheries

By statute, the public policy of the state regarding seafood is "to provide . . . modern, sound, comprehensive . . . law to be administered by specialists . . . to take action as may be necessary to help protect, conserve and revitalize seafood . . ." The Marine Fisheries Division provides this level of specialization to the Commission on Wildlife, Fisheries and Parks in carrying out its authorized jurisdiction over all marine aquatic life, including the regulating of fishing seasons, setting size limits and gear for taking all finfish, crabs, shrimp, oysters, and other marine species.

Overall Division objectives encompass all marine management objectives (i.e., to design and initiate projects for data collection and analysis of that data to produce stock size estimates, develop management recommendations based on those stock estimates, monitoring of stocks through fishery-independent and fishery-dependent methods, act as liaison between state and regional or federal management programs, and any non-management activities including public education and technical assistance to individuals and government agencies.

During FY92, the Marine Fisheries Division recommended some nine management regulations for adoption either through ordinance amendment or public notice. Changes were initiated through statutory requirements, participation in regional fishery management plans or through findings from research projects conducted on local marine populations. Effects from previous regulations, most notably on red drum stocks, have been monitored. Planning and project development, as well as actual work, continue on seventeen fisheries projects, ranging from red drum larvae to shrimp to oysters to cobia. Funding for research projects is sought through the Sport Fish Restoration Act (Wallop-Breaux funds), the Interjurisdictional Fisheries Act, the Anadromous Fisheries Act, the Marine Fisheries Initiative, and the Coastal Zone Management Act. Efforts from these funding sources provided data used to open, close, and regulate the state's multimillion menhaden, shrimp, oyster, crab, and finfish seafood industry - and the valuable marine recreational fishing industry. Division personnel not only gathered and analyzed fisheries data but also served on regional committees and task forces dedicated to improve marine

management, judged science fairs, helped at fishing rodeos, spoke to various civic and professional groups, investigated environmental perturbations and generally responded to the fishing public.

Marine Fisheries Management

The Saltwater Fisheries projects and activities coordinated through this program include:

1. To design and initiate projects for the collection and analysis of data required for population dynamics estimates, and other fisheries management related projects as may be required.
2. To develop management recommendations based on specific criteria.
3. To monitor the existing condition of the stocks and the fisheries that depend on them.
4. To provide information transfer and liaison activities with regional fisheries management entities and others.
5. To provide technical support to the Mississippi Commission on Wildlife, Fisheries and Parks in developing fishery management plans, amendments, stock assessments and technical analysis.
6. To provide a state representative to serve on fisheries related boards, committees, panels, etc. as may be required.
7. To provide for administrative services, general maintenance, the locating of suitable funding sources, and other fisheries management support services as may be required.

During FY92, the Saltwater Fisheries Division drafted Ordinances 1.006 (establishing regulations for harvesting, processing, and sale of oysters); Ordinance 2.008 (rules and regulations for commercial shrimping and redefining saltboxes); Ordinances 5.007 (banning gill and trammel nets within 1,500 feet of the shoreline between the U.S. Highway 90 bridge and Bayou Cadet in Hancock County); Ordinance 7.009 (making allowances for transporting filleted fish, possession of undersized fish lawfully caught in the waters of other states, allowance of spotted seatrout between 12" and 14"); Ordinance 9.002 (data collection requirements); Ordinance 12.001 (seafood transport permit regulations); Public Notice 3187 (closing the commercial season for king mackerel); Public Notice 3194 (reducing the recreational bag limit for king mackerel to one fish per person); and Public Notice 3198 (closing the commercial season for red snapper). Public hearings were held on the proposed ordinances and findings presented to the Commission on Wildlife, Fisheries and Parks for their approval and adoption.

Saltwater Fisheries personnel served on regional management activities of the Gulf States Marine Fisheries Commission including: the Technical Coordinating Committee (TCC); the Black Drum and Mullet Technical Task Forces; the Artificial Reef, TCC Data Management, and Recreational Fishery Management Subcommittees; and the State-Federal Fisheries Management Committee. Saltwater Fisheries personnel also participated in the GSMFC's Southeast Area Monitoring and Assessment Program (SEAMAP). The division was instrumental in preparing grant documents and proposals to secure funding for fisheries management projects through the Marine Fisheries Initiative (MARFIN), Sport Fish Restoration Act, Cooperative Fishery Statistics Program, and the Interjurisdictional Fisheries Act. Division personnel also responded to various requests from other governmental agencies and the general public.

Marine Fisheries Statistics

1. To collect commercial fisheries landings and catch data for Mississippi in a timely manner.
2. To collect biological data for selected commercially important finfish species.
3. To obtain boat trip information and biological statistics on migratory pelagic and reef fishes such as red snapper, grouper, and amberjack.

Fisheries landings data have been collected weekly and monthly according to schedule. The data was processed, edited, and submitted to the National Marine Fisheries Service in accordance with

established data handling procedures. Fisheries landings data are an important part of the fisheries management process, both as an indicator of potential problem areas and as a gauge of the success of existing fisheries regulations and practices.

Biological data for selected commercially important finfish species was collected from the major fish houses along the Mississippi Gulf Coast. Some processing of this data was accomplished, while the remainder will be processed as personnel time permits. Some of the information so collected will be utilized in the development of various fishery management plans, both on a state and regional level.

Information for selected pelagic and reef fishes was collected from the major landing sites for these species on a monthly basis. This information was submitted to the National Marine Fisheries Service for inclusion in their Trip Information System. This data is utilized by both state and federal fisheries managers to properly manage these valuable resources.

Monitor and Assess Shrimp Populations

1. To conduct, in a timely fashion, an on-going standardization shrimp sampling program that provides needed biological information.
2. To perform data analysis on the biological information.
3. To make recommendations on shrimping seasons and area openings and closings.

Shrimp sampling was conducted as required for commercial, recreational, and live bait shrimping. Shrimp season north of the Intracoastal Waterway was opened for commercial and recreational shrimpers in April after sampling showed that shrimp present were of legal size. The regular shrimp season was opened in June after data analyses of an extensive sampling program projected the date shrimp would reach the required sixty-eight shrimp-per-pound count. A few areas where shrimp remained sublegal-size were kept closed as sampling of those areas continued. These areas were eventually opened.

Sampling for live bait shrimping was also conducted in St. Louis Bay, Biloxi Back Bay, and in the Pascagoula River System. These areas were opened and closed in accordance with established criteria and state statute.

King and Spanish Mackerel Studies

The primary objective of this project is to provide the National Marine Fisheries Service with length information and biological samples from king and Spanish mackerel and other species to be utilized for updating and formulating management measures.

During FY92, the BMR received federal funds from a MARFIN grant. Lengths and biological samples were obtained for king and Spanish mackerel. The information was collected from charter boats, commercial fish houses, recreational fishermen, the Gulf Coast Research Laboratory, and fishing tournaments. Otoliths and tissue samples were taken and mailed, along with length information, to the Panama City National Marine Fisheries Laboratory for analysis. Total for king mackerel are 156 lengths and 61 otolith and/or tissue samples collected. Lengths collected for Spanish mackerel were 1,222. Samples were obtained from several gear types including hook and line, gill net, beach seine, and trawl.

In addition to mackerel, information on other species was collected. Lengths and biological samples were obtained for dolphin, amberjack, bluefish, and little tunny from charter boats and fishing tournaments. Length information for red snapper, vermilion snapper, lane snapper, cobia, scamp, gag grouper, crevalle jack, and gray triggerfish was collected from commercial fish houses, charter boats, and recreational fishermen.

Mississippi Sound Creel Survey

The primary objective of this project is to conduct a point access creel survey of sportboat fishermen. Specifically, this project is designed to provide information on relative pressure at boat launch sites and piers along the Mississippi Gulf Coast. Data on species composition of the catch, size frequency distribution of economically and recreationally important finfish, estimates of total fishing pressure, estimates of total catch and estimates of catch per unit effort (CPUE).

A total of 37 aerial counts were conducted on 41 boat launch sites and 39 pier and jetty sites. They were used to determine relative pressure at each site for development of random weighted probabilities. The probabilities were used to schedule creel surveyors at the sites that received the most boat pressure. Pier and jetty counts were conducted this year for use in the following year.

Along the Mississippi Gulf Coast, 525 interviews were conducted from sport boat trips. Thirteen species of fish comprised 97.41% of the catch; with sand seatrout, southern flounder and striped mullet constituting the most abundant species by number caught and retained. Estimates of total fishing pressure, catch, and CPUE were 687.3 thousand angler hours, 406.5 thousand pounds, and 1.69 fish per angler hour.

Monitor and Assessment, Mississippi Sound

The project objectives are the monitoring and assessment of adult and large juvenile finfish species comprising fisheries resources in Mississippi's estuarine and marine territorial waters.

In FY92 the BMR received federal funds made possible from the Interjurisdictional Fisheries Act of 1986 (P.L. 99-659) and subcontracted with the Gulf Coast Research Laboratory for the work conducted by this project. This is an on-going project that samples the estuarine and marine biota with gill nets, dredges, trawls, and seines. Monthly samples utilizing variable mesh sizes and located at different habitats yielded information on various life history stages of the major species exploited in Mississippi estuarine and marine waters. Investigations of biological and environmental data in this project include collection and analysis of data on commercial species of marine shellfish and finfishes in Mississippi territorial waters; biological data collection of certain select fishes with emphasis on mark/recapture studies, reproductive state assessment, otolith collections for age and growth studies; monitoring shrimp postlarvae and juveniles in coastal Mississippi waters; sampling survey of portunid crabs; live bait and commercial shrimp monitoring; and analysis of the roe mullet fishery in Mississippi waters.

Cobia Study

The project objectives are to determine age and growth, movement pattern, describe reproductive biology, and food habits of cobia occurring within Mississippi marine water and adjacent Gulf waters and also to develop technique and information on maintaining cobia and culturing cobia.

In FY92 the BMR received federal funds made possible by the federal aid in Sport Fish Restoration Act (16 U.S.C. 669-669i) 50 CFR Part 80, from the U.S. Fish and Wildlife Service. Part of these funds were utilized for a study of cobia at the Gulf Coast Research Laboratory.

In a previous segment, the Gulf Coast Research Laboratory staff collected, sliced, and read otoliths for age determination and back calculating lengths at annular formation for growth estimates. Aspects of reproductive biology which have been completed include: (1) time of peak spawning, (2) ovarian maturation phases, and (3) egg counts for fecundity estimates. Stomach contents have been examined and prey items identified and enumerated. Tagging fish to study movement patterns is being accomplished

by GCRL staff, private fishermen, and charter boat fishermen along the Gulf Coast and will be the primary objective in future segments.

Red Drum Study

The objectives of the study are to study the population age structure and emigration dynamics of inshore subadult red drum in coastal Mississippi waters.

This project is federally funded by monies made available through the BMR to the Gulf Coast Research Laboratory by the Federal Aid in Sport Fish Restoration Act (16 U.S.C. 669-669i) 50 CRF Part 80. The Gulf Coast Research Laboratory is continuing to monitor the age of the inshore red drum population by collecting, sectioning, and reading otoliths. Tagging of red drum for study of movement pattern and emigration to offshore spawning stock was done and is ongoing.

Striped Bass Study

The primary objective of this study was to restore the striped bass population to coastal waters of Mississippi. Secondary objectives include monitoring and evaluation of the stock effort.

The project is funded through monies made available through the BMR to the Gulf Coast Research Laboratory by the Anadromous Fish Act (P.L. 89-304) and the Federal Aid in Sport Fish Restoration (16 U.S.C. 669-669i) 50 CFR Part 80. The project is ongoing, and in FY92 approximately 14,312 striped bass fingerlings were tagged and stocked in the coastal tributaries of Mississippi. Evaluation of tag returns from fish tagged in previous years and interviews with sport fishermen, commercial fishermen, and fish camp operators indicate an increase in the striped bass population as a result of the restocking program.

Red Drum Reproduction Study

1. To continue monitoring changes in the offshore red drum population that resides in coastal waters between the Mississippi River delta and Mobile Bay (i.e., the spawning stock that produces fish which support the nearshore/estuarine Mississippi red drum sport fishery).
2. To continue the time series of spawning biomass estimates which were begun in 1986.
3. To further refine and improve these spawning biomass estimates.
4. To continue tracking the effects of both state and federal management regulations, in particular, Mississippi's size and bag limits which have been designed to increase escapement of maturing red drum from inshore sportfishing pressure.

This project is partially funded through monies made available through the BMR to the Gulf Coast Research Laboratory by the Federal Aid in Sport Fish Restoration Act (Wallop-Breaux). These funds were utilized for one fall 1991 cruise to determine the abundance and densities of red drum larvae in coastal waters between the Mississippi River delta and Mobile Bay, as well as to complete analyzing previous samples.

Initial biomass estimates remain low. Factors contributing to this underestimation include extrusion of some of the smallest larvae through meshes of the sampling net and failure to account for unfertilized or non-viable eggs. Adjustments for these biases will be incorporated in final estimates. The timing of the cruises is a critical factor for this study, since environmental fluctuations often affect reproduction as well as physical sampling abilities.

Dramatic increases in larval abundance were found in studies on striped bass in Chesapeake Bay after regulations there protected the spawning stock. Similar increases in red drum larval abundance have

yet to be found here. Increased abundance of 1-2 year old red drum found here may be attributed to the effectiveness of state and federal fisheries management practices for this species.

Spotted Seatrout Study

1. Develop and implement a fishery independent sampling protocol for the assessment of the population of adult/sub-adult spotted seatrout in Mississippi coastal waters.
2. Develop a length-at-age estimate and population age structure for the population of adult/sub-adult spotted seatrout in Mississippi coastal waters.
3. Compile, analyze, and summarize available data for the development of a stock assessment for the population of spotted seatrout in Mississippi coastal waters.
4. Develop and coordinate a series of public workshops to provide for exchange of information on fishery research and management procedures regarding the spotted seatrout sport fish fishery in Mississippi coastal waters.

The project started in December of 1991. Sampling in the major estuarine areas in Mississippi is currently ongoing. One public workshop was held at the J.L. Scott Marine Education Center in Biloxi in January. The purpose of the workshop was to exchange information with the public on fisheries research and to advise them on management procedures regarding the spotted seatrout sport fish fishery.

Oil and Gas Technical Assistance

The project's primary objectives include the review of all oil and gas activities in Mississippi's coastal zone to ensure compliance with state policy, the development of regulatory guidelines to protect coastal resources from impacts associated with oil and gas development, and the preparation of a comprehensive oil spill response plan for Mississippi's coastal waters.

During FY92, the Coastal Management staff conducted reviews, participated in meetings, and initiated revisions to the state's oil spill contingency plan. Staff continued to track changes in federal oil spill legislation for potential application to the Mississippi Sound and other state waters and coastal wetland areas. Because of the limited oil and gas activities within the state's coastal waters much of the staff's attention was directed to activities occurring in federal waters in the Outer Continental Shelf.

Coastal Zone Management Assistance

The primary objective of this project is to implement the provisions of the Mississippi Coastal Program (MCP). The MCP is legislatively mandated in Mississippi Code Section 51-15-6 and was approved by the federal government under provisions of the Coastal Zone Management Act (CZMA) of 1972 as amended and adopted as state policy. Coupled with coastal management responsibilities are those needed to carry out the mandates of the amended Marine Litter Act of 1989.

During FY92, the BMR received \$539,000 in federal funds from the Office of Ocean and Coastal Resource Management to meet coastal management objectives. Funds were used to provide administration support, purchase equipment, and cover the cost of various office expenses and travel. Funds were used for legal assistance through the Attorney General's office. The Coastal Management staff participated in two coastwide beach clean-ups, and reviewed all major federal actions in the coastal zone to determine if the activities were consistent with the state's coastal management plan. This review included dredging projects and oil and gas activities in the Outer Continental Shelf.

Grants were given to the two marine museums to conduct public outreach and public education programs in the coastal area. Public access sites along the coast were constructed and public service announcements relating to the importance of our coastal resources were produced.

A contract was let for part-time assistance for the marine debris efforts. Management staff made an assessment of the MCP as required by the amended Coastal Zone Management Act. This assessment is a precursor to strategies to improve the MCP through program enhancement or program changes. Work on the assessment and strategy will continue into the next fiscal year. Also major efforts were made to develop a "Coastal Preserves" system for the state which includes 20 potential sites in the coastal area. These areas provide unique habitat, erosion control and storm buffers, groundwater, and recharge areas. These sites also provide habitat for rare and endangered plant and animal life.

A contract was also developed with Mississippi State University to monitor size and nesting phenology of the least tern colonies on the Mississippi sand beaches. Results of this study will be evaluated and recommendations incorporated into the management of the least tern colony. A contract was also developed with the National Audubon Society to develop a publication for wetlands.

Wetlands Education and Protection

This project's primary objective is the protection and management of the state's coastal wetlands resources. Secondary objectives include policy development and implementation, habitat enhancement, regulatory guidance, and public education.

The Coastal Management staff achieved project objectives during FY92 by administering the provisions of the Coastal Wetlands Protection Law and the Mississippi Coastal Program. Staff began to review project applications for dockside gaming facilities in coastal areas during this reporting period with the anticipation of several more gaming projects' reviews to follow. Significant staff efforts were made to develop aquaculture guidelines to address permitting requirements for both net pen operations proposed for an area south of Horn Island and for oyster culture near Cat Island. These guidelines resulted from the FY92 publication "Offshore and Sub-tidal Aquaculture Environmental Activities." There was a high level of cooperation among state and federal resource agencies and significant emphasis was placed on habitat restoration and enhancement activities during FY92. The wetlands staff developed a research project that will address historic erosion rates at Bellefontaine in Jackson County as well as continuing a cooperative effort in determining the value of wetlands via an EPA grant in Jackson County for future mitigation or wetlands replacement purposes.

Part of the state's fledgling "Coastal Preserves" reported under Coastal Zone Management Assistance, and one of the first actions of the program was the transfer from The Nature Conservancy to the Department of Wildlife, Fisheries & Parks/Bureau of Marine Resources, of approximately 575 acres of wetlands within the Graveline Bay system of Jackson County. Graveline Bay is a small estuarine system that serves an important role as a nursery area for commercial and recreationally important species.

The staff conducted site inspections and environmental assessments, sponsored meetings, and acted on a total of 300 wetland cases in FY92.

Public Tidelands Trust

Mississippi Code Annotated 29-15-9 (Rev. 1990) provides for the disbursement of Public Trust Tidelands Fund to the Bureau of Marine Resources for certain activities for new programs for tidelands management. Such programs may include wetland research, acquisition, conservation and the enhancement of public access to the public trust tidelands status report.

Portions of the tidelands funds were used to match a U.S. Fish and Wildlife Service grant for pine savanna acquisition and for a wetlands research project.

TEXAS PARKS AND WILDLIFE DEPARTMENT

Texas Parks and Wildlife Coastal Fisheries Research Management Programs

The Coastal Fisheries Branch of the Texas Parks and Wildlife Department (TPWD) is responsible for making management recommendations regarding the state's saltwater fishery resources within the bays and estuaries and out to 9 nautical miles in the Gulf of Mexico. Texas has 4 million acres of saltwater utilized by about 20,000 commercial and over 1,000,000 recreational fishermen with an estimated economic impact of \$1.9 billion annually.

The goal of the Coastal Fisheries program is to develop management plans for selected fisheries within the concept of optimum yield. These plans include recommended harvest regulations, resource stock enhancements or habitat enhancements based on monitoring program data 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, the Executive Director, the Parks and Wildlife Commission and the Legislature based on the results of the scientific studies; (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 restore, manage and enhance existing fishery populations through stock identification, life history, genetic and reproductive physiology research; establishing appropriate stocking ratios for selected marine organisms in Texas bays; and assessing impacts of stocking on present populations and existing fisheries; and (5) to promote, develop, maintain, monitor, and enhance the artificial reef potential in the marine waters off Texas.

To achieve these objectives, the Branch is organized into four major functions: Administration, Ecosystem Monitoring, Science, and Enhancement. In FY92, a total of 9 technical reports, scientific journal articles and 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 of 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 finfish as well as shrimp, blue crabs and associated organisms. Oyster dredges (19.5 inches wide) are used to collect oyster samples. Beach seines (200 feet long) and standard 60-foot long bag seines are used to sample the gulf surf zone.

Sport landings and fishermen activities are estimated from on-site creel interviews of sport boat fishermen at the completion of their trip. Samples are selected in proportion to the activity at a site (probability sampling) thus the higher use sites are sampled more frequently. Roving trailer and wet slip counts are used to assess relative pressure at sampling sites to ensure 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). 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 provides information and techniques necessary for the improvements of Texas fisheries management plans. Effort is directed toward methods for improving fisheries management techniques and spawning, and rearing marine fish and shellfish. Coastal Fisheries personnel cooperate with other coastal states in marine fisheries enhancement efforts through the transmittal of information and supply of available fishes.

Activities in FY 92 Include:

The Branch participated in the development, review and revision of Gulf of Mexico Fishery Management Council and Gulf States Marine Fisheries Commission management plans. Personnel participated in workshops and advisory meetings as state representatives on the Council and Commission as well as on other management authorities.

Recommended changes in regulations were adopted by the Parks and Wildlife Commission to ensure stability of the resource. To simplify possession limits and make them consistent for all species, possession limits on greater amberjack, cobia, king mackerel, Spanish mackerel, shark and red snapper were increased to twice the daily bag limit. The Spanish mackerel limit was increased from 3 to 7 to allow sport fishermen to increase their harvest on an increasingly abundant and recovering stock. Fishing-related license fees were increased to sustain current operations and to provide for inflationary trends.

A total of 1,014 survey-days was spent to estimate landings and pressure of sport and party boat fishermen. There were 760 gill net samples, 2,292 bag seine samples, 252 beach seine samples, 3,288 bay and gulf trawl samples and 1,080 oyster dredge samples collected. A total of 9,146 fishes was tagged and released. About 8% were returned for rewards. The percent of tags returned was consistent with prior years.

Gulf of Mexico waters from Alabama to the Rio Grande were sampled to a depth of 300 feet during November 1991 and June-July 1992 with other Gulf States and NMFS. This effort, entitled the Southeast Area Monitoring and Assessment Program (SEAMAP), was coordinated by the GSMFC. Results of sampling were used to evaluate the closure of gulf waters to shrimping and determine relative abundance of associated organisms.

Red drum, spotted seatrout and black drum were collected in bays for electrophoresis analysis. Age and growth studies of red drum and black drum utilizing otoliths was begun. MtDNA work with southern flounder was implemented.

Routine collection, editing, summarization and publication of self-reported commercial landings data continued through a formal cooperative statistics agreement with NMFS. The TPWD collected commercial landings statistics on crabs, oysters and finfish, while the NMFS continued to gather landings statistics on shrimp.

Effort directed toward spawning and rearing marine fish was continued. Controlled photoperiod and temperature regime to induce sexual maturity and spawning resulted in about 16 million red drum fingerlings, 225 million red drum fry, 200,000 spotted seatrout fingerlings and 500,000 spotted seatrout fry being stocked into marine water. Technical information concerning fish hatchery development was provided to other coastal states in a cooperative effort to enhance coastal marine fisheries.

Texas placed as artificial reefs in the Gulf of Mexico, 9 donated rig jackets from petroleum companies. Included in these donations were over \$1.3 million to the Texas Artificial Reef Fund. These monies were used to operate the program, maintain the sites, conduct artificial reef research and cover liability.

The Branch investigated an accidental release of exotic farm raised shrimp (*P. vannamei*) in lower Laguna Madre. A project was implemented utilizing trawls to determine if any adverse impacts would occur. Information collected reveals no adverse impacts on native species nor were any more exotic shrimp caught in the months following the release.

NATIONAL MARINE FISHERIES SERVICE SOUTHEAST REGION

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

The National Marine Fisheries Service (NMFS) is an agency of the U.S. Department of Commerce's National Oceanic and Atmospheric Administration (NOAA). The mission of the NMFS is stewardship of the Nation's living marine resources. Through conservation and wise use, these resources and their habitats can be managed to benefit the Nation without jeopardizing future options.

The NMFS administers programs to promote the conservation, management and development of living marine resources for commercial and recreational use. The program includes services and products to support the administration of fisheries management operations; international fisheries affairs, fishery development and industry assistance activities; protected species and habitat conservation operations; law enforcement activities for marine mammals, endangered species and regulated fisheries; and scientific and technical aspects of marine fisheries research programs.

NMFS is comprised of five regional offices and five centers located along the United States coast. The Southeast Region covers the coastal states from Texas to North Carolina (including Louisiana, Mississippi, Alabama, Florida, Georgia, and South Carolina); Puerto Rico and the U.S. Virgin Islands; and the inland states of Arkansas, Iowa, Kansas, Kentucky, Missouri, Nebraska, New Mexico, Oklahoma, and Tennessee.

The Southeast Regional Office is located in St. Petersburg, Florida. The Regional Director serves as the regional representative of the Assistant Administrator with state conservation agencies, recreational interests, commercial industries, consumers, environmentalists and the general public. The Region is responsible for planning, organizing, and implementing fishery management and conservation programs including regulatory requirements, fishery management plans, recreational fisheries, international fisheries, and services throughout the range of NMFS programs. It provides administrative and technical support to Regional Fishery Management Councils and is responsible for program planning and evaluation, budgeting, and administrative support services. These support services are also provided to other NOAA and NMFS elements collocated with the Regional Office.

The Southeast Fisheries Science Center is located in Miami, Florida, with laboratories located in Miami and Panama City, Florida; Pascagoula and Stennis Space Center, Mississippi; Beaufort, North Carolina; Charleston, South Carolina; and Galveston, Texas. The Center conducts multidisciplinary research programs to provide management information to support national and regional programs of NMFS, and to respond to the needs of Regional Fishery Management Councils and other user groups. The Center develops the scientific basis required for status of stocks and status of fisheries reports, environmental assessment and environmental impact statements for management plans and/or international negotiations; and pursues research to answer specific needs in the subject areas of habitat conservation, aquaculture, fishery engineering, marine mammals, endangered species, fishery oceanography, food sciences, and fishery economics.

Southeast Region's Report of significant fishery actions for the fiscal year follows:

FISHERY RESOURCE CONSERVATION AND MANAGEMENT

Managed king mackerel under the Coastal Pelagics FMP by emergency action to suballocate commercial quota equally between Florida's east and west coast fisheries, and reopened the east coast fishery to provide a supplemental catch.

Managed red snapper under the reef fish FMP by establishing 2000/200 pound limits based on historical landings.

Prepared and assisted in the preparation of the required documents to approve the Fishery Management Plan for Sharks of the Atlantic Ocean including the Gulf of Mexico.

Completed revisions to the permitting process whereby (1) permits expire at the end of the birth month of the vessel owner or dealer; (2) applications and permits are combined for all fisheries; and (3) application and permit processing are done on a computer network, rather than on single computers, thus increasing efficiency, accuracy and versatility.

PROTECTED SPECIES MANAGEMENT

Published and implemented comprehensive TED regulations.

Initiated major efforts to conduct workshops and to work cooperatively with the inshore/nearshore shrimp industry, state fishery management agencies, and Sea Grant on TED technology transfer. These efforts greatly enhanced the acceptance of TEDs by the inshore/nearshore fishing fleet, which has been mandated to use them by the new TED regulations.

Conducted TED training for foreign nations to assist them in their compliance with P.L. 101-162 Sec 609, the sea turtle conservation bill. Comprehensive training was provided to Mexico (3 trips), El Salvador, Colombia, Venezuela, and Nicaragua. In addition, a gear specialist from Trinidad and Tobago was trained in the U.S. TED use in Honduras and Guyana was verified for the State Department. TED enforcement training for Belize is scheduled.

Developed a proposal which resulted in \$400,000 in funding from the State Department to conduct foreign TED technology transfer. Additional foreign TED training for Mexico, Colombia, Venezuela, and Trinidad and Tobago was funded by A.I.D. or the individual country, thereby conserving agency dollars for other purposes.

HABITAT PROTECTION

Reviewed more than 3,000 individual actions - all within established time limits. These included requests for federal permits or licenses, federal water development projects, and review of NEPA documents. The NMFS recommended the conservation or creation of thousands of acres of wetlands proposed for alteration.

Elevated the first project nationally under the new Clean Water Act Memorandum of Agreement with the Corps of Engineers (the 3,500-acre Point Au Fer Project, LA). This issue was successfully resolved in NMFS's favor and was the first such action approved and cleared by NOAA's new management team.

Worked on numerous interagency agreements during fiscal year. The Federal Highway Administration, Minerals Management Service, COE and other state and federal agencies were

involved. Various agreements involving interagency cooperation, mitigation and mitigation banking are in place. A generic area-wide local operating agreement, required in the Clean Water Act Memorandum of Agreement with the COE, is close to final. The Fish and Wildlife Service and the Environmental Protection Agency also are participating in the development of this agreement.

Assisted the NMFS Restoration Center and/or NOAA in issues related to: Coastal America, the NOAA/COE Memorandum of Agreement to Restore Fish Habitats (MOA), Coastal Wetlands Planning Protection and Restoration Act (CWPPRA), the Greenhill petroleum spill, the St. Helena National Priority List site, French Limited Superfund Site, Lavaca Bay mercury issue, PPG Industries, Winyah Bay dioxin problem, the City of Charleston contamination issue.

Received approval under CWPPRA for 5 projects sponsored by NMFS. About \$7 million will be allocated by CWPPRA to restore about 8,000 acres of fishery habitat. The NMFS has seven more projects under consideration for this year's priority list.

INDUSTRY SUPPORT SERVICES

Conducted 11 workshops for U.S. shrimpers on use of TEDs and regulatory requirements. These focused on new requirements for inshore waters. Three workshops were presented in each North Carolina, Louisiana, and Texas, and one each in Mississippi and Alabama.

Answered approximately 200 requests from the public, media, fishermen, and environmentalists for information on protected species. Notable of these is a feature story on TEDs in National Geographic magazine.

Used the habitat program's National Marine Fisheries Service Guidelines For Proposed Wetland Alteration in the Southeastern United States as the foundation for a public service video produced by Headquarters in cooperation with Georgetown University.

Supported Headquarters' position paper with written input on benefits to be received from NAFTA (North American Free Trade Agreement).

TEAMWORK AND COOPERATION

Administered nine Federal grant and cooperative agreement programs that resulted in the award of over 100 grants and cooperative agreements that obligated about \$15 million in Federal grant funds.

Worked with Headquarters Fisheries Habitat Protection (F/HP) and the Southeast Fisheries Research Center (SEC) to develop a study, in cooperation with the Fish and Wildlife Service, to more definitively determine the effects of marsh management on fishery resources in Louisiana. This study will be a major program element for the Lafayette Laboratory (yet to be built).

Coordinated issues involving Florida Bay between F/HP, SEC, and Southeast Regional Office (SEO).

Established ties with NOS, CS/EC, DARP, Strategic Assessment Branch, NOAA GC, NOAA Sanctuaries, OCRM, NOAA Congressional Affairs. Coordinated on an ad hoc basis with other NOAA elements. The habitat program is frequently targeted for handling actions on behalf of NOAA because it has the only real field structure and local expertise on issues that involve NOAA.

Worked cooperatively with the newly formed F/HP to develop program goals for the new office. F/HP was also assisted in the review of environmental legislation, guidelines, and policy documents; in the preparation of an annual report; on issues related to the Federal Energy Regulatory Commission; and in deliberations relative to a permit tracking system.

Implemented significant restructuring of the habitat program without addition of new personnel or base funds. Offices were opened in Charleston, SC; Miami, FL; and St. Petersburg, FL. These new offices will allow the habitat program to implement the new interagency agreements for habitat and to comply with Headquarters guidance related to preapplication planning. The expanded structure will also allow the SEO to readily implement Administration environmental policies as well as work more efficiently on major issues such as the Florida Bay problems.

Processed 104,000 pieces of mail in 20 months at a cost of \$100.0K. This is the highest volume and dollar amount in NOAA, excluding the Administrative Support Centers and headquarters. The use of postage stamps has been implemented in the field offices of NMFS.

Completed the automation of the SF-424, Application for Federal Assistance, and provided complete documentation for the program. The project was funded by a Pioneer Fund grant. The program was presented to NOAA Grants Office and received an excellent evaluation by this group. The final report will be made available to all applicants.

Implemented procedures whereby trap/pot fishermen pay directly to the contractor for trap/pot tags, thereby saving \$24,192 of budgeted funds.

GULF OF MEXICO FISHERY MANAGEMENT COUNCIL

*ANNUAL PROGRESS REPORT

FY 1992 ADMINISTRATIVE COOPERATIVE AGREEMENT

JANUARY 1, 1992 THROUGH SEPTEMBER 30, 1992*

I. NMFS STATUS REPORT ON FISHERY MANAGEMENT PLAN (FMP) RULES

The king mackerel recreational fishery and the Eastern Zone commercial fishery were closed during the first quarter. Mackerel permitting requirements were revised in the second quarter. Mackerel total allowable catch (TAC), quotas and bag limits were implemented, and proposed rules for Mackerel Amendment 6 were published during the third quarter.

The proposed rule for Reef Fish Amendment 4 was published, and the commercial fishery for red snapper was closed in the first quarter. During the second quarter, the Reef Fish Amendment 4 was implemented; the emergency rule for red snapper vessel trip limits was implemented; and the shallow-water grouper commercial quota for 1992 was increased by 1.6 million pounds. Reef fish trap tag rules were revised in the third quarter.

In the first quarter, a notice of availability for the Shark FMP was published. Proposed rules for the Shark FMP were published in the second quarter, and during the third quarter the period for public comment on the proposed rules was extended.

The billfish dealer definition was revised in the second quarter.

The proposed rule for Red Drum Amendment 3 was published in the second quarter, and the Amendment was implemented in the third quarter.

The longline component of the incidental fishery for bluefin tuna was closed in the second quarter.

During the first quarter, the swordfish drift net fishery was closed, and the swordfish bycatch and commercial quotas were revised. In the second quarter, the swordfish drift net fishery was reopened and subsequently closed; the swordfish bycatch and commercial quotas were implemented; and the rule for the Council consultation process was revised.

Proposed TED rules for shrimp vessels were published during the second quarter.

The proposed rule establishing the spiny lobster trap certificate program was published in the third quarter.

*Converted from calendar year to fiscal year. 1992 cooperative agreement was for nine-month period.

II. COUNCIL ACTION ON FMPs

Billfish FMP*

No action during this period.

Butterfish FMP

During the first quarter, a stock assessment for the butterfish fishery was reviewed by the Scientific and Statistical Committee (SSC) and the Advisory Panel (AP), and the Council was proceeding with development of an FMP for the fishery.

Coral FMP

In the first quarter, action on a petition on harvest of "live" rock was deferred to July, 1992.

Mackerel FMP

During the first quarter, the Council took action on the provisions of Draft Amendment 6 and submitted it to South Atlantic Fishery Management Council (SAFMC) for final action and to the Law Enforcement AP for final review. Also, final action by the Council was scheduled for May, 1992.

During the second quarter, the Council took final action on Amendment 6 and submitted it to NMFS for implementation after review by the Law Enforcement AP. The SEFC completed the stock assessment for king mackerel, Spanish mackerel and cobia. The Stock Assessment Panel reviewed the assessment and specified allowable biological catch (ABC) ranges for king and Spanish mackerel. The Socioeconomic Assessment Panel, SSC, and AP reviewed and approved the panel's report. The Council approved TAC, commercial quotas, and bag limits and submitted them to NMFS for implementation. NMFS completed an ITQ discussion paper and staff completed a limited access options paper. Both documents were submitted to the Intercouncil Mackerel Committee for action. The Council requested NMFS convene a scientific panel to assess new information on the boundary between Gulf and Atlantic stocks of king mackerel.

In the third quarter, the proposed rules for Amendment 6 were published for public comment. The TAC, commercial quotas, and bag limits were implemented. An ITQ discussion paper and a limited access options paper were reviewed by the Intercouncil Mackerel Committee who took action recommending a limited access system be developed for Atlantic group Spanish mackerel.

Red Drum FMP

During the first quarter, the Council approved Draft Amendment 3 and scheduled public hearings. The Council requested the Stock Assessment Panel to develop a research protocol for estimating the size of the spawning stock and its age composition.

In the second quarter, the Council held public hearings, approved Amendment 3, and submitted it to NMFS for implementation. The Council's Stock Assessment Panel developed a research protocol for estimating the size of the spawning stock and its age composition.

Amendment 3 was implemented in the third quarter, and the delivery date for the stock assessment was postponed to March, 1993, due to Hurricane Andrew.

Reef Fish FMP

During the first quarter, the 1992 commercial quota (2 million pounds) for red snapper was harvested within the first 53 days of 1992 and the fishery closed for the year. The Council held a public hearing on the issue in conjunction with its March meeting. The Council recommended that the Secretary take emergency action to allow a 1,000-pound trip limit for the commercial fishery until its May meeting. The Council scheduled a review of the impact of the proposed 1,000-pound trip limit by the Reef Fish Stock Assessment Panel. The Council scheduled a joint meeting of the Reef Fish Management Committee and AP to recommend measures that could be implemented in 1993 to extend the fishing period under a quota and prevent a market glut and depression of the ex-vessel prices that occurred in 1992. The Council scheduled workshops during the summer to discuss limited entry systems with the industry.

In the second quarter, the Council held ten workshops to discuss limited entry systems with the industry. Amendment 4 was implemented, creating a three-year moratorium on issuance of vessel permits. The Council, based on the recommendation of the Stock Assessment Panel, recommended to NMFS that all vessels be required to submit logbooks on catch.

During the third quarter, the Council held ten additional workshops in August to discuss limited entry systems with the industry. The SEFC completed the stock assessment for red snapper. The Stock Assessment Panel (SAP) and the Socioeconomic Assessment Panel (SEP) reviewed the assessment and prepared reports to the Council, recommending an ABC range and TAC levels within that range, respectively. The Standing and Special Reef Fish SSC and the Reef Fish Advisory Panel reviewed the assessment and panel reports and made recommendations to the Council. The Council set TAC, recreational and commercial quotas, and the recreational bag limit and submitted them to NMFS for implementation by regulatory amendment under the procedure of the FMP for specifying TAC. The Council requested the Secretary implement trip limits for the commercial fishery in 1993 by emergency rule, which would set two levels of trip limits, with a higher level for persons qualifying for a red snapper endorsement to the permit, based on past landing levels. The Council approved Draft Amendment 5 for public hearings. This amendment proposes measures to regulate fish traps, establish special management zones where gear is regulated, require all reef fish be landed with heads and fins intact and increase the red snapper minimum size limit. The Council requested staff prepare Draft Amendment 6 for approval in November to extend the provisions of the emergency rule for the duration of the commercial fishing season in 1993. The Council deferred action to November on establishing closed areas and seasons for protection of mutton snapper spawning aggregations since public hearing on the issue was canceled due to Hurricane Andrew. Staff was instructed to develop bag limit, trip limit, and size limit analyses for vermilion snapper, triggerfish and porgies for consideration in November.

Shark FMP*

The Final Secretarial Shark FMP was reviewed by the Council in the first quarter and suggested revisions to the FMP were provided to NMFS. During the second quarter, the proposed rules for the Final Secretarial Shark FMP were published. In the third quarter, the comment period on the proposed rules was extended.

Shrimp FMP

In the first quarter, the Shrimp AP reviewed the Texas closure analyses, Draft Amendment 6 and the NMFS system for collecting effort information in the fishery and made their recommendations to the Council. The Council recommended to NMFS that the Texas closure extend to 200 miles for the 1992 season. The Council heard testimony on Amendment 6 and deferred taking final action on the amendment until the sections on social and economic impact analyses were revised to include more recent

socioeconomic information and until NMFS had updated the biological assessment and opinion under the Endangered Species Act. The amendment was submitted to the Law Enforcement AP for review.

During the second quarter, the Law Enforcement AP reviewed Amendment 6, and the Council deferred action on the amendment until the sections on social and economic impact analyses were revised to include more recent socioeconomic information and until NMFS had updated the biological assessment and opinion under the Endangered Species Act.

In the third quarter, Amendment 6 was approved by the Council and submitted to NMFS for implementation. Amendment sections on social and economic impact analyses were revised to include more recent socioeconomic information and the updated biological assessment and opinion under the Endangered Species Act. The Tortugas Sanctuary rules for 1993 were approved by the Council and submitted to NMFS. The Council reviewed the status of the shrimp stocks in relation to overfishing.

Spiny Lobster FMP

A regulatory amendment which will extend the effort reduction system adopted by the Florida Legislature to the EEZ was completed and submitted to South Atlantic Council for their action in the first quarter.

The regulatory amendment was approved by the Gulf and South Atlantic Councils in the second quarter and submitted to NMFS for implementation.

During the third quarter, proposed rules for the regulatory amendment were published for public comment. The Council considered a request by the Regional Director that the FMP be withdrawn. Action on this issue was deferred pending a court decision in the Southeast Fishery Association versus the State of Florida.

Stone Crab FMP

The Council in the first quarter reviewed and rejected a discussion paper related to withdrawing the FMP.

Swordfish FMP*

No action during this period.

Tuna FMP*

No action during this period.

Generic Amendment

During the first quarter, the Council and committee took final action on a draft amendment to standardize the permitting and data collection provisions of the seven FMPs administered by the Council. The draft amendment was submitted to South Atlantic Council for action.

*FMPs under the regulatory authority of NMFS. The Council has a consultation role in the development of FMPs, amendments and rules, and may convene SSC, AP, or committees for advice.

III. OTHER ACTIONS

Habitat Protection

During the first quarter, the Council was briefed on the Coastal America Program regarding its history and goals. Reviewed Domestic Policy Council's proposed changes in wetland determination guidelines, and also reviewed mercury contamination prevalence in coastal wetlands. Discussed possible Council actions regarding a proposed pipeline routing in close proximity to Flower Gardens Coral reefs. Reviewed a proposed construction project in coastal wetlands near Gulf Breeze, Florida. Reviewed an alleged problem of oil pollution from pipelines. Invited a speaker who has investigated the issue.

The Mississippi/Louisiana Habitat Advisory Panel was convened during the second quarter. Council members and staff participated in several workshops to develop goals and objectives for the Florida Keys Marine Sanctuary (Sanctuary) and to develop proposed fishing rules and a procedure for implementing such rules in the future. The Sanctuary encompasses state waters and EEZ waters of the Gulf and South Atlantic areas. Approval of the rules and procedures was scheduled for July.

During the third quarter, the Council urged U.S. Fish and Wildlife Service to continue the monitoring program of the Cameron-Creole project area to determine how water control structures affect movement of marine organisms. Supported reauthorization of the Coastal Wetlands Planning, Protection and Restoration Act. Supported a proposal to modify the existing fixed crest water control structures in the Cameron-Creole project to deep gated structures. Supported the proposed modification of operation for the Catfish Point Lock in the Mermentau River, for enhancing marine organisms occurring in the Grande and White Lakes basin, with the stipulation there would be ongoing and sufficient monitoring (pre and post project) of changes to the quality of wetlands. Council endorsed the concept of freshwater introduction in Coastal Louisiana where it could be demonstrated that such introduction would maintain, restore, and/or increase marine and anadromous fishery productivity. Requested principle agencies of the Florida Keys Sanctuary to provide a description and status of the water quality program, management strategy plan, and system for determining accomplishments. Requested from pertinent Florida agencies an itemized expenditure listing for Pollution Trust, Saltwater Fishing License, and Sport Fish Restoration funds, and from NOAA the same request concerning MARFIN. The agencies in following up correspondence were encouraged to make equitable funding distribution to fishery habitat restoration and creation projects. Wrote a follow-up letter to the President's Domestic Policy Council for an update of proposed changes in wetlands policy. Notified the Corps Chief of Engineers of concern with an apparent scheduling change in the Texas portion of the Gulf Intracoastal Waterway studies authorized by Section 216 of the Flood Control Act. Notified the Executive Director, Texas Parks and Wildlife Department, of concern with delays in construction of a tidal channel into the west end of East Matagorda Bay. Notified leaders of appropriate state and federal natural resource agencies and Ducks Unlimited of need for early coordination with fisheries interests when planning intensive management projects in tidal wetlands. Florida/Alabama and Texas Habitat Protection Advisory Panels met.

Florida Keys Marine Sanctuary

The Council considered and approved proposed fishing rules that would apply to the Sanctuary and a rule-making procedure for implementing Sanctuary rules in the future. These recommendations were submitted to NOS for the Sanctuary public hearing document.

U.S. FISH AND WILDLIFE SERVICE

Anadromous Fisheries

Anadromous fish restoration strategic plan. In an effort to carry out one element of the strategic plan, the Gulf Coast Fisheries Coordination Office (GCFCO) of Ocean Springs, Mississippi sought additional information from state and federal agencies in late 1991 on educational programs targeting anadromous fish species. Follow-up information was sought early in 1992, and a revised summary was presented at the March 1992 Anadromous Fish Subcommittee meeting.

Lower Mississippi River coordination. The Gulf Coast FCO and Natchitoches Fisheries Assistance Office (FAO) at Natchitoches, Louisiana hosted a meeting on April 21-22 in Vicksburg, Mississippi among state fish and wildlife agencies, state water quality agencies and federal agencies involved in the lower Mississippi River to explore interest in forming an organization to improve coordination of interjurisdictional resource management (including anadromous fish) in the lower portion of the river. Such an organization would be comparable to the Upper Mississippi River Conservation Committee (UMRCC) that was established in 1943. A decision was made among the state personnel at the meeting to go forward with forming the Lower Mississippi River Conservation Committee (LMRCC). Drafts of a constitution and by-laws for the LMRCC were developed late in 1992.

Apalachicola-Chattahoochee-Flint rivers coordination. The Panama City FAO continued serving as coordinator of the Apalachicola-Chattahoochee-Flint River Striped Bass Restoration Committee. This committee, including the states of Alabama, Georgia and Florida, was established in 1985 and coordinates and plans striped bass broodstock collection, hatchery spawning and rearing programs and stocking strategies for the system. The committee held its annual meeting in early February ("Morone" meeting) to discuss current issues.

National strategic planning for sturgeon conservation. The FWS hosted a national workshop on sturgeon and paddlefish in Atlanta, Georgia on January 28-30. As a result of that meeting a sturgeon/paddlefish framework document was drafted, in which a major coordination role with respect to Gulf sturgeon was identified for the GSMFC.

Striped bass fry production. Personnel of Warm Springs National Fish Hatchery (NFH) (Georgia), Panama City FAO, Natchitoches FAO and San Marcos FAO (Texas) assisted personnel of the states of Florida, Georgia, Louisiana and Texas in collecting and transporting striped bass brood fish for fry production activities during March and April.

Mammoth Spring (Arkansas) and Welaka (Florida) NFHs together produced over 10,000,000 Gulf race striped bass fry, which were distributed to various other hatcheries and research institutions or retained for grow-out to fingerling stages.

Striped bass fingerling production and stocking. Over 2,000,000 striped bass Phase I fingerlings were produced and stocked in various Gulf coast river systems by Carbon Hill, Natchitoches, Private John Allen, Warm Springs, and Welaka NFHs. Carbon Hill, Meridian, Warm Springs and Welaka NFHs also produced and stocked almost 45,000 Phase II striped bass fingerlings in Gulf coast streams in 1992.

Over 1,000,000 Phase I striped bass fingerlings were produced in NFHs in Texas and Oklahoma and stocked in the Sabine and Trinity rivers.

Striped bass Phase II stocking evaluation, Lower Apalachicola River. Panama City FAO and Florida Game and Freshwater Fish Commission (FGFFC) personnel fin-clipped approximately 21,000 striped bass Phase II fingerlings in November at Warm Springs NFH. These fish were stocked at various locations in the lower Apalachicola River in November. The Panama City FAO and FGFFC conducted a post-stocking evaluation of these marked fingerlings in December.

Striped bass age and growth in the Mississippi River. The Natchitoches FAO continued collecting length, weight and age data on striped bass from the lower Mississippi River. These data will be compared to similar data from fish in other Gulf of Mexico streams, particularly the Sabine River. Preliminary evidence suggests that the striped bass in the Mississippi River grow more slowly and are smaller at age than striped bass in other Gulf streams.

Striped bass movements and habitats in the Sabine River. The Natchitoches FAO initiated a project in March 1992 to investigate movement and habitat use by striped bass in the Sabine River below Toledo Bend Dam using radiotelemetry. Eleven striped bass were collected from the Toledo Bend Dam outflow channel, implanted with radiotransmitters, and released back into the river. Boat and aerial radiotracking was conducted through the end of the year. Although some significant spring movements were documented, striped bass were confined to the areas just below the dam and spillway during the summer months. Individual fish whose signals had been detected throughout the summer could not be located during the winter, indicating that they may have left the river.

Striped bass reproduction studies. Over 300 *Morone* spp. fingerlings were collected by seine in the Mississippi and Atchafalaya rivers during Summer 1991 by LDWF and Natchitoches FAO staff. These fish were identified to species during November by FAO personnel. The vast majority (93%) of these were white bass (*Morone chrysops*) with a small percentage of yellow bass (*Morone mississippiensis*). No striped bass fingerlings were found in these collections.

Gulf of Mexico sturgeon recovery. The Gulf of Mexico (Gulf) sturgeon was listed as a threatened species on October 1, 1991. Following the listing a decision was made to utilize a draft GSMFC fishery management plan (FMP) as a springboard for a recovery plan for the Gulf sturgeon. Additional personnel from the states of Alabama, Louisiana, and Mississippi and the National Marine Fisheries Service were added to an existing GSMFC task force working on the FMP, and this group was designated as the Gulf Sturgeon Recovery Team by the FWS. Four meetings were held during 1992 to work on the recovery plan and FMP, which are being developed as a single document.

Gulf sturgeon age and growth in the Apalachicola River. This study was completed by the Panama City FAO in 1991, and results were reported in a paper presented at the Alabama Fishery Association meeting held in Decatur, Alabama.

Gulf sturgeon artificial propagation. The Panama City FAO, assisted by the Lower Suwannee National Wildlife Refuge and National Fisheries Research Center of Gainesville, Florida (NFRC-G), set up a Gulf sturgeon broodfish holding facility on the lower Suwannee River during spring to support propagation studies being conducted at the NFRC-G, the University of Florida, and Welaka NFH. Ten female broodfish were collected and transported to those facilities. Successful spawning occurred at NFRC-G and Welaka NFH, producing over 20,000 fry. Warm Springs NFH received some of these Gulf sturgeon larvae. A total of 800 juvenile Gulf sturgeon were tagged at Welaka NFH in October and released into the Suwannee River in December.

The Panama City FAO published a technical note in Transactions of the American Fisheries Society (121:139-140, 1992) titled "Fecundity of the pallid sturgeon".

Development of combination radio/sonic transponder fish tag. The Panama City FAO coordinated a contract study being conducted by Ocean Communication Systems, Inc. to develop a long-range combination telemetry system. The transponder tag will incorporate long distance signal strength with multiple year battery life to allow efficient tracking in open ocean environments and could be a significant advancement in biotelemetry technology with special advantages when used for anadromous fish studies. The contract called for development, testing and provision of six operational tags by October 1992, however, unforeseen problems resulted in delay until 1993.

Status of Gulf sturgeon populations in Gulf of Mexico river systems. The Panama City FAO assisted state of Alabama personnel with Gulf sturgeon sampling in the Conecha and Alabama rivers during August. The Panama City FAO also began discussions with Dr. Ken Pollack and graduate student Katherine Potak of North Carolina State University concerning development of a population assessment model for use in Gulf coast river systems.

Gulf sturgeon contaminants studies. The Panama City Ecological Services (ES) Field Office conducted numerous analyses of Gulf sturgeon tissues for various contaminants. Tissues were from specimens incidentally collected in various studies prior to the sturgeon being listed as threatened.

Fish habitat protection/enhancement.

Gulf of Mexico Program. The FWS was involved with the Gulf of Mexico Program at various levels during 1992, with participants on the Policy Review Board, the Management Committee, and the Coastal and Shoreline Erosion, Freshwater Inflow, Habitat Degradation, Living Aquatic Resources, Marine Debris, Nutrient Enrichment and Toxics and Pesticides subcommittees.

Estuary protection programs. Two FWE offices were heavily involved in EPA National Estuary Program efforts. The FWE office in Houston, Texas has a major role in the Galveston Bay program, as does the Lafayette FWE Office in the Barataria-Terrebonne program.

Other habitat protection activities. The FWS' ES, Fisheries, and Refuges/Wildlife divisions were involved in various anadromous and coastal fisheries habitat issues during the year. These included:

- operational modifications of the Catfish Point Water Control Structure in the Mermentau River basin of southwest Louisiana to enhance access to coastal marshes by estuarine dependent organisms;
- the draft Calcasieu-Sabine Cooperative River Basin Study;
- Pearl River flow allocation management;
- projects for implementation under the Coastal Wetlands Planning, Protection and Restoration Act in Louisiana;
- use of incinerator ash in artificial reef construction;
- a Corps of Engineers (CE) project to increase estuarine organism access to marshes on Bayou Sauvage National Wildlife Refuge (NWR), Louisiana;
- informal Section 7 consultation with the CE on potential impacts on Gulf sturgeon of Tangipahoa River (Louisiana) bar-channel maintenance;
- Mississippi River freshwater diversion into Louisiana and Mississippi estuarine areas;
- major contamination problems in the Calcasieu River (Louisiana) estuary;
- a flood protection/marsh management project in Terrebonne Parish, Louisiana;

- Perdido Bay (Florida) contaminants problems;
- St. Andrew Bay (Florida) habitat restoration projects and contaminants problems;
- Outer Continental Shelf oil and gas leasing;
- the Tri-state Comprehensive Water Study, involving the Apalachicola River basin in the states of Alabama, Georgia and Florida;
- contaminants in St. Joseph Bay, Florida;
- contaminants in Hobe Sound, St. Marks, Cedar Key and Lower Suwannee NWRs; and
- potential impacts to Gulf sturgeon and striped bass of shoal removal below Jim Woodruff Lock and Dam on the Apalachicola River, Florida.

The Lafayette ES Field Office (Louisiana) responded to an oil spill in Timbalier Bay in September by assessing fish and wildlife impacts and coordinating wildlife rehabilitation efforts.

Public Outreach/Education

A media event was held on May 4 at the LDWF Toledo Bend Research Facility in conjunction with the Natchitoches FAO's study of striped bass movements and habitats in the Sabine River. The event also involved an environmental education effort with a local high school as part of the project; 25 students from Evans High School (Louisiana) near Toledo Bend Lake participated in the event, which included a tour of the LDWF facility and hands-on demonstrations relating to the project. The Service provided each student an information packet on striped bass and restoration efforts.

The Gulf Coast FCO assisted the Gulf Coast Research Laboratory's J.L. Scott Marine Education Center (MEC) with its Sea Camp program on June 1-5 at the MEC in Biloxi, Mississippi. The program is designed to educate elementary school children about the Gulf of Mexico and marine resources.

The staff of Bayou Sauvage NWR at Slidell, Louisiana and the Gulf Coast FCO staffed an information booth at the "Pass Christian Celebrates the Gulf" festival in Pass Christian, Mississippi on October 24. A large number of people turned out for the event, and many brochures were distributed and personal contacts made.

The Gulf Coast FCO and Panama City FAO jointly developed a program for a Girl Scout patch to focus on the Gulf of Mexico. The program was put forward as a contribution to the "Year of the Gulf" observance for the Gulf of Mexico Program. A poster explaining the program was displayed at the Gulf of Mexico Symposium in Tarpon Springs, Florida December 10-12.

Several FWS offices, in a cooperative program with Berkley Outdoor Technology Group, set up fishing line recycling bins at numerous points across the Gulf coast in late 1992.

Informational posters concerning the Gulf sturgeon were developed by the Panama City FAO and distributed through a variety of outlets across the Gulf coast. The Panama City FAO also issued a news release in May that was distributed to Gulf coast newsletters requesting information on Gulf sturgeon.

Federal Aid funding

The Service provided funds to Gulf of Mexico states for a number of anadromous, estuarine or marine sport fish restoration projects under the Federal Aid in Sport Fish Restoration Act. Projects funded during 1992 included the following:

Alabama Department of Conservation and Natural Resources, Marine Resources Division.

The enhancement of recreational fishing and boating access in coastal Alabama.

Boating access enhancement.

Florida Department of Natural Resources.

Artificial fishing reef planning, construction and maintenance with local governments.

Marine recreational fishery statistical data collection.

Marine animal health and contamination assessment.

Pelican Harbor dock baffle development.

Nearshore and estuarine gamefish investigations.

Boating access facility improvement.

Investigation and control of disease organisms affecting hatchery-produced marine recreational fish.

Statewide marine boating access project.

Coastal production and sportfish plankton dynamics off the Florida shelf.

Implementation of a recreational fisheries component to the Marine Resources Geographic Information System.

Application of population genetics to gamefish species for fishery management.

Mississippi Department of Wildlife, Fisheries and Parks, Bureau of Marine Resources

Spotted seatrout sport fish studies in Mississippi.

Creel survey of Mississippi Sound and adjacent waters.

Mississippi Saltwater Sportfishing Access Development Program.

Investigations of the cobia (*Rachycentron canadum*) in Mississippi marine waters and adjacent Gulf waters.

**GULF STATES MARINE FISHERIES COMMISSION
OCEAN SPRINGS, MISSISSIPPI**

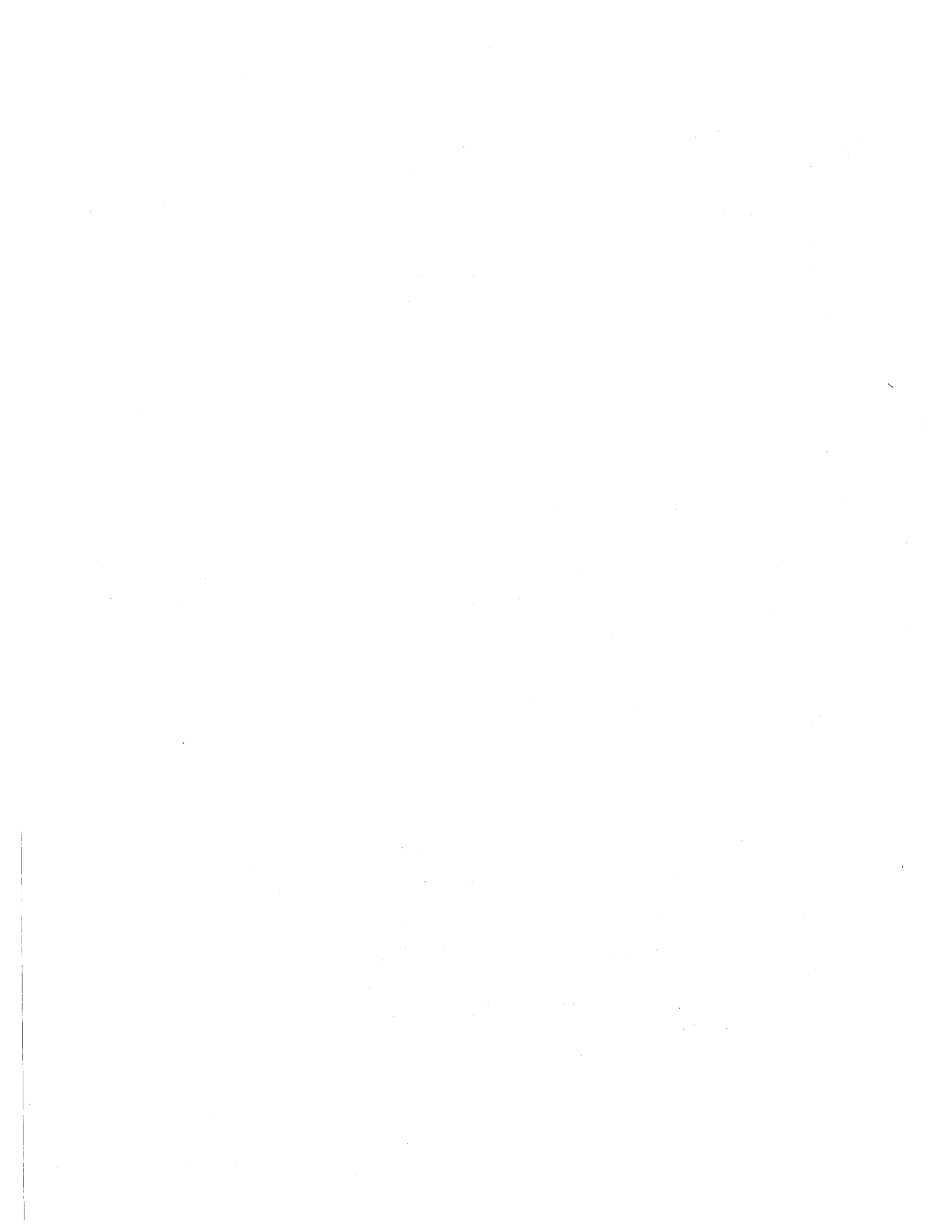
**REPORT ON EXAMINATION OF FINANCIAL
STATEMENTS, SUPPLEMENTAL DATA,
INTERNAL CONTROL AND COMPLIANCE**

FOR THE YEAR ENDED DECEMBER 31, 1992

We have retained the original page numbering sequence on the following pages.

**GULF STATES MARINE FISHERIES COMMISSION
DECEMBER 31, 1992**

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INDEPENDENT AUDITOR'S REPORT

To the Board of Commissioners of
Gulf States Marine Fisheries Commission

We have audited the accompanying balance sheet of Gulf States Marine Fisheries Commission (a non-profit organization) as of December 31, 1992, and the related statement of revenue, expenditures and changes in fund balance and cash flows for the year then ended. These financial statements are the responsibility of Gulf States Marine Fisheries Commission's management. Our responsibility is to express an opinion on these financial statements based on our audit.

We conducted our audit in accordance with generally accepted auditing standards, Government Auditing Standards, issued by the Comptroller General of the United States, and the provisions of Office of Management and Budget Circular A-133, "Audits of Institutions of Higher Education and Other Non-profit Institutions". Those standards and OMB Circular A-133 require that we plan and perform the audit to obtain reasonable assurance about whether the financial statements are free of material misstatement. An audit, in accordance with these standards, includes examining on a test basis, evidence supporting the amounts and disclosures in the financial statements. An audit also includes assessing the accounting principles used and significant estimates made by management, as well as evaluating the overall financial statement presentation. We believe that our audit provides a reasonable basis for our opinion.

In our opinion, the financial statements referred to above present fairly, in all material respects, the financial position of Gulf States Marine Fisheries Commission as of December 31, 1992, and the results of its operations and cash flows for the year then ended in conformity with generally accepted accounting principles.

Fountain, Seymour, Mosher, & Assoc.

D'Iberville, Mississippi
April 5, 1993

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MISS. SOCIETY OF ENROLLED AGENTS

FIRM MEMBERSHIP
AICPA SEC. PRACTICE SECTION
AICPA PRIVATE PRACTICE SECTION

**GULF STATES MARINE FISHERIES COMMISSION
BALANCE SHEET
DECEMBER 31, 1992**

	UN- Restricted Fund	Restricted Funds	TOTAL All Funds
ASSETS			
CURRENT ASSETS:			
Cash	\$125,023	\$	\$125,023
Certificate of Deposit	17,000		17,000
Grants Receivable		44,562	44,562
Due from other Funds	<u>33,786</u>		<u>33,786</u>
	175,809	<u>44,562</u>	220,371
PROPERTY AND EQUIPMENT:			
Fixed Assets	66,356	57,931	124,287
Less Accumulated Depreciation	(38,727)		(38,727)
Less Contra Account		<u>(53,917)</u>	<u>(53,917)</u>
	<u>27,629</u>	<u>4,014</u>	<u>31,643</u>
TOTAL ASSETS	<u>203,438</u>	<u>48,576</u>	<u>252,014</u>
LIABILITIES AND FUND BALANCE			
CURRENT LIABILITIES:			
Deferred Amounts		13,290	13,290
Note Payable	6,848		6,848
Due to Other Funds		<u>33,786</u>	<u>33,786</u>
TOTAL CURRENT LIABILITIES	6,848	47,076	53,924
LONG-TERM LIABILITIES:			
Note Payable	4,860		4,860
FUND EQUITY			
Fund Balance Unrestricted	146,628		146,628
Fund Balance Restricted		<u>46,602</u>	<u>46,602</u>
TOTAL FUND EQUITY	<u>146,628</u>	<u>46,602</u>	<u>193,230</u>
TOTAL LIABILITIES AND FUND EQUITY	<u>\$158,336</u>	<u>\$93,678</u>	<u>\$252,014</u>

The Notes to Financial Statements are an integral part of this Statement.

**GULF STATES MARINE FISHERIES COMMISSION
STATEMENT OF REVENUES, EXPENDITURES AND
CHANGES IN FUND BALANCE
For The Year Ended December 31, 1992**

	<u>UN- Restricted Fund</u>	<u>Restricted Funds</u>	<u>TOTAL All Funds</u>
<u>REVENUES</u>			
Member State Appropriations	\$ 56,250		56,250
Grants and Agreements		518,205	518,205
Interest Earned	4,561		4,561
Miscellaneous Income	<u>13,676</u>		<u>13,676</u>
Total Revenue	74,487	518,205	592,692
<u>EXPENSES</u>			
Salaries	38,984	198,286	237,270
Health Insurance	6,820	38,516	45,336
Retirement	2,484	14,089	16,573
Office Rental	2,472	17,473	19,945
Equipment Rental	25	104	129
Office Supplies	3,761	8,740	12,501
Postage	487	5,844	6,331
Travel	5,511	104,184	109,695
Telephone	1,113	8,964	10,077
Copying Expense	1,089	8,548	9,637
Printing	1,097	8,426	9,523
Meeting Cost	6,721	5,918	12,639
Dues and Subscription	1,470	897	2,367
Auto Expense	515	751	1,266
Insurance	1,180	2,012	3,192
Maintenance and Repairs	1,604	6,756	8,360
Courtesies	484		484
Professional Services	2,090	9,439	11,529
Depreciation	8,561		8,561
Taxes-payroll	2,982	15,168	18,150
Other Taxes	179	1,082	1,261
Interest Expense	1,007		1,007
Contractual		<u>53,586</u>	<u>53,586</u>
Total Expenses	90,636 =====	508,783 =====	599,419 =====

The Notes to Financial Statements are an integral part of this statement.

**GULF STATES MARINE FISHERIES COMMISSION
STATEMENT OF REVENUES, EXPENDITURES AND
CHANGES IN FUND BALANCE
For The Year Ended December 31, 1992**

	<u>UN- Restricted Fund</u>	<u>Restricted Funds</u>	<u>TOTAL All Funds</u>
Excess of Revenue over Expenses before Capital Additions	\$ (16,149)	9,422	(6,727)
Capital Additions	<u>0</u>	<u>11,935</u>	<u>11,935</u>
Excess of Revenue over Expenses after Capital Additions	(16,149)	(2,513)	(18,662)
Prior Period Adjustments	<u>1,797</u>	<u>(21)</u>	<u>1,776</u>
Increase (decrease) in Fund Balance	(14,352)	(2,534)	(16,886)
Fund Balance, January 1, 1992	<u>160,980</u>	<u>49,136</u>	<u>210,116</u>
Fund Balance, December 31, 1992	<u>\$ 146,628</u>	<u>46,602</u>	<u>193,230</u>

The Notes to Financial Statements are an integral part of this Statement.

**GULF STATE MARINE FISHERIES COMMISSION
 STATEMENTS OF CASH FLOWS - ALL FUND TYPES
 For the Year ended December 31, 1992**

CASH FLOWS FROM OPERATING ACTIVITIES:	
Net Decrease in Fund Balance	\$ (16,886)
Adjustments to Reconcile Net Decrease in Fund Balance to Net Cash Used by Operating Activities -	
Depreciation	8,561
Changes in Operating Assets and Liabilities -	
Decrease in Receivables	33,427
Increase in Deferred Amounts	<u>7,647</u>
Net Cash Provided by Operating Activities	\$ 32,749
 CASH FLOWS FROM INVESTING ACTIVITIES:	
Purchase of Fixed Assets	(40,072)
Add Back: Amount Expensed	11,935
Purchase of Certificate of Deposit	<u>(17,000)</u>
Net Cash Used by Investing Activities	(45,137)
 CASH FLOWS FROM FINANCING ACTIVITIES:	
Proceeds from loan	17,000
Principal payments on loan	<u>(5,292)</u>
Net Cash Provided by Financing Activities	<u>11,708</u>
Net Decrease in Cash	(680)
Cash at Beginning of Year	<u>125,703</u>
Cash at End of Year	\$ 125,023 =====

The Notes to Financial Statements are an integral part of this statement.

**GULF STATES MARINE FISHERIES COMMISSIONS
NOTES TO FINANCIAL STATEMENTS
December 31, 1992**

**NOTE 1 - ORGANIZATION AND SUMMARY OF SIGNIFICANT ACCOUNTING
POLICIES**

(a) **Organization** - The Gulf States Marine Fisheries Commission, a non profit organization, was formally created, with the consent of the 81st Congress of the United States, granted by Public Law 66 and approved May 19, 1949. Congress authorized 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. The Commission's office is centrally located in Ocean Springs, Mississippi.

The Commission receives and expends such sums of money as shall from time to time be appropriated for its use by the participating governing authorities, and makes application for and receives and expends funds available under appropriate Federal Programs. The Commission may also receive and expend funds from any other sources not "prohibited by law".

(b) **Basis of Accounting** - Basis of accounting refers to when revenues and expenditures are recognized in the accounts and reported in the financial statements. Basis of accounting relates to the timing of the measurements made, regardless of the measurement focus applied.

The financial statements have been prepared on the accrual basis in accordance with principles of fund accounting. Under the accrual method, revenues and expenditures are recognized when incurred without regard to actual receipt or disbursement of cash. Funds are established according to their nature and purpose. Separate accounts are maintained for each fund. However, in the accompanying financial statements, funds that have similar characteristics have been combined into fund groups. Accordingly, all financial transactions have been recorded and reported by fund groups as follows:

Restricted Fund
Unrestricted Fund

(c) **Fund Accounting** - In order to assure observance of limitations and restrictions placed on the use of the resources available to the Commission, the accounts are maintained in accordance with the principles of "fund accounting". This is the procedure by which resources for various purposes are classified for accounting and reporting

objectives specified. Separate accounts are maintained for each fund; however, in the accompanying financial statements, funds that have similar characteristics have been combined into fund groups. Accordingly, all financial transactions have been recorded and reported by fund group.

Within each fund group, funds restricted by outside sources are so indicated and are distinguished from unrestricted funds designated for specific purposes by action of the Board of Commissioners. Externally restricted funds may only be utilized in accordance with the purposes established by the funds over which the Board retains full control to use in achieving any of its purposes.

(d) **Grants Receivable** - In accordance with the accrual basis of accounting, revenues are recognized when earned. In the case of grant revenue, amounts are earned when the related expenditures are incurred. At December 31, 1992, expenditures in the amount of \$44,562 has been incurred for which the commission had not been reimbursed.

(e) **Deferred Amounts** - Deferred amounts in the restricted fund results from current year receipts of grant revenue for which no expenses have been incurred. Revenue in the restricted funds is recognized only to the extent that related expenses have been incurred.

(f) **Fixed Assets** - Fixed assets purchased from unrestricted funds are properly capitalized and set up as fixed assets on the books. Fixed assets purchased from (restricted funds) are expensed at the time of payment, and additionally are capitalized on the books with an offsetting Contra Account. Depreciation recorded in the operating fund is recorded using the straight-line method. Lives used are summarized below:

<u>TYPE OF ASSET</u>	<u>LIFE (years)</u>
Office Equipment and Furniture	5 & 10
Automotive	5

Depreciation recorded for the year ended December 31, 1992 was \$8,561.

NOTE 2 - LEASE COMMITMENTS

The Commission occupies space under long-term lease agreements which expires in the year 2002. The monthly lease payment is \$925.00. The monthly lease payment will be adjusted every three (3) years using the consumer price index as a guide.

The approximate minimum future annual rental commitments under such lease as of December 31, 1992 are as follows:

1993	11,100
1994	12,300
1995	12,300
1996	12,300
1997-2002	<u>80,725</u>
TOTAL	\$128,725

NOTE 3 - RETIREMENT PLAN

The Commission has a tax sheltered annuity plan for all employees that have been employed for at least six (6) months. The Commission contributes six (7) percent of each eligible employees' base pay with the amounts being fully vested upon payment by the Commission. The total expense for the year ended December 31, 1992 was \$16,573.

NOTE 4 - ALLOCATION OF EXPENSES

The expenses of providing the various grants and agreement programs and activities are summarized in the Combined Statement of Revenue, Expenditures and Changes in Fund Balances. Accordingly, certain expenses have been allocated among the grants, agreements, and the Commission activities based upon the benefited program. In some instances, the expenses were allocated based upon an equitable and equal distribution.

NOTE 5 - INCOME TAXES

The Commission has filed for a tax-exempt status, and will be exempt under Section 501 (c) of the Internal Revenue Code. Their revenue comes from federal grants and agreements and member states appropriations.

Note 6 - PRIOR PERIOD ADJUSTMENT

The commissions's financial statements as of December 31, 1991, contained an error relating to grants receivable and deferred revenues, which had the net effect of understanding fund balance by \$1,776. The adjustment had no income tax effect since the commission is exempt from income taxes.

SUPPLEMENTARY INFORMATION



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INDEPENDENT AUDITOR'S REPORT ON SCHEDULE OF FEDERAL AWARDS

To the Board of Commissioners
Gulf States Marine Fisheries Commission

We have audited the financial statements of Gulf States Marine Fisheries Commission (a non-profit organization) for the year ended December 31, 1992, and have issued our report thereon dated April 5, 1993. These financial statements are the responsibility of Gulf States Marine Fisheries Commission's management. Our responsibility is to express an opinion on these financial statements based on our audit.

We conducted our audit in accordance with generally accepted auditing standards and Government Auditing Standards, issued by the Comptroller General of the United States, and the provisions of Office of Management and Budget Circular A-133, "Audits of Institutions of Higher Education and Other Non-profit Institutions". Those standards and OMB Circular A-133 require that we plan and perform the audit to obtain reasonable assurance about whether the financial statements are free of material misstatement. An audit in accordance with these standards includes examining, on a test basis, evidence supporting the amounts and disclosures in the financial statements. An audit also includes assessing the accounting principles used and significant estimates made by management, as well as evaluating the overall financial statement presentation. We believe that our audit provides a reasonable basis for our opinion.

Our audit was made for the purpose of forming an opinion on the financial statements of Gulf States Marine Fisheries Commission taken as a whole. The accompanying schedule of federal awards is presented for the purpose of additional analysis and is not a required part of the financial statements. The information in that schedule has been subjected to the auditing procedures applied in the audit of the financial statements and, in our opinion, is fairly presented in all material respects in relation to the basic financial statements taken as a whole.

Fountain, Seymour, Mosher, & Associates
D'IBERVILLE, MISSISSIPPI
April 5, 1993

GULF STATES MARINE FISHERIES COMMISSION
 SCHEDULE OF FEDERAL AWARDS
 For The Year Ended December 31, 1992

<u>Federal Grantor/Program Title</u>	<u>Award #</u>	<u>Federal CFDA Number</u>	<u>Program or Award Amount Federal Share</u>	<u>Accumulated Revenue at Jan. 1, 1991 Federal Share</u>	<u>Current Federal Revenue Recognized</u>	<u>Disbursements/ Expenditures Federal Share</u>	<u>Cash/Accrued or (Deferred) Revenue at Dec. 31, 1992</u>
<u>MAJOR PROGRAMS</u>							
<u>Department of Commerce</u>							
Southeast Area Monitoring and Assessment Program	NA17FS0036-01 NA90AA-H-SM211	11.300	90,326 98,476	16,151 0	16,151 98,476	0 93,846	0 (4,630)
Interjurisdictional Fisheries Management Plans	NA16F10034-01 NA90AA-D-IJ202	11.300	110,000 <u>110,000</u>	0 <u>0</u>	14,294 <u>109,333</u>	8,917 <u>109,333</u>	0 <u>0</u>
TOTAL DEPARTMENT OF COMMERCE			408,802 =====	21,528 =====	238,254 =====	212,096 =====	(4,630) =====
<u>Department of Interior</u>							
Cooperative Interstate Fishery Management in the Territorial Seas of the Gulf of Mexico	14-16-0009-90-1211	15.605	<u>270,155</u>	<u>39,474</u>	<u>185,135</u>	<u>148,586</u>	<u>2,925</u>
TOTAL DEPARTMENT OF INTERIOR			270,155 =====	39,474 =====	185,135 =====	148,586 =====	2,925 =====
<u>NON-MAJOR PROGRAMS</u>							
DEPARTMENT OF COMMERCE							
Administration Support of Marine Fisheries Initiative	50-WCNF-0-06053	11.300	118,592	16,066	66,415	73,146	22,797
Gulf of Mexico Fishery Management Council	91-65-07600	11.300	31,250	0	31,250	22,590	(8,660)
DEPARTMENT OF INTERIOR							
The Development and use of Restriction Fragment Length DNA Polymorphism Probes for Striped Bass Identification	14-16-0004-91-920	15.605	65,000	(5,643)	28,000	45,789	12,146
Cooperative Agreement to Provide Clerical Support	14-16-0004-91-904	15.605	<u>14,694</u>	<u>900</u>	<u>10,203</u>	<u>11,997</u>	<u>2,694</u>
TOTAL NON-MAJOR PROGRAMS			229,536 =====	11,323 =====	135,868 =====	153,522 =====	28,977 =====

See accompanying Independent Auditor's Report on Federal Awards.



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INDEPENDENT AUDITOR'S REPORT ON ADDITIONAL INFORMATION

To the Board of Commissioners
Gulf States Marine Fisheries Commission

Our report on our audit of the basic financial statements of Gulf States Marine Fisheries Commission (a non-profit organization) for 1992 appears on page 1. We conducted our audit in accordance with generally accepted auditing standards Government Auditing Standards issued by the Comptroller General of the United States, and the provisions of Office of Management and Budget Circular A-133, "Audits of Institutions of Higher Education and Other Non-Profit Institutions", for the purpose of forming an opinion on the basic financial statements taken as a whole. The schedule of expenses on restricted funds is presented for the purposes of additional analysis and is not a required part of the basic financial statements. Such information has been subjected to the auditing procedures applied in the audit of the basic financial statements and, in our opinion, is fairly stated in all material respects in relation to the basic financial statements taken as a whole.

Fountain, Seymour, Mosher & Assoc.
D' Iberville, Mississippi
April 5, 1993

GULF STATES MARINE FISHERIES COMMISSION
 SCHEDULE OF EXPENSES - RESTRICTED FUNDS
 For the Year Ended December 31, 1992

	Council Funds	DNA	Fish & Wildlife Services	AFS	Inter Juris- dictional	Marfin Funds	SEAMAP Funds	WALLOP- Breaux	Total All Funds
Salaries	\$14,952	1,750	4,189		\$55,866	21,639	42,697	57,193	198,286
Payroll Taxes	1,144	134	320		4,274	1,655	3,266	4,375	15,168
Health Insurance	2,324	327	976		10,553	4,486	8,888	10,962	38,516
Retirement	999	112	334		3,804	1,602	3,270	3,968	14,089
Office Rent	852	95	4,790		3,489	1,506	3,015	3,726	17,473
Equipment Rental			3		26	16	24	35	104
Office Supplies	9		318		1,961	1,223	2,749	2,480	8,740
Postage	686		8		1,465	903	88	2,694	5,844
Travel- Committee					12,270	26,139	11,552	35,428	85,389
Travel- Administrative	160		4	4,463	2,777	2,472	869	8,050	18,795
Telephone	441	48	248		2,704	969	1,738	2,816	8,964
Office Equipment					0	0	6,750	5,185	11,935
Copy Expense	470	51	354		2,486	1,013	1,932	2,242	8,548
Printing			41		1,191	4,021	1,376	1,797	8,426
Meeting Costs	446				1,575	1,648	928	1,321	5,918
Subscriptions & Dues	1		16		149	90	377	264	897
Auto Expense	7	1	6		307	31	183	216	751
Insurance			56		512	310	461	673	2,012
Maintenance	36	2	372		1,687	993	1,507	2,159	6,756
Professional Services	6		202		2,289	2,314	1,883	2,745	9,439
Other Taxes	57	3	29		327	116	292	258	1,082
Contractual		43,266			10,320				53,586
TOTAL	22,590	45,789	12,266	4,463	120,032	73,146	93,845	148,587	520,718

See accompanying Independent Auditor's Report on Additional Information.

AUDITOR'S REPORTS ON INTERNAL CONTROLS



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**INDEPENDENT AUDITOR'S REPORT ON INTERNAL CONTROL
STRUCTURE REQUIRED BY OMB CIRCULAR A-133**

**To the Board of Commissioners
Gulf States Marine Fisheries Commission**

We have audited the financial statements of Gulf States Marine Fisheries Commission (a non-profit organization) for the year then ended December 31, 1992, and have issued our report thereon dated April 5, 1993. We have also audited the Organization's compliance with requirements applicable to major federal financial assistance programs and have issued our reports thereon dated April 5, 1993.

We conducted our audit in accordance with generally accepted auditing standards, Government Auditing Standards, issued by the Comptroller General of the United States, and Office of Management and Budget (OMB) Circular A-133, "Audits of Institutions of Higher Education and Other Non-Profit Institutions." Those standards and OMB Circular A-133 require that we plan and perform the audit to obtain reasonable assurance about whether the financial statements are free of material misstatement and about whether the Organization complied with laws and regulations, noncompliance with which would be material to a major federal financial assistance program.

In planning and performing our audits of the financial statements of Gulf States Marine Fisheries Commission for the year ended December 31, 1992, we considered its internal control structure in order to determine our auditing procedures for the purpose of expressing opinions on the financial statements and on its compliance with requirements applicable to major federal financial assistance programs and not to provide assurance on the internal control structure.

The management of Gulf States Marine Fisheries Commission is responsible for establishing and maintaining an internal control structure. In fulfilling this responsibility, estimates and judgements by management are required to assess the expected benefits and related costs of internal control structure policies and procedures. The objectives of an internal control structure are to provide management with reasonable, but not

absolute, assurance that assets, are safeguarded against loss from unauthorized use or disposition, that transactions are executed in accordance with managements authorization and recorded properly to permit the preparation of financial statements in accordance with generally accepted accounting principles, and that federal assistance programs are managed in compliance with applicable laws and regulations. Because of inherent limitations in any internal control structure, errors, irregularities, or instances of noncompliance may nevertheless occur and not be detected. Also, projection of any evaluation of the structure to future periods is subject to the risk that procedures may be inadequate because of changes in conditions or that the effectiveness of the design and operation of policies and procedures may deteriorate.

For the purpose of this report, we have classified the significant internal control structure policies and procedures in the following categories:

Cycles of Activity

- Treasury or financing
- Revenue/receipts
- Purchases/disbursements
- Payroll
- External financial reporting

General Requirements

- Political activity
- Allowable Costs/Cost Principles
- Civil Rights
- Cash Management
- Federal Financial Reports
- Drug Free Workplace Act
- Administrative Requirements

Specific Requirements

- Types of Services Allowed or not Allowed
- Eligibility
- Federal Financial Reports and Claims for Advances and Reports
- Cost Allocation

For all of the internal control structure categories listed above, we obtained an understanding of the design of relevant policies and procedures and determined whether they have been placed in operation, and we assessed control risk.

During the year ended December 31, 1992, Gulf States Marine Fisheries Commission expended 70 percent of its total federal financial assistance under major federal financial assistance programs. We performed tests of controls, as required by OMB

Circular A-133, to evaluate the effectiveness of the design and operation of internal control structure policies and procedures that we considered relevant to preventing or detecting material noncompliance with specific requirements, general requirements, and requirements governing claims for advances and reimbursements and amounts claimed for advances and reimbursements and amounts claimed or used for matching that are applicable to each of the Organizations major federal financial assistance programs, which are identified in the accompanying schedules of federal awards. Our procedures were less in scope than would be necessary to render an opinion on these internal control structure policies and procedures. Accordingly, we do not express such an opinion.

The report is intended for the information of the Board of Commissioners, Management and relevant federal agencies. This restriction is not intended to limit the distribution of this report, which is a matter of public record.

L. S. ...

D'Iberville, Mississippi
April 5, 1993



**INDEPENDENT AUDITOR'S REPORT ON INTERNAL CONTROL
STRUCTURE IN ACCORDANCE WITH GOVERNMENT AUDITING
STANDARDS**

**To the Board of Commissioners
Gulf States Marine Fisheries Commission
Ocean Springs, Mississippi**

We have audited the financial statements of **Gulf States Marine Fisheries Commission** (a nonprofit organization) for the year ended December 31, 1992, and have issued our report thereon dated April 5, 1993.

We conducted our audit in accordance with generally accepted auditing standards and Government Auditing Standards, issued by the Comptroller General of the United States. Those standards require that we plan and perform the audit to obtain reasonable assurance about whether the financial statements are free of material misstatement.

In planning and performing our audit of the financial statements of **Gulf States Marine Fisheries Commission** for the year ended December 31, 1992, we considered its internal control structure in order to determine our auditing procedures for the purpose of expressing an opinion on the financial statements and not to provide assurance on the internal control structure.

The management of **Gulf States Marine Fisheries Commission** is responsible for establishing and maintaining an internal control structure. In fulfilling this responsibility, estimates and judgments by management are required to assess the expected benefits and related costs of internal control structure policies and procedures. The objectives of an internal control structure are to provide management with reasonable, but not absolute, assurance that assets are safeguarded against loss from unauthorized use or disposition, and that transactions are executed in accordance with management's authorization and recorded properly to permit the preparation of financial statements in accordance with generally accepted accounting principles. Because of inherent limitations in any internal control structure, errors or irregularities may nevertheless occur and not be detected. Also, projection of any evaluation of the structure to future periods is

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subject to the risk that procedures may become inadequate because of changes in conditions or that the effectiveness of the design and operation of policies and procedures may deteriorate.

For the purpose of this report, we have classified the significant internal control structure policies in the following categories:

Cycles of Activity

- Treasury or financing
- Revenue/receipts
- Purchases/disbursements
- Payroll
- External financial reporting

General Requirement

- Political activity
- Allowable Costs/Cost Principles
- Civil Rights
- Cash management
- Federal Financial Reports
- Drug-Free Workplace Act
- Administrative Requirements

Specific Requirements

- Types of Services Allowed or not Allowed
- Eligibility
- Federal Financial Reports and Claims for Advances and Reports
- Cost Allocation

For all of the control categories listed above, we obtained an understanding of the design of relevant policies and procedures and whether they have been placed in operation, and we assessed control risk.

Our consideration of the internal control structure would not necessarily disclose all matters in the internal control structure that might be material weakness under standards established by the American Institute of Certified Public Accountants. A material weakness is a reportable condition in which the design or operation of the specific internal control structure elements does not reduce to a relatively low level the risk that errors or irregularities in amount that would be material in relation to the financial statements being audited may occur and not be detected within a timely period by employees in the normal course of performing their assigned functions. We noted no matters involving the internal control structure and its operations that we considered to be a material weakness as defined above.

This report is intended for the information of the Board of Commissioners, Management and the relevant federal agencies. This restriction is not intended to limit the distribution of this report, which is a matter of public record.

Fountain, Segman, Mosher & Assoc.

D'Iberville, Mississippi
April 5, 1993

AUDITOR'S REPORTS ON COMPLIANCE



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AICPA SEC PRACTICE SECTION
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**INDEPENDENT AUDITOR'S REPORT ON COMPLIANCE WITH
LAWS AND REGULATIONS BASED ON AN AUDIT OF
FINANCIAL STATEMENTS PERFORMED IN ACCORDANCE WITH
GOVERNMENT AUDITING STANDARDS**

To the Board of Commissioners
Gulf States Marine Fisheries Commission

We have audited the financial statements of Gulf States Marine Fisheries Commission, a non-profit organization, as of and for the year ended December 31, 1992, and have issued our report thereon dated April 5, 1993.

We conducted our audit in accordance with generally accepted auditing standards and Government Auditing Standards, issued by the Comptroller General of the United States. Those standards require that we plan and perform the audit to obtain reasonable assurance about whether the financial statements are free of material misstatement.

Compliance with laws, regulations, contracts, and grants applicable to Gulf States Marine Fisheries Commission, is the responsibility of Gulf States Marine Fisheries Commission's management. As part of obtaining reasonable assurance about whether the financial statements are free of material misstatements, we performed tests of the Gulf States Marine Fisheries Commission's compliance with certain provisions of laws, regulations, contracts, and grants. However, our objective was not to provide an opinion on overall compliance with such provisions.

The results of our tests indicate that, with respect to the items tested, Gulf States Marine Fisheries Commission complied, in all material respects, with the provisions referred to in the preceding paragraph. With respect to items not tested, nothing came to our attention that caused us to believe that the Commission had not complied, in all material respects, with those provisions.

This report is intended for the information of the Board of Commissioners, Management and relevant federal agencies. This restriction is not intended to limit the distribution of this report, which is a matter of public record.

Fountain, Seymour, Mosher, & Assoc.
D'IBERVILLE, MISSISSIPPI
April 5, 1993



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AICPA SEC. PRACTICE SECTION
AICPA PRIVATE PRACTICE SECTION

**INDEPENDENT AUDITOR'S COMBINED REPORT ON COMPLIANCE
WITH GENERAL REQUIREMENTS APPLICABLE TO FEDERAL
FINANCIAL ASSISTANCE PROGRAMS AND SPECIFIC
REQUIREMENTS APPLICABLE TO MAJOR AND NONMAJOR
PROGRAM TRANSACTIONS**

**To the Board of Commissioners
Gulf States Marine Fisheries Commission**

We have audited Gulf States Marine Fisheries Commission's (a non-profit organization) compliance with the requirements governing types of services allowed or unallowed; eligibility; matching, level of effort or earmarking; reporting; claims for advances and reimbursements; and amounts claimed or used for matching that are applicable to each of its major federal financial assistance programs, which are identified in the accompanying schedule of federal awards, for the year then ended December 31, 1992. The management of Gulf States Marine Fisheries Commission is responsible for the Organization's compliance with those requirements. Our responsibility is to express an opinion on compliance with those requirements based on our audit.

We conducted our audit in accordance with generally accepted auditing standards, Government Auditing Standards, issued by the Comptroller General of the United States, and the provisions of Office of Management and Budget Circular A-133, "Audits of Institutions of Higher Education and Other NonProfit Institutions." Those standards and OMB Circular A-133 require that we plan and perform the audit to obtain reasonable assurance about whether material noncompliance with the requirements referred to above occurred. An audit includes examining, on a test basis, evidence about the organization's compliance with those requirements. We believe that our audit provides a reasonable basis for our opinion.

In our opinion, Gulf States Marine Fisheries Commission complied, in all material respects, with the requirements governing types of services allowed or unallowed; eligibility; matching, level of effort, or earmarking; reporting; claims for advances and reimbursements; and amounts claimed or used for matching that are applicable to each of its major federal financial assistance programs for the year ended December 31, 1992.

In connection with our audit of the December 31, 1992 financial statements of Gulf States Marine Fisheries Commission, and with our obtaining an understanding of the Organization's internal control structure elements related to administering federal financial assistance programs, as required by OMB Circular A-133, we selected certain transactions applicable to certain non-major federal financial assistance programs for the year ended December 31, 1992. As required by OMB Circular A-133, we have performed auditing procedures to test compliance with the requirements governing types of services allowed or unallowed; eligibility; and that are applicable to those transactions. Also, we have applied procedures to test Gulf States Marine Fisheries Commission's compliance with the following requirements applicable to each of its federal financial assistance programs, the major programs of which are identified in the accompanying schedule of federal awards, for the year ended December 31, 1992.

Our procedures for testing the requirements that are listed in the preceding paragraph were limited to the applicable procedures described in the Office of Management and Budget's "Compliance Supplement for Audits of Educational Institutions and Other Nonprofit Institutions." Our procedures for testing compliance with the general requirements and the specific requirements applicable to the nonmajor programs which are listed in the schedule of federal awards were substantially less in scope than an audit, the objective of which is the expression of an opinion on Gulf States Marine Fisheries Commission's compliance with the requirements. Accordingly, we do not express such an opinion.

With respect to the items tested, the results of those procedures disclosed no material instances of noncompliance with the requirements listed in the fifth paragraph of this report. With respect to items not tested, nothing came to our attention that caused us to believe that Gulf States Marine Fisheries Commission had not complied, in all material respects, with those requirements.

This report is intended for the information of the Board of Commissioners of Gulf States Marine Fisheries Commission, management and the relevant federal agencies. This restriction is not intended to limit the distribution of this report, which is a matter of public record.

Fountain, Lyman, Mosler & Assoc.

D'Iberville, Mississippi
April 5, 1993

