

ANNUAL REPORT

TO THE

TECHNICAL COORDINATING COMMITTEE

GULF STATES MARINE FISHERIES COMMISSION

OCTOBER 1, 1999 TO SEPTEMBER 30, 2000

SEAMAP Subcommittee

Richard S. Waller, Chairman

Jeffrey K. Rester

SEAMAP Coordinator

September 30, 2000

GSMFC No: 79

TABLE OF CONTENTS

INTRODUCTION	1
FY2000 SEAMAP RESOURCE SURVEYS	2
Fall Plankton Survey	2
Fall Shrimp/Groundfish Survey	2
Reeffish Survey	3
Spring Plankton Survey	4
Summer Shrimp/Groundfish Survey	4
Plankton and Environmental Data Surveys	5
INFORMATION SERVICES	5
SEAMAP Information System	6
Data Management	6
Real-time Data	7
SEAMAP Archiving Center	8
SEAMAP Invertebrate Plankton Archiving Center	8
PROGRAM MANAGEMENT	9
Planning	9
Proposed FY2001 Activities	9
Information Dissemination	10
FY2000 Financial Report	10
APPENDIX A - Minutes	A-1
APPENDIX B - Operations Plan	B-1

INTRODUCTION

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

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

Federal programmatic funding for SEAMAP activities and administration was appropriated in Federal Fiscal Years 1985-2000 (October 1 through September 30). State and Gulf States Marine Fisheries Commission (GSMFC) funding allocations for FY1985-FY2000 were handled through State/Federal cooperative agreements, administered by SERO and the Southeast Fisheries Science Center (SEFSC), National Marine Fisheries Service (NMFS).

In FY2000, SEAMAP operations continued for the nineteenth consecutive year. SEAMAP resource surveys included the Fall Plankton Survey, Fall Shrimp/Groundfish Survey, Spring Plankton Survey, Summer Shrimp/Groundfish Survey, and plankton and environmental data surveys. Other FY2000 activities included SEAMAP information services and program management.

This report is the seventeenth in a series of annual SEAMAP Subcommittee reports to the Technical Coordinating Committee (TCC) of the Gulf States Marine Fisheries Commission. It is intended to inform the TCC of SEAMAP-Gulf of Mexico activities and accomplishments during FY2000 and proposed SEAMAP activities for FY2001.

Appreciation is gratefully extended to the staff of the Gulf States Marine Fisheries Commission for their considerable assistance in the preparation of this document.

FY2000 SEAMAP RESOURCE SURVEYS

In FY2000, collection of resource survey information continued for the nineteenth 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.

Fall Plankton Survey

The first fall ichthyoplankton survey to assess abundance and distribution of king mackerel eggs and larvae occurred in August 1984. No sampling survey was conducted in 1985; however, expanded surveys in 1986-1999 covered Gulf waters from Florida Bay to Brownsville, Texas. A total of 154 stations was sampled by the R/V SUNCOASTER, R/V TOMMY MUNRO, R/V PELICAN, R/V GORDON GUNTER and the R/V VERRILL. These samples were collected from August 31 to October 14, 1999.

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 1 x 2-meter frames towed at the surface for ten minutes. Right bongo and neuston samples were initially preserved in 10% buffered formalin and after 48 hours were transferred to 95% ethyl alcohol for final preservation. Left bongo samples were preserved via an ethanol/ethanol transfer to aid in preservation of larval otoliths. 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). Salinity data from the Florida vessel were sent to the NMFS Mississippi Laboratories for interpretation.

Fall Shrimp/Groundfish Survey

The Fall Shrimp/Groundfish Survey was conducted from October 16th to December 3rd, from off Mobile, Alabama to the U.S.-Mexican border. Vessels sampled waters out to 60 fm, covering 409 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.

During the survey, the NOAA Ship OREGON II sampled 269 stations from Mobile Bay, Alabama to Brownsville, Texas at depths out to 60 fm. The R/V VERRILL sampled 8 stations at the mouth and outside Mobile Bay. The R/V TOMMY MUNRO sampled 28 stations south of Mississippi Sound along a 30-minute grid. The R/V PELICAN sampled 24 stations in Louisiana territorial waters. Texas vessels sampled 80 stations within their territorial waters.

In addition, ichthyoplankton data were collected by NMFS and Louisiana vessels at sample sites occurring nearest to half-degree intervals of latitude/longitude. A total of 52 stations was sampled with bongo and/or neuston nets, as encountered along cruise tracks. NMFS completed 45 ichthyoplankton stations, Mississippi completed 2 stations, and Louisiana completed 5 stations. The samples, except those taken by Louisiana, will be sorted by the Polish Sorting and Identification Center. Once sorted, the specimens and data will be archived at the SEAMAP Archiving Center.

Reeffish Survey

The primary purpose of this survey is to assess the relative abundance and compute population estimates of reefish. Stations are randomly selected 100 m² sites that are designated as “reef areas”. There are several aspects of the reefish survey: 1) locating and compiling known hardbottom reef habitat locations; 2) surveying site selection; 3) sampling protocol using a fish trap and video camera and 4) analyzing the video records. Data is collected using the trap/video methodology where a fish trap containing a video camera is deployed onto the selected reef site. Trap soak time is one hour. After trap deployment, hydrographic data is collected. Also, after the last set, one ichthyoplankton station is completed each day with a surface neuston net and Tucker trawl. Environmental and plankton samples collected use established SEAMAP protocols and plankton samples are transshipped to the Polish Sorting and Identification Center. Final analysis of video tapes is accomplished at the Pascagoula Lab, where data are recorded onto standard SEAMAP forms. Tapes are analyzed either in their entirety or by randomly selected one minute intervals. The determinant factors for sampling are based on whether the reader can identify and count fish entering the camera field of view and record the data.

Reeffish sampling took place on several occasions throughout the fiscal year. Alabama conducted sampling on October 28, 1999, December 14, 1999, and January 11, 2000. Texas conducted sampling on November 8, 1999, March 24-25, 2000, April 14, 2000, April 26, 2000, August 1, 2000,

and August 31, 2000. Due to budget constraints, NMFS was not able to participate in the Reefish Survey this year.

Spring Plankton Survey

For the nineteenth year, plankton samples were collected during the spring in the northern Gulf of Mexico. The NOAA Ship GORDON GUNTER sampled offshore waters from the western edge of the West Florida Shelf to the Texas-Louisiana border from April 18 to May 30, 2000. A total of 177 stations was sampled. Florida's portion of the spring plankton survey was canceled again this year due to money constraints. Due to rising overhead costs, the number of days allocated for Florida's portion of the spring cruise has been drastically reduced over previous years. The NMFS felt that it would be better to use some of the money allocated for the spring cruise to add a day to the fall cruise.

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 1 x 2-meter frames towed at the surface for ten minutes. Right bongo and neuston samples were initially preserved in 10% buffered formalin and after 48 hours were transferred to 95% ethyl alcohol for final preservation. Left bongo samples were preserved via an ethanol/ethanol transfer to aid in preservation of larval otoliths. 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 2000, 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 2000 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 5 to July 20, 2000.

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

A total of 388 trawl samples was taken from coastal and offshore waters out to 50 fm from Mobile Bay, Alabama, to Brownsville, Texas. All vessels took environmental data, including temperature, salinity, oxygen, and chlorophyll at each station.

Plankton and Environmental Data Surveys

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

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 1982-1999 have been entered into the system and data from 2000 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 239 SEAMAP data requests have been received and processed. In some instances, requests were filled promptly; in many cases, however, a substantial lag occurred because of the extremely large amount of data being collected on an increased number of surveys over those of past years. To date, all requests have been completed.

Requested SEAMAP data were used for a multitude of purposes in FY2000:

- 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 2000 SEAMAP Biological and Environmental Atlas; and
- Comparing catches of shrimp and groundfish captured by 40-ft versus 20-ft trawl nets.

Data Management

The requirements report for an integrated data system, *Data Management System Design Study for Gulf and South Atlantic, 1987*, was completed in March 1987. The document identifies the high-level design specifications and recommended implementation plan for a module-based SEAMAP

Data Management System (DMS). The design is based on information contained in the SEAMAP Gulf and South Atlantic DMS Requirements Document developed through a cooperative effort between NMFS and other SEAMAP participants. The document has five sections: 1) background and brief descriptions of current centralized and proposed distributed systems; 2) summary of the Requirements Survey; 3) overview of the system's architecture; 4) description of developmental modules constituting the DMS design; and 5) a modular implementation plan which includes costs and schedule.

Work was completed during FY1990 on the new distributed SEAMAP DMS. New modules completed include those for data entry, edit, upload, data query and download. All of the Gulf States are now equipped with the necessary computer hardware and software.

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

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

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

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 three times weekly via cellular phone to the NMFS Mississippi Laboratories from the NOAA vessel, while the states' data were entered into the system weekly. Plots of station locations and catch rates of shrimp, squid and dominant finfish species were prepared and edited at the NMFS Mississippi Laboratories, and processed by GSMFC for weekly distribution to management agencies, fishermen, processors and researchers. For the first time since 1997, SEAMAP real-time data plots were produced during the 2000 Summer Shrimp/Groundfish Survey. Seven weekly mailings were produced and distributed to approximately 260 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.

Beginning in 1998, the SEAMAP Subcommittee decided to produce near-real-time data for the Fall Shrimp/Groundfish Survey. The second annual fall real-time data distribution was produced in January of 2000. Plots of station locations and catch rates of red snapper were prepared and edited at the NMFS Mississippi Laboratories, and processed by GSMFC for a summary distribution at the end of the Survey to management agencies, fishermen, processors and researchers. These plots were also available through the SEAMAP home page.

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 2000, 12,217 samples were returned from the Polish Sorting and Identification Center. Data entry for the returned sorted samples has been completed in an improved and simplified SEAMAP DMS. Samples cataloged to date 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. Thirty-five requests have been accommodated in the present year to nine different researchers.

SEAMAP Invertebrate Plankton Archiving Center

The SIPAC is in its sixteenth year of operation. Ken Stuck at the USM/IMS/GCRL serves as SIPAC curator. 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 continues to provide unsorted plankton samples and data or specimens of larval invertebrates to qualified researchers upon request.

One graduate student is employed by SIPAC. In addition to cataloging new samples, maintenance and curation of the existing collection, he is utilizing flatfish from the SEAMAP collections for his thesis research project. Activities were limited to maintenance and curation of the existing collection. The number of samples currently cataloged in the SIPAC collections is 7,358, with 146 samples 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 10 years and duplicate samples sorted and received from the Polish Sorting and Identification Center, are aliquoted to $\frac{1}{4}$ their original volume and placed into 100 ml vials. When possible, the remaining $\frac{3}{4}$ 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 NMFS-Pascagoula 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 1988-1989 SEAMAP samples has been completed, there should be sufficient space available for archiving additional samples.

During the next year, the SIPAC will continue to manage SEAMAP plankton collections, accession samples, and provide unsorted samples, sorted specimens and data from the collection to qualified researchers as requested. Efforts with sorted materials will concentrate on curation and analysis of current holdings and publication of distribution patterns of selected taxa by cruise.

PROGRAM MANAGEMENT

The SEAMAP program is administered by the SEAMAP Subcommittee of the TCC through the SEAMAP Coordinator, who is under the technical direction of the Subcommittee Chairman and administrative supervision of the GSMFC's Executive Director.

Personnel associated with SEAMAP program management include the Coordinator, Data Manager, SEAMAP Archiving Center Curator, SIPAC Curator and the NMFS-Pascagoula Laboratory Director, serving as Program Monitor.

Planning

Major SEAMAP-Gulf Subcommittee meetings were held in October 1999 and March 2000, in conjunction with the Annual Meetings of the GSMFC. All meetings included participation by various work group leaders, Coordinator, Data Manager, Program Monitor and other GSMFC staff. Representatives from the Gulf program also met with the South Atlantic and Caribbean representatives in August 2000 to discuss respective program needs and priorities for FY2001.

Coordination of program surveys and distribution of quick-report summaries of a Gulf-wide survey to management agencies and industry were major functions of SEAMAP management in 2000. Other important management activities included coordinating data provision and specimen loans, preparing publications and documents and assisting in the preparation of State/Federal cooperative agreements, including amendments to permit extension of activities previously not detailed in the agreements.

Proposed 2001 Activities

Preliminary 2001 SEAMAP-Gulf budget allocations are shown in Table 3. Last year, total program allocations for all three SEAMAP components, Gulf, South Atlantic and Caribbean, was approximately \$1.2 million. At the August meeting, the SEAMAP components based their

allocations on level funding for 2001. At this level, the share to be allocated for SEAMAP-Gulf activities (including GSMFC) will be \$512,403.

Proposed 2001 activities for all Gulf participants are shown in Table 4. The approved 2001 Operations Plan for SEAMAP-Gulf is contained in Appendix B.

Information Dissemination

The following documents were published and distributed in FY2000:

- *2000 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 effort, and other materials.
- *Environmental and Biological Atlas of the Gulf of Mexico, 1998*. A compilation of information obtained from the 1998 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.
- *SEAMAP Subcommittee Report to the GSMFC Technical Coordinating Committee -October 1, 1999 to September 30, 2000*. 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 - September 1, 1998 to August 31, 1999*. A summary of FY2000 activities and proposed FY2001 events for the SEAMAP-Gulf, South Atlantic, and Caribbean Programs.

FY2000 Financial Report

Total allocations for FY2000 program administration were \$80,564. The GSMFC has arranged and paid for all expenses associated with personnel, meetings, travel and operating expenses to date. The remaining balance will be used to provide administration of the SEAMAP-Gulf program through December 31, 2000.

TABLE 1.

SEAMAP REPRESENTATIVES FOR FY2000

Richard Waller, Chairman
University of Southern Mississippi
Institute of Marine Sciences
Gulf Coast Research Laboratory

James Hanifen, Vice Chairman
Louisiana Department of Wildlife and Fisheries

Stevens Heath
Alabama Department of Conservation and Natural Resources

Mark Leiby
Florida Fish and Wildlife Conservation Commission
Florida Marine Research Institute

Terry Cody
Texas Parks and Wildlife Department

Joanne Lyczkowski-Shultz
National Marine Fisheries Service
Pascagoula Laboratory

Richard Leard (non-voting)
Gulf of Mexico Fishery Management Council

TABLE 2.

SEAMAP WORK GROUP MEMBERS FOR FY2000

ADULT FINFISH WORK GROUP

Terry Henwood
National Marine Fisheries Service
Pascagoula Laboratory

Billy Fuls
Texas Parks and Wildlife Department

Rick Leard
Gulf of Mexico Fishery Management
Council

Mark Leiby
Florida Fish and Wildlife Conservation
Commission

James Warren
University of Southern Mississippi
Institute of Marine Sciences
Gulf Coast Research Laboratory

John Roussel
Louisiana Department of Wildlife and
Fisheries

Joanne Lyczkowski-Shultz
National Marine Fisheries Service
Pascagoula Laboratory

Robert Shipp
University of South Alabama

DATA COORDINATING WORK GROUP

Mark McDuff, Leader
SEAMAP Data Manager
National Marine Fisheries Service
Pascagoula Laboratory

Butch Pellegrin
National Marine Fisheries Service
Pascagoula Laboratory
Shrimp/Groundfish Work Group

Mike Murphy
Florida Fish and Wildlife Conservation
Commission
Red Drum Work Group

Terry Henwood
National Marine Fisheries Service
Pascagoula Laboratory
Adult Finfish Work Group

Richard Waller
University of Southern Mississippi
Institute of Marine Sciences
Gulf Coast Research Laboratory
Chairman, SEAMAP Subcommittee/
Reef Fish Work Group

Joanne Lyczkowski-Shultz
National Marine Fisheries Service
Pascagoula Laboratory
Plankton Work Group

Terry Romaine
Louisiana Department of Wildlife and
Fisheries

Environmental Data Work Group

ENVIRONMENTAL DATA WORK GROUP

Terry Romaire, Leader

Louisiana Department of Wildlife and Fisheries

Mark Van Hoose
Alabama Department of Conservation and
Natural
Resources

Rob Ford
National Marine Fisheries Service
Pascagoula Laboratory

Thomas Leming
National Marine Fisheries Service
Pascagoula Laboratory

Joanne Lyczkowski-Shultz
National Marine Fisheries Service
Pascagoula Laboratory

Kim Williams
Florida Fish and Wildlife Conservation
Commission

Richard Waller
Gulf Coast Research Laboratory
University of Southern Mississippi
Institute of Marine Sciences

PLANKTON WORK GROUP

Joanne Lyczkowski-Shultz, Leader

National Marine Fisheries Service

Pascagoula Laboratory

Alonzo Hamilton
National Marine Fisheries Service
Pascagoula Laboratory

Ken Edds
Louisiana Department of Wildlife and
Fisheries

Don Hoss
National Marine Fisheries Service
Beaufort Laboratory

Mark Leiby
Florida Fish and Wildlife Conservation
Commission

Harriet Perry
University of Southern Mississippi
Institute of Marine Sciences
Gulf Coast Research Laboratory

Ken Stuck, Curator
SEAMAP Invertebrate Plankton Archiving
Center

University of Southern Mississippi
Institute of Marine Sciences
Gulf Coast Research Laboratory

Mark Benefield
Louisiana State University

RED DRUM WORK GROUP

Mike Murphy, Leader

Florida Fish and Wildlife Conservation Commission

James Warren
University of Southern Mississippi
Institute of Marine Sciences
Gulf Coast Research Laboratory

Joanne Lyczkowski-Shultz
National Marine Fisheries Service
Pascagoula Laboratory

Joseph Shepard
Louisiana Department of Wildlife and
Fisheries

Larry McEachron
Texas Parks and Wildlife Department

Mark Van Hoose
Alabama Department of Conservation and Natural Resources

REEF FISH WORK GROUP

Richard Waller, Leader

University of Southern Mississippi
Institute of Marine Sciences
Gulf Coast Research Laboratory

Billy Fuls
Texas Parks and Wildlife Department

Mark Leiby
Florida Fish and Wildlife Conservation
Commission

Chris Gledhill
National Marine Fisheries Service
Pascagoula Laboratory

Jim Duffy
Alabama Department of Conservation and
Natural Resources

Richard Kasprzak
Louisiana Department of Wildlife and
Fisheries

SHRIMP/GROUNDFISH WORK GROUP

Butch Pellegrin, Leader
National Marine Fisheries Service
Pascagoula Laboratory

Billy Fuls
Texas Parks and Wildlife Department

Ken Edds
Louisiana Department of Wildlife and
Fisheries

Bruce Comyns
USM/IMS/Gulf Coast Research Laboratory

Nate Sanders
National Marine Fisheries Service
Pascagoula Laboratory

Leslie Hartman
Alabama Department of Conservation
and Natural Resources

TABLE 3.
PRELIMINARY 2001 PROGRAMMATIC BUDGET

Alabama Department of Conservation and Natural Resources	68,000
Florida Department of Environmental Protection	93,840
Louisiana Department of Wildlife and Fisheries	120,700
University of Southern Mississippi/Institute of Marine Sciences/ Gulf Coast Research Laboratory	94,495
Texas Parks and Wildlife Department	54,804
Gulf States Marine Fisheries Commission	80,564
TOTAL	\$512,403

TABLE 4.
PROPOSED SEAMAP-GULF ACTIVITIES, 2001

	Fall	Winter	Spring	Summer
Resource Surveys:				
Spring Plankton Survey			X	
Shrimp/Groundfish Surveys	X			X
Fall Plankton Survey	X			
Plankton & Environmental Data Surveys	X	X	X	X
Information Operations:				
Biological and Environmental Atlas				X
Marine Directory			X	
Joint Annual Report		X		
Data Input and Request Processing	X	X	X	X
Specimen Archiving and Loan	X	X	X	X
Real-time Data Summaries				X
Program Administration:	X	X	X	X

APPENDIX A

MINUTES FOR 1999 AND 2000 SEAMAP MEETINGS

SEAMAP-Gulf Subcommittee Meeting
MINUTES
Biloxi, Mississippi
Monday, October 18, 1999

Chairman Richard Waller called the meeting to order at 1:07 p.m. The following members and others were present:

Members:

Richard Waller, USM/IMS/GCRL, Ocean Springs, MS
Mark Leiby, FFWCC/FMRI, St. Petersburg, FL
Jim Hanifen, LDWF, Baton Rouge, LA
Terry Cody, TPWD, Rockport, TX

Others:

Scott Nichols, NMFS, Pascagoula, MS
Mark McDuff, NMFS, Pascagoula, MS
Mara Booth-Miller, USCG, Miami, FL
William Hogarth, NMFS, St. Petersburg, FL

Staff:

Larry Simpson, GSMFC, Ocean Springs, MS
Ron Lukens, GSMFC, Ocean Springs, MS
Dave Donaldson, GSMFC, Ocean Springs, MS
Jeff Rester, GSMFC, Ocean Springs, MS
Cheryl Noble, GSMFC, Ocean Springs, MS
Joe Ferrer, GSMFC, Ocean Springs, MS

J. Rester asked all subcommittee members to sign the letter of recognition to Ken Savastano.

Adoption of Agenda

The agenda was adopted as submitted.

Approval of Minutes

J. Hanifen asked to change the time the Subcommittee adjourned to 11:25 a.m. instead of p.m. **J. Hanifen moved to approve the August 5, 1999 minutes with this change. T. Cody seconded the motion and it passed unanimously.**

Administrative Report

J. Rester reported that R. Lukens, D. Donaldson, M. McDuff, S. Nichols and he met to discuss the SEAMAP database and the GSMFC taking over the management responsibilities. He said this will be discussed under agenda Item 9.

The annual report was completed in August and mailed to the appropriate personnel at NMFS.

The 1998 Atlas data has been received and will be compiled and completed around the first of the year.

The TCC report has been completed and copies are being distributed at this meeting.

The Fall Plankton Survey was completed in September and the Fall Groundfish Survey is underway.

Real Time Data Questionnaire

J. Rester stated that at the last meeting the Subcommittee charged him with researching the cost to do a statistically valid questionnaire asking recipients if they feel the SEAMAP real time data is useful and if they would like to continue receiving it. He said it would cost approximately \$1.00 per sample. The total cost will be approximately \$3,000.00. After discussion, the Subcommittee decided to again contact the appropriate personnel at NMFS and GMFMC before they proceed with the questionnaire because even if the response is positive, they can not mail out the real time information without their approval. The Subcommittee asked L. Simpson if he will discuss this issue with Dr. Hogarth, the new NMFS regional director, to see if NMFS would be willing to start the real time data mail outs again next summer. L. Simpson said Dr. Hogarth is at this meeting and he will discuss it with him and J. Rester will inform the Subcommittee of his response.

Fall Red Snapper Real Time Data

J. Rester said at the last meeting they discussed possibly doing a summer real time data red snapper mailing. After reviewing the data from last summer the Subcommittee decided there was not enough data to do a summer mailing but they will still do the winter red snapper real time data mail out. J. Rester asked the Subcommittee to get their data in as soon as possible and they will mail the information in early December.

SEAMAP Data Web page Development

R. Waller said that at the August meeting the Subcommittee suggested the chairmen of each SEAMAP component send a letter to Dr. John McGowan, the Chief Technology Officer at USM, stressing the importance of the development of the SEAMAP Web Page to access SEAMAP data. He said this was done and Ms. Sherry Rawls responded by saying that they will do this as soon as possible and she reminded him that they were not charging SEAMAP to do this. He said that he will be meeting with Ms. Rawls and other personnel that will be working on this within a month and he will keep the Subcommittee informed on the progress. He also asked M. McDuff to preview the current GSMFC web page and give any input he thinks will be useful.

Data Coordinating Work Group Report

M. McDuff distributed the Data Coordinating Work Group report and reviewed the current database and ORACLE database. Processing of the SEAMAP 1998 data is almost complete (one Alabama cruise has not been completed) and data processing of the 1999 data and 1982-1987 Gulf data is in progress; processing of the 1998 atlas is in progress; 231 SEAMAP requests have been received to

date and all but two requests have been completed; approximately 300 SEAMAP cruises have been data based in the ORACLE system and testing for data query and download functions for the ORACLE system are in progress and re-engineering of the main frame SEAMAP software to take advantage of the ORACLE database software is in its final stage; and the SEAMAP on-line data base now contains 462 cruises with a total of 2,908,467 records.

M. McDuff asked the Subcommittee if they would like to continue receiving the Data Management Reports that are distributed at these meetings or if they'd prefer for them to be online only. The Subcommittee agreed that they only need the newest information and once the cruise information is complete, they won't need the information again.

S. Nichols gave a presentation on the SEAMAP Data Management problems (Attachment I) and explained how they plan to resolve the problems and outlined what they expect the new system to do. He said he is pleased with what they have accomplished so far and it should be completed by the first of the year. M. McDuff said he will send the Subcommittee a copy of the new gear codes with instructions on how to load them.

Status of GSMFC Proposal for Data Management

J. Rester said that when the GSMFC originally proposed taking over the SEAMAP data management responsibilities, they did not realize the extent of the data management problems and decided that they are not ready to take this on at this time so they withdraw their proposal. J. Rester said GSMFC is still conceptually interested but it will probably be after the year 2000 after the new ORACLE person has their system up and running.

Election of Chairman

* **T. Cody moved to elect R. Waller Chairman and J. Hanifen Vice Chairman by acclamation. M. Leiby seconded it and it passed unanimously.**

Other Business

* R. Waller said there has been more discussions about the biocodes and he asked M. Leiby to address this. M. Leiby said he put together a new 18 character biocode rather than the 9 character biocode and this allows them to use suborders, subfamilies, tribes, etc. He then explained the new biocodes and other things he is doing to the Subcommittee. He said an unofficial committee has been formed to develop a system of updating and keeping the documentation current. J. Shultz, H. Perry and M. Leiby are currently on the committee and M. Leiby will ask if the South Atlantic component would also like to appoint someone to the committee. T. Cody asked the Subcommittee about the name change for brown/white shrimp and asked if SEAMAP will adopt this. S. Nichols suggested that if the Subcommittee endorses this committee, the committee can review this issue and make a final decision to bring to the Subcommittee. **J. Hanifen moved to accept this committee to review the biocodes and name changes. T. Cody seconded and it passed unanimously.**

J. Hanifen informed the Subcommittee that they renewed their permit to have a turtle on their boats since they do not use TEDs. He said the old permits expired and suggested that the rest of the

Subcommittee get their permits renewed. J. Hanifen will send a copy of his request to J. Rester and he will copy the information to the other members so that they can renew their permits.

R. Waller asked for a NEAMAP update and D. Donaldson said there is no funding yet and it's still in the planning stage.

In reference to the letter of request from Dr. Shipp asking for a red snapper stock assessment analysis with the state SEAMAP data, S. Nichols said his response was that he didn't have enough time to do this before the November meeting, but he will try to do this before the next round of stock assessments.

The Subcommittee asked J. Rester to arrange a conference call or to do a mail ballot for the Environmental Data Work Group to elect a leader. Once they elect a leader the Subcommittee must endorse their choice.

L. Simpson said that during the break he discussed the real time issue with Dr. Hogarth. Dr. Hogarth will study the issue and send a response as soon as possible. J. Rester will update the Subcommittee when he receives the information.

*** There being no further business J. Hanifen moved to adjourn. T. Cody seconded and the motion passed unanimously. The meeting adjourned at 4:45 p.m.**

SEAMAP-Gulf Subcommittee Meeting
MINUTES
Orange Beach, Alabama
Monday, March 13, 2000

Chairman Richard Waller called the meeting to order at 1:10 p.m. The following members and others were present:

Members:

Richard Waller, USM/IMS/GCRL, Ocean Springs, MS
Mark Leiby, FFWCC/FMRI, St. Petersburg, FL
Jim Hanifen, LDWF, Baton Rouge, LA
Terry Cody, TPWD, Rockport, TX
Joanne Shultz, NMFS, Pascagoula, MS
Steve Heath, ADCNR, Gulf Shores, AL

Others:

Scott Nichols, NMFS, Pascagoula, MS
Mark McDuff, NMFS, Pascagoula, MS
Joe Smith, NMFS, Beaufort, NC
Peter Hood, GMFMC, Tampa, FL

Staff:

Ron Lukens, GSMFC, Ocean Springs, MS
Dave Donaldson, GSMFC, Ocean Springs, MS
Jeff Rester, GSMFC, Ocean Springs, MS
Cheryl Noble, GSMFC, Ocean Springs, MS

Adoption of Agenda

There will be a discussion of the budget status under "Other Business." With that change the agenda was adopted. The Subcommittee asked J. Rester to email the final agenda to them before each meeting.

Approval of Minutes

J. Hanifen moved to approve the October 18, 1999 minutes as submitted. T. Cody seconded the motion and it passed unanimously.

Administrative Report

J. Rester reported that since the last meeting, the fall Shrimp/Groundfish Survey was completed and as a result of this the second real-time red snapper mailing was produced and distributed in January.

The 1999 Joint Annual Report was completed and distributed.

The 1998 Atlas is currently being reviewed and should be at the printer in mid to late April. J. Rester asked the Subcommittee if they had any changes for the atlas and several were given. The Subcommittee felt the text portion of the Atlas needs to be updated and each member will review and send comments to J. Rester before Friday, March 24, 2000.

The 2000 Marine Directory has been completed and will be distributed at this meeting.

The Environmental Data Work Group met via conference call on February 1st and elected Terry Romaine as the work group leader. **M. Leiby moved to accept Terry Romaine as the Environmental Data Work Group leader. J. Shultz seconded the motion and it passed unanimously.** J. Rester will send a letter to Terry Romaine informing her that she has been accepted as the work group leader.

J. Rester said the Environmental Data Work Group also discussed the collection and standardization of chlorophyll sampling and the work group recommended that NMFS should start collecting filtered chlorophyll data. M. Leiby told S. Nichols and J. Shultz that there will be a desk top fluorometer available after the Spring Cruise because they are buying new ones and Kim Williams will train staff to use them. He said a CTD is available for Mississippi also. R. Waller stated that if an operator does not come with it, he would feel uncomfortable using it. S. Nichols stated they do not have the staff to do the filtered samples.

J. Rester said that L. Simpson discussed the distribution of shrimp real-time data this summer with B. Hogarth and he indicated that the mailings can resume this summer. J. Rester said that unless the Subcommittee hears otherwise the mailings will start again in June.

J. Rester showed the Subcommittee the 2-page informational presentation on SEAMAP that L. Simpson took with him to Washington, D.C. in the second week of February. He said L. Simpson met with most of the congressional leaders and staff members that he wanted to speak with and felt the trip was very worthwhile. He cannot predict that SEAMAP will get increased funding in the next budget year but he informed them of SEAMAP's budget needs.

He then asked the Subcommittee to review a letter (Attachment I) from J. Miglarese from South Carolina Department of Natural Resources to J. Dunnigan regarding the SEAMAP partners and Commissions to develop a strategy to seek increased funding for SEAMAP. R. Lukens explained there were two issues from South Carolina. One was to back off from the amount of money SEAMAP is requesting for the next budget year and the other is to include language from the Subcommittee that says there should be an equitable distribution of SEAMAP funds. He said the second issue was not in the letter but in testimony from International Association of Fish and

Wildlife Agencies to Congress. South Carolina can not get Senator Hollings' office to support such a huge increase without justification so they are asking all of the SEAMAP partners to develop a new strategy for requesting funding. After discussion, the Subcommittee stated South Carolina has requested additional funding on their own and the Subcommittee feels that for them to go independently to Congress is not an appropriate strategy. It destroys the whole concept of the program. They feel each program should speak with their individual congressmen about additional funding for SEAMAP but for joint funding not for each individual state. R. Lukens suggested this should be discussed at the SEAMAP Joint Annual meeting in August. After further discussion, the Subcommittee agreed to put this on the agenda for the Joint Annual Meeting. The Subcommittee then discussed the decreased funding in fisheries for the southeast and discussed what they can do about it. R. Lukens suggested developing a group discussion paper about why increased funding is important. The Subcommittee decided to develop a paper and have this as an agenda item for the joint meeting also.

J. Rester reported a meetings was held at the NMFS in Pascagoula with Commission staff, the SEAMAP chairman and NMFS personnel to discuss problems with the SEAMAP database and the results of that meeting will be discussed under Agenda Item 5.

J. Rester stated that SEAMAP prints 250 atlases for \$4,500 and that cost is \$18.00 per atlas. He said we send 85 atlases to Congress and that seems very expensive for information they are not interested in or will not use. He suggested sending the atlas to congress on CD-ROM because it would be cheaper but they will still get the information. The Subcommittee agreed to put the atlas on CD-ROM and to also add pictures of the cruises. The Subcommittee asked J. Rester to do a cost analysis on how much it would cost to produce 150 atlases and how much it would cost to put the atlas on CD-ROM. The Subcommittee then decided to develop a questionnaire to accompany the 1998 Atlas asking recipients if they wish to keep receiving the atlas, and if so would they prefer the hard copy or CD-ROM.

Discussion of Business Objects Software/Review of SEAMAP Database File Structure/Update on SEAMAP Web Page

D. Donaldson informed the Subcommittee about a new software called Business Objects. He said they are using it with the FIN data management system and it is a query system which allows users to access data via the web. A contractor gave them a presentation on the software and stated any database can be linked to it. The software is a very powerful tool and he feels SEAMAP should also use it. One of the biggest problems with SEAMAP is accessing the data and with this software that will not be a problem. He asked the Subcommittee if they would be interested in providing SEAMAP data sets to the contractor and they will give a presentation of the software at the Joint Annual meeting. He said the first thing they need to do is to decide on the structure of the database because that relates to how the data gets linked.

D. Donaldson said that in reference to the meeting held at NMFS, some potential money was identified that can be utilized for the SEAMAP database. He said that they concluded the best utility

for extra money would be the development of a new data entry software because the existing program will not work with the new ORACLE format. He said they are going forward with an amendment to an existing grant to ask for extra funding to begin developing the data entry system for SEAMAP and to obtain the proper licensing for public access. As it is now only SEAMAP partners are able to access the data. He asked for the Subcommittee's approval to move forward with the data entry development and to give data to the Business Objects' personnel.

R. Waller asked when D. Donaldson will know if they received the funding and D. Donaldson said hopefully some time in May. M. McDuff informed the Subcommittee that the ASMFC has access to Business Objects and are already working on getting their data on the web. D. Donaldson said business objects will make accessing the SEAMAP data easier. S. Nichols suggested using all the data instead of a subset for the presentation. The Subcommittee agreed for D. Donaldson to move forward on this.

S. Nichols said another item discussed at the meeting at NMFS was to make a formal list of exactly what needs to be done to the SEAMAP database because this will help with justification of more funding. He made a "To Do" list for the system which is the actual file structure and then a "To Do" list for the data. The following is the To Do list for the system and he explained each item:

- Ensure the system supports the procedures we have to do.
- Need to finalize decisions on the system structure.
- Need to address the edit/audit structures and procedures.
- Need to set up multiple entry systems.
- Need to set up multiple access/retrieval systems.
- Documentation.

To do list for data:

- Identify true stations.
- Identify events to projects.
- Modify or document awkward conventions on data.
- Identify and correct errors.
- Provide 'higher level' information.

S. Nichols said he also comprised a list of common issues throughout the data that aren't specific to one agency, NMFS or one state:

- The variable contact of SEAMAP data is not consistent. Some list the field party chief and others list the data manager. The Subcommittee decided to have a field for the Party Chief.
- More discipline in typing names - there are quite a few misspellings.
- Put in longitude in the negative to aid in plotting.
- The source variable (US, LA, MS, AL, TX, FL) has minor inconsistency.

- He can not decipher the design intent of all the separate agencies for the fall 1985 and 1986 cruises so he will contact each Subcommittee member to get this information.
- The OP code = 9 shows up too frequently.
- Put descriptions of the vessels in the database, i.e. name, length, power, pull up to boat or stop to pull net to the boat, etc.
- Send all cruise reports to J. Rester.

M. McDuff said they do have a draft structure of the database on a newer machine and he explained to the Subcommittee the work they have done so far. He also distributed ORACLE Client 8 software to the Subcommittee so they can access the database. The software has a copy of SQL and a copy of the ODBC drivers for anyone who does not have ORACLE. He said they will have to call him to get a user ID and password before they start reviewing the program. He said M. Sestak with GSMFC will train the Subcommittee on SQL but after the web page is developed and they start using Business Objects they will not need to know SQL.

R. Waller said that he mentioned at the last meeting that he will be meeting with personnel from USM to discuss the development of the web page. He said they have not met and their involvement in the web page is moot now that we have access to the new software. He will discuss terminating their involvement but may ask them to help in the future with graphics or something else. M. McDuff discussed the different ways the data can be accessed through the Internet and then the web once the page is developed. He stated the metadata and the documentation will require the most work. The data is there, but it will take time to show users how to access the data.

M. McDuff then informed the Subcommittee about NESDES that will be located at Stennis Space Center. They are looking for environmental data for the Gulf of Mexico. They could also supply SEAMAP with equipment like CTDs and data analysis of previous environmental data. The Subcommittee will direct the Environmental Data Work Group to work on submitting a proposal to NESDES.

Other Business

S. Nichols said he has no new information on the budget. J. Hanifen said he went to the grants work shop in St. Petersburg and asked why their grant applications have not been processed. R. Liogys said they have had a turnover in their office, but SEAMAP is at the top of the list to be processed.

*** There being no further business J. Hanifen moved to adjourn. S. Heath seconded and the motion passed unanimously. The meeting adjourned at 4:40 p.m.**

SEAMAP Subcommittee Meeting
MINUTES
Savannah, Georgia
Thursday, August 3, 2000

Chairman Richard Waller called the meeting to order at 8:45 a.m. The following members and others were present:

Members:

Richard Waller, USM/IMS/GCRL, Ocean Springs, MS
Mark Leiby, FWC/FMRI, St. Petersburg, FL
Joanne Lyczkowski-Shultz, NMFS, Pascagoula, MS
Jim Hanifen, LDWF, Baton Rouge, LA
Terry Cody, TPWD, Rockport, TX
Steve Heath, ADCNR/MRD, Gulf Shores, AL

Others:

Kim Williams, FWC/FMRI, St. Petersburg, FL
Barbara Kojis, VIDPNR, St. Thomas, VI
Edgardo Ojeda, UPR-ROM/PR Sea Grant Program, San Juan, PR

Staff:

Dave Donaldson, GSMFC, Ocean Springs, MS
Jeff Rester, GSMFC, Ocean Springs, MS
Cheryl Noble, GSMFC, Ocean Springs, MS

Adoption of Agenda

J. Hanifen moved to adopt the agenda as submitted. T. Cody seconded it and it passed unanimously.

Approval of Minutes

J. Hanifen moved to approve the March 13, 2000 minutes as submitted. J. Shultz seconded and it passed unanimously.

Administrative Report

J. Hanifen noted that the 1998 SEAMAP Data Atlas had been completed and was distributed in April. The Spring Plankton Survey took place from April 18 to May 30 this year. This was the nineteenth year for the Survey and NMFS was the only participant in this year's Survey. J. Shultz noted that Florida did contribute to the survey through the participation of K. Williams (SAC Collections Manager) who served as a Watch Leader on the NMFS vessel. Due to the lack of funding, the

NMFS portion of the Reef Fish Survey was cancelled this year. A Subcommittee conference call was held in June to discuss unobligated SEAMAP funds in the Commission budget. The Subcommittee felt that the money could best be used to purchase electronic measuring boards for the states. The funds have been released to USM/IMS/GCRL to purchase the measuring boards. The Summer Shrimp/Groundfish Survey took place from June 5 to July 20 this summer. This was the nineteenth year for the Survey. Real-time shrimp distribution data was produced during the Survey.

Summary of 2000 Distribution of Shrimp Real-Time Data

J. Rester reported that for the first time in two years the shrimp real-time data was distributed. Seven weekly summaries were distributed to approximately 200 recipients and the information was also available on the Internet. The total cost for this distribution was approximately \$1,000. He said R. Leard (who was not present) wanted to discuss the future of real-time data distributions. He was concerned that it might not be worthwhile in terms of time and money to continue. J. Rester said that he received no negative comments on starting the distribution. R. Waller stated the e-mail system and the new software David Hanisko designed for the real-time data worked very well. The Subcommittee agreed to do a red snapper summary for this year as part of the Summer Shrimp/Groundfish Survey. J. Rester asked the Subcommittee to provide photos with photographs of red snapper and the catch during the fall survey to be used in SEAMAP presentations.

Atlas Survey Results

J. Rester reported the 1998 atlas was distributed in April to approximately 150 recipients. As directed by the Subcommittee, a postcard/questionnaire was mailed with the atlas asking recipients if they would like to receive the atlas on CD-ROM or hard copy. There were only twenty three responses. 17 votes were for CD-ROM and 6 were for hard copy (several cards indicated the recipients would like to receive both). He said it cost \$5,075.00 to print 250 of the 1998 atlases. It will cost approximately \$1,000.00 to print 150 copies. The GSMFC has a one-CD writer and it would take several days to print 150 CD's. It would cost under \$100.00 for the CDs and labels. A bulk-CD writer costs approximately \$2,200.00 and it may be possible for the GSMFC to purchase one. The Subcommittee asked J. Rester to ask the GSMFC office if they would be able to purchase a new bulk-CD writer.

The Subcommittee decided to print the next atlas on CD-ROM and hard copy. The CD-ROMs will be sent to the nontechnical people on the mailing list (such as the congressional delegation). The Subcommittee also decided to send an executive summary with the CD-ROM to include the atlas introduction text, the list of tables and figures, station location and sampling effort (first ten figures), end of season summary shrimp report, and instructions on how to use the CD. J. Rester will also incorporate photos of trawl surveys and other SEAMAP activities into an Acrobat presentation on the CD and this would also be referenced in the executive summary.

The Subcommittee asked J. Rester to put the 1998 Atlas on CD and to develop an executive summary and acrobat presentation to go with it. He will present this at the October meeting. It was suggested that he consult with Henry Norris at FMRI on how to set up the presentation for the CD because he has done several of these presentations. J. Shultz suggested revamping the verbiage of the introduction of the atlas for the executive summary, especially the discussion section, and she will work with J. Rester on this.

Status of Proposal to NESDES

J. Rester reported that at the last meeting the Subcommittee asked the Environmental Data Work Group to start developing a proposal to NESDES for analyzing the environmental data and possibly NESDES purchasing equipment for SEAMAP so they can provide more data to NESDES. He said Mark McDuff said NESDES was at Stennis now and had money but were not yet ready to receive proposals. M. McDuff will stay in contact with NESDES to inform the Subcommittee if and when they would start accepting proposals.

Status of FY2001 Budget

S. Nichols said he had not yet seen the Senate's budget but felt it would be level funded again. He said they have been trying to promote the program and the southeast for the last several years but it had not worked. He said SEAMAP is the Commissions and states to promote the program also.

M. Leiby informed the Subcommittee about the CARA proposal which would be funded by the oil industry and if it was passed the funds would be divided among the states and hopefully SEAMAP could receive supplemental funding through the CARA proposal would be dedicated to work in coastal areas and it would be fisheries and fisheries data related. There was a lot of opposition to the proposal. In discussion, the Subcommittee decided to follow the CARA proposal to see what happens and if it is passed, they will pursue funding.

Data Coordination Group Report

S. Nichols said they were working on switching over to the ORACLE structure. He said they have not switched over because they have not established an auditing system. He said they should be able to meet the request of the Council to use the state data in the next round of stock assessments.

J. Shultz and others were working to increase communication with the Archiving Center in reference to the change. She said M. Leiby, K. Williams and Pascagoula NMFS personnel will meet to discuss the transition of the new file structure for the plankton data.

R. Waller asked if there had been any progress with the biocode changes. M. Leiby said he and others have been working on this and were now putting together the literature that accompanies the

names of the species. M. Leiby then asked if the new codes would be used in the data management system. J. Shultz said yes and David Hanisko had been tasked by S. Nichols to merge the names into the system. Also, a historical record of the names would be kept in the ORACLE data base.

Activities and Budget Needs for FY2001

M. Leiby informed the group that Florida received state funding to sample for harmful algal blooms. He said they were in the negotiation process to sample for harmful algal blooms during the plankton cruises and with the extra funding hopefully they will be able to reinstate the plankton cruise and possibly add a summer and winter cruise. He will keep the Subcommittee informed of the situation.

T. Cody said that when they get the fourth quarter funding they will be able to complete all of their sampling. He said that by the end of the year they should have two vessels in the 55 ft. class available and if they get more funding in the future they will be able to do some new offshore work.

After discussion, all of the states agreed to try to do the same activities next year at level funding. The breakdown is as follows:

a. Florida	\$93,840.00
b. Alabama	68,000.00
c. Mississippi	94,495.00
d. Louisiana	120,700.00
e. Texas	54,800.00
f. NMFS	5,000.00
TOTAL	536,635.00

Approval of Shrimp/Groundfish Work Group Leader

S. Heath has been replaced by L. Hartman on the Shrimp/Groundfish Work Group. He was the work group leader so a new leader should be appointed. The Shrimp/Groundfish Work Group elected Butch Pellegrin and asked that he be approved as the leader. **S. Heath moved to accept B. Pellegrin as the Shrimp/Groundfish Work Group leader.** J. Shultz seconded it and it passed unanimously.

Implementation of Cooperative Agreements

The group reviewed the Operations Plan and the NMFS portion of the Cooperative Agreements and submitted changes to J. Rester. The changes will be made and mailed to the Subcommittee in the near future.

Other Business

Texas and Alabama will continue doing the reef fish trap video surveys.

K. Williams asked that if in the future more funds become available from GSMFC if SEAMAP could purchase a bench top fluorometer. R. Waller said this does not happen often and stated equipment purchases for SEAMAP are available to the entire SEAMAP program.

There being no further business, the meeting adjourned at 11:33 a.m.

Draft

APPENDIX B

2001 SEAMAP OPERATIONS PLAN

SEAMAP-GULF OF MEXICO

OPERATIONS PLAN

January 1, 2001 - December 31, 2001

INTRODUCTION

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

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

Organizations directly involved in planning and managing the Gulf's program are the marine fishery management agencies of Florida, Alabama, Mississippi, Louisiana, and Texas, the National Marine Fisheries Service (NMFS), the Gulf of Mexico Fishery Management Council (GMFMC) and the Gulf States Marine Fisheries Commission (GSMFC) which administers the Gulf program. Sea Grant Directors are also asked to attend and participate in SEAMAP-Gulf Subcommittee meetings.

A five year *Southeast Area Monitoring and Assessment Program (SEAMAP) Management Plan: 2001-2005* has been developed for the SEAMAP outlining goals and objectives; management structure and responsibilities; data collection activities along with management and dissemination of the data; and financial and personnel resources necessary for successful operation of the program. This Management Plan, along with the *1981 SEAMAP Strategic Plan* and *SEAMAP Management Plan: 1996-2000* should be considered as charter documents defining and guiding operations of the Gulf program. An external review of SEAMAP-Gulf and South Atlantic was performed in 1987, and endorsement of specific recommendations was adopted by consensus of the joint SEAMAP-Gulf Subcommittee and SEAMAP-South Atlantic Committee. These recommendations, as implemented, will guide activities and operations of SEAMAP-Gulf, as well as the South Atlantic and Caribbean components.

Five major goals were outlined in the *Southeast Area Monitoring and Assessment Program (SEAMAP) Management Plan: 2001-2005* and remain as key missions:

- (1) Collect long-term standardized fishery-independent data on the condition of regional living marine resources and their environment;
- (2) Cooperatively plan and evaluate SEAMAP-sponsored activities;

- (3) Identify and describe existing non-SEAMAP data bases and activities that are of value in fishery-independent assessments of regional living marine resources;
- (4) Operate the SEAMAP Information System for efficient management and timely availability of fishery-independent data and information; and
- (5) Coordinate and document SEAMAP activities, and disseminate programmatic information.

Each of these goals is implemented by several objectives requiring specific tasks and events, e.g. a Summer Shrimp/Groundfish Survey. By intent, some specific tasks may fulfill more than one objective. Each of the participants in the Gulf program receives a portion of the annual Congressional allocation to perform tasks associated with the goals. Participants also contribute significant in-kind support for activities.

The SEAMAP-Gulf and South Atlantic committees, meeting jointly in January 1988, accepted the Program Review recommendation to develop separate annual operations plans. This SEAMAP-Gulf Annual Operations Plan describes planned activities and events for the period January 1, 2001 through December 31, 2001. Detailed information on Gulf program objectives, activities, administrative procedures, data management protocols, information dissemination and funding requirements are found in the *Southeast Area Monitoring and Assessment Program (SEAMAP) Management Plan: 2001-2005*.

SURVEYS

Spring and Fall Plankton Surveys

The objectives of the spring and fall plankton surveys are to provide data on the distribution and abundance of eggs and larvae of commercial and recreational species such as bluefin tuna, mackerels, carangids, sciaenids and clupeids. Station locations are in a systematic grid across the northern Gulf in increments of 30 minutes latitude/longitude. Frontal satellite-determined boundary locations are also sampled during the spring survey.

Plankton samples will be taken with standard SEAMAP bongo and neuston samplers. The bongo sampler consists of two conical 61-cm nets with 333 micron mesh. Tows are oblique, surface to 5 m above the bottom (or 200 m maximum) and back to surface. Wire angle will be maintained at 45°. Neuston samples will be taken with 947 micron mesh nets on 1 x 2 meter frames towed at the surface for ten minutes. All plankton samples are to be initially preserved in 10% buffered formalin and after 48 hours transferred to 95% ethyl alcohol for final preservation. Hydrographic data at all stations will include at a minimum chlorophylls, salinity, temperature and dissolved oxygen, and water color, using the Forel-ule test.

Right bongo samples and neuston samples collected in 2001 from SEAMAP stations will be transshipped by the NMFS Pascagoula Laboratory to the Polish Sorting and Identification Center for sorting and identification, after which they will be returned to the SEAMAP Archiving Center at Florida Marine Research Institute in St. Petersburg, Florida. Left bongo and neuston samples from previous surveys are currently archived at the SEAMAP Invertebrate Plankton Archiving Center (SIPAC) housed at the USM/IMS Gulf Coast Research Laboratory in Ocean Springs, Mississippi.

Reef Fish Survey

The objectives of the survey are to:

- (1) assess relative abundance and compute population estimates of reef fish using a trap/video technique;
- (2) determine habitat using an echo sounder and video camera;
- (3) determine if bioacoustics assessment methodology can be applied to reef fish communities;
- (4) collect environmental data at each station; and
- (5) collect ichthyoplankton samples at selected reef sites.

The primary purpose of this survey is to assess the relative abundance and compute population estimates of reef fish. Stations are randomly-selected 100 m² sites which are designated as "reef areas". Data is collected using the trap/video methodology where a fish trap containing a video camera is deployed onto the selected reef site. Trap soak time is one hour. In addition, hydrographic and plankton data will be collected.

Summer Shrimp/Groundfish Survey

Objectives of this survey are to:

- (1) monitor size 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 GMFMC's Shrimp Fishery Management Plan;
- (3) provide information on shrimp and groundfish stocks across the northern Gulf of Mexico from inshore waters to 50 fm;

- (4) obtain length frequency measurements for major finfish, shrimp and other important invertebrate species to determine population size structures; and
- (5) collect ichthyoplankton samples to determine abundance and distribution of eggs and larvae of commercial and recreationally important species.

The sampling strategy will include sites chosen randomly in three areas (east of the Mississippi River, west of the River to the Texas-Louisiana border and off Texas) stratified by depth and statistical area. Trawls will be towed perpendicular to the depth contours and cover a specified depth stratum at each station. Plankton samples will be taken along a ½ degree grid system. Louisiana will take plankton samples at each trawl station.

Fall Shrimp/Groundfish Survey

Objectives of this survey will be to:

- (1) sample the northern Gulf of Mexico to determine abundance and distribution of white shrimp and other demersal organisms from inshore waters to 60 fm;
- (2) obtain length frequency measurements for major finfish, shrimp and other important invertebrate 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 plankton samples to determine relative abundance and distribution of eggs and larvae of commercial and recreationally important species.

Trawl sample stations and plankton sampling will be conducted as described for the Summer Shrimp/Groundfish Survey.

OPERATIONS

The following activities and events by participant comprise the SEAMAP-Gulf of Mexico operations schedule for the period January 1, 2001 to December 31, 2001:

Texas Parks and Wildlife Department

- (1) Summer Shrimp/Groundfish Survey: June, nearshore and offshore Texas waters
- (2) Fall Shrimp/Groundfish Survey: November, nearshore and offshore Texas waters
- (3) Reef Fish Survey: sampling in Texas waters

- (4) Adult Finfish Survey: March-May, nearshore Texas waters
- (5) Attend SEAMAP Subcommittee and work group meetings as scheduled and provide assistance to SEAMAP Subcommittee
- (6) Data inventory, entry, edit and transmit to mainframe all SEAMAP cruise information

Louisiana Department of Wildlife and Fisheries

- (1) Summer Shrimp/Groundfish Survey: July, nearshore and offshore Louisiana waters
- (2) Fall Shrimp/Groundfish Survey: October-November, nearshore and offshore Louisiana waters
- (3) Fall Plankton Survey: September, nearshore and offshore Louisiana waters
- (4) Winter Seasonal Shrimp/Groundfish Survey: November-December, nearshore and offshore Louisiana waters
- (5) Plankton sampling in conjunction with trawl surveys
- (6) Plankton sample sorting and identification
- (7) Attend SEAMAP Subcommittee and work group meetings as scheduled and provide assistance to SEAMAP Subcommittee
- (8) Process sediment and chlorophyll samples
- (9) Data inventory, entry, edit and transmit to mainframe all SEAMAP cruise information

University of Southern Mississippi/Institute of Marine Sciences/Gulf Coast Research Laboratory

- (1) Summer Shrimp/Groundfish Survey: June and July, Gulf waters
- (2) Fall Plankton Survey: September, nearshore and offshore Gulf waters
- (3) Fall Shrimp/Groundfish Survey: October, Gulf waters
- (4) Plankton sampling in conjunction with trawl surveys
- (5) SEAMAP Invertebrate Plankton Archiving Center operations

- (6) Attend SEAMAP Subcommittee and work group meetings as scheduled and provide assistance to SEAMAP Subcommittee
- (7) Data inventory, entry, edit and transmit to mainframe all SEAMAP cruise information

Alabama Department of Conservation and Natural Resources

- (1) Summer Shrimp/Groundfish Survey: June and July, nearshore Gulf waters
- (2) Fall Plankton Survey: September, nearshore Gulf waters
- (3) Fall Shrimp/Groundfish Survey: October-November, nearshore Gulf waters
- (4) Reef Fish Survey: sampling in nearshore Alabama waters
- (5) Plankton sampling in conjunction with trawl surveys
- (6) Quarterly estuarine shrimp/groundfish sampling
- (7) Attend SEAMAP Subcommittee and work group meetings as scheduled and provide assistance to SEAMAP Subcommittee
- (8) Data inventory, entry, edit and transmit to mainframe all SEAMAP cruise information

Florida Fish and Wildlife Conservation Commission

- (1) Spring Plankton Survey: May, nearshore/offshore Gulf waters off Florida
- (2) Fall Plankton Survey: September, nearshore/offshore Gulf waters
- (3) SEAMAP Archiving Center operations
- (4) Attend SEAMAP Subcommittee and work group meetings as scheduled and provide assistance to SEAMAP Subcommittee
- (5) Data inventory, entry, edit and transmit to mainframe all SEAMAP cruise information

National Marine Fisheries Service, Southeast Fisheries Science Center

- (1) Reef Fish Survey: July-August, offshore Gulf waters

- (2) Spring Plankton Survey: April-May, offshore Gulf waters
- (3) Summer Shrimp/Groundfish Survey: June-July, offshore Gulf waters
- (4) Fall Plankton Survey: September-October, offshore Gulf waters
- (5) Fall Shrimp/Groundfish Survey: October-November, offshore Gulf waters
- (6) Plankton sampling in conjunction with trawl surveys
- (7) SEAMAP Information System implementation and operations
- (8) Processing and transshipment of SEAMAP plankton samples to the Polish Sorting and Identification Center
- (9) Environmental sample processing
- (10) Real-time data processing
- (11) Attend SEAMAP Subcommittee and work group meetings as scheduled and provide assistance to SEAMAP Subcommittee

Gulf of Mexico Fishery Management Council

- (1) Attend SEAMAP Subcommittee and work group meetings as scheduled and provide assistance to SEAMAP Subcommittee
- (2) Annual review of fisheries-independent data needs

Gulf States Marine Fisheries Commission

- (1) Coordination of meetings for Subcommittee and work groups
- (2) Provision of SEAMAP-Gulf Coordinator, clerical and office support
- (3) Publication and distribution of SEAMAP Environmental and Biological Atlas, SEAMAP Marine Directory, SEAMAP Subcommittee Report to the GSMFC Technical Coordinating Committee, Real-time data summaries, minutes of Subcommittee meetings and co-production of the SEAMAP Joint Annual Report

- (4) Attend SEAMAP Subcommittee and work group meetings as scheduled and provide assistance to SEAMAP Subcommittee
- (5) Annual Operations Plan development

INFORMATION DISSEMINATION

Data produced from SEAMAP-Gulf of Mexico surveys and studies will be entered into the SEAMAP Information System, in accordance with procedures and protocols stated in the *Southeast Area Monitoring and Assessment Program (SEAMAP) Management Plan: 2001-2005*. User policies and procedures are also defined in this document.

The SEAMAP Archiving Center and SIPAC have the responsibility of maintaining SEAMAP specimens and samples, processing specimen requests and insuring that archiving and loans are carried out in accordance with guidelines and policies established by the SEAMAP Subcommittee. Specific duties and responsibilities of the curators are found in the *Southeast Area Monitoring and Assessment Program (SEAMAP) Management Plan 2001-2005*.

Documents to be produced in the period covered by this Annual Operations Plan are:

- (1) SEAMAP Annual Report, in conjunction with South Atlantic and Caribbean;
- (2) SEAMAP Subcommittee Report to the GSMFC Technical Coordinating Committee;
- (3) SEAMAP Marine Directory;
- (4) Minutes of Subcommittee meetings;
- (5) SEAMAP Environmental and Biological Atlas;
- (6) Annual Operations Plan;
- (7) Real-time Data Summaries of the Summer and Fall Shrimp/Groundfish Survey; and
- (8) Other pertinent documents deemed appropriate by the Subcommittee

ADMINISTRATION

Program administration is achieved through coordination by the SEAMAP-Gulf Subcommittee and work groups, the SEAMAP Coordinator, and the Gulf States Marine Fisheries Commission. General responsibilities are described below.

SEAMAP-Gulf of Mexico Subcommittee

The Subcommittee will convene for three regularly-scheduled meetings during 2001:

- (1) Spring meeting (in conjunction with the GSMFC Annual Spring Meeting): March;
- (2) Joint meeting (with SEAMAP-Caribbean & SEAMAP-South Atlantic): August; and
- (3) Fall meeting (in conjunction with the GSMFC Annual Fall Meeting): October.

Other meetings may be called at the discretion of the Chairman. Specific responsibilities of the Subcommittee and procedures of governance are described in the *Southeast Area Monitoring and Assessment Program (SEAMAP) Management Plan: 2001-2005*. Designated members for 2001 are:

Texas Parks and Wildlife Department:	Terry Cody
Louisiana Department of Wildlife and Fisheries:	James Hanifen
University of Southern Mississippi/ Institute of Marine Science/Gulf Coast Research Laboratory:	Richard Waller
Alabama Department of Conservation & Natural Resources:	Stevens Heath
Florida Fish and Wildlife Conservation Commission:	Mark Leiby
National Marine Fisheries Service:	Joanne Lyczkowski-Shultz
Gulf of Mexico Fishery Management Council:	Richard Leard (non-voting)

Work Groups

SEAMAP work groups are formed to assist in planning, coordinating and evaluating program activities. Members of work groups are invited to serve by the Subcommittee and do not have to be members of the Subcommittee. SEAMAP-Gulf work groups and membership for 2001 are:

ADULT FINFISH WORK GROUP

Terry Henwood, Leader
National Marine Fisheries Service
Pascagoula Laboratory

Billy Fuls
Texas Parks and Wildlife Department

Rick Leard
Gulf of Mexico Fishery Management Council

Mark Leiby
Florida Fish and Wildlife Conservation Commission

James Warren
University of Southern Mississippi
Institute of Marine Sciences
Gulf Coast Research Laboratory

John Roussel
Louisiana Department of Wildlife and Fisheries

Joanne Lyczkowski-Shultz
National Marine Fisheries Service
Pascagoula Laboratory

Robert Shipp
University of South Alabama

DATA COORDINATING WORK GROUP

Mark McDuff, Leader
SEAMAP Data Manager
National Marine Fisheries Service
Pascagoula Laboratory

Butch Pellegrin
National Marine Fisheries Service
Pascagoula Laboratory
Shrimp/Groundfish Work Group

Mike Murphy
Florida Fish and Wildlife Conservation Commission
Red Drum Work Group

Terry Henwood
National Marine Fisheries Service
Pascagoula Laboratory
Adult Finfish Work Group

Richard Waller
University of Southern Mississippi
Institute of Marine Sciences
Gulf Coast Research Laboratory
Chairman, SEAMAP Subcommittee/
Reef Fish Work Group

Joanne Lyczkowski-Shultz
National Marine Fisheries Service
Pascagoula Laboratory
Plankton Work Group

Terry Romaine
Louisiana Department of Wildlife and Fisheries
Environmental Data Work Group

ENVIRONMENTAL DATA WORK GROUP

Terry Romaine, Leader
Louisiana Department of Wildlife and Fisheries

Mark Van Hoose
Alabama Department of Conservation and Natural
Resources

Pascagoula Laboratory

Rob Ford
National Marine Fisheries Service
Pascagoula Laboratory

Joanne Lyczkowski-Shultz
National Marine Fisheries Service
Pascagoula Laboratory

Thomas Leming
National Marine Fisheries Service

Kim Williams
Florida Fish and Wildlife Conservation Commission

Richard Waller

PLANKTON WORK GROUP

Joanne Lyczkowski-Shultz, Leader
National Marine Fisheries Service
Pascagoula Laboratory

Alonzo Hamilton
National Marine Fisheries Service
Pascagoula Laboratory

Harriet Perry
University of Southern Mississippi
Institute of Marine Sciences
Gulf Coast Research Laboratory

Ken Edds
Louisiana Department of Wildlife and Fisheries

Ken Stuck, Curator
SEAMAP Invertebrate Plankton Archiving Center
University of Southern Mississippi
Institute of Marine Sciences
Gulf Coast Research Laboratory

Don Hoss
National Marine Fisheries Service
Beaufort Laboratory

Mark Leiby
Florida Fish and Wildlife Conservation Commission

Mark Benefield
Louisiana State University

RED DRUM WORK GROUP

Mike Murphy, Leader
Florida Fish and Wildlife Conservation Commission

James Warren
University of Southern Mississippi
Institute of Marine Sciences
Gulf Coast Research Laboratory

Joanne Lyczkowski-Shultz
National Marine Fisheries Service
Pascagoula Laboratory

Joseph Shepard
Louisiana Department of Wildlife and Fisheries

Larry McEachron
Texas Parks and Wildlife Department

Mark Van Hoose
Alabama Department of Conservation and Natural Resources

REEF FISH WORK GROUP

Richard Waller, Leader
University of Southern Mississippi
Institute of Marine Sciences
Gulf Coast Research Laboratory

Billy Fuls
Texas Parks and Wildlife Department

Pascagoula Laboratory

Chris Gledhill
National Marine Fisheries Service

Richard Kasprzak
Louisiana Department of Wildlife and Fisheries

Mark Leiby
Florida Fish and Wildlife Conservation Commission

Jim Duffy
Alabama Department of Conservation and Natural
Resources

SHRIMP/GROUNDFISH WORK GROUP

Butch Pellegrin, Leader
National Marine Fisheries Service
Pascagoula Laboratory

Billy Fuls
Texas Parks and Wildlife Department

Ken Edds
Louisiana Department of Wildlife and Fisheries

Bruce Comyns
USM/IMS/Gulf Coast Research Laboratory

Nate Sanders
National Marine Fisheries Service
Pascagoula Laboratory

Leslie Hartman
Alabama Department of Conservation
and Natural Resources