

**ANNUAL REPORT**

**TO THE**

**TECHNICAL COORDINATING COMMITTEE**

**GULF STATES MARINE FISHERIES COMMISSION**

**OCTOBER 1, 2017 TO SEPTEMBER 30, 2018**

**SEAMAP Subcommittee**

**Ted Switzer, Chairman**

**Jeffrey K. Rester**

**SEAMAP Coordinator**

**October 9, 2018**

**GSMFC No: 279**

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## **INTRODUCTION**

The Southeast Area Monitoring and Assessment Program (SEAMAP) is a State/Federal/University program for the 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 NOAA Fisheries' Southeast Regional Office (SERO).

Federal programmatic funding for SEAMAP activities and administration was appropriated in Federal Fiscal Years 1985-2018 (October 1 through September 30). State and Gulf States Marine Fisheries Commission (GSMFC) funding allocations for FY1985-FY2018 were handled through State/Federal cooperative agreements, administered by SERO and the Southeast Fisheries Science Center (SEFSC), NOAA Fisheries.

In FY2018, SEAMAP operations continued for the thirty-seventh consecutive year. SEAMAP resource surveys included the Fall Plankton Survey, Fall Shrimp/Groundfish Survey, Spring Plankton Survey, Summer Shrimp/Groundfish Survey, Reef Fish Survey, Bottom Longline Survey, Vertical Line Survey, and plankton and environmental data surveys. Other FY2018 activities included SEAMAP information services and program management.

This report is the thirty-fifth 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 FY2018 and proposed SEAMAP activities for FY2019.

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

## **FY2018 SEAMAP RESOURCE SURVEYS**

The surveys conducted during the year address distinct regional needs and priorities and provide information concerning the marine resources in the Gulf of Mexico. Other activities included SEAMAP information services and program management.

### **Fall Shrimp/Groundfish Survey**

The Fall Shrimp/Groundfish Survey was conducted from October 10 to November 21, 2017 from off southwest Florida to the U.S.-Mexican border. Two hundred ninety-two trawl stations were sampled during the survey. Plankton samples are no longer being collected during this survey.

Vessels sampled waters out to 60 fm with trawls in addition to environmental sampling. The objectives of the survey were to:

- (1) sample the northern Gulf of Mexico to determine abundance and distribution of demersal organisms from inshore waters to 60 fm;
- (2) obtain length-frequency measurements for major finfish and shrimp species to determine population size structures; and
- (3) collect environmental data to investigate potential relationships between abundance and distribution of organisms and environmental parameters.

### **Spring Plankton Survey**

The SEAMAP Spring Plankton Survey was conducted from April 27 – May 25, 2018. Ninety-nine stations were sampled during the survey. The objectives of the survey were to assess, using neuston and bongo nets, the occurrence, abundance and geographical distribution of the early life stages of spring spawning fishes, especially Atlantic Bluefin Tuna, from mid-continental shelf to offshore Gulf of Mexico waters in support of annual stock assessments and collect environmental data at all ichthyoplankton stations.

Plankton samples were taken with standard SEAMAP bongo and neuston samplers. The bongo sampler consisted of two conical 61-cm nets with 333-micron mesh. Tows were oblique, surface to near bottom (or 200 m) and back to surface. A mechanical flowmeter is mounted off-center in the mouth of each bongo net to record the volume of water filtered. Volume filtered ranges from approximately 20 to 600 m<sup>3</sup> but is typically 30 to 40 m<sup>3</sup> at the shallowest stations and 300 to 400 m<sup>3</sup> at the deepest stations. A single or double 2x1 m pipe frame neuston net fitted with 0.947 mm mesh netting is towed at the surface with the frame half-submerged for 10 minutes. Samples are taken upon arrival on station, regardless of time of day. At each station, either a bongo and/or neuston tow are made depending on the specific survey. Preservation protocol called for the right bongo samples to be preserved in 10% formalin and then transferred to fresh 95% ethanol after 36 hours. The original standard SEAMAP method of initial preservation in 10% formalin for 48 hours was changed to 36 hours in order to improve long term storage for genetic analysis. The left bongo and neuston samples are initially preserved in 95% ethanol and then transferred to fresh 95% ethanol after 24 hours. In addition, hydrographic data (surface chlorophylls, salinity, temperature and dissolved oxygen from surface, midwater and near bottom, and Forel-ule color) were collected at all stations.

Right bongo and neuston samples collected from SEAMAP stations were transshipped to the Polish Sorting and Identification Center. Left bongo samples were archived at the SEAMAP Invertebrate Plankton Archiving Center (SIPAC).

### **Bottom Longline Survey**

The SEAMAP Bottom Longline Survey is a nearshore survey that complements an existing long-term fisheries independent longline survey currently being conducted by NOAA Fisheries, by

targeting shark and finfish species within the shallow waters of the Gulf of Mexico. The objectives of the survey are to collect information on shark and finfish abundances and distribution with a 1-mile longline and to collect environmental data.

The Bottom Longline Survey samples during three seasons Spring (April-May), Summer (June-July), and Fall (August-September). Sampling is conducted in waters defined by the 3-10m depth contour. NMFS Statistical Zones are used as guides to ensure effective distribution of sampling effort. Stations are proportionally allocated and randomly distributed within the 3-10m depth contour in each statistical zone based on the proportion of those depths present. Since the 3-10m depth strata is smaller in some statistical zones relative to other statistical zones, each statistical zone is allocated at least two stations during each season in order to ensure adequate sampling coverage. Texas, Louisiana, Mississippi, and Alabama sampled 165 stations from April through September, 2018 in waters off their coasts in 3-10m.

### **Vertical Line Survey**

In FY2018, Texas, Louisiana, and Alabama conducted vertical line sampling for reef fish. Over 200 stations were sampled from April through October. The Vertical Line Survey uses three bandit reels that are outfitted with ten circle hooks (8/0, 11/0 or 15/0). Each has only one hook size. The bandit reels deploy the gear simultaneously on or near a reef structure and, once locked in at depth, are allowed to fish for 5 minutes. All bandit reels then retrieve the lines simultaneously. Catch data are collected once the lines are onboard. Environmental data is collected upon completion of fishing at each station.

The Vertical Line Survey design divides the Gulf offshore waters between 10 and 150m into 150x150m grid blocks. Unknown habitat, known natural reef (hard bottom), presumed reef either natural or artificial, oil/gas platforms, and artificial reefs were the five habitat classifications developed by the SEAMAP Subcommittee. Each 150x150m grid block is assigned a habitat classification based upon several different datasets used to develop the sampling universe. A grid block can be classified as more than one habitat type if it has more than one habitat located within it.

For the station selection process, the total amount of habitat within the three depth zones (10-20m, 20-40m, and 40-150m) is computed. The percentage of area covered by each depth zone determines the percentage of the total stations that will be sampled within each depth zone (i.e. if a depth zone contains 40% of the total area, 40% of the total stations will be assigned to that depth zone). The total area of each habitat classification is calculated within each depth stratum. The total of each habitat classification, excluding unknown habitat, is then used to calculate the percentage of habitats within the depth zone. This percentage is used to determine how many stations are assigned to each habitat type within the depth zone. Stations are randomly selected based upon the habitat classification percentages within each depth zone.

### **Reef Fish Survey**

The primary purpose of this survey was to assess relative abundance and compute population estimates of reef fish found on natural reef fish habitats in the Gulf of Mexico. Video stereo

cameras were used during the survey since they enabled the measurement of length frequencies. Each stereo camera contained paired black-and-white Videre stereo cameras along with a color mpeg camera in a cylindrical pressure housing. Four of these were mounted in a camera array and were positioned orthogonally with the center of the camera mounted 51 cm above the bottom of the array. The camera array was baited with squid. The camera array was allowed to soak on the bottom for 30 minutes, and the fish trap soaked for one hour. Florida sampled 209 stations on the west Florida shelf from May 7 to August 29 while NOAA Fisheries sampled 481 stations around the Gulf of Mexico from March 1 through May 6, 2018.

### **Summer Shrimp/Groundfish Survey**

The SEAMAP Summer Shrimp/Groundfish Survey was conducted from June 5 to July 19, 2018. Three hundred two trawl stations were completed in this year's survey. Due to funding constraints, plankton sampling was not conducted during this year's survey. This was the thirty-seventh year for the survey.

Objectives of the Summer Shrimp/Groundfish Survey were to:

- (1) monitor size and distribution of penaeid shrimp during or prior to migration of brown shrimp from bays to the open Gulf;
- (2) aid in evaluating the "Texas Closure" management measure of the Gulf Council's Shrimp Fishery Management Plan; and
- (3) provide information on shrimp and groundfish stocks across the northern Gulf of Mexico from inshore waters to 60 fm.

### **Fall Plankton Survey**

The Fall Plankton cruise took place from September 6 to September 30, 2018 with NOAA Fisheries, Louisiana, Mississippi, and Alabama participating. One hundred thirty-one stations were sampled this year. The objective of this survey was to collect ichthyoplankton samples with bongo and neuston gear for the purpose of estimating abundance and defining the distribution of eggs, larvae, and small juveniles of Gulf of Mexico fishes, particularly king and Spanish mackerel, lutjanids and sciaenids.

Plankton samples were taken with standard SEAMAP bongo and neuston samplers. The bongo sampler consisted of two conical 61-cm nets with 333-micron mesh. Tows were oblique, surface to near bottom (or 200 m) and back to surface. A mechanical flowmeter is mounted off-center in the mouth of each bongo net to record the volume of water filtered. Volume filtered ranges from approximately 20 to 600 m<sup>3</sup> but is typically 30 to 40 m<sup>3</sup> at the shallowest stations and 300 to 400 m<sup>3</sup> at the deepest stations. A single or double 2x1 m pipe frame neuston net fitted with 0.947 mm mesh netting is towed at the surface with the frame half-submerged for 10 minutes. Samples are taken upon arrival on station regardless of time of day. At each station either a bongo and/or neuston tow are made depending on the specific survey. Samples are routinely preserved in 5 to 10% formalin and later transferred after 36 hours to 95% ethanol for long-term storage. During

some surveys, selected samples are preserved initially in 95% ethanol and later transferred to fresh ethanol. In addition, hydrographic data (surface chlorophylls, salinity, temperature, and dissolved oxygen from surface, midwater and near bottom, and Forel-ule color) were collected at all stations.

Right bongo and neuston samples collected from SEAMAP stations will be transshipped to the Polish Sorting and Identification Center. Left bongo samples will be archived at the SEAMAP Invertebrate Plankton Archiving Center (SIPAC).

## **INFORMATION SERVICES**

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

### **SEAMAP Information System**

Biological and environmental data from all SEAMAP-Gulf surveys are included in the SEAMAP Information System, managed in conjunction with NOAA Fisheries-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 1982-2017 have been entered into the system and data from the 2018 surveys are in the process of being verified, edited, and entered for storage and retrieval. Verified, non-confidential SEAMAP data are available conditionally to all requesters, although the highest priority is assigned to SEAMAP participants.

Requested SEAMAP data were used for a multitude of purposes in 2018:

- Evaluating the abundance and size distribution of penaeid shrimp in federal and state waters to assist in determining opening and closing dates for commercial fisheries;
- Evaluating and plotting the size of the hypoxic (Dead Zone) area off of Louisiana;
- Assessing shrimp and groundfish abundance and distribution and their relationship to such environmental parameters as temperature, salinity, and dissolved oxygen;
- Identifying environmental parameters associated with concentrations of larval finfish;
- Assessing the potential impact the Deepwater Horizon oil spill on marine fish stocks; and
- Compiling the 2018 SEAMAP Environmental and Biological Atlas.

## **Real-time Data**

A major function of the SEAMAP Information System is the processing of catch data from the Summer Shrimp/Groundfish Survey as near-real-time data. Data were transmitted weekly to the GSMFC for inclusion. Plots of station locations and catch rates of shrimp, squid and dominant finfish species were prepared, edited, and processed by GSMFC for weekly distribution to management agencies, fishermen, processors and researchers. SEAMAP real-time data plots were produced during the 2018 Summer Shrimp/Groundfish Survey. Six weekly mailings were produced and distributed to approximately 125 interested individuals. These plots were also available through the SEAMAP web page.

## **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 Executive Director.

Personnel associated with SEAMAP program management include the Coordinator, Data Manager, SEAMAP Archiving Center Curator, SIPAC Curator and the Program Monitor from NOAA Fisheries-Pascagoula Laboratory.

### **Planning**

Major SEAMAP-Gulf Subcommittee meetings were held in October 2017 and March 2018 in conjunction with the Annual Meeting of the GSMFC. All meetings included participation by various work group leaders, the Coordinator, the Program Monitor, and other GSMFC staff. Representatives from the Gulf program also met with the South Atlantic and Caribbean representatives in July 2018 to discuss respective program needs and priorities for FY2019.

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 2018. 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.

### **Information Dissemination**

The following documents were published and distributed during this reporting period:

- *SEAMAP Subcommittee Report to the GSMFC Technical Coordinating Committee - October 1, 2016 to September 30, 2017.* A detailed summary of program accomplishments, emphasizing survey design, material collected data dissemination, budget information, and future survey activities.

### **Proposed 2019 Activities**

Preliminary 2019 SEAMAP-Gulf budget allocations are shown in Table 3. Last year, total program allocations for all three SEAMAP components, Gulf, South Atlantic and Caribbean, was approximately \$4.74 million. At the July meeting, the SEAMAP components based their allocations for 2019 on level funding. At this level, the share to be allocated for SEAMAP-Gulf activities (including GSMFC) will be \$1,956,840. Proposed FY2019 activities for all Gulf participants are shown in Table 4.

### **FY2018 Financial Report**

Total allocations for FY2018 program administration were \$232,515. 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, 2018.

**TABLE 1.**

**SEAMAP REPRESENTATIVES FOR FY2018**

Ted Switzer, Chairman  
Florida Fish and Wildlife Conservation Commission  
Florida Fish and Wildlife Research Institute

John Mareska  
Alabama Department of Conservation and Natural Resources

Brett Falterman  
Louisiana Department of Wildlife and Fisheries

Jill Hendon  
University of Southern Mississippi  
Gulf Coast Research Laboratory

Fernando Martinez-Andrade  
Texas Parks and Wildlife Department

Christian Jones  
NOAA Fisheries  
Pascagoula Laboratory

John Froeschke (non-voting)  
Gulf of Mexico Fishery Management Council

**TABLE 2.**

**SEAMAP WORK GROUP MEMBERS FOR FY2018**

**ADULT FINFISH WORK GROUP**

Kevin Rademacher  
NOAA Fisheries  
Pascagoula Laboratory

Jason Adriance  
Louisiana Department of Wildlife and  
Fisheries

Brian Bartram  
Texas Parks and Wildlife Department

John Mareska  
ADCNR/Marine Resources Division

FWC/Florida Fish and Wildlife  
Research Institute

Emily Satterfield  
MS Department of Marine Resources

**DATA COORDINATING WORK GROUP**

Lloyd Kirk, Leader  
SEAMAP Data Manager  
Gulf States Marine Fisheries Commission

Mike Murphy  
Florida Fish and Wildlife Conservation  
Commission

David Hanisko  
NOAA Fisheries  
Pascagoula Laboratory

John Anderson  
University of Southern Mississippi  
Gulf Coast Research Laboratory

Charles Weber  
NOAA Fisheries  
Pascagoula Laboratory

Michael Harden  
LA Department of Wildlife and Fisheries

## **ENVIRONMENTAL DATA WORK GROUP**

Chloé Dean  
Louisiana Department of Wildlife and  
Fisheries

Jason Herrmann  
Alabama Department of Conservation and  
Natural Resources

Joey Salisbury  
NOAA Fisheries  
Pascagoula Laboratory

Ryan Moyer  
Florida Fish and Wildlife Conservation  
Commission

John Anderson  
Gulf Coast Research Laboratory  
University of Southern Mississippi

Mike Stahl  
Texas Parks and Wildlife Department

## **PLANKTON WORK GROUP**

Chloé Dean  
Louisiana Department of Wildlife and  
Fisheries

Joan Herrera  
Florida Fish and Wildlife Conservation  
Commission

Tammy Cullins  
Florida Fish and Wildlife Conservation  
Commission

Jason Tilley  
University of Southern Mississippi  
Gulf Coast Research Laboratory

Jason Herrmann  
Alabama Department of Conservation  
and Natural Resources

Sara LeCroy, Curator  
SEAMAP Invertebrate Plankton  
Archiving Center  
University of Southern Mississippi/Gulf  
Coast Research Laboratory

Mark Benfield  
Louisiana State University

Glenn Zapfe  
NOAA Fisheries  
Pascagoula Laboratory

**SHRIMP/GROUNDFISH WORK GROUP**

Adam Pollock  
National Marine Fisheries Service  
Pascagoula Laboratory

Craig Newton  
Alabama Department of Conservation and  
Natural Resources

Fernando Martinez-Andrade  
Texas Parks and Wildlife Department

André DeBose  
NOAA Fisheries  
Pascagoula Laboratory

Chloé Dean  
Louisiana Department of Wildlife and  
Fisheries

FWC/Florida Fish and Wildlife  
Research Institute

John Anderson  
University of Southern Mississippi  
Gulf Coast Research Laboratory

**LOONGLINE WORK GROUP**

John Mareska  
Alabama Department of Conservation and  
Natural Resources

Christine Jensen  
Texas Parks and Wildlife Department

Jill Hendon  
University of Southern Mississippi  
Gulf Coast Research Laboratory

Christine Seither  
Louisiana Department of Wildlife and  
Fisheries

Trey Driggers  
NOAA Fisheries  
Pascagoula Laboratory

Ted Switzer  
FWC/Florida Fish and Wildlife  
Research Institute

**VERTICAL LINE WORK GROUP**

Ted Switzer  
FWC/Florida Fish and Wildlife  
Research Institute

Jill Hendon  
University of Southern Mississippi  
Gulf Coast Research Laboratory

Chloé Dean  
Louisiana Department of Wildlife and  
Fisheries

Fernando Martinez-Andrade  
Texas Parks and Wildlife Department

Craig Newton  
ADCNR/Marine Resources Division

Matthew Campbell  
NOAA Fisheries  
Pascagoula Laboratory

**TABLE 3.**  
**PRELIMINARY 2019 PROGRAMMATIC BUDGET**

	FY2018 Funding
GSMFC	\$232,515
Alabama	\$150,000
Florida	\$597,924
Louisiana	\$410,613
Mississippi	\$382,682
Texas	\$183,106
<b>Total</b>	<b>\$1,956,840</b>

**TABLE 4.**  
**PROPOSED SEAMAP-GULF ACTIVITIES, 2019**

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