# ANNUAL REPORT

**TO THE**

**TECHNICAL COORDINATING COMMITTEE**

**GULF STATES MARINE FISHERIES COMMISSION**

**OCTOBER 1, 1998 TO SEPTEMBER 30, 1999**

**SEAMAP Subcommittee**

**Richard S. Waller, Chairman**

**Jeffrey K. Rester**

**SEAMAP Coordinator**

**September 30, 1999** **GSMFC No: 69**

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# 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 1985-1999 (October 1 through September 30). State and Gulf States Marine Fisheries Commission (GSMFC) funding allocations for FY1985-FY1999 were handled through State/Federal cooperative agreements, administered by SERO and the Southeast Fisheries Science Center (SEFSC), National Marine Fisheries Service (NMFS).

In FY1999, SEAMAP operations continued for the eighteenth 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 FY1999 activities included SEAMAP information services and program management.

This report is the sixteenth 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 FY1999 and proposed SEAMAP activities for FY2000.

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

# FY1999 SEAMAP RESOURCE SURVEYS

In FY1999, collection of resource survey information continued for the eighteenth 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 1986-1998 covered Gulf waters from Florida Bay to Brownsville, Texas. Due to bad weather in the fall of 1998, most of the Fall Plankton survey was canceled. A total of 59 stations was sampled by the R/V TOMMY MUNRO, R/V PELICAN, and the R/V VERRILL. These samples were collected from September 22 to October 6, 1998.

**Fall Shrimp/Groundfish Survey**

The Fall Shrimp/Groundfish Survey was conducted from October 11, 1998 to November 20, 1998 from off Mobile, Alabama to the U.S.-Mexican border. Vessels sampled waters out to 60 fm, covering 326 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 195 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 22 stations south of Mississippi Sound along a 30-minute grid. The R/V PELICAN sampled 21 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 41 stations was sampled with bongo and/or neuston nets, as encountered along cruise tracks. NMFS completed 29 ichthyoplankton stations, Mississippi completed 2 stations, and Louisiana completed 10 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.

**Spring Plankton Survey**

For the eighteenth year, plankton samples were collected during the spring in the northern Gulf of Mexico. The NOAA Ship CHAPMAN sampled offshore waters from the western edge of the West Florida Shelf to the Texas-Louisiana border from April 23 to June 1, 1999. A total of 184 stations was sampled. Florida's portion of the spring plankton survey was canceled this year. This was 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 for this year, at least, 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 1999, 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 1999 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 to July 19, 1999.

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 1982-1998 have been entered into the system and data from 1999 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 227 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 1999:

- 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 1997 and 1998 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 in the past was the processing of catch data from the Summer Shrimp/Groundfish Survey as near-real-time data. Data were transmitted three times weekly via cellular phone to the NMFS Mississippi Laboratories from the NOAA vessel, while the states' data were entered into the system weekly. Plots of station locations and catch rates of

shrimp, squid and dominant finfish species were prepared and edited at the NMFS Mississippi Laboratories, and processed by GSMFC for weekly distribution to management agencies, fishermen, processors and researchers. 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.

Due to the cancellation of near-real-time data distribution during the Summer Shrimp/Groundfish Survey in 1998, the SEAMAP Subcommittee decided to produce near-real-time data for the Fall Shrimp/Groundfish Survey. This was the first time the data were distributed during the fall. 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.

In January of 1999, the Gulf of Mexico Fishery Management Council asked the NMFS to not produce the near-real-time data during the 1999 survey. At their request, no near-real-time data were produced or distributed in the summer of 1999.

**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 1999, 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 received 20,691 lots from the Polish Sorting and Identification Center during 1999.

The SEAMAP Archiving Center, which is managed in conjunction with Florida Fish and Wildlife Conservation Commission (FFWCC) 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 fifteenth 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. Due to a reduction in available support, the SIPAC technical position was not filled during this reporting period and it is not anticipated that it will be filled in the next fiscal year. Therefore, activities were limited to maintenance and curation of the existing collection. The number of samples currently catalogued in the SIPAC collections is 6,947, with 153 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 7 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 NMFS-Pascagoula for reuse. To date, approximately 1,600 samples collected from 1982 - 1986 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 1986 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 1998 and March 1999, 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 1999 to discuss respective program needs and priorities for FY2000.

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 1999. 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 2000 Activities**

Preliminary 2000 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 2000. At this level, the share to be allocated for SEAMAP-Gulf activities (including GSMFC) will be $512,403.

Proposed 2000 activities for all Gulf participants are shown in Table 4. The approved 2000 Operations Plan for SEAMAP-Gulf is contained in Appendix B.

**Information Dissemination**

The following documents were published and distributed in 1999:

- *1999 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.

- *SEAMAP Subcommittee Report to the GSMFC Technical Coordinating Committee -October 1, 1998 to September 30, 1999.* 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, 1998 to September 30, 1999.* A summary of FY1999 activities and proposed FY2000 events for the SEAMAP-Gulf, South Atlantic, and Caribbean Programs.

- *Environmental and Biological Atlas of the Gulf of Mexico, 1997.* A compilation of information obtained from the 1997 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.

## FY1999 Financial Report

Total allocations for FY1999 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, 1999.

**TABLE 1.**

**SEAMAP REPRESENTATIVES FOR FY1999**

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 1999**

ADULT FINFISH WORK GROUP

Terry Henwood
National Marine Fisheries Service
Pascagoula Laboratory

Billy Fuls
Texas Parks and Wildlife Department

Mark Leiby
Florida Fish and Wildlife Conservation Commission

John Roussel
Louisiana Department of Wildlife and Fisheries

Robert Shipp
University of South Alabama

Rick Leard
Gulf of Mexico Fishery Management Council

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

Joanne Lyczkowski-Shultz
National Marine Fisheries Service
Pascagoula Laboratory

DATA COORDINATING WORK GROUP

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

Stevens Heath
Alabama Department of Conservation and Natural Resources
Shrimp/Groundfish Work Group

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

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

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

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

## ENVIRONMENTAL DATA WORK GROUP

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

Terry Romaire
Louisiana Department of Wildlife and Fisheries

## 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

Joseph Shepard
Louisiana Department of Wildlife and Fisheries

Mark Van Hoose
Alabama Department of Conservation and Natural Resources

Joanne Lyczkowski-Shultz
National Marine Fisheries Service
Pascagoula Laboratory

Larry McEachron
Texas Parks and Wildlife Department

## 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

Chris Gledhill
National Marine Fisheries Service
Pascagoula Laboratory

Richard Kasprzak
Louisiana Department of Wildlife and Fisheries

Mark Leiby
Florida Fish and Wildlife Conservation Commission

Mark Van Hoose
Alabama Department of Conservation and Natural Resources

SHRIMP/GROUNDFISH WORK GROUP

Stevens Heath, Leader
Alabama Department of Conservation and Natural Resources

Billy Fuls
Texas Parks and Wildlife Department

Ken Edds
Louisiana Department of Wildlife and Fisheries

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

Butch Pellegrin
National Marine Fisheries Service
Pascagoula Laboratory

Nate Sanders
National Marine Fisheries Service
Pascagoula Laboratory

## TABLE 3.

## PRELIMINARY 1999 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, 2000

| | Fall | Winter | Spring | Summer |
|---|---|---|---|---|
| **Resource Surveys:** | | | | |
| Spring Plankton Survey | | | X | |
| Shrimp/Groundfish Surveys | X | | | X |
| Louisiana Seasonal Surveys | X | X | 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 1998 AND 1999 SEAMAP MEETINGS

# APPENDIX B

# 2000 SEAMAP OPERATIONS PLAN

**SEAMAP-GULF OF MEXICO**
**OPERATIONS PLAN**
January 1, 2000 - December 31, 2000

## 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: 1996-2000* 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*, *SEAMAP Operations Plan: 1985-1990 and SEAMAP Management Plan: 1985-1990* 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: 1996-2000* 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, 2000 through December 31, 2000. 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: 1996-2000.*

**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 2000 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 $m^2$ 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, 2000 to December 31, 2000:

Texas Parks and Wildlife Department

(1) Summer Shrimp/Groundfish Survey: June-July, nearshore and offshore Texas waters

(2) Fall Shrimp/Groundfish Survey: November, nearshore and offshore 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) Plankton sampling in conjunction with trawl surveys

(2) Plankton sample sorting and identification

(3) Attend SEAMAP Subcommittee and work group meetings as scheduled and provide assistance to SEAMAP Subcommittee

(4) Process sediment and chlorophyll samples

(5) 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: November, 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: 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: 1996-2000*. 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 1996-2000*.

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 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.

<u>SEAMAP-Gulf of Mexico Subcommittee</u>

The Subcommittee will convene for three regularly-scheduled meetings during 1999:

(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: 1996-2000.* Designated members for 2000 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 2000 are:

ADULT FINFISH WORK GROUP

Terry Henwood
National Marine Fisheries Service
Pascagoula Laboratory

Billy Fuls
Texas Parks and Wildlife Department

Mark Leiby
Florida Fish and Wildlife Conservation Commission

John Roussel
Louisiana Department of Wildlife and Fisheries

Robert Shipp
University of South Alabama

Rick Leard
Gulf of Mexico Fishery Management Council

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

Joanne Lyczkowski-Shultz
National Marine Fisheries Service
Pascagoula Laboratory

DATA COORDINATING WORK GROUP

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

Stevens Heath
Alabama Department of Conservation and Natural Resources

Shrimp/Groundfish Work Group

Terry Henwood

National Marine Fisheries Service
Pascagoula Laboratory
Adult Finfish Work Group

Mike Murphy
Florida Fish and Wildlife Conservation Commission
Red Drum 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

ENVIRONMENTAL DATA WORK GROUP

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

Terry Romaire
Louisiana Department of Wildlife and Fisheries

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

Joseph Shepard
Louisiana Department of Wildlife and Fisheries

Joanne Lyczkowski-Shultz
National Marine Fisheries Service
Pascagoula Laboratory

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

Chris Gledhill
National Marine Fisheries Service
Pascagoula Laboratory

Richard Kasprzak
Louisiana Department of Wildlife and Fisheries

Mark Leiby
Florida Fish and Wildlife Conservation Commission

Mark Van Hoose
Alabama Department of Conservation and Natural Resources

SHRIMP/GROUNDFISH WORK GROUP

Stevens Heath, Leader
Alabama Department of Conservation and Natural Resources

Billy Fuls
Texas Parks and Wildlife Department

Ken Edds
Louisiana Department of Wildlife and Fisheries

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

Butch Pellegrin
National Marine Fisheries Service
Pascagoula Laboratory

Nate Sanders
National Marine Fisheries Service
Pascagoula Laboratory

SEAMAP work groups will meet as determined by work group leaders. Specific responsibilities of the work groups are described in the *Southeast Area Monitoring and Assessment Program (SEAMAP) Management Plan: 1996-2000.*

## SEAMAP-Gulf Coordinator

The Coordinator's primary responsibility is to assist the Subcommittee in ensuring that the SEAMAP-Gulf component functions efficiently and satisfies user requirements. The *Southeast Area Monitoring and Assessment Program*

*(SEAMAP) Management Plan: 1996-2000,* schedule of events, survey plans, and GSMFC directives constitute the basic documents by which the Coordinator monitors program status, coordinates Subcommittee meetings and operations, anticipates potential problems, and initiates corrective action. Specific responsibilities of the Coordinator are described in the *Southeast Area Monitoring and Assessment Program (SEAMAP) Management Plan: 1996-2000.*

Gulf States Marine Fisheries Commission

Planning and funds disbursement for authorized SEAMAP-Gulf administrative activities (travel meetings, publications, information dissemination, etc.) are administered by the Gulf States Marine Fisheries Commission under a NMFS/GSMFC Cooperative Agreement, and in accordance with this Annual Operations Plan, GSMFC policies, and Department of Commerce/National Oceanic and Atmospheric Administration policies and procedures.