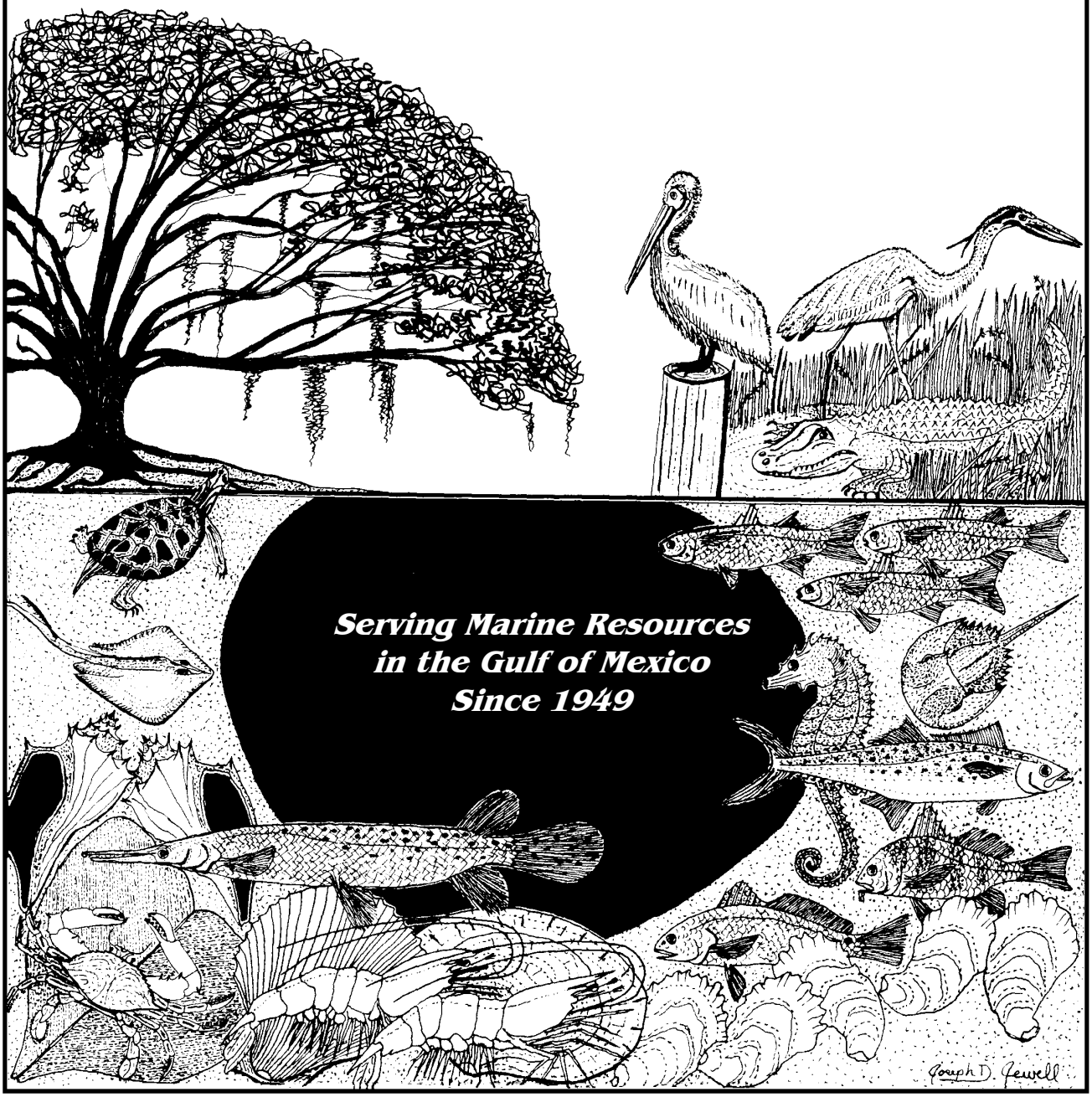
Fifty-second Annual Report
of the

# GULF STATES MARINE FISHERIES COMMISSION

For The Year 2001



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. The Commission's principal objectives are 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

## FIFTY-SECOND ANNUAL REPORT
(2001)

*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 State Enabling Acts Creating such Commission and Public Law 66 - 81st Congress assenting thereto

edited by:
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***Preserving the Past • Planning the Future • A Cooperative Effort***

**Charles H. Lyles Award Recipients**

The *Charles H. Lyles Award* is awarded annually by the Gulf States Marine Fisheries Commission (GSMFC) to an individual, agency, or organization which has contributed to the betterment of the fisheries of the Gulf of Mexico through significant biological, industrial, legislative, enforcement, or administrative activities.

The recipient is selected by the full Commission from open nominations at the March meeting. The selection is by secret ballot with the highest number of votes being named the recipient. The recipient is awarded the honor at the annual meeting in October.

CHARLES H. LYLES AWARD
WINNERS

| | |
|---|---|
| Charles H. Lyles | 1984 |
| Theodore B. Ford | 1985 |
| J.Y. Christmas | 1986 |
| John Breaux | 1987 |
| John Ray Nelson | 1988 |
| I.B. "Buck" Byrd | 1989 |
| Hugh A. Swingle | 1990 |
| John A. Mehos | 1991 |
| J. Burton Angelle | 1992 |
| Louis A. Villanova | 1993 |
| Theodore H. Shepard | 1994 |
| Edwin A. Joyce, Jr. | 1995 |
| Tommy D. Candies | 1996 |
| Walter M. Tatum | 1997 |
| Thomas L. Heffernan | 1998 |
| Trent Lott | 1999 |
| James Barkuloo | 2000 |
| Walter Fondren, III | 2001 |

## Acknowledgments

In submitting this Fifty-second Annual Report, the Commissioners wish to express their most sincere appreciation for the splendid cooperation of the Members of Congress and the Governors and Legislators of the Compact states. The Commission fully appreciates that such measure of success as has been attained in the past fifty-two years could not have been possible without such valued assistance. This acknowledgment is also extended to the directors and staffs of federal, state, and interstate agencies, and to representatives of all organizations and individuals who have contributed to the realization of the objectives of the Gulf States Marine Fisheries Commission.

Respectfully submitted,

Virginia Vail, *Chairman*
Vernon Minton, *First Vice Chairman*
Mike Ray, *Second Vice Chairman*
Larry B. Simpson, *Executive Director*

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# Commission Roster

## *Commission Officers*

Chairman: Virginia Vail
First Vice Chairman: Vernon Minton  Second Vice Chairman: Mike Ray

## *Commissioners*

(order of listing - administrator, legislator, governor's appointee)

ALABAMA

Riley Boykin Smith
Alabama Department of Conservation & Natural Resources
Montgomery, AL

Walter Penry
Alabama House of Representatives
Daphne, AL

Chris Nelson
Bon Secour Fisheries, Inc.
Bon Secour, AL

FLORIDA

Allan L. Egbert
Florida Fish & Wildlife Conservation Commission
Tallahassee, FL

Legislative Representative - *Vacant*

William Ward
Tampa, FL

LOUISIANA

James H. Jenkins, Jr.
Louisiana Department of Wildlife & Fisheries
Baton Rouge, LA

Warren Triche
Louisiana House of Representatives
Thibodaux, LA

Frederic L. Miller
Shreveport, LA

MISSISSIPPI

Glen H. Carpenter
Mississippi Department of Marine Resources
Biloxi, MS

Billy Hewes
Mississippi Senate
Gulfport, MS

Walter J. Blessey
Biloxi, MS

TEXAS

Andrew Sansom
Texas Parks & Wildlife Department
Austin, TX

J.E. "Buster" Brown
Texas Senate
Austin, TX

L. Don Perkins
Houston, TX

## *Staff*

Larry B. Simpson, *Executive Director*
Ronald R. Lukens, *Assistant Director*

Virginia K. Herring, Executive Assistant
Nancy K. Marcellus, Administrative Assistant
Cynthia B. Yocom, Staff Assistant
Cheryl R. Noble, Staff Assistant
Madeleine A. Travis, Staff Assistant
Deanna L. Valentine, Data Entry Clerk
Sharon L. Flurry, Data Entry Clerk
Gayle E. Jones, Receptionist

David M. Donaldson, Program Manager
Steven J. VanderKooy, Program Coordinator
Jeffrey K. Rester, Program Coordinator
Joseph P. Ferrer, III, Network Administrator
Gregory S. Bray, Programmer/Analyst
A. Mike Sestak, III, Programmer/Analyst
Douglas J. Snyder, Survey Coordinator
Jason S. Keenum, Accountant

## *Committees*

Executive Committee . . . . . Virginia Vail
Frederic L. Miller
R. Vernon Minton
Mike Ray
William S. "Corky" Perret

Law Enforcement Committee . . . . . Jeff Mayne, Chairman
Larry Young, Vice Chairman

Commercial/Recreational Fisheries Advisory Panel . . . . . Philip Horn, Commercial Chairman
*Vacant*, Commercial Vice Chairman
Pat Murray, Recreational Chairman
Randy Gros, Recreational Vice Chairman

State-Federal Fisheries Management Committee . . . . . Larry B. Simpson, Facilitator

- Derelict Crab Trap Task Force . . . . . Harriet Perry, Chairman
- Menhaden Advisory Committee . . . . . Barney White, Chairman
- Stock Assessment Team . . . . . Joe Shepard, Chairman
- Striped Bass Technical Task Force . . . . . Doug Frugé

Technical Coordinating Committee . . . . . William S. "Corky" Perret, Chairman
John Roussel, Vice Chairman

- TCC Anadromous Fish Subcommittee . . . . . Doug Frugé, Chairman
Larry Nicholson, Vice Chairman
- TCC Artificial Reef Subcommittee . . . . . Rick Kasprzak, Chairman
Steve Heath, Vice Chairman
- TCC Crab Subcommittee . . . . . Harriet Perry, Chairman
- TCC Data Management Subcommittee . . . . . Joe O'Hop, Chairman
Kevin Anson, Vice Chairman
- TCC Habitat Subcommittee . . . . . Dale Shively, Chairman
- TCC SEAMAP Subcommittee . . . . . Jim Hanifen, Chairman
Richard Waller, Vice Chairman

# GULF STATES MARINE FISHERIES COMMISSION
# EXECUTIVE DIRECTOR'S REPORT

*Larry B. Simpson, Executive Director*

As we close another year, I think of the many talented people who support our endeavors – state and federal agencies, universities, the commercial and recreational sectors, and our elected legislators. Those working within the marine resource arena share a common thread of concern; however, that concern can become fractured within discrete combinations.

In the eyes of the fishermen, for instance, we may not do enough, and what is accomplished may not be fully appreciated. Why do we collect data and why is the science of calculating the health of marine resources so difficult? Left to its own devices, scientific inquiry can be esoteric.

The realm of natural resource management is complex. Numerous disciplines are involved – biology, economics, sociology, the environment, politics, and the law. What is best for one group may not be best for another. The release of a certain size fish may not make sense to some; however, in the long run, it may be beneficial to the health of the resource even if there is some mortality at release.

Here at the Commission, we endeavor to provide the best information to decision makers so that management actions can be made with the highest confidence.

The Commission continues to contribute to new means and methods for recreational and commercial data collection, dissemination, and management. Our programs include the Fisheries Information Network, the Southeast Area Monitoring and Assessment Program, and a coordinated habitat program with the Gulf of Mexico Fishery Management Council. The Commission's Interjurisdictional Fisheries Program was established by Congress and is most important in the development of sound management of state and federally-shared resources in state territorial waters. The Cooperative Interstate Fishery Management Program provides the work arena for artificial reefs, anadromous species, and (most recently) non-indigenous species investigation.

By involving all in cooperative programs, strides can be made in the stewardship of natural resources. The Commission body politic consists of the states' marine resource agency head, a member of the state legislature, and a private citizen appointed by the Governor. This mix of authority provides excellent direction from a cross section of the populace we serve.

Take a moment to browse **www.gsmfc.org** and discover more of what the Commission does to support marine resources in the Gulf of Mexico.

## MEETINGS/ACTIVITIES OF THE EXECUTIVE DIRECTOR

**Gulf States Marine Fisheries Commission Meetings**
Freshwater Inflow to Mississippi/Louisiana Marshes, Biloxi, Mississippi – January 2001
GSMFC Retirement Plan, Ocean Springs, Mississippi – February 2001
ACCSP/FIN Vessel Identification, Tampa, Florida – February 2001
New Commissioner, Ocean Springs, Mississippi – March 2001
Spring Meeting, Brownsville, Texas – March 2001
MDMR Trip Ticket Program, Biloxi, Mississippi – March 2001
State Directors, West Texas – June 2001
State/Federal Fisheries Management Committee, New Orleans, Louisiana – August 2001
Commissioners' Briefing – Data Program, Bon Secour, Alabama – September 2001
Fifty-second Annual Meeting, New Orleans, Louisiana – October 2001
State Directors, Toledo Bend, Louisiana – November 2001

**Gulf of Mexico Fisheries Management Council Meetings**
Galveston, Texas – January 2001
Joint Gulf/South Atlantic Caribbean Council, St. Thomas, Virgin Islands – February 2001
Mobile, Alabama – March 2001
Panama City, Florida – May 2001

Duck Key, Florida – July 2001
New Orleans, Louisiana – September 2001
Biloxi, Mississippi – December 2001

**Congressional Activities**
Coastal Delegation, Washington, D.C. – February 2001

**Other Meetings/Activities**
National State Directors, Washington, D.C. – April 2001
Marine Fisheries Advisory Committee, Orange Beach, Alabama – April 2001
Oyster Industry, Biloxi, Mississippi – April 2001
Constituency, Biloxi, Mississippi – April 2001
Constituency, Tampa, Florida – May 2001
Biloxi Rotary Club, Biloxi, Mississippi – August 2001
Radio Spot, Foley, Alabama – September 2001
National Guard Employer Day, Camp Shelby, Mississippi – October 2001
Marine Fisheries Advisory Committee, St. Thomas, Virgin Islands – November 2001

# Southeast Area Monitoring and Assessment Program (SEAMAP)

*Jeffrey K. Rester, Program Coordinator*

During 2001, collection of resource survey information continued for the twentieth consecutive year. The surveys conducted during the year address distinct regional needs and priorities and provide information concerning the marine resources in the Gulf of Mexico.

## RESOURCE SURVEYS

### Spring Plankton Surveys

The SEAMAP Spring Plankton Survey took place from April 17, 2001 through May 31, 2001. One hundred eighty-nine stations were sampled from the west Florida shelf to the Louisiana/Texas border. The objectives of the survey were to collect ichthyoplankton samples for estimates of the abundance and distribution of Atlantic bluefin tuna larvae and to collect environmental data at all ichthyoplankton stations.

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 degrees. Neuston samplers were taken with 947-micron mesh nets on 1x2-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. In addition, hydrographic data (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 from SEAMAP stations will be transshipped to the Polish Sorting and Identification Center. Left bongo samples will be archived at the SEAMAP Invertebrate Plankton Archiving Center (SIPAC).

### Summer Shrimp/Groundfish Survey

During the spring of 2001, there was communication between the Shrimp/Groundfish Work Group members 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 Fishery Management Plan; and
3) provide information on shrimp and groundfish stocks across the northern Gulf of Mexico from inshore waters to 50 fm.

The overall sampling strategy during the 2001 SEAMAP summer 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 entire survey occurred from June 1 through July 24, 2001. Efforts were affected by Tropical Storm Allison, the OREGON II breaking down, and the trawl wench breaking on the OREGON II.

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. All vessels took environmental data including temperature, salinity, oxygen, and chlorophyll at each station.

### Reeffish Survey

The primary purpose of this survey is to assess relative abundance and compute population estimates of reef fishes found on natural reef fish habitat in the Gulf of Mexico. Two types of gear are used to deploy video cameras: 1) a single-funnel fish trap (2.13 m long by 0.76 m square) with the camera mounted at a height of 25 cm above the bottom of the trap; or 2) a 4 camera array with 4 cameras mounted orthogonal to each other at a height of 25 cm above the bottom. Both gears are baited with squid before deployment. The resultant video recordings (typically of one hour duration) are processed back at the laboratory where fishes are identified and counted independently by two tape readers. Final counts are entered into the SEAMAP reef fish database along with additional observations on habitat and fish activity. The NMFS conducted

sampling May 29-June 6 onboard the NOAA Ship OREGON II. The NMFS also conducted sampling June 12-23 onboard the NOAA Ship McARTHUR.

**Fall Plankton Survey**

The Fall Plankton Survey samples waters from Florida Bay to Brownsville, Texas, and took place from August 28-December 5. Florida, Alabama, NMFS, Mississippi, and Louisiana sampled 171 stations on the west Florida shelf and northern Gulf of Mexico. The objective of this survey is to collect ichthyoplankton samples with bongo and neuston gear for the purpose of estimating abundance and defining the distribution of eggs, larvae, and small juveniles of Gulf of Mexico fishes, particularly, king and Spanish mackerel, lutjanids, and sciaenids.

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 degrees. Neuston samples were taken with 947-micron mesh nets on 1x2-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. In addition, hydrographic data (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 from SEAMAP stations will be transshipped to the Polish Sorting and Identification Center. Left bongo samples will be archived at the SEAMAP Invertebrate Plankton Archiving Center (SIPAC).

**Fall Shrimp/Groundfish Survey**

The Fall Shrimp/Groundfish Survey was conducted from October 10-December 31 from off Mobile, Alabama, to the U.S.-Mexican border. Vessels sampled waters out to 60 fm, covering 334 trawl stations, in addition to plankton and environmental sampling.

Sampling design was similar to the Summer Shrimp/Groundfish Survey. The objectives of the survey were to:

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; and
4) collect ichthyoplankton samples to determine relative abundance and distribution of eggs and larvae of commercially and recreationally important fish species.

In addition, ichthyoplankton data were collected by the NMFS, Alabama, Mississippi, and Louisiana vessels at sample sites occurring nearest to half-degree intervals of latitude/longitude. A total of 49 stations was sampled with bongo and/or neuston nets, as encouraged along cruise tracks. The Polish Sorting and Identification Center sorted the samples, except those taken by Louisiana. The specimens and data were archived at the SEAMAP Archiving Center.

**Plankton and Environmental Data Surveys**

As in previous years, plankton samples and environmental data were collected routinely during most SEAMAP trawl 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.

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 shipment to the Polish Sorting and Identification Center, 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 SIPAC.

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.

## INFORMATION SERVICES

Information from the SEAMAP activities is provided to user groups through the program administration and three complementary systems: the SEAMAP Information System, SEAMAP Archiving Center, and SIPAC. Products resulting from SEAMAP activities can be grouped into two major categories: data sets (including broadly, digital data, and collected specimens) managed by the SEAMAP Information System, SEAMAP Archiving Center, and SIPAC; and program information. Program information is discussed in the *PROGRAM MANAGEMENT* section of this report.

### SEAMAP Information System

Biological and environmental data from all SEAMAP-Gulf surveys are included in the SEAMAP Information System, managed in conjunction with NMFS-SEFSC. 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 1982-2000 have been entered into the system and data from 2001 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 requesters, although the highest priority is assigned to SEAMAP participants. A total of 252 SEAMAP data requests have been received. In most instances, requests were filled promptly. To data 248 requests have been completed. During this reporting period, 13 requests were received.

Requested SEAMAP data were used for a multitude of purposes in 2001:

- 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;
- Evaluating and plotting the size of the hypoxic (Dead Zone) area off of Louisiana;
- 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 2001 SEAMAP Environmental and Biological Atlas; and
- Comparing catches of shrimp and groundfish captured by 40-ft versus 20-ft trawl nets.

### Real-time Data

A major function of the SEAMAP Information System is the processing of catch data from the Summer/Shrimp Groundfish Survey as near-real-time data. Data were transmitted 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. SEAMAP real-time data plots were produced during the 2001 Summer Shrimp/Groundfish Survey. Seven weekly mailings were produced and distributed to approximately 240 interested individuals. These plots were also available through the SEAMAP home page. Management agencies also received comprehensive data listings showing penaeid shrimp length frequencies, sampling parameters, and environmental conditions.

Data from the 2001 Fall Shrimp/Groundfish Survey were used to produce red snapper real-time plots. These plots described research trawl effort and catch rates for juvenile red snapper during the survey. This was the fourth year plots were produced and distributed to interested individuals.

### SEAMAP Archiving Center

Larval fish and fish egg samples sorted to the lowest taxa level possible by the Polish Sorting and Identification Center are returned to the SEAMAP Archiving Center for archiving and loan to researchers. For 2001, 34,155 samples were returned from the Polish Sorting and Identification Center. The 20,933 samples cataloged this year represent 18 orders, 126 families, 235 genera, and 245 species.

The SEAMAP Archiving Center, which is managed in conjunction with Florida Fish and Wildlife Conservation Commission (FWC) in St. Petersburg, Florida, processes both specimen loans and requests for associated plankton survey environmental data. Fifty-six requests were accommodated to ten different researchers at both the state and federal level.

### SEAMAP Invertebrate Plankton Archiving Center

The SIPAC is in its seventeenth year of

operation. The overall mission of the SIPAC, to archive and manage the large collection of plankton samples acquired during SEAMAP cruises and to obtain specimens and/or data on selected invertebrate larval stages from those samples, continued during the year, but at a reduced level of activity. The SIPAC continued to provide unsorted plankton samples and data on specimens of larval invertebrates to qualified researchers upon request. Activities during the year included the maintenance and curatorship of the existing collection, as well as cataloging 251 additional bongo net samples from year 2000 SEAMAP plankton cruises. The number of samples currently cataloged in the SIPAC collections is 7,609; 146 samples are currently on loan.

In an effort to keep the space required to house the SIPAC collection of unsorted plankton samples to a minimum, samples that have been in the collection for over ten years and duplicate samples sorted and received from the Polish Sorting and Identification Center, are aliquoted to ¼ their original volume and placed into 100 ml vials. When possible, the remaining ¾ aliquots are donated to educational institutions for use as teaching materials. If the remaining sample must be discarded, sample jars are cleaned and returned to the NMFS Pascagoula Laboratory for reuse. To date, approximately 2,264 samples collected from 1982-1988 have been aliquoted and prepared for long-term storage. Due to the recent addition of samples to the collection during the year, there is currently no space available for additional samples to be deposited into the SIPAC archives. However, once the ongoing aliquoting of the 1988-1990 SEAMAP samples has been completed, there should be sufficient space available for archiving additional samples.

**Information Dissemination**

The following documents were published and distributed during 2001:

- *2001 SEAMAP Marine Directory*. Inventories of marine agency contacts (state, federal, and university) concerned with fishery research in the Gulf of Mexico and summaries of information provided by these organizations: target species, types of fishery-independent sampling gear and platforms, annual sampling efforts, and other materials.
- *SEAMAP Subcommittee Report to the GSMFC Technical Coordinating Committee – October 1, 2000 to September 30, 2001*. 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, 2000 to September 30, 2001*. A summary of FY2001 activities and proposed FY2002 events for the SEAMAP-Gulf, South Atlantic, and Caribbean Programs.
- *Environmental and Biological Atlas of the Gulf of Mexico, 1999*. A compilation of information obtained from the 1999 SEAMAP survey including catch rates of shrimp and finfish, abundance and distribution of plankton in the Gulf of Mexico and environmental data from all surveys.

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

*Ronald R. Lukens, Assistant Director*

In 2001, reductions were made to the Anadromous Lock & Dam Project; the Striped Bass Facilitated Workshop; the Artificial Reef Workshop; and administrative travel. These reductions were made to support genetic analysis of striped bass samples for broodstock during the 2001 stocking year. The striped bass workshop could still be conducted but would likely not include a paid facilitator.

## ARTIFICIAL REEF ACTIVITIES

### Revision of Materials Guidelines

The TCC Artificial Reef Subcommittee began work on revising the document entitled *Guidelines for Marine Artificial Reef Materials*. The revision process began in February 2001. A meeting was held jointly with the Artificial Reef Subcommittee of the Atlantic States Marine Fisheries Commission, and it was decided at that time to conduct the revision jointly. The GSMFC Artificial Reef Subcommittee met in July to begin actual revision of the document. Subsequent to that meeting, members drafted proposed revised language. At the close of this program year, it is estimated that the revision process was 25% complete. The subcommittee expects to have a final draft prepared by the end of December 2002.

### Artificial Reef Database

All duplicate entries in the data, primarily the Florida section, were deleted. In July, the GSMFC began developing a web-based data entry program through which the states will be able to enter their own data in the regional database. In addition, a web-based query system will be developed to allow individuals to run custom queries of the database. Currently, GSMFC staff has completed the first phase of the web-based data entry program. While it is in test phase only, data can be entered. In addition, the data entry program will allow viewing of the database; although, querying is not possible at this time. As a result of completing the first phase data entry program, it was discovered that additional duplicate records are still in the database. Now that the process is automated, removing those duplicate records should be more efficient. GSMFC staff will continue to work on the data entry program and the web-baseed query program during 2002.

### Other Issues

The subcommittee continued to work on issues related to the location of artificial reef sites using Loran-C and later conversion to latitude/longitude. With the advent of differential GPS and GIS technology, plotting of artificial reefs is more precise. Consequently, a number of efforts to plot sites in Florida offshore waters revealed that materials are not always located within legally-permitted boundaries. Other states likely have this same problem; however, attempts have not yet been made to plot them using new technology. In addition, the subcommittee worked closely with NOAA's National Ocean Survey, the office responsible for compiling and distributing navigation charts, to determine the most effective and efficient approach to relocating and recharting existing artificial reef sites.

The GSMFC Artificial Reef Subcommittee continued to work with the National Marine Fisheries Service regarding the completion and adoption of the draft revised National Artificial Reef Plan. Currently, the plan is under legal review by NOAA General Counsel to determine if there are any legal constraints to adopting the plan as national policy.

There has been no progress to date on adding to the literature database.

## ANADROMOUS FISH ACTIVITIES

### Striped Bass Fishery Management Plan Revision

The GSMFC Interjurisdictional Fisheries Management Program officially began revising the Striped Bass Fishery Management Plan in January 2001. The Assistant Director worked closely with the Interjurisdictional Fisheries Management Program staff to accomplish tasks associated with the revision. Several issues have been raised that will affect the FMP, including development of reliable broodstock sources, competitive impacts on other species of stocking striped bass, and revision of the "Habitat Criteria" document. It is anticipated that the habitat section of the striped bass FMP revision will be significantly amended to include information contained within that document.

**Striped Bass Database**

During 2001, the GSMFC updated the striped bass database. During that process, it was discovered that some data elements are not complete for many of the records. The Assistant Director worked with the states to acquire the missing data elements entered into the database. The development of a data entry program was planned to allow anadromous fish program managers to enter data directly into the regional data base through the GSMFC Web Page. This will significantly increase quality control over the data from the beginning of the process. A web-based query program will also be developed to allow analysis of the data.

**Other Issues**

The Anadromous Fish Subcommittee worked on strategies for additional funding sources to support striped bass restoration work in the Gulf of Mexico. During the Commission's Spring Meeting, the GSMFC passed a motion to support the reauthorization of the Anadromous Fish Conservation Act. The motion included trying to get the Act amended to include a Gulf Anadromous Fish Restoration Program with funding specified to support state and GSMFC activities.

**FISHERIES HABITAT**

In 1996, the U.S. Congress passed significant amendments to the Magnuson-Stevens Fishery Conservation and Management Act, including provisions to identify, describe, enhance, and protect essential fish habitat (EFH). While the Magnuson-Stevens Act establishes federal fishery management policies, fisheries habitat is largely located within state jurisdictional waters, a situation which represents the potential for conflict if there is not close coordination between the federal agencies and the states. Important issues involving the Habitat Program activities included the development of a regional policy on management of submerged aquatic vegetation, a regional policy on management of wetlands, and the development of an annotated bibliography on fishing gear impacts on habitat. The latter is available on the GSMFC web page. The GSMFC Habitat Subcommittee was integrally involved in the development and review of the habitat sections of all FMPs being developed by the GSMFC. The GSMFC Habitat Subcommittee reviewed materials to revise the Striped Bass FMP and assisted in developing that section.

**INVASIVE SPECIES**

The Assistant Director continued to work in conjunction with the National Aquatic Nuisance Species Task Force and the National Invasive Species Advisory Committee to determine appropriate actions and roles for the GSMFC and its member states in addressing invasive species issues. In addition, cooperative activities continued with the Gulf of Mexico Program Invasive Species Focus Team and the ANS Task Force's Gulf Regional Panel to identify invasive species issues associated with coastal and marine waters in the Gulf of Mexico. In addition, the GSMFC elected to become involved in the reauthorization of the National Invasive Species Act. Language was developed to establish regional programs for coastal and marine invasive species prevention, control, and management.

**MEETINGS/ACTIVITIES OF THE ASSISTANT DIRECTOR**

| | |
|---|---|
| January 14-16, 2001 | Gulf of Mexico Fishery Management Council Meeting, Habitat Protection Committee and Artificial Reef Committee |
| February 6-8, 2001 | Annual Morone Workshop |
| February 13-15, 2001 | Gulf of Mexico Program Management Committee Meeting. The GOMP Management Committee serves as the ANS Task Force's Gulf Regional Panel. |
| February 21-23, 2001 | GSMFC TCC Artificial Reef Subcommittee Meeting |
| February 25-27, 2001 | National Invasive Species Advisory Committee Meeting |
| March 11-15, 2001 | Spring Meeting of the Gulf States Marine Fisheries Commission |
| March 16, 2001 | Meeting with Columbus Brown, FWS Coordination with the Interstate Marine Fisheries Commissions |
| March 17-19, 2001 | International Association of Fish and Wildlife Agencies Meeting |
| March 28-29, 2001 | Gulf of Mexico Fishery Management Council Meeting |
| April 3-6, 2001 | Aquatic Nuisance Species Task Force Meeting |
| April 9-11, 2001 | Marine Bio-invasive Workshop |
| May 2-5, 2001 | Artificial Reef Workshop, Rigs-to-Reefs Program for California |

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| May 20-21, 2001 | Gulf of Mexico Program Invasive Species Focus Team Meeting |
| June 22-25, 2001 | Conference of the Marine Conservation Biology Institute, Presentation on Invasive Species and Fisheries in the Gulf of Mexico |
| August 28, 2001 | Coordination Meeting with FWS Federal Aid Office, 2002 Work Plan |
| September 9-15, 2001 | International Association of Fish and Wildlife Agencies Meeting. Although this meeting was cancelled due to the terrorist attacks of 9/11/2001, the Assistant Director was required to remain at the meeting location for several days because public conveyances were not available for several days. |
| September 17-20, 2001 | Florida Artificial Reef Summit, Invited Speaker |
| November 28-29, 2001 | Shrimp Virus Workshop, Conducted under the Auspices of the Invasive Species Focus Team |
| December 17-18, 2001 | Invasive Species Focus Team Meeting |

# INTERJURISDICTIONAL FISHERIES MANAGEMENT PROGRAM

*Steven J. VanderKooy, Program Coordinator*

The IJF staff continued to work on fishery management plans (FMPs) and supported the technical task forces (TTFs) in this regard. In addition, staff continued to build the FMP literature repository and publish several documents including the Annual Law Summary and License and Fees. Activities in 2001 were focused primarily on FMP development and are summarized by the following activities:

The Blue Crab FMP remained in review for most of 2001. The S-FFMC reviewed and provided comments in early 2001 and approved the plan for public review in March 20001. After the 60-day public review period, comments were provided to the S-FFMC and Blue Crab TTF. In August 2001, the S-FFMC approved the document to move forward to the full Commission where they took action to approve the FMP in October. Publication and distribution will be complete in early 2002.

The Spotted Seatrout FMP was approved by the full Commission in March 2001. The document underwent final in-house review, cover art was prepared, and document lay-out was completed. Publication and distribution of the Spotted Seatrout FMP was completed in September 2001. The document is available both in hard copy and as a downloadable Adobe file from the GSMFC website.

The Fishery Management Plan for Gulf and Southern Flounder was received from the publisher and distributed in spring 2001. The document is available both in hard copy and as a downloadable Adobe file from the GSMFC website.

The fifth revision of the Gulf Menhaden FMP was approved by the Technical Coordinating Committee in March 2001. The S-FFMC began its review in late March and approved the plan to begin a public comment period in October 2001.

The Proceedings of the Blue Crab Mortality Symposium, held in conjunction with the Crustacean Society's 1999 Annual Meeting in Lafayette, Louisiana, was completed, published, and distribution in November 2001. The document is available both in hard copy and as a downloadable Adobe file from the GSMFC website.

The Crab Subcommittee began work with the Habitat Subcommittee on the derelict crab trap problem in the Gulf of Mexico. The two subcommittees convened along with the Law Enforcement Committee and the Joint Commercial/Recreational Fishery Advisory Panel in October to further discuss the problem. A web page outlining major areas of concern was made available on the GSMFC web site and an extensive "white paper" detailing the problem was published and distributed in November 2001.

The Otolith Work Group completed their final three meetings in 2001at the Perry R. Bass Sea Center , the Florida Marine Research Institute in St. Petersburg, Florida, and the Gulf Shores office of the Alabama Marine Resources Division. The manual on age-and-growth, which began in 2000, neared completion with final editing expected to be completed by mail. The document includes general and species-specific techniques for processing and ageing fish and the three-ring binder format will allow future additions. The manual will provide a valuable training tool and assist in the standardization of techniques used throughout the Gulf of Mexico.

Support was provided to the Commercial/ Recreational Fishery Advisory Panel in 2001 to attend the annual meetings of the GSMFC. Topics of discussion included three FMPs currently in review, the FIN program, bycatch issues in the Gulf of Mexico, marine reserves, and participation by each group in the GSMFC data collection programs.

In accordance with *The Gulf of Mexico Cooperative Law Enforcement Strategic Plan*, the GSMFC Law Enforcement Committee continued to work in 2001 toward regional enforcement goals. Joint Enforceability Agreements for enhanced state/federal enforcement of marine resource laws were finalized between the five Gulf States and NOAA Fisheries Enforcement. Implementation of a gulf-wide violations hot line was completed in September 2001. One number will connect the caller to the nearest state and federal agency. Alabama provided law enforcement expertise to the newly-formed Striped Bass Technical Task Force. The committee provided continuous updates to rules and regulations, boating safety, and upcoming and recent fisheries events via the GSMFC web page.

The Habitat Subcommittee met in March 2001; items of discussion included development of a freshwater inflow policy for the Gulf of Mexico Fishery Management Council (Council) and a joint discussion with the Crab Subcommittee to develop a gulf-wide derelict crab trap removal program.

The habitat program coordinator attended a conference in January 2001 on the extensive marsh die off in Louisiana and another conference on Bottom Trawling Impact on Habitat in March where he presented state regulations on trawling. The coordinator also attended the January and July Council meetings to discuss the Brownsville Weir and Reservoir project, artificial reef materials, and freshwater inflow issues in the Gulf of Mexico. Following the July meeting, letters were sent to the governors of the Gulf States and Georgia stressing the importance of proper freshwater inflows to the health and maintenance of estuaries in the Gulf of Mexico.

A poster on habitats in the Gulf of Mexico was printed and distributed to the states in February 2001. The posters have also been used in public outreach and distributed to schools and other interested individuals. The poster has also been used as a place mat design for seafood restaurants and suppliers.

Program administration included financial and logistic support for all IJF-related meetings; production, duplication, and distribution of all documentation and correspondence related to the program; and provision of accountability reporting to the funding agency. In addition, the GSMFC IJF Program staff continued to provide numerous copies of existing FMPs, profiles, amendments, revisions, and other information upon request. Lastly, the IJF staff continues to publish and distribute two additional documents annually – *Licenses and Fees for Alabama, Florida, Louisiana, Mississippi, and Texas in their Marine Waters for the Year* and *A Summary of Marine Fishing Laws and Regulations for the Gulf States*.

# FISHERIES INFORMATION NETWORK (FIN)

*David M. Donaldson, Program Manager*

The Fisheries Information Network (FIN) is a state-federal cooperative program to collect, manage, and disseminate statistical data and information on the marine commercial and recreational fisheries of the Southeast Region.[1] The FIN consists of two components: Commercial Fisheries Information Network (ComFIN) and the Southeast Recreational Fisheries Information Network [RecFIN(SE)].

The need for a comprehensive and cooperative data collection program has never been greater because of the magnitude of the recreational fisheries and the differing roles and responsibilities of the agencies involved. Many southeastern stocks targeted by anglers are now depleted, due primarily to excessive harvest, habitat loss, and degradation. The information needs of today's management regimes require data which are statistically sound, long-term in scope, timely, and comprehensive. A cooperative partnership between state and federal agencies is the most appropriate mechanism to accomplish these goals.

Efforts by state and federal agencies to develop a cooperative program for the collection and management of commercial and recreational fishery data in the Region began in the mid to late 1980s. In 1992, the National Marine Fisheries Service formally proposed a planning activity to establish the RecFIN(SE). Planning was conducted by a multi-agency Plan Development Team through October 1992 at which time the program partners approved a Memorandum of Understanding (MOU) which established clear intent to implement the RecFIN(SE). Upon signing the MOU, a RecFIN(SE) Committee was established.

In 1994, the NMFS initiated a formal process to develop a cooperative state-federal program to collect and manage commercial fishery statistics in the Region. Due to previous work and NMFS action, the Southeast Cooperative Statistics Committee (SCSC) developed a MOU and a draft framework plan for the ComFIN. During the development of the ComFIN MOU, the SCSC, in conjunction with the RecFIN(SE) Committee, decided to combine the MOU to incorporate the RecFIN(SE). The joint MOU creates the FIN which is composed of both the ComFIN and RecFIN(SE). The MOU confirmed the intent of the signatory agencies to participate in implementing the ComFIN and RecFIN(SE).

The scope of the FIN includes the Region's commercial and recreational fisheries for marine, estuarine, and anadromous species, including shellfish. Constituencies served by the program are state and federal agencies responsible for management of fisheries in the Region. Direct benefits will also accrue to federal fishery management councils, the interstate marine fisheries commissions, the National Park Service, the U.S. Fish and Wildlife Service, and the NOAA National Marine Sanctuaries Program. Benefits which accrue to management of fisheries will benefit not only commercial and recreational fishermen and the associated fishing industries, but the resources, the states, and the nation.

The mission of the FIN is to cooperatively collect, manage, and disseminate marine commercial, anadromous and recreational fishery data and information for the conservation and management of fishery resources in the Region and to support the development of a national program. The four goals of the FIN include to plan, manage, and evaluate commercial and recreational fishery data collection activities; to implement a marine commercial and recreational fishery data collection program; to establish and maintain a commercial and recreational fishery data management system; and to support the establishment of a national program.

## PROGRAM ORGANIZATION

The organizational structure consists of the FIN Committee, two geographic subcommittees (Caribbean and Gulf), standing and ad hoc subcommittees, technical work groups, and administrative support. The FIN Committee consists of the signatories to the MOU or their designees, and is responsible for planning, managing, and evaluating the program. Agencies represented by signatories to the MOU are the National Marine Fisheries Service, U.S. Fish and Wildlife Service, National Park Service, Alabama Department of Conservation and Natural Resources, Florida Department of Environmental

[1]The Southeast Region (the Region) includes Alabama, Florida, Georgia, Louisiana, Mississippi, North Carolina, Puerto Rico, South Carolina, Texas, and the U.S. Virgin Islands.

Protection, Louisiana Department of Wildlife and Fisheries, Mississippi Department of Marine Resources, Puerto Rico Department of Environmental and Natural Resources, Texas Parks and Wildlife Department, U.S. Virgin Islands Department of Planning and Natural Resources, Caribbean Fishery Management Council, Gulf of Mexico Fishery Management Council and Gulf States Marine Fisheries Commission.

As of October 1998, the Georgia Department of Natural Resources; South Carolina Department of Natural Resources; North Carolina Department of Environment, Health, and Natural Resources; South Atlantic Fishery Management Council; and Atlantic States Marine Fisheries Commission no longer actively participated on the FIN Committee. Although there is no representation of the South Atlantic on FIN, the South Atlantic continues to participate at the work group level, and there was continued participation by staff members from both programs to ensure compatibility and comparability.

The FIN Committee is divided into two standing subcommittees representing the major geographical areas of the Region: Caribbean, Gulf, and South Atlantic. These subcommittees are responsible for making recommendations to the Committee on the needs of these areas. Standing and ad hoc subcommittees are established as needed by the FIN Committee to address administrative issues, and technical work groups are established as needed by the Committee to carry out tasks on specific technical issues. Coordination and administrative support of the FIN is accomplished through the Gulf States Marine Fisheries Commission.

## PROGRAM ACTIVITIES

The FIN is a comprehensive program comprised of coordinated data collection activities, an integrated data management and retrieval system, and procedures for information dissemination. Activities during 2001 were associated with addressing issues and problems regarding data collection and management and developing strategies for dealing with these topics. In addition to committee activities, FIN was involved in various operational activities concerning the collection and management of marine commercial and recreational fisheries data. These activities were conducted by the various state and federal agencies involved in FIN. Each type of activity is discussed below.

### Committee Activities

#### *FIN Committee*

The major FIN meeting was held in June 2001. Major issues discussed during these meetings included:

- identification and continuation of tasks to be addressed in 2001 and instruction to Administrative Subcommittee and the Data Collection, Biological/Environmental, Social/Economic, Outreach, Data Collection Plan, Registration Tracking, Data Management and ad hoc work groups to either begin or continue work on these tasks;
- development of the 2002 FIN Operations Plan which presented the year's activities in data collection, data management, and information dissemination;
- discussion of data management issues;
- review of activities and accomplishments of 2001;
- continued evaluation of adequacy of current marine commercial and recreational fisheries programs for FIN and development of recommendations regarding these programs;
- review findings of and receive recommendations from technical work groups for activities to be carried out during 2002;
- preparation and submission of a proposal for financial assistance to support activities of the FIN; and
- continued internal evaluation of the program.

#### *Subcommittees and Work Groups*

The FIN subcommittees and work groups met this year to provide recommendations to the Committee to formulate administrative policies, address specific technical issues for accomplishing many of the FIN goals and objectives, and examine other issues as decided by the Committee. Their activities included:

- The FIN Outreach Work Group met (via conference call ) in January 2001 to review the draft Outreach RFP which was designed to solicit proposals for the development of an outreach program for the FIN.
- The ACCSP/FIN Registration Tracking Work Group met in February 2001 to continue the huge task of developing a system that provides a unique identifier to fishermen, dealers, and others

involved in the commercial fisheries that is trackable through geographic location and time.

- The Administrative Subcommittee also met (via conference call) in February and April 2001 to review and provide recommended changes to the FIN Framework Plan.

- The FIN Gulf of Mexico Subcommittee met in March 2001 to discuss the development of a feasibility study for using marine recreational fishing licenses as a sampling frame in the Gulf of Mexico.

- The ComFIN Data Collection Work Group also met (via conference call) in March 2001 to discuss the development of the fishery module and discuss the development of the discards module.

- Representatives from the Gulf States, GSMFC, and NMFS met in March, September, and November 2001 to review the performance of the MRFSS intercept survey and review and evaluate January - December (2001) catch and effort data.

- The FIN Data Collection Plan Work Group met (via conference call) in April 2001 to determine how to allocate sampling targets for each of the established cells. From this, a draft data collection plan for the FIN will be developed. This plan will guide the collection of biological data for commercial and recreational fisheries.

- A program review of the FIN occurred in April 2001 to evaluate the FIN's success in meeting the data collection and management needs in the Southeast Region and determine the effectiveness of the FIN program in meeting its stated goals, objectives and mission.

- The RecFIN(SE) Biological/Environmental Work Group met in May 2001 to discuss optimization of sampling for offshore and inshore fishing activity; update on the night fishing pilot study; status of tournament sampling; review of recreational biological sampling methods; and review and action on the FIN metadata module.

- The Social/Economic Work Group also met in May 2001 to review ongoing social/economic data collection activities and the development of a social/economic pilot study in the Gulf of Mexico for funding consideration in 2002.

- The Administrative Subcommittee met in July 2001 to discuss revising the program review process, developing a new time line for the FIN, and developing a clearer charge to the Outreach Work Group.

- The State/Federal Fisheries Management Committee met in August 2001 to discuss the finalization of activities for funding for the 2002 FIN cooperative agreement.

- The Caribbean commercial port samplers met in October 2001 to address a variety of commercial issues. The main topics of discussion were the status of Commercial Fisheries Information Network (ComFIN), discussion of Gulf of Mexico port samplers data collection methods, fisheries research activities in the Caribbean, discussion regarding adaptation of sampling strategies for use in the Caribbean, and round table discussions.

- The Gulf of Mexico commercial port samplers met in November 2001 to address a variety of commercial issues. The main topics of discussion were the status of Commercial Fisheries Information Network (ComFIN), discussion of law enforcement and confidentiality issues, presentation of collection of social/economic data, trip ticket programs presentations from Louisiana, Mississippi and Alabama and other pertinent issues. In addition, there was an otolith extraction technique workshop for red snapper, king mackerel, southern flounder, and other species.

**Operational Activities**

- Coordination and Administration of RecFIN(SE) and ComFIN Activities. This task provided for the coordination, planning, and administration of FIN activities throughout the year as well as provide recreational and commercial information to the FIN participants and other interested personnel. This is a continuation of an activity from the previous year.

- Collecting, Managing, and Disseminating Marine Recreational Fisheries Data. This task provided for the conduct of the MRFSS survey in Louisiana, Mississippi, Alabama, and Florida for shore, for-hire, and private modes, an activity under the RecFIN(SE). This task provided for coordination of the survey, a field intercept survey of shore, for-hire and private boat anglers to estimate angler catch using the existing MRFSS methodology, and entry of the data. These data were combined with

the NMFS effort estimate telephone survey. In addition, the states conducted supplemental sampling of the intercept portion for the MRFSS for charter boats in Louisiana, Mississippi, Alabama, and the west coast of Florida. The states also conducted weekly telephone calls to a 10% random sample of the Louisiana, Mississippi, Alabama, and Florida charter boat captains to obtain estimates of charter boat fishing effort which will be compared with the MRFSS estimates. In 2000, NMFS adopted this method as the official methodology for estimation of charter boat effort. This is a continuation of an activity from the previous year. Also, the charter boat telephone survey was expanded to include the east coast of Florida so that the entire state is covered by this methodology.

- Head Boat Port Sampling in Texas, Louisiana, and Florida. This task provided for the sampling of catches, collection of catch reports from head boat personnel, and gathering effort data on head boats which operate primarily in the Exclusive Economic Zone from ports along the coasts of Texas, Louisiana, and Florida. This is a continuation of an activity from the previous year.

- Commercial Fisheries Data Collection Activities . This task provided for sampling gulf menhaden catches from menhaden purse-seine vessels which operate in Louisiana, as well as the intercept of shrimp fishermen and collection of information on the amount of time the vessel was fishing and the area(s) where fishing occurred. For menhaden, samples were processed for size and age composition for use in coast-wide stock assessments. In turn, gulf menhaden stock assessments are incorporated into the fisheries management plan for the species and are also utilized by the Gulf Coast states, the GSMFC, the menhaden industry, and the NMFS. For collection of shrimp effort, area fished, size frequency, and aging data, collection of length and weight data, hard parts and tissue samples from various species under federal or state fisheries management were accomplished. A principal sub-objective is to increase the amount of size frequency and aging data for red snapper. However, because the commercial fishery for this species is only opened for a limited number of weeks during the year, the size frequency and aging data were collected from other federal or state managed species during the remainder of the year. This is a continuation of an activity from the previous year although the menhaden and effort and aging activities were combined.

- Development and Implementation of FIN Data Management System. This task provided for further implementation of a fishery information system for the FIN based on the ACCSP model. This task provided funding for an Information Technology Manager who will, in conjunction with the ACCSP, work on developing more data modules for the FIN and ACCSP data management systems. This is a continuation of development of the FIN data management system. In addition, the Information Technology Manager will be responsible for transferring Louisiana trip ticket data into the FIN data management system on an agreed upon schedule. It is the next step for implementing a regional system for FIN.

- Trip Ticket Program Development. This task provided for the initiation and development of a commercial trip ticket system for Texas, Mississippi, and Alabama, an activity under the ComFIN. This task provided for development of components for a commercial trip ticket system to census the commercial fisheries landings in Texas, Mississippi, and Alabama using the data elements and standards developed by the ComFIN. It will ultimately be combined with other commercial fisheries data collected from around the Gulf of Mexico. In Mississippi and Alabama, the states continued to develop and began initial implementation of a trip ticket program. In Texas, the department continued to identify the major seafood restaurants and other potential sources of unreported landings by commercial fishermen to determine the extent of non-reporting as well as prepare a list of seafood dealers to participate in outreach meetings to determine the feasibility of implementing a trip ticket system or an alternate means of data collection. In Louisiana, the Department continued the development of a system for dealers to electronically capture and transfer trip ticket data to the Louisiana Department of Wildlife and Fisheries.

- Night Fishing Pilot Survey for Shore Mode in Mississippi. This task provided for the conduct of a pilot survey for developing a night sampling site register on the Mississippi coast for shore mode, as well as conducting an intercept survey for night fishing activities. This information is potentially needed in order to improve estimates of recreational fishing catch and effort. The shore fishing mode was the primary target mode for development of the nighttime site register and

intercept survey. The GSMFC/NMFS produced expanded estimates of catch and effort by wave using the existing MRFSS methodology. These estimates will be compared with daytime catch estimates to determine if significant differences exist between day and night fishing activities.

**Coordination and Administrative Support**

Working closely with the Committee in all aspects of program coordination, administration, and operation was a major function of FIN coordination and administrative support. Other important coordination and administrative activities included but were not limited to providing coordination and logistical support, including communications and organization of meetings for the Committee, subcommittees, and work groups; serving as liaison between the Committee, other program participants, and other interested organizations; preparing the annual operations plans under the direction of the Committee; preparing and/or supervising and coordinating preparation of selected documents, including written records of all meetings; and distributing approved FIN information and data in accordance with accepted policies and procedures.

**Information Dissemination**

Committee members and staff provided program information in 2001 via a variety of different methods such as distribution of program documents, presentation to various groups interested in the FIN, and via the Internet:

- FIN Committee. 2001. *2002 Operations Plan for Fisheries Information Network (FIN).* No. 91 Gulf States Marine Fisheries Commission, Ocean Springs. 25 pp + appendix.

- FIN Committee. 2001. *Annual Report of the Fisheries Information Network for the Southeastern United States (FIN) January 1, 2000 - December 31, 2000.* No. 97 Gulf States Marine Fisheries Commission, Ocean Springs. 18 pp + appendices.

- FIN articles in the GSMFC newsletters.

- Variety of informal discussions occurred throughout the year during ASMFC, GSMFC, NMFS, and other participating agencies meetings and workshops.

- NPS personnel periodically provided information concerning the FIN (meeting notices, available documents, etc.) to the EPA's Gulf of Mexico Program computer Bulletin Board System.

- NMFS provides a user-friendly data management system for the MRFSS.

- GSMFC has developed a home page which provides programmatic and operational information regarding FIN.

# Joint GSMFC/Gulf of Mexico Fishery Management Council Habitat Program

*Jeffrey K. Rester, Program Coordinator*

During 2001, the Habitat and Crab Subcommittees worked together to develop a Gulf-wide derelict crab trap removal program. The subcommittees worked jointly because the nature of the problem required a coordinated Gulf-wide effort to solve. A report was drafted detailing the problems derelict traps pose and possible solutions to the problems. A web page detailing the problems associated with derelict traps was created and is available on the Commission web site at **www.gsmfc.org/derelicttraps.htm**.

In January, the program coordinator attended a Brown Marsh Die-Off Conference where speakers discussed the extent and possible causes of the extensive marsh die off that occurred in Louisiana during the summer of 2000. The coordinator also attended the Gulf of Mexico Fishery Management Council meeting where artificial reef materials and the Brownsville Weir and Reservoir Project were discussed. The weir would be located 48.7 miles from the mouth of the Rio Grande River and would impound water for 42 miles upstream. The artificial reef discussion centered on what constituted appropriate artificial reef materials.

The new habitat poster was printed in February, and 20,000 copies were distributed to the states. These posters stress the importance of habitat to fish and wildlife species. The posters were well received and were used in public outreaches and distributed to schools and interested individuals. The poster was also used as a place mat for local Mississippi seafood restaurants. The habitat place mats allow patrons to read about the importance of habitat prior to and while enjoying their meal. A black and white outline drawing of the poster was also used as a coloring sheet at public outreach events where the Commission was represented.

In March, a National Research Council sponsored a bottom trawling impact on habitat in which the program coordinator presented state regulations on trawling. The GSMFC Habitat Subcommittee met and drafted a freshwater inflow policy for the Gulf of Mexico Fishery Management Council. The program coordinator contributed to a letter sent to the governors of the Gulf States stressing the importance of freshwater to the sustainability of marine fisheries.

In July, the Council discussed freshwater inflow issues in the Gulf of Mexico. As a result of this meeting, letters were sent to the governors of the Gulf States and Georgia to stress the importance of proper freshwater inflow to the health and maintenance of estuaries in the Gulf of Mexico. The Council also discussed public scoping meetings for the essential fish habitat environmental impact statement (EIS). The EIS would evaluate alternatives to the designation of EFH and habitat areas of particular concern (HAPCs) for the fisheries and fishery resources under the Council's jurisdiction. The EIS would also evaluate the environmental impacts associated with such EFH and HAPC designations and with measures needed to mitigate impacts related to both fishing and non-fishing activities.

The Habitat Subcommittee finalized the freshwater inflow policy for the Council in October. The policy was also forwarded to the Commission for their approval as well. Public outreach projects were also discussed during the Habitat Subcommittee meeting. The subcommittee would like to produce a video to show varied marine habitats that exist within the Gulf of Mexico to stress the importance of these habitats to the sustainability of marine fisheries.

In November, the Louisiana/Mississippi and Texas Habitat Protection Advisory Panels met to review the Council's freshwater inflow policy. Several revisions to the policy were forwarded to the Council for their review. Regional habitat-related issues were also discussed. Some of the more interesting discussions included three similar habitat restoration projects in Galveston Bay. These projects creased marsh elevation terraces that were later planted with smooth cordgrass. All three projects were successful at restoring habitat in areas of Galveston Bay that were experiencing high levels of wetland loss in the past 75 years.

# ALABAMA DEPARTMENT OF CONSERVATION AND NATURAL RESOURCES, MARINE RESOURCES DIVISION

*Vernon Minton, Director*

The Alabama 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 43 employees of the administrative, enforcement, and fisheries sections during fiscal year 2001.

## SIGNIFICANT ACCOMPLISHMENTS

A regulation prohibiting the use of air boats south of Interstate Highway 10 was promulgated to protect Alabama's marshes and estuarine habitats.

Several improvement programs were conducted during the course of the year including the renovation of the public boat ramps on the east end of Dauphin Island and dredging of the Dauphin Island Bay Channel. This dredging program resulted in the removal of 30,000 cubic yards of material that was deposited just south of Pass Drury on Little Dauphin Island. This improves navigational safety for charter and recreational vessels.

Enforcement officers continued to improve and expand the Coastwatch Program, training citizens to recognize and report violations of saltwater fishing laws and regulations. Information from Coastwatch members assisted with planning of enforcement patrols and deployment of manpower and other resources resulting in saved man-hours by not responding to inaccurate reports of violations. To date, 106 citizens have been trained at 17 training sessions held in Mobile, Baldwin, and Jefferson counties. The response to the program continued to be very positive.

The U.S. Department of Commerce appropriations budget for the 2001 fiscal year contained $15 million earmarked for cooperative enforcement initiatives between NOAA law enforcement and state fisheries law enforcement entities. The Alabama Marine Resources Division and NOAA Office of Enforcement entered into a joint enforcement agreement pursuant to the initiative. As part of the agreement, first-time federal dollars have been dedicated to increase fisheries law enforcement efforts and compliance with federal fishery regulations along coastal Alabama and the Gulf of Mexico. Fisheries resources are cooperatively protected, managed, and conserved by state and federal governments. The AMRD enforcement section received $486 thousand as part of the agreement. The money was used to purchase one 31-foot offshore vessel, one vehicle, and surveillance equipment that was strategically located in coastal Alabama. Additionally, the joint enforcement agreement provided funding to increase patrol hours.

The infrastructure of Claude Peteet Mariculture Center (CPMC) was improved to provide increased overwintering facilities for red snapper fingerlings. Also, new facilities for red snapper brood fish maturation studies by use of light and temperature manipulation were completed. This will create opportunities for increased research in both mariculture and management of red snapper.

The third year of a cooperative project with Auburn University at the CPMC continued to investigate the techniques for raising shrimp in ponds at increased densities using auxiliary aeration and nursery trial studies. This resulted in a harvest of an average of slightly under 4,000/lbs per acre of 26-30 count shrimp. Some of the techniques pioneered at CPMC will be used in a developing shrimp farm industry in north-central Alabama utilizing deep low salinity water wells.

## SIGNIFICANT PROBLEMS AND SOLUTIONS

The number of crab traps in use in Alabama's estuarine area and the associated derelict traps continue to be a problem. Plans are being made to reduce the number of traps in the future.

The legislation to establish oyster management stations was introduced last year but failed to pass. This legislation is needed to provide data on harvest and effort in the oyster fishery. This information is used to manage the oyster fishery and ensure a sustainable yield for the future.

The lack of adequate facilities of high salinity, high-quality water for rearing of marine fishes such as red snapper at the CPMC continued to be a problem in 2001. A portion of the Coastal Impact Assistance Monies will be used to construct a pipeline from the Gulf State Park pier to the mariculture center during 2003.

## ADMINISTRATIVE SECTION

The Administrative Section provided supervision, clerical, purchasing, and general

administrative support for the two operational sections; supervised state seismic activities; and coordinated with other state, federal, and regional agencies on fisheries and environmental matters.

Staff for the section consisted of the division director, six clerical, and one marine mechanic employee. Offices are maintained at Dauphin Island, Gulf Shores, and Bayou La Batre.

**Accomplishments**

A regulation prohibiting the use of air boats south of Interstate Highway 10 was promulgated to protect Alabama's marshes and fisheries habitats.

Several improvement programs were conducted during the course of the year including renovation of the public boat ramps on the east end of Dauphin Island and dredging of the Dauphin Island Bay Channel. This dredging program resulted in the removal of 30,000 cubic yards of material that was deposited just south of Pass Drury on Little Dauphin Island. This improved navigational safety for charter and recreational vessels.

**Future Plans**

After consultation with crab fishermen and other affected user groups, plans are being developed to address overcapitalization in the crab fishery within Alabama's jurisdiction.

Plans are in place to construct boat ramps at Josephine Bayou, Fort Morgan, and Little Billy Goat Hole during the next fiscal year.

The projects proposed by the division under the Coastal Impact Assistance Program have been approved pending receipt of all necessary permits. Those projects will be initiated in fiscal year 2002.

**ENFORCEMENT SECTION**

The Enforcement Section patrols Alabama's coastal waters enforcing state and federal laws and regulations related to the conservation and protection of marine resources. Officers also enforce laws and regulations related to boating safety and freshwater fishing and hunting, conduct search and rescue missions, and participate in drug interdiction operations. Officers are cross-trained and deputized as National Marine Fisheries Service and U.S. Customs Agents and cooperate extensively with these agencies and other federal agencies in the coordination of joint enforcement operations, investigative and fisheries enforcement expertise, training, public safety, and other natural resource issues.

Facilities for the Enforcement Section consist of headquarters at Dauphin Island and district offices at Bayou La Batre and Gulf Shores. There are 15 enforcement officers in the section – eight stationed in Mobile County and five stationed in Baldwin County. The Chief Enforcement Officer is stationed at the Dauphin Island headquarters. Four vacancies are scheduled to be filled in FY2001-2002, and one additional position for Baldwin County has been requested.

**Accomplishments**

Enforcement officers conducted 11,271 hours of boat and shore patrol; 6,167 boat checks; 2,015 seafood shop inspections; 8,619 recreational fisherman checks; and issued 1,407 citations and warnings for illegal activities. Thirty-one percent of the citations and warnings (450) were for violations of recreational fishing laws and regulations. The 419 violations of commercial fishing laws and regulations comprised 29 percent of the citations and warnings issued. Officers also issued citations and warnings for 383 violations of boating safety laws and regulations, 77 game and fish, and 78 citations for other state and federal laws and regulations. A total of 10,153.5 hours was spent on administrative duties, court attendance, training, and equipment maintenance. Officers worked 1,478 hours with the National Marine Fisheries Services interjurisdictional fisheries enforcement program.

Enforcement officers continued to improve and expand the Coastwatch Program, training citizens to recognize and report violations of saltwater fishing laws and regulations. Information from Coastwatch members has assisted with planning of enforcement patrols and deployment of manpower and other resources resulting in saved man-hours by not responding to inaccurate reports of violations. To date, 106 citizens have been trained at 17 training sessions held in Mobile, Baldwin, and Jefferson counties. The response to the program continues to be very positive.

The U.S. Department of Commerce appropriations budget for the 2001 fiscal year contained $15 million earmarked for cooperative enforcement initiatives between NOAA law enforcement and state fisheries enforcement entities. The Alabama Marine Resources Division and NOAA Enforcement entered into a joint enforcement agreement pursuant to the initiative. As part of the agreement, first-time federal dollars have been dedicated to increase fisheries law enforcement efforts and compliance with federal fishery regulations along coastal Alabama and the Gulf of Mexico. Fisheries resources are cooperatively

protected, managed, and conserved by state and federal governments. The AMRD enforcement section received $486,000 as part of the agreement. The money was used to purchase one 31-foot offshore vessel, one vehicle, and surveillance equipment that has been strategically located in coastal Alabama. Additionally, it provided funding to increase patrol hours for officers.

Officers attended training courses on boat handling, criminal investigation, self-defense, supervision, and other state and federal agency law enforcement programs.

**Future Plans**

Continue to develop mechanisms to improve the Coast Watch Program and public outreach efforts to better communicate enforcement efforts and important information.

Continue to develop procedures to enhance the Joint Enforcement Agreements with NOAA and assure that such agreements are implemented in future years.

Work with the Gulf States and the National Marine Fisheries Service to implement the Gulfwide strategic fisheries enforcement plan.

**FISHERIES SECTION**

Activities of the Fisheries Section are directed toward management of commercial and recreational fisheries in Alabama's marine and estuarine waters and involve cooperative efforts with the National Marine Fisheries Service in nearshore federal waters in the Gulf of Mexico and with other Gulf of Mexico state agencies to develop cooperative fisheries management programs. These activities are mostly funded through federal aid programs of the U.S. Departments of Commerce (National Marine Fisheries Service) and Interior (U.S. Fish and Wildlife Service). Biological programs not covered by federal aid such as fish kills, oyster management, shrimp management, and pollution investigations are supported by commercial and recreational license fees. Section personnel also assist in oversight of natural gas activities within Alabama's coastal waters, territorial sea, and adjacent federal waters in the Gulf of Mexico, and comment on all applications for U.S. Army Corps of Engineer permits in the coastal area.

Fisheries facilities consist of the Claude Peteet Mariculture Center in Gulf Shores and the Marine Resources Laboratory in Dauphin Island. Personnel consist of one Biologist V, one Biologist IV, one Biologist III, four Biologist II's, one Biologist I, four Biologist Aides III, nine Biologist Aides I/II, one ASA I/II, one by-weekly laborer, and two temporary laborers.

**Accomplishments**

The second full year of sampling was completed under the cooperative program with the Alabama Department of Environmental Management (ADEM) to integrate the division's assessment and monitoring program with ADEM's water quality monitoring program to allow both organizations to increase the intensity of sampling and improve data collection at little or no increase in cost.

The infrastructure of CPMC was improved to provide increased overwintering facilities for red snapper fingerlings. Also, new facilities for red snapper brood fish maturation studies by use of light and temperature manipulation were completed at CPMC. This created opportunities for increased research in both mariculture and management of red snapper.

The third year of a cooperative project with Auburn University at the CPMC continued to investigate techniques for raising shrimp in ponds at increased densities using auxiliary aeration and nursery trial studies. This resulted in a harvest of an average of slightly under 4,000/lbs per acre of 26-30 count shrimp. Some of the techniques pioneered at CPMC will be used in a developing shrimp farm industry in north central Alabama.

During the year, 1,102 fisheries assessment samples were taken, 112 habitat assessments were performed, and 8,579 fishermen were interviewed during creel surveys.

Dredging of the Dauphin Island Bay Channel was completed to increase the depth of the 8,000 foot long, 60 foot wide area to an 8-foot depth at mean low water.

**Federal Aid**

***Wallop/Breaux***

Wallop/Breaux funds are administered through the U.S. Fish and Wildlife Service. Funds used from this source by the Alabama Marine Resources Division were directed toward a creel survey of Alabama's saltwater recreational anglers, production of the 2001 edition of the popular Marine Information Calendar, construction of artificial fishing reefs in the Gulf of Mexico offshore from Alabama and inshore in Mobile Bay, maintaining equipment and facilities in Gulf

Shores and Dauphin Island, managing the public artificial fishing reef permits issuing system in the Gulf of Mexico off Alabama, assisting individuals in designing artificial reefs, conducting mariculture research on red snapper, maintaining and enhancing boat ramps for boating access, conducting a study of the attraction of juvenile red snapper to small patch reefs, and testing various offshore artificial reef modules with respect to attractant qualities and durability. An additional project to coordinate all federal aid programs within the Division and cooperation with Gulf States was also funded from this source.

Personnel also revised the Alabama Marine Resources Activity Book which provided an interactive format for educating elementary students about the life cycles and habits of local organisms.

***Cooperative Statistics***

Federal aid funds for this program are administered by the National Marine Fisheries Service, Department of Commerce and are utilized by the Marine Resources Division to collect data on commercial shrimp, oyster, crab, and finfish landings. Additionally, information on processed seafood such as picked crab meat is compiled. Landings information was collected on fish, shrimp, crabs, and oysters. Biological information was collected on blue crabs, striped mullet, flounder, red snapper, and Spanish mackerel. Commercial license information was kept in a computer database. The cooperative statistics project continued to provide monthly dealer mail-in forms for those dealers not visited by port agents. All landings are processed on a monthly basis for inclusion in Alabama's database and forwarded to the National Marine Fisheries Service.

***Southeast Area Monitoring and Assessment Program (SEAMAP)***

Funds from this program are administered by the National Marine Fisheries Service, Department of Commerce and are utilized in Alabama for the development of a long term fishery-independent database on recreationally and commercially important marine and estuarine fishery stocks. This project provided funds to manage the Alabama shrimp fishery and evaluated spawning success and juvenile survival for important recreational and commercial species. It also provided funds for a project to independently assess red snapper population by video camera and fish trap sampling. This study is being conducted in Alabama's offshore artificial reef permit areas in the Gulf of Mexico.

***The Marine Recreational Fisheries Statistics Survey (MRFSS)***

Beginning in January 1999, division personnel conducted this survey for all types of recreational saltwater fishing in Alabama. The increased number of interviews will provide greater accuracy in the estimate of Alabama's recreational harvest. A telephone survey to collect more detailed information on fishing effort by Gulf Coast for-hire anglers is used to estimate charter boat effort. This method will increase the accuracy of harvest by the recreational for-hire sector.

***Commercial Trip Ticket Program***

Funding for this program is provided by the Department of Commerce through the National Marine Fisheries Service. In FY2001, the first full year of completion was achieved for commercial trip ticket data. This program is part of a gulf-wide effort to generate more specific information for each commercial fishery by collecting fisheries data from each fishing trip. This program has replaced the current method of collecting landings information by the National Marine Fisheries Service and division personnel. Trip tickets are printed in triplicate form and supplied to Alabama seafood dealers. Seafood dealers are required to complete the trip ticket for each transaction. Data from the completed trip tickets are scanned into a computer, verified, and edited. Monthly data are sent to the Gulf States Marine Fisheries Commission and will ultimately be supplied to the National Marine Fisheries Service.

***Mobile Bay Oyster Reef Enhancement***

Four marginally productive oyster reefs in Mobile Bay were surrounded with concrete pipes and planted with a total of 20,500 cubic yards of oyster cultch material to enhance oyster growth and provide structure for an inshore artificial fishing reef.

**Non-federal Aid**

Biological and enforcement personnel worked together to collect data at oyster checkpoints, enabling the development of sound management measures for sustaining the oyster resources. Data collected assisted in increasing the accuracy of assessment of the health of Alabama's oyster resource. A contract was let for the planting of 7,500 $yd^3$ of oyster cultch material on Cedar Point Reef. This will be completed in early FY2002 and will help replenish bottom that had been depleted by harvesting and storm activity.

Meetings were held with oil company representatives periodically to discuss options for accomplishment of pipeline projects. Biological personnel checked areas of proposed drilling platform

locations and associated pipeline corridors for potential impact to oyster resources.

The division also continued the cooperative endeavor with Auburn University and the new Alma May Bryant High School in Mobile County to provide a mariculture training center at the high school. This has proven to be a very successful program which expands students' ability to participate in future fisheries.

Personnel maintained and improved the home page for the division, which is associated with and accessed through the departmental home page at **www.dcnr.state.al.us**. The feedback to this site has been extremely positive; the site has proven to be a tremendous asset in getting information and assistance to the public.

Personnel developed and printed the fourth informational calendar which included an informative tide table and other useful information. The demand for this calendar was high, and feedback was positive. Plans are underway to provide an edition for 2002.

**Future Plans**

The Fisheries Biological Section will continue to collect appropriate data and work with recreational and commercial fishermen and other resource user groups to provide division administrators with recommendations for strategies and regulations for management.

Development of fishery independent assessment and monitoring of adult finfish will continue using multi-panel variable mesh gill nets.

Development of mariculture procedures for commercially important marine organisms will continue.

Cooperative projects will continue to be initiated with Auburn University, the Dauphin Island Sea Lab, and the University of South Alabama to investigate artificial reef benefits and red snapper production enhancement.

Inshore assessment and monitoring work will be continued monthly with the addition of new stations in order to provide a more comprehensive depiction of Alabama's marine waters and resources.

Continuation of the complete MRFSS in Alabama will include creel of charter boats, private boats, ramps, and shoreline. The division will continue the telephone survey to better define effort within the fishery.

The division will improve the accuracy of fish stock assessment analysis along the Gulf Coast. Under the MRFSS project, the division will begin to remove otoliths from targeted fish species in both the recreational and commercial sectors. Otoliths will be collected and processed by each state.

# FLORIDA FISH & WILDLIFE CONSERVATION COMMISSION

***Ken Haddad, Executive Director***

**DIVISION OF MARINE FISHERIES**

***Roy E. Crabtree, Ph.D., Director***

The major responsibilites of the Division of Marine Fisheries include: 1) development and implementation of marine fisheries management policies, 2) issuance and reconciliation of commercial fishing licenses, 3) angler outreach and marine aquatic resource education, (4) the state artificial reef program, 5) monitoring compliance with the marine fisheries trip ticket reporting requirements through audits of applicable fish house records, 6) implementation and administration of the spiny lobster and stone crab effort management [i.e., trap certificate] programs, 7) closure of fishing seasons for species managed by quotas as quotas are reached, 8) civil penalty assessments for violations of certain fisheries regulations, and 9) issuance of Special Activity Permits. Highlights of staff efforts in 2001 include:

## MARINE FISHERIES MANAGEMENT AND POLICY DEVELOPMENT

In response to complaints from local government representatives about the practice of divers feeding marine life, staff drafted and solicited public input on a rule to prohibit the feeding of marine life by divers. The Commission also completed the process to alter the way in which the number of spiny lobster traps is reduced in the future; through a combination of passive and active reduction actions, an annual four percent decline in total trap numbers would be achieved. The Commission adopted the state waters portion of the marine protected areas adjacent to the Tortugas National Park. The Commission also adopted new regulations for Florida pompano in response to net compliance issues. The program limits gill net fishing for pompano in federal waters to fishers that have a vessel permit, no recent violations, and a history of reported landings. The Commission took a strong position regarding the Gulf of Mexico Fishery Management Council's plan amendment for reef fish regarding the commercial long-line fishery for red grouper. The Commission approved the extension of the moratoria on the issuance of new tropical fish collection (marine life endorsement) and blue crab endorsements to commercial fishers in order to address overcapitalization issues in those fisheries. The moratoria will last until at least July 2005. The Commission also established a sponge endorsement to document participation in this commercial fishery. Approximately 250 Special Activity Permits were issued to universities, public aquaria, research institutes, and other organizations for various activities including coral transplanting, shark research, and pompano fishing in federal waters.

## ANGLER OUTREACH AND AQUATIC RESOURCE EDUCATION

Staff continued to provide information on fishing license requirements, fishing opportunities, Commission fisheries management projects, the Sportfish Restoration Program, and the importance of habitat to the fisheries. In 2001/2002 (June 30-July 1), staff participated in more than 40 scheduled events (boat shows, fishing shows, the Florida State Fair, Kids Fishing Clinics, Ladies Let's Go Fishing Clinics) reaching over 100,000 people. All 3,944 participants in the Kids Fishing Clinics received rods and reels. In addition, staff members were frequently featured on local radio and television shows to discuss issues of importance to anglers. Marine aquatic educational activities conducted at the Cedar Key Field Laboratory and The Florida Aquarium attracted over 2,500 participants.

## ARTIFICIAL REEF PROGRAM

During FY2001-2002, $300,000 from a USFWS Federal Aid in Sport Fish Restoration grant, in concert with $300,000 in state fishing license revenues, provided funding to 17 local coastal governments and four non-profit organizations for 12 marine artificial reef construction and ten artificial reef monitoring projects. All 12 reef construction projects were successfully completed, resulting in the construction of 25 reefs using steel-hulled vessels, limestone boulders, and concrete materials. One completed reef monitoring project successfully ground-truthed scores of public artificial reefs off three counties, simultaneously verifying both LORAN-C and DGPS coordinates for reef sites and permit site boundaries. Previous computer software conversions from the original LORAN C to latitude and longitude had resulted in errors that made it difficult for the general public using GPS to locate some of the older reefs whose locations

were initially only described in LORAN C coordinates. Preliminary results of year two of a pilot monitoring project off the central Florida East Coast comparing two buoyed public reef sites with two similar unbuoyed and unpublished reef sites indicate reduced population levels and size classes of recreationally targeted fish on the published reefs compared to the unpublished reefs. Non-target fish abundances showed similarities on published and unpublished reefs. The state reef project co-sponsored a statewide Artificial Reef Symposium during October 2001 that was attended by approximately 100 individuals.

## MARINE FISHERIES SERVICES

In addition to issuing the different commercial saltwater fishing licenses and permits (24 basic types) and administration of the trap certificate programs, Bureau staff conducted audits of six saltwater products dealers plus one on-site visit to discuss trip ticket reporting requirements with another wholesale dealer. Seventy three administrative hearings were conducted in response to agency denials of commercial license/permit applications, suspensions of commercial licenses/permits, civil penalty assessments, and allocations of stone crab trap tag certificates. All eligible stone crab fishers received their initial allocation of stone crab trap tag certificates according to procedures defined in rule; 526 fishers appealed their initial allocation to the Stone Crab Trap Certificate Advisory and Appeals Board, and 41 requested an informal administrative hearing to appeal the Board's recommendation for their allocation. Notwithstanding the outcome of the pending administrative hearings, a total of 1,543,262 trap certificates were allocated. The Bureau awarded approximately $4.2 million in federal disaster relief funds to eligible fishers in the Florida Keys who had losses of uninsurable trap gear during Hurricane Georges and Tropical Storm Mitch.

## FLORIDA MARINE RESEARCH INSTITUTE
***Gil McRae, Director***

## FINFISH

### Gamefish, Reeffish, and Directed Life History Studies

A three-year study of spotted seatrout (*Cynoscion nebulosus*) reproduction in Tampa Bay continued. The study supplements an earlier study conducted on the east coast of Florida and aims at determining age-specific schedules of spawning frequency and batch fecundity, as well as geographically-specific maturity schedules, to refine the accuracy of spawning potential ratio (SPR) estimates for spotted seatrout in Florida waters. Work on age, growth, and reproduction of Florida pompano (*Trachinotus carolinus*) along the Gulf coast of Florida has also continued. The objective of this study is to use a less-selective gear to catch pompano in a fishery-independent manner that should yield better estimates of age, growth, and fecundity than previous studies. This study will describe the post-net ban age-and size-structure of Florida pompano, estimate growth and mortality rates of Florida pompano, and describe maturity schedules and age-specific fecundity of Florida pompano. Work continued on the biology and ecology of reef fishes in southeast Florida. Work on snapper (*Lutjanus griseus*), mutton snapper (*Lutjanus analis*), and lane snapper (*Lutjanus synagris*) is progressing. A two-year research project on dolphin (*Coryphaena hippurus*) which focused on collecting fishery and biological data for stock assessment purposes was completed.

### Baitfish

The annual spring time acoustic survey was conducted April 8-18. This survey was conducted along the west coast of Florida to assess stocks of important baitfish species such as Spanish sardine, Atlantic thread herring, round scad, and scaled sardine. The results of this survey along with previous surveys were incorporated into a report to the commission. Work continued and improved the newly-developed Ecopath/Ecosim/ Ecospace models of the west Florida shelf. This modeling approach is used to investigate the ecosystem impacts of fishing and/or environmental anomalies on forage species such as sardine/herring species.

### Mullet

A directed fishery-independent (trammel-net) survey was conducted during September-January. This study is used to monitor changes in the age/size structure of the mullet population in Tampa Bay and Charlotte Harbor. Mullet were subsampled for aging.

## BIVALVE FISHERIES RESEARCH

Bay scallop (*Argopecten irradians*) research continues to be directed toward assessing biological and environmental factors influencing the depletion or loss of scallop populations in peninsular Florida. Adult abundance monitoring

continued in Pine Island Sound, Anclote Estuary, Homosassa, and Steinhatchee in peninsular Florida and St. Joseph Bay, St. Andrew Bay/Sound, and Pensacola Bay in panhandle Florida. Recruitment monitoring suggested that recruitment limitation is preventing the recovery of depleted populations. A NMFS grant supported a scallop restoration program in the area between Tampa Bay and Crystal River, and scallop abundance increased substantially in that area. That success led to the reopening of the recreational scallop fishery south of the Suwannee River, and restoration efforts will be continued and expanded with support from federal and state funding agencies.

**CRUSTACEAN FISHERIES RESEARCH**

The crustacean fisheries research program is comprised of fisheries-oriented biological and ecological studies on economically important crustaceans (shrimps and crabs) and other marine arthropods (horseshoe crab). During 2001, work was completed on a three-year grant that included studies to use the Global Information System, to help in the development of resource impact maps (RIMs) that show in detail allowable shrimp harvesting zones in Florida, to test the efficiency of bycatch reduction devices (BRDs) in shrimp trawls, and to determine the genetic stock structure of three shrimp species. Several RIMS for the Big Bend and northeast shrimping regions were developed. Manuscripts are being written on the efficiency of BRDs in otter trawls (*Fishery Bulletin 100:338-350*), skimmer trawls (in preparation), and roller frame trawls (in preparation); the genetic stock structure of blue crabs (submitted to journal), pink shrimp (in review), and brown and white shrimp (nearly complete); and the population biology and fisheries biology of stone crabs in northwest Florida (in preparation).

Work was initiated on a three-year grant that includes studies to estimate blue crab trap abundance in Florida, to collect blue crab fisheries-dependent (sex ratio and size/weight data) and independent (population biology) data, to develop RIMs for allowable shrimp harvesting zones and a monitoring system for the Florida shrimp fisheries, to locate horseshoe crab spawning beaches, and to identify horseshoe crab genetic stocks. A field study continued on the population biology of stone crabs in the vicinity of Tampa Bay. In conjunction with the GSMFC, a guidelines document for derelict crab trap clean up programs was developed. Information was contributed on shrimp genetic stocks for a Shrimp Virus Workshop sponsored by NOAA, USDA, and EPA.

**FISHERIES GENETIC RESEARCH**

The fisheries genetic research program has two principal directions: 1) genetic stock identification of economically important marine organisms, and 2) monitoring the effects of FMRI SERF hatchery operations on the gene pools of wild populations supplemented with hatchery reared organisms and monitoring the success of stock restoration efforts. A work plan for the Fisheries Genetics Program was developed based on needs specified by the Florida Fish and Wildlife Conservation Commission.

Laboratory analysis of genetic stock structure in spotted seatrout was completed and nearly completed in sheepshead. Manuscripts that identify geographic ranges of stock of these fish species are in preparation. Laboratory analysis of samples to assess the success of the bay scallop stock restoration effort continued. Further progress was made for genetic stock structures studies of vermilion snapper, yellowtail snapper, gray snapper, dog snapper, and dolphin fishes.

Genetic monitoring of the FMRI red drum stock enhancement program and of the joint University of South Florida/FMRI/Mote Marine Laboratory bay scallop stock thesis in which the genetic diversity of red drum hatchery broods was compared to that of the wild population, parent/offspring identification was conducted, and genetically efficient breeding protocols were recommended. Development of a more precise genetic tag for red drum, involving the addition of several microsatellite DNA loci to our present mitochondrial DNA genetic tag, was completed. The genetic tag developed for hatchery red drum is being used to determine the percentage of hatchery-reared red drum in samples obtained from areas where stock enhancement or restoration is ongoing. Data from all studies are provided to appropriate fishery management agencies and are routinely presented at scientific meetings and other public forums. The manuscripts from two symposia on the genetic and ecological implications of aquaculture activities (particularly stock enhancement and other activities in which cultured animals are purposefully or accidentally released into the environment) are being compiled into a book in the series *Reviews in Fish Biology and Fisheries*. Development of a white-paper document in which methods and expectations for development of sustainable, low-impact aquaculture were defined for the ASMFC.

Several manuscripts were prepared and submitted for publication:

- "Methodologies for conservation assessments of the genetic biodiversity of aquatic macro-organisms" in *Revista Biologia de Brasiliera* (Brazilian Journal of Biology) (in press)
- "Development, evaluation, and application of a mitochondrial DNA genetic tag for the bay scallop (*Argopecten irradians*)" (in review)
- "Development and application of genetic tags for ecological aquaculture" *in* B. Costa-Pierce, editor, *Ecological Aquaculture*, Blackwell Scientific, 2002
- "The effects of various aquaculture breeding strategies in the genetic diversity of successive broods" in *Journal Biosains* (Journal of Bioscience, Malaysia) (in press)
- "Evaluating stock enhancement strategies: a multi-disciplinary approach, *Bulletin of National Research Institute for Aquaculture* (Japan) (in press)

## FISHERIES STATISTICS

### Fisheries Independent Monitoring Program

Fisheries-independent monitoring (FIM) of fishes continues in the Tampa Bay, Charlotte Harbor, Indian River Lagoon, Cedar Key, Apalachicola, and the Florida Keys. A fisheries-independent monitoring program was developed and implemented in the estuarine waters of northeast Florida. The FIM Program uses a systematic sampling strategy to collect fish free from the biases associated with collecting data from recreational and commercial fisheries. Data have been used for numerous stock assessments for several inshore species. The program has been restructured to place more emphasis on assessing the population of subadult/adult fishes rather than on young-of-the-year fishes. The subadult/adult FIM Program is used to help monitor the current status of Florida's estuarine fish stocks. Staff has spent much time developing models that describe fish abundance associated with different habitats. Additionally, staff in this program has been involved in the mercury concentration in fish program, fish health assessment, environmental health, as well as studying the fishes from the rivers feeding Charlotte Harbor and Tampa Bay.

### Commercial Landings Statistics

Information on the commercial harvest of fish, invertebrates, and other marine resources (including marine life and live rock used in the aquarium trade and some aquaculture products) is reported by more than 1,300 wholesale and retail dealers to the Florida Marine Fisheries Information System. Approximately 257,000 marine fisheries trip tickets containing information on catch, gear, time and area fished, price, and commercial fishing licenses are reported annually under the mandatory reporting rules. These data are used in stock assessments, for quota monitoring, for design of sampling programs, and for summaries of landings and trips by species, qualification of fishermen for state and federal license endorsements and permits, and determination of participation in fisheries. Many of these data are incorporated into state and federal fishery management plans and stock assessments. In 2001, the commercial fisheries harvest in Florida was over 104.1 million pounds with a dockside value worth over $177.4 million. Also in 2001 (as in 1999 and 2000), the reporting of aquaculture-raised saltwater products to the department was no longer required, but the information was received and computerized when supplied to facilitate qualification for license endorsements for these fishermen.

During July 2002, notifications were mailed to more than 6,800 fishermen with Florida commercial fishing licenses (the Saltwater Products License) that had not reported commercial landings during 2001. In August 2002, summaries will be mailed out to fishermen who had reported commercial landings during 2001. These mailings, funded through a grant from the ACCSP, are our attempt to supply information to fishermen on their reported commercial landings and to solicit feedback from them on whether the information reported is correct.

Edited trip ticket data has been provided to the Fisheries Information Network, ACCSP, and the NMFS Southeast Fisheries Science Center in Miami. Recently edited data are periodically supplied, and revised data are made readily available.

### Biostatistical Sampling

This cooperative state/federal project is designed to obtain fish and invertebrate species length-frequency measurements and fishing trip characteristics (gears used, duration, effort, area fished, etc.) directly through dockside interviews with commercial fishermen. These data are also used to cross-check information reported in the marine fisheries trip ticket program. The commercial port samplers are located in Pensacola,

Apalachicola, Cedar Key, St. Petersburg, Port Charlotte, Marathon, Tequesta, Melbourne, and Jacksonville. During 2001, the port samplers measured 94,574 organisms (fish and invertebrates) from 1,387 trip interviews. In addition, the field staff involved with sampling recreational fisheries (including head boats) provided over 39,921 lengths and/or weights of fish during 2001. On selected species [primarily reef fish (e.g., groupers, snappers, porgies), pelagics (e.g., mackerels, wahoo), and inshore species (e.g., sciaenids)], the port samplers and recreational fisheries samplers (with the permission of the anglers) take hard parts (primarily otoliths) for age determinations. Over 1,750 otoliths or spines were sampled during 2001. On occasion, our biologists sample gonads of selected species (mostly from at-sea sampling activities), take additional measurements for use in developing conversion factors, and take tissue samples for mercury and DNA assays. The port samplers and head boat samplers are occasionally tasked with at-sea sampling duties or additional duties as required.

**Recreational Surveys, License Monitoring, and Statistics**

The Florida Fish and Wildlife Commission issues Saltwater Fishing Licenses and computerizes all license information. For recreational landings estimates and other types of analyses, data from the NMFS Marine Recreational Fisheries Statistics Survey are utilized. Beginning in September 1997, the Fisheries Dependent Monitoring Group has participated in the Pilot Charter Boat Survey for the Gulf of Mexico conducted in cooperation with the NMFS MRFSS, the GSMFC, and the states of Louisiana, Mississippi, and Alabama. Fishing effort for the pilot charter boat survey was obtained through telephone interviews of a randomly selected 10% sample of charter boats (including fishing guides) on the Gulf Coast. The goal of the pilot charter boat survey is to compare the experimental method (telephone interviews of charter boat captains to improve precision) of estimating fishing effort to that obtained during the standard MRFSS random-digit dialing of households with telephones to interview recreational anglers. The pilot charter boat survey was continued through 1999, and the methodology was adopted as part of MRFSS in 2000 for sampling and for catch and effort estimation where this method of data collection is implemented (i.e., Louisiana, Mississippi, Alabama, and Florida).

Beginning in November 1998, Florida (along with Alabama, Mississippi, and Louisiana) also conducted the field intercept portion of the MRFSS for all fishing modes (shore based, charter boats, and private/rental boats). Florida conducts its portion of the survey on both the Atlantic and Gulf of Mexico coasts, and over 32 samplers are employed at field locations around Florida (Jacksonville, New Smyrna Beach, Melbourne, Tequesta, Miami, Marathon, Port Charlotte, St. Petersburg, Cedar Key, Apalachicola, Destin, and Pensacola). Two researchers in St. Petersburg provide coordination for the field sampling and are responsible for the training of new staff, reviewing status of the sampling, and quality assurance for the project. Dockside/shore sampling during 2001 exceeded the base level of sampling normally conducted by the MRFSS for all modes of fishing in Florida. In 2001, a total of 19,728 angler interviews was provided for the Atlantic Coast of Florida (base quota for interviews was 11,498; an increase of 1.72 over base). On the Gulf Coast in 2001, a total of 27,318 anglers was interviewed (base quota for interviews [including 6X for charter boat surveys] was 20,613; an increase of 1.33 over base). The lengths and/or weights were measured from 31,740 fish caught by recreational anglers interviewed in this survey during 2001. The Fisheries Dependent Monitoring Group also participates in the NMFS Beaufort Laboratory Head Boat Survey and has two samplers (Naples to Cedar Key and Miami to Jupiter) dedicated to this logbook and dockside-sampling program.

**STOCK ASSESSMENT AND POPULATION MODELING OF FLORIDA'S INSHORE SPECIES**

In November 2001 the assessment group released its annual trends report. This report summarized available commercial and recreational landings, fishing effort, fishery catch rates, fishery-independent sampling effort and catch-success rates for 133 species/groups during 1991-2000. Detailed narratives were provided on the biology, fishery, and past assessments for 48 popular species in Florida. The assessment group developed stock assessments for bluefish, weakfish, common snook, red drum, Florida pompano, stone crab, and blue crab in 2001. These assessments were made using a variety of analytical methods including age-structured models such as tuned sequential population analysis, separable virtual population analyses, non-equilibrium surplus production models, and modified De Lury depletion models. A two-day external review of the 1999 spotted seatrout

assessment was held in March with invited reviewers Doug Vaughan, NMFS, Beaufort, North Carolina, and Mark Gibson, RIDEM, Wakefield, Rhode Island. Additionally, part of the stock assessment work on white grunt biology and ecology fishery dynamics was summarized.

Members of the group continue to supply technical advice to other researchers in and out of the FWC and to participate on graduate student committees. Members of the assessment group served on several state and federal committees charged with reviewing assessments of marine species in the Gulf of Mexico and along the Atlantic Coast. In 2001, the group participated in the South Atlantic Fishery Management Council's Snapper-Grouper Assessment Group meeting in Jacksonville, Florida; the ASMFC Weakfish Technical Committee meeting in mid May; an ASMFC Atlantic menhaden technical committee meeting in late May; and a workshop on data poor assessments for the Gulf of Mexico Fishery Management Council. Presentations were prepared and made describing the findings of the Mackerel's Stock Assessment Panel and the Coastal Pelagic Stock Assessment Panel for the GMFMC's Socio-Economic Panel. The group participated in the Reef Fish Stock Assessment Panel review of gag, vermilion snapper, and gray triggerfish assessments and presented the panel's findings to the GMFMC Socio-Economics Panel. Members of FMRI's Stock Assessment Group also participated in an ASMFC Croaker Technical Committee meeting during November and completed status reviews for red drum and spotted seatrout for the ASMFC stock assessment training workshop in Providence, Rhode Island. The group provided peer review for articles submitted to the *North American Journal of Fisheries Management*, *Transactions of the American Fisheries Society*, *Fisheries Bulletin*, *Bulletin of Marine Science*, and *Journal for the International Exploration of the Sea*. Speakers were recruited and organized for a session on the effects of bag and size limits for the American Fisheries Society's Southern Division meeting in February 2001.

Work on Ecopath/Ecosim/Ecospace modeling of the west Florida shelf continued. A detailed report became available during 2001, and a synopsis of the document was developed for the FWC Division of Marine Fisheries staff. A dialog began regarding ecosystem scenarios that can be investigated using this preliminary model. Dr. Carl Walters, University of British Columbia, was included in the review of the Ecopath work and assessments of red drum, spotted seatrout, and Florida pompano.

## FISHERIES STOCK ASSESSMENT

During 2001, stock enhancement of finfish continued to focus on red drum (*Sciaenops ocellatus*) and common snook (*Centropomus undecimalis*) while molluscan enhancement projects targeted queen conch (*Strombus gigas*).

Project Tampa Bay is designed to determine the most cost-effective size hatchery-reared fish to release to have the desired impact on the fishery. The experimental design is intended to answer the questions of size-at-release, season of release, and release habitat as well as improve the catch rates of red drum by recreational anglers by 25%. This project is a collaboration between four other FMRI programs as well as Mote Marine Laboratory in Sarasota. The FMRI programs are Fisheries Independent Monitoring, Fisheries Dependent Monitoring, Fishery Genetics and Aquatic Health. By year's end, more than 1.24 million fish had been released for Project Tampa Bay.

A pilot project to develop and evaluate release and sampling strategies for common snook in Sarasota Bay and southern Tampa Bay, begun in 1996, continued through this reporting period. This project is a partnership between MML, NMFS, and FWC. More than 40,000 hatchery-reared snook have been released, the majority in Sarasota Bay and the remainder in southern Tampa Bay. Most were reared at Mote Aquaculture, and approximately 1,100 were reared by FWC and Harbor Branch Oceanographic Institute. MML staff, with assistance from FWC, tagged all snook released during 2001.

The queen conch restoration project, located at the FWC Keys Marine Laboratory, continued through 2001. The project is designed to assist with rehabilitation of Florida's queen conch stock. Initially, hatchery-reared animals were released in the wild. Currently, wild sexually-mature adults are being transplanted from near-shore, non-spawning populations to the offshore spawning aggregations.

## ECOSYSTEM ASSESSMENT AND RESTORATION

### Environmental Monitoring and Assessment

A statewide estuarine monitoring initiative known as IMAP (Inshore Marine

Monitoring and Assessment Program) began sampling in summer 2000. The program was funded by the EPA through 2004 and builds upon the EPA's Environmental Monitoring and Assessment Program (EMAP) to allow a statistically-valid assessment of the ecological condition of Florida's nearshore waters using a set of physical, chemical, and biological factors. Florida's effort is a single component of a nationwide assessment initiative known as the National Coastal Assessment. These indicators include water quality measurements, fisheries, macrobenthos, submerged aquatic vegetation (SAV), community structure, contaminants in sediment and fish tissue, and presence of heterotrophic dinoflagellates in sediments. The sample design is two-tiered, consisting of a broad-scale statewide grid and smaller-scale sampling units within the five Water Management Districts. The inshore marine monitoring and assessment program (IMAP) is coordinated by staff at the FMRI. Field Laboratories in Melbourne, Marathon, Charlotte Harbor, Tampa Bay, Cedar Key, Tequesta, and East Point will be used as bases of operation for implementing IMAP statewide. Preliminary results for 2000-2001 IMAP sampling are summarized in IMAP Annual Reports which are available on the FMRI web site (floridamarine.org).

**Coral Reefs and Hardgrounds Monitoring and Assessment**

During 2001, the sixth annual sampling of permanent monitoring sites from Key Largo to Dry Tortugas was conducted by Coral Reef Monitoring Project (CRMP) scientists. Sanctuary-wide, the project documented a 38% loss of stony coral cover after the first five years of monitoring. The project is funded through a partnership between EPA and NOAA's Coastal Ocean Program and managed by FWC FMRI. FMRI continues to provide expertise in surveys and litigation for reef community damage assessments. FMRI also provides oversight for the mitigation plan associated with the installation of Gulfstream's natural gas pipeline in the Gulf of Mexico and Tampa Bay. Staff continue to assist the Gulf and South Atlantic Fishery Management Councils in their essential fish habitat initiatives and marine reserve deliberations.

**Aquatic Health**

The Aquatic Health Group (AHG) monitors the health of marine fishes throughout the state of Florida. In 2001, 1,048 fish were evaluated for abnormalities and parasites. A majority of those fish (591) were part of the multi-disciplinary project, the Tampa Bay Red Drum Stock Enhancement Project. Two hundred, sixty-nine red drum from SERF and 322 hatchery-reared or wild red drum captured from the Alafia River were examined for internal and external abnormalities to determine health impacts of fish in captivity and ultimately on the survival of cultured fish. Preliminary results suggest that stocked fish resemble wild fish in parasite prevalence and condition factor.

The AHG also began a study in July 2001 on the impacts of methyl-mercury on the health of spotted seatrout and red drum. Thirty-eight fish were collected from Tampa Bay and Florida Bay and evaluated for abnormalities, parasite assemblage, and mercury levels in major organs.

The remaining 419 fish submitted to AHG for health evaluations were primarily from other FMRI research groups; however, many were received from the public via the fish kill hotline. The most common species evaluated were striped mullet, snook, red drum, pinfish, and hardhead catfish. The AHG received and responded to 852 calls statewide marine fish kill hotline (1-800-636-0511) in 2001. Ninety-five percent of those callers reported fish kills, fish with parasites, other aquatic mortality and disease events, or requested information. Thirty-one fish kills were investigated by AHG and were primarily related to low dissolved oxygen and red tide.

**Harmful Algal Blooms**

The Red Tide Monitoring Program, ECOHAB: Florida Projects and Task Force continues to be the primary focus of the Harmful Algal Blooms (HAB) Group. ECOHAB has the goal of determining the factors that influence the development of algal blooms in U.S. coastal waters. The Gulf of Mexico has a long history of HAB events. Of the 5,000 known species of phytoplankton in the world, about 100 are toxic. Although roughly half of these occur in the Gulf of Mexico, *Karenia brevis* has been responsible for most HAB events along the Gulf Coast. For at least the last 50 years, *K. brevis* red tides have been concentrated along the West Coast of Florida. As a consequence, HAB events adversely affect commercial and recreational fishing, tourism, and valued habitats, creating a significant impact on local economies and the livelihood of coastal residents. In few places around the U.S. is this problem more chronic than the Gulf of Mexico.

The economic impact of HABs throughout the U.S. is estimated conservatively at almost $50 million annually, although red tides in the Gulf of Mexico alone can cost $20 million for each major event including the costs of monitoring and managing the effects of these events. This spring, a presentation was made to Congressional Staff on monitoring and effects of HABs. A paper was also published in the *Encyclopedia of Environmental Microbiology* entitled "Red Tide and Other Harmful Blooms."

In 2001, scientists gathered for the Harmful Algal BloomS Observing Systems (HABSOS) Pilot Project at the Stennis Space Center in Mississippi to discuss collaborative monitoring measures. Much of the compiled data can be viewed at: www.ncddc.noaa.gov/habsos/data/imsapp. Also in 2001, the FMRI-coordinated volunteer sampling program improved HAB monitoring around the state. Volunteers submitted 522 fixed water specimens. Volunteer and state monitoring also led to the isolation of *K. brevis*-like clonal cultures. Staff have used these isolates for toxin, genetic, and life cycle analysis. Aside from the ECOHAB cruise samples and monthly transects, routine live samples from state agencies numbered 882. Isolation of dinoflagellates cysts from ECOHAB sediments continued to aid in *K. brevis* life cycle work.

In 2001, sustained red tide blooms were seen in both Northwest and Southwest Florida. These led to long-term shellfish bed closures until the brevetoxin levels in the sampled shellfish meats were below FDA standards. Meetings were held with Charlotte Harbor aquaculturists to develop an NSP monitoring protocol to address their own brevetoxin/red tide concerns. After bloom dissipation, *in vitro* screening methods continued to be utilized prior to mouse bioassays. Using *in vitro* methods, labs analyzed 1,200 water samples; 1,273 marine tissues; as well as 200 sediment and seagrass samples. Aside from red tide, other microalgal or phytoplankton bloom formations and events related to possible HAB poisonings, marine mortalities, fish kills, or lesioned fish continued to be investigated, including the "blackwater event" off the Florida Keys and pufferfish ingestion. Due to the latter event, HAB staff worked with the FDA to implement a paralytic shellfish poisoning (PSP) monitoring program.

The accessibility of data among colleagues, collaborators, and the public has been a long-term goal of ECOHAB: Florida and HABSOS. To this end, work to clean up and restructure the historical red tide database has continued. Work was completed on the first edition of the compact disc and was distributed to interested parties. Work began on the second edition. HAB outreach continued this year, largely with improvements to the "red tide website," available at www.floridamarine.org. Among other things, it includes the most recent maps of red tide cell (sampled) counts from around the state and "Current Status Reports," in the event of a HAB occurrence. Colleagues also visited the labs for training while others submitted samples for analyses and interpretation. Preparation continued on the Tenth Conference on Harmful Algal Blooms which will be held at the Tradewinds Beach Resort in St. Petersburg, Florida, in October 2002. Abstracts are being received, and it is anticipated that over 800 participants from around the world will attend the conference.

The FMRI administered over two dozen contracts that were recommended by the Florida Harmful Algal Bloom Task Force. It included contracts for: increased survey work and toxin analyses; development of new toxin detection techniques; provision of nutrient analyses related to the ECOHAB project cruises; studying the effects of respiratory irritation in lifeguards and review of hospital cases to determine if respiratory problems are more prevalent during red tides; evaluating the competitive ELISA versus the mouse bioassay for monitoring brevetoxin in shellfish; analyzing historical data on Florida red tide with regard to rainfall and flow of selected rivers; and examining red tide effects on benthic communities.

Another continuing project involves the monitoring for *Pfiesteria* and *Pfiesteria*-like organisms (PLS) in Florida coastal waters. Isolation of various PLSs from these samples continued in 2001. A peer-reviewed journal article was published, and as an extension of the PLS monitoring project, a monitoring laboratory is operating at the St. John's River. The autonomous instrumentation-sensing platform, MERVIN (MERHAB Autonomous Research Vessel for *In-Situ* Sampling) was deployed. It is now possible for anyone to access this platform, via an "800" telephone number for near real-time water and atmospheric data. The MERHAB proposal was submitted and funded. Articles on the MERVIN project can be found at www:merhabflorida.org.

**Habitat Assessment and Restoration**

Habitat assessment projects seek to assess the ecological status of coastal fisheries habitats, are identifying physical and biological factors that stress coastal plant communities, and are evaluating trends in coastal ecosystem health. The FMRI staff is also developing ecologically and economically sound practices, materials, and recommendations for coastal habitat restoration to enhance fisheries, promote shoreline protection, and enhance water quality statewide. Although work activities are conceptually divided between assessment and restoration, staff within this work group conducted research related to both topics. Seagrass disease associated with the pathogenic slime mold known as *Labyrinthula* is also being studied, and the effect of this pathogen on seagrass mortality is being determined. Staff members are also evaluating biological monitoring techniques to assess environmental stress and estuarine health.

FMRI staff members participating in habitat assessment research are developing methods to measure those characteristics (ecoindicators) that may be used to document status and trends in the ecological and physiological condition of vegetated fisheries habitats, assessing scale-based variability in seagrass ecoindicators in selected regions, determining the effects of salinity on the growth and survival of turtle grass (*Thalassia testudinum*) and widgeon grass (*Ruppia maritima*), measuring plant and sediment characteristics that can be used to assess Florida Bay's status, evaluating the different conclusions that may result from qualitative versus quantitative assessment data, determining the effects of propeller scarring on seagrass associated fauna, and determining the distribution of the pathogenic slime mold *Labyrinthula* on seagrass in Florida Bay and its role in seagrass mortality.

FMRI staff members participating in habitat restoration are conducting research to develop tissue culture techniques to produce seagrass planting units in the laboratory, evaluate alternative methods to ensure survival of planting units at restoration sites, develop FMRI staff members participating in habitat restoration are conducting research to an artificial aquatic system for experimental manipulation of submerged and intertidal plant communities and assist resource managers in evaluating sites and designing restoration plans.

## ENDANGERED AND THREATENED SPECIES

### Marine Mammals

The FWC Marine Mammal Research Program is headquartered at the FMRI in downtown St. Petersburg, Florida. Additional staff are located at the FMRI Marine Mammal Pathobiology Laboratory (MMPL) in St. Petersburg and at field stations in Port Charlotte, Jacksonville, Melbourne, and Tequesta. Manatee research is organized into five projects:

1) Mortality and rescue
2) Population monitoring
3) Ecology and migration
4) Life history and biology
5) Manatee GIS

### Manatee Mortality

During 2001, a total of 208 manatee mortalities were recorded. Of these, 30% of the manatee deaths were a result of collisions with watercraft. As in years past, the majority of deaths resulted from impact with watercrafts and not by being cut by the propellers.

There were three deaths resulting from entrapment in water-control structures and navigational locks. There were three "other human-related" deaths in 2001. Human related deaths are those that are caused by entanglement in man-made structures (i.e., monofilament line, traps, etc.), entrapment in culverts and pipes, ingestion of foreign materials, trauma from unknown origin, and others. Deaths of perinatal manatees (30) comprised 14% of the deaths.

Natural-related deaths are those attributed to cold stress, red tide toxicity, infectious and non-infectious diseases, birth complications, and natural incidents and catastrophes. Natural-related deaths accounted for 52 (25%) of the total manatee mortalities reported. The majority of carcasses in the undetermined category are so badly decomposed that a cause of death cannot be determined. Deaths in the undetermined category comprised 57 of the total 208.

Sixty-four percent (133) of the total manatee mortalities during 2001 occurred during the third quarter of the fiscal year. The individual causes of death for this particular quarter include 38 watercraft-related, two water-control structures, one other human, 13 perinatals, 14 cold stress, 28 natural-other, 36 undetermined, and one unrecovered.

**Manatee Population Monitoring**

Aerial surveys are an important method of acquiring information on manatee distribution, relative abundance, and use of habitat types. Synoptic aerial surveys of all manatee wintering habitats in Florida and southeast Georgia are useful in determining a minimum manatee population estimate. Data from aerial surveys, mortality, life history, and ecology studies are being combined to create a population model that will estimate trends in regional population sizes.

**Ecology and Migration**

Research on how manatees use the coastal habitats of Florida is essential to understanding what resources the population requires to expand and flourish. By following the movements of individual manatees in fresh, brackish, and saltwater habitats, valuable information is obtained about manatee behavior, migratory routes, and preferred habitats. Researchers place satellite and radio transmitters on manatees and attach a floating transmitter housing to the belt. Signals from the satellite transmitters are processed and delivered to FMRI daily via the Internet. Research teams working in the field use the satellite locations to determine general areas where manatees are located and then use the radio signals to find the individual manatees.

Rehabilitated manatees were tagged and monitored to assess the success of their introduction or reintroduction to the wild. During the third quarter of the fiscal year, staff tagged six rehabilitated manatees. One was released into Crystal River, two were released into Warm Mineral Springs, and three were deployed in Biscayne Bay or the upper St. Johns River.

**Life History and Biology**

Information on aspects of manatee life history is essential in formulating an assessment of manatee population dynamics and recovery. Data on long-term growth and survival of individuals, reproductive capability of mature females, and health of wild manatees are essential to a population model and come from a variety of research projects including the photo-identification catalog, use of passive integrated transponder tags, and non-invasive body condition indices. The FMRI partners with the USGS Sirenia Project and Mote Marine Laboratory to co-manage photo-identification catalog data collected in the southeastern United States. The FMRI also has cooperative agreements with Lee County Parks, the National Park Service, the U.S. Corps of Engineers, and others to assist with manatee-related photographic and environmental data collection. The West Coast portion of the catalog includes more than 3,000 images and 7,000 sighting records representing more than 591 fully photo-documented, scarred manatee individuals.

**Geographic Information Systems**

Staff working on the MMGIS continued to create numerous manatee spatial data layers including carcass recovery sites, aerial survey locations of manatees and right whales, and locations of animals tracked by satellites. The MMGIS staff worked with both research and management project teams to provide manatee data and analyses for manatee protection and ecosystem management.

GIS staff are members of the Manatee Warm-water Task Force. The task force was formed under the auspices of the manatee recovery plan to address issues associated with the ephemeral nature of anthropogenic warm water discharge sites. One task identified by the group was the development of a model that estimates effects on manatees of different scenarios of warm-water shutdown. This model will be applied in an adaptive management framework with the goal of minimizing the effect to manatees from the eventual cessation of industrial warm water.

FMRI GIS staff are making significant efforts to build a comprehensive GIS for right whale managers and researchers. Biological and human-related databases including right whale sighting locations, various agencies and organizations have collected survey effort and ship locations. These datasets have been incorporated into GIS to help illustrate areas where right whales inhabit and describe ship traffic patterns in and near critical whale habitats. Ship traffic information generated from the federal Mandatory Ship Reporting Systems has been an important focus of FMRI's work.

**Right Whales**

Florida manatees are not the only endangered marine mammal species of concern for FWC staff. Staff involved in the FMRI's Right Whale Conservation Project focus on efforts to aid in the recovery and protection of the endangered North Atlantic Right Whale.

The coastal waters of Georgia and the Atlantic coast of Florida are the only known calving area for the species and were designated as one of three critical habitats in U.S. waters in 1994. The FMRI has conducted aerial surveys of Florida and adjacent waters since 1991 to monitor the seasonal occurrences of right whales. This effort focuses on alerting vessels to the presence of right whales within the southeast critical habitat. Right whales are individually distinct, and using photo-identification techniques, researchers can compile life histories of individual whales. All data collected during aerial surveys are incorporated into the FMRI's Marine Resource Right Whale GIS. During this season there were 29 aerial surveys flown resulting in 18 sightings (five mother-calf pairs, three mother-yearling pairs, and a lone adult).

As charter members of the multi-agency Southeast Implementation Team for the Recovery of the Northern Right Whale, FMRI researchers continue to monitor the calving ground for right whales and other endangered or threatened species. FMRI staff continued to organize a wide area communication network and work closely with the U.S. military, private organizations, and the shipping and fishing industries regarding potential issues pertaining to right whales in the southeast U.S.

**Marine Turtles**

The FWC Marine Turtle Research Program is headquartered at the FMRI in downtown St. Petersburg, Florida. Additional staff are located at field stations in Jacksonville, Melbourne Beach, and Tequesta.

***Salvage, Rescue, and Necropsy***

FMRI staff coordinate the Florida portion of the Sea Turtle Stranding and Salvage Network (STSSN), and 18-state programs administered by the NMFS. A total of 1,624 sea turtle strandings were documented in Florida during 2001. Of these, 537 involved live animals. By species, there were 930 loggerheads (*Caretta caretta*), 425 green turtles (*Chelonia mydas*), 143 Kemp's ridleys (*Lepidochelys kempii*), 53 hawksbill (*Eretmochelys imbricata*), 40 leatherbacks (*Dermochelys coriacea*), and an additional 30 unidentified sea turtle strandings. Staff reviewed, edited, and entered all stranding reports, responded to or coordinated the response to more than 600 strandings, and conducted gross necropsies on 130 of the carcasses. Seven fresh carcasses were sent to the University of Florida for detailed pathobiology. Staff conducted several workshops around Florida to train STSSN participants in standardized data collection methodology and used an internet ListServ and website to distribute current stranding data and information and to communicate with stranding permit holders. Florida stranding updates were provided weekly to NMFS for incorporation into the Sea Turtle and Shrimp Fishery Management Report. Detailed Florida stranding reports were generated monthly and included month-specific and year-to-date data by county and species. The narratives that were associated with each report addressed stranding trends by species and county and listed the most common and/or most notable carcass anomalies.

**Population Monitoring**

FMRI staff monitor sea turtle populations by recording numbers of nests made on Florida beaches, a number that is proportional to the number of breeding females in the population of each species. Nesting surveys are coordinated through two programs: a statewide survey which is broad in geographic and seasonal coverage but has limited standardization and detail and an index survey which is more detailed and has greater consistency but is more limited in geographic and seasonal coverage.

The Statewide Nesting Beach Survey Program, initiated in 1979, achieves nearly complete coverage of the state's nesting beaches to provide data on total nest numbers, nest geographic distribution, and nesting seasonality for each species. Managers use results to minimize human impacts to turtles and nesting beach habitats, and to identify important areas for landing acquisition or enhanced protection. In 2001, 180 survey areas were monitored, comprising 1,280 km of beaches. This program documented a total of 69,657 loggerhead nests, 581 green turtle nests, and 935 leatherback nests. The FMRI disseminates results of the Statewide Nesting Beach Survey Program through scientific publications, presentations, reports, the Internet, and the CD entitled "Florida Atlas of Marine Resources."

The Index Nesting Beach Survey Program differs from the Statewide Nesting Beach Survey Program in collecting more detailed data from a smaller set of index beaches. Staff coordinate daily surveys to identify each sea turtle track to species, identify the tracks as a nest or abandoned attempt, and locate nests within an approximate half-mile beach zone. Annual surveyor training,

on-site accuracy assessments, rigorous data verification, and consistency of the methods used during the thirteen years of the program make the resulting database a representative and unbiased assessment of sea turtle nesting. It is the most reliable indication of temporal and spatial trends in Florida sea turtle abundance. An analysis of these data was completed in 2001. Results were that the annual number of loggerhead nests at the core set of index beaches ranged from 39,091 to 59,918 nests (mean = 50,390); the annual number of green turtle nests at the core set of index beaches ranged from 267-6,240 (mean = 1,649) and the annual number of leatherneck nests at the core set of index beaches ranged 30-357 (mean = 109). All three species showed significant increases in nesting on the 316 km of Index Nesting Beaches during the 13-year period; however, these trends were not common to all monitored beaches.

**Ecology, Life History, Migration**

Most research on marine turtles has been conducted on the nesting beach although turtles spend only a small fraction of their lives there. Recovery efforts depend on a broad knowledge of population biology, life history, ecology, and migrations. Complicated turtle management efforts necessitate both long-term and international approaches to conservation. Ongoing projects in the Western Gulf Stream, Florida Bay, Bermuda, and Panama, involve capturing live animals at sea. Studies target four species of sea turtles and several life history stages and address population structure (including natural sex ratios), growth rates, genetic identity, life history, health, diet, habitat preferences, and migrations.

In July-September 2001, FMRI captured and released 87 post-hatchling loggerheads in the western Gulf Stream off central Florida. Staff recorded physical oceanographic measurements, turtle behavior, the spatial relationships of turtles to floating objects and other organisms, turtle morphometric data, and evidence of ingested plastics and tar. These data help describe the importance of certain oceanographic surface features to young sea turtles and help researchers understand threats to sea turtle survival that occur there.

In late June, marine turtle staff conducted an intensive 15-day sampling trip in Florida Bay which resulted in the capture of 98 loggerhead turtles. Each animal was measured, tagged, photographed, and released. Seventy-four of the turtles were new captures, and 22 were recaptures. Some of the recaptured turtles were first captured as many as five years ago. Blood samples were obtained from most of the turtles to determine sex and genetic identity. Eleven of the loggerhead turtles had the external tumor disease fibropapilloma.

As part of a cooperative research project with the government of Bermuda, 110 immature green turtles were captured with nets, tagged, measured, and released in 2001. Over 2,000 green turtles have been tagged as part of this ongoing (since 1968) project. DNA sequence data have shown that one-third of the population of immature green turtles that inhabit Bermuda waters is derived from Florida nesting beaches. Captures of conventionally tagged turtles from this project have documented migrations to feeding grounds in Nicaragua, Cuba, the Dominican Republic, Panama, Venezuela, St. Lucia, and Grenada. These migrations demonstrate the need for international cooperation in research and management of this endangered species.

**INFORMATION SCIENCE & MANAGEMENT**

**Coastal and Marine Resource Assessment (CAMRA)**

CAMRA staff continued to support the FWC through the application of geographic information systems (GIS) and remote sensing technologies. Projects of interest include:

1) Seagrass Conservation Plan and Assistance – Through standardization and adoption of best management practices at the state level, local resource managers are being given guidance and assistance to assess the status of seagrass and implement appropriate protection measures tailored for their locality.

2) Benthic Habitat Classification Scheme – In coordination with other agencies statewide, staff are creating a statewide habitat classification system that will provide common language for description and consistent inventory reporting of Florida's estuarine and marine benthic habitats.

3) Marine Recreational Fishing – This work aims to identify the portion of the population that participates in the marine recreational fishery. Staff are examining how the relationship between the entire population and fishery participants has changed through recent

history to develop a predictive model that will provide insight as to possible changes in recreational fishing, given various future scenarios.

4) ArcGIS Internet Map Server – An Internet map server, http://ocean.fmri.usf.edu/mrgis/viewer.htm, was developed to serve many of the GIS layers stored in the FMRI Marine Resources GIS.

5) Habitat Sustainability Modeling – Staff continued to use FIM fisheries data and various statistical programs to standardize CPUE for development of predictive GIS models showing distribution of spotted seatrout pinfish and bay anchovy by life stages in Tampa Bay and Charlotte Harbor.

6) Recreational Boating Characterization – Work continued with the University of Florida to characterize boating activities to understand the impacts that boating has on the environment and the impacts of that development, population growth, and management actions have upon boating.

7) Management Characterization – Staff developed a database and web-based analysis tools that act to characterize management in the Charlotte Harbor region.

8) Mercury – Staff continued to support the Florida Department of Health and Environmental Protection with the collection of marine fishes for mercury analysis and interpreted results for possible DOH health advisories.

**Specimen Information Services**

During 2001, 3,689 lots of invertebrates, 502 lots of fishes, and 34,725 lots of SEAMAP larvae were accessioned into the collections; over 300 scientific and educational specimen loan requests were received and provided; more than 400 requests for information and requests for assistance were answered; at least 150 public outreach activities were completed. SEAMAP personnel participated in three SEAMAP or SEAMAP related ichthyoplankton cruises.

Members of the SIS group provide QA/QC services to the researchers in the Florida Fish and Wildlife Conservation Commission (FWC) and provide technical advice and assistance to researchers in and out of the FWC.

**Data Access**

The Data Access Group continues it primary mission of designing and implementing the conversion of all the corporate FMRI databases into a common framework that will ultimately allow access by an interested researcher. Important work included the following:

1) Created the online Metadata Catalog system to allow all FWC staff to access information on gulf-wide corporate data sets.

2) Shared gulf-wide commercial fisheries data with other state and federal agencies on a monthly basis.

3) Modified the harmful algal bloom historical database, GIS application, and CD-ROM product. This work was used as a foundation for the creation of NOAA's Gulf-wide HABSOS Internet Map Server application.

4) Created new SEAMAP Icthyoplankton Cruise application to enter and track Gulf biological samples from collection through identification and cataloging.

**South Florida Regional Laboratory**

The spiny lobster research program continues to monitor landings and other important fishery components for both the commercial and recreational spiny lobster fisheries. Commercial lobster landings were 3.1 million pounds during the 2001-2002 fishing season (August 2001-March 2002) which is the lowest annual landings total recorded during the past 30 years. Recreational lobster license holders returned nearly 4,000 of our survey questionnaires and their responses indicate that 280,000 lobsters were landed by recreational fishers statewide during the two-day special sport season and 830,000 were landed during the first month of the regular season.

The fifth year was completed of monitoring spiny lobster populations within the marine reserves of the Florida Keys National Marine Sanctuary. Overall, lobster abundance fluctuated over the course of the study, but the abundance of legal-sized lobsters has progressively increased inside the reserves relative to unprotected areas. Additionally, the Western Sambo Ecological Reserve has shown a steady increase of large male lobsters, indicating that some long-term retention of lobsters within the reserve is occurring.

Outreach efforts to better educate stakeholders of the importance of effective fishery management and resource protection continue. Representatives from FMRI have participated in local community events where fishery information and materials were distributed; however, person-to-person question and answer interactions were the primary focus. The importance of these efforts is difficult to measure quantitatively, but the sharing of information with the members of the community is of crucial importance to furthering the goals of the FWC.

In 2001, the queen conch restoration program began to implement a stock recovery program based on transplanting conch from nearshore sites where reproduction does not occur to offshore breeding aggregations. This project was funded in part by the U.S. Fish and Wildlife Service and The Nature Conservancy. With the aid of volunteers, 630 conch have been transplanted from nearshore sites to offshore aggregations at Looe Key and another 314 conch to aggregations at Eastern Sambo. Monitoring transplants has shown that after six months offshore, the transplanted conch began reproducing. Monitoring of larval, juvenile, and adult queen conch abundance throughout the Keys continues in order to determine the effectiveness of this restoration strategy.

The ultimate goal of this restoration strategy would be to reopen the recreational fishery. With this goal in mind, two existing marine reserves (Conch Reef SPA and French Reef SPA) in the Florida Keys National Marine Sanctuary were monitored. Acoustic tags were used to determine the home range of the aggregations at these sites. It was found that these reserves were either too small or did not encompass enough conch habitat to protect these spawning aggregations should the fishery reopen.

## OFFICE OF ENVIRONMENTAL SERVICES

The Bureau of Protected Species Management (BPSM) within the Office of Environmental Services is the management component of the FWC's marine mammal and marine turtle programs. The BPSM is responsible for planning and implementation of management activities directed toward the protection and recovery of manatees, right whales, and five species of marine turtles. Marine turtle activities are funded from the Marine Resource Conservation Trust Fund. Manatee and right whale protection efforts are funded from the Save the Manatee Trust Fund.

### Marine Turtles

Staff continued to work for the protection of threatened and endangered marine turtles and their critical nesting beaches, developmental habitat, and foraging habitat along Florida's coast. The state is listed as the lead or cooperating agency for the implementation of approximately 91 tasks identified in the U.S. Fish and Wildlife Service and National Marine Fisheries Service recovery plans for the five species of marine turtles that occur in Florida. Staff participated in development of the scientific information necessary to guide recovery efforts (research), in review of ongoing and proposed human activities that could impact marine turtles and their nesting and foraging habitats (management), and in public education about marine turtles.

Accomplishments in 2001 include:

- The marine turtle license plate went on sale in February 1998. To date, approximately 47,358 plates have been sold, generating a total of approximately $1,775,627.85 in revenue (including vehicle registration fees).

- Bureau staff managed 12 marine turtle grants including review and approval of deliverables. Bureau staff also solicited marine turtle grant proposals for the 2002-2003 fiscal year.

- BPSM issued approximately 140 marine turtle permits. Oversight of this program included numerous meetings with permit holders in the field to provide training and technical advice, participation in training workshops, and revision of the FWC's marine turtle permit holder guidelines. For the first time, the guidelines were made available on the FWC Internet site.

- Captive facilities in the state that rehabilitate marine turtles or hold turtles for educational purposes were monitored throughout the state. Staff inspected and approved a new rehabilitation facility on Captiva Island and participated in the annual rehab workshop held at Hidden Harbor Sea Turtle Hospital.

- The BPSM continued work with the U.S. Fish and Wildlife Service on a grant-funded project to minimize lighting impacts to marine turtles. An OPS biologist in the Tequesta Office manages the hatchling disorientation database,

contacts local government, and formulates appropriate actions to resolve problem lights on Florida's nesting beaches.

- Staff provided technical expertise on marine turtle protection during review of approximately 211 Department of Environmental Protection (DEP) and other state permits. These included 1,118 permits issued by the Office of Beaches and Coastal Systems pursuant to Florida Statute 161; 45 permits issued by the DEP Districts or the Water Management Districts pursuant to Florida Statutes 373; 25 Special Event Permits; three coastal zone consistency reviews, and 17 other projects. This included numerous meetings with other agencies and applicants to discuss projects and minimization of impacts to marine turtles. Staff participated in the design, implementation, and review of monitoring to assess the impacts of permitted activities on marine turtles, their nests, and hatchlings.

- Staff participated in a number of educational meetings designed to increase protection for Florida's sea turtle. Staff assisted at the 2001 International Sea Turtle Symposium held in Philadelphia, Pennsylvania. During the symposium, staff co-hosted a workshop on lighting impacts. Staff distributed approximately 1,770 nest signs to be used to designate and protect sea turtle nests. Staff also presented posters at the symposium on sea turtle nesting on nourished beaches and on lighting options for coastal property owners.

- Educational activities for marine turtle conservation included the distribution of brochures for different topics involving marine turtles; distribution of up to 10,000 brochures to local governments, permit holders, conservation groups, and citizens; distribution of informational booklets; responses to numerous requests for information from interested parties, attendance and participation in coastal-related conferences and forums; participation on committees on marine turtles and their nesting habitat; presentation of slide shows and lectures to groups; updating the existing web site; and general promotion of the program and its fund-raising activities. Marine turtle program staff have developed eleven, colorful marine turtle decals and two posters that depict the marine turtle species that occur in Florida and their marine habitat. Proceeds from the sale of these marine turtle decals, primarily associated with boat registrations, and the sea turtle license plate are the primary source of dedicated funding for the agency's marine turtle program.

**Manatees**

The BPSM implements many tasks of the Florida Manatee Recovery Plan. The activities are focused on five program areas:

1) Development and implementation of county-based manatee protection plans.

2) Promulgation of boat speed regulations to protect manatees.

3) Review of permitted activities to minimize negative impacts to manatees.

4) Various directed efforts to protect manatee habitat, particularly warm water refuges and seagrasses.

5) Outreach activities to provide education and information to the public.

Accomplishments in 2001 include:

- The law enforcement program continued by providing laminated speed zone maps, educational materials, and information presentations at district meetings and the law enforcement academy. Special enforcement and education efforts were undertaken in Lee, Collier, Brevard, and Volusia (Tomoka area) due to a high number of watercraft-related deaths. Informational brochures for Clay and St. Johns Counties were also produced and distributed because of the recent adoption of new manatee protection zones.

- West Coast U.S. Coast Guard facilities received training on manatees from FWC and the U.S. Fish and Wildlife Service. Many other presentations were made across the state to local FWC offices, U.S. Coast Guard Auxiliaries, local power squadrons, and volunteer patrols.

- Staff continued to participate in the Tampa Bay Manatee Advisory Committee.

- Staff continued to participate in quarterly meetings of the Dade County Manatee Advisory Group.

- Staff reviewed and prepared final comments on both the Volusia and Clay counties manatee protection plan drafts. The first phase of Volusia County's plan included provisions for habitat protection, education, and governmental coordination and was approved in February 2002. Staff also provided comments on Volusia County's proposed boat facility siting plan approach.

- The BPSM provided grant funding to Martin and St. Lucie counties to finalize their comprehensive manatee protection plan. Grant funding was also provided to Sarasota County to develop a boat facility siting plan and to Broward County to expand their existing boater and manatee education and awareness program.

- Staff performed 486 reviews during the year, with 284 as standard comments, 139 requesting additional information, 27 as critical comments, and 36 miscellaneous correspondence. Staff also created guidelines for regulatory agencies to streamline the state permitting review process, and commented on federal guidelines for Section 7 reviews for manatees.

- The administrative challenge to the Lee County manatee protection rule amendments that were approved by the Commission in May 2000 (to add a depth-dependent zone in Mullock Creek in northern Estero Bay) was withdrawn in April 2001. The amendments were adopted in June 2001.

- Amendments to the Brevard County manatee protection rule were proposed in April 2001 and approved by the Commission in May. However, the amendments could not be filed for adoption because of three administrative challenges that were filed against the rule. The state Division of Administrative Hearings held a hearing on the challenges in September/October 2001, but a Final Order had not been issued by the end of 2001.

- Staff began rule development activities in ten different counties to assess the need to create or amend manatee protection zones in specific areas that were identified in a settlement agreement that the Commission entered into in April 2001 over alleged violations of the federal Endangered Species Act. One or more sites were located in the following counties: Charlotte, Citrus, Hillsborough, Indian River, Manatee, Martin, Miami-Dade, Palm Beach, Sarasota, and Volusia.

- Staff also handled many requests for authorization to engage in activities that are prohibited by the manatee protection rules. In addition to 100-200 requests by commercial fishers and professional fishing guides, staff also processed requests to allow Mote Marine Laboratory to access the Tampa Electric Company power plant in Hillsorough County for water quality monitoring, to transfer the vessel testing permit for several southeast Florida counties from Outboard Marine Corporation (OMC) to Bombardier after OMC went bankrupt and Bombardier acquired the OMC testing facility, to revise the permit issued to Sea Ray Boats for vessel testing in Brevard County and to renew a variance issue to an airboat tour operator in Collier County.

- Staff worked to post regulatory signs in several counties where the Commission is responsible for posting and maintaining the regulatory markers. In 2001, staff oversaw Commission sign work in Collier County (where additional signs were posted in March to improve public understanding and enforcement capability), in Clay County (where signs were posted in April to mark the zones adopted in July 2000), and in Putnam County (where new signs were added and old ones replaced). Staff also coordinated with Lee County staff to complete sign posting of the rule amendments that were adopted in late 1999 and to begin posting the amendments adopted in June 2001 for the Mullock Creek area. Staff also coordinated with the Florida Inland Navigation District (FIND) to replace old signs in Miami-Dade County. Staff coordinated with FIN to develop a sign plan for the Brevard County rule amendments that the Commission approved in May 2001.

- Staff assisted Lee County with a grant proposal which was awarded in fall 2001 for the development of 13 "You are Here" kiosk panels to complement Lee County's Boaters Guides to educate boaters concerning all existing federal, state, and local vessel speed zones.

- Staff provided Manatee Basics for Boaters informational signs for posting in Clay and Wakulla counties to post at public ramp facilities.

- Staff met with Hillsborough County concerning joint sign maintenance needs within the Alafia River and at Tampa Electric Power Plant. Monofilament discard at the power plant was also discussed, and a preliminary sign began which received review through the Monofilament Entanglement Working Group for statewide application.

- Staff developed and produced Warm Water Refuge Area informational signs for statewide distribution in response to harassment concerns within the residential canals of Warm Mineral Springs. Distribution included Blue Springs State Park, Manatee Springs, Fanning Springs, DeLeon Springs, St. Sebastian River State Buffer Preserve, Silver Glen and Salt Springs USFW sites and to various power plants that provide warm water refuge to manatees.

- The FWC coordinated with Homosassa Springs State Park on the development of a no regulatory no entry sign to address harassment at Blue Waters.

- Staff continued to participate as a member of the U.S. Fish and Wildlife Service's Warm-water Task Force which is assessing the importance, effects, and long-term stability of industrial, natural, and non-industrial warm water sites to the Florida manatee population. This task force provides a forum that allows for industry, government, and public representatives to share their current and future concerns and ideas regarding a long-term strategy for managing warm water refugia. It is also responsible for assisting in directing manatee warm water refuge research and management efforts.

- Staff prepared manatee and manatee habitat information for meetings with stakeholders including governmental agencies, boating interest groups, and environmental groups for the development of manatee safe havens. After collection of this information, staff held rule development workshops in the communities that may be affected by the creation of these manatee protection areas.

- Education staff conducted an evaluation of the education needs for the bureau programs. Suggestions were provided to the Advisory Council for Environmental Education (ACEE) to review when they evaluated manatee-related education projects for grant funding purposes. Staff also assisted groups requesting assistance with writing their grant proposals for ACEE funding.

- The bureau's web site was updated and changed to reflect a unified agency site. The site now has evolved to a more efficient tool for tracking information about programs and current events.

- A total of 589 information requests was received and handled by staff this year. Additional information was disseminated through the web site.

- Manatee program videos (VHS format) were created from several information resources to distribute to tax collection sites near the St. Johns River and Brevard County area. A total of 14 counties received videos to show in their waiting areas. In addition to these videos, ACEE-funded videos were distributed statewide to various education sites, boating safety educators, and teacher conferences. *The State of the Manatee* video is a boater awareness video that discusses tips for safe boating around manatees. The *A Closer Look at Manatees* video focuses on manatee biology basics and is appropriate for use as an educational tool for middle and high school students and the general public. A total of 4,800 tapes was produced for distribution. An additional 400 tapes were looped so that the programs alternated for long-term play for events or in waiting areas.

- Education staff introduced the Way of the Manatee education kits to teachers in Leon and surrounding counties this year. The kits were developed to provide a free resource to teachers on a loan basis so that they could educate their students about manatees, habitat protection, and their environment. BPSM education staff provided delivery and pickup service for the kits and then offered to come in near the end of the program to give a class presentation. This year's trial program allowed staff to evaluate the materials so that additional kits could be developed to distribute throughout the state.

**Right Whales**

BPSM staff participated in a meeting of the Southeastern Right Whale Implementation Team in May 2001. Staff reviewed the NMFS

plan to modify the Atlantic Large Whale Take Reduction Plan.

## FLORIDA DEPARTMENT OF AGRICULTURE AND CONSUMER SERVICES

## DIVISION OF AQUACULTURE

### Bureau of Aquaculture Development

The bureau continued its commitment to encourage the development of the aquaculture industry in Florida. This commitment is based on the belief that aquaculture will become an integral segment of Florida's agricultural and economic future by providing high quality aquacultural products to worldwide markets while advancing resource management.

The Bureau conducts numerous activities to promote the development of aquaculture in Florida. These activities include regulatory, administrative, advisory, and technical functions directed toward ensuring that aquaculture operations are compatible with the Florida Aquaculture Plan, Aquaculture Certification Program, best management practices, resource management goals, and public health protection. The Bureau of Aquaculture Development is divided into four primary program components:

1) Aquaculture Certification Program

2) Sovereign Submerged Lands Leasing Program

3) Oyster Culture and Shellfish Resource Program

4) Technical Support Program (ombudsman, training, technical outreach)

### Aquaculture Certification Program

Chapter 597, Florida Statutes established the Aquaculture Certificate of Registration to recognize aqua-farming businesses. Aquaculture businesses in Florida are required to be certified annually and to attest that they will comply with the best management practices provided in Chapter 5L-3, Florida Administrative Code. The aquaculture certificate is used to identify aquaculture producers as members of Florida's agricultural community and to identify aquacultural products produced in the state.

The Aquaculture Certification is linked to the Best Management Practices Program. Best management practices have been established by and for the aquaculture industry and represent the most appropriate and practicable framework for Florida's diverse aquaculture businesses. Site inspections are conducted at aquaculture facilities to ensure compliance with best management practices. Staff is trained to provide a standardized evaluation based on compliance with established best management practices.

The Division certified 903 aquaculture facilities during FY2000/2001. Shellfish producers make up 56% of the certified farms, 21% are ornamental producers and 17% produce food fish, with the remaining live rock, alligators, and bait. Certified farms are found in 62 of the state's 67 counties with 22% of the certified farms in Levy County, 11% in Dixie County, and 10% in Hillsborough County.

### Sovereign Submerged Lands Leasing Program

The Bureau is responsible for the Aquaculture Lease Program under the provisions in Chapter 253, F.S. Currently, the Bureau administers 690 aquaculture leases containing about 1,700 acres. Aquaculture leases are located in Brevard, Charlotte, Dixie, Indian River, Lee, Levy, Monroe, Pinellas, and Volusia counties. In response to its statutory mandate, the Bureau identifies tracts of submerged lands throughout the state that are suitable for aquacultural development. The aquaculture section has designated 20 special aquaculture use areas in eight coastal counties including Franklin, Dixie, Levy, Charlotte, Lee, Indian River, Brevard, and Volusia counties. The department also maintained a management use agreement with Citrus County to evaluate bay scallop aquaculture in coastal waters off of Crystal River.

The Bureau completed the expansion of the Pine Island high-density lease area in Dixie County and issued 39 aquaculture leases in the Indian River County Aquaculture Use Zone. Additionally, the Bureau is currently evaluating proposed aquaculture use zones in Sarasota and Collier counties.

### Oyster Culture and Shellfish Resource Development Program

The Bureau actively engaged in enhancing shellfish resources and restoring oyster reefs on public submerged lands. The Bureau collected 118,963 bushels of processed oyster shell

from processors in Franklin County and planted 175,584 bushels of public reef. Oyster resource development projects were conducted in cooperation with local oystermen's associations in four coastal counties. A total of 205,359 bushels of live oysters were replanted on public reefs in Franklin, Wakulla, Dixie, and Levy counties.

**Supporting Florida Agriculture**

The Division has been very progressive in its support of aquaculture development as a practicable alternative to commercial fishing and conventional agriculture to foster economic development in rural and coastal communities. The Bureau of Aquaculture Development's four core programs offer unique and essential services to this emerging sector of Florida's agriculture community. These programs provide the regulatory framework for the practicable aquaculture operations, provide specific farming areas on state-owned submerged lands, and provide responsible stewardship for Florida's natural aquatic resources.

Producing hard clams on submerged lands is the largest marine aquaculture business in Florida. A recent economic analysis estimated the economic output from clam sales to be $34 million statewide. Farming hard clams is different, however, from many other agricultural activities in that cultivation usually requires the use of state-owned lands. Unlike many upland agricultural ventures that are conducted on privately-held lands, marine aquaculture must be conducted on or over submerged lands that are largely held in the public domain. Since only an insignificant amount of suitable submerged acreage is privately owned, marine aqua-farmers are uniquely dependent upon the use of public lands. Accordingly, the department must act on behalf of the Governor and Cabinet to administer and manage these public lands in the best interest of the people of Florida.

The Division, in cooperation with the Florida Sturgeon Production Working Group, received approval from the ASMFC to import non-U.S. origin Atlantic sturgeon from Canada. Atlantic sturgeon and other non-native sturgeon will be imported to evaluate the potential for commercial sturgeon aquaculture in Florida. This program is designed to develop the technology to rear young sturgeon to a size where they can be distributed to fish farmers to assess the merit of sturgeon as a unique aquaculture product in Florida.

Bureau staff provided substantial technical and administrative support for aquacultural operations through site visits, compliance inspections, and workshops. The Bureau staffed a new field facility in Bartow to expand its responsiveness to regional aqua-farmers.

**Conserving the Natural Environment**

The Bureau is involved in a unique project applying its expertise and equipment to mitigate potential impacts on oyster resources in Apalachicola Bay. In a joint project with the Department of Transportation and the Department of Environmental Protection, the Bureau worked to enhance and restore public oyster reefs that may be adversely affected during the St. George Island Bridge Replacement Project. The mitigation plan involved the restoration of oyster reef habitat by placing processed oyster shell and live oysters on designated reefs.

# LOUISIANA DEPARTMENT OF WILDLIFE AND FISHERIES
# OFFICE OF FISHERIES

*James H. Jenkins, Secretary*

## OFFICE OF FISHERIES

The mission of the LDWF Office of Fisheries is to conserve and protect Louisiana's renewable aquatic resources for present and future generations of Louisiana citizens by controlling harvest and by replenishing and enhancing stocks and habitat. The mission is accomplished through the activities of the various programs within the Marine Fisheries Division. The programs are: shellfish (shrimp and crabs); mollusc (oyster); finfish; habitat; and research. The clients served by these programs include present and future generations of Louisiana citizens, as well as national and international interests that derive benefits from consumptive and non-consumptive use of Louisiana's fisheries resources. The department sets seasons and size and possession limits, restricts fishing gear use, or uses other means of protecting key resources. Other conservation/protection methods include replenishing species and enhancing or developing species or habitats as needed to provide for the needs of consumptive and non-consumptive users or environmental health. The department also conducts research to provide insight into the proper functioning of natural systems and educates the public and promotes wise use of resources.

## SHELLFISH PROGRAM

The Marine Fisheries Division continued its long-term fishery independent trawl sampling throughout coastal Louisiana. Data from these samples were used to set season frameworks for both the fall and spring inshore shrimp seasons and the winter offshore shrimp season. Additionally, these same data were used to recommend season extensions and special shrimp seasons.

### Shrimp

#### *Offshore Shrimp Season*

The state's offshore territorial waters from the USCG navigational light off the northwest shore of Caillou Boca to the eastern shore of Freshwater Bayou were closed on February 5, 2001, to protect significant numbers of over-wintering white shrimp smaller than legal size. A portion of these offshore waters extending from the USCG navigational light off the northwest shore of Caillou Boca westward to the Atchafalaya River Ship Channel were reopened to shrimping on April 16, 2001. The remaining portion of these closed waters reopened to shrimping on May 10, 2001, in conjunction with the opening of inshore waters in Shrimp Management Zone 2.

#### *Inshore Shrimp Season*

The year began with the closure of the open waters of Breton and Chandeleur sounds in Shrimp Management Zone 1 on March 31, 2001, followed by their reopening on May 14, 2001. The inshore waters of Zone 2 opened May 10, 2001, followed by the opening of the remainder of Zone 1 on May 21, 2001. Zone 3 opened on May 28, 2001. That portion of Zone 2 west of the western shore of Bayou Lafourche was closed to shrimping on June 23, 2001. The remaining portion of Zone 2 from the western shore of Bayou Lafourche to the eastern shore of South Pass of the Mississippi River as well as Zone 3 was closed July 1, 2001. On July 16, 2001, the spring shrimp season was closed in the southern portion of Zone 1 south and west of the Mississippi River Gulf Outlet (MRGO) and south of the Intracoastal Waterway from its juncture with MRGO to its juncture with the Industrial Canal. The remaining portion of Zone 1 closed to shrimping on July 24, 2001.

The 2001 fall shrimp season opened coastwide in Louisiana's inshore waters on August 15, 2001. Zones 2 and 3 closed on December 18, 2001, and Zone 1 closed on December 31, 2001, with the exception of that portion of Zone 1 north of the southern shore of the Mississippi River Gulf Outlet (MRGO) which was extended to January 11, 2002. Breton and Chandeleur sounds remained open to shrimping.

According to 2001 NMFS state landings statistics, Louisiana landings measured 76.7 million pounds (all species combined/heads off weight) which ranked as the second highest annual landings total since 1990. The NMFS statistics indicate that 2001 Louisiana catch measured 89.3 million pounds (all species combined/heads off weight).

### Crabs

Louisiana blue crab landings for 2001 totaled 40.6 million pounds, which was a decline of 21.9% from the previous total of 52.0 million pounds. Stone crab landings for 2001 was 24,157 pounds compared to a record 49.9 thousand pounds the previous year.

An assessment of the Louisiana blue crab resource was prepared for the department. Several reports were published by the GSMFC's TCC Crab Subcommittee: the regional blue crab management plan and proceedings of the blue crab mortality symposium. The Derelict Trap Task Force has met several times and is preparing an information packet on derelict traps including a white paper on derelict traps, guidelines to conducting a derelict trap sweep, a PowerPoint presentation, and summaries of recent derelict trap sweeps in the Gulf of Mexico.

The Louisiana Crab Task Force continued to meet and address issues that confront the industry. Legislation approved during the spring 2001 legislative session granted official status to the task force. The task force has endorsed a pilot trap removal program for Louisiana.

## MOLLUSC PROGRAM

### Oyster Season

The 2001/2002 oyster season on public seed grounds south of the MRGO, the Bay Gardene, and Hackberry Bay seed reservations, and the public seed grounds in the Vermilion/Cote Blache Bay complex opened September 5, 2001. Included in this opening was the designated sacking-only area east of the Mississippi River, described as Lake Fortuna and Lake Machias to a line from Mozambique Point to Point Gardner to Grace Point at the MRGO. The public seed grounds north of the MRGO and the Sister Lake seed reservation opened October 1, 2001. Those seed grounds and reservations were closed on April 15, 2001, with the exception of Bay Gardene which closed on May 15, 2001, due to a season extension by the LWFC.

The Calcasieu Lake public tonging area was opened on October 15, 2001, and the Sabine Lake public tonging area was opened on November 15, 2001. Both areas were scheduled to close on April 30, 2002.

Oyster production on the public oyster areas during 2001/2002 season totaled over 984,000 sacks of market oysters and nearly 196,000 barrels of seed oysters. The public grounds east of the Mississippi River and south of the MRGO accounted for 86% of the total sack production and surpassed the previous seasonal sack record for that area by over 140,000 sacks. Landings totals for 2001 (a combination of landings from portions of the 2000/2001 season and the 2001/2002 season) on public oyster areas totaled nearly 6.3 million pounds of meat.

### Oyster Leasing

During 2001, seventy-eight new leases were issued comprising 3,916 acres. No leases were auctioned during the year.

The Oyster Lease Survey Section continued to update the web page to better serve the public. The section's oyster lease GIS database is available for viewing on the Internet at http://oysterweb.dnr.state.la.us/oyster.

### Additional Oyster Projects

The department continued to work toward the completion of the Louisiana Oyster Shell Recovery Pilot Program funded by the NOAA. Comparison of alternative cultch materials was performed by placing sample plots of crushed concrete, limestone, and processed oyster shells in Lake Borgne. Collection of data on oyster recruitment to these cultch materials was performed in 2001, and final analysis of the data is currently underway. In addition to cultch performance, the feasibility of recovering oyster shell from both in-state and out-of-state processors for use in future cultch plants was also studied. This project is scheduled for completion in 2003.

## FINFISH PROGRAM

The primary objective of the finfish program is to develop and maintain a database of scientific information that can be used to make rational recommendations for the management of coastal finfish stocks.

### 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. 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'x6' bag as an integral part of and midway the length of the net. The mesh size of this seine is ¼" bar, ½" stretched, Delta 44 knotless mesh. A gill net is used to sample juvenile, sub-adult, and adult fish and provide information on relative abundance, year class strength, movement and gonadal condition. The gill net is 750' in length, 8' in depth, and constructed of monofilament. The net is composed of five panels each, of the following mesh sizes:

1) 150'x8', 1" bar, 2" stretched mesh, 0.4 mm diameter filament;
2) 150'x8', 1¼" bar, 2½" stretched mesh, 0.52 mm

diameter filament;
3) 150'x8', 1½" bar, 3" stretched mesh, 0.52 mm diameter filament;
4) 150'x8', 1¾" bar, 3½" stretched mesh, 0.52 mm diameter filament; and
5) 150'x8', 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 on nylon. The entire net has a 2:1 sag, and the mesh sizes are as follows: inner wall – 1⅝" bar, 3⅝" stretched, number 6 twine and 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 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 for the important species is also used in developing analytical and predictive tools.

**State/Federal Cooperative Fishery Statistics**

The collection of commercial landings statistics through a trip ticket program has continued. 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, Terrebonne, Jefferson, St. Mary, Iberia, and Cameron parishes. The information provided by landing statistics and trip interviews has been used by NMFS, LDWF, GSMFC, and the 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**

In 2001, Louisiana used the marine share of its Sport Fish Restoration Funds in five activities:

1) development of access for fishermen;
2) finfish age and growth research (described under the research program);
3) conduct a feasibility study that will enable the department to make sound and rational decisions on the renovation/construction of the marine fisheries research laboratory and accompanying building and site programs;
4) evaluating sport fish use of created wetlands in the Atchafalaya Delta (contracted to Louisiana State University, Coastal Fisheries Institute); and
5) identifying essential fish habitats in Barataria Bay (joint project with LSU, CFI).

**HABITAT PROGRAM**

**Artificial Reefs**

The Louisiana Artificial Reef Program was established in 1986 to take advantage of obsolete oil and gas platforms which were recognized as providing habitat important to many of Louisiana's coastal fishes. Federal law and international treaty require these platforms be removed one year after production ceases at great expense to the industry. The removal of these platforms results in a loss of reef habitat.

Since the program's inception in 1986, 31 different petroleum companies have participated in the program and donated the jackets of 105 structures. In addition to material, the participating companies also contributed to Louisiana's Artificial Reef Trust Fund for operation, maintenance, and reef research. In 2001, 15 projects across the coast were completed.

During this fiscal year, the program also worked with the Lake Pontchartrain Basin Foundation to construct a reef in Lake Pontchartrain. The reef was 2.5 acres in size and constructed of limestone. British Petroleum provided a $60,000 donation for the purchase of the materials while two local contractors provided survey services and the equipment to deploy the materials at no charge.

**Department of the Energy**

This project ended this year with the completion of the standardized data dictionary that includes information about all identified databases collected or managed by the LDWF Marine Fisheries Division as well as other biological and environmental databases from Louisiana and Gulf of Mexico waters. The dictionary describes the projects under which the data were collected, the parameters measured including methods, station locations, data formats, and contact

information for additional information. Electronic editions of the dictionary are available on CD.

**Southeast Area Monitoring and Assessment Program (SEAMAP)**

SEAMAP is a state/federal/university program that collects, manages, and disseminates fishery-independent data and information in the southeastern United States. Louisiana participated in planning and resource surveys during the twentieth year of this NMFS-funded cooperative project. Planning activities included identifying priorities for data acquisition and coordinating Gulf-wide resource surveys by SEAMAP participants. The department also conducted summer, fall, and winter sample surveys in the Louisiana territorial sea and nearshore EEZ from the Mississippi River to Atchafalaya Bay. These seasonal day-night surveys provide information on the abundance and distribution of critical life stages of major Gulf of Mexico species. Shrimp/groundfish and zooplankton communities were sampled as were associated environmental parameters. Summer and fall surveys coincided with NMFS resource survey activity off the Louisiana coast.

**Oil Spill Contingency Planning and Response**

The department's Oil Spill Task Force focused on natural resource damage assessment and developing restoration plans and coast-wide monitoring designs during 2001. With other state and federal trustees, department representatives developed a pilot plan for a regional restoration plan which would provide restoration alternatives for small spills.

On November 28, 2000, the T/V Westchester grounded in the Mississippi River at River Mile 38 and discharged approximately 500,000 gallons of crude oil into the Mississippi River in Plaquemine Parish. Several thousand acres of surface waters and shoreline and marsh habitats were exposed to oil as a result of this discharge. The Mississippi River and delta area supports a wide variety of wildlife and many different habitats ranging from freshwater to marine. The area is a major wintering ground for waterfowl, and Pass-a-Loutre State Wildlife Management Area and Delta National Wildlife Refuge are located immediately downstream from the spill site. The department is participating with other state and federal natural resource trustees in an assessment to restore the public ecological and recreational resources that were lost as a result of this spill. The focus of the restoration planning effort is the area on and around Pass-a-Loutre State Wildlife Management Area.

The habitat restoration/enhancement project for the May 1997 Texaco Pipeline spill in Lake Barre, Terrebonne Parish, was implemented during 2000. That enhancement project, planting salt marsh vegetation on a CWPPRA-created area on E. Timbalier Island, thus far has resulted in establishment of *Spartina alterniflora* marsh at low elevations, but drought conditions precluded growth of *S. patens* at higher elevations. The trustees and Texaco are continuing to monitor the project in 2001. Erosion is changing the shape of the CWPPRA restoration area, but the saltwater plantings are healthy and spreading to all suitable areas in the newly-erected island areas.

In June 1997, the discovery of a pipeline leak in coastal Vermilion Parish marsh led the department and other state trustees to pursue an assessment with the Apache Corporation. The leak had apparently been occurring for some time, and the USCG estimated that 2,000 barrels of oil may have been released. The area was burned, and vegetative recovery of the resulting six-acre burn area was monitored while restoration planning activities continued in 2001.

In August 1997, a blowout from the Sonat Goins #7 well near Cravens, Louisiana, in Vernon Parish resulted in 55 acres of injured pine and streamside wetland habitat. In 2001, staff continued work with other state and federal trustees to determine the extent of natural resource injuries resulting from the spill and to develop suitable restoration alternatives.

A September 1998 blowout of the Equinox Cockerell-Moran #176 in Lake Grand Ecaille, Plaquemines Parish Louisiana, oiled 1,233 acres of coastal marsh near the Gulf shore. In 2001, the department continued to participate in settlement discussions to restore the resulting injuries to natural resources. A marsh creation project near the spill site has been selected for implementation pending completion of a consent decree.

A Chevron pipeline near Grand Terre Island, Plaquemines Parish Louisiana, spilled crude oil onto beaches and marsh from Quatre Bayou Pass to Caminada Pass on November 24, 1999. The department participated in assessment action during 2001 in cooperation with other state and federal trustees. Chevron has enhanced a migratory bird sanctuary owned by the Nature Conservancy by a real estate purchase/donation and habitat improvement as a way of restoring the public resources lost because of the spill.

**Statewide Hydrographic Monitoring**

The LDWF, through an interagency agreement with the USGS continued to collect constant records of

salinity, water temperature, tide level, wind speed and direction, and barometric pressure from a network of 16 stations located across coastal Louisiana. The data are collected in near real-time, and LDWF provides database management for the program. The data were used for managing marine fisheries (shrimp, oysters, and finfish) and for investigating the extent and impact of a variety of environmental conditions such as tropical weather systems, drought, hypoxia and red tide in Louisiana coastal waters. The data also are provided on request to other state and federal agencies, as well as university researchers. The near real-time data are available to the public via the internet through the LDWF website

(http://www.wlf.state.la.us/apps/netgear/index.asp?cn=lawlf&pid=884)

or the USGS Louisiana hydrowatch website

(http://wwwldlabrg.er.usgs.gov/hydrowatch.htm).

These data are posted in raw, unedited form within approximately four hours of the time the instrument measurement was recorded in the field. The data are updated frequently to provide the best, most accurate information possible.

**Gulf-Wide Information System (G-WIS)**

The LDWF continued to participate in this Minerals Management Service-funded program to develop a geographic information system (GIS) database of environmental sensitivity for the Gulf Coast. Biological and environmental data collected by the department are being incorporated into the system. The end product will be a series of databases that can be used to identify environmentally sensitive areas as an aid in planning for activities in the coastal zone. A draft version of the data was reviewed by LDWF biologists in 2000. The project was completed in mid-2001. A means to make the data available to the public is being pursued.

**Monitoring the Impact of Environmental Perturbations on Commercial Fishermen**

The objective of this project is to establish a data collection program capable of determining the impact of adverse environmental and/or climatological conditions on the fishing patterns and subsequent income of commercial fishers and charterboats. Events such as hurricanes, red tides, floods, oil spills, and oxygen-depleted bottom waters affect the harvest of Louisiana's marine fishery resources and, therefore, the economy of the state. Individual harvesters may be forced to spend additional time and effort in locating targeted species, prevented from working traditional fishing grounds, or prevented from fishing at all. This project is intended to provide a basis, over the long term, for an objective determination of the effects of such events on commercial fishing and allow integration of these events into the management regime for those fisheries.

Project components are the logbooks and environmental monitoring. Commercial harvesters and charterboats use logbooks that identify vessel movement, fishing location, and catch. The environmental monitoring segment gathers data about major climatological and/or environmental disturbances that affect the coast and emphasizes the hypoxic zone that develops each summer offshore from Jefferson, Lafourche, and Terrebonne parishes. The data will be analyzed to determine if changes in effort and fishing location can be documented in relation to known perturbations. Results of recent hypoxia samples can be viewed at the LDWF website:

http://www.wlf.state.la.us/apps/netgear/index.asp?cn=lawlf&pid=900.

**Other Habitat Issues**

In 2001, the Marine Fisheries Division continued to work with the state's Wetlands Conservation and Restoration Task Force and the federal Coastal Wetlands Planning, Protection, and Restoration Act Task Force in developing projects and strategies for slowing the rate of coastal wetlands loss in Louisiana. The Coast 2050 Plan, an overarching strategy to address most of the coastal deterioration occurring in Louisiana, is being used as a template for major new restoration efforts in the Barataria Basin.

Marine Fisheries Division personnel continued on the lease relocation procedure for oyster leaseholders that may be adversely impacted by coastal restoration projects.

**Seismic Monitoring**

The seismic section was created in 1939 specifically to protect oysters, fish, shrimp, and other wildlife from injury due to seismic exploration. The department continued to monitor seismic activity in 2001, although the amount of activity has greatly declined in recent years.

**Caernarvon Biological Monitoring**

Beginning in 1991, the U.S. Army Corps of Engineers, with support from the Louisiana Department of Natural Resources and the Louisiana Department of

Wildlife and Fisheries, has operated 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. Diversion of nutrient and sediment rich freshwater has rejuvenated existing marsh, significantly reduced dependence on local rainfall as the principle source of freshwater input to the estuary, reduced peak salinity, and induced more regularity in the seasonal salinity pattern. Long-term benefits involve reducing land loss rates and increasing fish and wildlife production.

The LDWF conducts existing monitoring activities in the Breton Sound estuary and is continuing a biological monitoring program to accurately measure the success of the diversion project. Biological monitoring of the project has been undertaken by the LDWF in three phases:

1) preconstruction (four years) to determine the conditions in the basin before the project went online;
2) postconstruction (four years), an intensive study of the biological effects of the diversion; and
3) long-term (46 years) to monitor the extended project effects.

To determine how fish and shellfish populations may be affected, thousands of oyster, shrimp, crab, and finfish samples are being taken at stations situated from the diversion outfall to the Gulf. The overall objective of this program is to assess the long-term effects of diversions on the fisheries, waterfowl, wildlife and vegetation as well as to determine the success of diversions in meeting project goals while helping to guide future project operations. These studies were designed to gather both fishery-dependent and fishery-independent data.

An analysis of the first eight years of data has shown few changes in overall finfish and crustacean populations attributable to the diversion project. The areas of best oyster production have shifted seaward with phenomenal production from seaward beds after years of high winter/spring diversions. The monitoring precision of commercial finfish landings was limited by coincidental changes in the fishery from legislation. Some changes in the distribution of finfish and crustacean populations have been indicated by the monitoring data.

Large beds of submerged aquatic vegetation (SAV), a component of prime aquatic habitat, developed in the landward zone, and a spectacular largemouth bass fishery has developed. Post-operation vegetative surveys have found increased species diversity with seven of eight new species characterized as fresh or brackish-adapted; brackish marsh is encroaching into saltmarsh zones. A sample zone of 2,289 acres has shown an increase of 406 acres of emergent marsh, or 5.9% per year for 1992-1994.

**Davis Pond Biological Monitoring**

Personnel have begun a three-phase venture spanning more than 50 years to monitor effects of the Davis Pond Freshwater Diversion Structure. The LDNR is leading the overall monitoring effort in coordination with the U.S. Army Corps of Engineers.

Work began on Davis Pond in St. Charles Parish in January 1977. By fall 2001, the project will be capable of diverting up to 10,650 cubic feet per second of Mississippi River water into the Barataria Basin estuary. The diversion project aims to imitate spring overflows which historically brought a rush of marsh-supporting freshwater, nutrients, and sediment to Louisiana's coastal zone. Levee construction along the Mississippi for flood control has since blocked spring overflows causing wetland loss across coastal areas. The Davis Pond project intends to compensate for this by providing a controlled flow of nutrients and freshwater from the Mississippi into a target area in the Barataria Bay estuary to benefit thousands of acres of marshland.

Biological monitoring of the preconstruction phase began in January 1998. When the diversion is complete, the post-construction monitoring phase will begin a four-year long intensive study of biological effects of the diversion. The final phase of the study is set to last 46 years and will monitor extended effects of the project. To determine how fish and shellfish populations change, thousands of oyster, shrimp, crab, and finfish samples will be taken at stations situated from the diversion outfall to the Gulf. Commercial fishery harvests will also be monitored. In addition, biologists take water quality readings at 38 locations within the basin each month to provide a complete picture of how salinity and flow patterns are changing.

An extensive study of recreational fishing began in July 1999. This creel study covers the entire Barataria basin from the freshwater zones in the north to the Gulf barrier islands in the south. Species composition, sizes, catch rates, and amount and location of fishing effort will be monitored. Point-access surveys and aerial counting/mapping surveys are being employed. These data will help to define population changes and the health of the resource in general and will show how species composition, areas of concentration, growth rates, and fishing success

change in the estuary as this critical restoration project takes effect.

It has been predicted that over the next 50 years, Davis Pond will preserve about 33,000 areas of marshland and benefit 777,000 acres of marshes and bays, providing important habitat for fish and wildlife. The project is expected to provide annual average benefits of $15 million for fish and wildlife plus $300,000 for recreation.

## RESEARCH PROGRAM

### Lyle S. St. Amant Marine Laboratory

The primary mission of the laboratory is to conduct research needed to manage the state's marine fisheries. It is the only laboratory facility on the Louisiana coast devoted to marine fisheries. However, as most of the biological and hydrographical research done in the coastal environment is useful in management of marine fisheries, another mission of the laboratory is to support and provide a base of operations for research and educational groups wishing to work in the area.

The department's education section conducted a teacher workshop (Wetshop) at the laboratory each summer and in conjunction with LSU Sea Grant and Agricultural Extension, conducted the award-winning Marsh Maneuvers for 4-H students each summer. The laboratory also supported monitoring of the Grand Isle Sulphur Mine Reef for the Louisiana Artificial Reef Program.

### Age, Growth, and Fecundity

To increase accuracy of stock assessments, the laboratory has undertaken a long-term project to obtain age, growth, and fecundity data for important fishes. Otoliths (ear bones) are collected by fishery-independent sampling and by sampling from the commercial and recreational fisheries. These otoliths are sectioned and annular rings (indicators of age) counted. Gonads are also collected and examined histologically to obtain data for fecundity indices.

During 2001, 1,000 red drum and 1,416 spotted seatrout otoliths were processed. Otoliths collected from black drum (560 collected, 359 aged); striped mullet (284 collected, 144 aged); sheepshead (391 collected, 240 aged); southern flounder (343 collected, 144 aged); gray snapper (196 collected, 158 aged); and redfish (100 collected). Gonads from 81 gray snapper were collected and analyzed at the LSU Coastal Fisheries Age and Growth Laboratory. Personnel also collected 36 pairs of otoliths and six ovarian samples which were forwarded to the NMFS Panama City Laboratory.

### Cooperative University Research

During 2001, the laboratory continued in onsite research conducted by Louisiana universities under the Gulf Oyster Industry Program administered by Louisiana Sea Grant. These research projects are:

- Novel methods for deterring black drum predation on oyster leases (LSU Biological Sciences);
- Modeling the response of the hooked mussel, *Ischadium recurvum* (Rafinesque 1820) to relaying as a remediation technique to reduce biofouling on oysters and documenting its distribution in a Louisiana estuary (Nicholls State University Department of Biology; and
- Natural dermo resistance and its role in the development of hatcheries for the Gulf of Mexico (LSU Department of Veterinary Science).

# MISSISSIPPI DEPARTMENT OF MARINE RESOURCES

*Glen H. Carpenter, Executive Director*

## MARINE FISHERIES MANAGEMENT

### Objectives

Marine fisheries projects and activities coordinated through the Office of Marine Fisheries include:

- Design and initiate projects for the collection and analysis of data required for population dynamics estimates and other fisheries management related projects;
- Develop scientifically-based management recommendations;
- Monitor the condition of fish stocks and the fisheries that depend on them;
- Provide information transfer and liaison activities with regional fisheries management entities and others;
- Provide technical support to the Mississippi Commission of Marine Resources in developing fishery management plans, amendments, stock assessments, and technical analysis;
- Provide a state representative to serve on fisheries related boards, committees, panels, etc. as may be required; and
- Provide administrative services, general maintenance, locating suitable funding sources and other fisheries management support services as may be required.

### Status

During 2001, the Marine Fisheries Office drafted changes to the following ordinances:

- Ordinance 2.016 – an ordinance to establish rules and regulations for shrimping.
- Ordinance 7.026 – an ordinance to provide size and bag limits for certain fish species.

Public notices were published for opening and closing the commercial seasons for shrimp, oysters, king mackerel, red snapper, red drum, and large coastal sharks.

Personnel served on regional management activities of the GSMFC including: the Artificial Reef Subcommittee, Flounder Technical Task Force, Blue Crab Technical Task Force, TCC Data Management Subcommittee, Commercial/Recreational Fisheries Advisory Panel, Technical Coordinating Committee, and the State/Federal Fisheries Management Committee.

Personnel were instrumental in preparing grant documents and proposals to secure funding for fisheries management projects: Sport Fish Restoration Act with the U.S. Department of the Interior and the Cooperative Fishery Statistics Program and Interjurisdictional Fisheries Act with the U.S. Department of Commerce.

## MARINE COMMERCIAL FISHERIES STATISTICS

### Objectives

- Collect commercial fisheries landings and catch data for Mississippi in a timely manner;
- Collect biological data for selected, commercially-important finfish species;
- Obtain boat trip information and biological statistics on migratory pelagic and reef fishes such as red snapper, grouper, and amberjack and collect otoliths from red snapper; and
- Institute a trip ticket system.

### Status

Fisheries landings data were collected weekly and monthly according to schedule. The data were processed, edited, and submitted to the NMFS 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 were collected from the major seafood dealers along the Mississippi Gulf Coast. Some of the information 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 selected species on a monthly basis. This information was submitted to the NMFS for inclusion in its trip information system. This data is utilized by both state and federal fisheries managers to properly manage these valuable resources.

A trip ticket system was developed for oyster live bait fisheries. Data are being scanned into a database and transferred to the GSMFC.

## SHELLFISH MANAGEMENT PROGRAM

### Objectives

Oysters, as sessile filter feeders, are subject to the influence of environmental conditions to a greater extent than mobile species. Consequently, oyster landings can change dramatically from year to year according to those conditions. In addition to fluctuations in the amount of rainfall, problems with upland pollution can render abundant supplies of oysters unavailable for harvest. During the oyster season and throughout the year, field sampling trips are made to stations located over the oyster reefs to collect water samples that are analyzed for fecal coliform content. Opening and closing of reef areas is based primarily on the levels of fecal coliform in the water column at the time of sampling. Oyster reefs in certain areas must be closed after significant rainfall or river stage events until the water quality has improved sufficiently to allow harvesting to resume. To accomplish this, multiple stations are sampled in each reef area. Clean samples must be obtained from each area before it can be reopened for harvest following a closure. Water quality samples are obtained throughout the year to properly classify shellfish growing waters.

The Shellfish Sanitation Program is one of the agency's most labor-intensive efforts, requiring almost daily, routine water quality sampling and laboratory analysis of samples for fecal coliform bacteria. The data are used to properly classify oyster growing waters in accordance with the National Shellfish Sanitation Program guidelines and to provide necessary justification for reopening oyster reefs following rainfall events that degrade water quality to levels requiring that reefs be closed to protect the public health.

For areas to be classified as "approved," the geometric mean fecal coliform level most probable number (MPN) cannot exceed 14 and not more than 10% of the samples taken can exceed an MPN of 43. Additionally, U.S. Food and Drug Administration requirements also specify minimum sampling frequencies at each of nearly 170 sampling stations in the Mississippi Sound. Approved areas are those in which water quality does not degrade at any rainfall level. Areas classified as "conditionally approved" are subject to frequent openings and closures due to rain or river stage.

Along with monitoring the water quality of the oyster reefs, other work performed on the reefs involves revitalization efforts such as reef turn over, oyster relaying, and planting cultch material.

### Objectives of the Shellfish Program

- Maintaining program compliance with the Interstate Shellfish Sanitation Conference's National Shellfish Sanitation Program.
- Mapping Mississippi oyster reefs.
- Surveying potential cultivation sites and cultch planting sites.
- Cultivation of oyster reefs.
- Deposition of oyster cultch material.
- Reef area assessment.

### Status

A total of 388,091 sacks of oysters were harvested during the 2001-2002 season. Mississippi oyster harvesting waters are divided geographically into eight major areas which are monitored closely and opened and closed accordingly. The office also completed the surveying of potential cultivation and cultch planting sites.

### Major Accomplishments

- 13,499 cubic yards of cultch material were planted for oyster reef enhancement using shell retention fees collected from oyster harvesters and processors as authorized by statute.
- Over 200 acres of oyster reef were cultivated with DMR equipment and personnel.
- The 2001 Gulf and South Atlantic States Shellfish Conference was hosted.
- The shell retention fee collection process continued to generate funds for shell planting and reef revitalization as mandated by state statute.
- A scannable oyster trip ticket system continued to

be improved.

- 30 acres of new oyster reef in Jackson County were created, and 104 acres of new oyster reef were created in the Western Mississippi Sound.

**Shrimp and Crab Management**

**Objectives**

The Shrimp and Crab Bureau provides management of the state's commercial and recreational shrimp and crab fisheries. Cooperation and coordination with adjoining state marine fisheries agencies as well as regional and federal fishery authorities are integral to the success of shrimp and crab management activities. The program includes monitoring and research of both the shrimp and crab fisheries, coordination of the Mississippi Blue Crab Task Force, issuance of scientific collection permits, inspection and licensing of the live bait shrimp fishery, installation and maintenance of constant water-quality recorder instruments, coordination of Wallop-Breaux grants with the U.S. Fish and Wildlife Service, administration of the federal Brown Shrimp Disaster Grant, and the Derelict Crab Trap Recycling Program.

Additionally, these fisheries are managed by the setting of seasons, gear regulations, and other related management measures. Shrimp and Crab Bureau biologists work cooperatively with federal agencies including the NMFS, USFWS, GSMFC, GMFMC, and USGS. Cooperating Mississippi state agencies and organizations include the University of Southern Mississippi's Institute of Marine Sciences; Mississippi Department of Environmental Quality; Mississippi Department of Wildlife, Fisheries and Parks; Mississippi State University Extension Service as well as neighboring state marine resource management agencies.

**Key Responsibilities**

- Long-term monitoring of shrimp populations in order to make management recommendations. Nearly 500 trawl samples were collected this year as part of the Brown Shrimp Disaster Grant and our regular shrimp-monitoring program. This data collection program includes monitoring surface and bottom hydrological parameters at each trawling station (salinity, temperature, and dissolved oxygen);

- Inspection of live bait shrimp operations and compilation of confidential live bait dealer reports. The Live Bait Program includes a monthly compilation of Confidential Dealer Reports as well as inspecting and licensing these facilities. A trip ticket program has been developed to improve data collection for this fishery;

- Continuation of the Blue Crab Task Force in order to allow the various user groups to provide input and voice concerns;

- Continued development of constant recorder instruments along the Coast for real-time hydrological monitoring;

- Continued issuance of saltwater scientific collection permits. The bureau developed Ordinance 18.000 (1/16/01) that established guidelines and procedures for obtaining various types of Special Permits. Recipients of Special Permits must submit an application and a report of their collection or harvesting activities to the CMR. Twenty-three Special Permits have been issued during the past year;

- Coordination of Sport Fish Restoration grants with U.S. Fish and Wildlife Service;

- Administration of the NMFS's federal Brown Shrimp Disaster Grant. Weather stations were purchased as part of the brown shrimp disaster grant but will not be installed until after the first of the year. Data are being collected on bycatch reduction devices (BRDs) used on selected commercial shrimp boats. This is being done to determine the effects on the overall catch (shrimp to bycatch ratio) in shallow nearshore waters; and

- The Derelict Crab Trap Recycling Program includes recording the numbers of traps and where they were collected, as well as documenting any ghost fishing (capturing of animals other than crabs). To date, 2,390 traps have been collected and recycled along the coast.

The bureau's staff works closely with appropriate federal and state agencies, various user groups, and the public. The bureau strives to promote, conserve, and regulate these fisheries based on the best available biological, social, and economic data. The issuance of saltwater scientific collection permits is done in a manner that protects Mississippi's marine resources, while allowing legitimate research and development to occur. Constant recorder instruments are monitored and maintained to allow optimum data availability. Sport Fish Restoration coordination closely monitors grants to ensure that they are achieving the pre-established goal of each particular project.

## FINFISH MANAGEMENT

### Artificial Reef Program

### Objectives

- To update coordinates and orientation of past artificial reef material deployments within Mississippi's marine waters and adjacent federal waters;
- To provide the DMR web administrator with acquired coordinates of reef material, reef orientation, and maps and charts so that a portion of the web page can be created for the sports fishing community to access this information;
- Identify areas conducive for artificial reef development and enhancement both nearshore and offshore within the framework of Mississippi's Artificial Reef Plan;
- Monitor artificial reef development in Mississippi's marine waters and adjacent federal waters; and
- Obtain artificial reef material from state, federal, and private entities through donations.

Currently, Mississippi has 14 permitted offshore reefs encompassing approximately 15,500 acres of water bottoms. These reefs range in size from one acre to 10,000 acres. To date, the material used for offshore reefs consists of 109 concrete modules (26 feet by 12 feet by 9 feet), concrete rubble (97 deployments), 34 steel hull vessels (including barges), one oil rig living quarters, and two oil rig jackets. There have been approximately 243 total deployments since 1978 on these offshore reef sites.

Mississippi has also permitted 32 nearshore artificial reef sites. These reefs are located inshore where fishermen in small vessels, wade fishermen, and pier fishermen can take advantage of the fish that inhabit these reefs. The materials of the nearshore reefs consist of limestone, concrete rubble (when water depth allows), oyster shells, and fly ash. The nearshore reefs are deployed at strategic times of the year when optimum oyster spat will settle for future growth of the reef.

Two methods used to monitor and update coordinates and orientation of past artificial reef material deployments were

1) side-scan sonar, primarily used on offshore reefs and
2) sounding with a pole, primarily on inshore reefs.

Thirteen of the 14 artificial reef sites located offshore in Mississippi and adjacent federal waters and two of the 32 inshore artificial reefs were surveyed using side-scan sonar. Thirty-two inshore reefs were verified using the pole sounding technique. Total area surveyed during this study period from both inshore and offshore was approximately 7,000 acres.

All coordinates obtained from side-scan and sounding currently reside on the DMR web site and are available to the general public. Maps are also available upon request.

## MARINE RECREATIONAL FISHERIES STATISTICS SURVEY (MRFSS)

### Objectives

- Conduct the MRFSS survey in Mississippi for shore, charter, and private modes.
- Provide a timely and reliable database on marine recreational fishing activity.
- Identify notable changes in recreational catch and effort trends.
- Evaluate the long-term implications of management measures.
- Conduct the MRFSS survey at night to measure the variance between day and night catches.
- Conduct weekly telephone interviews of charter boat operators in Mississippi.

### Status

Recreational fisheries information was collected daily in all three modes through survey. The data were processed, edited, and submitted to the GSMFC in a timely manner. The information gathered from the survey provides a continuous standardized database of marine recreational catch, effort, and participation in the world. This data gives the various fisheries councils the information necessary to make wise management decisions. Pressure estimates were also submitted to the GSMFC according to schedule. These estimates along with historical productivity are used to estimate the number of assignments needed to achieve a given quota for each month. Through these assignments all month and wave quotas were successfully met.

A separate nighttime MRFSS survey was also

conducted using the same methods as the day survey. This survey was only conducted in the shore mode, and the data collected was kept separate from the day surveys. This data was also processed, edited, and submitted to the GSMFC in a timely manner. This information is needed in order to improve estimates of recreational night fishing catch and effort. These estimates will be compared with daytime catch estimates to determine if significant differences exist between day and night fishing activities.

The MRFSS program also includes a telephone survey of the charter boat fishery. This was conducted through weekly telephone interviews of charter boat operators in Mississippi. The number of telephone interviews was based on a random selection of 10% of the charter boats in Mississippi. The data were entered and sent to the GSMFC on a weekly basis. They use this information to obtain more precise effort estimates for the charter and headboat sectors.

## INVESTIGATION OF JUVENILE FISHES THAT UTILIZE *SARGASSUM* AND FRONTAL ZONES AS ESSENTIAL HABITAT IN MISSISSIPPI MARINE WATERS AND ADJACENT GULF WATERS

### Objectives

- Describe species diversity, determine temporal and spatial occurrence, and develop indices of relative abundance for juvenile fishes that occur at *Sargassum* and frontal zones;
- Examine the role of *Sargassum* as habitat for juvenile fishes, including a general assessment of the ecological relationships between juvenile fishes and the *Sargassum* community; and
- Characterize frontal zones and *Sargassum* habitat utilized by juvenile fishes based upon water quality parameters, physical location, general direction of movement, and general characteristics of the frontal zone feature (including estimated length, width, and depth of *Sargassum*) and mats sampled.

### Status

In 2001, the DMR received federal funds made possible by the Federal Aid in Sports Fish Restoration Act (16 U.S.C. 777-777k:)50 CFR Part 80, administered by the U.S. Fish and Wildlife Service. Part of these funds was provided to the Gulf Coast Research Laboratory for the study of juvenile fishes in *Sargassum*.

Nearly 3,000 juvenile fishes that utilized *Sargassum* and frontal zones were collected and identified to 30 families. Larval billfishes, bluefin tuna, and dolphin also appeared in samples. Work is ongoing to more clearly establish the role of *Sargassum* in providing essential fish habitat to these important fish species.

## SPORTFISH TAG AND RELEASE IN MISSISSIPPI COASTAL WATERS AND THE ADJACENT GULF OF MEXICO

### Objectives

- Continue the angler-cooperative tag and release of spotted seatrout in Mississippi coastal waters specifically to obtain data on the seasonal movement patterns of fish of legal size (14 inches and larger).
- Continue the angler-cooperative tag and release of cobia in Mississippi coastal waters and the adjacent Gulf of Mexico in order to obtain additional data on seasonal movement patterns of this fish.
- Initiate an angler-cooperative tag and release of tripletail in Mississippi coastal waters and the adjacent Gulf of Mexico in order to obtain data on seasonal movement patterns of this fish.
- Coordinate a series of workshops to provide for the exchange of information regarding the recreational fishery in Mississippi.

### Status

Seasonal movement and growth of spotted seatrout were studied utilizing angler tagged and released spotted seatrout in Mississippi coastal waters. Tagging included 329 specimens, and 16 (4.9%) were recaptured. Similar trends of limited movement were observed in these recaptured fish as in other years.

Seasonal movement and growth of cobia were studied utilizing angler tagged and released cobia in the Gulf of Mexico. Tagging included 452 specimens, and 20 (4.4%) were recaptured. Similar trends of movement were observed in these recaptured fish as in other years.

Seasonal movement and growth of tripletail cobia were studied utilizing angler tagged and released tripletail in Mississippi coastal waters and adjacent Gulf of Mexico waters. Tagging included 32 specimens, and no recaptures were reported. This is the first year of the tripletail tagging project, and a broader base of angler participation is being built.

**SEAFOOD TECHNOLOGY PROGRAM MANAGEMENT**

**Objectives**

- Conduct regulatory inspections of shellfish processing and transporting facilities to determine compliance with state and federal sanitation and health safety regulations;
- Provide technical advice to the Mississippi seafood processing industry to aid in compliance with seafood sanitation and health safety regulations;
- Provide technical advice to the seafood processing industry regarding new technologies and new products that provide added value, new markets, employment opportunities, and economic enhancement for the seafood industry;
- Provide technical advice to those interested in aquaculture and aid in creating expanded economic and employment opportunities;
- Provide technical expertise in investigating food-borne illness reports;
- Provide advice and support for the Mississippi Department of Agriculture and Commerce regarding aquaculture regulatory matters;
- Undertake research projects in line with seafood technical surveys, promotion of Mississippi seafood, seafood safety education and sanitation training in line with the goals of the Mississippi seafood industry to disseminate information, and educate consumers and food handlers in the seafood industry;
- Provide assistance to the Mississippi Food Safety Task Force in promoting food safety education to the public through participation in public fairs, public meetings, and events;
- Work in concert with public affairs staff to develop and distribute brochures, pamphlets, and fact sheets on proper seafood preparation and handling; and
- Provide administrative support to the activities of the office, the department, and the CMR.

**Status**

The total number of technical assistance actions provided was 2,946. Examples are as follows:

- Provided technical advice and conducted technical support inspections for the Mississippi Department of Agriculture and Commerce regarding regulated aquaculture activities;
- Prepared a shrimp waste solids resource/utilization package for use by those interested in handling and using shrimp waste solids;
- Provided oyster dealers with USFDA-PEER report and recommendations to reduce food contact surface NSSP nonconformities;
- Provided seafood processors with Pre-Oyster Harvest packets of educational information for molluscan shellfish dealers and a technical assistance packet to crab and shrimp processors to advise them of new training manuals, pamphlets, brochures, and other educational materials on food safety, HACCP, and sanitation available for the Mississippi seafood industry;
- Developed sanitation forms for use in molluscan shellfish facilities;
- Developed HACCP plans and sanitation forms for some seafood retailers;
- Provided the Interstate Shellfish Sanitation Conference brochures on *The Risk of Eating Raw Oysters and Vibrio Vulnificus* informational flyer and brochures to the industry and public;
- Assisted in reviewing DMR's 12-year National Shellfish Sanitation Program sanitary survey reports associated with Mississippi's shellfish growing waters;
- Participated in Mississippi Food Safety Task Force with the goals of education, communication, cooperation, and coordination with the other member state agencies in the promotion of food safety with emphasis on raw seafood handling, risks on eating shellfish, and cooking seafood;
- Conducted oyster-processing experiments with oyster processors;
- Worked on overflow preventers and waterline decontamination guidance for processors;
- Conducted on-site visits to processors and dealers to get industry input on a research proposal investigating technology transfer, post-harvest treatments, marketing and promotion, and consumer education;

- Hosted two FDA training courses on State Shellfish Standardization Officers and Basic Shellfish Plant Sanitation;
- Provided Louisiana Shellfish Control Authority HACCP and sanitation assistance;
- Provided non-DMR regulated facility HACCP assistance at the request of Mississippi State Sea Grant;
- Created three-compartment sink signs in Spanish for oyster shucker/packer; and
- Assisted DMR Finfish Bureau in side-scan sonar work.

**Shellfish Sanitation and Health Safety Regulatory Activities**

- Inspected Mississippi permitted shellfish processing, storage, and distribution facilities to determine compliance with state and federal sanitation and seafood safety regulations, to provide the public confidence in Mississippi-inspected seafood products, and to aid in marketing Mississippi seafood products;
- Participated in the shellfish processing plant regulatory review and evaluation by the Food & Drug Administration; and
- Received FDA notification that the Mississippi Shellfish Sanitation Program met National Shellfish Sanitation Program (NSSP) requirements.

**Types and Number of Seafood Facilities Permitted**

- Shrimp – 26
- Crab – 13
- Oyster – 35
- Total number of seafood sanitation/processing permits – 74. These 74 permits represent 152 inspected seafood units.

The following are examples of seafood sanitation and health safety regulatory activities that were conducted by the staff of the Seafood Technology Bureau: 3,367 seafood facility inspections and associated actions and 133 collections of processing plant source water samples for testing. Conducted inspections and associated actions to determine compliance with the following sanitation and seafood health safety regulations:

- Molluscan shellfish sanitation specifications covered under the National Shellfish Sanitation Program (NSSP);
- Seafood species sanitation regulations other than molluscan shellfish sanitation regulations to aid the industry in meeting compliance conditions when the Food & Drug Administration (FDA) conducted official inspections;
- Conducted quarterly inspections of all permitted facilities and conducted follow-up inspections as needed;
- Completed recertification inspections of certified dealers and issued permits;
- Worked with seafood processors to correct deficiencies to meet Food & Drug Administration seafood compliance criteria;
- Worked on management criteria and forms for dealers converting selected Critical Control Points from under HACCP management to management under standard operating procedures;
- Worked with molluscan shellfish dealers on the conversion of selected critical limits from under HACCP management to management under standard operating procedures;
- Prepared consolidated report of inspection results for the FDA according to the National Shellfish Sanitation Program requirements;
- Prepared letters to molluscan shellfish dealers regarding ISSC meeting actions and updated HACCP plans for numerous molluscan shellfish dealers;
- Prepared a list of common noncomplying conditions of certified molluscan shellfish dealers regarding HACCP and plant sanitation;
- Prepared response to *Vibrio vulnificus* survey for Gulf Oyster Industry Council;
- Provided Food Safety Task Force with requested information in regard to regulatory responsibilities and published food safety informational brochures;
- Updated field equipment for regulatory inspections like thermometers for regulatory inspection purposes and audio-visual equipment for technical assistance and educational outreach projects;
- Prepared a memorandum of understanding and coordination for DMR, Department of Agriculture and Commerce, and Department of Health (DH).

Met in Jackson regarding seafood inspection coordination;

- Prepared National Shellfish Sanitation Program Hazard Analysis and Critical Control Point (HACCP) comments for the FDA pertaining to specific critical limits and corrective actions in the Model National Shellfish Sanitation Program HACCP and in some NSSP/HACCP dealers plans; and

- The FDA conducted NSSP standardization procedures for DMR NSSP inspectors and concurrently conducted the FDA's annual maintenance inspection of the DMR NSSP.

# TEXAS PARKS AND WILDLIFE DEPARTMENT COASTAL FISHERIES RESEARCH MANAGEMENT PROGRAMS

*Hal Osburn, Division Director*

The Texas Parks and Wildlife (TPWD) Coastal Fisheries Division is responsible for making management recommendations regarding fishery resources within Texas bays and estuaries and in state waters of the Gulf of Mexico from the shoreline seaward to nine nautical miles. The estimated value of fisheries within the four million acres of marine habitat exceeds $2 billion.

## COASTAL FISHERIES DIVISION OBJECTIVES

The goal of the division is to develop management plans for selected fisheries using the concept of optimum yield. These plans include recommended harvest regulations, resource stock enhancements, and habitat enhancements based on fisheries independent and dependent monitoring program data utilizing the best scientific information available. Objectives of the division are:

1) to recommend management strategies for aquatic marine resources to the TPWD executive director, the Texas Parks and Wildlife Commission (TPWC), and the Texas Legislature based on scientific data;
2) to determine trends in abundance of finfish and shellfish populations affected by environmental conditions and fishing;
3) to determine landings of marine species and associated social and economic characteristics of the fisheries;
4) to restore, manage, and enhance existing fishery populations through stock identification, life history, genetics, 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 division is organized into four major components: administration, ecosystem monitoring, science, and enhancement. Effective management of finfish and shellfish populations must be based on a thorough knowledge of the population dynamics of the resources. Long-term trend data based on routine monitoring are necessary to assess impacts of user groups on the fisheries and to determine economic importance of these fisheries to the state.

Activities in FY2001 (September 1, 2000 through August 31, 2001) included participation in the development, review, and revision of GMFMC and GSMFC management plans. Personnel participated in workshops and advisory meetings as state representatives on both the Council and Commission and other management authorities. In addition, numerous technical reports and scientific journal articles about various aspects of the Texas coastal fishery resources were completed.

## RESOURCE AND HARVEST MONITORING

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

Relative abundance of finfish and shellfish in Texas offshore waters is monitored through long-term monitoring programs and a cooperative agreement with the GSMFC. Texas participates in SEAMAP, a cooperative program between GSMFC and the federal government for collection, management, and dissemination of fishery-independent data and information in the southeastern U.S. Data obtained through this sampling effort are used in evaluating the "Texas Closure" management measure of the GMFMC's shrimp fishery management plan and to provide information on shrimp and groundfish stocks in the northern Gulf of Mexico from inshore waters to 50 fm. In fulfillment of SEAMAP requirements, TPWD collected 160 shrimp trawl, nine long line, and five video trap samples in 2001.

Sport landings (private and guided boat) and associated angler activities are derived from on-site creel interviews of recreational anglers at the completion of their trips. Roving trailer and wet slips counts are used to assess relative pressure at sampling sites. Relative pressure is used to determine how often a site should be selected for a survey; higher use sites are surveyed more often than low use sites.

A total of 1,177 survey days was spent to estimate landings and pressure of private and party boat fishermen. Samples collected included: 759 gill net sets; 2,160 bag seine tows; 2,634 bay and gulf trawls;

and 1,014 oyster dredges.

Routine collection, editing, summarization, and publication of self-reported commercial landings data continued through a formal cooperative statistics agreement with the NMFS. Landings are obtained from commercial seafood dealers through submission of Monthly Aquatic Products Reports. The TPWD collected commercial landings statistics on crabs, oysters, and finfish while the NMFS continued to gather landings statistics on shrimp.

**RESEARCH**

The Perry R. Bass Marine Fisheries Research Station (Palacios, Texas) provided information and techniques necessary for improvement of Texas fisheries management strategies. Effort to improve management or restoration of marine species was directed toward research in genetics and life history of important recreational and commercial species and seagrasses.

In the past year, genetics studies were conducted or completed on sand seatrout, sheepshead, bonnethead and blacktip sharks, tarpon, blue crab, and shoalgrass. A final report on genetic variation in mtDNA of sand seatrout was completed. An analysis of DNA variation in blue crabs continued. Informative markers are being evaluated in both nuclear and mitochondrial genomes. Studies on genetic variation in bonnethead and blacktip sharks also progressed with examinations of both mtDNA and nuclear DNA markers. Collection of otoliths from red drum and spotted seatrout were continued to estimate age structure of Texas populations and to develop age-length keys for these fishes. A study of the age structure and growth rates of southern flounder populations was completed and published.

Collections were made of shoalgrass from bays along the Texas coast, preservation and genomic DNA recovery protocols were perfected, and initial surveys utilizing single-stranded conformation polymorphism (SSCP) techniques were conducted. New studies on genetics of Gulf menhaden and spotted seatrout have been approved, and collection of samples was initiated.

Studies on tarpon genetics continued. A microsatellite DNA library was completed, and microsatellite primers derived from the library were applied to tarpon from sampled populations. Several manuscripts based on genetic surveys of tarpon are in various stages of publication. Tarpon life history in Texas waters is being examined with work concentrated on juvenile abundance and tagging of juveniles and adults. A project to identify spotted seatrout spawning areas continues. A study to examine reproductive biology of Atlantic croaker was initiated. A cooperative project with the GSMFC to collect age and growth data on Southern flounder, king mackerel, red snapper, greater amberjack, and Gulf flounder taken by recreational and commercial means was planned for 2002.

**LEGISLATIVE AND REGULATORY CHANGES**

The Legislature meets every other year and sessions were held in 2001. A number of house and senate bills was passed that affected the management of marine resources in Texas coastal and Gulf waters. House Bill 2719 amended the Parks and Wildlife Code to require the Texas Department of Transportation to coordinate with TPWD and local governments for the use of obsolete bridges, tunnels, and causeways to create artificial reefs. Senate Bill 305 amended regulations regarding private oyster leases. Senate Bill 1410 amended the Code to allow the Parks and Wildlife Commission to establish a closed season for crab fishing during which time designated abandoned crab traps would be designated as litter and subject to immediate removal and disposal. In addition, Senate Bill 1573 established a provision within the code regarding the permitting and regulation of floating cabins in public coastal waters.

In other actions, the Shrimp Management Proclamation that was proposed in FY2000 was adopted in FY2001 after eight public hearings. The regulations concerned the harvest of shrimp from Texas bays and the Texas Territorial Sea and proposed increases to selected commercial fishing and business licenses to supplement management and enforcement of commercial fishing in Texas. As part of this management proposal, the division was directed to conduct a Shrimp Regulations Assessment Study that included the following components: license buyback, law enforcement compliance rates, status of the habitat, status of the resource, bio-diversity issues, and social and economic assessments. This study continued through FY2001.

In addition, the recreational saltwater fishing stamp increase from $7 to $10 became effective on September 1, 2001.

**FISH STOCKING**

Effort continued toward spawning and rearing marine fish. Controlled photoperiod and temperature regime to induce sexual maturity and spawning resulted in over 24 million red drum fingerlings and 2.5 million spotted seatrout fingerlings 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.

Sea Center Texas, a state-of-the-art marine fish hatchery and visitors center, has welcomed 505,000 visitors since March 1996. It is a $13 million joint venture between TPWD, Dow Chemical Company-Texas Operations, and the Coastal Conservation Association and was constructed using Sport Fish Restoration Funds. The facility, touted as the world's largest red drum (redfish) hatchery, represents a unique merging of fisheries science and visitor education.

Sea Center's visitor appeal centers around its interpretive displays, touch tanks, and aquaria. Brood fish are spawned in the facility's 22,000 square foot hatchery. After hatching, larval fish are transferred to the 35 one-acre rearing ponds. Although established primarily as a red drum and spotted seatrout production hatchery, Sea Center also serves as a testing ground for production of marine species such as flounder, Atlantic croaker, snook, and tarpon.

**ARTIFICIAL REEF PROGRAM**

The Artificial Reef Program enhanced two reef sites in FY2001. It is responsible for maintaining 39 permitted reef sites and 11 buoys.

The program received two obsolete oil and gas structure donations in the Mustang Island Outer Continental Shelf area (MU-881, MU-828) which were removed by explosives. These donations contributed $36,345 to the Texas Artificial Reef Fund. The program also sectioned a 55-ton U.S. Navy buoy it had acquired and placed it at Basco's Reef.

The program provided an exhibit and workshop at the Houston Sea Space Exposition in June 2001 to promote the understanding and identification of artificial reefs and the fish and invertebrates that live on these reefs.

Staff continued to monitor five stations established at the High Island A-532 reef in 2001. The tunicate *Didemnium perlucidum* continues to be the dominant species of invertebrate at these sites. However, isolated colonies of sponges and corals identified at the beginning of the monitoring period continue to survive. Fish densities and diversity on the reef has remained stable throughout the monitoring.

# NATIONAL MARINE FISHERIES SERVICE, SOUTHEAST REGIONAL OFFICE
# NATIONAL OCEANIC & ATMOSPHERIC ADMINISTRATION
# U.S. DEPARTMENT OF COMMERCE

*Joseph E. Powers, Acting Regional Administrator*

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

NOAA Fisheries administers programs to promote the conservation, management, and development of living marine resources for commercial and recreational use. These programs include 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.

NOAA Fisheries comprises five regional offices and five science centers located along the coastal U.S. The Southeast Region covers the coastal states from North Carolina to Texas; the inland states of Arkansas, Iowa, Kansas, Kentucky, Missouri, Nebraska, New Mexico, Oklahoma, and Tennessee; as well as the Commonwealth of Puerto Rico and the U.S. Virgin Islands.

NOAA Fisheries Southeast Regional Office (SERO) is in St. Petersburg, Florida. The regional administrator serves as the regional representative of the assistant administrator with state conservation agencies, recreational interests, commercial industry, consumers, environmentalists, and the 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 through the range of NOAA Fisheries programs. It provides administrative and technical support to regional fishery management councils and is responsible for planning and evaluation, budgeting, and administrative support services. These support services are also provided to other NOAA and NOAA Fisheries elements collocated with the regional office.

The NOAA Fisheries Southeast Fisheries Science Center (SEFSC) is in Miami, Florida, and has laboratories in Beaufort, North Carolina; Pascagoula and Stennis Space Center, Mississippi; and Galveston, Texas. The SEFSC conducts multi-disciplinary research programs to provide management information to support national and regional programs of NOAA Fisheries and to respond to the needs of regional fishery management councils and other user groups. The SEFSC 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.

## FISHERY RESOURCE CONSERVATION AND MANAGEMENT

### Stone Crab

In early 2001, the SERO initiated review of Amendment 7 to the Fishery Management Plan for the Stone Crab Fishery of the Gulf of Mexico. The GMFMC submitted the plan for agency review in February 2001. Amendment 7 proposed to extend into federal Gulf waters off west Florida the stone crab certificate and effort-reduction program recently initiated by the FWC.

### Coastal Migratory Pelagics: King and Spanish Mackerel

In March 2001, NOAA Fisheries published a final rule in the *Federal Register* implementing changes in the catch specifications for Gulf group king mackerel that became effective April 30, 2001. The total allowable catch was reduced slightly from 10.6 million pounds (MP) to 10.2 MP to allow continual rebuilding of the stocks. Applicable commercial quotas for zone, subzones, and gear types were reduced commensurately to lower levels. Also, the two fish per person daily bag limit was restored to the captain and crew on for-hire vessels. The Council determined that the zero-fish bag limit for that entity no longer was necessary given continued stock improvements and containment of the recreational harvest within its allocation. Additionally,

to facilitate harvest of the quota for the Florida east (Atlantic) coast subzone (Miami-Dade through Volusia counties, Florida), the commercial daily trip limit for that subzone will increase from 50 to 75 fish on February 1, 2003, provided that 75% of its annual quota has not been taken by that date.

NOAA Fisheries monitored eight king and Spanish mackerel commercial quotas during the 2000/2001 and 2001/2002 fishing years. In addition, to E-mail broadcasts, updated quota monitoring reports were posted on the NOAA Fisheries web site. For commercial fisheries, NOAA Fisheries reduced vessel trip limits and closed fisheries for Gulf and Atlantic migratory groups when landing projections indicated that the specified quota levels were reached. During the 2000/2001 fishing year, the Gulf group king mackerel trip limit for hook-and-line vessels in the southern Florida west coast subzone was reduced from 1,250 to 500 pounds per day on February 20, 2001.

Four commercial fisheries for Gulf group king mackerel were closed as follows:

- 2000/2001 Fishing Year (July 1, 2000 - June 30, 2001) – Southern Florida West Coast Subzone, Gillnet: January 19, 2001; Southern Florida West Coast Subzone, Hook & Line: March 2, 2001

- 2001/2002 Fishing Year (July 1, 2001 - June 30, 2002) – Western Zone (off TX, LA, MS, and AL): November 19, 2001; Northern Florida West Coast Subzone, Hook & Line: November 10, 2001

**Gulf Reef Fish Fisheries**

***Red Snapper***

NOAA Fisheries monitored the two seasonal commercial quotas that total 4.65 MP, and the 4.47 MP recreational quota. The first commercial season began February 1, 2001, and closed July 6, 2001, when landings estimates indicated that the 3.10 MP quota was reached. During this season the fishery was opened the first ten days of February, March, April, May, and June and the first six days of July.

During the fall 2001 season, the fishery was opened the first ten days of October and November and December 1-3, 2001. NOAA Fisheries closed the fall fishery on December 3, 2001, when monitoring reports indicated that the 1.65 MP remainder of the 2001 commercial quota had been harvested. The 1.55 MP fall quota was increased to 1.65 MP to adjust for the 0.08 MP carry over from the spring quota. The recreational fishery was opened April 21 through October 31, 2001 and reopened on April 21, 2002.

***Gag, and Red and Black Groupers***

Beginning in 2001, regulations implemented by NOAA Fisheries prohibited annually (from February 15 until March 15) the sale or purchase of gag, red grouper, or black grouper harvested from the Gulf. Also during this period, no person aboard a vessel for which a valid federal commercial permit for Gulf reef fish had been issued a federal permit indicating both commercial and charter vessel/headboat for Gulf reef fish could continue to retain gag, red grouper, and black grouper under the recreational bag and possession limit, provided the vessel was operating as a charter vessel or headboat. Reef fish caught under the recreational bag limit could not be legally sold.

**Revised Control Date Establishing a Moratorium on Issuance of Additional Charter Vessel/Headboat Permits**

In June 2001, NOAA Fisheries announced that the Council had taken final action to establish a moratorium on the issuance of additional charter vessel and headboat (recreational-for-hire) permits for reef fish and coastal migratory pelagic fisheries in federal waters of the Gulf of Mexico. The proposals were contained in amendments to the fishery management plans for these species. The Council selected March 29, 2001, as the control date for determining eligibility for charter vessel/headboat permits under the moratorium which supersedes the prior control date of November 18, 1998. Anyone entering these recreational-for-hire fisheries after March 29, 2001, would not be eligible for a charter vessel or headboat permit. The control date is intended to discourage new entry into those recreational-for-hire fisheries prior to the implementation of the proposed permit moratorium and thereafter.

**Gulf Shrimp Fishery**

***Amendment 11***

In July 2001, NOAA Fisheries published in the *Federal Register* a notice of availability for Amendment 11 to the Fishery Management Plan for the Shrimp Fishery of the Gulf of Mexico. The amendment developed by the Council would require that all commercial shrimp vessels and boats harvesting shrimp in federal waters of the Gulf of Mexico obtain a renewable federal permit. It would also prohibit the use of traps in the royal red shrimp fishery of the Gulf of Mexico.

Given the magnitude of the Gulf shrimp fishery, the Council concluded that information collected via federal permit would aid in the formulation of sound management measures for the shrimp fishery as well as for those finfish fisheries impacted by its bycatch mortality. Available information indicates that the Gulf shrimp fishery, in terms of numbers of fishing vessels and participants, is the largest commercial fishery in the Gulf of Mexico. It is also one of the few federally-managed fisheries that does not require a fishing permit. The Council also concluded that allowing trap gear in the royal red shrimp fishery would likely lead to gear conflicts and overfishing. The Gulf royal red shrimp fishery has been a small component of the Gulf shrimp fishery since the early 1960s. Fishing for this deep-water species has traditionally occurred at depths exceeding 100 fathoms (183 meters).

***Texas Closure***

From May 15 to July 8, 2001, NOAA Fisheries closed federal waters to shrimping from nine to 200 nautical miles off Texas. This closure corresponded to the period that Texas closed its waters to shrimp trawling. The closure is intended to allow brown shrimp to reach a larger and more valuable size prior to harvest and to prevent waste of brown shrimp that otherwise would be discarded due to their small size.

**Dry Tortugas Marine Reserve Proposals**

In March 2001, NOAA Fisheries published in the *Federal Register* a notice of availability for the generic amendment addressing the establishment of two marine reserves in federal waters near the Dry Tortugas, located approximately 70 miles west of Key West, Florida. Public comment on the proposals was accepted through May 7, 2001. The Tortugas Amendment, developed by the GMFMC was a collaborative effort with the Florida Keys National Marine Sanctuary, the state of Florida, and the Dry Tortugas National Park. The Council's proposals included the Riley's Hump mutton snapper spawning aggregation site established by the Council in 1994. Additionally, the council proposed that anchoring and fishing for any species, including highly migratory species, be prohibited within those marine reserves. The marine reserves would be established for a period of at least ten years, during which the ecological benefits of the Tortugas reserves would be evaluated. The prohibition of fishing and anchoring of fishing vessels would help minimize human disturbance and, thus, help restore and maintain the ecological integrity of these areas including their full assemblages of fishes, corals, and other benthic invertebrates. It also would create a reference area for studying human impacts on the ecosystem.

**PROTECTED SPECIES MANAGEMENT**

- Prepared and signed a biological opinion for Minerals Management Service for the proposed Gulf of Mexico Outer Continental Shelf Lease Sale 181 addressing its effects on sea turtles, marine mammals, and Gulf sturgeon.

- Formed a bottlenose take reduction team (TRT). The TRT focused on potential take reduction strategies to reduce mortality and serious injury to the western North Atlantic coastal stock of bottlenose dolphin incidental to commercial fishing.

- Held public hearings throughout the Southeast on the proposed rule to amend the regulations protecting sea turtles to enhance their effectiveness in reducing sea turtle mortality resulting from shrimp trawling in the Atlantic and Gulf areas of the southeastern U.S.

- Prepared and signed a biological opinion for the Jacksonville District Corps of Engineers regarding maintenance dredging of the ports and intracoastal waterway within the range of Johnson's seagrass.

- Prepared and signed a biological opinion for the Federal Highway Administration concerning the effects on Johnson's seagrass with regard to the proposed replacement of Ernest Lyons Bridge in the Indian River Lagoon, Stuart, Florida.

- Transmitted for *Federal Register* publication the proposed rule to amend the regulations protecting sea turtles to enhance their effectiveness in reducing mortality resulting from shrimp trawling in the southeast U.S.

- Prepared and signed a biological opinion for the Jacksonville District Corps of Engineers concerning the temporary placement of mesh groynes in the nearshore waters of the Gulf of Mexico.

- Held an informational outreach meeting to explain the requirements of the Marine Mammal Protection Act in relation to dolphin/wildlife viewing to dolphin/wildlife tour operations and jet ski/boat rental businesses in the state of Florida.

- Held outreach meetings and distributed promotional materials regarding the "Protect Dolphins" campaign in the Southeast Region.

- Developed the Southeast Region section of the annual NOAA Fisheries List of Fisheries (LOF). Conducted outreach with GSMFC to explain LOF issues.

- Participated in the SE U.S. Recovery Plan Implementation Team for the Recovery of the Northern Right Whale. Worked with the U.S. Navy, Corps of Engineers, Coast Guard, and states of Georgia and Florida to prevent vessel collisions with right whales.

- Consulted on Amendment 11 to the Fishery Management Plan for the Shrimp Fishery of the U.S. waters of the Gulf of Mexico.

- Finalized the recovery plan for Johnson's seagrass.

- Concluded Regional ESA Section 7 consultation with the U.S. Navy on operations at Vieques, Puerto Rico.

- Finalized a rule to permanently adopt specifications for net extensions for TEDs in the summer flounder trawl fishery.

- Issued an advisory notice to implement temporary additional protective measures for leatherback sea turtles in coastal waters off northeastern Florida.

- Published a proposed rule to list the U.S. distinct population segment of the smalltooth sawfish (*Pristis pecinata*) as endangered under the Endangered Species Act.

- Prepared and signed a biological opinion for the Jacksonville District Corps of Engineers regarding the proposed reconstruction of Jensen Beach Causeway in the Indian River, Martin County, Florida.

- Published an interim final rule closing waters in Pamlico Sound, North Carolina, to large-mesh gill netting seasonally to protect sea turtles. The rule was developed together with an ESA Section 10 permit to NCDMR which allowed NCDMF to reopen and manage large-mesh gill net fishing, consistent with sea turtle protection.

- Integrated Atlantic State Fisheries with the MMPA Authorization Program.

- Published proposed rule to amend the MMPA Authorization Program.

- Published proposed rule to amend the Atlantic Large Whale Take Reduction Plan to include additional protection for Right Whales in Southeast waters.

- The Highly Migratory Species biological opinion was signed – closing large areas of the Northeast Distant to long-line fishing due to impacts to sea turtles.

- Held meetings with the Corps of Engineers regarding the preparation of a new Gulf-wide biological opinion on hopper dredging to supersede the existing biological opinion.

**HABITAT PROTECTION**

The Habitat Conservation Division (HCD) uses statutory authorities found in various federal laws to interact on activities that affect fishery habitats and ultimately the production of fishery resources. Activities during FY2001 focused on individual and essential fish habitat (EFH) consultations involving federal regulatory programs, pre- and post-application planning, federal projects affecting habitat, National Environmental Policy Act (NEPA) consultations, watershed planning, partnerships and coordination with others (e.g., fishery management councils), coordination between science and management, outreach efforts, and a heightened involvement in habitat restoration, enhancement, creation, and preservation activities.

The front-line habitat conservation responsibilities are achieved principally through the efforts of HCD personnel stationed at eight branch offices in locations throughout the SER. Acting under authority of various federal laws and statutes, field personnel interact directly with federal, state, and local officials, and with private citizens seeking to perform work in coastal waters of the SER. Through consultative services involving field inspections, meetings, public hearings, and document review, biologists provide recommendations for sequentially avoiding, minimizing, and offsetting adverse impacts to habitat. The following accomplishments are noted:

- NOAA Fisheries conducted 370 preapplication consultations for proposed water development projects (126 more than the previous year).
- NOAA Fisheries received for review 5,425 individual proposals (including preapplication consultations) to develop in wetlands. The SERO since 1981 has reviewed more than 91,091 projects involving proposals to impact more than 1,163,495 acres of wetlands (based on an approximate 18% subsample of projects reviewed).

- The HCD reviewed 68 large federally constructed or sponsored projects during the year.

- Twenty-one HCD findings have been completed or are in negotiation. About 3,798 EFH consultations were initiated by federal action agencies this year. Most of these actions were found to not adversely affect EFH. NOAA Fisheries recommended detailed measures to conserve and protect EFH on 192 of the consultation projects.

- NOAA Fisheries participated in numerous activities associated with mitigation planning and habitat restoration that are unrelated to other habitat restoration programs and activities. The majority of these opportunities are related to federal regulatory programs. NOAA Fisheries devoted considerable effort in planning for mitigation bank development, mitigation guideline development, and general mitigation planning. Interaction on proposals this year will preserve, enhance, restore, or create more than 7,782 acres of fishery habitat.

- Activities related to the Coastal Wetlands Planning, Protection, and Restoration Act (CWPPRA) continue to be a major restoration activity in the SER. This year was extremely active in this arena of the habitat program, and substantial accomplishments are evident in all parts of the habitat program. To date, NOAA Fisheries is directly responsible for restoration projects that benefit, restore, or protect about 122,926 acres of Louisiana wetlands.

- NEPA reviews on 118 actions were completed.

- Coral reef initiative funds received late in the fiscal year were successfully disbursed to hire a coral reef protection and restoration specialist and to fund a coral reef protection project in Hurricane Hole, U.S. Virgin Islands, and a coral aquaculture project at the Florida Aquarium located in Tampa, Florida.

- Outreach efforts included formal and informal presentations, production of reports and informational materials, and publication of research and management-related material for peer and public use. Information requests by private, local, state, and federal entities were answered. NOAA Fisheries disseminated habitat information through presentations at scientific and management meetings, journal publications, poster sessions, classroom and organization lectures, and interaction with environmental groups and the media.

**COOPERATIVE AGREEMENT AND GRANT PROGRAMS**

In 2001, 70 grants and cooperative agreements totaling $26,537,158 were awarded to states, universities, non-profit/profit institutions, and individuals through the programs mentioned below.

- SEAMAP is a state-federal program for the collection, management, and dissemination of fishery-independent data in the Southeastern U.S. Three components currently exist in partnership with NOAA Fisheries: SEAMAP-Gulf; SEAMAP-South Atlantic; and SEAMAP-Caribbean. The program allocates funds to the southeastern states for surveys and studies, and to the GSMFC, ASMFC, and the Caribbean Fishery Management Council as coordinating agencies, through programmatic appropriations mutually agreed-upon by the participants. Eleven cooperative agreements totaling $1,212,921 were awarded this year.

- The State-Federal Cooperative Fishery Statistics Program is a NOAA Fisheries Southeastern U.S. Program for collection of landings data from the commercial and recreational fisheries of the region. This information is used by the states, and the SEFSC in determining yields, and by the Southeast Regional Administrator and Regional Fishery Management Councils to assist them in formulating fisheries management plans. In 2001, $1,363,516 was awarded by cooperative agreement to ten states.

- The Anadromous and Interjurisdictional Fisheries Programs are national programs that provide funding for grants and cooperative agreements to obtain catch and effort statistics and other fisheries information. This information is used to support management decisions both at the state level and those required under the Magnuson-Stevens Fishery Conservation and Management Act, and the Atlantic Coastal Fisheries Cooperative Management Act (ACFCMA). Also, under the Atlantic Coastal Act, financial assistance is provided in order to support and encourage the development, implementation, and enforcement of effective interstate conservation and management of Atlantic coastal resources. In 2001, three southeast states received $113,096 for the Anadromous Fisheries program. The Interjurisdictional Fisheries program funded eleven recipients for $1,011,533, and the ACFCMA programs provided $799,240 to four states. This was the third year that funds were provided for the

Atlantic Coastal Cooperative Statistics Program (ACCSP) in the Southeast. Three states received $290,569 under the ACCSP.

- MARFIN promotes and endorses projects which seek to optimize economic and social benefits from marine fishery resources through cooperative efforts that evoke the best research and management talents of the Southeast Region. The intent is to focus projects funded by MARFIN into cooperative efforts that provide clear answers for fishery needs covered by the NOAA Fisheries Strategic Plan. An annual MARFIN Report is distributed throughout the nation. In 2001, ten new projects totaling $1.354 million and nine continuation agreements totaling $766,647 were awarded.

- NOAA Fisheries participates in the Saltonstall-Kennedy (S-K) grant program which is a national competitive program administered by the NOAA Fisheries headquarters office. The program provides financial assistance (grants or cooperative agreements) for research and development projects to benefit the U.S. fishing industry. Eight grants were awarded in the Southeast Region totaling $1,446,914.

- Three fishery management councils in the Southeast U.S. received a total of $6.288 million in 2001 to conduct fisheries management activities in accordance with the Magnuson-Stevens Fishery Conservation and Management Act.

- Under the Unallied Science Program, grants and cooperative agreements in the amount of nearly $5.01 million were provided to several states and research groups. Work included research on aquaculture and enhancement of wild stocks and included efforts to protect endangered species and marine mammals.

- The Unallied Management Projects provided $978,840 for shrimp trawling and red snapper research, and a website for minority students.

- The Fisheries Disaster Assistance program provided $5.148 million for fisheries relief and research in North Carolina.

**ECONOMICS PROGRAM**

- Worked with the three southeast fishery management councils to develop the economic and social portion of Operations Plans for Products and Services.

- Conducted commercial and recreational economic assessments for the Gulf of Mexico and South Atlantic coastal migratory pelagics (king mackerel, Spanish mackerel, cobia, dolphin, and wahoo) fisheries and made presentations to the GMFMC's Socio-Economics Panel.

- Conducted commercial and recreational economic assessments for Gulf of Mexico and South Atlantic reef fish fisheries and made presentations to the GMFMC's Socio-Economics Panel.

- Brought SAFE files up to date and provided to councils and others.

- Assisted in the monitoring of a pilot commercial cost and earnings survey for the Georgia blue crab fishery and the Atlantic summer flounder fishery in conjunction with the Atlantic Coastal Cooperative Statistics Program.

- Developed a proposal and monitored a grant to the South Atlantic Fishery Management Council to collect research on fishing communities in the U.S. South Atlantic.

- Developed a proposal and monitored a grant to the Gulf Council to procure industry participation in the design of an economic data collection program for the reef fish and mackerel fisheries.

- Developed a proposal and monitored a grant to the Gulf and South Atlantic Fisheries Foundation to conduct outreach and procure industry participation in the design of an economic data collection program for the Gulf shrimp fishery.

- Conducted review and/or authorship activities for the following fishery management plans and amendments: Caribbean SFA; Caribbean Queen Conch; Gulf For-Hire Moratorium; Gulf Red Snapper Rebuilding; Gulf Reef Fish 18 (red snapper); Gulf Shrimp 10 (BRDs) and 11 (permits); Gulf Stone Crab 7, South Atlantic Golden Crab 3, Dolphin-Wahoo; South Atlantic Shrimp 5 (rock shrimp); South Atlantic Sargassum; Protected Resources TEDs; and Protected Resources Right Whales.

- Participated on technical work groups, panels, and committees as part of the Atlantic Coastal Cooperative Statistics Program and the Fisheries Information Network.

- Produced and distributed four staff reports on the results of analyses conducted for the councils and others.

# GULF OF MEXICO FISHERY MANAGEMENT COUNCIL

*Wayne Swingle, Executive Director*

The Gulf of Mexico Fishery Management Council (Council) is one of eight regional fishery management councils which were established by the Fishery Conservation and Management Act in 1976 (now called the Magnuson-Stevens Fishery Conservation and Magnuson Act). The Council prepares fishery plans which are designed to manage fishery resources from where state waters end out to the 200-mile limit of the Gulf of Mexico. These waters are also known as the exclusive economic zone (EEZ).

The Council consists of 17 voting members as follows: the southeast regional director of the NMFS (or his designee), the directors of the five Gulf state marine resource management agencies (or their designees), and 11 members who are nominated by the state governors and appointed by the Secretary of Commerce for three-year terms (and can serve for a maximum of three consecutive terms). In addition, four nonvoting members represent the U.S. Coast Guard, Fish and Wildlife Service, Department of State, and the Gulf States Marine Fisheries Commission.

The Council meets every two months at various locations around the Gulf Coast. Before final action on any proposed rule change is taken, public hearings are held throughout the Gulf as well as at the Council meeting where final action is scheduled. Proposed rule changes are then submitted to the NMFS for further review and approval before being implemented.

When reviewing potential rule changes, the Council draws upon the services of knowledgeable people from other state and federal agencies, universities, and the public who serve on the following panels and committees:

- **Advisory Panels**: recreational and commercial fishermen, charterboat operators, buyers, sellers, and consumers who are knowledgeable about a particular fishery.
- **Scientific and Statistical Committees**: economists, biologists, sociologists, and natural resource attorneys who are knowledgeable about the technical aspects of fisheries in the Gulf.
- **Stock Assessment Panels**: biologists who are trained in the specialized field of population dynamics and who assess the available biological data and advise the Council on the status of stocks and level of allowable biological catch.

**STATUS OF FISHERY MANAGEMENT PLAN DEVELOPMENT**

| Fishery Management Unit | Completed Implementation as of December 2001 | Target Date | Remarks |
|---|---|---|---|
| Billfish Plan* | Amendment 1 implemented. | 1988 | |
| Coastal Herring | Final profile completed. | None | No further action. |
| Coral | Amendments 1, 2, and 3 implemented. | 1984 | Amendment 4 approved for implementation. |
| Deep-Water Crab | FMP Proposed. | 2002 | Options paper being drafted. |
| Dolphin/Wahoo | Final FMP completed. | 2001 | SEIS under revision. |
| Groundfish | Draft FMP completed; FMP development suspended. | None | |
| Mackerel[1,2] | Amendments 1-12 implemented. | 1983 | Amendment 13 approved for implementation. Amendment 14 pending NMFS approval. |

| Fishery Management Unit | Completed Implementation as of December 2001 | Target Date | Remarks |
|---|---|---|---|
| Reef Fish[1,2] | Amendments 1-17 implemented. Amendments 8 and 10 withdrawn. | 1984 | Amendment 18 under development. Amendment 19 approved for implementation. Amendment 20 pending NMFS approval. |
| Red Drum[1,2] | Amendments 1, 2, and 3 implemented. | 1986 | Amendment 4 approved for implementation. |
| Shark/Swordfish/Tuna* | HMS FMP implemented. | 1999 | |
| Shrimp[1,2] | Amendments 1-9 implemented. | 1981 | Amendment 10 approval deferred by Council. Amendments 11 and 12 approved for implementation. |
| Spiny Lobster[1,2] | Amendments 1-6 implemented. | 1982 | Amendment 7 approved for implementation. |
| Stone Crab[1,2] | Amendments 1-6 implemented. | 1979 | Amendment 8 approved for implementation. Amendment 7 pending NMFS approval. |
| EFH Amendment | Amendment implemented (partially disapproved). | 1999 | Amendment 2 approved for implementation. |
| SFA Amendment | Amendment implemented (partially disapproved) | 2000 | Re-submission document for Section 7.2 drafted to submit for implementation. |

[1]Monitoring report completed.

[2]Operations plan completed or under development.

*Secretarial FMP affecting Gulf. The Council has a consultation role and may convene SSC, AP, or committees for advice on regulatory measures. Shark, tuna, and swordfish are in a single FMP.

# UNITED STATES FISH AND WILDLIFE SERVICE

*Douglas J. Frugé, Gulf Coast Fisheries Coordinator*

## ANADROMOUS FISHERIES

The Gulf Coast Fisheries Coordination Office (FCO) assisted other Fish and Wildlife Service's (FWS) offices in preparing for activities related to reauthorization of the Anadromous Fish Conservation Act (AFCA). This assistance included sending summaries of several projects that had been funded under the AFCA in the Gulf of Mexico to the FWS Washington office, providing information on AFCA reauthorization to the Southeast Region Fisheries Assistant Regional Director, and coordinating with personnel of the GSMFC and the FWS.

The Gulf Coast FCO and other FWS offices participated in several meetings hosted by The Nature Conservancy (TNC) to plan a workshop focused on the natural resources of the Pascagoula-Escatawpa River basin in Mississippi and Alabama. The Gulf Coast FCO developed a $1,500 cooperative agreement with TNC to help fund the event. Other sponsors included the Mississippi Department of Environmental Quality, the Mississippi Department of Marine Resources, the Mississippi Museum of Natural Science, and the University of Southern Mississippi. The event, *The Singing River Symposium*, was held in September and attended by numerous FWS personnel. A decision was made to form the Pascagoula River Basin Alliance (PRBA), a coalition of non-governmental organizations, private interests, and governmental agencies to focus on stewardship of the basin's watersheds and living resources. Personnel of the Gulf Coast FCO and Mississippi (Jackson) Ecological Services Field Office (ESFO) attended the organizational meeting of the PRBA in Hattiesburg in November.

## STRIPED BASS FISHERY MANAGEMENT PLAN REVISION

Gulf Coast Fisheries Coordinator Doug Frugé attended the initial meeting of the GSMFC's Striped Bass Technical Task Force (TTF) in January and was elected chairman. The TTF will revise the *Striped Bass Fishery Management Plan for the Gulf of Mexico* (Striped Bass FMP). In February, inland fisheries agencies in Alabama and Georgia were contacted to participate in the endeavor. In March, the GSMFC Anadromous Subcommittee meeting was held and also served as a TTF meeting.

The Gulf Coast FCO provided funding ($8,000) to the GSMFC during 2001 for a workshop on striped bass restoration in the Gulf of Mexico and also assisted the GSMFC in planning the workshop. This workshop was designed to assist in revision of the Striped Bass FMP. The Gulf Coast Fisheries Coordinator moderated the workshop, and Supervisor of the FWS ES FO and FRO facilitated a portion of the workshop. A meeting of the TTF immediately followed the workshop.

## FISHERIES STEWARDSHIP INITIATIVE PROJECT

The Gulf Coast FCO spent considerable effort during the year reviewing and editing the eight final reports for components of the Fisheries Stewardship Initiative project *Restoration of Striped Bass in Three Gulf of Mexico River Systems.* A consolidated final summary report for the project was completed in December and distributed to participants of the striped bass workshop on striped bass in the Gulf of Mexico. Preparation of a cover for formal distribution to a wider audience was initiated.

## APALACHICOLA-CHATTAHOOCHEE-FLINT RIVERS STRIPED BASS RESTORATION TECHNICAL COMMITTEE

The FWS sponsored the annual Morone workshop of the Apalachicola-Chattahoochee-Flint (ACF) River Striped Bass Restoration Committee in February. Personnel of the FWS also attended the August meeting of the ACF Striped Bass Technical Committee, as well as a meeting in October to review the previous year's efforts and to discuss development of the second five-year implementation strategy for the ACF Striped Bass Restoration Plan. It was agreed that the overall goal of the plan needed revision. The revised plan will be integrated into the revision of the GSMFC Striped Bass FMP.

## STRIPED BASS FRY/FINGERLING PRODUCTION AND STOCKING

Gulf race striped bass fry and fingerling production and stocking was coordinated during 2001 by the FWS Panama City Fisheries Resource Office with oversight by the Gulf Coast FCO. The Gulf Coast FCO also provided broader coordination with a number

of other FWC, state agency, GSMFC, and university personnel regarding spawning activities, genetics screening, and fry/fingerling distribution.

Personnel from Warm Springs National Fish Hatchery (NFH), Georgia and Panama City FRO assisted Florida Fish and Wildlife Conservation Commission (FWC) and the Georgia Department of Natural Resources (GDNR) personnel with collecting and transporting Gulf race striped bass broodfish for artificial spawning activities at Welaka NFH and the FWC's Blackwater River Fisheries Research and Development Facility during the spring.

National fish hatcheries produced striped bass fry and fingerlings for restoration stocking in selected Gulf rivers. Welaka NFH produced approximately 5,032,000 Gulf race fry and shipped them to other state and federal fish hatcheries for growing out to fingerlings. Inks Dam NFH (Texas), Natchitoches NFH (Louisiana), Private John Allen NFH (Mississippi), Warm Springs NFH (Georgia), and Welaka NFH (Florida) produced and stocked a total of approximately 590,000 Phase I Gulf race fingerlings in Lake Seminole (Chattahoochee/Flint rivers, Florida and Georgia); Apalachicola River (Florida); Lake Talquin (Choctawhatchee River, Florida); Tangipahoa and Tchefunct rivers (Louisiana); False River (Mississippi River Oxbow Lake, Louisiana); Ross Barnett Reservoir (Pearl River, Mississippi); and Eagle Lake (Mississippi River Oxbow Lake, Mississippi). Natchitoches NFH also grew out and stocked 11,000 Phase I Atlantic race fingerlings in Toledo Bend Reservoir (Sabine River, Texas/Louisiana) for the Louisiana Department of Wildlife and Fisheries (LDWF). In addition, Inks Dam, Private John Allen, and Warm Springs NFHs stocked a total of approximately 144,000 Phase II Gulf race fingerlings in the Apalachicola River, the Tangipahoa and Tchefunct rivers, and in Ross Barnett Reservoir.

The Gulf Coast FCO provided data on Gulf striped bass genetics sample analyses to the GSMFC. The Gulf Coast FCO also provided background information for developing a contract for 2002 Gulf striped bass broodfish genetics screening to the FWS SE Region Fisheries Office. As part of this contract effort, tissue samples from the 2001 year class of Gulf striped bass were sent to the FWS Dexter Fish Technology Center (FTC) in New Mexico for genetics evaluation for comparison with analyses obtained in 2001. The Dexter FTC was being considered for possibly conducting some of the future genetics analyses of striped bass tissue samples.

As part of the Phase II stocking efforts, a tagging study was initiated to help determine the best stocking sites, the best stocking sizes and address other variables involved in assuring the most effective results from stocking striped bass Phase II fingerlings in the lower Apalachicola River. Participants in the effort included Welaka NFH, the Panama City FRO, the FWS SE Regional Office, Private John Allen NFH, and Natchitoches NFH. In early 2001, 10% of the 2000 year class Phase II fingerlings were tagged with either internal anchor tags, Floy tags, or marked with photonic dye. All of the 2001 year class Phase II fingerlings were marked with coded wire tags, and stocking of these fish began in December. The fish were released at predetermined sites and were to be sampled twice per year over four-week periods by electrofishing and gill netting to determine relative survival rates. Sampling by the Panama City FRO began in September. Anglers were also encouraged to return tags by the FWS providing additional information on the tagged fish they caught as well as on the purpose of the project. Each angler returning a tag also received a striped bass hat provided by the GSMFC.

**OTHER STRIPED BASS ACTIVITIES**

The Gulf Coast FCO submitted two proposals for research funds available from the U.S. Geological Survey to the FWS SE Regional Office in August. Both were for a project addressing questions regarding the biological and taxonomic significance of the Gulf race of striped bass.

**GULF STURGEON RECOVERY ACTIVITIES**

The Baton Rouge FRO and Louisiana (Lafayette) ESFO continued to assist the LDWF with a study of Gulf sturgeon population status and habitat use in rivers draining to and nearshore habitats of the Lake Pontchartrain estuarine system of Louisiana throughout the year. Sampling efforts involved gill netting, tagging with sonic transmitters, and tracking transmittered fish. The FWS personnel primarily sampled the Amite, Tickfaw, and Tangipahoa rivers which resulted in the capture of two Gulf sturgeon in the Tickfaw River in May. However, they also assisted LDWF personnel with sampling in the Tchefuncte and Pearl rivers and conducted sonic telemetry searches in Lakes Borgne and Pontchartrain and the Mississippi Sound. The LDWF received a grant from the National Fish and Wildlife Foundation (NFWF) for the project, and cooperative efforts by the FWS were used as part of the matching funds for the grant.

Thirty Gulf sturgeon weighing in excess of 40 pounds were transferred from Welaka NFH to Warm

Springs NFH for surgical sterilization trials. If surgical sterilization was successful, these fish were to be fitted with transmitters and released above Jim Woodruff Lock and Dam in Lake Seminole at the confluence of the Chattahoochee and Flint rivers in Georgia. Following release, Georgia DNR biologists were to track the fish to determine if adequate foraging and spawning habitats still exist in the Flint River. If those habitats are found to exist, sturgeon passage at the Lock and Dam will be pursued. The sterilization was successful, but funding for the telemetry phase of the project was not successful.

The disposition of approximately 1,000 smaller Gulf sturgeon (ten pounds each) being held at Welaka NFH was discussed by the FWS, and options for their relocation investigated. Welaka NFH was to retain 100-200 for future research needs, but the balance was taking up valuable pond space and consuming scarce food resources. The FWS SE Regional Office and the Panama City FRO offered the excess fish to a number of institutions for further scientific studies.

The Panama City ESFO hosted a workshop on Gulf sturgeon in September for researchers and others interested in Gulf sturgeon conservation. The purpose of the meeting was to review recovery implementation actions that had been taken in the past year and review priority actions for the coming year. Each of the watersheds with important Gulf sturgeon populations were reviewed and existing threats discussed. A number of personnel from the FWS, the University of Southern Mississippi, and the states of Florida, Louisiana, and Mississippi attended the workshop and presented updated information on recent investigations. Representatives from the University of Washington demonstrated a newly-developed sonar system that could potentially be used to identify sturgeon at night or in extremely turbid waters.

Following the Gulf sturgeon workshop, FWS biologists from the Louisiana, Mississippi, Alabama, and Panama City ESFOs met with the NMFS to discuss the agencies' joint approach to proposing critical habitat for the Gulf sturgeon. A federal court had ordered that the agencies designate critical habitat for the species. The plaintiff agreed to a schedule for a proposed rule by May and a final rule by February in order to allow for additional marine data to be collected. The Panama City ESFO coordinated the effort for the FWS. The attendees tentatively identified five management units to be used in the listing process:

- Suwannee/Ochlocknee/Apalachicola
- Choctawhatchee
- Yellow/Escambia
- Pascagoula
- Pearl/Lake Pontchartrain

The Panama City FRO resumed sampling in November for the Gulf sturgeon population survey of the Choctawhatchee River. This was the third year of the three-year project. A unique addition to the work in 2001 was the tagging of large fish with archival "pop-off" tags. The tags were purchased using U.S. Air Force funding and designed to collect daily temperature, depth, and location information while the fish are in marine and estuarine waters. They were scheduled to pop-off in February and upload their data to satellite. Partners in the project included the FWS, U.S. Air Force, NMFS, and USGS. Additional tags were planned for attachment to sturgeon in the Suwanee and Pascagoula rivers.

In October and November, the Panama City FRO collected Gulf sturgeon in the Brothers River, a distributary of the Apalachicola River, to equip two large Gulf sturgeon with sonic and satellite pop-off tags. Sixty-one Gulf sturgeon were collected, tagged, and released during the period. Four fish were equipped with external sonic tags and two of the four fish were also fitted with satellite pop-off tags. Tissue samples were also collected for genetic analysis.

**OTHER COASTAL FISHERIES**

In late June, the Gulf Coast FRO contacted the refuge managers of the 20 Gulf Coastal national wildlife refuges (NWR) for information on whether their stations were involved in any routine sampling efforts focused on coastal fisheries resources. This inquiry had been made on behalf of the GSMFC's FIN Program. Final results of the inquiry were provided to the FIN Program Manager in July. Only Sabine and Lacassine NWRs were collecting any such data routinely, and those data were restricted to the freshwater impoundments on those refuges and did not involve any of the species that are the focus of the FIN Program.

Gulf Coast FCO and FWS SE Regional Office personnel met with the GSMFC in September to discuss a proposed joint venture style partnership between the FWS Fisheries Program in the SE Region, southeastern state fish and wildlife agencies, and others. The Gulf Coast FCO participated in a meeting of southeastern state agency fisheries and FWS Fisheries personnel in September to discuss the development of the proposed partnership.

## HABITAT ENHANCEMENT/PROTECTION

The Gulf Coast Fisheries Coordinator continued to serve as the chairman of the GMFMC's Habitat Protection Committee and attended numerous meetings of the committee. Letters of comment on various habitat issues involving beach nourishment in Mississippi, marsh management in Louisiana, deep-water port development, and other navigation issues in Louisiana were developed. Numerous FWS offices and personnel provided input and comments in the process of developing a GMFMC freshwater inflow policy which was finalized at the GMFMC meeting in December.

The FWS continued working in efforts to determine and protect water needs of aquatic resources in the on-going negotiations involving the states of Alabama, Florida, and Georgia and various federal agencies on water use and allocations in the Alabama-Coosa-Tallapoosa (ACT) and the ACF river basins. Water negotiation compacts were extended through January 15, 2002. The FWS participated in the Gulf of Mexico Program's (FMP) Comprehensive Meeting in New Orleans and in other GMP committee and focus team meetings during the year.

The FWS ESFOs at Vero Beach, Florida; Panama City, Florida; Daphne, Alabama; Lafayette, Louisiana; Houston, Texas; and Corpus Christi, Texas continued efforts to protect and restore coastal habitats through a variety of activities, many involving review of Corps of Engineer permit applications, consultations involving potential effects on species listed under the Endangered Species Act, and activities under the FWS Environmental Contaminants and Coastal Programs. Major examples include:

- The proposed new St. Charles International Airport which would destroy about 8,000 acres of coastal wetlands in the LaBranche Wetlands Complex near New Orleans, Louisiana. The FWS recommended that the planned EIS address the feasibility of less-damaging alternative sites.

- The proposed re-location of the Panama City/Bay County International Airport, Florida. The proposed site is 4,000 acres and would require approximately 2,000 acres of fill-in wetlands in the watershed of West Bay.

The Lafayette ESFO continued (in consultation with coastal Louisiana NWRs staff) representing the FWS on the interagency Coastal Wetlands Planning, Protection and Restoration Act (CWPPRA or Breaux Act) Team in developing and sponsoring wetland restoration projects focused on reducing subsidence and erosion-related wetlands loss in coastal Louisiana.

Five staff members of the Louisiana ESFO participated in the "Coastal Summit 2001" hosted by the Louisiana's Governor's Office of Coastal Activities. The meeting was attended by 350 participants and focused on the need to seek and leverage resources to quickly implement the restoration "blueprint" provided by the Coast 2050 Plan which is focused on combating coastal wetland loss in Louisiana.

The Panama City ESFO provided over $100,000 in funding through FWS Coastal Program grant agreements or modifications to the St. Andrews Bay Environmental Study Team, Choctawhatchee Basin Alliance, Ecosystem Restoration Organization (Pensacola Bay), and Gulf Coast Community College (Lake Powell). The office also contracted for sea oat restoration at two Florida state parks and made progress on the West Bay/St. Andrews Bay seagrass restoration through work with the U.S. Army Corps of Engineers under their Section 206 Program.

The FWS continued to provide support for operations at Rancho Neuvo, Mexico, to protect the Kemp's Ridley sea turtle nest area located there. Through July 2001, the total number of recorded Kemp's Ridley nests was almost 5,400 including 3,700 from Rancho Nuevo. A total of 285,754 hatchlings had been released.

## MISSISSIPPI RIVER/GULF OF MEXICO WATERSHED NUTRIENT TASK FORCE

The Gulf Coast Fisheries Coordinator continued to serve as the FWS representative on the Mississippi River/Gulf of Mexico Nutrient Task Force (Gulf Hypoxia Task Force) Coordination Committee, and, in serving in this role, participated in conference calls in the spring and fall.

The Gulf Coast FCO coordinated with numerous other FWS offices in early 2001 in preparation for developing a draft fiscal year 2003 budget initiative for the Southeast Region to support FWS activities that can potentially help reduce nutrients in the Mississippi River basin and thus contribute to implementing the intergovernmental *Action Plan for Reducing, Mitigating, and Controlling Hypoxia in the Northern Gulf of Mexico* (Gulf Hypoxia Action Plan) that had been recently produced by the Nutrient Task Force. The draft budget initiative was forwarded to the

SE Regional Office and a meeting was subsequently held involving the Northeast Regional Director, the Deputy Regional Directors for the Southeast and Midwest, and staff from the three regions to discuss and begin developing a similar multi-region initiative.

**FISH PASSAGE**

The Gulf Coast FCO developed a fiscal year 2002 FWS flexible funding proposal and submitted it to the SE Regional Office in September. The proposal provided for striped bass fish passage access to and/or to improve existing thermal refuge habitat in the Flint River at Radium Springs near Albany, Georgia.

A proposed project to gather flow data at the low-water sill on the Bogue Chitto River, a tributary of the Pearl River in southeastern Louisiana, was discussed between the Louisiana ESFO, the Gulf Coast FCO, and the FWS SE Region Fisheries Office in December. Following these discussions a new Fisheries Operational Needs System Project was developed by the Gulf Coast FCO to cover the proposal for consideration of Fish Passage Program funding. The project's purpose is to develop data for designing a natural fish passage channel around the sill, primarily to benefit anadromous Gulf sturgeon, striped bass, and Alabama shad.

**MOBILE RIVER BASIN AQUATIC RESOURCE MANAGEMENT PLAN**

The Alabama Department of Conservation and Natural Resources and FWS personnel met in June to discuss the Mobile River Basin Aquatic Resources Management Plan being developed to help address the Federal Energy Regulatory Commission's re-licensing of hydropower dams and other aquatic resource conservation issues within the basin. The plan was updated during August to include water quality data from Alabama Power's initial information packages for nine hydroelectric projects up for re-licensing and reach-specific environmental concerns compiled by Alabama's biologists. A revised draft plan including these updates was forwarded to the Alabama ESFO for inclusion of additional reach-specific information.

**PUBLIC OUTREACH/EDUCATION**

The Panama City FRO and the Gulf Coast FCO mailed out boxes of the recently printed new brochure *Gulf Striped Bass* to various FWS and partner offices across the Gulf Coast. The brochure was produced as a cooperative effort by the FWS, the GSMFC, and its member states.

The Panama City ESFO/FRO provided water quality and habitat measurement assistance to Tritt Elementary School in Rosell, Georgia, in support of their *River Kids* Program. *River Kids* is a program started in Columbus, Georgia, designed to teach kids in a hands-on manner about stream dynamics and ecology within the Apalachicola-Chattahoochee-Flint river basin.

The Gulf Coast FCO staffed a FWS information table at the Earth Day event held at the Gulf Islands National Seashore Visitor's Center in Ocean Springs, Mississippi.

The Gulf Coast FCO distributed copies of *The Gulf Sturgeon* video by the FWS and the COE to 22 school districts in coastal Mississippi and the coastal parishes of Louisiana.

The Gulf Coast FCO Coordinator gave a short informational program on fish biology and set up an informational display on the FWS Fisheries Program and Gulf sturgeon at a *Pathway to Fishing* event held at the Gulf Islands National Seashore Visitor's Center in Ocean Springs, Mississippi. This event was held in recognition of National Fishing Week.

The Gulf Coast FCO helped to distribute copies of the GSMFC's Gulf of Mexico habitat posters to a number of FWS field stations and the Southeast and Southwest Regional Offices during the spring and summer. Approximately 3,220 of the posters were distributed.

**FEDERAL AID FUNDING**

The FWS continued providing funds to Gulf of Mexico states for estuarine or marine sport fish restoration projects under the Federal Aid in Sport Fish Restoration Act. This also included the provision of funds to the GSMFC through an administrative grant under the Act.

GULF STATES MARINE FISHERIES COMMISSION

**Report on Examination of Financial Statements, Supplemental Data, Internal Control, and Compliance**

for the year ended
December 31, 2001

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

**Gulf States Marine Fisheries Commission**
Ocean Springs, Mississippi

**Financial Statements**

December 31, 2001

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PILTZ, WILLIAMS, LAROSA & COMPANY

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# Independent Auditors' Report

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

We have audited the accompanying statements of assets, liabilities and net assets-modified cash basis as of December 31, 2001 and 2000, and the related statements of revenues and expenses-modified cash basis, and cash flows-modified cash basis for the years 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 auditing standards generally accepted in the United States of America and the standards applicable to financial audits contained in *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. An audit 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.

As described in Note A, these financial statements were prepared on the modified cash basis of accounting, which is a comprehensive basis of accounting other than generally accepted accounting principles.

In our opinion, the financial statements referred to above present fairly, in all material respects, the assets, liabilities and net assets-modified cash basis of Gulf States Marine Fisheries Commission as of December 31, 2001 and 2000, and its revenues and expenses and changes in its net assets-modified cash basis, and its cash flows-modified cash basis for the years then ended on the basis of accounting described in Note A.

In accordance with *Government Auditing Standards*, we have also issued our report dated March 6, 2002 on our consideration of Gulf States Marine Fisheries Commission's internal control over financial reporting and our tests of its compliance with certain provisions of laws, regulations, contracts and grants.

Our audit was performed for the purpose of forming an opinion on the basic financial statements of Gulf States Marine Fisheries Commission taken as a whole. The accompanying financial information listed as supplemental information in the Index to Report, including Schedule of Expenditures of Federal Awards which is required by U.S. Office of Management and Budget Circular A-133, *Audits of States, Local Governments, and Non-Profit Organizations*, is presented for 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.

Pilz, Williams, Schoch & Co.
Certified Public Accountants

Biloxi, Mississippi
March 6, 2002

**Section I**

**Financial Statements**

## Gulf States Marine Fisheries Commission
## Statements of Assets, Liabilities and Net Assets-Modified Cash Basis

| | December 31, 2001 | 2000 |
|---|---|---|
| **Assets** | | |
| **Current assets** | | |
| Cash | $ 187,394 | $ 239,447 |
| Salary advance | | 175 |
| Total current assets | 187,394 | 239,622 |
| **Property & equipment, net of accumulated depreciation** | 676,560 | 621,238 |
| Totals | $ 863,954 | $ 860,860 |
| **Liabilities & Net Assets** | | |
| **Current liabilities** | | |
| Note payments, due within one year | $ 15,757 | $ 10,003 |
| Payroll taxes withheld | 1,792 | |
| Total current liabilities | 17,549 | 10,003 |
| **Long-term liabilities** | | |
| Note payments, due beyond one year | 132,612 | 130,534 |
| **Net assets** | | |
| Unrestricted: | | |
| Operating | 244,188 | 292,616 |
| Temporarily restricted | | 2,864 |
| Investment in property and equipment, restricted | 469,605 | 424,843 |
| Total net assets | 713,793 | 720,323 |
| Totals | $ 863,954 | $ 860,860 |

*See Notes to Financial Statements.*

## Gulf States Marine Fisheries Commission
## Statements of Revenues and Expenses – Modified Cash Basis

| | Unrestricted | | Temporarily Restricted | | Total | |
|---|---|---|---|---|---|---|
| | 2001 | 2000 | 2001 | 2000 | 2001 | 2000 |
| **Revenues & reclassifications** | | | | | | |
| Member state appropriations | $ 112,500 | $ 112,500 | $ | $ | $ 112,500 | $ 112,500 |
| Grant/contract support | | | 4,370,286 | 3,841,027 | 4,370,286 | 3,841,027 |
| Rental income | 22,409 | 20,020 | | | 22,409 | 20,020 |
| Fees | 10,499 | 9,195 | | | 10,499 | 9,195 |
| Interest income | 13,315 | 11,575 | | | 13,315 | 11,575 |
| Other | 17,880 | 4,055 | | | 17,880 | 4,055 |
| Net assets released from restrictions | 4,370,163 | 3,838,160 | ( 4,370,163) | ( 3,838,160) | | |
| Total revenues & reclassifications | 4,546,766 | 3,995,505 | 123 | 2,867 | 4,546,889 | 3,998,372 |
| **Expenses** | | | | | | |
| Programs: | | | | | | |
| Fishery Management Council | 30,000 | 28,798 | | | 30,000 | 28,798 |
| Fish & Wildlife | 39,601 | 36,820 | | | 39,601 | 36,820 |
| Interjurisdictional Fisheries | 239,912 | 303,447 | | | 239,912 | 303,447 |
| SEAMAP | 90,364 | 100,902 | | | 90,364 | 100,902 |
| RECFIN/COMFIN | 3,809,772 | 3,073,785 | | | 3,809,772 | 3,073,785 |
| Sportfish Restoration | 194,516 | 166,246 | | | 194,516 | 166,246 |
| Striped Bass | 2,218 | 6,346 | | | 2,218 | 6,346 |
| Habitat | 39,985 | 43,191 | | | 39,985 | 43,191 |
| Totals | 4,446,368 | 3,759,535 | | | 4,446,368 | 3,759,535 |
| General & administrative | 151,813 | 151,384 | | | 151,813 | 151,384 |
| Total expenses | 4,598,181 | 3,910,919 | | | 4,598,181 | 3,910,919 |
| Excess (deficiency) of revenues and reclassifications over expenses | ( 51,415) | 84,586 | 123 | 2,867 | ( 51,292) | 87,453 |
| **Change in net assets** | | | | | | |
| Transfers in (out) | 2,987 | 6,886 | ( 2,987) | ( 6,886) | | |
| Total changes in net assets | ( 49,428) | 91,472 | ( 2,864) | ( 4,019) | ( 51,292) | 87,453 |
| Net assets, beginning of year | 292,616 | 201,144 | 2,864 | 6,883 | 295,480 | 208,027 |
| Net assets, end of year | $ 244,188 | $ 292,616 | $ | $ 2,864 | $ 244,188 | $ 295,480 |

*See Notes to Financial Statements.*

## Gulf States Marine Fisheries Commission
## Statements of Cash Flows-Modified Cash Basis

| | Year Ended December 31, 2001 | 2000 |
|---|---|---|
| **Cash flows from operating activities** | | |
| Changes in net assets | **$( 51,292)** | $ 87,453 |
| Adjustments to reconcile change in net assets to net cash provided by operating activities: | | |
| Depreciation | **15,139** | 12,038 |
| Acquisition cost of vehicles and equipment included in operating activities | **223,988** | 50,188 |
| Decrease in salary advance | **175** | |
| Increase in payroll tax withholding liability | **1,792** | |
| Net cash provided by operating activities | **189,802** | 149,679 |
| **Cash flows from investing activities** | | |
| Purchase of vehicles & equipment | **( 249,687)** | ( 50,188) |
| **Cash flows from financing activities** | | |
| Note proceeds, automobile | **25,700** | |
| Note payments | **( 17,868)** | ( 9,020) |
| Net cash provided by financing activities | **7,832** | ( 9,020) |
| Net increase (decrease) in cash | **( 52,053)** | 90,471 |
| Cash, beginning of year | **239,447** | 148,976 |
| Cash, end of year | **$ 187,394** | $ 239,447 |
| Interest paid | **$ 12,652** | $ 12,533 |

*See Notes to Financial Statements.*

**Gulf States Marine Fisheries Commission**
**Notes to Financial Statements**
Year Ended December 31, 2001

**Note A – Summary of Significant Accounting Policies**

**Operations** – The Gulf States Marine Fisheries Commission, a not-for-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 appropriated Federal Programs. The Commission may also receive and expend funds from any other sources not "prohibited by law".

**Basis of accounting** – The accompanying financial statements have been prepared on the modified cash basis of accounting. That basis differs from generally accepted accounting principles because the Commission has not recognized balances, and the related effects on earnings, of grant receivables from third party agencies, acquisition and depreciation of equipment and of accounts payable to vendors.

**Revenues** – Revenues consist principally of the member state appropriations, which represent the estimated cost of operating the Commission, grants and procurement/service contracts. The member state appropriations are considered to be available for unrestricted use and are reported as unrestricted net assets. Grants and procurement/service contracts are considered to be restricted in their use and are therefore reported as temporarily restricted net assets.

**Fixed assets** – The Commission has adopted a policy of capitalizing assets with an acquisition cost of $500 or more. Fixed assets purchased from unrestricted funds are recorded at cost. Fixed assets purchased from restricted funds are expensed in the fund making the expenditures. They are then recorded as a capital addition at cost, with an offsetting entry to an equity account. Depreciation is computed on the straight-line method over the estimated useful lives of the assets.

**Cash and cash equivalents** – Cash and cash equivalents for purposes of the Statement of Cash Flows exclude permanently restricted cash and cash equivalents.

**Income taxes** – The Commission is exempt from income taxes under Internal Revenue Code Section 501(c)(5) and is classified by the Internal Revenue Service as an agricultural organization.

**Estimates** – The preparation of financial statements in conformity with generally accepted accounting principles requires management to make estimates and assumptions that affect the reported amounts of assets and liabilities and disclosure of contingent assets and liabilities at the date of the financial statements and the reported amounts of revenues and expenses during the reporting period. Actual results could differ from these estimates.

**Gulf States Marine Fisheries Commission**
**Notes to Financial Statements**
(Continued)

**Note B – Concentration of Credit Risk**

The Commission maintains two bank accounts at one financial institution. These account balances may be shown as follows:

| | December 31, 2001 | | December 31, 2000 | |
|---|---|---|---|---|
| Description | Carrying Amount | Bank Balance | Carrying Value | Bank Balance |
| Regular accounts | $ 10,000 | $ 10,000 | $ 10,000 | $ 10,000 |
| Repurchase account | 177,369 | 180,887 | 229,422 | 234,417 |
| Totals | $ 187,369 | $ 190,887 | $ 239,422 | $ 244,417 |

These bank balances are categorized as follows:

| | December 31, 2001 | December 31, 2000 |
|---|---|---|
| Amount insured or collateralized with securities held by the Commission or its agent in the Commission's name | $ 10,000 | $ 10,000 |
| Uncollateralized, or held by the pledging financial institution's trust department or agent in the financial institution's name | 180,887 | 234,417 |
| Total bank balance | $ 190,887 | $ 244,417 |

**Note C – Property, Plant and Equipment**

The Organization's land, depreciable property and equipment may be stated as follows:

| | December 31, 2001 | December 31, 2000 |
|---|---|---|
| Land, pledged | $ 20,000 | $ 20,000 |
| Building, pledged | 182,817 | 182,817 |
| Vehicles | 104,636 | 71,363 |
| Office equipment | 885,356 | 695,223 |
| Totals | 1,192,809 | 969,403 |
| Less accumulated depreciation | 516,249 | 348,165 |
| Total property and equipment | $ 676,560 | $ 621,238 |
| Depreciation expense | | |
| Unrestricted | $ 15,139 | $ 12,038 |
| Restricted | 170,576 | 128,543 |
| Totals | $ 185,715 | $ 140,581 |

**Gulf States Marine Fisheries Commission**
**Notes to Financial Statements**
(Continued)

**Note D – Temporarily Restricted Net Assets**

Temporarily restricted net assets are available for the following purposes or periods:

| | December 31, 2001 | December 31, 2000 |
|---|---|---|
| Interjurisdictional | $ | $ 95 |
| RECFIN/COMFIN | | 2,769 |
| Total temporarily restricted net assets | $ | $ 2,864 |

**Note E – Investment in Property & Equipment – Restricted**

This account represents the federal funds equity in property and equipment acquired with federal funds. The federal government retains a reversionary interest in property and equipment acquired with federal funds. Following is the current year activity in this account:

| | December 31, 2001 | December 31, 2000 |
|---|---|---|
| Balance, beginning of year | $ 424,843 | $ 503,198 |
| **Add:** | | |
| Federal funds expended for capital additions | 223,988 | 50,188 |
| Totals | 648,831 | 553,386 |
| **Deduct:** | | |
| Assets disposed of during year | 8,650 | |
| Current year depreciation | 170,576 | 128,543 |
| Total deductions | 179,226 | 128,543 |
| Balance, end of year | $ 469,605 | $ 424,843 |

**Note F – Release of Net Assets**

Net assets were released from donor restrictions by incurring expenses satisfying the restricted purposes or by the occurrence of other events specified by donors.

| | December 31, 2001 | December 31, 2000 |
|---|---|---|
| Purpose restriction accomplished: | | |
| Fishery Management Council | $ 30,000 | $ 28,798 |
| Fish and Wildlife | 39,406 | 33,983 |
| Interjurisdictional Fisheries | 228,041 | 315,252 |
| SEAMAP | 89,098 | 107,650 |
| RECFIN/COMFIN | 3,746,985 | 3,124,805 |
| Sportfish Restoration | 185,629 | 172,670 |
| Striped Bass | | 12,986 |
| Habitat | 51,004 | 42,016 |
| Total restrictions released | $ 4,370,163 | $ 3,838,160 |

**Gulf States Marine Fisheries Commission**
**Notes to Financial Statements**
(Continued)

**Note G – Notes Payable**

During a prior year the Commission acquired the building that it had previously been renting. This acquisition was financed in part with a loan from Hancock Bank. Details of the financing are as follows:

| | |
|---|---|
| Original loan amount | $ 150,008 |
| Interest rate | 8.5% |
| Payment terms | 60 monthly payments of $1,488, plus 1 of remaining balance |
| Collateral | Land and building at 204 Government St. Ocean Springs, MS |

During the prior year the Commission acquired a new copy machine under a lease/purchase agreement. The financing details are as follows:

| | |
|---|---|
| Cost of copier | $ 35,101 |
| Interest rate | 8.5% |
| Payment terms | Initial payment of $20,000 plus 60 payments of $308 |
| Collateral | Xerox copier |
| Purchase option | Ownership at end of lease |

During the current year, the Commission acquired a new 2001 Ford Crown Victoria under a capital lease. The financing details are as follows:

| | |
|---|---|
| Cost of Ford Crown Victoria | $ 25,700 |
| Interest rate | 6.9% |
| Payment terms | Initial payment of $5,000 plus 49 payments of $496.14 |
| Purchase option | Option to purchase at end of lease |

| | December 31, 2001 | 2000 |
|---|---|---|
| Hancock Bank, building purchase | **$ 122,390** | $ 129,384 |
| Copier purchase | **8,296** | 11,153 |
| Automobile purchase | **17,683** | |
| Totals | **148,369** | 140,537 |
| Less amounts due within one year | **15,757** | 10,003 |
| Amounts due beyond one year | **$ 132,612** | $ 130,534 |

**Gulf States Marine Fisheries Commission**
**Notes to Financial Statements**
(Continued)

Maturities by years are as follows:

| Year Ending | Total | Building | Copier | Automobile |
|---|---|---|---|---|
| 12/31/02 | $ 15,757 | $ 7,761 | $ 3,110 | $ 4,886 |
| 12/31/03 | 17,066 | 8,448 | 3,384 | 5,234 |
| 12/31/04 | 16,604 | 9,195 | 1,802 | 5,607 |
| 12/31/05 | 11,963 | 10,007 | | 1,956 |
| 12/31/06 | 86,979 | 86,979 | | |
| Totals | $ 148,369 | $ 122,390 | $ 8,296 | $ 17,683 |

**Note H – Functional Allocation or Expenses**

The costs of providing the various programs and activities have been summarized on a functional basis in the Statement of Revenues, Expenses and Changes in Net Assets-Modified Cash Basis. Accordingly, certain costs have been allocated among the programs and supporting services benefited.

**Note I – 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 seven (7) percent of each eligible employee's base pay with the amounts being fully vested upon payment by the Commission. The total expenses for the years ended December 31, 2001 and 2000 was $52,265 and $48,020, respectively.

## Section II

## Supplemental Information

**Gulf States Marine Fisheries Commission**
**Schedule of Functional Expenses-Modified Cash Basis**
For the Year Ended December 31, 2001

| | Unrestricted | | | |
|---|---|---|---|---|
| | General | Council Funds | Fish and Wildlife | Interjurisdictional |
| **Expenses** | | | | |
| Salaries | $ 65,961 | $ 24,363 | $ 20,071 | $ 76,531 |
| Payroll taxes | 5,300 | 1,883 | 1,611 | 6,186 |
| Health insurance | 7,236 | 2,148 | 7,247 | 16,156 |
| Retirement | 4,292 | 1,606 | 1,391 | 5,141 |
| Office rent | | | 5,400 | |
| Office supplies | 3,711 | | 368 | 2,316 |
| Postage | 1,069 | | 4 | 3,408 |
| Travel | 9,524 | | 770 | 59,242 |
| Telephone | 1,513 | | 646 | 3,642 |
| Copy expense | 569 | | 1,099 | 4,676 |
| Printing | 16 | | 4 | 27,141 |
| Meeting costs | 15,865 | | | 6,019 |
| Subscriptions & dues | 534 | | 17 | 250 |
| Auto expense | 1,849 | | 12 | 1,393 |
| Maintenance | 1,088 | | 334 | 1,780 |
| Janitorial | 686 | | 1 | 89 |
| Professional services | 1,410 | | 383 | 23,436 |
| Other taxes | | | | |
| Contractual | | | | |
| Insurance | 892 | | 243 | 1,467 |
| Utilities | 2,507 | | | 1,039 |
| Equipment | | | | |
| Depreciation | 15,139 | | | |
| Interest expense | 12,652 | | | |
| Totals | $ 151,813 | $ 30,000 | $ 39,601 | $ 239,912 |

| Restricted | | | | | |
|---|---|---|---|---|---|
| SEAMAP Funds | RECFIN/ COMFIN | Sportfish Restoration | Striped Bass | Habitat | Total |
| $ 39,814 | $ 428,076 | $ 88,414 | $ | $ 25,660 | $ 702,929 |
| 3,281 | 34,795 | 7,095 | | 2,059 | 56,910 |
| 7,053 | 65,545 | 14,583 | | 4,377 | 117,109 |
| 2,790 | 29,182 | 6,089 | | 1,774 | 47,973 |
| | | | | | 5,400 |
| 1,490 | 20,742 | 1,884 | | 852 | 27,652 |
| | 8,069 | 1,607 | | 260 | 13,348 |
| 19,197 | 94,590 | 33,284 | 2,218 | 1,355 | 210,656 |
| 1,837 | 12,829 | 3,186 | | 729 | 22,869 |
| 2,847 | 4,578 | 1,591 | | 1,199 | 15,990 |
| 5,122 | 2,122 | 1,531 | | 4 | 35,924 |
| 805 | 6,857 | 3,732 | | | 17,413 |
| 38 | 683 | 419 | | 17 | 1,424 |
| 133 | 310 | 10,151 | | 24 | 12,023 |
| 643 | 71,903 | 1,787 | | 296 | 76,743 |
| 104 | 1,401 | 259 | | 248 | 2,102 |
| 917 | 23,866 | 1,957 | | 714 | 51,273 |
| | 2,767 | 477 | | | 3,244 |
| | 2,763,396 | 13,000 | | | 2,776,396 |
| 530 | 12,372 | 2,529 | | 244 | 17,385 |
| 375 | 5,089 | 941 | | 173 | 7,617 |
| 3,388 | 220,600 | | | | 223,988 |
| $ 90,364 | $ 3,809,772 | $ 194,516 | $ 2,218 | $ 39,985 | $ 4,446,368 |

*See Independent Auditors' Report.*

**Gulf States Marine Fisheries Commission**
**Schedule of Expenditures of Federal Awards – Modified Cash Basis**
For the Year Ended December 31, 2001

| Federal Grantor/Program Title | Catalog of Federal Domestic Assistance | Federal Expenditures |
|---|---|---|
| **U.S. Department of Interior** | | |
| Striped Bass Stewardship Project | 15.600 | $ 2,218 |
| Sports Fish Restoration Program | 15.605 | 194,516 |
| Total U. S. Department of Interior | | 196,734 |
| **U.S. Department of Commerce** | | |
| Interjurisdictional Fisheries Management Plan | 11.407 | 239,912 |
| Recreational Fisheries Information Network (RECFIN) and Commercial Fisheries Information Network (COMFIN) | 11.434 | 3,809,772 |
| Southeast Area Monitoring and Assessment Program (SEAMAP) | 11.435 | 90,364 |
| Habitat Conservation | 11.463 | 39,985 |
| Total U. S. Department of Commerce | | 4,180,033 |
| Totals for all federal awards | | $ 4,376,767 |

**Note** – This schedule was prepared using the same basis of accounting and the same significant accounting policies, as applicable, used for the financial statements.

*See Independent Auditors' Report.*

## Section III

## Reports on Compliance and Internal Control

PILTZ, WILLIAMS, LAROSA & COMPANY

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Stanford A. Williams, Jr. CPA (Retired)

# Independent Auditors' Report On the Compliance and Internal Control over Financial Reporting Based on an Audit of the Financial Statements Performed in Accordance with *Government Auditing Standards*

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

We have audited the general purpose financial statements of Gulf States Marine Fisheries Commission as of and for the year ended December 31, 2001, and have issued our report thereon dated March 6, 2002. We conducted our audit in accordance with auditing standards generally accepted in the United States of America and the standards applicable to financial audits contained in *Government Auditing Standards*, issued by the Comptroller General of the United States.

## Compliance

As part of attaining reasonable assurance about whether Gulf States Marine Fisheries Commission's financial statements are free of material misstatement, we performed tests of its compliance with certain provisions of laws, regulations, contracts and grants, noncompliance with which could have a direct and material effect on the determination of financial statement amounts. However, providing an opinion on compliance with those provisions was not an objective or our audit and, accordingly, we do not express such an opinion. The results of our tests did not disclose any instances of noncompliance that are required under *Government Auditing Standards*.

## Internal Control Over Financial Reporting

In planning and performing our audit, we considered Gulf States Marine Fisheries Commission's internal control over financial reporting in order to determine our auditing procedures for the purpose of expressing our opinion on the financial statements and not to provide assurance on the internal control over financial reporting. Our consideration of the internal control over financial reporting would not necessarily disclose all matters in the internal control over financial reporting that might be material weaknesses.

A material weakness is a condition in which the design or operation of one or more of the internal control components does not reduce to a relatively low level the risk that misstatements in amounts 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 over financial reporting and its operation that we consider to be material weaknesses.

This report is intended solely for the information of the Commission, management, others within the organization and federal awarding agencies and pass-through entities and is not intended to be and should not be used by anyone other than these specified parties.

Certified Public Accountants

Biloxi, Mississippi
March 6, 2002

PILTZ, WILLIAMS, LAROSA & COMPANY
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## Independent Auditors' Report on Compliance with Requirements Applicable to Each Major Federal Program and Internal Control Over Compliance in Accordance with OMB Circular A-133

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

**Compliance**

We have audited the compliance of Gulf States Marine Fisheries Commission with the types of compliance requirements described in the U.S. Office of Management and Budget (OMB) Circular A-133 Compliance Supplement that are applicable to each of its major federal programs for the year ended December 31, 2001. Gulf States Marine Fisheries Commission's major federal programs are identified in the summary of auditors' results section of the accompanying Schedule of Findings and Questioned Costs. Compliance with the requirements of laws, regulations, contracts and grants applicable to each of its major federal programs is the responsibility of Gulf States Marine Fisheries Commission's management. Our responsibility is to express an opinion on Gulf States Marine Fisheries Commission's compliance based on our audit.

We conducted our audit of compliance in accordance with auditing standards generally accepted in the United States of America; the standards applicable to financial audits contained in *Government Auditing Standards*, issued by the Comptroller General of the United States; and OMB Circular A-133, *Audits of State, Local Governments, and Non-Profit Organizations*. Those standards and OMB Circular A-133 require that we plan and perform the audit to obtain reasonable assurance about whether noncompliance with the types of compliance requirements referred to above that could have a direct and material effect on a major federal program occurred. An audit includes examining, on a test basis, evidence about Gulf States Marine Fisheries Commission's compliance with those requirements and performing such other procedures as we considered necessary in the circumstances. We believe that our audit provides a reasonable basis for our opinion. Our audit does not provide a legal determination on Gulf States Marine Fisheries Commission's compliance with those requirements.

In our opinion, Gulf States Marine Fisheries Commission complied, in all material respects, with the requirements referred to above that are applicable to each of its major federal programs for the year ended December 31, 2001.

**Internal Control Over Compliance**

The management of Gulf States Marine Fisheries Commission is responsible for establishing and maintaining effective internal control over compliance with requirements of laws, regulations, contracts and grants applicable to federal programs. In planning and performing our audit, we considered Gulf States Marine Fisheries Commission's internal control over compliance with requirements that could have a direct and material effect on a major federal program in order to determine our auditing procedures for the purpose of expressing our opinion on compliance and to test and report on internal control over compliance in accordance with OMB Circular A-133.

Our consideration of the internal control over compliance would not necessarily disclose all matters in the internal control that might be material weaknesses. A material weakness is a condition in which the design or operation of one or more of the internal control components does not reduce to a relatively low level the risk that noncompliance with applicable requirements of laws, regulations, contracts and grants that would be material in relation to a major federal program 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 over compliance and its operation that we consider to be material weaknesses.

This report is intended solely for the information of the Commission, management, others within the organization and federal awarding agencies and pass-through entities and is not intended to be and should not be used by anyone other than these specified parties.

Peltz, Williams, & Rock, P.A.
Certified Public Accountants

Biloxi, Mississippi
March 6, 2002

**Section IV**

**Other Items**

**Gulf States Marine Fisheries Commission**
**Schedule of Findings and Questioned Costs**
For the Year Ended December 31, 2001

**Section 1 – Summary of Auditors' Results**

1. An unqualified opinion was issued on the general-purpose financial statements.

2. The audit of the general-purpose financial statements did not disclose any material weaknesses in internal control.

3. The audit did not disclose any noncompliance which is material to the general-purpose financial statements.

4. The audit did not disclose any material weaknesses in internal control over major programs.

5. An unqualified opinion was issued on compliance for major programs.

6. The audit disclosed no audit findings which were required to be reported under Section ___.510(a) of OMB Circular A-133.

7. The major programs were: Recreational Fisheries Information Network and Commercial Fisheries Information Network – 11.434.

8. The dollar threshold used to distinguish between Type A and Type B Programs was $300,000.

9. The auditee does qualify as a low-risk auditee.

**Section 2 – Findings Related to the Financial Statements**

None

**Section 3 – Findings and Questioned Costs for Federal Awards**

None