ANNUAL REPORT

TO THE

TECHNICAL COORDINATING COMMITTEE

GULF STATES MARINE FISHERIES COMMISSION

OCTOBER 1, 2022 TO SEPTEMBER 30, 2023

SEAMAP Subcommittee

Ted Switzer, Chairman

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SEAMAP Coordinator

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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 1985-2023 (October 1 through September 30). State and Gulf States Marine Fisheries Commission (GSMFC) funding allocations for FY1985-FY2023 were handled through State/Federal cooperative agreements, administered by SERO and the Southeast Fisheries Science Center (SEFSC), NOAA Fisheries.

In FY2023, SEAMAP operations continued for the forty-second consecutive year. SEAMAP resource surveys included the Fall Shrimp/Groundfish Survey, Spring Plankton Survey, Summer Shrimp/Groundfish Survey, Reef Fish Survey, Bottom Longline Survey, Fall Plankton Survey, and plankton and environmental data surveys. Other FY2023 activities included SEAMAP information services and program management.

This report is the fortieth 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 FY2023 and proposed SEAMAP activities for FY2024.

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

FY2023 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 3 to November 17, 2022 from off southwest Florida to the U.S.-Mexican border. NOAA Fisheries, Florida, Alabama,

Mississippi, and Louisiana sampled two hundred twenty-five trawl stations during the 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 by NOAA Fisheries from May 3-27, 2023. Eighty-five 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 fish, 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^3 but is typically 30 to 40 m^3 at the shallowest stations and 300 to 400 m^3 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 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. Alabama, Mississippi, Louisiana, and Texas collected data at 157 stations during the survey this year from April 18 to September 14, 2023.

Reef Fish Survey

The objectives of the survey are to assess the relative abundance of reef fish on the continental shelf edge-banks of the northern Gulf of Mexico, reef fish associated with oil and gas platforms, and reef fish associated with artificial reefs; map areas using a side scan sonar system; collect water samples for eDNA analysis; and collect environmental data. Stations are sampled with camera arrays baited with Atlantic Mackerel and squid prior to deployment. Each camera array is allowed to soak at the bottom for a minimum of thirty-five minutes to assure that twenty minutes of continuous video and stereo images are recorded. Camera arrays are only deployed during the day and habitat mapping is conducted at night. Vertical line sampling is also conducted to collect biological samples for life history information. Water samples are taken at approximately 100 stations per year for eDNA analysis. In addition, water temperature, salinity, dissolved oxygen, and transmissivity are collected at all stations.

Beginning in March, NOAA Fisheries sampled 547 camera stations and collected 51 water samples for eDNA analysis, while also mapping 1,250 linear nautical miles. Florida sampled 789 camera stations while mapping 33 stations using side scan sonar. With the increased FY2023 SEAMAP funding, other state partners began habitat mapping and video sampling this summer. Due to the different habitats that the state partners were sampling (primarily standing and toppled oil platforms and artificial reefs), they used 2023 to determine the best camera configuration to sample reef fish off their coast.

Summer Shrimp/Groundfish Survey

The Summer Shrimp/Groundfish Survey began June 7 and sampling concluded August 11, 2023. SEAMAP collected 330 stations of the 350 originally scheduled stations. SEAMAP sent out

weekly real time plots of total catch and brown, pink, and white shrimp distribution during the Summer Shrimp/Groundfish Survey. The plots were mailed and emailed to approximately 100 individuals and distributed via the Commission's web site.

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 – 30, 2023. NOAA Fisheries completed sixty-nine stations during the survey. 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 fish, particularly King and Spanish Mackerel, lutjanids and sciaenids. Plankton samples were collected in the same manner as during the Spring Plankton Survey.

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 1982-2022 have been entered into the system and data from the 2023 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 2023:

- 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; and
- Identifying environmental parameters associated with concentrations of larval finfish.

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 2023 Summer Shrimp/Groundfish Survey. Six weekly mailings were produced and distributed to approximately 90 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 2022 and March 2023. 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 2023 to discuss respective program needs and priorities for FY2024.

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 2023. 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, 2021 to September 30, 2022.* A detailed summary of program accomplishments, emphasizing survey design, material collected data dissemination, budget information, and future survey activities.
- *Joint Annual Report of the SEAMAP Program - October 1, 2021 to September 30, 2022*. A summary of FY2022 activities and proposed FY2023 events for the SEAMAP-Gulf, South Atlantic, and Caribbean Programs.

Proposed 2024 Activities

Preliminary 2024 SEAMAP-Gulf budget allocations are shown in Table 3. Last year, total program allocations for all three SEAMAP components, Gulf, South Atlantic and Caribbean, were approximately $6.38 million. At the July meeting, the SEAMAP components based their allocations for 2024 on level funding. At this level, the share to be allocated for SEAMAP-Gulf activities (including GSMFC) will be $2,786,639. Proposed FY2024 activities for all Gulf participants are shown in Table 4.

FY2023 Financial Report

Total allocations for FY2023 program administration were $550,500. 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, 2023.

TABLE 1. SEAMAP REPRESENTATIVES FOR FY2023

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

John Mareska
Alabama Department of Conservation and Natural Resources

Zach Zuckerman
Louisiana Department of Wildlife and Fisheries

Jill Hendon
University of Southern Mississippi
Gulf Coast Research Laboratory

Fernando Martinez-Andrade
Texas Parks and Wildlife Department

Adam Pollack
NOAA Fisheries
Pascagoula Laboratory

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

TABLE 2. SEAMAP WORK GROUP MEMBERS FOR FY2023

DATA COORDINATING WORK GROUP

Sarah Wakefield
SEAMAP Data Manager
Gulf States Marine Fisheries Commission

Jill Hendon
University of Southern Mississippi
Gulf Coast Research Laboratory

David Hanisko
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Pascagoula Laboratory

Michael Harden
LA Department of Wildlife and Fisheries

Megan Schrandt
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ENVIRONMENTAL DATA WORK GROUP

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PLANKTON WORK GROUP

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SHRIMP/GROUNDFISH WORK GROUP

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Pascagoula Laboratory

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Texas Parks and Wildlife Department

Daniel Burke
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Lillian Collins
University of Southern Mississippi
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Jessica Marchant
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Chrissy Stepongzi
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LONGLINE WORK GROUP

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Angie Hoover
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Trey Driggers
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REEF FISH VIDEO WORK GROUP

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Tiffany Weidner
University of Southern Mississippi
Gulf Coast Research Laboratory

Eric Gigli
Mississippi Department of Marine
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Zach Zuckerman
Louisiana Department of Wildlife and Fisheries

Darin Toppin
Texas Parks and Wildlife Department

Craig Newton
ADCNR/Marine Resources Division

Matthew Campbell
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Pascagoula Laboratory

HABITAT MAPPING WORK GROUP

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Paul Grammer
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Fisheries

Lindsey George
Texas Parks and Wildlife Department

Russell Rigby
ADCNR/Marine Resources Division

Isabella Masarik
NOAA Fisheries
Pascagoula

TABLE 3. PRELIMINARY 2024 PROGRAMMATIC BUDGET

	FY2023 Funding
GSMFC	$550,500
Alabama	$205,500
Florida	$725,000
Louisiana	$470,000
Mississippi	$572,000
Texas	$261,639
Total	$2,786,639

TABLE 4. PROPOSED SEAMAP-GULF ACTIVITIES, 2024

	Fall	Winter	Spring	Summer
Resource Surveys:				
Spring Plankton Survey			X	
Shrimp/Groundfish Surveys	X			X
Fall Plankton Survey	X			
Bottom Longline Survey	X		X	X
Reef Fish Survey	X		X	X
Information Operations:				
Joint Annual Report		X		
Data Input and Request Processing	X	X	X	X
Specimen Archiving and Loan	X	X	X	X
Real-time Data Summaries				X
Program Administration:	X	X	X	X