

# **SEAMAP ANNUAL REPORT**

**TO THE  
TECHNICAL COORDINATING COMMITTEE OF THE  
GULF STATES MARINE FISHERIES COMMISSION**

**OCTOBER 1, 1993 - SEPTEMBER 30, 1994**

**SEAMAP SUBCOMMITTEE  
WALTER TATUM, CHAIRMAN**

**SEPTEMBER 30, 1994**

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**SEAMAP Subcommittee**

**Walter M. Tatum, Chairman**

**David Donaldson**

**SEAMAP Coordinator**

**September 30, 1994**

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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 1985-1994 (October 1 through September 30). State and Gulf States Marine Fisheries Commission (GSMFC) funding allocations for FY1985-FY1994 were handled through State/Federal cooperative agreements, administered by SERO and the Southeast Fisheries Science Center (SEFSC), National Marine Fisheries Service (NMFS).

In FY1994, SEAMAP operations continued for the thirteenth consecutive year. SEAMAP resource surveys included the Fall Shrimp/Groundfish Survey, Louisiana seasonal trawl surveys, Spring Plankton Survey, Spring Reef Fish Survey, Summer Shrimp/Groundfish Survey, Fall Plankton Survey and plankton and environmental data surveys. Other FY1994 activities included SEAMAP information services and program management.

This report is the eleventh 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 FY1994 and proposed SEAMAP activities for FY1995.

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

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## **FY1994 SEAMAP RESOURCE SURVEYS**

In FY1994, collection of resource survey information continued for the thirteenth 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 Shrimp/Groundfish Survey**

The Fall Shrimp/Groundfish Survey was conducted from October 4 to November 22, 1993, from off Mobile, Alabama to the U.S.-Mexican border. Vessels sampled waters out to 60 fm, covering a total of 410 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:

- (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 263 stations in offshore waters and territorial Louisiana and Texas waters. The R/V VERRILL sampled 9 stations in Alabama territorial waters. The R/V TOMMY MUNRO sampled 27 stations in Mississippi territorial and offshore waters. The R/V PELICAN sampled 31 stations in Louisiana territorial and offshore waters. And Texas vessels sampled 80 stations within their territorial waters.

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 36 stations was sampled with bongo and/or neuston nets, as encountered along cruise tracks. NMFS completed 31 ichthyoplankton stations and Louisiana completed 5 stations. The samples, except those taken by Louisiana, will be sorted by the Polish Sorting and Identification Center (PSIC). Once sorted, the specimens and data will be archived at the SEAMAP Archiving Center (SAC).

## **Louisiana Seasonal Day/Night Surveys**

The Louisiana Department of Wildlife and Fisheries (LDWF) conducts seasonal day and night surveys as part of its continuing effort to provide comparative information on the abundance and distribution of critical life stages of major Gulf species, especially shrimp and associated environmental parameters. The sampling design for these surveys has changed little from similar day/night surveys in past years.

Sampling was conducted aboard the R/V PELICAN during four segments: October and December 1993 and March and July 1994. A stratified random station selection design was maintained, varying from the transects previously surveyed. During each segment, 31 stations were sampled during day and night at depths up to 20 fm. The July sampling was completed as part of the SEAMAP Summer Shrimp/Groundfish Survey.

All seasonal trawls were completed with the standard SEAMAP net and doors. All organisms captured were identified, counted, measured and weighed. Environmental data and plankton/neuston sampling were conducted at trawl stations as well. Plankton samples were archived and sorted at the LDWF Plankton Laboratory. Specimens and data will be shipped to the SAC in St. Petersburg, Florida. The area sampled covered Louisiana territorial and EEZ waters from 28°30' to 29°00' N. latitude and from 89°30' to 91°30' W. longitude.

## **Spring Plankton Survey**

For the twelfth year, plankton samples were collected during the spring in the northern Gulf of Mexico. The NOAA Ships OREGON II and CHAMPAN and Florida's R/V HERNAN CORTEZ II sampled offshore waters from the western edge of the West Florida Shelf to the Texas-Louisiana border from April 4 to June 10, 1994. A total of 154 stations was sampled. The OREGON II sampled 89 stations and the CHAPMAN sampled 60 stations. The R/V HERNAN CORTEZ II sampled 19 stations along the west Florida shelf.

Plankton samples were taken with standard SEAMAP bongo and neuston samplers. The bongo sampler consisted of two conical 61-cm nets with 333-micron mesh. Tows were oblique, surface to near bottom (or 200 m) and back to surface. Wire angle was maintained at 45 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) was collected at all stations.

Right bongo and neuston samples collected from SEAMAP stations will be transshipped to the PSIC. 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.

## **Spring Reef Fish Survey**

The third Spring Reef Fish Survey began on June 8 and will continue into mid to late fall 1994. Vessels from NMFS, Mississippi, and Florida sampled inshore and offshore waters, covering approximately 170 stations, in addition to plankton and environmental sampling. Alabama will begin surveying hard bottom areas in mid to late fall. And Texas is in the process of procuring the necessary equipment and will conduct preliminary work to address any problems. Randomly selected sites from Brownsville, Texas to Key West, Florida are chosen from known hard bottom locations. The objectives of the survey are:

- (1) assess relative abundance and compute population estimates of reef fish using a video/trap technique;
- (2) determine habitat using an echo sounder and video camera;
- (3) determine if bioacoustics assessment methodology can be applied to reef fish communities;
- (4) collect environmental data at each station; 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<sup>2</sup> sites which are designated as "reef areas". There are several aspects of the reef fish survey: 1) locating and compiling known hard bottom reef habitat locations; 2) survey site selection; 3) sampling protocol using a fish trap and video camera and 4) analyses of video records. Data is collected using the trap/video methodology where a fish trap containing a video camera is deployed onto the selected reef site. Trap soak time is one hour. After trap deployment, hydrographic data including a STD/light meter, transmissometer drop, secchi disk reading and surface chlorophyll samples will be collected. Also, after the last trap/camera set, one ichthyoplankton station will be completed each day with a surface neuston net and Tucker trawl. Environmental and plankton samples collected will use established SEAMAP protocols and plankton samples will be transshipped to the PSIC.

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



## Summer Shrimp/Groundfish Survey

During the spring 1994, 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 bottomfish stocks across the northern Gulf of Mexico from inshore waters to 50 fm.

The overall sampling strategy during the 1994 SEAMAP summary 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 2 to July 18, 1994.

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

In June, catch rates of brown shrimp east of the River were very low, with a maximum catch of 13.7 lb/hr of 44-count shrimp. White shrimp catches east of the River were all less than 1.5 lb/hr. The largest pink shrimp catch rate east of the River was 12.8 lb/hr of 60-count shrimp taken in 9 fm of water off the Chandeleur Islands. Finfish catch rates east of the River were moderate, with the largest catch of 7,946 lb/hr with longspine porgy predominating.

High catches of brown shrimp were made off Texas from June 2 to July 8. The largest catch rate occurred June 25 in waters off Brownsville, Texas in 14 fm (325.9 lb/hr of 81-count shrimp). White shrimp catches off Texas were low with the largest catch, 5.5 lb/hr of 15-count shrimp, taken off Corpus Christi in 6 fm. Catch rates for pink shrimp were also low off Texas, though the largest catch was 65.4 lb/hr of 51-count shrimp off the lower Laguna Madre in 9 fm. Finfish catch rates were moderate in Texas inshore and offshore waters. The largest catch of finfish was 1,724 lb/hr in 8 fm off Sabine with bumper predominating.

In July's samples west of the river (Louisiana) brown shrimp catches were low with the largest catch rate of 18.9 lb/hr of 19-count shrimp occurring off Vermilion Bay in 30 fm. White shrimp catches were extremely low, with a maximum catch rate of 11.7 lb/hr of 16-count shrimp taken in 6 fm south of Sabine. Catches of pink shrimp were also very low off the Louisiana coast with a maximum catch rate of 2.1 lb/hr of 44-count shrimp. Finfish catch rates were also low with the largest catch rate of 1,118 lb/hr taken on July 14 with Gulf butterflyfish predominating.

## **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 1986-1993 and in the current year covered Gulf waters from Florida Bay to Brownsville, Texas. Vessels from Florida, Alabama, Mississippi, Louisiana and NMFS began surveying September 8 and will continue until October 4, 1994. Stations were located along a 30-minute latitude/longitude grid from inshore waters to the shelf edge.

The NOAA Ship OREGON II sampled 96 stations from Tampa Bay, Florida to Brownsville, Texas at depths from 5 to 100 fm. The A.E. VERRILL sampled 9 stations at the mouth and outside Mobile Bay. The R/V TOMMY MUNRO sampled 49 stations south of Mississippi Sound along a 30-minute grid. The R/V PELICAN sampled 7 stations in Louisiana territorial waters. And Florida's R/V HERNAN CORTEZ is currently sampling off Tampa Bay south to the Florida Straits area.

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

## **Plankton and Environmental Data Surveys**

As in previous years, plankton samples and environmental data were collected routinely during most SEAMAP trawling surveys. During the Summer Shrimp/Groundfish Survey, plankton tows were piggybacked on the NMFS and state vessels, sampling randomly generated trawl stations within the standard 30-minute SEAMAP grids. Plankton and environmental data were also taken by Louisiana at all of its seasonal day/night survey stations. Samples were taken by participants with a 60-cm bongo net and a standard SEAMAP neuston net.

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

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

In addition to these piggybacked surveys, two major SEAMAP plankton surveys were conducted in FY1994, as detailed earlier.

## INFORMATION SERVICES

Information from the SEAMAP activities is provided to user groups through the program administration and three complementary systems: the SEAMAP Information System (SIS), SAC 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 SIS, SAC 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 SIS, 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 1982-1993 have been entered into the system and data from 1994 surveys are in the process of being verified, edited, and entered for storage and retrieval. Verified, non-confidential SEAMAP data are available conditionally to all requestors, although the highest priority is assigned to SEAMAP participants. A total of 143 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, 142 requests have been completed and work is being performed on those remaining.

Requested SEAMAP data were used for a multitude of purposes in FY1994:

- Evaluating the abundance and size distribution of penaeid shrimp in Federal and state waters to assist in determining opening and closing dates for commercial fisheries;
- Assessing shrimp and groundfish abundance and distribution and their relationship to such environmental parameters as temperature, salinity, and dissolved oxygen;
- Identifying environmental parameters associated with concentrations of larval finfish;
- Compiling the 1992 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) 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 has been completed. Delivery of the remaining PS/2's has been completed and all of the Gulf States are now equipped with the necessary computer hardware and software.

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

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

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

## **Real-time Data**

A major function of the SIS in FY1994 was the processing of catch data from the Summer Shrimp/Groundfish Survey as near-real-time data. Data were transmitted three times weekly via cellular phone to the NMFS Mississippi Laboratories from the NOAA vessel, while the states'

data were entered into the system weekly. Plots of station locations and catch rates of shrimp, squid and dominant finfish species were prepared and edited at the NMFS Mississippi Laboratories, and processed by GSMFC for weekly distribution to management agencies, fishermen, processors and researchers. Management agencies also received comprehensive data listings showing penaeid shrimp length frequencies, sampling parameters and environmental conditions. Representative listings are shown in Figures 2-9.

SEAMAP94 DATA, OREGON II

PLAT	STATION	DATE	LAT	LONG	TIME	FMS	SUR	BOT	DEP	TEMPS,C	CHLOR	MG/M3	BDO	TYPE	FISH	TOWS	SHRIMP	FINFISH	CRK	SPT	TRT	CAT	OTHER	LBS
1	EN22	6/17/94	29-14.5	88-31.2	23	45	28.8	18.9	5.3	ST	13	1	.0	143.3	72	0	0	0	0	0	0	0	0	0

SPECIES: BROWN WEIGHT: .022 NUMBER: 1 MODE: 112/ 1  
 LEN(MM)/FREQ. 110/ 1

PLAT	STATION	DATE	LAT	LONG	TIME	FMS	SUR	BOT	DEP	TEMPS,C	CHLOR	MG/M3	BDO	TYPE	FISH	TOWS	SHRIMP	FINFISH	CRK	SPT	TRT	CAT	OTHER	LBS	
1	EN23	6/18/94	29-07.6	88-41.1	01	50	28.1	18.4	5.3	ST	31	1	.2	67.0	11	0	8	0	2	15					

SPECIES: BROWN WEIGHT: .220 NUMBER: 2 MODE: 0/ 0  
 LEN(MM)/FREQ. 190/ 1 200/ 1

PLAT	STATION	DATE	LAT	LONG	TIME	FMS	SUR	BOT	DEP	TEMPS,C	CHLOR	MG/M3	BDO	TYPE	FISH	TOWS	SHRIMP	FINFISH	CRK	SPT	TRT	CAT	OTHER	LBS	
1	EN19	6/18/94	29-18.1	88-23.4	04	30	28.1	19.1	5.2	ST	70	2	1.21452.8	308	394	10	0	22	469						

SPECIES: BROWN WEIGHT: 1.213 NUMBER: 8 MODE: 0/ 0  
 LEN(MM)/FREQ. 160/ 3 180/ 2 190/ 1 200/ 2

PLAT	STATION	DATE	LAT	LONG	TIME	FMS	SUR	BOT	DEP	TEMPS,C	CHLOR	MG/M3	BDO	TYPE	FISH	TOWS	SHRIMP	FINFISH	CRK	SPT	TRT	CAT	OTHER	LBS	
1	ED19	6/18/94	29-24.3	88-24.5	07	30	28.6	19.1	5.2	ST	103	2	.3	593.5	131	49	0	0	22	309					

SPECIES: BROWN WEIGHT: .331 NUMBER: 6 MODE: 166/ 2  
 LEN(MM)/FREQ. 150/ 2 160/ 2 190/ 2

PLAT	STATION	DATE	LAT	LONG	TIME	FMS	SUR	BOT	DEP	TEMPS,C	CHLOR	MG/M3	BDO	TYPE	FISH	TOWS	SHRIMP	FINFISH	CRK	SPT	TRT	CAT	OTHER	LBS	
1	ED23	6/18/94	29-10.4	88-35.3	12	50	28.3	18.9	5.1	ST	11	1	.0	68.6	3	15	0	0	22	31					

PLAT	STATION	DATE	LAT	LONG	TIME	FMS	SUR	BOT	DEP	TEMPS,C	CHLOR	MG/M3	BDO	TYPE	FISH	TOWS	SHRIMP	FINFISH	CRK	SPT	TRT	CAT	OTHER	LBS	
1	ED22	6/18/94	29-09.5	88-39.3	13	45	28.2	18.8	5.9	ST	21	1	.0	52.5	0	0	0	0	22	45					

PLAT	STATION	DATE	LAT	LONG	TIME	FMS	SUR	BOT	DEP	TEMPS,C	CHLOR	MG/M3	BDO	TYPE	FISH	TOWS	SHRIMP	FINFISH	CRK	SPT	TRT	CAT	OTHER	LBS
1	ED17	6/18/94	29-05.7	88-58.1	19	22	29.1	20.4	4.5	ST	16	1	.4	14.1	0	0	4	0	0	0	0	0	0	0

SPECIES: BROWN WEIGHT: .441 NUMBER: 14 MODE: 124/ 3  
 LEN(MM)/FREQ. 110/ 2 120/ 5 130/ 4 140/ 2 160/ 1

Figure 2. Real-Time Data Listings, 1994 SEAMAP Summer Shrimp/Groundfish Survey

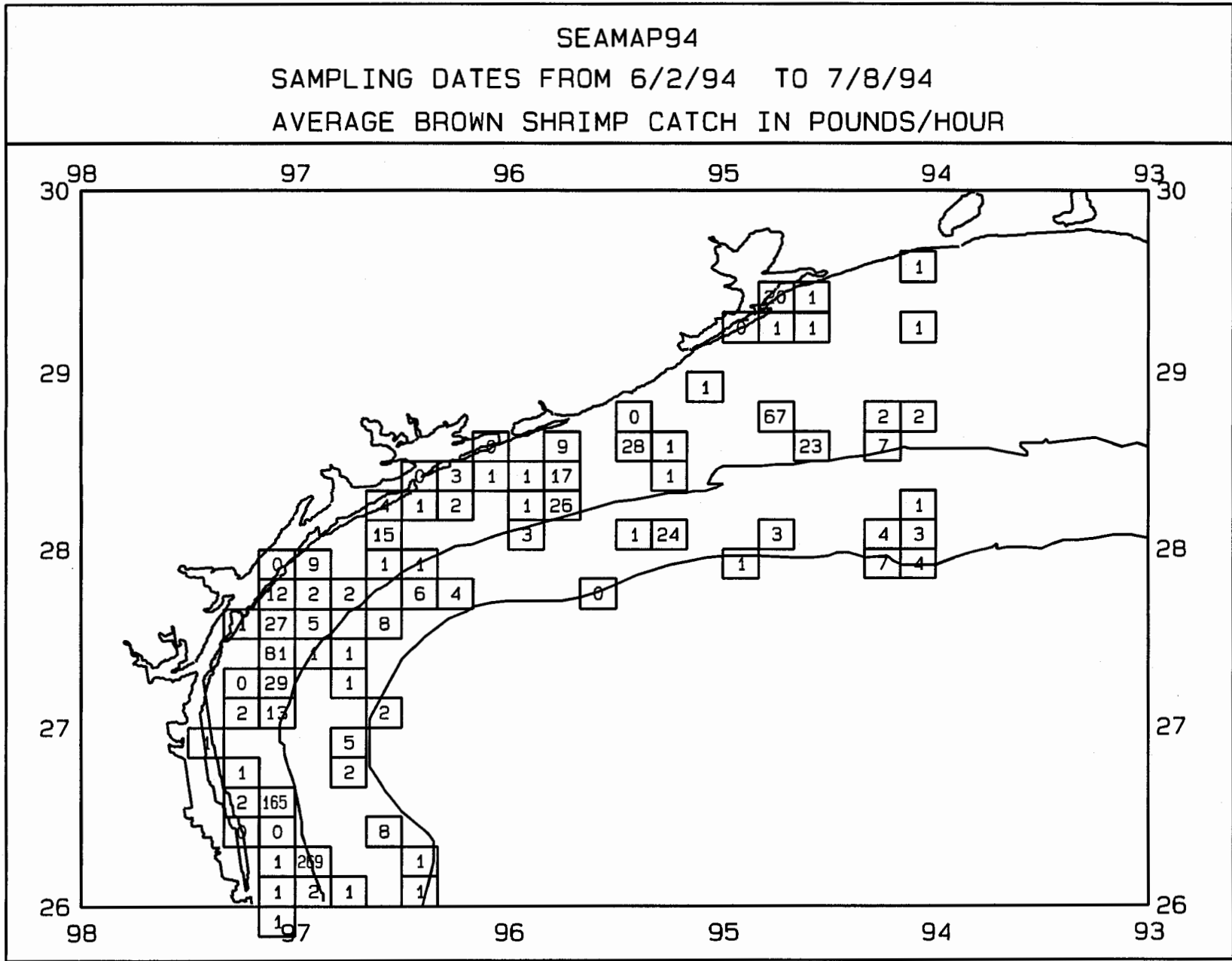


Figure 3. Real-Time Data Catch Plots, 1994



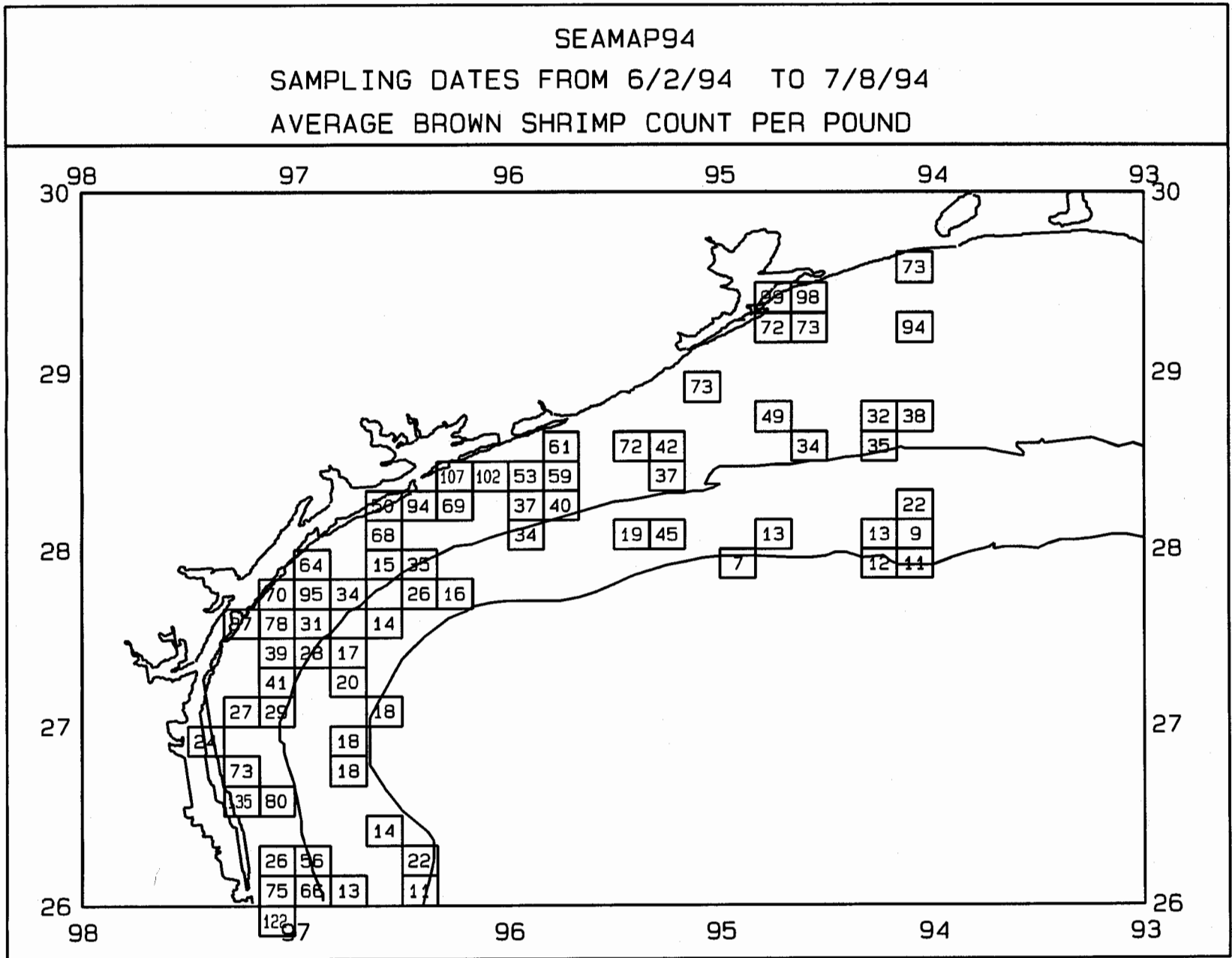
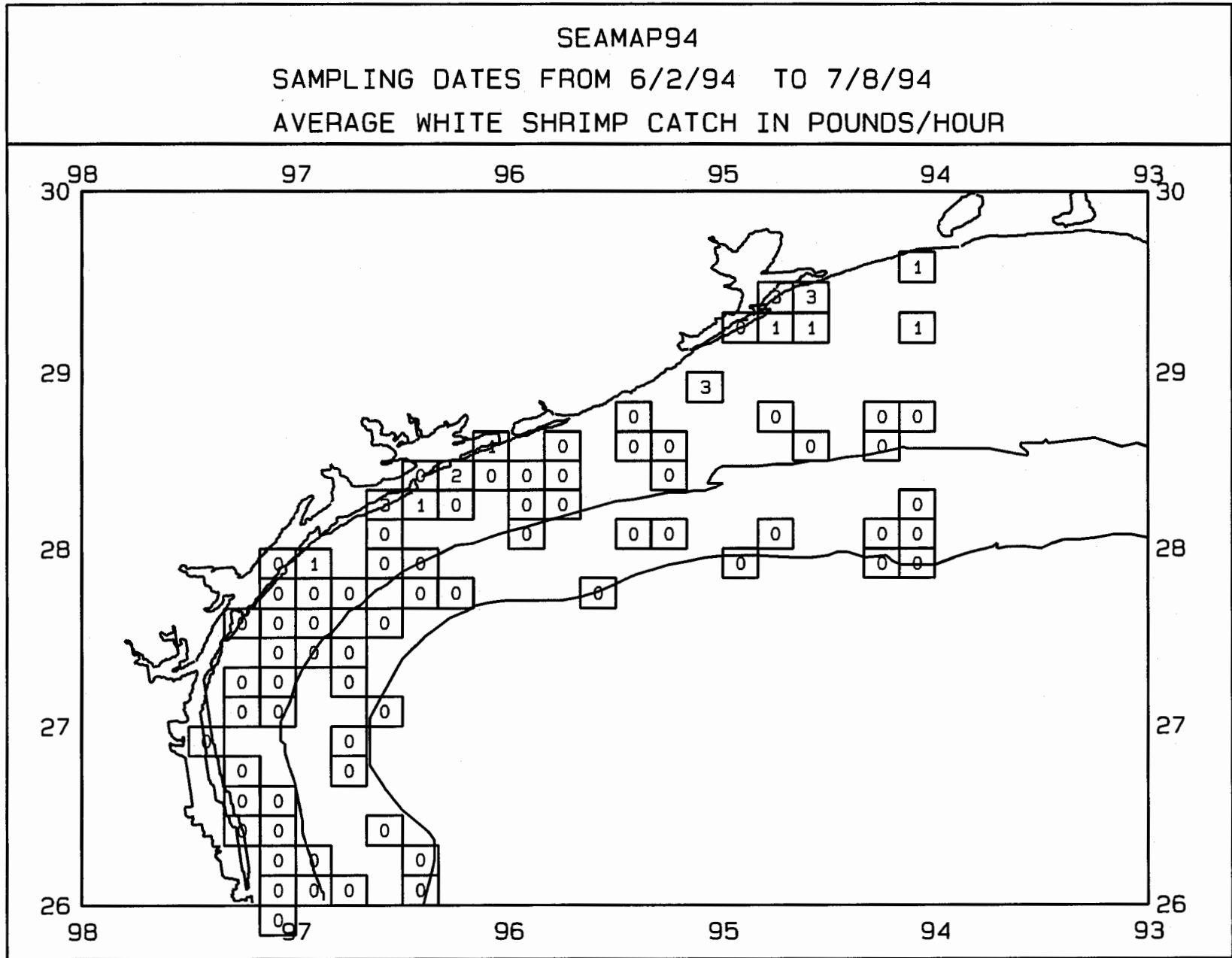


Figure 4. Real-Time Data Catch Plots, 1994



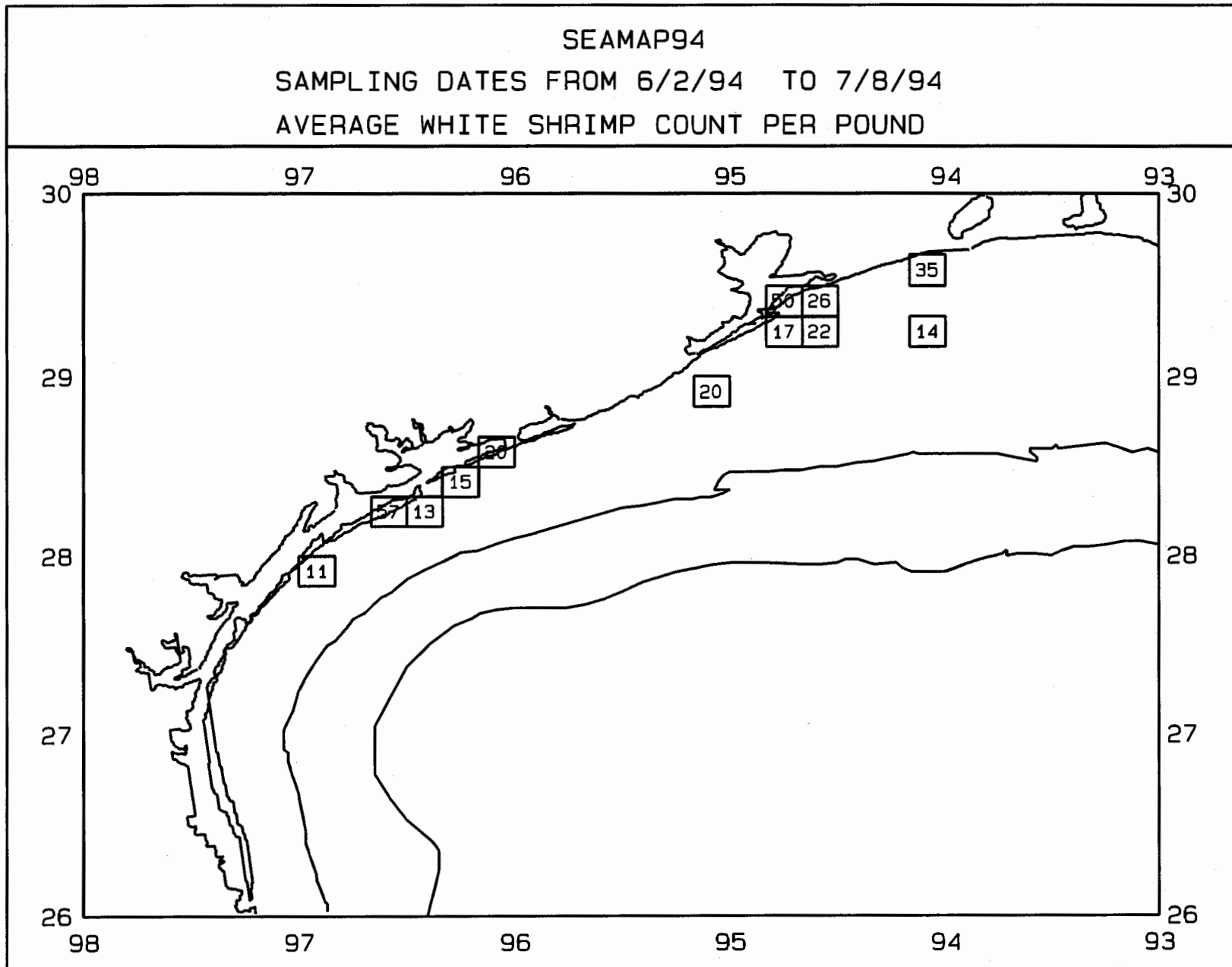


Figure 6. Real-Time Data Catch Plots, 1994

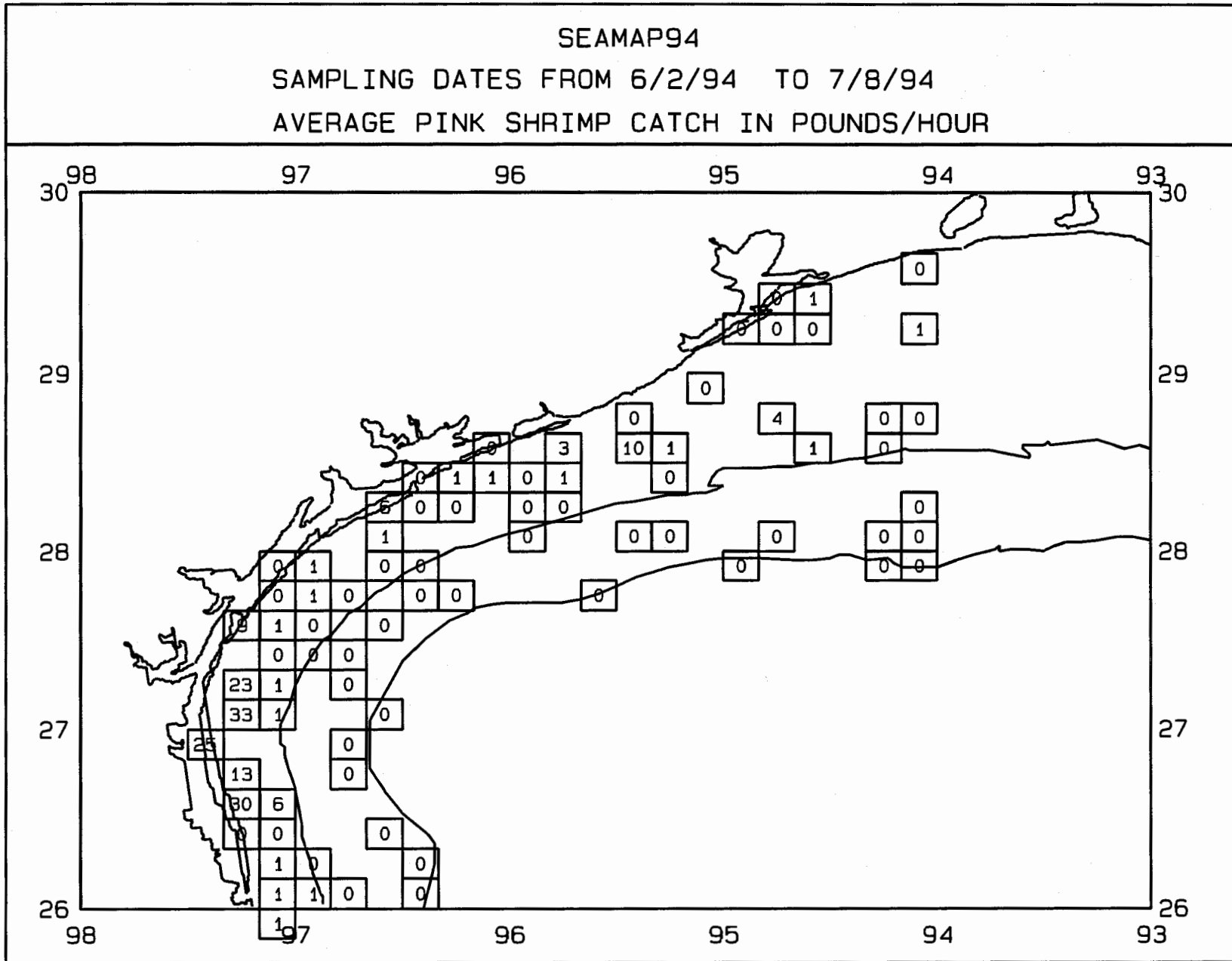
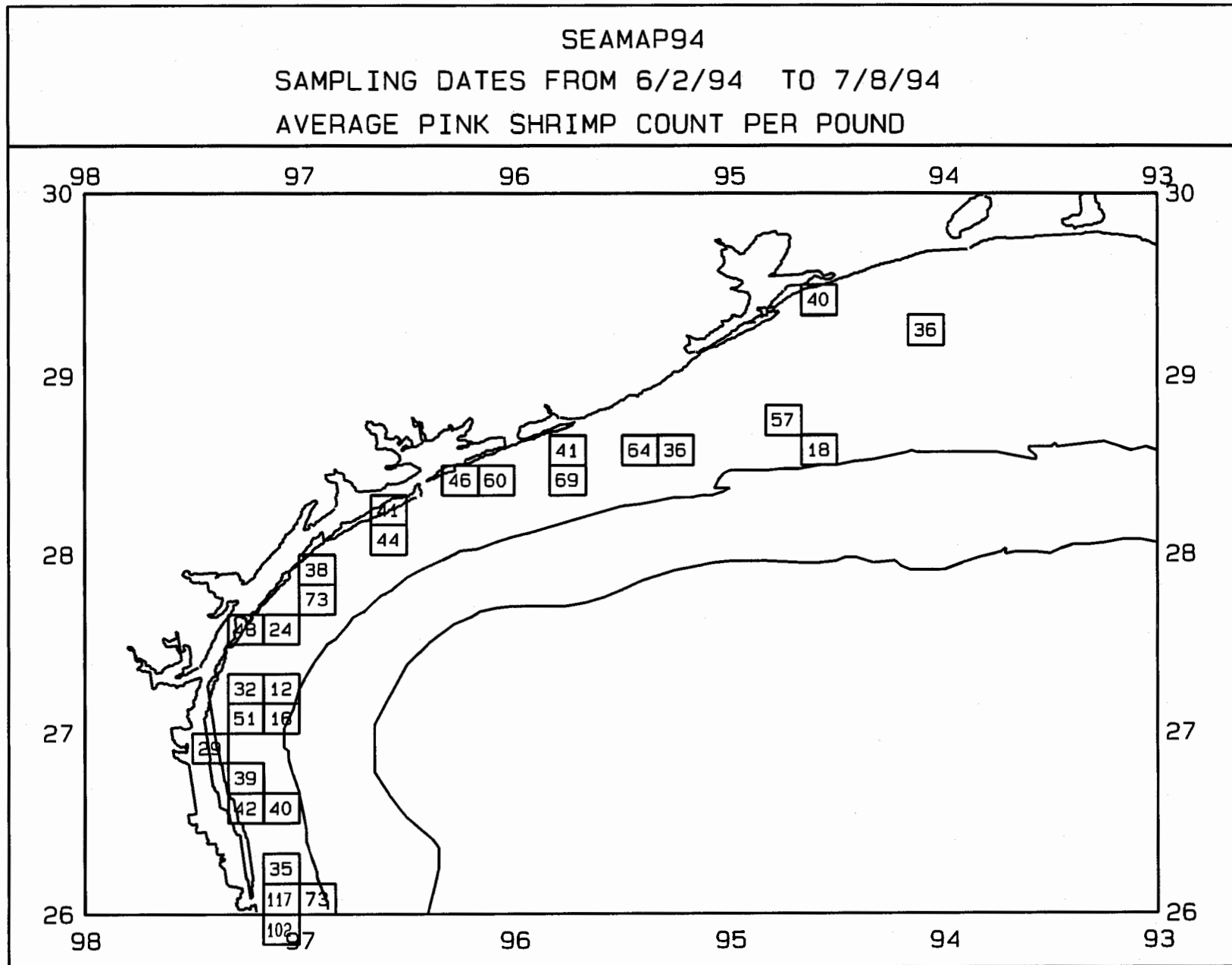


Figure 7. Real-Time Data Catch Plots, 1994



17

Figure 8. Real-Time Data Catch Plots, 1994

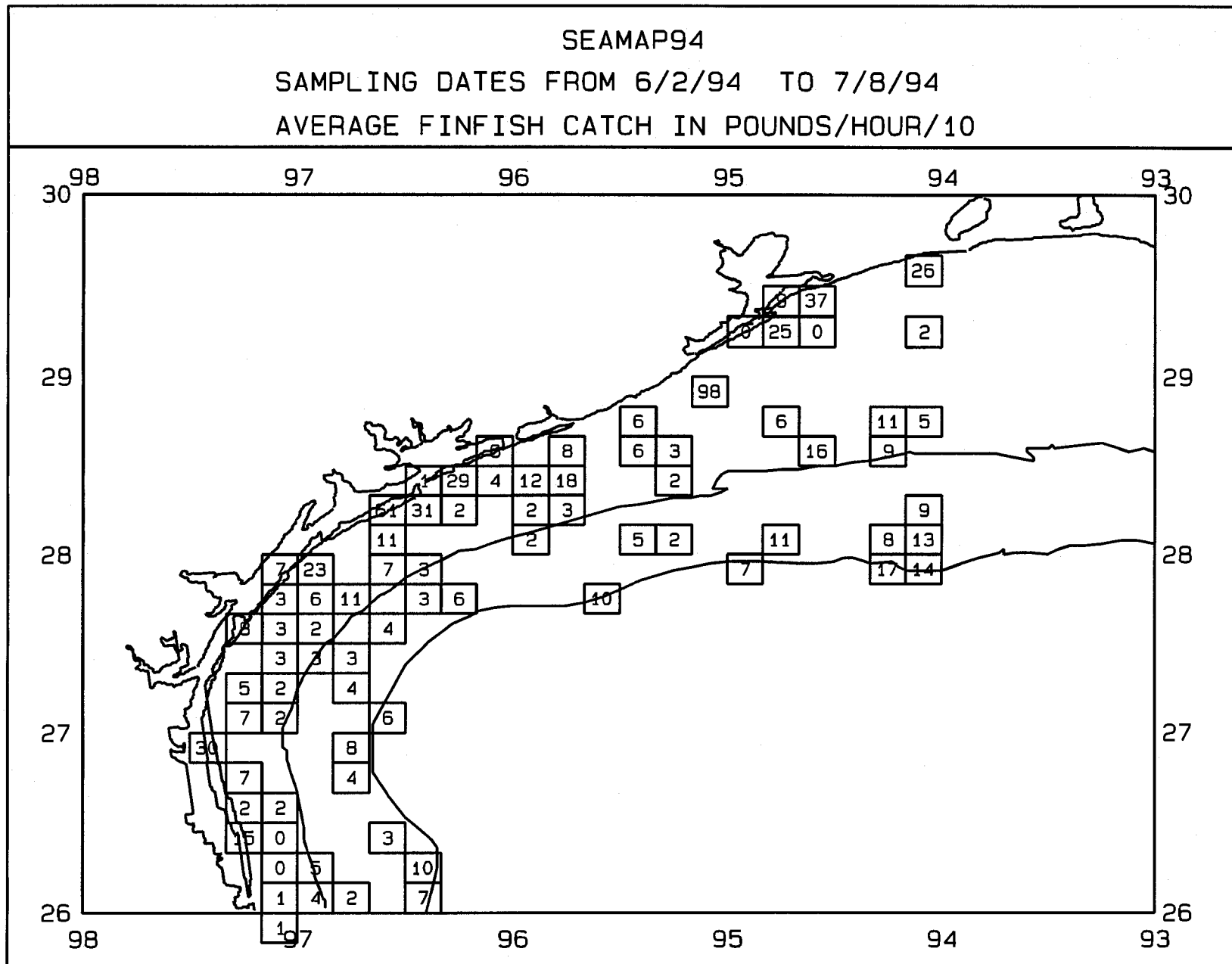


Figure 9. Real-Time Data Catch Plots, 1994

## **SEAMAP Archiving Center**

Larval fish and fish egg samples sorted to the lowest taxa level possible by the PSIC are returned to the SAC for archiving and loan to researchers. For FY1994, approximately 800 vials have been returned from the PSIC. Data entry for most of the returned sorted samples is completed in an improved and simplified DMS. All data are now managed by a dual microcomputer/mainframe program which eliminates coding errors and facilitates faster data entry. Samples cataloged to date represent 18 orders, 125 families, 234 genera and 244 species.

The SAC is managed in conjunction with Florida Department of Environmental Protection (FDEP) in St. Petersburg, Florida and processes both specimen loans and requests for associated plankton survey environmental data. Currently, the SAC is being reorganized and lines of supervisory responsibilities are being changed due, in part, to the departure of Dr. John V. Gartner, Jr. He has done an exemplary job in organizing and running the SAC from its inception. A new collection manager, Ms. Kim Williams, and full-time assistant have been hired. Due to the changing personnel, a backlog of uncatalogued samples has developed, but they are being processed quickly. In addition, the SAC personnel and other staff from FDEP will be participating in the fall ichthyoplankton cruise, to depart on September 28, 1994.

## **SEAMAP Invertebrate Plankton Archiving Center**

The SIPAC is in its ninth year operation. Ken Stuck of GCRL serves as the SIPAC curator, and is assisted by one technician. The mission of the SIPAC is 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. The SIPAC provides unsorted plankton samples and data or specimens of larval invertebrates to qualified researchers upon request. SIPAC personnel also participate in SEAMAP cruises.

During FY1994, a total of 1,085 SEAMAP plankton samples were received and logged into the SIPAC data base. The samples were obtained from assorted OREGON II, CHAPMAN, HERNAN CORTEZ II, and TOMMY MUNRO cruises. A total of 237 neuston samples in the SIPAC collection that were collected during 1985 and 1986 have been transferred to the NMFS-Pascagoula Laboratory for transshipment to the PSIC. There are 5,836 samples currently catalogued in the SIPAC. Currently, there are approximately 150 samples on loan. These samples are from OREGON II, CHAPMAN, HERNAN CORTEZ II, SUN COASTER, and TOMMY MUNRO cruises. Also, a request for a listing of SIPAC holdings has been received and provided to Joanne Shultz, NMFS-Pascagoula.

In an effort to keep the conserve space of the SIPAC collections, sample that have been in the collection for over 7 years and duplicate samples received from the PSIC, are aliquoted to  $\frac{1}{4}$  their original volume and stored in 100 ml vials. To date, approximately 1,200 samples from 1982-1986 have been aliquoted.

Recently, a 486 desktop computer was purchased for management of the SIPAC data base, and the entire data base was transferred from the old system. The new system should be sufficient to handle SIPAC computer requirements for the next several years.

During FY1994, there were 47 SEAMAP plankton samples sorted for selected invertebrates using established SEAMAP protocols. These samples were collected during various OREGON II and PELICAN cruises. A total of 212 lots of specimens were obtained from those samples. To date, a total of 1,358 SEAMAP samples have been sorted for invertebrates, resulting in 5,797 lots.

During the next fiscal year, the SIPAC will continue to manage SEAMAP plankton collections and generate specimens and data on selected invertebrate species. In addition, the SIPAC is attempting to find a graduate student to work with the collection of invertebrate specimens as part of a master's thesis. The current level of SEAMAP funding and support of the SIPAC should be sufficient to support these activities during the next fiscal year.



## **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 included the Coordinator, Data Manager, SAC Curator, SIPAC Curator and the NMFS-Pascagoula Laboratory Director, serving as Program Manager.

### **Planning**

Major SEAMAP-Gulf Subcommittee meetings were held in October 1993 and April 1994, in conjunction with the Annual Fall and Spring Meetings of the GSMFC. All meetings included participation by various work group leaders, Coordinator, Data Manager, and the GSMFC Executive Director. Subcommittee members and proxies are listed in Table 1.

Representatives from the Gulf program also met with the South Atlantic and Caribbean representatives in August 1994 to discuss respective program needs and priorities for FY1995. Minutes for all the meetings are listed in Appendix A.

SEAMAP-Gulf work groups met this past year to provide recommendations to the Subcommittee for survey and data management needs. The Red Drum Work Group met in January 1994 to discuss the development of an age and growth study concerning red drum in the northern Gulf of Mexico. And the Adult Finfish Work Group met in September 1993 (via conference call) to discuss the election of a new work group leader and development of a sampling protocol for sharks in the Gulf of Mexico. Where additional discussion was needed, the Subcommittee also deliberated plans and needs via conference calls. Work group members are listed in Table 2.

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 FY1994. 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 FY1995 Activities**

Preliminary FY1995 SEAMAP-Gulf budget allocations are shown in Table 3. Total program allocations for all three SEAMAP components, Gulf, South Atlantic and Caribbean, is \$1,340,000. At the August meeting, the SEAMAP components based their allocations on level funding (\$1.34K) for FY1995. At this level, the share to be allocated for SEAMAP-Gulf activities (including GSMFC) will be \$602,827.

Proposed FY1995 activities for all Gulf participants are shown in Table 4. The approved 1995 Operations Plan for SEAMAP-Gulf is contained in Appendix B. It should be noted that the SEAMAP fiscal year begins on January 1 thus, fall activities for FY1995 will be conducted from October-December 1995.

## **Information Dissemination**

The following documents were published and distributed in FY1994:

- *1994 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, 1993 to September 30, 1994*. 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, 1992 to September 30, 1993*. A summary of 1993 activities and proposed 1994 events for the SEAMAP-Gulf, South Atlantic, and Caribbean Programs.
- *Environmental and Biological Atlas of the Gulf of Mexico, 1992*. A compilation of information obtained from the 1992 SEAMAP surveys including catch rates of shrimp and finfish, abundance and distribution of plankton in the Gulf of Mexico and environmental data from all surveys.

## **FY1994 Financial Report**

Total allocations for FY1994 program administration were \$94,781. 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, 1994.

**TABLE 1.**

**SEAMAP REPRESENTATIVES FOR FY1994**

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

proxy: Stevens Heath

Richard Waller, Vice Chairman  
Mississippi Department of Marine Resources  
Gulf Coast Research Laboratory

proxy: Thomas McIlwain

Jim Hanifen  
Louisiana Department of Wildlife and Fisheries

Mark Leiby  
Florida Department of Environmental Protection

Terry Cody  
Texas Parks and Wildlife Department

Joanne Shultz  
National Marine Fisheries Service  
Pascagoula Laboratory

Wayne Swingle (non-voting)  
Gulf of Mexico Fishery Management Council

## TABLE 2.

### SEAMAP WORK GROUP MEMBERS FOR FY1994

#### ADULT FINFISH WORK GROUP

Terry Henwood, Leader  
National Marine Fisheries Service  
Pascagoula Laboratory

Billy Fuls  
Texas Parks and Wildlife Department

Joanne Shultz  
National Marine Fisheries Service  
Pascagoula Laboratory

Mark Leiby  
Florida Department of Environmental Protection

Wayne Swingle  
Gulf of Mexico Fishery Management Council

Tom McIlwain  
Mississippi Department of Marine Resources  
Gulf Coast Research Laboratory

James Warren  
Mississippi Department of Marine Resources  
Gulf Coast Research Laboratory

John Roussel  
Louisiana Department of Wildlife and Fisheries

Robert Shipp  
University of South Alabama

#### DATA COORDINATING WORK GROUP

Kenneth Savastano, Leader  
SEAMAP Data Manager  
National Marine Fisheries Service  
Stennis Space Center

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

Walter Tatum  
Alabama Department of Conservation and Natural  
Resources  
Chairman, SEAMAP Subcommittee

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

Perry Thompson  
National Marine Fisheries Service  
Pascagoula Laboratory  
Environmental Data Work Group

Thomas McIlwain  
Mississippi Department of Marine Resources  
Gulf Coast Research Laboratory  
Red Drum Work Group

Richard Waller  
Mississippi Department of Marine Resources  
Gulf Coast Research Laboratory  
Reef Fish Work Group

Joanne Shultz  
National Marine Fisheries Service  
Pascagoula Laboratory  
Plankton Work Group

ENVIRONMENTAL DATA WORK GROUP

Perry Thompson, Leader  
National Marine Fisheries Service  
Pascagoula Laboratory

Charles Eleuterius  
Mississippi Department of Marine Resources  
Gulf Coast Research Laboratory

Joanne Shultz  
National Marine Fisheries Service  
Pascagoula Laboratory

Scott Dinnel  
University of Southern Mississippi

Carmello Tomas  
Florida Department of Environmental Protection

Stevens Heath  
Alabama Department of Conservation and Natural  
Resources

Richard Waller  
Mississippi Department of Marine Resources  
Gulf Coast Research Laboratory

Michelle Kasprzak  
Louisiana Department of Wildlife and Fisheries

Thomas Leming  
National Marine Fisheries Service  
Pascagoula Laboratory

PLANKTON WORK GROUP

Joanne Shultz, Leader  
National Marine Fisheries Service  
Pascagoula Laboratory

Churchill Grimes  
National Marine Fisheries Service  
Panama City Laboratory

Mark Leiby  
Florida Department of Environmental Protection

Alonzo Hamilton  
National Marine Fisheries Service  
Pascagoula Laboratory

Harriet Perry  
Mississippi Department of Marine Resources  
Gulf Coast Research Laboratory

Jim Hanifen  
Louisiana Department of Wildlife and Fisheries

Rick Shaw  
Louisiana State University

Don Hoss  
National Marine Fisheries Service  
Beaufort Laboratory

Ken Stuck, Curator  
SEAMAP Invertebrate Plankton Archiving Center  
Mississippi Department of Marine Resources  
Gulf Coast Research Laboratory

RED DRUM WORK GROUP

Thomas McIlwain, Leader  
Mississippi Department of Marine Resources  
Gulf Coast Research Laboratory

Richard Condrey  
Louisiana State University

Joseph Shepard  
Louisiana Department of Wildlife and Fisheries

Phil Goodyear  
National Marine Fisheries Service  
Miami Laboratory

Joanne Shultz  
National Marine Fisheries Service  
Pascagoula Laboratory

Larry McEachron  
Texas Parks and Wildlife Department

Mark Van Hoose  
Alabama Department of Conservation and Natural  
Resources

Mike Murphy  
Florida Department of Environmental Protection

REEF FISH WORK GROUP

Richard Waller, Leader  
Mississippi Department of Marine Resources  
Gulf Coast Research Laboratory

Billy Fuls  
Texas Parks and Wildlife Department

Mark Leiby  
Florida Department of Environmental Protection

Chris Gledhill  
National Marine Fisheries Service  
Pascagoula Laboratory

Mark Van Hoose  
Alabama Department of Conservation and Natural  
Resources

Richard Kasprzak  
Louisiana Department of Wildlife and Fisheries

SHRIMP/GROUNDFISH WORK GROUP

Stevens Heath, Leader  
Alabama Department of Conservation and Natural Resources

Billy Fuls  
Texas Parks and Wildlife Department

Butch Pellegrin  
National Marine Fisheries Service  
Pascagoula Laboratory

Jim Hanifen  
Louisiana Department of Wildlife and Fisheries

Nate Sanders  
National Marine Fisheries Service  
Pascagoula Laboratory

Terry McBee  
Mississippi Department of Marine Resources  
Gulf Coast Research Laboratory

**TABLE 3.****PRELIMINARY FY1995 PROGRAMMATIC BUDGET**

Alabama Department of Conservation and Natural Resources	80,000
Florida Department of Environmental Protection	110,401
Louisiana Department of Wildlife and Fisheries	142,000
Mississippi Dept. of Marine Resources/Gulf Coast Research Lab	111,170
Texas Parks and Wildlife Department	64,475
Gulf States Marine Fisheries Commission	94,781
<b>TOTAL</b>	<b>\$602,827</b>

**TABLE 4.****PROPOSED SEAMAP-GULF ACTIVITIES, FY1995**

	Fall	Winter	Spring	Summer
<b>Resource Surveys:</b>				
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
<b>Information Operations:</b>				
1993 Biological and Environmental Atlas				X
1995 Marine Directory			X	
FY1994 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
<b>Program Administration:</b>	X	X	X	X

**APPENDIX A**  
**MINUTES FOR FY1994 SEAMAP MEETINGS**



TCC SEAMAP SUBCOMMITTEE  
MINUTES  
Tuesday, October 19, 1993  
San Antonio, Texas

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

Members

Terry Cody, TPWD, Rockport, TX  
Jim Hanifen, LDWF, Baton Rouge, LA  
Joe Kimmel, FDNR, St. Petersburg, FL  
Joanne Shultz, NMFS, Pascagoula, MS  
Walter Tatum, ADCNR, Gulf Shores, AL  
Richard Waller, GCRL, Ocean Springs, MS

Staff

Larry Simpson, Executive Director  
David Donaldson, SEAMAP Coordinator  
Cheryl Noble, Staff Assistant

Others

Dale Beaumariage, USFWS, Atlanta, GA  
Billy Fuls, TPWD, Rockport, TX  
Alan Huff, FDNR, St. Petersburg, FL  
Tom McIlwain, GCRL, Ocean Springs, MS  
Scott Nichols, NMFS, Pascagoula, MS  
Jim Sagnes, TSA, Austin, TX  
Ken Savastano, NMFS, Stennis Space Center

Adoption of Agenda

The agenda was approved with the deletion of Discussion of EMAP. T. McIlwain asked about the FWS National Biological Survey. He believed the subcommittee should be kept abreast of the status of the survey. D. Donaldson suggested setting up a presentation concerning this topic for the March meeting and the subcommittee agreed to add it to the agenda.

Approval of Minutes

The minutes for the meeting held on August 18 and 20, 1993 in St. Petersburg, Florida were approved with minor editorial changes.

Administrative Report

D. Donaldson reported that several surveys were started since the last meeting. The Fall Plankton Survey has begun. Vessels from NMFS, FL, AL, MS and LA surveyed from August 29 to October 9, 1993. The purpose of the survey is to assess abundance and distribution of red snapper and king mackerel eggs and larvae in the Gulf of Mexico. The Fall Shrimp/Groundfish Survey began on Oct 13 and will continue until early December. The purpose of the survey is to determine the abundance and distribution of demersal organisms in the Gulf of Mexico. Vessels from NMFS, AL, MS, LA and TX sample waters out to 60 fm from Mobile Bay, Alabama, to the U.S./Mexican border. The 1991 Environmental and Biological Atlas and TCC Report have been distributed to the

subcommittee at this meeting and editing by the NMFS on the 1992 Atlas should begin in November. D. Donaldson stated he is waiting on information from the South Atlantic and Caribbean components concerning the Joint Annual Report. This document will be sent to the printer by December 1993.

An inkind support questionnaire for the South Atlantic was distributed to the subcommittee. The purpose of this form is to establish the amount of inkind funding provided by the states. D. Donaldson asked if the Gulf component would like to compile similar information. W. Tatum stated that when SEAMAP was established, it was intended that states provide inkind funding to the program. The subcommittee believed that it would be extremely difficult to quantify the actual inkind amount which is contributed to the program and could not see the need for this information.

D. Donaldson reported that he would be talking to the Louisiana-Texas shelf program (LATEX) about SEAMAP on October 27, 1993. He stated the letter from Brad Brown concerning increased funding to the Polish Sorting and Identification Center has been distributed to the subcommittee for their information. R. Waller asked about the status of the necessity of using a TED by SEAMAP participants. D. Donaldson stated that a letter was sent to Andy Kemmerer concerning this issue and to date, there has been no response. When S. Nichols arrives, he might have some information concerning the use of TEDs.

#### Discussion of Implementation of SEAMAP Shark Survey

W. Tatum reported that at the last meeting, the NMFS asked the subcommittee to explore the possibility of implementing a fishery-independent shark survey. T. Cody stated that Texas obtains information on sharks through gill net, long lining and creel survey activities as well as some special studies which include identification of shark tissue to create a library to identify species. The sharks that are captured are usually tagged and released. A survey targeting sharks could not be initiated without additional money. J. Kimmel stated that in Florida there are fishery-independent surveys conducted throughout the state. These surveys are targeting juvenile fish in near shore waters and there are some catches of sharks. However, without additional money, Florida would not be able to conduct a new survey. R. Waller stated that Mississippi conducts routine monitoring of a variety of species and during these surveys there are occasionally catches of shark. There is not a specific survey which targets sharks. He mentioned that Tom Van Devender is interested in a shark survey but without additional funds Mississippi could not conduct such a survey. J. Hanifen stated that Louisiana conducts routine monitoring and there is some catch of sharks but without more money, a survey targeting sharks could not be conducted. W. Tatum stated that Alabama has its normal monitoring and assessment stations but there is not a directed effort towards sharks and they would not be able to conduct a survey without more money. J. Shultz stated that NMFS has no directed efforts towards shark.

\* T. McIlwain suggested that all participants combine their data base concerning sharks into one large data base and determine what kind of information is currently available. Most of this data is non-SEAMAP data. S. Nichols mentioned that the information on sharks appears to be a high priority for MARFIN and could be a possible funding source. At present, the subcommittee cannot address this issue due to a lack of funding. W. Tatum asked that if there were additional money, would the subcommittee be interested in designing a sampling program. J. Hanifen suggested that GSMFC request information concerning sharks from the various agencies and send it to the GSMFC for summation. This would be a first step in determining what is out there and if the subcommittee would like to continue. J. Hanifen moved that the coordinator contact each participating SEAMAP agency requesting all pertinent biological and environmental data concerning the catch of sharks during the routine fishery-independent surveys. This information will be compiled by the coordinator and sent on to NMFS-Pascagoula for summarization and the status of shark data in the Gulf of Mexico would be presented at the next meeting. The motion passed unanimously.

## Status of Comparative Tow Survey

W. Tatum stated that all data being collected is available through the SEAMAP Information System. Several years ago, it was questioned why only the OREGON II data from the SEAMAP was being used in the bycatch analysis of red snapper. The reason for this was due to reliability of the OREGON II data set. In an effort to correct the problem, the GSMFC provided some W/B money to conduct comparative tows in order to determine a calibration factor between state and federal vessels. The calibration factor would allow for the use of the entire data base.

J. Shultz presented the document discussed at the August meeting compiled by Butch Pellegrin of NMFS. This document contains calculations of the number of tows necessary to detect significant differences in catch for a variety of scenarios. J. Shultz reviewed the document with the subcommittee and the results were quite variable. The recommendation of the report is to use a logarithmic scale with a fitted line through the origin to represent all species. R. Waller stated that he is still concerned with the analysis focusing on individual species. The subcommittee discussed the various number of tows needed to detect significant differences for a variety of species. J. Hanifen mentioned that he had talked to Ron Lukens recently. Although R. Lukens was somewhat concerned with the specific methodology to be used, he believed that collecting the data was very important. Once the data was collected, the subcommittee could worry about the particular method of analysis later. J. Hanifen stated that he had given B. Pellegrin's report to the contract statisticians. The statisticians prepared some comments concerning the proposal and J. Hanifen distributed it to the subcommittee. The comments conclude that a linear model may not be appropriate since it is probably a negative binomial distribution and not a normal distribution. Some suggestions concerning determination of sample sizes were presented in the comments. J. Hanifen submitted the comments as some possible alternatives. R. Waller stated that the subcommittee should be focusing on analyzing the data that has been collected and not how many samples need to be taken to detect significant differences. If the number of tows needed to detect significant differences is the measure of success for this activity, then there is a good chance this activity will fail. The subcommittee needs to refocus on analyzing the current data and move away from determination of sample sizes to detect differences. S. Nichols stated that sample size estimates are not the final product of this exercise. The purpose of the activity is to determine a calibration factor and this has been indirectly conducted by B. Pellegrin during the sampling size estimate exercises. NMFS stated that the comments distributed by J. Hanifen would be examined by personnel at the Pascagoula Laboratory. D. Donaldson asked that B. Pellegrin attend the next SEAMAP meeting in March 1994 to present the analysis of the data collected during the 1993 comparative tow survey.

## Work Group Reports

### a. Data Coordinating

K. Savastano distributed and reviewed the SEAMAP Data Management Report. The status reports for the 1986 through 1993 SEAMAP data were presented. All cruise data in the SEAMAP on-line data base have been reformatted to SEAMAP version 3.0. Data processing efforts are currently focused on the 1992 and 1993 SEAMAP cruises, reprocessing the 1988 Gulf cruises, and start up of data management operations for the Caribbean. Processing of the 1992 SEAMAP Environmental and Biological Atlas will start upon the completion of data processing/data basing of the 1992 Gulf data set which should occur in mid-November. The status of the SEAMAP data as of August 16, 1993 consisted of 163 cruises with a total of 1,015,289 records (approximately 40 megabytes of data). Since August 1993, eight cruises have been reprocessed from the NMFS data base through version 3.0 and six cruises were processed through version 3.0 and added to the on-line data base. The SEAMAP on-line data base now contains 177 cruises with a total of 1,163,990 records (approximately 46 megabytes of data).

### b. Environmental Data

J. Shultz presented the work group report for Perry Thompson. She stated the Environmental Work Group held a conference call on September 23, 1993 to elect a new work group leader and to discuss revisions to the environmental section in the SEAMAP Operations Manual. The work group elected P. Thompson from the NMFS Mississippi Laboratories to be the work group leader. During the conference call, a number of the SEAMAP Subcommittee concerns with the Environmental Work Group were addressed. The others will be addressed in the

near future. Those concerns include updating the environmental section in the SEAMAP Operations Manual, calibration of environmental gear, and improving methods of collecting environmental data. The NMFS held an in-house review in April to discuss problems they were having with their environmental equipment, improving methods of collection, calibration of environmental equipment and problems with analyzing environmental data collected, i.e. chlorophyll. In this review, the Subcommittee's concerns were addressed by Warren Stuntz. W. Stuntz was in the process of incorporating the Subcommittee's concerns into the environmental section of the SEAMAP Operations Manual. A copy of the revised environmental section was sent to the work group for review in September. Changes to the environmental section were incorporated into the SEAMAP Operations Manual and sent to D. Donaldson for distribution to all SEAMAP participants. The Environmental Work Group would like to hold a work group meeting at the NMFS Mississippi Laboratories prior to the March GSMFC meeting to discuss calibration of environmental gear, improved sampling methods, review environmental sampling procedures, etc.

c. Plankton

J. Shultz stated there was no new activity to report on. A letter concerning the update of sorting activity of the Polish Sorting and Identification Center was distributed to the SEAMAP Subcommittee for their information.

d. Red Drum

\* T. McIlwain reported that the work group has not been very active in recent years. The Gulf of Mexico Fishery Management Council's Stock Assessment Work Group has been active in looking at data that has been collected by the various states in response to management recommendations. The two groups have almost the same membership. The work group was tasked with reviewing the red drum sampling protocol developed by the Council's stock assessment team. T. McIlwain was asked to poll the work group and the SEAMAP Red Drum Work Group endorses the protocol developed by the Council stock assessment team. The rationale behind endorsing the protocol is that after some strict management activities, it appears that the red drum resource is recovering and thus there is some interest in reopening the fishery. The work group believes that before this occurs, it needs to be verified that the stock is actually recovering and proposed protocol will accomplish this task. W. Tatum stated the protocol is a three-year study. In 1994, there will be an aerial survey; in 1995, there will be a tagging survey and development of an offshore age structure analysis; and in 1996, there will be a recapture study, continuation of the offshore age structure analysis and another aerial survey. The total cost of the project will be \$1.66 million. Several members believed that protocol was scientifically sound and necessary but there was some concern with the high cost of the project. W. Tatum noted there had been some discussion during the development of this protocol that a less expensive method for determining if the management efforts were working would be to conduct an age analysis on the red drum offshore stocks. It may be much easier to obtain approximately \$50,000 to conduct this study opposed to \$1.7 million for the three-year project. J. Hanifen moved to recommend the Red Drum Work Group's sampling protocol to the TCC. The motion passed with Alabama opposing.

e. Reef Fish

R. Waller reported that the Reef Fish Work Group held a conference call on September 28, 1993. The work group elected R. Waller from Gulf Coast Research Laboratory to be the work group leader. J. Kimmel stated that Florida was experimenting with some other technologies concerning the trap/video methodology. These technologies would increase the current video coverage but not change the existing protocol. There were several technologies discussed including panoramic viewing, tilting the camera and doing some time lapse video. The most promising activity is the panoramic capability. This is a very simple modification and can be accomplished fairly cheaply. He discussed this issue with the U.S. Geological Survey personnel and they indicated that they could construct a panoramic viewing mechanism for approximately \$500/camera. Florida is planning to use this technology during its reef fish survey and will report back to the work group concerning the success of this apparatus. The focal length of the camera was also discussed during the call. Presently, the length is 120 degrees to enable the largest field of view, however, this length distorts the size of the fish. J. Kimmel stated he is also experimenting with different focal lengths in an effort to approximate what the human eye can see. The work group encouraged Florida to continue exploring these issues and keep the group abreast of the progress. R. Waller stated that Mike Russell who was the main contributor to the reef fish survey recently passed away. He believed that the SEAMAP subcommittee should express its condolences to M. Russell's family. W. Tatum stated that he would send

a letter to his family expressing the Subcommittee's sympathy. The synopsis of the 1992 trap/video survey given by J. Shultz to MARFIN was distributed to the subcommittee, for their information.

#### f. Shrimp/Groundfish

D. Donaldson presented the work group report for Steven Heath. He stated that the NMFS, Alabama, Mississippi, Louisiana and Texas participated in the Summer Shrimp/Groundfish Survey. The survey occurred from June 1 to July 18, 1993. A total of 336 trawl samples was taken from coastal and offshore waters out to 50 fm from Mobile Bay, Alabama, to Brownsville, Texas. The OREGON II collected 185 samples; R/V TOMMY MUNRO collected 37 samples; R/V VERRILL collected 10 samples; R/V PELICAN collected 24 samples; and Texas vessels collected 80 samples. All vessels took environmental data, including temperature, salinity, oxygen, and chlorophyll at each station. In addition, the R/V TOMMY MUNRO and the R/V VERRILL conducted a comparative trawl survey. This survey was conducted on August 24-25 and September 29. A total of 22 comparative trawls were conducted.

The Fall Shrimp/Groundfish started in mid-October and will continue until early December. Mississippi and Alabama have selected the stations which will be sampled east of Mississippi River.

#### Discussion of GSMFC Funding

D. Donaldson reported that the GSMFC will overspend by approximately \$8,000 for this year. This deficit is mainly due to increased travel costs and office supplies. Next year's budget has been cut by approximately \$6,600 in order to comply with the amount established at the SEAMAP Joint meeting. The major reason for addressing this issue is to inform the subcommittee of the situation. The GSMFC will absorb this year's overage (\$8,000). W. Tatum asked the subcommittee if they would like him to handle this by meeting with the D. Donaldson, L. Simpson and Ginny Herring to discuss this issue.

#### Election of Officers

T. Cody was chairman of the nominating committee and the committee submitted W. Tatum as candidate for chairman and R. Waller and J. Hanifen as candidates for vice chairman. After ballot vote, W. Tatum was reelected chairman and R. Waller was reelected vice chairman.

#### Other Business

J. Shultz presented two examples of color keys for invertebrates found in the Gulf of Mexico developed by Harriet Perry. The first example was the original and the second was a laser copy. She asked the subcommittee if the laser copy was of good enough quality since laser copies are much easier to produce. After some examination, the subcommittee believed the laser copy was adequate. J. Shultz stated she would notify H. Perry of their preference.

**There being no further business, the meeting was adjourned at 5:00 p.m.**

## SEAMAP SUBCOMMITTEE MINUTES

Tuesday, April 5, 1994

Biloxi, Mississippi

Chairman Walter Tatum called the meeting to order at 1:27 p.m. The following members and others were present:

### Members

Terry Cody, TPWD, Rockport, TX  
Jim Hanifen, LDWF, Baton Rouge, LA  
Alan Huff, FMRI, St. Petersburg, FL  
Tom McIlwain (proxy for R. Waller), GCRL, Ocean Springs, MS  
Joanne Shultz, NMFS, Pascagoula, MS  
Walter Tatum, ADCNR, Gulf Shores, AL

### Staff

David Donaldson, SEAMAP Coordinator  
Cheryl Noble, Staff Assistant

### Others

Ralph Allemand, LDWF, Baton Rouge, LA  
Steve Branstetter, GSAFDF, Tampa, FL  
Jim Clugston, USFWS, Gainesville, FL  
Steve Heath, ADCNR, Dauphin Island, AL  
Terry Henwood, NMFS, Pascagoula, MS  
Scott Nichols, NMFS, Pascagoula, MS  
Butch Pellegrin, NMFS, Pascagoula, MS  
Ken Savastano, NMFS, SSC, MS  
Perry Thompson, NMFS, Pascagoula, MS

### Adoption of Agenda

The agenda was changed to reflect the deletion of Discussion of EMAP. It was approved as amended.

### Approval of Minutes

The minutes for the meeting held on October 19, 1993 in San Antonio, Texas and the conference call held on November 10, 1993 were approved as written.

### Administrative Report

D. Donaldson reported that the SEAMAP Spring Plankton survey will begin sampling on April 7 and be completed on June 10, 1994. Vessels from NMFS and Florida participate in the survey. The purpose of this survey is to assess abundance and distribution of bluefin tuna eggs and larvae in the Gulf of Mexico. The third Spring Reef Fish survey was started on May 17 and will continue into October 1993. Vessels from NMFS, Mississippi, Alabama and Florida are sampling inshore and offshore waters from Brownsville, Texas to Key West, Florida. The purpose of survey is to assess the relative abundance and compute population estimates of reef fish. The Summer Shrimp/Groundfish Survey will begin early June and continue until mid-July. Vessels from NMFS, Alabama, Mississippi, Louisiana and Texas will sample waters out to 50 fm from Mobile Bay, Alabama to U.S./Mexican border. The purpose of survey is to determine abundance and distribution of demersal organisms in Gulf of Mexico. Also, the second year of the Comparative Tow survey is scheduled to be conducted some time during May 1994.

and this will be discussed later in the meeting. The Joint Annual Report and 1994 Marine Directory have been completed and distributed to the appropriate personnel. If anyone needs copies of these documents, please contact me. The NMFS is working on data for the 1992 Atlas. NMFS and GSMFC personnel should begin the review process later this month. J. Hanifen stated that Louisiana has just finished its Spring Shrimp/Groundfish Survey and have reserved the PELICAN to conduct comparative tows for the week of May 9, 1994. T. Cody noted that Texas started sampling adult finfish in March using bottom longlining and will continue into May 1994. Texas is planning purchase the equipment for conducting the trap/video survey and should participant in the survey this year.

### Comparative Tow Survey

#### a. Review and Analysis of 1993 Activities

B. Pellegrin presented the analysis of catches from the TOMMY MUNRO and the A.E. VERRIL. The data used in the analysis was collected from previous comparative tows and the tows conducted in 1993 during the comparative tow survey. There are some differences in vessel and gear that was used. The TOMMY MUNRO used 8x40-foot doors to spread the net while the A.E. VERRIL used 7x36-foot doors. And the TOMMY MUNRO tows from an outrigger while the A.E. VERRIL tows from the stern. For the analysis, the most frequently occurring species and those species which comprised at least 90% of total number of individuals caught were selected to detect differences in catch. The next step was to determine what comprised a valid observation. A valid observation was defined as a paired tow in which a species of interest was caught by each vessel. The catch rates were adjusted numbers caught/hours fished and these adjusted catch rates were subjected to simple linear regression in the arithmetic and logarithmic scales. The reasons for using the logarithmic scales were that this scale usually stabilizes unstable variances and uncovers intrinsically linear functions. Using the method described early, 22 taxa were selected and the searobins and squids had to be groups at the generic level. It was noted that from the selected species, there was a good vertical distribution throughout the water column. The catches of the two vessels varies with one vessels outfish the other for one particular species but not another. The TOMMY MUNRO outfished the VERRILL for 12 taxa and the VERRILL outfished the TOMMY MUNRO for 10 taxa. What this shows is that there was not a distinct pattern of one vessel outfishing the other. From the linear regression analysis, there was no significant differences for 14 of the 22 taxa. From these findings, it is probably safe to conclude that there is no significant differences between two vessels' catch. From a paired tow experiment conducted on the OREGON II, it was found that 23.4% (arithmetic); 19.1% (logarithmic) of the taxa resulted in significant differences between nets and for the TOMMY MUNRO/VERRILL, 27.2% (arithmetic); 18.2% (logarithmic) of the taxa resulted in significant differences. Thus, the number of significant differences for the TOMMY MUNRO/VERRILL is not unusual and should not be considered out of the ordinary. The conclusion from the analysis is that the TOMMY MUNRO and the A.E. VERRILL are catching the same organisms and this year's work should focus on the determination of differences between the TOMMY MUNRO and the PELICAN. B. Pellegrin stated that for the past SEAMAP information, there still may be a problem since there were gear differences between several vessels and some conversion factors may be needed. However, if the results found in this analysis continue for projected comparative tows, the information collected in the future should be comparable.

T. Henwood presented another approach to examining the comparative tow analysis. This approach looks at ranking the species by variance in numbers. Based on this ranking, it may be possible to determine which species most closely exhibit random distribution and are the best candidates for use in comparisons of net performances. If species or species complexes exhibiting least variability between nets can be identified, it may be appropriate to ignore other species if the objective of the analysis is to determine whether nets are comparable. Preliminary analyses were conducted on some OREGON II data. As expected, the most abundant schooling species exhibited the highest variances in numbers of individuals. At the lower variance levels although not as clearly delineated, are species such as lizardfish, searobins, eels, crabs, shrimps, etc, that would be expected to exhibit less variability in catch rates. If the objective is to detect differences in performance of two nets, it may be preferable to compare between species exhibiting the least variability. Therefore, this approach may have some practical application if a standardized list of species or species complexes for use in paired tow analyses can be developed.

## b. Planning 1994 Activities

W. Tatum stated that there is really no need to conduct more tows between the VERRILL and the TOMMY MUNRO as a result of the previous presentation. D. Donaldson suggested that the tows be conducted between the TOMMY MUNRO and the PELICAN. The tentative schedule for the tows is the week of May 9 and D. Donaldson will be in contact with R. Waller and J. Hanifen to firm up the times and dates of sampling. The Subcommittee accepted the action by acclamation.

## Update of Shark Data in the Gulf of Mexico

D. Donaldson stated that he summarized each participants' data into simple components such as total number, species caught, gear used, etc. For Texas, 6,338 sharks were caught from 1975 - 1993. The majority of sharks were caught with gill nets. Other gears included trammel nets, drag seines, and shrimp trawls. The majority of sharks consisted of bull, blacktip and bonnethead species with other species including Atlantic sharpnose and finetooth species. For Louisiana, 1,567 sharks were caught from 1986-1993. The majority of sharks were caught in 150-foot gill net with various size meshes. Other gears include 750-foot trammel nets, and 50-foot seines. The majority of sharks consisted of the Atlantic sharpnose species. Other species included bull, blacktip, spinner, lemon, bonnethead, and scalloped hammerhead. For Mississippi, 10 sharks were caught from 1987 - 1990. All of the sharks were caught with a 36-foot trawl. And all of the sharks consisted of Atlantic sharpnose species. For Alabama, 2 sharks were caught in 1983 and 1985 and the two species caught were Atlantic sharpnose and bonnethead. For Florida, 330 sharks were caught from 1990-1992. The majority of sharks were caught in 600-foot large-mesh gill nets. Other gears include 20-foot Otter trawls and center-bag seines. The majority of sharks consisted of the bonnethead species. Others included blacktip, bull, blacknose, nurse, lemon, and scalloped hammerhead species. For NMFS, 99,657 sharks were caught from 1950 - 1992. The majority of sharks were caught in shrimp trawls. Other gears include various types of longlining, fish trawls, gill nets, and tumbler dredges. The majority of sharks consisted of Atlantic sharpnose species. Others included hammerheads, requiem and cat sharks and broadband, smooth and Cuban dogfishes. A total of 107,904 sharks have been caught from 1950 - 1993.

\* W. Tatum stated that this information should be sent to S. Nichols who will forward it to B. Brown at the Southeast Fisheries Science Center in Miami, Florida. D. Donaldson stated that he will provide a more comprehensive description of the data along with copies of the actual data base files to NMFS. W. Tatum asked the Subcommittee if the participants were interested in beginning a SEAMAP shark survey if the funds were available. T. Cody stated that Texas is currently sampling with gill nets in the spring and fall and could put this activity under SEAMAP if there was additional money. However, TPWD would probably not be interested in using a new gill net sampling protocol. J. Hanifen stated that Louisiana would not be interested in initiating a new monitoring program for sampling sharks since the LDWF is strapped for personnel. If there was additional money, Louisiana might be interested in piggybacking the survey on the current finfish monitoring program. T. McIlwain said that Mississippi is interested in participating in a shark survey. W. Tatum stated that Alabama does not use gill nets during their sampling but is interested in participating in the survey. The Florida and NMFS representatives also expressed an interest in conducting this survey. The states need to send the sampling protocols for the collection of the information that was used to establish the shark data bases. T. McIlwain moved that the SEAMAP Subcommittee charge the Adult Finfish Work Group to develop a sampling protocol for a SEAMAP Shark survey. The motion was seconded and passed unanimously.

S. Nichols stated that NOAA/NMFS have identified several areas such as sharks, deep water reefs, and oil rig resources as being high priority within the agency. J. Hanifen stated that Louisiana is interested in participating in the SEAMAP Reef Fish Survey, but the current protocol is not able to survey structures which occur throughout the water column. One of the SEAMAP work groups might be able to develop some methodology for sampling oil and gas structures in the northern Gulf of Mexico. J. Hanifen moved that the SEAMAP Subcommittee charge the Reef Fish Work Group to develop a sampling protocol to survey natural and artificial hard bottom areas that are not currently being sampled by the SEAMAP trap/video methodology. The motion was seconded and passed unanimously.



## Presentation of National Biological Survey

J. Clugston reported that the National Biological Survey is a new bureau and not part of the Fish and Wildlife Service. One of first acts of Secretary Babbitt was to create National Biological Survey (NBS). This bureau is a reorganization of biological research from the Fish and Wildlife Service (FWS), National Park Service, Bureau of Land Management, Mineral Management Service, Office of Surface Mine Reclamation and Enforcement, U.S. Geological Survey, Bureau of Reclamation, and Bureau of Mines. The research components from each of these Department of Interior agencies were used to create the NBS. The majority of personnel were taken from Region Eight of the FWS. The reason for establishing the NBS is that for too long, resource management has been reactive in response to perceived problems rather than anticipatory of developing problems. The agency is non-regulatory and consists of four divisions: administrative, research, inventory and monitoring and information and technological services. The deputy director of the NBS is Gene Husman, the director will probably be Ron Pulliam and there are approximately 1,600 employees. The budget for the NBS in 1994 is \$163 million with \$134 million dedicated to existing programs. The new money (\$29 million) will be used primarily for ecosystem research, biological inventory and monitoring. NBS is headquartered in Washington, D.C. and is divided into four ecoregions: eastern, southern, mid-continent, and western. There will be regional offices and in the south ecoregion, the office will be in Lafayette, Louisiana. The Gainesville Center has gone through some changes since the reorganization. The Center is responsible for species biology of endangered species, global climate changes, non-indigenous species, and aquaculture. The Manatee Project, the Everglades National South Florida project and Big Cypress National Park have been added to the Gainesville Center.

### Work Group Reports

#### a. Data Coordinating

K. Savastano reported on the status report of 1985-1993 SEAMAP data. Data processing efforts are currently focused on the 1993 SEAMAP cruises, reprocessing 1988 Gulf cruises, NMFS summer and fall shrimp/groundfish cruises from 1982 to 1987, and start up data management operations for the Caribbean. A data entry/edit workshop for Caribbean personnel is currently scheduled for April 11 - 15, 1994 at Stennis Space Center. Processing of the 1992 SEAMAP data for the Gulf and South Atlantic is complete. Processing of the 1992 Atlas is in progress. One hundred and thirty six SEAMAP requests have been received to date. One hundred and thirty four have been completed and work is being performed on the remaining requests. Modifications to the SEAMAP ichthyoplankton module were completed and OREGON II cruise 183 species/length data were added to the on-line data base. Ichthyoplankton species/length data from seven additional cruises are currently being processed. The SEAMAP on-line data base has 177 cruises with a total of 1,163,990 records (approximately 46 megabytes of data). Since October 1993, ten cruises have been reprocessed from the NMFS data base through version 3.0 and nineteen cruises were processed through version 3.0 and added to the on-line data base. The SEAMAP on-line data base now contains 206 cruises with a total of 1,314,960 records (approximately 51 megabytes of data).

#### b. Red Drum

W. Tatum reported that at the last meeting, the Subcommittee charged the Red Drum Work Group to develop a MARFIN proposal to determine the age structure of red drum in the northern Gulf of Mexico. T. McIlwain reported that the group met in January and essentially came up with two options. The first was to develop a study protocol which would determine the age and growth of red drum and the other option was to examine just the age structure. The group discussed the latter option at the meeting and believed that this work would not answer the necessary questions. After some discussion at the meeting and several conference call, the group attempted to develop a larger study which would examine the entire population which rely on funding from MARFIN and inkind contributions from the states. The group believed that if the effort was made to capture the fish, work it should also be conducted for population analysis. The Red Drum Work Group believed that information concerning red drum is necessary and the large, complete \$1.7 million red drum sampling protocol was needed and recommended that the MARFIN age structure study not be developed. The states are very interested in collecting this data and this issue will be addressed again.

c. Reef Fish

J. Shultz reported that representatives from NMFS, Alabama and Mississippi met on March 7, 1994 to discuss tape reading methodologies. NMFS personnel reported that a new data form has been developed and they are currently working on some counting methodologies concerning duplicate counting of organisms. T. Henwood noted that NMFS is preparing to conduct an experiment which should help in determining the area being surveyed by a particular tape. And during the Reef Fish Survey, NMFS is planning to use a 4-camera setup at least once a day to view 360 degrees of the survey area. D. Donaldson reported that in talking with J. Kimmel, Florida is continuing to work on the panning mechanism for the trap/video methodology and will hopefully have it for this year's survey.

Discussion of SEAMAP Joint Meeting

\* W. Tatum reported that initially the Gulf component did not have enough funds to meet in St. Croix, Virgin Islands. After a phone poll (Texas, Mississippi, Alabama, and Florida voted for and Louisiana voted against), the Subcommittee agreed to defer the fall meeting and thus provide funding to meet in the Caribbean for the joint meeting. Several conference calls were conducted and the Caribbean component believed that it was necessary for SEAMAP to meet in their area. However, NMFS did not have the funding to facilitate travel to the Caribbean. W. Tatum asked S. Nichols if this was still the case and S. Nichols replied that NMFS just does not have the money to travel to the Caribbean this year. Thus, J. Hanifen moved that the SEAMAP-Gulf component proposed the sites of Atlanta, GA, Miami, FL or San Juan, PR for the next Joint meeting (August 1994) to the other two SEAMAP components. The motion was seconded and passed unanimously. The Subcommittee asked D. Donaldson to set up a conference call between the three SEAMAP components, coordinators and NMFS to finalize this issue.

Other Business

J. Shultz reported that SEAMAP ichthyoplankton samples have been returned from the Polish Sorting and Identification Center and are currently being sorted at the SEAMAP Archiving Center. She noted that P. Thompson, the Environmental Data Work Group leader, was present and P. Thompson stated that the Work Group has address the Subcommittee's concerns and is continuing to work on the solutions. J. Shultz asked that Terry Henwood be added to the Adult Finfish Work Group and the Subcommittee concurred. And she noted that a biodiversity initiative from the National Systematic Laboratory (NSL) praised SEAMAP for its careful data collection and organism identification work and NSL could be a potential source of funding for some additional SEAMAP activities.

**There being no further business, the meeting was adjourned at 5:05 p.m.**

## SEAMAP SUBCOMMITTEE

### MINUTES

Tuesday, August 9, 1994

and Thursday August 12, 1994

Chairman Walter Tatum called the meeting to order at 1:15 p.m. The following members and others were present.

#### Members

Joanne Shultz, NMFS, Pascagoula, MS  
Richard Waller, GCRL, Ocean Springs, MS  
Terry Cody, TPWD, Rockport, TX  
Jim Hanifen, LDWF, Baton Rouge, LA  
Walter Tatum, ADCNR, Gulf Shores, AL  
Mark Leiby, FDNR, St. Petersburg, FL

#### Others

Ken Savastano, NMFS, SSC, MS  
Scott Nichols, NMFS, Pascagoula, MS  
Frederick "Buck" Sutter, NMFS/SERO, St. Petersburg, FL

#### Staff

David Donaldson, GSMFC, Ocean Springs, MS  
Cheryl Noble, GSMFC, Ocean Springs, MS

#### Adoption of Agenda

The Data Management Report was moved to after agenda item Number 7, "Presentation of SEAMAP Plankton Data Summaries," then the agenda was approved as submitted.

#### Approval of Minutes

The minutes for the meeting held on Tuesday, April 5, 1994 were approved as submitted. In reference to these minutes, W. Tatum asked if the Reef Fish Work Group was contacted to develop protocol on surveying hard bottom areas. D. Donaldson said a letter was sent to the work group charging them with developing a sampling protocol to survey natural and artificial hard bottom areas that are not currently being sampled by the SEAMAP trap/video methodology. The main purpose for the request is to develop methodology for sampling oil and gas structures in the northern Gulf of Mexico. There has been no response from the work group yet. R. Waller stated that NMFS has submitted a proposal to MARFIN to develop protocol but it is still in review. He suggested the Subcommittee wait to see the outcome of the NMFS proposal to MARFIN and then decide if the work group should continue with the charge.

#### Administrative Report

D. Donaldson stated the third Spring Reef Fish Survey was started on June 8 and will continue into later this year. Vessels from the NMFS, Mississippi, Alabama and Florida sampled inshore and offshore waters from Brownsville, Texas to Key West, Florida. The purpose of the survey is to assess the relative abundance and compute population estimates of reef fish. Texas is in the process of getting their equipment for this survey and will conduct some preliminary samples later this year.

The Summer Shrimp/Groundfish survey began June 2 and continued until July 19, 1994. The purpose of this survey is to determine abundance and distribution of demersal organisms in the Gulf of Mexico. There were 360 stations sampled. Vessels from NMFS, Alabama, Mississippi, Louisiana and Texas sampled waters out to 50 fm from Mobile Bay, Alabama to the U.S./Mexican border.

Comparative tow surveys were conducted May 9-12, 1994. Approximately 49 stations were sampled. There were six weekly Real-Time Data mailings starting on June 14 and continuing until July 19. The information was mailed to approximately 275 interested people. NMFS is working on the 1992 Atlas data. D. Donaldson said they should begin reviewing the data later this year.

D. Donaldson stated he completed the summary of shark catches during routine fishery-independent sampling activities for Texas, Louisiana, Mississippi, Alabama, Florida, and NMFS. The summary was mailed to the Adult Finfish Work Group and he will send a copy to the Subcommittee.

W. Tatum asked if the SEAMAP budget for administration was all right so far and D. Donaldson said at this point everything is fine.

R. Waller explained that after he plotted the stations to be sampled during the July leg of the Summer Shrimp/Groundfish survey he noticed several of the stations were in Texas and sampling would occur during the Texas closure. He called to get a permit but it was too late so they were unable to sample those stations. He said he would check stations before leaving next time to make sure they had permits if they needed them.

#### Discussion of Comparative Tow Survey

J. Shultz distributed B. Peligrin's comments on the preliminary comparisons of the 1994 trawling experiment conducted by the research vessels TOMMY MUNRO and PELICAN. She explained that at this time there are no formal analysis that it was too early to make any kind of judgement. She expects to have completed analysis by the end of September and B. Peligrin will present the results at the SEAMAP meeting scheduled for October.

#### Update on SEAMAP Shark Data and Survey

D. Donaldson submitted a summary of shark catches during routine fishing-independent sampling activities. He explained this was just the total number caught and by what gear types. After a lengthy discussion on whether the Subcommittee should pursue developing protocol on shark sampling, it was decided the Adult Finfish Work Group should address this issue. Everyone was in agreement the NMFS is very interested in obtaining shark data and SEAMAP would be the best way to do it. D. Donaldson said the work group will not be able to meet until next year but they can have a conference call. W. Tatum asked him to set this up and he would like to be involved in it.

#### Data Management Report

Ken Savastano submitted a Data Management Report (Attachment I) to the Subcommittee. The major accomplishments since March 1994 are:

- Status reports from SEAMAP years 1982-1994 are in Attachments 1-9 of the Data Management Report. All cruise data have been reformatted to SEAMAP versions 3.0 or 3.1. Data processing of 1992 and 1993 Gulf and South Atlantic data have been completed.

- A three day workshop on the SEAMAP data entry system was held for the Caribbean participants at Stennis Space Center, MS on April 12-14, 1994.
- 1994 SEAMAP Near-Real-Time data processing was completed.
- Processing of the 1992 SEAMAP Atlas is approximately 25% complete. Processing of the 1993 SEAMAP Atlas will begin when the 1992 Atlas is complete.
- One hundred and forty-three SEAMAP requests have been received and one hundred and forty-two requests have been filled.
- A new version (3.1) of the SEAMAP software was released and distributed in July. All data should now be processed in 3.1. A Silicon Graphics (SGI) machine which is an IT-95 machine is now on-line in Miami. The capability of accessing the SGI using INTERNET has been added.
- The SEAMAP on-line data base now contains 232 cruises with a total of 1,527,012 records which is approximately 60 megabytes of data.

#### Presentation of SEAMAP Plankton Data Summaries

J. Shultz gave a slide presentation on the status of the Ichthyoplankton Database (Attachment II). She said they worked with a vengeance on the Ichthyoplankton data this past month but were not able to have a complete time series of all species. She showed some very general slides explaining the data files and the information in them. She said they will continue working with the fall plankton surveys and then proceed to the summer and fall shrimp/groundfish collections because they want to start comparing the results of those collections to the plankton collections. After the comparisons are made and if they are able to determine any patterns or trends it may help them decide if they need to modify or redesign some of the surveys. She also distributed several examples of the other reports for the Subcommittee to review.

#### Activities and Budget Needs

W. Tatum stated that it is likely SEAMAP will again be level funded. He then asked if there were any requirements from the components above level funding.

Each state and the Commission stated their budget needs for FY96:

FLORIDA - M. Leiby stated that there is a strong possibility that Florida could lose the HERNAN CORTEZ II and if they did lose it, their budget could not cover the costs to charter a boat to conduct surveys. He also stated he would like a full-time Curator for the SEAMAP Archiving Center instead of a part-time person. He said it is hard to get and keep a quality person there if the position is not a full-time position. The archiving work being done is for the Gulf. He estimated that an additional \$20,000 should cover these expenses. He is asking for a total of \$134,001.

ALABAMA - W. Tatum stated they could handle their current obligations with the current budget. Level funding would be \$80,000.

MISSISSIPPI - R. Waller stated they had some mandated salary increases and it will have to come out of the budget. If the money that was given up last year to other components can be returned, there shouldn't be a problem with doing the same work for the same amount of money. The added amount would be \$2,000. Level funding would be \$111,170.

LOUISIANA - J. Hanifen stated they also had salary increases in the last year and he hasn't had a vessel charter rate increase in seven years and expects to have one next year. He said if the money that was given up last year is returned this year they should be able to do the same work for the same amount of money. The added amount would be \$4,471 and level funding would be \$146,471.

TEXAS - T. Cody stated they were the benefactors of the money given up by other components. It was used to purchase equipment to get started on the reef fish survey. He said if they gave up what was received last year they wouldn't be able to do the sampling. They can combine it with other cruises but won't be able to do a full scale sampling program. If the \$4,000 from the other components is taken away they can maintain SEAMAP but will not be able to do reef fish or any other additional programs. With an added \$10,000 they could conduct some reef fish sampling. Texas is asking for \$72,475.

NMFS - S. Nichols stated they would be able to stay level funded.

GSMFC - D. Donaldson stated they could do the same things at the current funding level. He stated they will not be able to meet in the Caribbean at level funding. Louisiana gave GSMFC \$2,471 last year and GSMFC really can't afford to lose that. Level funding would be \$92,310 but is asking for \$98,281.

After a lengthy discussion on how much money the Gulf component would need and how it would be divided, the following is the breakdown of how the money would be distributed:

STATE	LEVEL FUNDING	ADD	TOTAL
GSMFC	92,310	5,971	98,281
MISSISSIPPI	111,170	0	111,170
FLORIDA	110,401	20,000	130,401
ALABAMA	80,000	0	80,000
TEXAS	62,475	10,000	72,475
LOUISIANA	146,471	0	146,471
TOTAL	602,827	35,971	638,798

The meeting adjourned at 6:15 p.m.

The meeting reconvened on Wednesday August 10, 1994 at 3:30 p.m.

During the Joint Seemap Meeting, it was decided that each component would stay at level funding. The Caribbean component agreed to pay travel costs for three Gulf States for the next joint meeting. After discussion, the final breakdown for the gulf component is as follows:

STATE	TOTAL
GSMFC	94,781
MISSISSIPPI	111,170
FLORIDA	110,401
ALABAMA	80,000
TEXAS	64,475
LOUISIANA	142,000
TOTAL	602,827

Red Tide Issue

J. Hanifen informed the group that a red tide occurred off of the Louisiana and Texas coasts during July. He stated that because of miscommunication no samples were taken. The OREGON II was in the area and could have easily taken samples. He asked what should be done to keep this from happening in the future. The Subcommittee agreed that if any events out of the ordinary should occur such as a red tide, the SEAMAP Coordinator, Dave Donaldson, should be contacted and he in turn will contact the appropriate person(s) to ensure the problem is addressed. In addition, the Subcommittee agreed that Brad Brown of the NMFS should be notified about this issue.

#### Preparation of Cooperative Agreements

Minor changes were made to the Operations Plan and was approved by the Subcommittee for inclusion in FY1995 cooperative agreements.

#### Other Business

T. Cody asked the group what type of video player he should purchase to review the tapes. They told him he needed a high quality player with such features as playback, slow, fast, pause, etc. This type of machine has to be special ordered, it's not a standard VCR player. W. Tatum suggested that T. Cody spend his time this year getting trained at the NMFS Laboratory rather than buying a player.

R. Waller stated Mississippi delayed the reef fish cruise from May until a week ago for various reasons. One reason was because they felt they would have clearer water later on in the summer but that didn't hold true. They also had boat trouble and that delayed them even further. He wanted to let the Subcommittee know that he feels it's not worth spending SEAMAP time and money because the tapes have such low visibility. The group decided the Reef Fish Subcommittee should be notified of the problem and come up with a solution.

**There being no further business, the meeting adjourned at 4:50 p.m.**

**APPENDIX B**  
**1995 SEAMAP OPERATIONS PLAN**



## SEAMAP-GULF OF MEXICO

### OPERATIONS PLAN

January 1, 1995 - December 31, 1995

#### 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, 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: 1990-1995* was produced in 1990 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 Operations 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: 1990-1995* 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 (SIS) 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 sixth SEAMAP-Gulf Annual Operations Plan describes planned activities and events for the period January 1, 1995 through December 31, 1995. 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: 1990-1995*.

## **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 surface chlorophylls, salinity, temperature and dissolved oxygen from surface, midwater and near bottom and water color, using the Forel-ule test.

Right bongo samples and neuston samples collected in 1995 from SEAMAP stations will be transhipped by the NMFS Pascagoula Laboratory to the Polish Sorting and Identification Center (PSIC) for sorting and identification, after which they will be returned to SEAMAP Archiving Center (SAC) at Florida Department of Environmental Protection 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 Gulf Coast Research Laboratory in Ocean Springs, Mississippi.

### Spring Reef Fish Survey

The objectives of the survey are:

- (1) assess relative abundance and compute population estimates of reef fish using a video/trap technique;
- (2) determine habitat using an echo sounder and video camera;

- (3) determine if bioacoustics assessment methodology can be applied to reef fish communities;
- (4) collect environmental data at each station; 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<sup>2</sup> 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.

#### Louisiana Seasonal Day/Night Trawl Surveys

These surveys provide comparative information on the abundance and distribution of critical life stages of major Gulf of Mexico species, especially shrimp, and associated environmental parameters.

Sampling will be conducted in March, July, October and December 1995. A stratified random station design with a total of 48 planned locations will be sampled at day and night with 40-ft nets. Stations will be randomly selected. The July sampling will be conducted as part of the SEAMAP Summer Shrimp/Groundfish Survey.

All organisms are identified, weighed and measured. Plankton and environmental sampling are conducted at all stations. Processing of environmental data including bottom sediments and surface and bottom chlorophylls will be done at Louisiana Department of Wildlife and Fisheries (LDWF). Plankton samples will be sorted and identified for ichthyoplankton at the LDWF Plankton Laboratory. Specimens and data will be shipped to the SAC.

#### **OPERATIONS**

The following activities and events by participant comprise the SEAMAP-Gulf of Mexico operations schedule for the period January 1, 1995 to December 31, 1995:

##### 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
- (3) Attend SEAMAP Subcommittee and work group meetings as scheduled and provide assistance to SEAMAP Subcommittee
- (4) Plan, coordinate and conduct a pilot study for sampling reef fish in the Gulf of Mexico
- (5) Data inventory, entry, edit and transmit to mainframe all SEAMAP cruise information

##### Louisiana Department of Wildlife and Fisheries

- (1) Seasonal trawl surveys: March, July, October and December (July in conjunction with Summer Shrimp/Groundfish Survey)
- (2) Plankton sampling in conjunction with trawl surveys
- (3) Plankton sample sorting and identification

- (4) Attend SEAMAP Subcommittee and work group meetings as scheduled and provide assistance to SEAMAP Subcommittee
- (5) Process sediment and chlorophyll samples
- (6) Data inventory, entry, edit and transmit to mainframe all SEAMAP cruise information

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) Plan, coordinate and conduct a pilot study for sampling reef fish in the Gulf of Mexico
- (8) 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) Plankton sampling in conjunction with trawl surveys
- (5) Attend SEAMAP Subcommittee and work group meetings as scheduled and provide assistance to SEAMAP Subcommittee
- (6) Quarterly estuarine shrimp/groundfish sampling
- (7) Plan, coordinate and conduct a pilot study for sampling reef fish in the Gulf of Mexico
- (8) Data inventory, entry, edit and transmit to mainframe all SEAMAP cruise information

Florida Department of Environmental Protection

- (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) Plan, coordinate and conduct a pilot study for sampling reef fish in the Gulf of Mexico
- (6) Data inventory, entry, edit and transmit to mainframe all SEAMAP cruise information

National Marine Fisheries Service, Southeast Fisheries Science Center

- (1) Spring Reef Fish Survey: March-July, 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) SIS implementation and operations
- (8) Processing and transshipment of SEAMAP plankton samples to the PSIC
- (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 SIS, in accordance with procedures and protocols stated in the *Southeast Area Monitoring and Assessment Program (SEAMAP) Management Plan: 1990-1995*. User policies and procedures are also defined in this document.

The SAC 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 1990-1995*.

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; and
- (7) Real-time Data Summaries of the Summer Shrimp/Groundfish Survey.

## **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 1995:

- (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: 1990-1995*. Designated members for 1995 are:

Texas Parks and Wildlife Department:	Terry Cody
Louisiana Department of Wildlife and Fisheries:	Jim Hanifen
Gulf Coast Research Laboratory:	Richard Waller
Alabama Department of Conservation & Natural Resources:	Walter Tatum
Florida Department of Environmental Protection:	Mark Leiby
National Marine Fisheries Service:	Joanne Shultz
Gulf of Mexico Fishery Management Council:	Wayne Swingle (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 1995 are:

ADULT FINFISH WORK GROUP  
Terry Henwood, Leader  
National Marine Fisheries Service  
Pascagoula Laboratory

Billy Fuls  
Texas Parks and Wildlife Department

Mark Leiby  
Florida Department of Environmental Protection

Tom McIlwain  
Mississippi Department of Marine Resources  
Gulf Coast Research Laboratory

John Roussel  
Louisiana Department of Wildlife and Fisheries

Robert Shipp  
University of South Alabama

Joanne Shultz  
National Marine Fisheries Service  
Pascagoula Laboratory

Wayne Swingle  
Gulf of Mexico Fishery Management Council

James Warren  
Mississippi Department of Marine Resources  
Gulf Coast Research Laboratory



DATA COORDINATING WORK GROUP

Kenneth Savastano, Leader  
SEAMAP Data Manager  
National Marine Fisheries Service  
Stennis Space Center

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

Perry Thompson  
National Marine Fisheries Service  
Pascagoula Laboratory  
Environmental Data Work Group

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

Walter Tatum  
Alabama Department of Conservation and Natural  
Resources  
Chairman, SEAMAP Subcommittee

Thomas McIlwain  
Mississippi Department of Marine Resources  
Gulf Coast Research Laboratory  
Red Drum Work Group

Richard Waller  
Mississippi Department of Marine Resources  
Gulf Coast Research Laboratory  
Reef Fish Work Group

Joanne Shultz  
National Marine Fisheries Service  
Pascagoula Laboratory  
Plankton Work Group

ENVIRONMENTAL DATA WORK GROUP

Perry Thompson, Leader  
National Marine Fisheries Service  
Pascagoula Laboratory

Charles Eleuterius  
Mississippi Department of Marine Resources  
Gulf Coast Research Laboratory

Joanne Shultz  
National Marine Fisheries Service  
Pascagoula Laboratory

Scott Dinnel  
University of Southern Mississippi

Carmelo Tomas  
Florida Department of Environmental Protection

Stevens Heath  
Alabama Department of Conservation and Natural  
Resources

Richard Waller  
Mississippi Department of Marine Resources  
Gulf Coast Research Laboratory

Michelle Kasprzak  
Louisiana Department of Wildlife and Fisheries

Thomas Leming  
National Marine Fisheries Service  
Pascagoula Laboratory

PLANKTON WORK GROUP

Joanne Shultz, Leader  
National Marine Fisheries Service  
Pascagoula Laboratory

Churchill Grimes  
National Marine Fisheries Service  
Panama City Laboratory

Alonzo Hamilton  
National Marine Fisheries Service  
Pascagoula Laboratory

Jim Hanifen  
Louisiana Department of Wildlife and Fisheries

Don Hoss  
National Marine Fisheries Service  
Beaufort Laboratory

Mark Leiby  
Florida Department of Environmental Protection

Harriet Perry  
Mississippi Department of Marine Resources  
Gulf Coast Research Laboratory

Rick Shaw  
Louisiana State University

Ken Stuck, Curator  
SEAMAP Invertebrate Plankton Archiving Center  
Mississippi Department of Marine Resources  
Gulf Coast Research Laboratory

RED DRUM WORK GROUP

Thomas McIlwain, Leader  
Mississippi Department of Marine Resources  
Gulf Coast Research Laboratory

Richard Condrey  
Louisiana State University

Phil Goodyear  
National Marine Fisheries Service  
Miami Laboratory

Larry McEachron  
Texas Parks and Wildlife Department

Mike Murphy  
Florida Department of Environmental Protection

Joseph Shepard  
Louisiana Department of Wildlife and Fisheries

Joanne Shultz  
National Marine Fisheries Service  
Pascagoula Laboratory

Mark Van Hoose  
Alabama Department of Conservation and Natural Resources

REEF FISH WORK GROUP

Richard Waller, Leader  
Mississippi Department of Marine Resources  
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 Department of Environmental Protection

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

Jim Hanifen  
Louisiana Department of Wildlife and Fisheries

Terry McBee  
Mississippi Department of Marine Resources  
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: 1990-1995*.

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: 1990-1995*, 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: 1990-1995*.

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.