

ANNUAL REPORT

TO THE

TECHNICAL COORDINATING COMMITTEE

GULF STATES MARINE FISHERIES COMMISSION

OCTOBER 1, 2012 TO SEPTEMBER 30, 2013

SEAMAP Subcommittee

Read Hendon, Chairman

Jeffrey K. Rester

SEAMAP Coordinator

October 8, 2013

GSMFC No: 221

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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 1985-2013 (October 1 through September 30). State and Gulf States Marine Fisheries Commission (GSMFC) funding allocations for FY1985-FY2013 were handled through State/Federal cooperative agreements, administered by SERO and the Southeast Fisheries Science Center (SEFSC), NOAA Fisheries.

In FY2013, SEAMAP operations continued for the thirty-second consecutive year. SEAMAP resource surveys included the Fall Plankton Survey, Fall Shrimp/Groundfish Survey, Winter Plankton Survey, Spring Plankton Survey, Summer Shrimp/Groundfish Survey, Reefish Survey, Bottom Longline Survey, Vertical Longline Survey, and plankton and environmental data surveys. Other FY2013 activities included SEAMAP information services and program management.

This report is the thirtieth 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 FY2013 and proposed SEAMAP activities for FY2014.

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

FY2013 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 October 3 to November 26, 2012 from off southwest Florida to the U.S.-Mexican border. Three hundred sixty-five trawl stations were sampled

during the survey. Vessels sampled waters out to 60 fm with trawls and plankton nets 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;
- (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.

NOAA Fisheries and Louisiana vessels collected ichthyoplankton data with bongo and/or neuston nets at sample sites occurring nearest to half-degree intervals of latitude/longitude. The Polish Sorting and Identification Center will sort the samples. Once sorted, the specimens and data will be archived at the SEAMAP Archiving Center.

Winter Plankton Survey

The SEAMAP Winter Plankton Survey took place from February 1 - 28, 2013. NOAA Fisheries collected ichthyoplankton samples at 107 SEAMAP stations. The objectives of the survey were to assess the occurrence, abundance and geographical distribution of the early life stages of winter spawning fishes from mid continental shelf to deep Gulf waters; measure the vertical distribution of fish larvae by sampling at discrete depths in the water column using a 1-meter Multiple Opening and Closing Net Environmental Sensing System (MOCNESS); and sample the size fraction of fishes that are underrepresented in bongo and neuston samples using a juvenile (Methot) fish trawl.

Spring Plankton Survey

The SEAMAP Spring Plankton Survey was conducted from May 1 - 29, 2013. One hundred thirty-seven stations were sampled during the survey. This was the thirty-second year for the survey. The objectives of the survey were to collect ichthyoplankton samples for estimates of the abundance and distribution of Atlantic bluefin tuna larvae 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 m³ but is typically 30 to 40 m³ at the shallowest stations and 300 to 400 m³ 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

This nearshore survey complements an existing long-term fisheries independent survey currently being conducted by NOAA Fisheries, by targeting shark and finfish species within the shallow waters of the north central Gulf of Mexico. The objectives of the survey are to collect information on coastal shark and finfish abundances and distribution with a 1-mile longline and to collect environmental data. The Bottom Longline Survey samples the northern Gulf of Mexico from March through October each year. The survey is currently ongoing with Mississippi, Alabama, Louisiana, and Texas participating.

Vertical Longline Survey

In FY2013, Louisiana and Alabama conducted vertical longline sampling for reef fish. In Alabama, a total of 12 grids are fished per survey. Vertical longline reels are baited with Atlantic mackerel and are fished for five minutes. Fish may be retained and processed for age and fecundity. All fish are sacrificed for otoliths at stations deeper than 60 m. In water depth less than 60 m, stations may be assigned as tag and release or collection sites.

In Louisiana, the sampling frame is subdivided into three sampling blocks based on depth between 89 degrees longitude and 91 degrees longitude, with the water depth ranging from 60 to 360 feet. Each block is sampled quarterly in a rotation. Within these sampling blocks, there is a possibility of randomly selecting 40 different corridors within the block. The actual sites are randomly selected within the corridor boundary and sampled at the chief scientist's discretion. The sites roughly consist of artificial reefs, natural bottom, and petroleum production platforms.

Reeffish Survey

The primary purpose of this survey was to assess relative abundance and compute population estimates of reefish found on natural reefish habitat 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 video stereo still 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. A chevron fish trap, that measured 1.83 x 1.83 x 0.75 meters with 3.81-cm mesh, was used to capture fish for ageing and other life history studies. Both the fish trap and camera array were baited with squid. The camera array was allowed to soak on the bottom for 30 minutes, and the fish trap soaked for one hour. In August 2013, Florida sampled 71 stations on the west Florida shelf. NOAA Fisheries conducted reef fish sampling in April through June 2013 and completed 312 stations.

Summer Shrimp/Groundfish Survey

The SEAMAP Summer Shrimp/Groundfish Survey was conducted from June 3 to July 14, 2013. Three hundred ninety-two stations were completed in this year's survey. Both trawl and plankton samples are collected during the survey. This was the thirty-second year for the survey.

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 groundfish stocks across the northern Gulf of Mexico from inshore waters to 50 fm.

Fall Plankton Survey

The Fall Plankton cruise took place in August through September 2013 with NOAA Fisheries, Alabama, Louisiana, and Mississippi all participating. 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 m³ but is typically 30 to 40 m³ at the shallowest stations and 300 to 400 m³ 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 transhipped 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 1982-2012 have been entered into the system and data from 2013 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 2013:

- 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;
- Compiling the 2013 SEAMAP Environmental and Biological Atlas; and
- Comparing catches of shrimp and groundfish captured by 40-ft versus 20-ft trawl nets.

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 2013 Summer Shrimp/Groundfish Survey. Seven 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 2012 and March 2013 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 2013 to discuss respective program needs and priorities for FY2013.

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 2013. 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:

- *2013 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, 2011 to September 30, 2012.* 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, 2011 to September 30, 2012.* A summary of FY2012 activities and proposed FY2013 events for the SEAMAP-Gulf, South Atlantic, and Caribbean Programs.

Proposed 2014 Activities

Preliminary 2014 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 \$4.42 million. At the July meeting, the SEAMAP components based their allocations for 2014 on level funding. At this level, the share to be allocated for SEAMAP-Gulf activities (including GSMFC) will be \$1,827,372. Proposed FY2014 activities for all Gulf participants are shown in Table 4.

FY2013 Financial Report

Total allocations for FY2012 program administration were \$229,335. 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, 2013.

TABLE 1.

SEAMAP REPRESENTATIVES FOR FY2012

Read Hendon, Chairman
University of Southern Mississippi
Gulf Coast Research Laboratory

Chloé Dean
Louisiana Department of Wildlife and Fisheries

John Mareska
Alabama Department of Conservation and Natural Resources

Bob McMichael
Florida Fish and Wildlife Conservation Commission
Florida Fish and Wildlife Research Institute

Fernando Martinez-Andrade
Texas Parks and Wildlife Department

Butch Pellegrin
NOAA Fisheries
Pascagoula Laboratory

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

TABLE 2.

SEAMAP WORK GROUP MEMBERS FOR FY2012

ADULT FINFISH WORK GROUP

Terry Henwood
NOAA Fisheries
Pascagoula Laboratory

John Mareska
ADCNR/Marine Resources Division

Leslie Williams
Texas Parks and Wildlife Department

Gulf of Mexico Fishery Management
Council

Bob McMichael
Florida Fish and Wildlife Conservation
Commission

Erick Porche
MS Department of Marine Resources

Jason Adriance
Louisiana Department of Wildlife and
Fisheries

Joanne Lyczkowski-Shultz
National Marine Fisheries Service
Pascagoula Laboratory

DATA COORDINATING WORK GROUP

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

Butch Pellegrin
NOAA Fisheries
Pascagoula Laboratory
Shrimp/Groundfish Work Group

Mike Murphy
Florida Fish and Wildlife Conservation Commission
Red Drum Work Group

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

John Anderson
University of Southern Mississippi/Gulf Coast Research
Laboratory
Reef Fish Work Group

Joanne Lyczkowski-Shultz
National Marine Fisheries Service
Pascagoula Laboratory
Plankton Work Group

Michael Harden
LA Department of Wildlife and Fisheries
Environmental Data Work Group

ENVIRONMENTAL DATA WORK GROUP

Andrew Gima
Louisiana Department of Wildlife and
Fisheries

Ryan Moyer
Florida Fish and Wildlife Conservation
Commission

Jason Herrmann
Alabama Department of Conservation and
Natural Resources

Darcie Graham
Gulf Coast Research Laboratory
University of Southern Mississippi

Joanne Lyczkowski-Shultz
NOAA Fisheries
Pascagoula Laboratory

Bill Balboa
Texas Parks and Wildlife Department

PLANKTON WORK GROUP

Joanne Lyczkowski-Shultz, Leader
NOAA Fisheries
Pascagoula Laboratory

Chloé Dean
Louisiana Department of Wildlife and
Fisheries

Jason Herrmann
Alabama Department of Conservation and
Natural Resources

Joan Herrera
Florida Fish and Wildlife Conservation
Commission

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

Jason Tilley
University of Southern Mississippi
Gulf Coast Research Laboratory

Mark Benefield
Louisiana State University

RED DRUM WORK GROUP

Mike Murphy, Leader
Florida Fish and Wildlife Conservation Commission

Wesley Devers
University of Southern Mississippi
Gulf Coast Research Laboratory

Joanne Lyczkowski-Shultz
NOAA Fisheries
Pascagoula Laboratory

Jessica Scallan
Louisiana Department of Wildlife and
Fisheries

Craig Newton
Alabama Department of Conservation and
Natural Resources

Mark Fisher
Texas Parks and Wildlife Department

REEF FISH WORK GROUP

Erik Broussard
MS Department of Marine Resources

Doug Peter
Louisiana Department of Wildlife and
Fisheries

Perry Trial
Texas Parks and Wildlife Department

Bob McMichael
Florida Fish and Wildlife Conservation
Commission

Chris Gledhill
NOAA Fisheries
Pascagoula Laboratory

John Mareska
Alabama Department of Conservation and
Natural Resources

SHRIMP/GROUNDFISH WORK GROUP

Butch Pellegrin, Leader
National Marine Fisheries Service
Pascagoula Laboratory

Fernando Martinez-Andrade
Texas Parks and Wildlife Department

Suzty Delaune
Louisiana Department of Wildlife and
Fisheries

Read Hendon
University of Southern Mississippi
Gulf Coast Research Laboratory

Craig Newton
Alabama Department of Conservation and
Natural Resources

André DeBose
NOAA Fisheries
Pascagoula Laboratory

Bob McMichael
Florida Fish and Wildlife Conservation
Commission

LOGLINE WORK GROUP

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Natural Resources

Jill Hendon
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Fernando Martinez
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Christine Seither
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Bob McMichael
Florida Fish and Wildlife Conservation
Commission

VERTICAL LINE WORK GROUP

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Florida Fish and Wildlife Conservation
Commission

Jill Hendon
University of Southern Mississippi
Gulf Coast Research Laboratory

Clint Edds
Louisiana Department of Wildlife and
Fisheries

Fernando Martinez-Andrade
Texas Parks and Wildlife Department

Craig Newton
ADCNR/Marine Resources Division

Matthew Campbell
NOAA/NMFS/SEFSC

TABLE 3.**PRELIMINARY 2014 PROGRAMMATIC BUDGET**

| | FY2014 Funding |
|--------------|--------------------|
| GSMFC | \$229,335 |
| Alabama | \$196,625 |
| Florida | \$494,304 |
| Louisiana | \$395,261 |
| Mississippi | \$390,509 |
| Texas | \$121,338 |
| Total | \$1,827,372 |

TABLE 4.**PROPOSED SEAMAP-GULF ACTIVITIES, 2014**

| | Fall | Winter | Spring | Summer |
|---------------------------------------|------|--------|--------|--------|
| Resource Surveys: | | | | |
| Winter Plankton Survey | | X | | |
| 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 |
| Information Operations: | | | | |
| Biological and Environmental Atlas | | | | X |
| Marine Directory | | | 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 |
| Program Administration: | X | X | X | X |