ANNUAL REPORT

TO THE

TECHNICAL COORDINATING COMMITTEE

GULF STATES MARINE FISHERIES COMMISSION

OCTOBER 1, 2021 TO SEPTEMBER 30, 2022

SEAMAP Subcommittee

Ted Switzer, Chairman

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SEAMAP Coordinator

October 11, 2022 **GSMFC No: 316**

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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 1985-2022 (October 1 through September 30). State and Gulf States Marine Fisheries Commission (GSMFC) funding allocations for FY1985-FY2021 were handled through State/Federal cooperative agreements, administered by SERO and the Southeast Fisheries Science Center (SEFSC), NOAA Fisheries.

In FY2022, SEAMAP operations continued for the forty-first consecutive year. SEAMAP resource surveys included the Fall Shrimp/Groundfish Survey, Spring Plankton Survey, Summer Shrimp/Groundfish Survey, Reef Fish Survey, Bottom Longline Survey, Vertical Line Survey, Fall Plankton Survey, and plankton and environmental data surveys. Other FY2022 activities included SEAMAP information services and program management.

This report is the thirty-ninth 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 FY2022 and proposed SEAMAP activities for FY2023.

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

FY2022 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 4 to November 23, 2021 from off southwest Florida to the U.S.-Mexican border. NOAA Fisheries, Florida, Alabama,

Mississippi, and Louisiana sampled two hundred seventy-four 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 2022 SEAMAP Spring Plankton Survey was not conducted due to NOAA vessel issues. The Oregon II was scheduled to undergo routine repairs at the shipyard in early 2022. These repairs were more extensive than originally planned and repairs were not finished until June.

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 156 stations during the survey this year from April 14 to October 4, 2022.

Vertical Line Survey

The SEAMAP 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. So far, Texas and Alabama have completed 105 vertical line stations between April 19 and October 4.

The vertical line data were submitted to the Red Snapper SEDAR Workshop for evaluation prior to the upcoming Red Snapper Stock Assessment. Although the panelists felt the analyses were sound, there were several concerns with indices developed using data from the Vertical Line Survey (analyses included data from other states collected using ancillary funds). The most significant concern was strong temporal variability in sampling intensity, spatial coverage in sampling effort, and the types of habitats sampled that were not able to be adequately accounted for in the statistical models conducted. Concerns were also raised regarding whether observed indices were correlated with true site abundance due to gear saturation and the influence of other species. Due to these issues, and the fact that the reef fish video survey provided data on the same size of Red Snapper collected in the Vertical Line Survey, the panel determined that indices of abundance from the vertical line survey were not suitable for assessment. As this is primarily a Red Snapper survey (90%+ of the catch is Red Snapper), the SEAMAP Subcommittee decided on July 11, 2022 to discontinue this survey in 2023. Tentatively, funds will be used for state partners to participate in the Reef Fish Survey.

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. NOAA Fisheries sampled 524 camera stations from April 1 through September 9 while also mapping 35 blocks. Florida sampled 799 camera stations from April 1 through September 30 while mapping 97 stations using side scan sonar.

Summer Shrimp/Groundfish Survey

Repairs to the Oregon II impacted the Summer Shrimp/Groundfish Survey also. NOAA Fisheries did not sample during their normal sampling period this summer. The Summer Shrimp/Groundfish Survey began June 4 and finished August 22, 2022. SEAMAP collected 248 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 August 28 through September 26, 2022. NOAA Fisheries and Louisiana completed one hundred twenty-five 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 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. Samples are preserved in 95% ethanol for long-term storage. 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 1982-2021 have been entered into the system and data from the 2022 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 2022:

- 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.

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 2021 and March 2022 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 2022 to discuss respective program needs and priorities for FY2023.

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 2022. 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, 2020 to September 30, 2021.* 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, 2020 to September 30, 2021*. A summary of FY2021 activities and proposed FY2022 events for the SEAMAP-Gulf, South Atlantic, and Caribbean Programs.

Proposed 2023 Activities

Preliminary 2023 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 $4.78 million. At the July meeting, the SEAMAP components based their allocations for 2023 on level funding. At this level, the share to be allocated for SEAMAP-Gulf activities (including GSMFC) will be $1,975,752. Proposed FY2023 activities for all Gulf participants are shown in Table 4.

FY2022 Financial Report

Total allocations for FY2022 program administration were $327,813. 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, 2022.

TABLE 1.

SEAMAP REPRESENTATIVES FOR FY2022

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 FY2022

DATA COORDINATING WORK GROUP

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

David Hanisko
NOAA Fisheries
Pascagoula Laboratory

Megan Schrandt
Florida Fish and Wildlife Conservation Commission

Tim MacDonald
Florida Fish and Wildlife Conservation Commission

Jill Hendon
University of Southern Mississippi
Gulf Coast Research Laboratory

Michael Harden
LA Department of Wildlife and Fisheries

ENVIRONMENTAL DATA WORK GROUP

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PLANKTON WORK GROUP

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Janessa Fletcher
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Mark Benfield
Louisiana State University

Glenn Zapfe
NOAA Fisheries
Pascagoula Laboratory

SHRIMP/GROUNDFISH WORK GROUP

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Suzy Delaune
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Olivia Lestrade
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Craig Newton
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Taniya Wallace
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FWC/Florida Fish and Wildlife Research Institute

LONGLINE WORK GROUP

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University of Southern Mississippi
Gulf Coast Research Laboratory

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Brent Winner
FWC/Florida Fish and Wildlife Research Institute

VERTICAL LINE WORK GROUP

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Paul Grammer
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Zach Zuckerman
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Fernando Martinez-Andrade
Texas Parks and Wildlife Department

Craig Newton
ADCNR/Marine Resources Division

Matthew Campbell
NOAA Fisheries
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HABITAT MAPPING WORK GROUP

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Paul Grammer
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Gulf Coast Research Laboratory

Zach Zuckerman
Louisiana Department of Wildlife and Fisheries

Lindsey George
Texas Parks and Wildlife Department

Russell Rigby
ADCNR/Marine Resources Division

Brandi Noble
NOAA Fisheries
Pascagoula

TABLE 3.

PRELIMINARY 2023 PROGRAMMATIC BUDGET

	FY2022 Funding
GSMFC	$327,813
Alabama	$165,000
Florida	$411,000
Louisiana	$426,400
Mississippi	$455,217
Texas	$190,322
Total	$1,975,752

TABLE 4.

PROPOSED SEAMAP-GULF ACTIVITIES, 2023

	Fall	Winter	Spring	Summer
Resource Surveys:				
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
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