

ANNUAL REPORT

of the

SOUTHEAST AREA MONITORING
AND ASSESSMENT PROGRAM

(SEAMAP)

October 1, 1984 - September 30, 1985

SEAMAP - Gulf of Mexico

Gulf States Marine Fisheries Commission

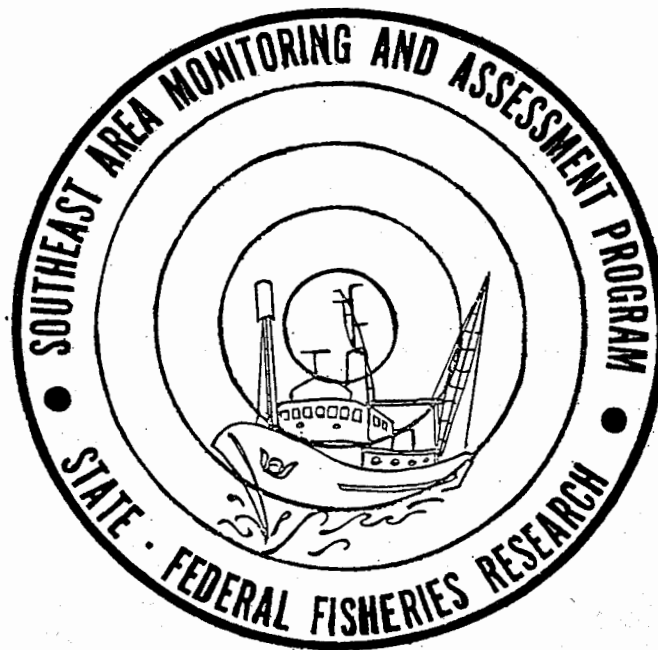
SEAMAP - South Atlantic

Atlantic States Marine Fisheries Commission

October 5, 1985

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Gulf States Marine Fisheries Commission
Atlantic States Marine Fisheries Commission

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ANNUAL REPORT of the Southeast Area Monitoring and Assessment Program (SEAMAP)

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FY1985 PROGRAM HIGHLIGHTS:

- Texas closure evaluated with SEAMAP shrimp data
- Cooperative fishery development survey conducted for Gulf butterflyfish
- 2500 square mile hypoxic area detected off Louisiana
- 260,000 fish larvae and eggs readied for research loans
- 1982-83 survey data computerized for management and research use
- South Atlantic Operations Plan completed

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 two operational components, SEAMAP-Gulf of Mexico, which began in 1981, and SEAMAP-South Atlantic, implemented in 1983. A third component, SEAMAP-Caribbean, is in the planning phase. The history, conceptual framework and program organization, goals, and activities of the Gulf and South Atlantic components are detailed in each program's five-year Operations Plan and Operations Plan Executive Summary.

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). Agencies and organizations directly involved with the Program are shown on Table 1.

Federal programmatic funding for SEAMAP activities and administration was appropriated in Fiscal Year 1985 (October 1, 1984 through September 30, 1985). State and commission funding allocations were handled through State-Federal cooperative agreements, administered by NMFS/SERO. Program allocations are shown in Figure 1.

The first joint meeting of the Gulf and South Atlantic components was held in October 1984, and

resulted in a decision to publish a cooperative annual program report for FY85. Presented here, accordingly, is a summary of SEAMAP operations, administrative activities and publications in FY85 and proposed activities for FY86.

PROGRAM MANAGEMENT

Activities and operations of each SEAMAP component are wholly defined by the respective managing units: the SEAMAP-Gulf Subcommittee of the Gulf States Marine Fisheries Commission's Technical Coordinating Committee, and the SEAMAP-South Atlantic Committee of the Atlantic States Marine Fisheries Commission's South Atlantic Board. These committees consist of designated representatives from each member State and the National Marine Fisheries Service (Mississippi Laboratories), and in the case of the South Atlantic program, the South Atlantic Fishery Management Council. They meet several times yearly to review operations, examine priorities and plan future activities. Daily operations are carried out by the respective SEAMAP Coordinators, assisted by staffs of the two commissions, and personnel associated with the SEAMAP Information System, SEAMAP Archiving Center, and SEAMAP Invertebrate Plankton Archiving Center.

SEAMAP - Gulf of Mexico

Major SEAMAP-Gulf Subcommittee meetings were held in October 1984 and March 1985, in conjunction with the Annual Fall and Spring Meetings

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TABLE 1.
SEAMAP ORGANIZATION

Program	Administering Organization	Participating Agencies
SEAMAP-Gulf of Mexico	Gulf States Marine Fisheries Commission (GSMFC)	Alabama Department of Conservation and Natural Resources (ADCNR) Florida Department of Natural Resources (FDNR) Louisiana Department of Wildlife and Fisheries (LDWF) Mississippi Department of Wildlife (MDWC/GCRL) Texas Parks and Wildlife Department (TPWD) National Marine Fisheries Service - Southeast Fisheries Center (NMFS-SEFC)
SEAMAP-South Atlantic	Atlantic States Marine Fisheries Commission (ASMFC)	Florida Department of Natural Resources (FDNR) Georgia Department of Natural Resources (GDNR) South Carolina Wildlife and Marine Resources Department (SCWMRD) North Carolina Department of Natural Resources and Community Development (NCDNRCD) National Marine Fisheries Service - Southeast Fisheries Center (NMFS-SEFC) South Atlantic Fishery Management Council (SAFMC)
SEAMAP-Caribbean		Commonwealth of Puerto Rico United States Virgin Islands Territory

of the Gulf States Marine Fisheries Commission. Resource survey planning meetings of the Subcommittee were held in January and August 1985; all meetings included participation by the several work group leaders, Data Manager, curators, and the GSMFC Executive Director.

All SEAMAP-Gulf work groups also met this past year, charged specifically with providing recommendations to the Subcommittee for survey and data management plans. The Red Drum Work Group met in November 1984; the Shrimp/Groundfish Work Group in February 1985; the Environmental Data Work Group in February 1985; the Data Coordinating Work Group jointly with the SEAMAP-South Atlantic Data Management Work Group in March 1985; the Squid/Butterfish Work Group in June 1985; and the Plankton Work Group in August 1985.

Coordinating program surveys and distributing quick-report summaries of two Gulf-wide surveys to management agencies and industry were major functions of SEAMAP-Gulf management in FY85. 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.

SEAMAP - South Atlantic

Major SEAMAP-South Atlantic Committee meetings were held in October 1984 and February 1985. Additional committee meetings to review planning

documents and plan future activities were held in December 1984, and May and August 1985; the latter included representatives from SEAMAP-Gulf in discussions of appropriate FY86 program activities.

SEAMAP-South Atlantic work groups also had an active meeting schedule during the year, developing survey plans and other project requirements for review by the Committee. The Data Management Work Group met in January and March 1985 (the latter jointly with SEAMAP-Gulf's Data Coordinating Work Group); the Trawl Calibration Work Group in January and February 1985; the Bottom Mapping Work Group in January and March 1985.

In addition to program planning, major management functions of SEAMAP-South Atlantic this year included distribution of the SEAMAP-South Atlantic Operations Plan, as well as preparation and distribution of the Executive Summary of the Operations Plan. Also, guidance was provided to the work groups for preparing project requirements and assisting in the development of State-Federal cooperative agreements. In June 1985, the Chairperson of the Committee briefed ASMFC Commissioners and the Advisory Committee on the current status of SEAMAP-South Atlantic.

RESOURCE SURVEYS

In 1985, collection of resource survey information continued for the fourth consecutive year. Surveys by each program component reflect distinct regional needs and priorities; however, survey operations in one geographic area often provide

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information useful to researchers in both regions. For instance, this year's Trawl Gear Calibration Study in the South Atlantic should be useful in SEAMAP-Gulf calibration efforts, and, conversely, SEAMAP-Gulf plankton surveys produce a wealth of material useful to South Atlantic fishery researchers. Because of the diverse scope and target species involved in the program's survey operations, activities are discussed here by geographic region.

SEAMAP - Gulf of Mexico

• Shrimp/Groundfish Surveys

As designed by the Shrimp/Groundfish Work Group, 225 stations were sampled from June 10-July 18, 1985 in this fourth consecutive year of the Summer Shrimp/Groundfish Trawl Survey. State vessels sampled nearshore waters from Perdido Bay, Alabama to Brownsville, Texas while a NOAA vessel surveyed offshore waters to 50 fm (300 ft) in the northern Gulf. Catch rates and length-frequencies of penaeid shrimp and finfish, standardized to a 40-ft shrimp trawl, were determined for each station. Five sets of weekly quick-report (near real-time) data summaries and catch rate plots were distributed to management agencies and more than 225 fishermen, processors and researchers.

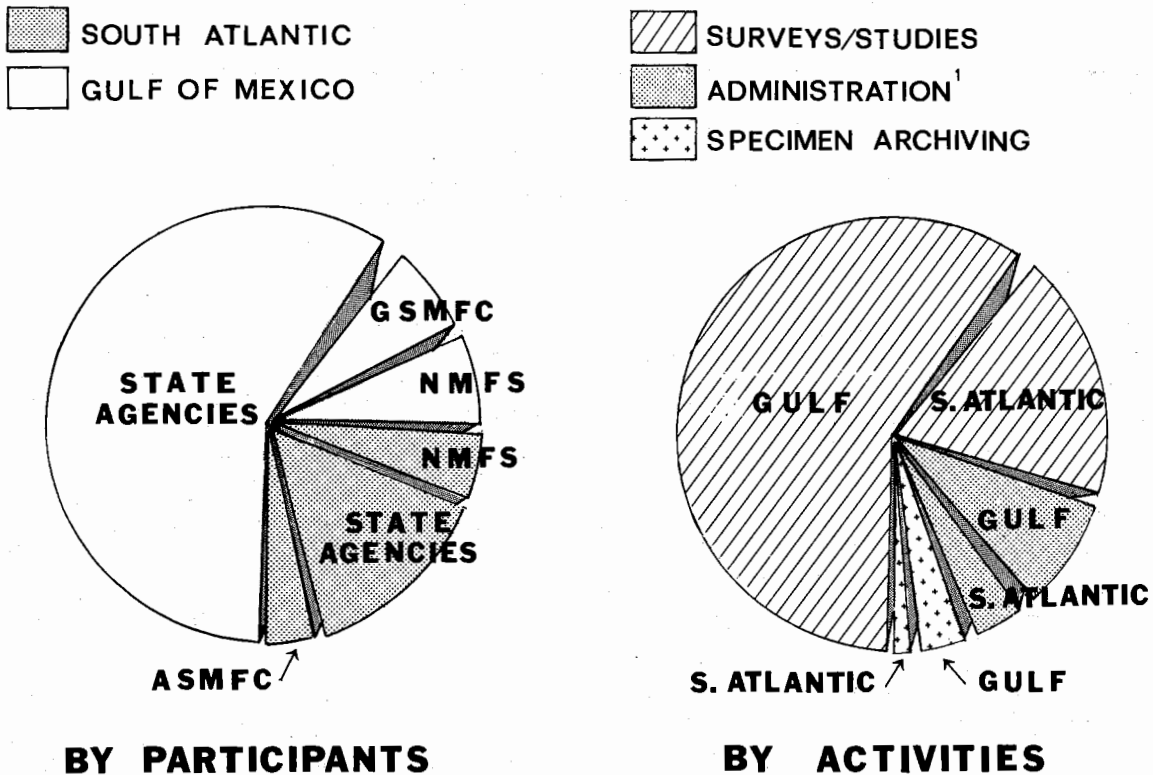
Seasonal trawling surveys were also conducted by Louisiana to provide comparative information, through day and night sampling, on shrimp and groundfish resources in Louisiana and adjacent FCZ waters, to 15 fm (90 ft). Plankton samples and environmental data were collected at all stations during these surveys.

Additionally, a preliminary evaluation of ship-versus-laboratory (shoreside) measured weights of selected trawl-caught species was made during the summer survey to assess the accuracy of shipboard weighing procedures. The study concluded that present procedures are generally reliable, although significant individual differences were found to occur when a very few small organisms were weighed.

• Coastal Herring Survey

A survey to locate trawlable concentrations of coastal herrings and evaluate fishing gear for this resource was conducted from January 1-February 8, 1985. Thirty-five tows were made (14 with a midwater trawl and 21 with a high-opening bottom trawl), at depths from 46-198 fm (276-1188 ft), by a NOAA vessel. The area surveyed encompassed offshore waters west of Tampa Bay, Florida to the mouth of the Mississippi River. Concomitant acoustic recordings were made during the survey to assess behavior patterns of target species.

FIGURE 1
FY85 SEAMAP APPROPRIATED FUNDS



¹ INCLUDES TRAVEL (COMMITTEE, WORK GROUPS, ADMINISTRATION), PUBLICATIONS, PROGRAM COORDINATION.


FIGURE 2 FY85 SEAMAP SURVEYS

 WINTER COASTAL
HERRING SURVEY

 FALL LARVAL
RED DRUM SURVEY

 SPRING BENTHIC
RESOURCES SURVEY

 SEASONAL DAY/NIGHT
SHRIMP SURVEYS

 SUMMER SHRIMP/GROUNDFISH
SURVEY

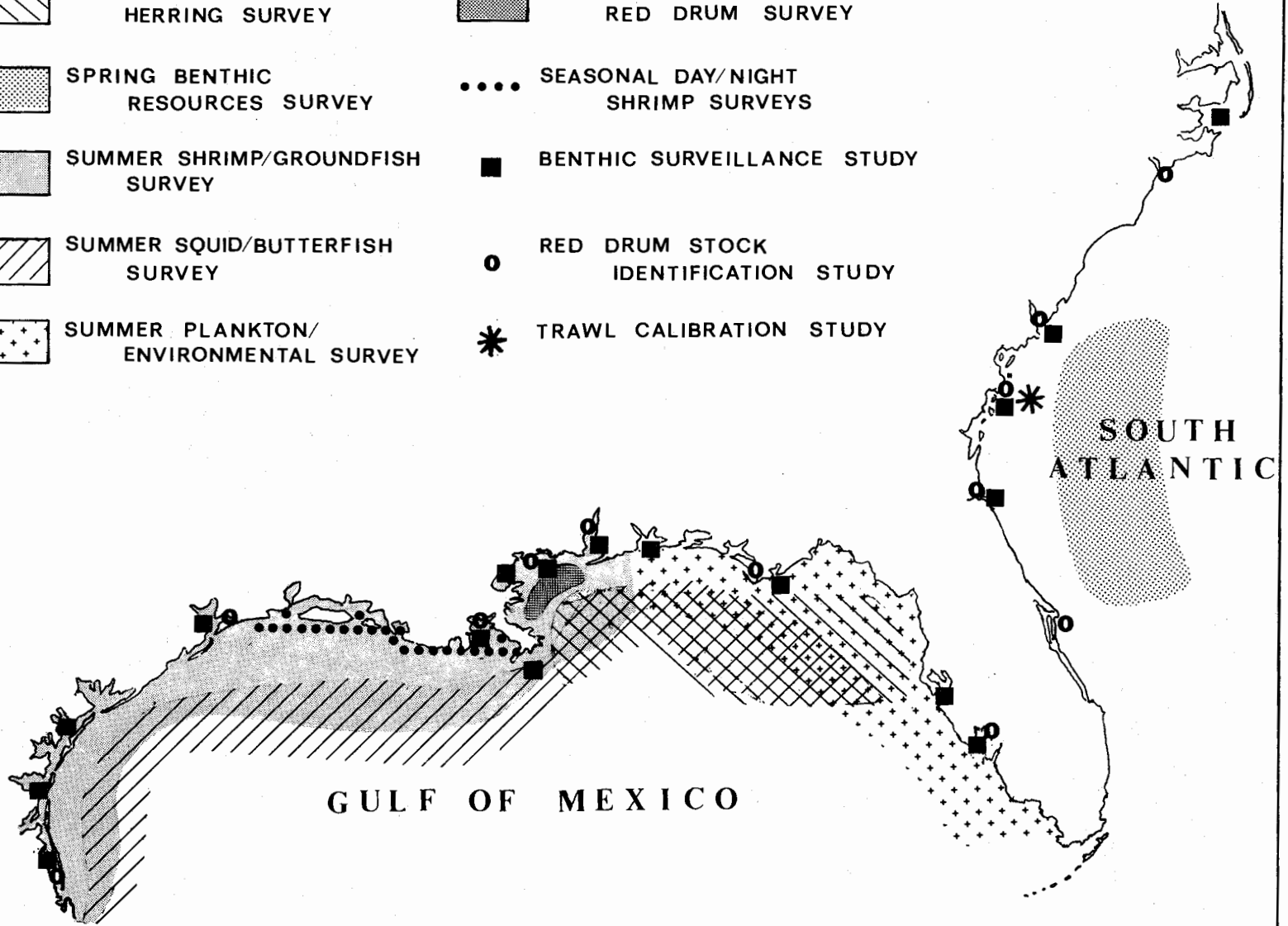
 BENTHIC SURVEILLANCE STUDY

 SUMMER SQUID/BUTTERFISH
SURVEY

 RED DRUM STOCK
IDENTIFICATION STUDY

 SUMMER PLANKTON/
ENVIRONMENTAL SURVEY

 TRAWL CALIBRATION STUDY



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• Summer Squid/Butterfish Survey

The rapid implementation of the Summer Squid/Butterfish Survey illustrates one of the major advantages of the SEAMAP Program: the pre-existing mechanism for coordinating region-wide survey activities. In this case, the newly-formed Squid/Butterfish Work Group met in mid-June and recommended a preliminary sampling plan, which was approved by the Subcommittee. Stations were generated, gear purchased and evaluated (special 80-ft trawl nets with 1/2-ton steel V-doors) and a data management system established to process quick-reports of survey data for distribution to management agencies and others interested in potential new Gulf fisheries. A total of 150 stations was made, at depths from 20-265 fm (120-1590 ft) from July 29-August 28, 1985. The GCRL research vessel was chartered by Florida, Alabama, Mississippi and Louisiana to assess stocks of squid and butterfish off their coasts while a NOAA vessel sampled the deeper waters from Tampa, Florida to Brownsville, Texas. In spite of difficult weather conditions, including Hurricane Danny, stocks of squid and butterfish were assessed as a continuation of recent exploratory surveys in the Gulf. An important outcome was the recommendation for a SEAMAP Spring Squid/Butterfish Cruise in FY86.

• Larval Red Drum Survey

As part of SEAMAP's continuing interest in assessing stocks and recruitment of red drum (*Sciaenops ocellata*), Mississippi is conducting a fall survey to collect larval red drum and analyze patterns of distribution, abundance, and species complexes associated with these larvae. Approximately 670 samples are being taken in nearshore Mississippi waters with a Tucker plankton trawl. After removal of drum larvae, samples will be sent to the Polish Sorting Center to sort the remaining families.

• Plankton and Environmental Data Surveys

For the fourth year, plankton samples and environmental data were collected routinely during SEAMAP surveys. During the Summer Shrimp/Groundfish Survey, 90 plankton tows were piggybacked on the vessels, sampling randomly-generated stations across the northern and western Gulf, while Florida conducted an extensive plankton/environmental data survey in its territorial and adjacent FCZ waters. Samples were taken with a 60-cm bongo array and standard NMFS neuston net. A similar series of bongo and neuston tows was also made during the Squid/Butterfish Survey. Samples from one side of all bongo tows were shipped to the NMFS-Miami Lab for transshipment to Poland, where they will be sorted to the family level at the Polish Sorting Center; the other sample from each station is retained as a back-up in the event of damage or loss of the specimens sent to Poland.

Several environmental parameters were measured at each SEAMAP station: temperature, salinity, and oxygen levels from surface, middepth and bottom waters; wind direction and

speed. Measurements were made with a variety of instruments: expendable bathythermographs, conductivity-temperature-depth meters, dissolved oxygen meters and salinometers. Additional water samples were filtered and stored onboard the vessels for later laboratory analysis of chlorophyll *a* by NMFS, FDNR and Louisiana State University (LSU).

In part over concern for the reliability of past environmental data, the Environmental Data Work Group met in March to conduct a workshop on the variability of chlorophyll and salinity data from SEAMAP surveys, and to instruct State and Federal participants in a standardized method for analyzing these parameters.

Scientists and the shrimp industry have been especially interested in summer SEAMAP quick-reports showing areas of low dissolved bottom oxygen (hypoxia) in the northern Gulf. This year's Summer Shrimp/Groundfish Survey was especially noteworthy in discovering the largest hypoxic area yet found in the region, covering more than 2500 square miles of Louisiana offshore waters; special news releases were distributed in response to widespread interest in the phenomenon and its effect on the Gulf shrimp fishery.

SEAMAP - South Atlantic

• Bottom Mapping Survey

The Bottom Mapping Work Group developed objectives and a recommended set of procedures for implementing the bottom mapping project. The Committee reviewed the project in March and selected the Division of Marine Fisheries, NCDNRCD, to administer the project, with Duke University to conduct most of the work.

The project goal is to develop procedures for establishing a long-term data base to identify bottom types and associated communities in the South Atlantic. Specific objectives include: (1) defining user needs of resource management agencies concerned with hard bottom resources; (2) identifying types of physical and biological data needed to satisfy user needs, and developing criteria and procedures to evaluate existing and future data bases; (3) selecting a North Carolina project site for use as a case history; and (4) preparing quarterly and final reports which evaluate procedures, identify problems, and make recommendations for future work.

• Shallow Trawling Calibration Project

The Trawl Calibration Work Group developed a protocol to calibrate shallow-water trawling practices in the South Atlantic. The Committee approved the protocol in March and the actual work will be performed in November 1985.

The project objective is to standardize, whenever possible, shallow trawling procedures among the fishery management agencies of North Carolina, South Carolina, and Georgia, so that

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their future survey data can be exchanged to develop regional or interstate fishery management plans.

- Spring Benthic Resources Survey

The spring cruise was divided into three segments: (1) bottom trawling off Florida; (2) scallop and hydroacoustical surveys, neuston sampling, and ornithological observations off the coast of Georgia; and (3) a trap survey for Geryon spp. crabs off the Florida coast.

Of 16 trawl stations completed off Florida, the golden crab, Geryon fenneri, was the most ubiquitous species, occurring in 86.6% of the tows. Fifteen scallop dredge tows were made at depths of 20-21 fm (120-126 ft) in this preliminary attempt to locate commercial concentrations of scallops in Georgia. Twenty neuston samples were preserved for sorting and identification. Eight trap sets for Geryon Crabs were made at 430-448 fm (2580± 688 ft), with 43 golden crabs taken, 74% of which were female; of these, 79% had ripe ovaries, indicating near-spawning condition. This ratio differed considerably from the dominance of male crabs reported in shallower waters (300-400 fm, or 1800-2400 ft) off South Carolina. The average weight of all crabs was 0.856 kg (1.9 lb), with the largest weighing 1.422 kg (3.1 lb).

SPECIAL STUDIES

In addition to cooperative resource surveys, SEAMAP is involved with special resource and environmental studies important to the region. Two such studies, incorporating both SEAMAP components, were conducted in FY85:

- Red Drum Stock Identification Study

Recommendations made by the SEAMAP-Gulf Red Drum Work Group in November 1984 and approved by the Subcommittee directed participants to collect young red drum for analysis of possible inshore stock differences. Specimens of young-of-the-year estuarine red drum were collected in late spring from discrete estuarine systems by all Gulf States and South Carolina, and in eastern Florida; sampling is ongoing through fall in North Carolina and Georgia. The specimens were frozen whole and transported to the Coastal Fisheries Institute at LSU, for analysis of tissues by electrophoresis and high performance liquid chromatography. Preliminary results of the study will be presented in October 1985 and will suggest SEAMAP's future direction in this project.

- Status and Trends Benthic Surveillance Study

For the second year, the SEAMAP Program actively participated in the nationwide sampling for contaminants in coastal fishes and sediments, as part of the NOAA National Status

and Trends Program. Both SEAMAP regions supplied personnel from State management agencies to provide guidance in locating concentrations of the target species, Atlantic croaker and spot. Sampling is ongoing at 17 Gulf and South Atlantic sites from August-October 1985, with a NOAA vessel serving as the primary sampling platform; analyses of trace metals, organics, chlorinated hydrocarbons and other contaminants, as well as histological examinations, are being conducted by the NMFS-Beaufort and Charleston Laboratories. Results of the 1984 and 1985 cooperative sampling efforts will be made available to participants for use by State and Federal resource management agencies.

DATA MANAGEMENT

Biological and environmental data from all SEAMAP surveys are included in the SEAMAP Information System, managed in conjunction with NMFS-SEFC. Raw data are edited by the collecting agency and verified by the SEAMAP Data Manager prior to entry into the system; for FY85, data from the Coastal Herring Survey have been entered, while data from the Summer Shrimp/Groundfish and Squid/Butterfish surveys are being edited and verified for projected entry in winter 1986. Data from all SEAMAP surveys in 1982 through 1984 were entered into the system during the past year.

Verified, non-confidential SEAMAP data are available, conditionally, to all requestors, although the highest priority is assigned to SEAMAP participants. During FY85, approximately 26 requests (17 from participants, 9 from others) were received and processed. In some instances, requests were filled promptly; in many cases, however, a substantial lag occurred. This problem, as well as the delay in entering survey data, resulted when funding for data processing personnel and software was deleted from the program. The urgent need for design and development of an integrated data system to satisfy a diversity of user needs, and the anticipation of full FY86 funding, prompted a joint workshop of both regions' data management work groups in March 1985 and resulted in an approved recommendation for development of a system design in FY86.

Requested SEAMAP data were used for a multitude of purposes:

- Evaluating abundance and size distribution of penaeid shrimp in Federal and State waters to assist in determining opening and closing dates for commercial fisheries.
- Assessing shrimp and groundfish abundance and distribution and their relationship to such environmental parameters as temperature, salinity and oxygen.
- Identifying environmental parameters associated with concentrations of larval finfish.
- Compiling the 1983 SEAMAP Biological and Environmental Atlas.

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- Compiling the 1983 SEAMAP Ichthyoplankton Atlas.
- Verifying values for remote-sensed imagery of chlorophyll concentrations in the Gulf.
- Identifying primary mackerel spawning areas in the northern Gulf.
- Identifying optimized survey designs for squid and butterflyfish.

Real-Time Data

A major function of the SEAMAP Information System in FY85 was the processing of catch data from the Summer Shrimp/Groundfish and Squid/Butterfish surveys as near real-time data. Data were transmitted daily via satellite to the NMFS-NSTL Facility from the NOAA vessel while the State's 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-Pascagoula Facility, and processed by GSMFC for weekly distribution to management agencies, fishermen, processors and researchers. Management agencies also received a comprehensive data listing showing penaeid shrimp length-frequencies, sampling parameters and environmental conditions.

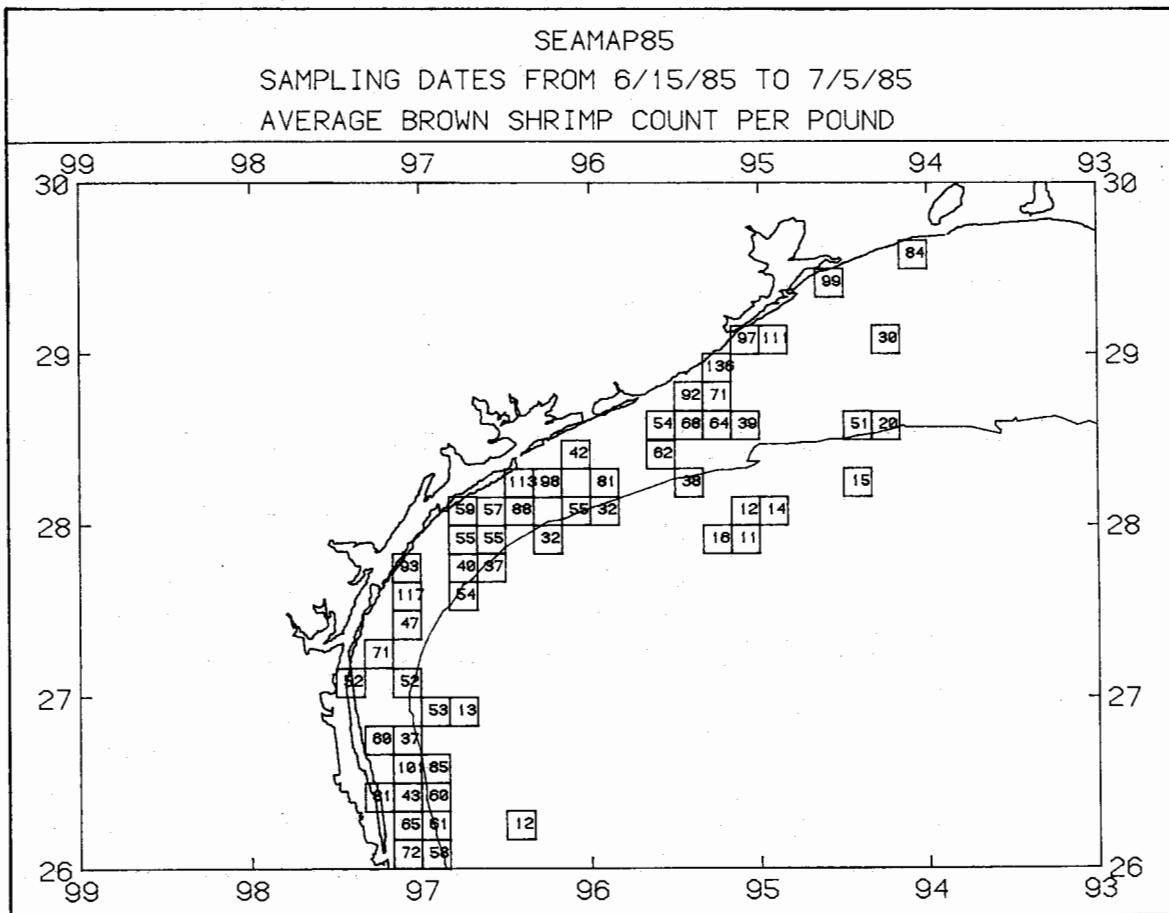
SPECIMEN ARCHIVING

SEAMAP Archiving Center

Larval fish and fish egg samples sorted to the family level by the Polish Sorting Center are returned to the SEAMAP Archiving Center (SAC) for archiving and loan to researchers. In FY85, SAC received and accessioned 7,046 lots, containing more than 128,543 larvae from 1982 SEAMAP surveys, and has begun accessioning the approximately 7,000 lots from 1983 surveys. Additional materials maintained for research use include many fish eggs and unsorted fish larvae. Managed in conjunction with FDNR in St. Petersburg, SAC in FY85 acquired a computer system and developed comprehensive data listings of specimens by family; as species identifications are supplied by researchers borrowing the specimens, this information is added to the data files, and made available to subsequent requestors.

Loan of SEAMAP specimens is supervised by SAC's curator, following policies outlined in the SEAMAP-Gulf Operations Plan. In FY85, more than 1150 specimen lots of fish larvae were loaned, most of them species of commercial and recreational importance: mackerels, snappers, tunas, butterflyfish, bluefish, jacks, herrings, grunts and others.

FIGURE 3. SEAMAP REAL-TIME CATCH DATA PLOT



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SEAMAP Invertebrate Plankton Archiving Center

With the determination by SEAMAP-Gulf that the retained "back-up" bongo collections also contain valuable research materials, the SEAMAP Invertebrate Plankton Archiving Center (SIPAC) was established, managed in conjunction with GCRL in Biloxi, Mississippi. Approximately 270 unsorted station samples from 1982 SEAMAP surveys have been archived and 1983 samples are expected to be accessioned by fall 1985; some 1984 and 1985 State-collected samples are also archived at SIPAC.

As with the archiving center in Florida, SIPAC developed a computer system for data associated with the samples (collection date, station number, depth, location and environmental parameters). Although SIPAC was established in late spring 1985, requests have already been received to search samples for squid and lobster larvae. The recent decision by SEAMAP-Gulf to request Polish sorting of penaeid shrimp, blue crab, stone crab, lobsters and squid will lead to future archiving at SIPAC of these sorted specimens, as well as unsorted fractions of invertebrates remaining after the fish eggs and larvae have been removed.

INFORMATION DISSEMINATION

SEAMAP - Gulf of Mexico

Products resulting from SEAMAP-Gulf activities in FY85 are grouped into two categories, data sets and program information. Data sets (digital data and specimen collections) are discussed elsewhere in this report; program information for the year included:

- 1982 SEAMAP Environmental and Biological Atlas; a compilation of information obtained from the 1982 SEAMAP surveys, including catch rates of shrimp and finfish, and environmental data.

- 1982 SEAMAP Ichthyoplankton Atlas; a NOAA Technical Memorandum showing the distribution and abundance of important Gulf finfish larvae taken during 1982 SEAMAP surveys.
- 1985 SEAMAP Marine Directory; third in the yearly inventories of State, Federal and university organizations conducting Gulf fishery-independent research, including information on types of vessels and gear used, annual sampling effort, and target species.
- SEAMAP Shrimp and Bottomfish Sampling Gear Workshop Proceedings; a summary of seven technical papers on shrimp/groundfish sampling gear, presented at the 33rd Annual Spring Meeting of the Gulf States Marine Fisheries Commission.
- 1985 SEAMAP Subcommittee Report to the GSMFC Technical Coordinating Committee; a detailed summary of program accomplishments, emphasizing survey design, materials collected, data dissemination, budget information and future survey activities.

SEAMAP - South Atlantic

Information from SEAMAP-South Atlantic program activities in its first year of full operations consisted largely of planning documents:

- SEAMAP-South Atlantic Five-Year Operations Plan; a description of the program, its goals and objectives, accomplishments, survey and information systems operations, survey plans and schedules, program management, and funding requirements.
- SEAMAP-South Atlantic Operations Plan Executive Summary; a brief description of the features detailed in the Operations Plan.
- 1985 Report to the South Atlantic State/Federal Fishery Management Board of the Atlantic States Marine Fisheries Commission; a detailed summary of program activities and accomplishments for FY85.

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PROPOSED SEAMAP ACTIVITIES, FY1986

The following activities are expected to be approved for FY86 and special studies may be added as necessary:

SEAMAP - Gulf of Mexico

Activity	<u>Season</u>			
	Fall	Winter	Spring	Summer
Resource Surveys:				
Shrimp/Groundfish Trawling Survey	X			X
Squid/Butterfish Trawling Survey			X	
Plankton and Environmental Data Surveys	X	X	X	X
Coastal Herring Survey		X		
Information Operations:				
1983 Biological and Environmental Atlas	X			
1983 Ichthyoplankton Atlas		X		
1986 Marine Directory			X	
1986 Annual Report				X
Data Management System Design		X		
Data Input and Request Processing	X	X	X	X
Specimen Archiving and Loan	X	X	X	X
Real-time Data Summaries			X	X
Program Administration	X	X	X	X

SEAMAP - South Atlantic

Activity	<u>Season</u>			
	Fall	Winter	Spring	Summer
Resource Surveys:				
Bottom Mapping	X	X	X	X
Shallow Trawling Survey				X
Midwater-Highrise Trawling Survey			X	
Passive Gear (Geryon-Trapping) Survey			X	
Plankton and Environmental Data Surveys			X	X
Gear Calibration Study	X			
Information Operations:				
Data Management System Design		X		
Data Input and Request Processing	X	X	X	X
Specimen Archiving and Loan	X	X	X	X
1986 Annual Report				X
Program Administration	X	X	X	X

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SEAMAP-Gulf of Mexico Representatives

Walter M. Tatum, Chairman
Alabama Department of Conservation
and Natural Resources

Gary Matlock, Vice Chairman
Texas Parks and Wildlife Department

Barney Barrett
Louisiana Department of Wildlife
and Fisheries

J. Alan Huff
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Walter R. Nelson
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Michael Street, Vice Chairman
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Henry Ansley
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J. Alan Huff
Florida Department of Natural Resources

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Kenneth Savastano
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John V. Gartner, Jr.
Curator, SEAMAP Archiving Center

Kenneth Stuck
Curator, SEAMAP Invertebrate Plankton Archiving Center

ERRATUM

We sincerely regret ommitting reference to Walter R. Nelson, National Marine Fisheries Service, from the list of SEAMAP-South Atlantic Representatives.

