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SEAMAP ENVIRONMENTAL AND BIOLOGICAL ATLAS OF THE GULF OF MEXICO, 2014

Edited by

Jeffrey K. Rester
Gulf States Marine Fisheries Commission

Manuscript Design and Layout

Ashley P. Lott
Gulf States Marine Fisheries Commission

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GULF STATES MARINE FISHERIES COMMISSION
COMMISSIONERS

ALABAMA

N. Gunter Guy, Jr.
Alabama Department of Conservation
and Natural Resources
64 North Union Street
Montgomery, AL 36130-1901

Steve McMillan
P.O. Box 337
Bay Minette, AL 36507

Chris Nelson
Bon Secour Fisheries, Inc.
P.O. Box 60
Bon Secour, AL 36511

FLORIDA

Nick Wiley, Executive Director
FL Fish and Wildlife Conservation Commission
620 South Meridian Street
Tallahassee, FL 32399-1600

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State Senator, District 24
6767 North Wickham Road, Suite 211
Melbourne, FL 32940

TBA

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Baton Rouge, LA 70898-9000

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1501 Roswell Street
Pascagoula, MS 39581

Joe Gill, Jr.
Joe Gill Consulting, LLC
910 Desoto Street
Ocean Springs, MS 39566-0535

TEXAS

Carter Smith, Executive Director
Texas Parks and Wildlife Department
4200 Smith School Road
Austin, TX 78744

Troy B. Williamson, II
P.O. Box 967
Corpus Christi, TX 78403

Representative Wayne Faircloth
Texas House of Representatives
2121 Market Street, Suite 205
Galveston, TX 77550

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National Marine Fisheries Service
Pascagoula Laboratory

Mr. John Mareska
Alabama Department of Conservation and Natural Resources/ Marine Resources Division

Mr. Jeff Rester
SEAMAP Coordinator
Gulf States Marine Fisheries Commission

DATA COORDINATING WORK GROUP

Mr. Lloyd Kirk, Leader
Gulf States Marine Fisheries Commission

Dr. Christian Jones
National Marine Fisheries Service
Pascagoula Laboratory

Mr. Charles Weber
National Marine Fisheries Service
Pascagoula Laboratory

Mr. Michael Harden
Louisiana Department of Wildlife and Fisheries

Mr. John Anderson
USM/Gulf Coast Research Laboratory

Mr. Michael Murphy
Florida Fish and Wildlife Conservation Commission
Florida Fish and Wildlife Research Institute

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 (information collected without direct reliance on statistics reported by commercial or recreational fishermen) in United States waters of the Gulf of Mexico (Eldridge 1988). A major SEAMAP objective is to provide a large, standardized database needed by management agencies, industry, and scientists to make sound management decisions and further develop fishery resources in a cost-efficient manner. To accomplish this goal, survey data must be disseminated in a useful format to SEAMAP participants, cooperators, and other interested organizations.

The SEAMAP Program began in March 1981 when the National Marine Fisheries Service (NMFS), Southeast Fisheries Science Center (SEFSC), presented a SEAMAP Strategic Plan (1981) to the Gulf States Marine Fisheries Commission (GSMFC). This strategic plan outlined the proposed program organization (goals, objectives, procedures, resource requirements, etc.). A SEAMAP Subcommittee was then formed within the existing framework of the GSMFC. The Subcommittee consists of one representative from each state fishery management agency [Florida Fish and Wildlife Conservation Commission (FWC); Alabama Department of Conservation and Natural Resources (ADCNR); Mississippi Department of Marine Resources (MDMR) represented by the University of Southern Mississippi, Gulf Coast Research Laboratory (USM/GCRL); Louisiana Department of Wildlife and Fisheries (LDWF); and Texas Parks and Wildlife Department (TPWD)], one from NMFS SEFSC and a non-voting member representing the Gulf of Mexico Fishery Management Council (GMFMC). The Subcommittee has organized and successfully coordinated numerous resource surveys from 1982 through 2014 (Table 1). The resultant data are published in atlases for the surveys in 1982 (Stuntz et al. 1985); 1983 (Thompson and Bane 1986a); 1984 (Thompson and Bane 1986b); 1985 (Thompson et al. 1988); 1986 (Sanders et al. 1990a); 1987 (Sanders et al. 1990b); 1988 (Sanders et al. 1991a); 1989 (Sanders et al. 1991b); 1990 (Sanders et al. 1992); 1991 (Donaldson et al. 1993); 1992 (Donaldson et al. 1994); 1993 (Donaldson et al. 1996); 1994 (Donaldson et al. 1997a); 1995 (Donaldson et al. 1997b); 1996 (Donaldson et al. 1998); 1997 (Rester et al. 1999); 1998 (Rester et al. 2000); 1999 (Rester et al. 2001); 2000 (Rester et al. 2002); 2001 (Rester et al. 2004); 2002 (Rester et al. 2008); 2003 (Rester et al. 2009); 2004 (Rester 2009); 2005 (Rester 2010); 2006 (Rester 2010); 2007 (Rester 2010); 2008 (Rester 2011); 2009 (Rester 2011); 2010 (Rester 2012); 2011 (Rester 2014); 2012 (Rester 2014), and 2013 (Rester 2015). Environmental assessment activities that occurred with each of the surveys can be found in Table 1. All data are available to researchers or interested individuals. Details about how to obtain SEAMAP data can be found in the Data Request section of this document.

In early 2014, the SEAMAP Subcommittee identified and began to plan the year's SEAMAP survey activities for the Gulf of Mexico. In keeping with the program goal of establishing a coordinated long-term resource database, it was decided to continue the same types of survey activities conducted in 1982 through 2013. Overall survey objectives in 1982 to 2014 were to assess the distribution and abundance of recreational and commercial organisms collected by plankton, trap/video, bottom longlines, hook and line, and trawl gears, and document environmental factors that might affect their distribution and abundance. Data from plankton surveys are used for detection and assessment of fishery resources; in the determination of spawning seasons and areas; in investigations of early survival and recruitment mechanisms; and in estimation of the abundance of a stock based on its spawning production (Sherman et al. 1983). Assessment of the Texas Closure (Nichols 1982, 1984; Nichols and Poffenberger 1987) was the

rationale for the establishment of the trawl surveys and to establish a seasonal database to assess the abundance and distribution of the shrimp and groundfish stocks across the northern Gulf of Mexico. The Reef Fish Survey is designed to determine the relative abundance of reef fish populations and habitat using a fish trap/video recording system (Russell, unpublished report).

A major purpose of SEAMAP is to provide resource survey data to State and Federal management agencies and universities participating in SEAMAP activities. This thirty-second in a series of SEAMAP environmental and biological atlases presents such data, in a summarized form, collected during the 2014 SEAMAP surveys.

MATERIALS AND METHODS

Methodology for the 2014 SEAMAP surveys is similar to that of the 1982 through 2013 surveys. Sampling was conducted within the U.S. Exclusive Economic Zone (EEZ) and state territorial waters. The NOAA Ship OREGON II collected plankton and environmental data during the Spring Plankton Survey from May 4-30, while the USM/GCRL vessel TOMMY MUNRO sampled on May 5 and May 6, and the Louisiana vessel BLAZING SEVEN sampled from May 2-9. Vessels that participated in collecting plankton and environmental data during the Fall Plankton Survey included the NOAA Ship GORDON GUNTER (August 25 - September 28), the Alabama vessel DISCOVERY (September 8), the Louisiana vessel ACADIANA (September 3-4), and USM/GCRL vessel TOMMY MUNRO (September 3-4).

Vessels that participated in the Summer Shrimp/Groundfish Survey and concurrently sampled plankton and environmental data included the USM/GCRL vessel TOMMY MUNRO (July 11-13), Florida using the TOMMY MUNRO (June 8-29), and the NOAA Ship OREGON II (June 10 – July 17). The Alabama vessel DISCOVERY (July 12) and Texas vessels MATAGORDA BAY, TRINITY BAY, SAN JACINTO, SABINE, and COPANO BAY (June 2-24) did not sample plankton in conjunction with the summer survey.

The NOAA ship PISCES participated in the Reef Fish Survey from May 29 – June 24 while the CARETTA sampled from July 8 – August 5. Florida made multiple sampling trips aboard the R/V GULF MARINER from June 16 through August 22. Florida sampled reef fish onboard the R/V WEATHERBIRD II from September 5 – 12 and the R/V NO FRILLS on September 16.

Vessels that participated in the Fall Shrimp/Groundfish Survey and concurrently sampled plankton and environmental data included the NOAA Ships OREGON II (October 9 – November 18), the USM/GCRL vessel TOMMY MUNRO (October 1-3), the Louisiana vessel PELICAN (October 6-10), and Florida using the TOMMY MUNRO (October 8-30). The Alabama vessel DISCOVERY (October 23) and Texas vessels SABINE, MATAGORDA BAY, TRINITY BAY, NUECES BAY, and SAN ANTONIO BAY (November 8-26) did not sample plankton in conjunction with the fall survey.

Mississippi conducted bottom longline sampling monthly from March to October as part of the Bottom Longline Survey. Alabama sampled from March through October. Louisiana sampled from May through September. Texas conducted bottom longline sampling from June through September.

Alabama sampled reef fish over artificial and natural reefs during the Vertical Line Survey in May and September. Louisiana sampled reef fish over artificial reefs, oil and gas platforms, and natural habitat from June through October.

PLANKTON SURVEYS

Since 1982, SEAMAP resource surveys have been conducted by the National Marine Fisheries Service in cooperation with the states of Florida, Alabama, Mississippi, Louisiana, and Texas. Plankton sampling is carried out during these surveys at predetermined SEAMAP stations arranged in a fixed, systematic grid pattern across the entire Gulf of Mexico. Most but not all SEAMAP stations (designated by a unique SEAMAP number) are located at ~56 km or ½-degree intervals along this grid. Some SEAMAP stations are located at < 56 km intervals especially along the continental shelf edge, while others have been moved to avoid obstructions, navigational hazards, or shallow water. Most SEAMAP plankton samples are taken during either dedicated plankton or shrimp/bottomfish (trawl) surveys, but over the years additional samples were taken using SEAMAP gear and collection methods at locations other than designated SEAMAP stations and/or outside established SEAMAP surveys, e.g. during Louisiana seasonal trawl surveys, SEAMAP Squid/Butterfish survey; and other serendipitous or special projects.

The sampling gear and methodology used to collect SEAMAP plankton samples are similar to those recommended by Kramer et al. (1972), Smith and Richardson (1977) and Posgay and Marak (1980). A 61 cm bongo net fitted with 0.333 (0.335)[1] mm mesh netting is fished in an oblique tow path from a maximum depth of 200 m or to 2-5 m off the bottom at depths less than 200 m. 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 ~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 (0.950)[1] 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 48 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.

Initial processing of one bongo sample and one neuston sample from each SEAMAP station was accomplished at the Sea Fisheries Institute, Plankton Sorting and Identification Center (ZSIOP), in Szczecin, Poland, under a Joint Studies Agreement with NMFS. Wet plankton volumes of bongo net samples were measured by displacement to estimate net-caught zooplankton biomass (Smith and Richardson 1977). Fish eggs and larvae were removed from bongo net samples, and fish larvae only from neuston net samples. Fish eggs were not identified further, but larvae were identified to the lowest possible taxon (to family in most cases). Body length (either notochord or standard length) was measured.

Sorted ichthyoplankton specimens from ZSIOP were sent to the SEAMAP Archiving Center, managed in conjunction with the FWC, for long-term storage under museum conditions. Sorted ichthyoplankton samples from 1982 through 2012 are available for loan to researchers throughout the country. The alternate bongo and neuston samples from each station are retained at USM/GCRL as a backup for those samples transshipped to ZSIOP in case of loss or damage during

[1] Mesh size change in database does not represent an actual change in gear but only a change in the accuracy at which plankton mesh aperture size can be measured by the manufacturer.

transit. These backup unsorted plankton samples are curated and housed at the SEAMAP Invertebrate Plankton Archiving Center, managed in conjunction with USM/GCRL, and are available for use by researchers.

See the SEAMAP Operations Manual for a more detailed description of sampling methods and protocols. You can also refer to the vessel cruise reports for more specific information on the individual SEAMAP Plankton Surveys conducted during 2014.

ENVIRONMENTAL DATA

Standardized methodology was used although the actual parameters measured varied among vessels participating in each survey. These parameters were measured based on equipment availability. The following parameters were recorded:

Vessel: Vessel code for each vessel.
Station: Station identifiers varied by state and vessel.
Cruise: Cruise numbers varied by state and vessels.
Date: Month/Day/Year.
Time: Local time and time zone, recorded at the start of sampling.
Latitude/longitude: Recorded to seconds.
Barometric pressure: Recorded in millibars.
Wave height: Estimated visually in meters.
Wind speed and direction: Recorded in knots with direction recorded in compass degrees from which the wind was blowing.
Air temperature: Recorded in degrees Celsius.
Cloud cover: Estimated visually in percent cloud cover.
Secchi depth: Secchi depth in meters, estimated at each daylight station. Standard oceanographic 30-cm white discs were lowered until no longer visible, and then raised until visible. If different depths were recorded, an average was used.
Water Color: Forel-Ule data was recorded.

The following parameters were measured at the surface, mid-depth, and bottom; for bottom depths greater than 200 m, samples were taken at surface, 100 m and 200 m:

Water temperature: Temperatures were measured by a hand-held thermometer or by in situ electronic sensors onboard ship. No attempt was made to intercalibrate the various instruments used on individual vessels although several vessels did sample together to calibrate other sampling gear. Some error can be expected.
Salinity: Salinity samples were collected by Niskin bottles and stored for laboratory analysis with a salinometer. Conductivity probes or refractometers were used on some vessels. Salinity samples were also measured with in situ electronic sensors.
Chlorophyll: Chlorophyll samples were collected and frozen for later laboratory analysis. The general procedure for shipboard collection of chlorophyll was to collect more than 9 liters of water from the surface. This was kept stirred by bubbling air through it while filtration was being done. Three samples, to each of which a 1 ml, 1% (W/V), suspension of $MgCO_3$ was added, of up to 3 liters of water from the 9 liter sample were filtered through GF/C filters. The three filters were placed individually in Petri dishes, wrapped in opaque material and frozen until analysis. Each of the three samples was analyzed separately in the laboratory.

Laboratory analyses for chlorophyll a and phaeophytin a (chlorophyll degradation product) were conducted by fluorometry and spectrophotometry. The general extraction procedures prior to measurement were similar. Samples analyzed by spectrophotometer included other chlorophyllous products, but these have not been included as data in this report. The methodology used is described in Strickland and Parsons (1972) and Jeffrey and Humphrey (1975). Some of the values have been deleted from the database because of analytical errors. In addition, chlorophyll samples data were also collected using a CTD. This method only obtains measures of chlorophyll a and is a measure of fluorescence (FL).

Dissolved oxygen: Dissolved oxygen values were measured by electronic probes or by the Winkler titration method. No attempts were made to intercalibrate the methods. When oxygen was measured in samples collected from a Niskin sampler, the oxygen bottles were allowed to overflow a minimum of 10 seconds to eliminate oxygen contamination. The tubing which delivered the water sample was inserted to the bottom of the bottle and withdrawn while the sample was still flowing. The oxygen bottles were sealed with a ground-glass stopper and analyzed onboard the vessels.

Turbidity: Turbidity values were measured by electronic probes when equipment was available.

TRAWL SURVEYS

Summer Shrimp/Groundfish Survey

In the fall of 2008, NMFS changed their method of selecting sampling sites. The states adopted this change beginning in 2010. Diurnal stratifications were dropped in the selection process, and geographic strata (which were mostly 2 to 3 statistical zone groupings) were changed to single statistical zones (Figure 1). Both station selection methods, the old and the new, are probability based designs. With probability sampling, each unit in the survey population has a known, positive probability of selection. This property of probability sampling avoids selection bias and enables one to use statistical theory to make valid inferences from the sample to the survey population. More specifically, the new method employs probability proportional to size sampling. In this type of sampling, a unit's selection probability is proportional to its size measure which in this case is geographical surface area. For example, if Unit A has twice the surface area of Unit B, then Unit A will have twice the probability of having a sample selected from it than B. The end result is that Unit A will have about twice the number of samples as B. Even though diurnal strata were dropped in the sampling site selection process, this information is not lost since samples can be post-stratified. Following is an example of how sampling sites are now selected.

Bathymetry data were downloaded from the National Geophysical Data Center (NGDC) web site (Divins, D.L., and D. Metzger, NGDC Coastal Relief Model, http://www.ngdc.noaa.gov/mgg/coastal/coastal.html). Because of the magnitude of data, they were downloaded by single NMFS Shrimp Statistical Zones (Figure 1). The download process allows for the definition of a desired data block through user supplied latitude and longitude boundaries. Since the data definition process is controlled by latitude and longitude only, some undesired depths were included in downloads (i.e., for NMFS, depths less than five or greater than sixty fathoms). These records were deleted later through a Statistical Analysis System (SAS) program. Each bathymetric record represents a 3 arc-second element of data ($\approx$ 0.05-by-0.05 minutes of latitude and longitude); therefore, the number of data records was used as a measure of size for each respective statistical zone. The bathymetry data were then used as input to a SAS program which performed three functions; defined the sampling universe, determined the sampling proportions according to sizes of statistical zones, and randomly selected the sample sites according to the defined proportions.

Thirty minutes was selected as a tow time standard that was long enough to obtain a good sample, but short enough to maintain the efficiency of the surveys. Therefore all SEAMAP vessels now use a standard tow time of 30 minutes except the Texas vessels. The Texas vessels tow 10 minutes parallel to the depth stratum.

All *Litopenaeus setiferus*, *Farfantepenaeus aztecus*, and *Farfantepenaeus duorarum* were separated from the trawl catch at each station. Total count and weight by species were recorded for each station. A sample of up to 200 shrimp of each species from every trawl was sexed and measured to obtain length-frequency information. Estimated total numbers were derived from the total weights of those processed. Other species of fishes and invertebrates were identified, enumerated, and weighed. Weights and individual measurements on selected species, other than commercial shrimp, were also recorded.

Fall Shrimp/Groundfish Survey

The design of the Fall Survey was similar to the Summer Shrimp/Groundfish Survey. During the Fall Survey trawl stations were made with the standard 40-ft and 20-ft SEAMAP nets and covered NMFS shrimp statistical zones 2 through 21 (Figure 1). Catch rates on all the vessels sampling were treated in the same manner as the Summer Shrimp/Groundfish Survey, with the exception to shrimp catches, where only 20 shrimp of each species from every trawl were measured, although Louisiana and Texas measure a minimum of 50 shrimp.

REEF FISH SURVEY

The primary purpose of this survey is to assess relative abundance and compute population estimates of reef fish found on natural reef fish habitat in the Gulf of Mexico. For the NMFS portion of the Reef Fish Survey, a two-stage procedure was used to select sample sites. Sample blocks were first selected using stratified random sampling, with strata defined by region of the GOM and size. Reef sites within each block were then selected randomly from previously collected bathymetric data. Video gear was used to assess relative abundance and length frequencies and consisted of paired black-and-white Videre stereo cameras along with a color mpeg camera housed in cylindrical pressure housings. The camera array consisted of four housings positioned orthogonally and center mounted 51 cm above the bottom of the array. The camera array was baited with squid and was retrieved 40 minutes after deployment.

For the Florida portion of the survey, a survey of bottom habitat was conducted using side-scan sonar that covered a distance of 1 nm east and west of each randomly-selected sampling site. Side-scan sonar data were analyzed to determine the quantity of reef habitat and number of targets where gear could be set within each 0.1 nm x 0.3 nm sampling unit. A target was defined as identified reef fish habitat with minimum of 100 m spacing between targets. Within each survey, a random selection procedure was followed to select transects from all transects containing at least two targets. Sampling occurred at a minimum for the first selected transect followed by other transects (alternates) if time allowed. All gears were separated from any other deployed gear by approximately 100 m. All traps and camera arrays were freshly baited with Atlantic mackerel prior to deployment. Chevron traps were built to standardized specifications (1.76m x 1.52m x 0.61m; 28cm throat diameter; 3.81cm vinyl-clad mesh). All traps were equipped with a blow-out panel fastened with magnesium timed-releases to minimize the potential of ghost fishing should traps be lost. Each chevron trap soaked at the bottom for a minimum of 90 minutes prior to retrieval. The stationary video camera array was equipped with a pair of underwater camera units

positioned at an angle of 180º from one another to maximize the total field of view. Each camera unit consisted of an underwater housing that contains both a digital camcorder to record video and a pair of stereo cameras to capture still images. The stationary video camera array was allowed to soak at the bottom for a minimum of forty-five minutes to assure that twenty minutes of continuous video and stereo images were recorded.

All fish collected were identified, enumerated, and measured (standard length for non-exploited reef fishes and both standard and total lengths for all exploited reef fishes). Those individuals that could not be satisfactorily identified in the field were brought back to the laboratory for confirmation of identification. A subsample of collected individuals was sacrificed to provide biological material for the determination of age, sex, reproductive condition, diet, and mercury concentration. Additionally, any individual with evidence of gross external abnormalities was retained for a full fish health workup.

Associated environmental data collected at each site usually includes profiles of salinity, temperature, and surface chlorophyll; and may include profiles of dissolved oxygen, light transmittance, and fluorescence. Additional environmental and meteorological observations taken on stations follow standard SEAMAP methodology.

BOTTOM LONGLINE SURVEY

This nearshore survey complements an existing long-term fisheries independent survey currently being conducted by NMFS offshore, by targeting shark and finfish species within the shallow waters of the north central Gulf of Mexico. The objectives of the survey were to collect information on coastal shark and finfish abundances and distribution with a 1-mile longline and to collect environmental data. During the 2014 Bottom Longline Survey, the survey design included several sampling regions off Alabama, Mississippi, Louisiana, and Texas.

Stations were chosen randomly within each area and were stratified by depth. The stations were sampled during daylight hours each month. The sampling protocol follows the procedures established by the NMFS bottom longline survey. All equipment used in this bottom longline survey is identical to the equipment used by NMFS. The longline gear consisted of a 1.6 km (426 kg test monofilament) mainline with 100 gangions (3.66 m, 332 kg test monofilament) containing #15/0 circle hooks (0 offset) and baited with Atlantic mackerel, *Scomber scomber*. The mainline was weighted down with a midpoint and endpoint weight. Radar high-flyers with strobe bullet buoys were used to mark the longline locations. A hydraulic longline reel was used for setting and retrieving the mainline. The longline was fished for 1-hr and then retrieved.

VERTICAL LINE SURVEY

In 2010, Alabama started a new vertical line survey to sample reef fish over natural and artificial reefs and other areas. The sampling gear used a typical commercial bandit rig that holds approximately 500 feet of clear 300 lb test mainline. A 24-ft. backbone (leader) was attached to the terminal end of the mainline. An approximately ten pound weight was attached to the terminal end of the backbone. The backbone was rigged with ten 18-inch long gangions at intervals of two feet. A total of 12 grids were fished per survey. Two structure and two non-structure areas were randomly chosen and equally allocated across three depth strata. Vertical line reels were baited with Atlantic mackerel. Soak time was five minutes. Fish were retained and processed for age

and fecundity. All fish were sacrificed for otoliths at stations deeper than 60 m. In water depth less than 60 m, stations were assigned as tag and release or collection sites.

Louisiana started vertical line sampling in 2011. In Louisiana, the sampling frame is subdivided into 3 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.

RESULTS

PLANKTON SURVEYS

Plankton stations for the Spring Plankton Survey are shown in Figure 2. Plankton stations for the Fall Plankton Survey are shown in Figure 3.

TRAWL SURVEYS

Summer Shrimp/Groundfish Survey

Shrimp and groundfish sampling was conducted in June and July from south Florida to Brownsville, Texas. Figure 4 shows station locations. The Summer Shrimp/Groundfish Survey consisted primarily of biological trawl data and concomitant environmental and plankton data. A species composition listing from the 40-ft and 20-ft trawls is presented in Table 2, ranked in order of abundance, within the categories of finfish, crustaceans, and other invertebrates.

Fall Shrimp/Groundfish Survey

Shrimp and groundfish sampling was conducted from October through December from south Florida to Brownsville, Texas. Figure 5 shows the station locations. The Fall Shrimp/Groundfish Survey consisted of biological trawl data, concomitant environmental, and plankton data. A species composition listing from the 40-ft and 20-ft trawls is presented in Table 3, ranked in order of abundance, within the categories of finfish, crustaceans, and other invertebrates.

REAL-TIME DATA MANAGEMENT

The SEAMAP Subcommittee agreed it was imperative to the success of the SEAMAP Program to distribute data on a near real-time basis to the fishing industry and others interested in SEAMAP. Summarized data were distributed weekly to approximately 125 individuals during the Summer Shrimp/Groundfish Survey. The summarized data in the form of computer plots and data listings were sent to management agencies and industry members. These plots showed station locations, catches of Brown, Pink, and White Shrimp in lb/hr and count/lb, and total finfish catch in lb/hr.

REEF FISH SURVEY

Primary data collection and sampling for reef fish assessment were conducted from May through August by NMFS personnel and from June through September by Florida personnel. Station

locations are plotted in Figure 6. Video tapes from all sources were analyzed using NMFS standardized protocols.

BOTTOM LONGLINE SURVEY

Station locations for the Bottom Longline Survey are plotted in Figure 7. A species composition list is presented in Table 4. The species list is ranked in order of abundance.

VERTICAL LINE SURVEY

Station locations for the Vertical Line Survey are plotted in Figure 8. A species composition list, ranked in order of abundance, is presented in Table 5.

DISCUSSION

The quasisynoptic SEAMAP sampling program and the intended long-term nature of the sampling programs have been designed to provide the baseline data set needed for fishery management and conservation. In 1985, the SEAMAP long-term baseline data was disrupted by the loss of the Spring Plankton Survey and Fall Plankton Survey. In 1986, the SEAMAP Subcommittee renewed its commitment for the collection of baseline plankton data. These ichthyoplankton samples are and will continue to be used by researchers studying taxonomy, age and growth, bioenergetics, and other life history aspects, as well as spawning biomass and recruitment. Information on species' relative distributions within the Gulf of Mexico can be analyzed with respect to environmental data to assess population abundance as a function of environmental change.

Similar analyses and investigations are being undertaken with Summer and Fall Shrimp/Groundfish Survey data. These data sets are being utilized in resource management decisions, and because of the program's ability to process data quickly, the capability exists to optimize some fisheries on a real-time basis. The long-term data set on all of the species collected, not just those of commercial and recreational importance, offers an opportunity to examine ecological relationships, with the eventual goal of developing management models that take into account the multi-species nature of most Gulf fisheries. The value of the SEAMAP program lies in its use for both immediate and long-range management goals.

Much use has already been made of SEAMAP data. For example, during the past SEAMAP surveys an area of very low dissolved bottom oxygen was found off Louisiana in the summers of 1982, 1985-2014. The presence of this phenomenon and some of the related conditions and biological effects were reported by Leming and Stuntz (1984) and Hanifen et al. (1995), and during such occurrences, SEAMAP has distributed special environmental bulletins and news releases to management agencies and the shrimp industry. In addition, SEAMAP data were used to assist in the identification of the minimum 1997 reduction in Red Snapper shrimp trawl bycatch mortality rate that would enable the Red Snapper fishery to still recover to the 20% spawning potential ratio (SPR) by the year 2019 (Goodyear 1997). This analysis was requested and supported by the Gulf of Mexico Fishery Management Council to address the issue of Red Snapper bycatch. SEAMAP data were also used by some coastal states to determine the status of shrimp stocks and their movements just as the shrimping seasons were to be opened and SEAMAP data were used to develop a guide to the grouper species of the western North Atlantic Ocean (Grace et al. 1994). The primary purpose of the guide is for species identification with projects that deploy underwater video camera systems.

Since SEAMAP's inception in 1982, the goal of plankton activities in the Gulf of Mexico has been to collect data on the early life stages of fishes and invertebrates that will complement and enhance the fishery-independent data gathered on the adult life-stage (Lyczkowski-Shultz and Brasher 1996). An annual larval index for Atlantic Bluefin Tuna and Skipjack Tuna is generated each year from the Spring Plankton Survey and is used by the International Commission for the Conservation of Atlantic Bluefin Tunas to estimate stock size (Scott et al. 1993). Larval indices generated from the Summer Shrimp/Groundfish and Fall Plankton Surveys have now become an integral part of the King Mackerel assessment in the Gulf (Gledhill and Lyczkowski-Shultz 2000). Larvae from SEAMAP collections have formed the basis for formal descriptions of larval development for fishes such as the snappers, Cobia, Tripletail, and Dolphin (Drass et al. 2000; Ditty and Shaw 1992; Ditty and Shaw 1993; Ditty et al. 1994). Data on distribution and relative abundance of larvae of all Gulf fishes captured during SEAMAP surveys have been summarized by Richards et al. 1984, Kelley et al. 1985, Kelley et al. 1990, and Kelley et al. 1993.

The SEAMAP data collected during the Summer Shrimp/Groundfish Survey continues to be used extensively for fishery management purposes. In 1981, the Gulf of Mexico Fishery Management Council's plan for shrimp was implemented (Center for Wetland Resources 1980), with one management measure calling for the temporary closure to shrimping in the EEZ off Texas. This closure complements the traditional closure of the Texas territorial sea, normally May 15 through early July of each year. The GMFMC determined that this type of closure would allow small Brown Shrimp to be protected from harvest, but would still allow the taking of larger Brown Shrimp by fishermen in deeper waters.

The National Marine Fisheries Service was charged with evaluating the effects of the Texas Closure and submitted a report to the GMFMC in January 2014. This report contained the results and an overview of the effect of the 2013 Texas Closure. After review of these data and other information, the GMFMC voted to continue the Texas Closure for 2014.

Data from all SEAMAP surveys have been used in the SouthEast Data, Assessment, and Review (SEDAR) process. SEDAR is a cooperative Fishery Management Council process initiated in 2002 to improve the quality and reliability of fishery stock assessments. SEDAR seeks improvements in the scientific quality of stock assessments and greater relevance of quantities information available to address existing and emerging fishery management issues. SEAMAP data have been used in stock assessments for Greater Amberjack, Almaco Jack, Lesser Amberjack, Snowy Grouper, Speckled Hind, King Mackerel, Red Snapper, Vermillion Snapper, Gray Triggerfish, Gag Grouper, Red Grouper, Mutton Snapper, Lane Snapper, Wenchman, Blacknose Shark, Atlantic Sharpnose Shark, Bonnethead Shark, Smoothhound Sharks, small coastal sharks, and Blacktip Shark.

DATA REQUESTS

It is the policy of the SEAMAP Subcommittee that all verified non-confidential SEAMAP data, collected specimens, and samples shall be available to all SEAMAP participants, other fishery researchers, and management organizations. This atlas presents, to those individuals interested in the data or specimens, a chance to review the data in a summary form.

Data and specimen requests from SEAMAP participants, cooperators and others will normally be handled on a first-come, first-served, and time-available basis. Because of personnel and funding limitations, however, certain priorities must be assigned to the data and specimen requests. These

priorities are reviewed by the SEAMAP Subcommittee. For further information on SEAMAP data management, see the Southeast Area Monitoring and Assessment Program (SEAMAP) Management Plan: 2011-2015 (ASMFC 2011).

Data requests and inquiries, as well as requests for plankton samples, can be made by contacting Jeff Rester, the SEAMAP Coordinator, Gulf States Marine Fisheries Commission, 2404 Government Street, Ocean Springs, MS 39564; (228) 875-5912 or via e-mail at jrester@gsmfc.org.

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Table 1. List of SEAMAP survey activities from 1982 to 2014.

	SEAMAP SURVEY ACTIVITIES					
YEAR	WINTER SHRIMP/GROUNDFISH	SPRING PLANKTON	SPRING SHRIMP/GROUNDFISH	SUMMER SHRIMP/GROUNDFISH	BUTTERFISH	FALL PLANKTON
1982	--	APRIL-MAY	--	JUNE-JULY	--	--
1983	--	APRIL-MAY	--	JUNE-JULY	--	--
1984	--	APRIL-MAY	--	JUNE-JULY	--	AUGUST
1985	--	--	--	JUNE-JULY	JULY-AUGUST	SEPTEMBER
1986	--	APRIL-MAY	--	JUNE-JULY	MAY-JUNE	SEPTEMBER
1987	--	APRIL-MAY	--	JUNE-JULY	--	SEPTEMBER
1988	--	MARCH-MAY	--	JUNE-JULY	--	SEPTEMBER-OCTOBER
1989	--	APRIL-MAY	--	JUNE-JULY	--	SEPTEMBER-OCTOBER
1990	--	APRIL-MAY	--	JUNE-JULY	--	SEPTEMBER-OCTOBER
1991	--	APRIL-MAY	--	JUNE-JULY	--	AUGUST-SEPTEMBER
1992	--	APRIL-MAY	--	JUNE-JULY	--	AUGUST-OCTOBER
1993	--	APRIL-MAY	--	JUNE-JULY	--	SEPTEMBER-OCTOBER
1994	--	APRIL-MAY	--	JUNE-JULY	--	SEPTEMBER-OCTOBER
1995	--	APRIL-JUNE	--	JUNE-JULY	--	SEPTEMBER
1996	--	APRIL-JUNE	--	JUNE-JULY	--	SEPTEMBER-OCTOBER
1997	--	APRIL-JUNE	--	JUNE-JULY	--	SEPTEMBER-OCTOBER
1998	--	APRIL-JUNE	--	JUNE-JULY	--	SEPTEMBER-OCTOBER
1999	--	APRIL-MAY	--	JUNE-JULY	--	SEPTEMBER-OCTOBER
2000	--	APRIL-MAY	--	JUNE-JULY	--	SEPTEMBER-OCTOBER
2001	--	APRIL-MAY	--	JUNE-JULY	--	AUGUST-OCTOBER
2002	--	APRIL-MAY	--	JUNE-JULY	--	AUGUST-OCTOBER
2003	--	MAY	--	JUNE-JULY	--	AUGUST-OCTOBER
2004	--	APRIL-JUNE	--	JUNE-JULY	--	SEPTEMBER
2005	--	APRIL-MAY	--	JUNE-AUGUST	--	--
2006	--	APRIL-MAY	--	JUNE-JULY	--	AUGUST-SEPTEMBER
2007	--	MARCH-JUNE	--	JUNE-AUGUST	--	AUGUST-SEPTEMBER
2008	--	APRIL-JUNE	APRIL	JUNE-AUGUST	--	SEPTEMBER
2009	JANUARY-FEBRUARY	APRIL-JUNE	MARCH	JUNE-JULY	--	AUGUST-SEPTEMBER
2010	FEBRUARY	APRIL-MAY	APRIL	JUNE-AUGUST	--	AUGUST-SEPTEMBER
2011	FEBRUARY	MAY	--	JUNE-JULY	--	AUGUST-SEPTEMBER
2012	--	APRIL-MAY	--	MAY-JULY	--	AUGUST-SEPTEMBER
2013	--	MAY	--	JUNE-JULY	--	AUGUST-SEPTEMBER
2014	--	MAY	--	JUNE-JULY	--	AUGUST-SEPTEMBER

Table 1. List of SEAMAP survey activities from 1982 to 2014 (continued).

	SEAMAP SURVEY ACTIVITIES				
YEAR	FALL SHRIMP/GROUNDFISH	WINTER PLANKTON	BOTTOM LONGLINE	VERTICAL LINE	REEF FISH
1982	--	--	--		--
1983	--	DECEMBER	--		--
1984	--	DECEMBER	--		--
1985	SEPTEMBER-DECEMBER	--	--		--
1986	OCTOBER-DECEMBER	--	--		--
1987	SEPTEMBER-DECEMBER	--	--		--
1988	OCTOBER-DECEMBER	--	--		--
1989	OCTOBER-DECEMBER	--	--		--
1990	OCTOBER-DECEMBER	--	--		--
1991	SEPTEMBER-DECEMBER	--	--		--
1992	OCTOBER-DECEMBER	--	--		MAY-JUNE
1993	OCTOBER-DECEMBER	JAN.-FEB.	--		MAY-JULY, SEPT., NOV.
1994	OCTOBER-NOVEMBER	--	--		MAY-JULY, AUG.-OCT., DEC.
1995	OCTOBER-DECEMBER	--	--		JAN., JUNE-AUG., DEC.
1996	OCTOBER-DECEMBER	DECEMBER	--		JULY, AUGUST, NOVEMBER
1997	OCTOBER-DECEMBER	--	--		JUNE, JULY, AUG., NOV.
1998	OCTOBER-NOVEMBER	--	--		MAY, JULY, AUGUST
1999	OCTOBER-NOVEMBER	--	--		JAN., AUG., OCT., DEC.
2000	OCTOBER-DECEMBER	--	--		OCTOBER, NOVEMBER
2001	OCTOBER-DECEMBER	--	--		MAY, JUNE, OCTOBER
2002	OCTOBER-DECEMBER	--	--		FEBRUARY-MAY, OCTOBER
2003	OCTOBER-DECEMBER	--	--		OCTOBER-NOVEMBER
2004	OCTOBER-DECEMBER	JANUARY	--		FEBRUARY-MARCH
2005	OCTOBER-NOVEMBER	--	--		FEBRUARY-JULY, OCTOBER
2006	OCTOBER-DECEMBER	--	--		FEBRUARY-AUGUST
2007	OCTOBER-DECEMBER	--	--		FEBRUARY-MAY
2008	SEPTEMBER-NOVEMBER	FEB.-MAR.	MARCH-OCTOBER		FEBRUARY-AUGUST
2009	SEPTEMBER-NOVEMBER	FEB.-MAR.	MARCH-OCTOBER		APRIL-AUGUST
2010	SEPTEMBER-NOVEMBER	FEB.-MAR.	MARCH-OCTOBER	APRIL-DECEMBER	MARCH-SEPTEMBER
2011	OCTOBER-NOVEMBER	--	MARCH-OCTOBER	MAY-DECEMBER	APRIL-JULY
2012	OCTOBER-NOVEMBER	JANUARY-FEBRURY	MARCH-OCTOBER	MARCH-OCTOBER	JANUARY-AUGUST
2013	OCTOBER-DECEMBER	FEBRUARY	MARCH-OCTOBER	FEBRUARY-OCTOBER	FEBRUARY-OCTOBER
2014	OCTOBER-NOVEMBER	--	MARCH-OCTOBER	MAY-OCTOBER	MAY-SEPTEMBER

Table 2. 2014 Summer Shrimp/Groundfish Survey species composition list, 443 trawl stations, for those vessels that used either a 40-ft or 20-ft trawl. Species with a total weight of less than 0.0227 kg (0.05 lb) are indicated on the table as 0.0 kg.

GENUS/SPECIES	COMMON NAME	TOTAL NUMBER CAUGHT	TOTAL WEIGHT CAUGHT (KG)	NUMBER OF TOWS WHERE CAUGHT	% FREQUENCY OCCURRENCE
Finfishes					
Micropogonias undulatus	Atlantic croaker	76003	2534.6	159	35.9
Peprilus burti	gulf butterfish	35975	736.3	195	44
Stenotomus caprinus	longspine porgy	27148	440.9	160	36.1
Chloroscombrus chrysurus	Atlantic bumper	22535	495.1	113	25.5
Lagodon rhomboides	pinfish	19609	1179.1	119	26.9
Syacium papillosum	dusky flounder	16554	373.7	163	36.8
Trachurus lathami	rough scad	13214	230.6	117	26.4
Leiostomus xanthurus	spot	8831	535	111	25.1
Mullus auratus	red goatfish	7010	207.4	52	11.7
Prionotus longispinosus	bigeye searobin	5605	90.2	140	31.6
Cynoscion nothus	silver seatrout	4516	135.7	92	20.8
Eucinostomus gula	silver jenny	4014	144.9	43	9.7
Trichiurus lepturus	Atlantic cutlassfish	3703	118	111	25.1
Saurida brasiliensis	largescale lizardfish	3240	14.5	123	27.8
Lutjanus synagris	lane snapper	3107	363.5	99	22.3
Synodus foetens	inshore lizardfish	2811	354.7	266	60
Haemulon aurolineatum	tomtate	2547	152.4	100	22.6
Serranus atrobranchus	blackear bass	2512	30.8	86	19.4
Orthopristis chrysoptera	pigfish	2461	218.8	37	8.4
Haemulon plumierii	white grunt	2433	232.5	38	8.6
Pristipomoides aquilonaris	wenchman	2284	110.3	87	19.6
Synodus poeyi	offshore lizardfish	2054	17.1	121	27.3
Selene setapinnis	Atlantic moonfish	2007	78.2	107	24.2
Diplectrum formosum	sand perch	1952	158.4	156	35.2
Cynoscion arenarius	sand seatrout	1813	88.5	133	30
Upeneus parvus	dwarf goatfish	1706	49.9	74	16.7
Prionotus stearnsi	shortwing searobin	1672	21.7	72	16.3

Table 2. Species composition list (continued)

GENUS/SPECIES	COMMON NAME	TOTAL NUMBER CAUGHT	TOTAL WEIGHT CAUGHT (KG)	NUMBER OF TOWS WHERE CAUGHT	% FREQUENCY OCCURRENCE
Syacium gunteri	shoal flounder	1593	28	108	24.4
Scorpaena brasiliensis	barbfish	1437	71.9	93	21
Harengula jaguana	scaled sardine	1320	59.3	45	10.2
Scorpaena calcarata	smoothhead scorpionfish	1319	24.2	57	12.9
Stephanolepis hispida		1218	47.7	129	29.1
Centropristis philadelphica	rock sea bass	1096	42	122	27.5
Synodus macrostigmus		1092	81	73	16.5
Sphoeroides dorsalis	marbled puffer	1087	42.2	109	24.6
Larimus fasciatus	banded drum	1061	50.6	73	16.5
Bellator militaris	horned searobin	959	16.4	67	15.1
Centropristis ocyurus	bank sea bass	947	31	74	16.7
Calamus arctifrons	grass porgy	946	80.8	18	4.1
Trichopsetta ventralis	sash flounder	866	18.7	44	9.9
Calamus proridens	littlehead porgy	779	185.6	64	14.4
Acanthostracion quadricornis		753	113.6	122	27.5
Saurida normani	shortjaw lizardfish	703	73.1	20	4.5
Serranus notospilus	saddle bass	697	2	39	8.8
Trachinocephalus myops	snakefish	669	46.5	82	18.5
Serranus phoebe	tattler	628	22.3	47	10.6
Sphoeroides spengleri	bandtail puffer	627	26.7	86	19.4
Rhomboplites aurorubens	vermilion snapper	591	61.5	53	12
Equetus lanceolatus	jackknife fish	519	66	71	16
Diplectrum bivittatum	dwarf sand perch	509	10.4	57	12.9
Etrumeus teres	round herring	497	5.1	21	4.7
Urophycis floridana	southern hake	497	30	56	12.6
Lutjanus campechanus	red snapper	489	145.4	102	23
Anchoa hepsetus	striped anchovy	462	7.5	34	7.7
Prionotus alatus	spiny searobin	462	8.1	43	9.7
Scorpaena agassizii	longfin scorpionfish	453	17.4	26	5.9
Bothus robinsi	twospot flounder	452	13.5	72	16.3
Brevoortia patronus	gulf menhaden	448	17.4	43	9.7

Table 2. Species composition list (continued)

GENUS/SPECIES	COMMON NAME	TOTAL NUMBER CAUGHT	TOTAL WEIGHT CAUGHT (KG)	NUMBER OF TOWS WHERE CAUGHT	% FREQUENCY OCCURRENCE
Halieutichthys		438	2.9	54	12.2
Steindachneria argentea	luminous hake	435	1.2	3	0.7
Prionotus scitulus	leopard searobin	434	17.3	33	7.4
Etropus crossotus	fringed flounder	415	4.8	60	13.5
Opisthonema oglinum	Atlantic thread herring	407	19.3	45	10.2
Lepophidium jeannae	mottled cusk-eel	393	20.2	23	5.2
Chaetodipterus faber	Atlantic spadefish	388	28.8	25	5.6
Pterois volitans	lion fish	387	103.1	56	12.6
Etropus cyclosquamus	shelf flounder	378	3.1	10	2.3
Monacanthus ciliatus	fringed filefish	336	6.5	63	14.2
Prionotus roseus	bluespotted searobin	333	11.3	66	14.9
Lepophidium brevibarbe	blackedge cusk-eel	327	11	45	10.2
Prionotus paralatus	Mexican searobin	316	5.9	25	5.6
Etropus rimosus	gray flounder	311	5.6	23	5.2
Ariopsis felis	hardhead catfish	286	40.1	31	7
Cyclopsetta chittendeni	Mexican flounder	284	29.2	68	15.3
Decapterus punctatus	round scad	277	10.3	34	7.7
Lepophidium spp.	cusk-eels	277	3.1	3	0.7
Sphoeroides parvus	least puffer	257	2.1	38	8.6
Prionotus rubio	blackwing searobin	251	18.4	38	8.6
Synodus intermedius	sand diver	250	28.9	55	12.4
Prionotus martis	barred searobin	233	6.3	24	5.4
Lutjanus griseus	grey snapper	231	65.8	43	9.7
Pagrus pagrus	red porgy	230	10.1	26	5.9
Stellifer lanceolatus	star drum	225	4.5	27	6.1
Eucinostomus	mojarras	212	2.1	2	0.5
Prionotus tribulus	bighead searobin	208	7.6	48	10.8
Eucinostomus argenteus	spotfin mojarra	208	6.6	7	1.6
Ancylopsetta ommata	ocellated flounder	203	14.4	64	14.4
Halieutichthys aculeatus	pancake batfish	200	2.2	62	14
Ophidion holbrookii	bank cusk-eel	195	14	32	7.2

Table 2. Species composition list (continued)

GENUS/SPECIES	COMMON NAME	TOTAL NUMBER CAUGHT	TOTAL WEIGHT CAUGHT (KG)	NUMBER OF TOWS WHERE CAUGHT	% FREQUENCY OCCURRENCE
Ogcocephalus declivirostris	slantbrow batfish	192	4.3	27	6.1
Citharichthys macrops	spotted whiff	189	5.3	36	8.1
Bairdiella chrysoura	silver perch	186	9.2	16	3.6
Prionotus ophryas	bandtail searobin	185	8.8	49	11.1
Pareques umbrosus	cubbyu	173	10.9	31	7
Aluterus schoepfii	orange filefish	172	92.6	57	12.9
Haemulon striatum	striped grunt	172	10.4	5	1.1
Menticirrhus americanus	southern kingfish	170	22.5	29	6.5
Lagocephalus laevigatus	smooth puffer	165	5.2	50	11.3
Porichthys plectrodon	Atlantic midshipman	157	4.2	57	12.9
Urophycis cirrata	gulf hake	151	2.5	31	7
Cynoscion spp.	seatrouts	143	0.3	12	2.7
Peprilus paru	harvestfish	136	9.3	22	5
Eucinostomus harengulus	tidewater mojarra	129	4	22	5
Gymnothorax saxicola	honeycomb moray	128	10.3	53	12
Anchoa lyolepis	dusky anchovy	122	0.3	3	0.7
Chaetodon ocellatus	spotfin butterflyfish	122	10	42	9.5
Kathetostoma albigutta	lancer stargazer	119	4.5	34	7.7
Ancylopsetta dilecta	three-eye flounder	114	3.4	34	7.7
Nicholsina usta	emerald parrotfish	113	7.1	26	5.9
Sardinella aurita	Spanish sardine	111	7.8	20	4.5
Epinephelus morio	red grouper	109	99.8	38	8.6
Antennarius radiosus	singlespot frogfish	104	0.7	31	7
Hemipteronotus novacula	pearly razorfish	102	5.2	29	6.5
Balistes capriscus	gray triggerfish	100	14.6	28	6.3
Apogon affinis	bigtooth cardinalfish	99	0.5	9	2
Bollmannia communis	ragged goby	95	0.3	20	4.5
Lachnolaimus maximus	hogfish	94	17.3	17	3.8
Symphurus diomedeanus	spottedfin tonguefish	90	2.7	28	6.3
Hippocampus erectus	lined seahorse	78	0.5	39	8.8
Synodus	lizard fishes	72	5	10	2.3

Table 2. Species composition list (continued)

GENUS/SPECIES	COMMON NAME	TOTAL NUMBER CAUGHT	TOTAL WEIGHT CAUGHT (KG)	NUMBER OF TOWS WHERE CAUGHT	% FREQUENCY OCCURRENCE
Ogcocephalus parvus	roughback batfish	72	0.7	31	7
Citharichthys spilopterus	bay whiff	69	0.9	19	4.3
Echeneis neucratoides	whitefin sharksucker	68	17.9	18	4.1
Symphurus plagiusa	blackcheek tonguefish	68	1.9	23	5.2
Ocyurus chrysurus	yellowtail snapper	67	5.5	11	2.5
Paralichthys squamilentus	broad flounder	64	11	20	4.5
Calamus nodosus	knobbed porgy	59	15.6	17	3.8
Otophidium omostigmum	polka-dot cusk-eel	53	0.4	10	2.3
Brotula barbata	bearded brotula	52	8.6	24	5.4
Pterois	lion fishes	51	14.6	11	2.5
Rhizoprionodon terraenovae	Atlantic sharpnose shark	51	19.6	22	5
Chilomycterus schoepfii	striped burrfish	50	11.1	37	8.4
Raja texana	roundel skate	50	17.3	39	8.8
Chromis enchrysura	yellowtail reeffish	49	0.8	19	4.3
Ophidion beani	longnose cusk-eel	49	2.9	12	2.7
Ogcocephalus cubifrons		48	14.4	28	6.3
Engyophrys senta	spiny flounder	47	0.2	16	3.6
Gastropsetta frontalis	shrimp flounder	46	4.2	25	5.6
Chaetodon sedentarius	reef butterflyfish	46	2.5	15	3.4
Polydactylus octonemus	Atlantic threadfin	44	1.6	12	2.7
Calamus leucosteus	whitebone porgy	40	12.5	10	2.3
Aluterus heudelotii	dotterel filefish	39	12.3	25	5.6
Pareques iwamotoi	blackbar drum	38	1.4	11	2.5
Echiophis intertinctus	spotted spoon-nose eel	38	7.3	19	4.3
Sphoeroides nephelus	southern puffer	38	2.8	13	2.9
Paralichthys albigutta	gulf flounder	37	10.1	17	3.8
Hoplunnis diomedianus	blacktail pike-conger	36	0.2	2	0.5
Cyclopsetta fimbriata	spotfin flounder	36	5.2	25	5.6
Symphurus civitatium	offshore tonguefish	35	0.6	10	2.3
Centropristis striatus	black sea bass	34	4.5	7	1.6
Pomacanthus arcuatus	gray angelfish	30	13.3	14	3.2

Table 2. Species composition list (continued)

GENUS/SPECIES	COMMON NAME	TOTAL NUMBER CAUGHT	TOTAL WEIGHT CAUGHT (KG)	NUMBER OF TOWS WHERE CAUGHT	% FREQUENCY OCCURRENCE
Neomerinthe hemingwayi	spinycheek scorpionfish	29	3	8	1.8
Bellator egretta	streamer searobin	29	0.2	2	0.5
Raja eglanteria	clearnose skate	29	16.4	18	4.1
Bregmaceros atlanticus	antenna codlet	28	0	11	2.5
Narcine brasiliensis	lesser electric ray	28	7.7	7	1.6
Canthigaster rostratus		28	0.3	9	2
Halichoeres bivittatus	slippery dick	28	2.4	10	2.3
Apogon pseudomaculatus	twospot cardinalfish	27	0.2	7	1.6
Rhinobatos lentiginosus	Atlantic guitarfish	27	15.7	15	3.4
Ogcocephalus pantostictus	spotted batfish	26	0.7	3	0.7
Holocentrus bullisi	deepwater squirrelfish	26	1.1	3	0.7
Caulolatilus intermedius	anchor tilefish	25	3	9	2
Anchoa mitchilli	bay anchovy	25	0	11	2.5
Ogcocephalus corniger	longnose batfish	25	0.3	15	3.4
Rhynchoconger flavus	yellow conger	24	1.1	11	2.5
Apogon quadrisquamatus	sawcheek cardinalfish	24	0.1	11	2.5
Achirus lineatus	lined sole	24	0.5	8	1.8
Astrapogon alutus	bronze cardinalfish	24	0.1	15	3.4
Calamus campechanus	Campeche porgy	23	4.1	1	0.2
Pseudupeneus maculatus	spotted goatfish	22	2.7	9	2
Rypticus bistrispinus	freckled soapfish	21	0.3	16	3.6
Caranx crysos	blue runner	21	2.8	11	2.5
Priacanthus arenatus	bigeye	21	2.4	8	1.8
Symphurus urospilus	spottail tonguefish	21	0.5	7	1.6
Urophycis regia	spotted hake	20	0.8	6	1.4
Ophidion josephi	crested cusk-eel	20	0.9	11	2.5
Holacanthus bermudensis	blue angelfish	20	6.9	11	2.5
Citharichthys gymnorhinus	anglefin whiff	20	0	10	2.3
Archosargus probatocephalus	sheepshead	19	4.6	5	1.1
Antennarius ocellatus	ocellated frogfish	18	1	15	3.4
Citharichthys cornutus	horned whiff	18	0.1	4	0.9

Table 2. Species composition list (continued)

GENUS/SPECIES	COMMON NAME	TOTAL NUMBER CAUGHT	TOTAL WEIGHT CAUGHT (KG)	NUMBER OF TOWS WHERE CAUGHT	% FREQUENCY OCCURRENCE
Rypticus maculatus	whitespotted soapfish	18	0.7	10	2.3
Selar crumenophthalmus	bigeye scad	18	2.1	9	2
Urophycis earlli	Carolina hake	18	1.3	10	2.3
Pristigenys alta	short bigeye	18	1.5	15	3.4
Ogcocephalidae	batfishes	17	0.1	2	0.5
Hoplunnis macrura	freckled pike-conger	17	0.1	11	2.5
Paralichthys lethostigma	southern flounder	17	3.7	12	2.7
Hypoplectrus		17	0.4	5	1.1
Calamus penna	sheepshead porgy	16	3.9	7	1.6
Sphyrna tiburo	bonnethead	16	14.9	7	1.6
Bairdiella batabana	blue croaker	16	1.1	2	0.5
Gymnachirus texae	fringed sole	15	0.2	8	1.8
Sphyraena borealis	northern sennet	14	1.2	4	0.9
Bagre marinus	gafftopsail catfish	14	3	5	1.1
Stephanolepis setifer	pygmy filefish	14	0.8	5	1.1
Selene vomer	lookdown	14	1.1	8	1.8
Menticirrhus saxatilis	northern kingfish	14	2.3	5	1.1
Canthigaster jamestyleri		12	0.2	5	1.1
Bothus ocellatus	eyed flounder	11	0.3	7	1.6
Mustelus sinusmexicanus	Gulf smoothhound	11	12.6	8	1.8
Rhinoptera bonasus	cownose ray	11	65.6	7	1.6
Decodon puellaris	red hogfish	11	0.4	6	1.4
Hemicaranx amblyrhynchus	bluntnose jack	11	1.4	5	1.1
Ophichthus gomesii	shrimp eel	10	1.2	3	0.7
Apogon aurolineatus	bridle cardinalfish	10	0	4	0.9
Scomber japonicus	chub mackerel	10	0.3	3	0.7
Cryptotomus roseus	bluelip parrotfish	10	0.1	8	1.8
Myctophidae	lanternfishes	10	0.1	1	0.2
Schultzea beta	school bass	9	0	2	0.5
Carcharhinus acronotus	blacknose shark	9	5.6	5	1.1
Foetorepus goodenbeani	palefin dragonet	9	0.1	2	0.5

Table 2. Species composition list (continued)

GENUS/SPECIES	COMMON NAME	TOTAL NUMBER CAUGHT	TOTAL WEIGHT CAUGHT (KG)	NUMBER OF TOWS WHERE CAUGHT	% FREQUENCY OCCURRENCE
Calamus bajonado	jolthead porgy	9	5.4	5	1.1
Ophidion grayi	blotched cusk-eel	9	0.8	6	1.4
Opsanus pardus	leopard toadfish	8	0	5	1.1
Ogcocephalus cubifrons	polka-dot batfish	8	3.5	7	1.6
Seriola dumerili	greater amberjack	8	1.6	7	1.6
Squatina dumeril	Atlantic angel shark	8	15.9	7	1.6
Ophidion	cusk-eels	8	0.2	4	0.9
Serranus tortugarum	chalk bass	8	0.1	2	0.5
Serraniculus pumilio	pygmy sea bass	7	0	6	1.4
Carcharhinus limbatus	blacktip shark	7	1.1	3	0.7
Antennarius striatus	striated frogfish	7	0.2	6	1.4
Echeneis naucrates	sharksucker	7	3.3	7	1.6
Serranus subligarius	belted sandfish	7	0	4	0.9
Aluterus scriptus	scrawled filefish	7	0.5	4	0.9
Mycteroperca phenax	scamp	7	8.2	5	1.1
Ophidion selenops	mooneye cusk-eel	6	0	2	0.5
Bathyanthias mexicanus	yellowtail bass	6	0.1	2	0.5
Ophichthus puncticeps	palespotted eel	6	0.9	4	0.9
Seriola zonata	banded rudderfish	6	0.7	2	0.5
Gymnothorax nigromarginatus	blackedge moray	6	0.5	4	0.9
Scomber colias		6	0.2	1	0.2
Mustelus canis	smooth dogfish	6	3.1	5	1.1
Bregmaceros		6	0	2	0.5
Gobiesox strumosus	skilletfish	6	0	5	1.1
Anisotremus virginicus	porkfish	5	1	3	0.7
Rhynchoconger gracilior		5	0.2	2	0.5
Ariosoma balearicum	bandtooth conger	5	0.2	3	0.7
Dorosoma petenense	threadfin shad	5	0.1	4	0.9
Sphyraena guachancho	guaguanche	5	0.9	4	0.9
Stephanolepis hispida	planehead filefish	5	0	3	0.7
Dasyatis americana	southern stingray	4	9.7	4	0.9

Table 2. Species composition list (continued)

GENUS/SPECIES	COMMON NAME	TOTAL NUMBER CAUGHT	TOTAL WEIGHT CAUGHT (KG)	NUMBER OF TOWS WHERE CAUGHT	% FREQUENCY OCCURRENCE
Uroconger syringinus	threadtail conger	4	0.1	2	0.5
Etropus		4	0	1	0.2
Caulolatilus cyanops	blackline tilefish	4	0.4	3	0.7
Bollmannia boqueronensis	white-eye goby	4	0	1	0.2
Lonchopisthus micrognathus	swordtail jawfish	4	0	1	0.2
Bregmaceros cantori	striped codlet	4	0	3	0.7
Diodon holocanthus	balloonfish	4	0.9	3	0.7
Rachycentron canadum	cobia	4	1.7	3	0.7
Opsanus beta	gulf toadfish	4	0.5	3	0.7
Scorpaena spp.	scorpionfishes	4	0	1	0.2
Peristedion gracile	slender searobin	3	0.1	1	0.2
Histrio histrio	sargassum frogfish	3	0	2	0.5
Gobiidae	gobies	3	0	2	0.5
Syngnathus pelagicus	sargassum pipefish	3	0	2	0.5
Chilomycterus antillarum	web burrfish	3	0	2	0.5
Gymnachirus melas	naked sole	3	0.1	3	0.7
Ariomma regulus	spotted driftfish	3	0.4	2	0.5
Mycteroperca microlepis	gag	3	1.1	3	0.7
Prognathodes aya	bank butterflyfish	3	0.1	3	0.7
Astrapogon puncticulatus	blackfin cardinalfish	3	0	3	0.7
Pomacentrus variabilis	cocoa damselfish	3	0	2	0.5
Phaeoptyx conklini	freckled cardinalfish	3	0	1	0.2
Fistularia petimba	red cornetfish	3	0.5	3	0.7
Diplodus holbrooki	spottail pinfish	3	0.3	2	0.5
Dasyatis sabina	Atlantic stingray	2	0.6	2	0.5
Scomberomorus cavalla	king mackerel	2	1.6	2	0.5
Parablennius marmoreus	seaweed blenny	2	0	2	0.5
Ginglymostoma cirratum	nurse shark	2	11.3	2	0.5
Paraconger caudilimbatus	margintail conger	2	0.1	2	0.5
Foetorepus agassizii	spotfin dragonet	2	0	1	0.2
Heteropriacanthus cruentatus	glasseye snapper	2	0.1	2	0.5

Table 2. Species composition list (continued)

GENUS/SPECIES	COMMON NAME	TOTAL NUMBER CAUGHT	TOTAL WEIGHT CAUGHT (KG)	NUMBER OF TOWS WHERE CAUGHT	% FREQUENCY OCCURRENCE
Acanthostracion polygonius	honeycomb cowfish	2	0.7	2	0.5
Lophius americanus	goosefish	2	0	1	0.2
Symphurus minor	largescale tonguefish	2	0	2	0.5
Gobiosoma macrodon	tiger goby	2	0	1	0.2
Gymnura micrura	smooth butterfly ray	2	0.6	2	0.5
Hypoplectrus unicolor	butter hamlet	2	0.1	1	0.2
Menticirrhus littoralis	gulf kingfish	2	0.3	2	0.5
Myliobatis freminvillii	Bullnose ray	2	7.7	1	0.2
Mustelus	smooth hound sharks	2	0.7	2	0.5
Lophius		2	0.2	1	0.2
Oligoplites saurus	leatherjack	2	0.2	2	0.5
Caranx hippos	crevalle jack	2	8.9	2	0.5
Cynoscion nebulosus	spotted seatrout	2	0.6	2	0.5
Trachinotus carolinus	Florida pompano	2	0.6	2	0.5
Hemanthias aureorubens	streamer bass	2	0	2	0.5
Urolophus jamaicencis		2	0.8	2	0.5
Ogcocephalus nasutus	shortnose batfish	2	0	1	0.2
Gymnothorax kolpos	blacktail moray	2	0.7	2	0.5
Gobiosoma xanthiprora	yellowprow goby	1	0	1	0.2
Trinectes maculatus	hogchoker	1	0	1	0.2
Chromis scotti	purple reeffish	1	0	1	0.2
Paralichthys	southern flounders	1	0	1	0.2
Pronotogrammus martinicensis	roughtongue bass	1	0	1	0.2
Conger oceanicus	conger eel	1	0	1	0.2
Hyporthodus flavolimbatus		1	0	1	0.2
Gobiesox punctulatus	stippled clingfish	1	0	1	0.2
Diplogrammus pauciradiatus	spotted dragonet	1	0	1	0.2
Holocentrus adscensionis	squirrelfish	1	0.3	1	0.2
Lagocephalus	rabbitfishes	1	0	1	0.2
Gymnothorax moringa	spotted moray	1	0.7	1	0.2
Epinephelus itajara	goliath grouper	1	81.1	1	0.2

Table 2. Species composition list (continued)

GENUS/SPECIES	COMMON NAME	TOTAL NUMBER CAUGHT	TOTAL WEIGHT CAUGHT (KG)	NUMBER OF TOWS WHERE CAUGHT	% FREQUENCY OCCURRENCE
Pomacanthus paru	French angelfish	1	0.3	1	0.2
Caranx ruber	bar jack	1	0	1	0.2
Bodianus pulchellus	spotfin hogfish	1	0	1	0.2
Lactophrys trigonus	trunkfish	1	1.2	1	0.2
Seriola rivoliana	almaco jack	1	0.1	1	0.2
Blenniidae	blennies	1	0	1	0.2
Pomatomus saltatrix	bluefish	1	0.3	1	0.2
Hippocampus reidi	longsnout seahorse	1	0	1	0.2
Cantherhines pullus	orangespotted filefish	1	0	1	0.2
Gobionellus oceanicus	highfin goby	1	0	1	0.2
Serranus annularis	orangeback bass	1	0	1	0.2
Parexocoetus		1	0	1	0.2
Halichoeres caudalis	painted wrasse	1	0	1	0.2
Hypleurochilus bermudensis	barred blenny	1	0	1	0.2
Cookeolus boops		1	0.1	1	0.2
Sparisoma atromarium		1	0	1	0.2
Pontinus longispinis	longspine scorpionfish	1	0	1	0.2
Scomberomorus maculatus	Spanish mackerel	1	0.3	1	0.2
Rypticus subbifrenatus	spotted soapfish	1	0	1	0.2
Syngnathus louisianae	chain pipefish	1	0	1	0.2
Scorpaena dispar	hunchback scorpionfish	1	0.1	1	0.2
Corythoichthys albirostris		1	0	1	0.2
Risor ruber	tusked goby	1	0	1	0.2
Lophius gastrophysus	blackfin goosefish	1	0	1	0.2
Dasyatis centroura	clam cracker	1	200	1	0.2
Ariomma bondi	silver-rag	1	0.1	1	0.2
Raja garmani	rosette skate	1	0.7	1	0.2
Paralichthyidae		1	0	1	0.2
Diplectrum	perch	1	0	1	0.2
Echiophis punctifer	snapper eel	1	0.7	1	0.2
Polydactylus virginicus	barbu	1	0.3	1	0.2

Table 2. Species composition list (continued)

GENUS/SPECIES	COMMON NAME	TOTAL NUMBER CAUGHT	TOTAL WEIGHT CAUGHT (KG)	NUMBER OF TOWS WHERE CAUGHT	% FREQUENCY OCCURRENCE
Exocoetidae	flyingfishes	1	0	1	0.2
Syngnathus springeri	bull pipefish	1	0	1	0.2
Hippocampus zosterae	pygmy seahorse	1	0	1	0.2
Hypsoblennius hentzi		1	0	1	0.2
Crustaceans					
Callinectes similis	lesser blue crab	19494	136.9	157	35.4
Farfantepenaeus aztecus	brown shrimp	18139	249.9	218	49.2
Rimapenaeus constrictus	roughneck shrimp	7269	25.2	42	9.5
Sicyonia brevirostris	brown rock shrimp	5849	66.7	128	28.9
Rimapenaeus similis	roughback shrimp	5634	26.3	98	22.1
Squilla empusa	mantis shrimp	4139	36.1	107	24.2
Farfantepenaeus duorarum	pink shrimp	3748	70.9	105	23.7
Portunus gibbesii	irridescent swimming crab	3602	15.8	123	27.8
Portunus spinicarpus	longspine swimming crab	3395	16.6	137	30.9
Sicyonia dorsalis	lesser rock shrimp	2019	4.4	48	10.8
Litopenaeus setiferus	white shrimp	1173	51.2	81	18.3
Parapenaeus politus	deepwater rose shrimp	1147	3.1	20	4.5
Solenocera vioscai	humpback shrimp	1141	4.8	47	10.6
Squilla chydaea	mantis shrimp	807	4.5	63	14.2
Portunus spinimanus	blotched swimming crab	610	25.9	77	17.4
Metapenaeopsis goodei	Caribbean velvet shrimp	442	0.9	30	6.8
Anasimus latus	stilt spider crab	392	1.9	61	13.8
Euryalidae		370	1.1	3	0.7
Scyllarus chacei	chace slipper lobster	260	0.8	49	11.1
Solenocera atlantidis	dwarf humpback shrimp	230	0.3	31	7
Munida forceps	squat lobster	223	0.1	4	0.9
Raninoides louisianensis	gulf frog crab	213	1.4	33	7.4
Callinectes sapidus	blue crab	207	17.1	52	11.7
Munida irrasa		202	0	2	0.5

Table 2. Species composition list (continued)

GENUS/SPECIES	COMMON NAME	TOTAL NUMBER CAUGHT	TOTAL WEIGHT CAUGHT (KG)	NUMBER OF TOWS WHERE CAUGHT	% FREQUENCY OCCURRENCE
Portunus sayi	sargassum swimming crab	153	0.4	39	8.8
Stenorhynchus seticornis	yellowline arrow crab	141	0.3	62	14
Calappa sulcata	yellow box crab	128	22	57	12.9
Leiolambrus nitidus	white elbow crab	125	0.3	37	8.4
Ovalipes floridanus	Florida lady crab	111	0.8	32	7.2
Scyllarides nodifer	ridged slipper lobster	96	29	38	8.6
Platylambrus granulata	bladetooth elbow crab	95	0.2	40	9
Munida pusilla		93	0	5	1.1
Gibbesia neglecta	mantis shrimp	87	0.8	13	2.9
Plesionika longicauda	pandalid shrimp	64	0.1	7	1.6
Cryptodromiopsis antillensis	hairy sponge crab	61	0.2	41	9.3
Mesopenaeus tropicalis	salmon shrimp	59	0.2	13	2.9
Hepatus epheliticus	calico crab	59	2	27	6.1
Pseudorhombila quadridentata	flecked squareback crab	55	0.4	17	3.8
Stenocionops furcatus furcatus	furcate crab	54	2.8	38	8.6
Leander tenuicornis	brown glass shrimp	48	0	6	1.4
Paguristes triangulatus	hermit crab	43	0.1	8	1.8
Podochela sidneyi	shortfinger neck crab	43	0.1	23	5.2
Sicyonia burkenroadi	spiny rock shrimp	41	0.1	10	2.3
Mithrax hispidus	coral clinging crab	40	0.2	13	2.9
Mithrax pleuracanthus	shaggy clinging crab	39	0.1	17	3.8
Pilumnus sayi	spineback hairy crab	39	0.1	17	3.8
Persephona crinita	pink purse crab	35	0.1	19	4.3
Metoporhaphis calcarata	false arrow crab	33	0	9	2
Squilla rugosa		31	0.2	10	2.3
Libinia dubia	longnose spider crab	31	0.3	16	3.6
Speocarcinus lobatus	gulf squareback crab	31	0.1	15	3.4
Euphrosynoplax clausa	craggy bathyal crab	26	0.2	13	2.9
Portunus ordwayii		26	0.3	13	2.9
Libinia emarginata	portly spider crab	25	1.7	15	3.4
Pyromaia cuspidata	dartnose pear crab	21	0.1	3	0.7

Table 2. Species composition list (continued)

GENUS/SPECIES	COMMON NAME	TOTAL NUMBER CAUGHT	TOTAL WEIGHT CAUGHT (KG)	NUMBER OF TOWS WHERE CAUGHT	% FREQUENCY OCCURRENCE
Persephona mediterranea	mottled purse crab	20	0.1	16	3.6
Myropsis quinquespinosa	fivespine purse crab	19	0.1	11	2.5
Stenocionops spinimanus	prickly spider crab	18	2	13	2.9
Calappa flammea	flame box crab	18	3.7	12	2.7
Squilla deceptrix		18	0	6	1.4
Dardanus insignis	red brocade hermit	17	0.2	12	2.7
Petrolisthes galathinus	banded porcelain crab	17	0	10	2.3
Stenorhynchus		17	0	11	2.5
Hypoconcha arcuata	granulate shellback crab	15	0	7	1.6
Pagurus pollicaris	flatclaw hermit crab	14	0.3	11	2.5
Macrocoeloma trispinosum	spongy decorator crab	14	0.1	9	2
Portunus floridanus		13	0.1	2	0.5
Petrochirus diogenes	giant hermit crab	13	0.5	11	2.5
Lysmata wurdemanni	peppermint shrimp	13	0	5	1.1
Porcellana sayana	spotted porcelain crab	12	0	6	1.4
Paguristes spp.	hermit crabs	12	0	7	1.6
Podochela lamelligera	neck crab	12	0	7	1.6
Arenaeus cribrarius	speckled swimming crab	11	0.3	6	1.4
Xiphopenaeus kroyeri	seabob	10	0	2	0.5
Leiolambrus nitidus	white elbow crab	10	0	4	0.9
Manucomplanus ungulatus		10	0	6	1.4
Lobopilumnus agassizii	areolated hairy crab	10	0	8	1.8
Synalpheus		9	0	8	1.8
Collodes robustus	spider crab	9	0	5	1.1
Menippe adina	Gulf stone crab	9	0	3	0.7
Pilumnus floridanus	plumed hairy crab	8	0	8	1.8
Parthenope agonus		8	0	7	1.6
Menippe mercenaria	Florida stone crab	7	1	4	0.9
Macrocoeloma		7	0	5	1.1
Sicyonia typica	kinglet rock shrimp	7	0	3	0.7
Solenocera spp.	humpback shrimps	7	0	2	0.5

Table 2. Species composition list (continued)

GENUS/SPECIES	COMMON NAME	TOTAL NUMBER CAUGHT	TOTAL WEIGHT CAUGHT (KG)	NUMBER OF TOWS WHERE CAUGHT	% FREQUENCY OCCURRENCE
Majidae	spider crabs	7	0	3	0.7
Tozeuma serratum	serrate arrow shrimp	6	0	2	0.5
Collodes trispinosus		6	0	5	1.1
Acanthilia intermedia	granulose purse crab	6	0	4	0.9
Mithrax acuticornis	sharphorn clinging crab	6	0.1	4	0.9
Paguristes sericeus	blue-eyed hermit	6	0	6	1.4
Dromidia		6	0	3	0.7
Iliacantha subglobosa	longfinger purse crab	5	0	4	0.9
Iliacantha liodactylus	purse crab	5	0	3	0.7
Xanthidae	mud crabs	5	0	2	0.5
Pilumnus dasypodus	shortspine hairy crab	5	0	4	0.9
Stenopus scutellatus	golden coral shrimp	5	0	5	1.1
Portunus depressifrons	flatface swimming crab	4	0.1	3	0.7
Pseudomedaeus agassizii	rough rubble crab	4	0	4	0.9
Glyptoxanthus erosus	eroded mud crab	4	0.2	4	0.9
Callinectes ornatus	shelligs	4	0.1	4	0.9
Scyllarus depressus	scaled slipper lobster	4	0	3	0.7
Pinnotheridae	pea crabs	4	0	4	0.9
Pagurus impressus	dimpled hermit	3	0	3	0.7
Squilla spp.	mantis shrimps	3	0	2	0.5
Raninoides loevis	furrowed frog crab	3	0	1	0.2
Porcellana sigsbeiana	striped porcelain crab	3	0	2	0.5
Axiopsis hirsutimana	lobster shrimps	3	0	2	0.5
Palicus alternata		3	0	3	0.7
Hypoconcha spinosissima	spiny shellback crab	3	0	3	0.7
Lysmata		3	0	3	0.7
Sicyonia laevigata	rock shrimp	3	0	2	0.5
Carpoporus papulosus	narrowfront rubble crab	3	0	3	0.7
Alpheus formosus	striped snapping shrimp	3	0	1	0.2
Parthenope	elbow crabs	3	0	1	0.2
Alpheus	snapping shirmps	3	0	2	0.5

Table 2. Species composition list (continued)

GENUS/SPECIES	COMMON NAME	TOTAL NUMBER CAUGHT	TOTAL WEIGHT CAUGHT (KG)	NUMBER OF TOWS WHERE CAUGHT	% FREQUENCY OCCURRENCE
Portunus spp.	swimming crabs	2	0	1	0.2
Ethusa microphthalma	broadback sumo crab	2	0	2	0.5
Parthenope serrata	sawtooth elbow crab	2	0	2	0.5
Synalpheus fritzmuelleri	speckled snapping shrimp	2	0	2	0.5
Latreutes parvulus	sargassum shirmp	2	0	2	0.5
Acetes americanus	aviu shrimp	2	0	1	0.2
Macrocoeloma camptocerum	Florida decorator crab	2	0	2	0.5
Sicyonia spp.	rock shrimps	2	0	2	0.5
Gonodactylus bredini		2	0	2	0.5
Pagurus bullisi	hermit crab	2	0	2	0.5
Dardanus fucosus	bareye hermit	2	0	1	0.2
Actaea rufopunctata		2	0	1	0.2
Calappidae	box crabs	2	0	2	0.5
Euchirograpsus americanus	American talon crab	2	0	2	0.5
Penaeidae	penaeid shrimps	2	0	2	0.5
Parthenope fraterculus	rough elbow crab	1	0	1	0.2
Acanthocarpus alexandri	gladiator box crab	1	0	1	0.2
Axiopsis	lobster shrimp genus	1	0	1	0.2
Goneplax		1	0	1	0.2
Nibilia antilocapra	shorthorn spiny crab	1	0.3	1	0.2
Tetraxanthus rathbunae	inflated mud crab	1	0	1	0.2
Synalpheus townsendi	Townsend snapping shrimp	1	0	1	0.2
Stenocionops spinosissimus	tenspine spider crab	1	0	1	0.2
Decapoda	crabs	1	0	1	0.2
Tumidotheres maculatus	squatter pea crab	1	0	1	0.2
Alpheus floridanus	sand snapping shrimp	1	0	1	0.2
Raymanninus schmitti		1	0	1	0.2
Osachila tuberosa	thicklip jewelbox crab	1	0	1	0.2
Callidactylus asper	spurfinger purse crab	1	0	1	0.2
Macrocoeloma eutheca		1	0	1	0.2
Paguristes hummi	left-handed hermit crabs	1	0	1	0.2

Table 2. Species composition list (continued)

GENUS/SPECIES	COMMON NAME	TOTAL NUMBER CAUGHT	TOTAL WEIGHT CAUGHT (KG)	NUMBER OF TOWS WHERE CAUGHT	% FREQUENCY OCCURRENCE
Parthenope pourtalesii	spinous elbow crab	1	0	1	0.2
Podochela gracilipes	unicorn neck crab	1	0	1	0.2
Dardanus		1	0	1	0.2
Alpheidae	snapping shrimps	1	0	1	0.2
Alpheus heterochelis		1	0	1	0.2
Stenopus		1	0	1	0.2
Palicus faxoni	finned stilt crab	1	0	1	0.2
Synalpheus longicarpus		1	0	1	0.2
Galathea rostrata		1	0	1	0.2
Meiosquilla quadridens		1	0	1	0.2
Phimochirus holthuisi	red-striped hermit	1	0	1	0.2
Euryplax nitida	glabrous broadface crab	1	0	1	0.2
Others					
Amusium papyraceum	paper scallop	13070	136.8	77	17.4
Loligo plei	arrow squid	12326	160	216	48.8
Loligo pealeii	longfin squid	4736	91.1	107	24.2
Lolliguncula brevis	Atlantic brief squid	2806	25.4	120	27.1
Argopecten gibbus	calico scallop	1753	12.9	18	4.1
Pitar cordatus	Schwengel's pitar	517	11	35	7.9
Anadara baughmani	Baughman's ark	231	3.5	17	3.8
Loligo spp.	squids	97	0.2	6	1.4
Macoma brevifrons	short macoma	58	0.5	6	1.4
Polystira albida	white giant turris	57	0.8	15	3.4
Octopus joubini	Atlantic pygmy octopus	53	4	36	8.1
Nassarius acutus	sharp nassa	50	0.1	1	0.2
Semirossia tenera	lesser shining bobtail	46	0.5	14	3.2
Aplysia brasiliana	mottled seahare	40	2	13	2.9
Lirophora clenchi	Clench venus	36	0.3	14	3.2
Arca zebra	turkey wing	31	3.1	5	1.1

Table 2. Species composition list (continued)

GENUS/SPECIES	COMMON NAME	TOTAL NUMBER CAUGHT	TOTAL WEIGHT CAUGHT (KG)	NUMBER OF TOWS WHERE CAUGHT	% FREQUENCY OCCURRENCE
Aplysia morio	sooty seahare	25	1.9	14	3.2
Octopus vulgaris	common Atlantic octopus	17	1.6	13	2.9
Ficus communis	Atlantic figsnail	17	1.4	9	2
Conus austini	cone shell	16	0.2	4	0.9
Sconsia striata	royal bonnet	13	0.2	6	1.4
Laevicardium mortoni	yellow eggcockle	12	0.2	4	0.9
Armina		9	0	1	0.2
Narcissia trigonaria		9	0.7	6	1.4
Atrina rigida	stiff penshell	8	4.1	5	1.1
Pleurobranchus	slugs	7	1.1	5	1.1
Laevicardium laevigatum	egg cockle	6	0.3	4	0.9
Evola	bivalves	6	0.1	3	0.7
Distorsio mcgintyi		5	0.1	4	0.9
Neverita duplicata	shark eye	5	0.1	4	0.9
Aequipecten muscosus	rough scallop	5	0.1	5	1.1
Tonna galea	giant tun	5	1	4	0.9
Nudibranchia	nudibranchs	5	0	1	0.2
Euvola raveneli	Ravenel's scallop	4	0	4	0.9
Anadara ovalis	blood ark	4	0	4	0.9
Cassis tuberosa	Caribbean helmet	4	15	4	0.9
Semirossia equalis	greater shining bobtail	4	0	2	0.5
Aplysia	opistobranchs	4	0.3	2	0.5
Chama macerophylla	leafy jewelbox	4	0.7	3	0.7
Nodipecten		4	0.6	4	0.9
Distorsio clathrata	Atlantic distorsio	4	0	4	0.9
Calliostoma		3	0	3	0.7
Turritella exoleta	eastern turretsnail	3	0	2	0.5
Neverita		3	0	3	0.7
Agriopoma texasianum	Texas venus	3	0	2	0.5
Cypraea		3	0	1	0.2
Pecten laurenti		3	0	2	0.5

Table 2. Species composition list (continued)

GENUS/SPECIES	COMMON NAME	TOTAL NUMBER CAUGHT	TOTAL WEIGHT CAUGHT (KG)	NUMBER OF TOWS WHERE CAUGHT	% FREQUENCY OCCURRENCE
Astrea phoebia		3	0	2	0.5
Busycon plagosus		2	4.6	2	0.5
Aplysia willcoxi		2	0	2	0.5
Atrina spp.	penshells	2	0	1	0.2
Chlamys benedicti	Benedict scallop	2	0	1	0.2
Busycon sinistrum	lightning whelk	2	0.2	2	0.5
Stramonita	rocksnails	2	0	1	0.2
Anadara floridana	cut-ribbed ark	2	0	1	0.2
Macrocallista maculata	calico clam	2	0.1	2	0.5
Stramonita haemastoma	rocksnail	2	0	1	0.2
Fasciolaria lilium	banded tulip	2	0.1	2	0.5
Cypraea cervus	atlantic deer cowrie	2	0.2	2	0.5
Laevicardium pictum	painted eggcockle	2	0	2	0.5
Strombus alatus	Florida fighting conch	2	0.2	1	0.2
Hiatella arctica	Arctic hiatella	2	0	1	0.2
Cerithium atratum	dark cerith	2	0	2	0.5
Sphenia fragilis		2	0	1	0.2
Cypraea cinera		2	0	2	0.5
Chicoreus florifer-dilectus		2	0	2	0.5
Cassis madagascariensis	cameo helmet	2	0.2	2	0.5
Ctenoides		2	0	1	0.2
Oliva fulgurator		2	0	2	0.5
Cymatium		1	0	1	0.2
Hexaplex fulvescens	giant eastern murex	1	0	1	0.2
Murex		1	0.2	1	0.2
Noetia ponderosa	ponderous ark	1	0	1	0.2
Natica canrena	colorful moonsnail	1	0	1	0.2
Turritella acropora	boring turretsnail	1	0	1	0.2
Aplysia badistes		1	0.2	1	0.2
Cantharus cancellarius	cancellate cantharus	1	0	1	0.2
Fasciolhunter	mollusks	1	0	1	0.2

Table 2. Species composition list (continued)

GENUS/SPECIES	COMMON NAME	TOTAL NUMBER CAUGHT	TOTAL WEIGHT CAUGHT (KG)	NUMBER OF TOWS WHERE CAUGHT	% FREQUENCY OCCURRENCE
Gastropoda	snails	1	5.2	1	0.2
Tugurium caribaeum		1	0	1	0.2
Pleuroploca gigantea	horse conch	1	4	1	0.2
Atrina serrata	sawtooth penshell	1	0	1	0.2
Pectinidae	bivalves	1	0.2	1	0.2
Cassis		1	0	1	0.2
Semirossia	mollusks	1	0	1	0.2
Chione latilirata	imperial venus	1	0	1	0.2
Trachycardium		1	0	1	0.2
Hypselodoris edenticulata	florida regal doris	1	0	1	0.2
Cypraea spurca		1	0	1	0.2
Octopus		1	0	1	0.2
Chama congregata	corrugate jewelbox	1	0.3	1	0.2
Xenophora conchyliophora	American carriersnail	1	0.1	1	0.2
Cyphoma		1	0	1	0.2
Limaria		1	0	1	0.2
Busycon lyonsi		1	3	1	0.2
Cerodrillia		1	0	1	0.2
Spondylus americanus	Atlantic thorny oyster	1	0	1	0.2
Cypraeidae		1	0	1	0.2
Ostrea equestris	crested oyster	1	0	1	0.2
Fusinus eucosmius	apricot spindle	1	0	1	0.2
Arcinella cornuta	Florida spiny jewelbox	1	0	1	0.2
Felimare		1	0	1	0.2

Table 3. 2014 Fall Shrimp/Groundfish Survey species composition list, 404 trawl stations, for those vessels that used either a 40-ft or 20-ft trawl. Species with a total weight of less than 0.0227 kg (0.05 lb) are indicated on the table as 0.0 kg.

GENUS/SPECIES	COMMON NAME	TOTAL NUMBER CAUGHT	TOTAL WEIGHT CAUGHT (KG)	NUMBER OF TOWS WHERE CAUGHT	% FREQUENCY OCCURRENCE
Finfishes					
Micropogonias undulatus	Atlantic croaker	91221	3666.2	199	49.3
Chloroscombrus chrysurus	Atlantic bumper	22161	725.5	120	29.7
Stenotomus caprinus	longspine porgy	22118	600.7	153	37.9
Leiostomus xanthurus	spot	10735	930.7	123	30.4
Peprilus burti	gulf butterfish	6252	302.9	118	29.2
Trachurus lathami	rough scad	5249	180.5	93	23
Lagodon rhomboides	pinfish	4872	331.6	162	40.1
Lutjanus synagris	lane snapper	4824	592.3	151	37.4
Syacium papillosum	dusky flounder	4585	255.6	134	33.2
Serranus atrobranchus	blackear bass	3916	37.6	71	17.6
Haemulon aurolineatum	tomtate	3865	217.9	89	22
Syacium gunteri	shoal flounder	3805	64.7	136	33.7
Prionotus longispinosus	bigeye searobin	3623	91.5	139	34.4
Synodus foetens	inshore lizardfish	2845	308.1	238	58.9
Cynoscion nothus	silver seatrout	2575	113.5	119	29.5
Mullus auratus	red goatfish	2438	144.4	46	11.4
Rhomboplites aurorubens	vermilion snapper	2331	91.3	70	17.3
Lutjanus campechanus	red snapper	2300	115.6	154	38.1
Centropristis philadelphica	rock sea bass	2243	75.7	127	31.4
Diplectrum formosum	sand perch	2156	137.2	128	31.7
Larimus fasciatus	banded drum	2072	110.1	68	16.8
Bellator militaris	horned searobin	2044	40.2	64	15.8
Scorpaena calcarata	smoothhead scorpionfish	1718	27.2	49	12.1
Decapterus punctatus	round scad	1608	24.3	56	13.9
Anchoa hepsetus	striped anchovy	1605	21.3	41	10.1
Upeneus parvus	dwarf goatfish	1543	58.7	64	15.8
Stephanolepis hispida		1529	53.4	95	23.5

Table 3. Species composition list (continued)

GENUS/SPECIES	COMMON NAME	TOTAL NUMBER CAUGHT	TOTAL WEIGHT CAUGHT (KG)	NUMBER OF TOWS WHERE CAUGHT	% FREQUENCY OCCURRENCE
Saurida brasiliensis	largescale lizardfish	1516	6.7	67	16.6
Pristipomoides aquilonaris	wenchman	1456	76.9	51	12.6
Harengula jaguana	scaled sardine	1259	31.7	49	12.1
Ariopsis felis	hardhead catfish	1221	125	64	15.8
Cynoscion arenarius	sand seatrout	1167	121.4	112	27.7
Synodus poeyi	offshore lizardfish	1088	8.5	72	17.8
Centropristis ocyurus	bank sea bass	991	51.3	61	15.1
Steindachneria argentea	luminous hake	971	3	2	0.5
Scorpaena brasiliensis	barbfish	961	41.8	76	18.8
Sphoeroides dorsalis	marbled puffer	959	40.6	84	20.8
Prionotus stearnsi	shortwing searobin	951	11.7	35	8.7
Saurida normani	shortjaw lizardfish	934	87.2	25	6.2
Selene setapinnis	Atlantic moonfish	920	48.5	87	21.5
Trichiurus lepturus	Atlantic cutlassfish	885	34.8	62	15.3
Haemulon plumierii	white grunt	880	176.2	21	5.2
Diplectrum bivittatum	dwarf sand perch	874	13.7	67	16.6
Calamus proridens	littlehead porgy	851	158.8	67	16.6
Eucinostomus gula	silver jenny	841	31	45	11.1
Sphoeroides parvus	least puffer	793	4	76	18.8
Synodus macrostigmus		765	57.2	61	15.1
Eucinostomus	mojarras	720	25.7	4	1
Trachinocephalus myops	snakefish	716	47.1	77	19.1
Stellifer lanceolatus	star drum	705	7.7	44	10.9
Scorpaena agassizii	longfin scorpionfish	701	26.2	31	7.7
Chaetodipterus faber	Atlantic spadefish	675	26.5	100	24.8
Lepophidium jeannae	mottled cusk-eel	655	25.9	33	8.2
Trichopsetta ventralis	sash flounder	598	12.8	26	6.4
Prionotus rubio	blackwing searobin	555	24.8	33	8.2
Anchoa mitchilli	bay anchovy	528	0.5	16	4
Orthopristis chrysoptera	pigfish	513	50.3	52	12.9
Lepophidium brevibarbe	blackedge cusk-eel	507	18.1	54	13.4

Table 3. Species composition list (continued)

GENUS/SPECIES	COMMON NAME	TOTAL NUMBER CAUGHT	TOTAL WEIGHT CAUGHT (KG)	NUMBER OF TOWS WHERE CAUGHT	% FREQUENCY OCCURRENCE
Acanthostracion quadricornis		489	78.6	88	21.8
Sphoeroides spengleri	bandtail puffer	483	17.8	57	14.1
Cyclopsetta chittendeni	Mexican flounder	477	41.9	88	21.8
Etropus crossotus	fringed flounder	419	5.6	88	21.8
Sardinella aurita	Spanish sardine	406	9.3	34	8.4
Bothus robinsi	twospot flounder	397	10.2	61	15.1
Prionotus paralatus	Mexican searobin	380	12.4	22	5.4
Balistes capriscus	gray triggerfish	371	31	81	20
Prionotus alatus	spiny searobin	363	12.1	36	8.9
Prionotus roseus	bluespotted searobin	350	11.1	56	13.9
Opisthonema oglinum	Atlantic thread herring	340	19.8	36	8.9
Citharichthys spilopterus	bay whiff	338	5.1	56	13.9
Serranus phoebe	tattler	321	12.1	37	9.2
Equetus lanceolatus	jackknife fish	318	23.4	46	11.4
Halieutichthys aculeatus	pancake batfish	311	2.9	61	15.1
Bagre marinus	gafftopsail catfish	310	19.6	32	7.9
Eucinostomus argenteus	spotfin mojarra	286	4.5	13	3.2
Anchoviella perfasciata	Poey's anchovy	284	3.6	2	0.5
Eucinostomus harengulus	tidewater mojarra	277	11.9	23	5.7
Prionotus scitulus	leopard searobin	263	8.1	24	5.9
Halieutichthys		256	1.5	46	11.4
Brevoortia patronus	gulf menhaden	242	11.9	23	5.7
Calamus arctifrons	grass porgy	230	37.2	15	3.7
Aluterus schoepfii	orange filefish	226	68.1	41	10.1
Serranus notospilus	saddle bass	202	0.8	25	6.2
Ophidion holbrookii	bank cusk-eel	195	16.9	34	8.4
Urophycis regia	spotted hake	191	12.9	11	2.7
Pterois volitans	lion fish	190	52.5	38	9.4
Monacanthus ciliatus	fringed filefish	189	3	51	12.6
Prionotus ophryas	bandtail searobin	173	7	65	16.1
Symphurus diomedeanus	spottedfin tonguefish	168	4.9	38	9.4

Table 3. Species composition list (continued)

GENUS/SPECIES	COMMON NAME	TOTAL NUMBER CAUGHT	TOTAL WEIGHT CAUGHT (KG)	NUMBER OF TOWS WHERE CAUGHT	% FREQUENCY OCCURRENCE
Haemulon striatum	striped grunt	168	7.7	5	1.2
Synodus intermedius	sand diver	143	13.8	36	8.9
Porichthys plectrodon	Atlantic midshipman	142	2.4	56	13.9
Lutjanus griseus	grey snapper	137	45.3	38	9.4
Apogon affinis	bigtooth cardinalfish	126	1.4	14	3.5
Caranx crysos	blue runner	124	8	32	7.9
Pagrus pagrus	red porgy	121	9.9	26	6.4
Ogcocephalus declivirostris	slantbrow batfish	121	2.4	31	7.7
Diplodus holbrooki	spottail pinfish	117	11.6	2	0.5
Gymnachirus texae	fringed sole	110	1	38	9.4
Ancylopsetta ommata	ocellated flounder	105	15.8	45	11.1
Prionotus martis	barred searobin	102	4.1	19	4.7
Lagocephalus laevigatus	smooth puffer	101	4.7	40	9.9
Ogcocephalidae	batfishes	101	0.6	8	2
Kathetostoma albigutta	lancer stargazer	100	4.7	38	9.4
Pristigenys alta	short bigeye	100	1.3	31	7.7
Cyclopsetta fimbriata	spotfin flounder	98	6	45	11.1
Peprilus paru	harvestfish	95	4.8	28	6.9
Urophycis floridana	southern hake	93	10.5	17	4.2
Etropus rimosus	gray flounder	87	1.1	10	2.5
Gymnothorax saxicola	honeycomb moray	84	8.4	38	9.4
Chaetodon ocellatus	spotfin butterflyfish	84	6.7	36	8.9
Lachnolaimus maximus	hogfish	83	24.7	10	2.5
Ophidion josephi	crested cusk-eel	80	2.9	24	5.9
Centropristis striatus	black sea bass	78	8.2	4	1
Neomerinthe hemingwayi	spinycheek scorpionfish	77	4.1	8	2
Serranus tortugarum	chalk bass	77	0.8	4	1
Pareques umbrosus	cubbyu	74	4.5	29	7.2
Prionotus tribulus	bighead searobin	73	7.3	24	5.9
Epinephelus morio	red grouper	72	65.1	27	6.7
Ogcocephalus parvus	roughback batfish	71	0.6	29	7.2

Table 3. Species composition list (continued)

GENUS/SPECIES	COMMON NAME	TOTAL NUMBER CAUGHT	TOTAL WEIGHT CAUGHT (KG)	NUMBER OF TOWS WHERE CAUGHT	% FREQUENCY OCCURRENCE
Schultzea beta	school bass	69	1	3	0.7
Ancylopsetta dilecta	three-eye flounder	67	4.1	21	5.2
Ariomma regulus	spotted driftfish	66	2.6	14	3.5
Cynoscion spp.	seatrouts	64	0.2	3	0.7
Nicholsina usta	emerald parrotfish	63	7.7	18	4.5
Symphurus civitatium	offshore tonguefish	62	1.2	16	4
Engyophrys senta	spiny flounder	61	0.2	15	3.7
Citharichthys macrops	spotted whiff	58	2.2	25	6.2
Gastropsetta frontalis	shrimp flounder	57	5.2	27	6.7
Apogon pseudomaculatus	twospot cardinalfish	55	0.3	15	3.7
Pseudupeneus maculatus	spotted goatfish	51	4.7	10	2.5
Brotula barbata	bearded brotula	51	3.7	20	5
Menticirrhus americanus	southern kingfish	50	6.2	27	6.7
Calamus nodosus	knobbed porgy	48	9.8	14	3.5
Ophidion beani	longnose cusk-eel	47	3	13	3.2
Bollmannia communis	ragged goby	47	0.2	18	4.5
Symphurus plagiusa	blackcheek tonguefish	40	0.6	26	6.4
Urophycis cirrata	gulf hake	39	1.5	8	2
Sphyrna tiburo	bonnethead	38	35.4	19	4.7
Rhynchoconger flavus	yellow conger	38	3.1	14	3.5
Antennarius radiosus	singlespot frogfish	34	0.3	16	4
Ocyurus chrysurus	yellowtail snapper	32	3.7	5	1.2
Lepophidium spp.	cusk-eels	30	0.3	7	1.7
Chromis enchrysura	yellowtail reeffish	28	0.4	16	4
Holocentrus bullisi	deepwater squirrelfish	28	0.8	6	1.5
Raja texana	roundel skate	27	9	21	5.2
Chaetodon sedentarius	reef butterflyfish	27	1.1	13	3.2
Decodon puellaris	red hogfish	26	1.3	11	2.7
Raja eglanteria	clearnose skate	26	11.4	20	5
Hemipteronotus novacula	pearly razorfish	26	1.6	8	2
Etrumeus teres	round herring	26	0.5	6	1.5

Table 3. Species composition list (continued)

GENUS/SPECIES	COMMON NAME	TOTAL NUMBER CAUGHT	TOTAL WEIGHT CAUGHT (KG)	NUMBER OF TOWS WHERE CAUGHT	% FREQUENCY OCCURRENCE
Hippocampus erectus	lined seahorse	25	0.2	21	5.2
Dasyatis sabina	Atlantic stringray	24	15.7	10	2.5
Paralichthys lethostigma	southern flounder	23	9.7	17	4.2
Rypticus maculatus	whitespotted soapfish	22	0.8	15	3.7
Chilomycterus schoepfii	striped burrfish	22	7.1	16	4
Caulolatilus intermedius	anchor tilefish	22	1.6	10	2.5
Pleuronectiformes	flatfishes	21	0.2	1	0.2
Etropus		21	0.2	1	0.2
Stephanolepis hispida	planehead filefish	21	0.8	5	1.2
Paralichthys albigutta	gulf flounder	20	8.7	14	3.5
Dasyatis americana	southern stingray	19	25.3	8	2
Priacanthus arenatus	bigeye	18	3.1	11	2.7
Symphurus urospilus	spottail tonguefish	17	0.5	7	1.7
Aluterus heudelotii	dotterel filefish	17	4	14	3.5
Halichoeres bathyphilus	greenband wrasse	17	0.2	1	0.2
Ogcocephalus corniger	longnose batfish	17	0.3	12	3
Pomacanthus arcuatus	gray angelfish	16	6.5	13	3.2
Hoplunnis macrura	freckled pike-conger	15	0.1	7	1.7
Selar crumenophthalmus	bigeye scad	15	1.1	7	1.7
Scomberomorus cavalla	king mackerel	14	1	8	2
Apogon aurolineatus	bridle cardinalfish	14	1.6	8	2
Peprilus paru	harvestfish	14	0.4	10	2.5
Pterois	lion fishes	14	3.8	3	0.7
Bothus ocellatus	eyed flounder	14	0.3	6	1.5
Echeneis naucrates	sharksucker	13	7.5	10	2.5
Citharichthys gymnorhinus	anglefin whiff	13	0	9	2.2
Hemicaranx amblyrhynchus	bluntnose jack	13	0.3	2	0.5
Anchoa lyolepis	dusky anchovy	13	0	2	0.5
Bairdiella chrysoura	silver perch	13	0.3	6	1.5
Sphoeroides nephelus	southern puffer	13	1.5	7	1.7
Apogon quadrisquamatus	sawcheek cardinalfish	13	0	9	2.2

Table 3. Species composition list (continued)

GENUS/SPECIES	COMMON NAME	TOTAL NUMBER CAUGHT	TOTAL WEIGHT CAUGHT (KG)	NUMBER OF TOWS WHERE CAUGHT	% FREQUENCY OCCURRENCE
Ophidion grayi	blotched cusk-eel	13	1.3	4	1
Astrapogon alutus	bronze cardinalfish	12	0	5	1.2
Rhizoprionodon terraenovae	Atlantic sharpnose shark	12	18.9	8	2
Calamus bajonado	jolthead porgy	12	6.3	3	0.7
Rhinobatos lentiginosus	Atlantic guitarfish	12	6.6	11	2.7
Pareques iwamotoi	blackbar drum	12	0.4	6	1.5
Hemanthias aureorubens	streamer bass	12	0.1	1	0.2
Holacanthus bermudensis	blue angelfish	12	5.8	9	2.2
Aluterus scriptus	scrawled filefish	11	2.9	5	1.2
Ophidion	cusk-eels	11	0.3	9	2.2
Ogcocephalus cubifrons		11	3.2	10	2.5
Selene vomer	lookdown	11	0.5	4	1
Pontinus longispinis	longspine scorpionfish	11	0.2	4	1
Squatina dumeril	Atlantic angel shark	10	26.5	5	1.2
Syacium micrurum	channel flounder	10	0.1	1	0.2
Rachycentron canadum	cobia	10	18.7	5	1.2
Scomberomorus maculatus	Spanish mackerel	9	2.2	5	1.2
Rypticus bistrispinus	freckled soapfish	9	0.1	4	1
Calamus penna	sheepshead porgy	9	3.2	7	1.7
Paralichthys squamilentus	broad flounder	9	1.7	3	0.7
Ophichthus puncticeps	palespotted eel	9	1.1	8	2
Canthigaster rostratus		9	0.1	5	1.2
Dorosoma petenense	threadfin shad	8	0.2	4	1
Antennarius ocellatus	ocellated frogfish	8	0.3	8	2
Parablennius marmoreus	seaweed blenny	8	0	7	1.7
Physiculus fulvus	metallic codling	8	0.1	3	0.7
Sphyraena guachancho	guaguanche	7	0.7	5	1.2
Rhynchoconger flavus		7	0.1	1	0.2
Gymnachirus melas	naked sole	7	0.3	5	1.2
Opsanus pardus	leopard toadfish	7	0.3	7	1.7
Urophycis earlli	Carolina hake	6	0.4	4	1

Table 3. Species composition list (continued)

GENUS/SPECIES	COMMON NAME	TOTAL NUMBER CAUGHT	TOTAL WEIGHT CAUGHT (KG)	NUMBER OF TOWS WHERE CAUGHT	% FREQUENCY OCCURRENCE
Estropus microstomus	smallmouth flounder	6	0	1	0.2
Antennarius striatus	striated frogfish	6	0.2	6	1.5
Citharichthys cornutus	horned whiff	6	0	4	1
Acanthostracion polygonius	honeycomb cowfish	6	4.2	3	0.7
Cryptotomus roseus	bluelip parrotfish	6	0	5	1.2
Holocentrus rufus	longspine squirrelfish	6	0.2	1	0.2
Hypoplectrus		5	0.1	5	1.2
Aluterus monoceros	unicorn filefish	5	1.4	4	1
Narcine brasiliensis	lesser electric ray	5	3.2	5	1.2
Mycteroperca phenax	scamp	5	2.7	3	0.7
Serranus annularis	orangeback bass	5	0	2	0.5
Echeneis	sharksuckers	5	1.4	3	0.7
Ogcocephalus cubifrons	polka-dot batfish	5	2	1	0.2
Seriola dumerili	greater amberjack	5	2.9	4	1
Anisotremus virginicus	porkfish	5	0.8	3	0.7
Oligoplites saurus	leatherjack	5	0.1	2	0.5
Lonchopisthus micrognathus	swordtail jawfish	5	0	5	1.2
Trinectes maculatus	hogchoker	5	0.2	4	1
Ogcocephalus spp.	batfishes	4	0	3	0.7
Citharichthys arctifrons	Gulf Stream flounder	4	0	1	0.2
Mustelus sinusmexicanus	Gulf smoothhound	4	7.4	2	0.5
Canthigaster jamestyleri		4	0	3	0.7
Echeneis neucratoides	whitefin sharksucker	4	2.1	1	0.2
Bellator egretta	streamer searobin	4	0.1	2	0.5
Lophius americanus	goosefish	4	0.5	3	0.7
Halichoeres	wrasses	4	0.5	1	0.2
Sphoeroides pachygaster	blunthead puffer	4	0.6	3	0.7
Gobiesox strumosus	skilletfish	4	0	4	1
Trachinotus carolinus	Florida pompano	4	1.6	4	1
Caranx hippos	crevalle jack	4	0.3	3	0.7
Gymnura micrura	smooth butterfly ray	4	11.1	3	0.7

Table 3. Species composition list (continued)

GENUS/SPECIES	COMMON NAME	TOTAL NUMBER CAUGHT	TOTAL WEIGHT CAUGHT (KG)	NUMBER OF TOWS WHERE CAUGHT	% FREQUENCY OCCURRENCE
Paralichthyidae		3	0	1	0.2
Lutjanus vivanus	silk snapper	3	0.5	2	0.5
Phaeoptyx pigmentaria	dusky cardinalfish	3	0	3	0.7
Etropus cyclosquamus	shelf flounder	3	0	1	0.2
Menticirrhus littoralis	gulf kingfish	3	0.5	2	0.5
Scorpaena spp.	scorpionfishes	3	0	2	0.5
Apogon spp.	cardinalfishes	3	0	1	0.2
Caulolatilus chrysops	goldface tilefish	3	0.6	1	0.2
Sparisoma chrysopterum	redtail parrotfish	3	0	1	0.2
Peristedion gracile	slender searobin	3	0	2	0.5
Astrapogon puncticulatus	blackfin cardinalfish	3	0	3	0.7
Ariomma		3	0.1	1	0.2
Pristipomoides freemani	slender wenchman	3	0	1	0.2
Pomacentrus variabilis	cocoa damselfish	2	0	1	0.2
Remora remora	remora	2	0.7	1	0.2
Diodon holocanthus	balloonfish	2	0.6	1	0.2
Hyporthodus flavolimbatus		2	0.2	2	0.5
Echiophis punctifer	snapper eel	2	0.4	2	0.5
Conodon nobilis	barred grunt	2	0.2	2	0.5
Polydactylus octonemus	Atlantic threadfin	2	0.2	1	0.2
Bathyanthias mexicanus	yellowtail bass	2	0	1	0.2
Bregmaceros atlanticus	antenna codlet	2	0	1	0.2
Gobionellus oceanicus	highfin goby	2	0	2	0.5
Syngnathus louisianae	chain pipefish	2	0	2	0.5
Scorpaena dispar	hunchback scorpionfish	2	0.1	1	0.2
Ariosoma balearicum	bandtooth conger	2	0.1	2	0.5
Caulolatilus cyanops	blackline tilefish	2	0.3	2	0.5
Dormitator maculatus	fat sleeper	2	0	1	0.2
Pogonias cromis	black drum	2	10.6	2	0.5
Paraconger caudilimbatus	margintail conger	2	0.3	2	0.5
Bregmaceros		2	0	1	0.2

Table 3. Species composition list (continued)

GENUS/SPECIES	COMMON NAME	TOTAL NUMBER CAUGHT	TOTAL WEIGHT CAUGHT (KG)	NUMBER OF TOWS WHERE CAUGHT	% FREQUENCY OCCURRENCE
Otophidium omostigmum	polka-dot cusk-eel	2	0	2	0.5
Carcharhinus acronotus	blacknose shark	2	10.8	2	0.5
Ogcocephalus pantostictus	spotted batfish	2	0.8	2	0.5
Scorpaena plumieri	spotted scorpionfish	2	1.1	2	0.5
Gymnothorax nigromarginatus	blackedge moray	2	0.2	1	0.2
Dasyatis say	bluntnose stingray	2	1.3	2	0.5
Opsanus tau	oyster toadfish	1	0.1	1	0.2
Alectis ciliaris	African pompano	1	0	1	0.2
Paralichthys	southern flounders	1	0.1	1	0.2
Carcharhinus brevipinna	spinner shark	1	3.6	1	0.2
Prognathodes aya	bank butterflyfish	1	0	1	0.2
Corythoichthys albirostris		1	0	1	0.2
Seriola rivoliana	almaco jack	1	0.3	1	0.2
Opistognathus lonchurus	moustache jawfish	1	0	1	0.2
Lophiidae	anglerfishes	1	0	1	0.2
Mustelus canis	smooth dogfish	1	0.1	1	0.2
Echiophis intertinctus	spotted spoon-nose eel	1	0.2	1	0.2
Pronotogrammus martinicensis		1	0	1	0.2
Lophius gastrophysus	blackfin goosefish	1	0	1	0.2
Scomber japonicus	chub mackerel	1	0.1	1	0.2
Mycteroperca microlepis	gag	1	5.2	1	0.2
Mustelus	smooth hound sharks	1	0.7	1	0.2
Serraniculus pumilio	pygmy sea bass	1	0	1	0.2
Mustelus norrisi	Florida smoothhound	1	0.7	1	0.2
Alosa chrysochloris	blue herring	1	0.1	1	0.2
Sphyraena borealis	northern sennet	1	0.2	1	0.2
Antennarius multiocellatus	longlure frogfish	1	0	1	0.2
Symphurus spp.	tonguefishes	1	0	1	0.2
Stephanolepis setifer	pygmy filefish	1	0	1	0.2
Calamus leucosteus	whitebone porgy	1	0.6	1	0.2
Monacanthus tuckeri	slender filefish	1	0	1	0.2

Table 3. Species composition list (continued)

GENUS/SPECIES	COMMON NAME	TOTAL NUMBER CAUGHT	TOTAL WEIGHT CAUGHT (KG)	NUMBER OF TOWS WHERE CAUGHT	% FREQUENCY OCCURRENCE
Archosargus probatocephalus	sheepshead	1	0.5	1	0.2
Synodus synodus	red lizardfish	1	0	1	0.2
Lophius		1	0.1	1	0.2
Lutjanus analis	mutton snapper	1	3.8	1	0.2
Sparisoma atromarium		1	0	1	0.2
Apogon pillionatus	broadsaddle cardinalfish	1	0	1	0.2
Chromis insolatus		1	0	1	0.2
Hypleurochilus		1	0	1	0.2
Gymnothorax spp.	morays	1	0	1	0.2
Gobiosoma horsti	yellowline goby	1	0	1	0.2
Gymnothorax moringa	spotted moray	1	0.9	1	0.2
Anarchias		1	0	1	0.2
Hoplunnis diomedianus	blacktail pike-conger	1	0	1	0.2
Myripristis jacobus	blackbar soldierfish	1	0	1	0.2
Anthias tenuis	threadnose bass	1	0	1	0.2
Chromis scotti	purple reeffish	1	0	1	0.2
Eucinostomus melanopterus	flagfin mojarra	1	0	1	0.2
Parexocoetus		1	0	1	0.2
Aetobatus narinari	bonnetray	1	75	1	0.2
Hypleurochilus bermudensis	barred blenny	1	0	1	0.2
Serranus subligarius	belted sandfish	1	0	1	0.2
Haemulon sciurus	bluestriped grunt	1	0.2	1	0.2
Astroscopus y-graecum	southern stargazer	1	0.2	1	0.2
Conger triporiceps	manytooth conger	1	0.2	1	0.2
Gobiosoma macrodon	tiger goby	1	0	1	0.2
Lactophrys trigonus	trunkfish	1	0.7	1	0.2
Anguilliformes	eels	1	0	1	0.2
Abudefduf saxatilis	sergeant major	1	0	1	0.2
Labrisomus haitiensis	longfin blenny	1	0	1	0.2
Emblemaria atlantica	banner blenny	1	0	1	0.2
Holacanthus	angelfishes	1	0	1	0.2

Table 3. Species composition list (continued)

GENUS/SPECIES	COMMON NAME	TOTAL NUMBER CAUGHT	TOTAL WEIGHT CAUGHT (KG)	NUMBER OF TOWS WHERE CAUGHT	% FREQUENCY OCCURRENCE
Ophidion selenops	mooneye cusk-eel	1	0	1	0.2
Ophichthus gomesii	shrimp eel	1	0.3	1	0.2
Scomber colias		1	0.1	1	0.2
Crustaceans					
Farfantepenaeus aztecus	brown shrimp	14149	338.7	167	41.3
Callinectes similis	lesser blue crab	5150	96	138	34.2
Sicyonia brevirostris	brown rock shrimp	4541	62.9	100	24.8
Portunus spinicarpus	longspine swimming crab	3806	22.1	117	29
Portunus gibbesii	irridescent swimming crab	1974	14.1	140	34.7
Squilla empusa	mantis shrimp	1911	18.2	105	26
Rimapenaeus similis	roughback shrimp	1598	6.4	82	20.3
Farfantepenaeus duorarum	pink shrimp	1586	37.4	62	15.3
Solenocera vioscai	humpback shrimp	1484	7	34	8.4
Litopenaeus setiferus	white shrimp	1282	29.9	82	20.3
Xiphopenaeus kroyeri	seabob	1098	4.1	17	4.2
Sicyonia dorsalis	lesser rock shrimp	960	2.7	33	8.2
Rimapenaeus constrictus	roughneck shrimp	919	2.2	33	8.2
Squilla chydaea	mantis shrimp	845	4.4	51	12.6
Portunus spinimanus	blotched swimming crab	725	26.7	99	24.5
Portunus ordwayii		494	2.8	24	5.9
Anasimus latus	stilt spider crab	418	3.1	41	10.1
Solenocera atlantidis	dwarf humpback shrimp	338	0.4	30	7.4
Parapenaeus politus	deepwater rose shrimp	285	0.4	7	1.7
Mesopenaeus tropicalis	salmon shrimp	178	0.7	16	4
Metapenaeopsis goodei	Caribbean velvet shrimp	170	0.3	28	6.9
Raninoides louisianensis	gulf frog crab	159	1.1	32	7.9
Calappa sulcata	yellow box crab	159	30.2	65	16.1
Scyllarus chacei	chace slipper lobster	130	0.4	36	8.9
Stenorhynchus seticornis	yellowline arrow crab	107	0.3	45	11.1

Table 3. Species composition list (continued)

GENUS/SPECIES	COMMON NAME	TOTAL NUMBER CAUGHT	TOTAL WEIGHT CAUGHT (KG)	NUMBER OF TOWS WHERE CAUGHT	% FREQUENCY OCCURRENCE
Callinectes sapidus	blue crab	76	9.4	33	8.2
Munida pusilla		60	0	2	0.5
Scyllarides nodifer	ridged slipper lobster	55	14.5	25	6.2
Podochela sidneyi	shortfinger neck crab	55	0.1	27	6.7
Leiolambrus nitidus	white elbow crab	53	0.1	21	5.2
Myropsis quinquespinosa	fivespine purse crab	49	0.2	11	2.7
Cryptodromiopsis antillensis	hairy sponge crab	48	0.4	29	7.2
Pseudorhombila quadridentata	flecked squareback crab	48	0.3	17	4.2
Petrolisthes galathinus	banded porcelain crab	38	0	7	1.7
Platylambrus granulata	bladetooth elbow crab	35	0.1	23	5.7
Libinia dubia	longnose spider crab	33	0.2	17	4.2
Squilla deceptrix		33	0.1	12	3
Squilla rugosa		33	0.2	9	2.2
Stenocionops furcatus furcatus	furcate crab	28	0.3	17	4.2
Pagurus pollicaris	flatclaw hermit crab	27	0.4	23	5.7
Pagurus annulipes		25	0	6	1.5
Hepatus epheliticus	calico crab	25	1.2	15	3.7
Macrocoeloma trispinosum	spongy decorator crab	22	0.1	13	3.2
Calappa flammea	flame box crab	21	2.4	18	4.5
Metoporhaphis calcarata	false arrow crab	21	0	13	3.2
Paguristes spp.	hermit crabs	17	0	13	3.2
Parthenope agonus		16	0	9	2.2
Sicyonia burkenroadi	spiny rock shrimp	16	0	7	1.7
Petrochirus diogenes	giant hermit crab	16	0.6	13	3.2
Acanthocarpus alexandri	gladiator box crab	15	0.1	4	1
Collodes robustus	spider crab	15	0	5	1.2
Mithrax pleuracanthus	shaggy clinging crab	14	0.1	8	2
Pseudomedaeus agassizii	rough rubble crab	13	0	2	0.5
Scyllarus depressus	scaled slipper lobster	13	0.1	8	2
Lobopilumnus agassizii	areolated hairy crab	13	0.1	10	2.5
Stenorhynchus		13	0	8	2

Table 3. Species composition list (continued)

GENUS/SPECIES	COMMON NAME	TOTAL NUMBER CAUGHT	TOTAL WEIGHT CAUGHT (KG)	NUMBER OF TOWS WHERE CAUGHT	% FREQUENCY OCCURRENCE
Portunus depressifrons	flatface swimming crab	12	0.3	4	1
Solenoceridae	solenocerid shrimps	11	0	1	0.2
Porcellana sayana	spotted porcelain crab	11	0	2	0.5
Decapoda	crabs	10	0	3	0.7
Stenocionops spinimanus	prickly spider crab	10	2.2	9	2.2
Speocarcinus lobatus	gulf squareback crab	9	1.1	2	0.5
Ovalipes floridanus	Florida lady crab	9	0.2	7	1.7
Pagurus bullisi	hermit crab	9	0	2	0.5
Mithrax hispidus	coral clinging crab	9	0.1	5	1.2
Paguristes triangulatus	hermit crab	8	0	4	1
Dardanus fucosus	bareye hermit	8	0	6	1.5
Persephona crinita	pink purse crab	8	0	8	2
Euphrosynoplax clausa	craggy bathyal crab	8	0	6	1.5
Mithrax forceps	red-ridged clinging crab	7	0	6	1.5
Dromiidae	sponge crabs	7	0	3	0.7
Parasquilla coccinea	mantis shrimp	7	0.1	6	1.5
Plesionika edwardsii	soldier striped shrimp	7	0	1	0.2
Acanthilia intermedia	granulose purse crab	7	0	6	1.5
Palicus faxoni	finned stilt crab	6	0	4	1
Persephona mediterranea	mottled purse crab	6	0	5	1.2
Plesionika longicauda	pandalid shrimp	5	0	3	0.7
Sicyonia typica	kinglet rock shrimp	5	0	4	1
Mithrax acuticornis	sharphorn clinging crab	5	0	5	1.2
Pagurus impressus	dimpled hermit	4	0	2	0.5
Stenopus scutellatus	golden coral shrimp	4	0	3	0.7
Panulirus argus	Caribbean spiny lobster	4	3.1	3	0.7
Sicyonia laevigata	rock shrimp	4	0	1	0.2
Pilumnus sayi	spineback hairy crab	4	0	4	1
Galathea rostrata		4	0	2	0.5
Libinia emarginata	portly spider crab	4	0.2	3	0.7
Xanthidae	mud crabs	3	0	2	0.5

Table 3. Species composition list (continued)

GENUS/SPECIES	COMMON NAME	TOTAL NUMBER CAUGHT	TOTAL WEIGHT CAUGHT (KG)	NUMBER OF TOWS WHERE CAUGHT	% FREQUENCY OCCURRENCE
Podochela lamelligera	neck crab	3	0	3	0.7
Macrocoeloma camptocerum	Florida decorator crab	3	0	3	0.7
Euchirograpsus americanus	American talon crab	3	0	3	0.7
Manucomplanus ungulatus		3	0	3	0.7
Phimochirus holthuisi	red-striped hermit	3	0	3	0.7
Mithrax		3	0	3	0.7
Palicus alternata		2	0	1	0.2
Alpheus	snapping shirmps	2	0	1	0.2
Calappa		2	0	2	0.5
Alpheus floridanus	sand snapping shrimp	2	0.5	1	0.2
Dardanus insignis	red brocade hermit	2	0	2	0.5
Sicyonia parri	rock shrimps	2	0	2	0.5
Iliacantha		2	0	2	0.5
Sicyonia spp.	rock shrimps	2	0	2	0.5
Munida irrasa		2	0	2	0.5
Squillidae	mantis shrimps	1	0	1	0.2
Euryalidae		1	0	1	0.2
Menippe spp.	stone crabs	1	0	1	0.2
Mysidae	shrimps	1	0	1	0.2
Hypoconcha arcuata	granulate shellback crab	1	0	1	0.2
Acetes americanus	aviu shrimp	1	0	1	0.2
Synalpheus fritzmuelleri	speckled snapping shrimp	1	0	1	0.2
Iliacantha sparsa	shouldered purse crab	1	0	1	0.2
Euceramus praelongus	olivepit porcelain crab	1	0	1	0.2
Podochela riisei	longfinger neck crab	1	0	1	0.2
Scyllarus americanus	American slipper lobster	1	0	1	0.2
Iliacantha subglobosa	longfinger purse crab	1	0	1	0.2
Ranilia muricata	muricate frog crab	1	0	1	0.2
Nibilia antilocapra	shorthorn spiny crab	1	0	1	0.2
Stenocionops furcatus coelatus	spider crab	1	0	1	0.2
Iliacantha liodactylus	purse crab	1	0	1	0.2

Table 3. Species composition list (continued)

GENUS/SPECIES	COMMON NAME	TOTAL NUMBER CAUGHT	TOTAL WEIGHT CAUGHT (KG)	NUMBER OF TOWS WHERE CAUGHT	% FREQUENCY OCCURRENCE
Goneplacidae		1	0	1	0.2
Sicyonia stimpsoni	eyespot rock shrimp	1	0	1	0.2
Pilumnus floridanus	plumed hairy crab	1	0	1	0.2
Pitho anisodon	oval urn crab	1	0	1	0.2
Diogenidae	left-handed hermit crabs	1	0	1	0.2
Stenopus		1	0	1	0.2
Munida		1	0	1	0.2
Pagurus carolinensis	wormreef hermit	1	0	1	0.2
Euryplax nitida	glabrous broadface crab	1	0	1	0.2
Others					
Amusium papyraceum	paper scallop	12404	163.4	64	15.8
Loligo plei	arrow squid	3263	54.1	176	43.6
Lolliguncula brevis	Atlantic brief squid	1338	12.7	106	26.2
Loligo pealeii	longfin squid	920	48.8	99	24.5
Anadara baughmani	Baughman's ark	366	5.3	17	4.2
Pitar cordatus	Schwengel's pitar	299	5.8	38	9.4
Loligo spp.	squids	204	2.8	14	3.5
Polystira albida	white giant turris	186	1.7	19	4.7
Argopecten gibbus	calico scallop	165	0.9	11	2.7
Argopecten		56	0.8	1	0.2
Lirophora clenchi	Clench venus	50	0.6	13	3.2
Euvola raveneli	Ravenel's scallop	46	0.2	11	2.7
Anadara ovalis	blood ark	35	0.3	7	1.7
Sconsia striata	royal bonnet	29	0.4	8	2
Octopus joubini	Atlantic pygmy octopus	29	3.8	19	4.7
Neverita duplicata	shark eye	23	0.3	15	3.7
Laevicardium laevigatum	egg cockle	17	1.3	8	2
Conus austini	cone shell	14	0.2	5	1.2
Macoma brevifrons	short macoma	12	0.1	2	0.5

Table 3. Species composition list (continued)

GENUS/SPECIES	COMMON NAME	TOTAL NUMBER CAUGHT	TOTAL WEIGHT CAUGHT (KG)	NUMBER OF TOWS WHERE CAUGHT	% FREQUENCY OCCURRENCE
Macoma pulleyi	delta macoma	11	0.1	6	1.5
Tonna galea	giant tun	10	2.9	8	2
Laevicardium mortoni	yellow eggcockle	9	0.4	6	1.5
Ficus communis	Atlantic figsnail	7	0.3	7	1.7
Bulla		7	0.1	3	0.7
Distorsio clathrata	Atlantic distorsio	7	0.1	3	0.7
Cantharus cancellarius	cancellate cantharus	6	0	4	1
Semirossia tenera	lesser shining bobtail	6	0	5	1.2
Busycon sinistrum	lightning whelk	5	0.5	4	1
Stramonita	rocksnails	5	0.1	3	0.7
Octopus vulgaris	common Atlantic octopus	4	0.3	3	0.7
Aequipecten muscosus	rough scallop	4	0	4	1
Evola	bivalves	4	0	3	0.7
Laevicardium		3	0	2	0.5
Hexaplex fulvescens	giant eastern murex	3	0.1	2	0.5
Narcissia trigonaria		3	0	3	0.7
Chama macerophylla	leafy jewelbox	3	0.3	2	0.5
Cypraea		2	0	2	0.5
Busycotypus spiratus	pearwhelk	2	0	2	0.5
Conus amphiurgus		2	0	2	0.5
Nemocardium tinctum	dyed micro-cockle	2	0	2	0.5
Chione latilirata	imperial venus	2	0	2	0.5
Atrina rigida	stiff penshell	2	0.6	2	0.5
Nodipecten		2	0.4	1	0.2
Conus clarki		2	0	1	0.2
Felimare		2	0	2	0.5
Atrina serrata	sawtooth penshell	2	0.6	2	0.5
Americardia media	Atlantic strawberry-cockle	2	0	2	0.5
Neverita		2	0	2	0.5
Pecten tereinus		1	0	1	0.2
Nuculana concentrica	concentric nutclam	1	0	1	0.2

Table 3. Species composition list (continued)

GENUS/SPECIES	COMMON NAME	TOTAL NUMBER CAUGHT	TOTAL WEIGHT CAUGHT (KG)	NUMBER OF TOWS WHERE CAUGHT	% FREQUENCY OCCURRENCE
Mollusca	molluscs	1	0	1	0.2
Aplysia brasiliana	mottled seahare	1	0.1	1	0.2
Murex hidalgoi		1	0	1	0.2
Gastropoda	snails	1	0	1	0.2
Lithophaga		1	0	1	0.2
Fasciolaria lilium	banded tulip	1	0	1	0.2
Scaphella dubia	dubious volute	1	0	1	0.2
Architectonica nobilis	common sundial	1	0	1	0.2
Cypraea cervus	atlantic deer cowrie	1	0	1	0.2
Macrocallista maculata	calico clam	1	0	1	0.2
Pecten ziczac	zigzag scallop	1	0	1	0.2
Pteria colymbus	Atlantic wing-oyster	1	0	1	0.2
Calliostoma		1	0	1	0.2
Platydoris angustipes		1	0	1	0.2
Pinctada		1	0	1	0.2
Chicoreus beauii	beau's murex	1	0	1	0.2
Barbatia tenera	delicate ark	1	0	1	0.2
Lyropecten nodosus	lions-paw scallop	1	0	1	0.2
Mercenaria mercenaria	northern quahog	1	0.1	1	0.2
Spondylus americanus	Atlantic thorny oyster	1	0.8	1	0.2
Conus daucus	carrot cone	1	0	1	0.2
Chicoreus florifer-dilectus		1	0	1	0.2
Cancellaria reticulata	common nutmeg	1	0	1	0.2
Arca zebra	turkey wing	1	0	1	0.2
Astrea phoebia		1	0	1	0.2
Ostrea		1	0	1	0.2
Chlamys benedicti	Benedict scallop	1	0	1	0.2
Eucrassatella speciosa	beautiful crassatella	1	0	1	0.2
Fasciolhunter	mollusks	1	0	1	0.2
Turritella exoleta	eastern turretsnail	1	0	1	0.2
Arca imbric	mossy ark	1	0.1	1	0.2

Table 4. 2014 Bottom Longline Survey species composition list. Species with no weight recorded were too large to measure.

GENUS/SPECIES	COMMON NAME	TOTAL NUMBER CAUGHT	TOTAL NUMBER WEIGHED	TOTAL WEIGHT
Finfishes				
Rhizoprionodon terraenovae	Atlantic sharpnose shark	1275	1168	3600.8
Carcharhinus limbatus	blacktip shark	344	275	3761.8
Lutjanus campechanus	red snapper	205	185	1042.5
Bagre marinus	gafftopsail catfish	152	139	219.7
Carcharhinus acronotus	blacknose shark	148	137	1125.6
Carcharhinus brevipinna	spinner shark	135	114	1370.3
Mustelus	smooth hound sharks	113	110	657.4
Sciaenops ocellatus	red drum	89	75	661.1
Ophichthus rex	king snake eel	64	22	52.4
Dasyatis americana	southern stingray	45	1	17.0
Sphyrna lewini	scalloped hammerhead	37	19	232.7
Carcharhinus plumbeus	sandbar shark	32	2	35.8
Carcharhinus leucas	bull shark	29	6	41.4
Arius felis	hardhead catfish	26	24	18.7
Galeocerdo cuvier	tiger shark	22	14	98.2
Unid.fish		19	0	
Sphyrna mokarran	great hammerhead	15	4	85.5
Carcharhinus isodon	finetooth shark	14	9	56.7
Carcharhinus falciformis	silky shark	12	12	45.0
Epinephelus flavolimbatus	yellowedge grouper	5	4	23.2
Centropristis philadelphicus	Rock Sea bass	3	3	0.4
Rachycentron canadum	cobia	3	3	33.7
Rhinoptera bonasus	cownose ray	3	1	18.2
Echeneis naucrates	sharksucker	3	3	3.5
Pogonias cromis	black drum	2	2	17.1
Cynoscion arenarius	sand seatrout	2	2	0.7
Myliobatis freminvillii	bullnose ray	2	1	4.3
Dasyatis sabina	Atlantic stingray	2	1	4.2

Table 4. 2014 Bottom Longline Survey species composition list. Species with no weight recorded were too large to measure.

GENUS/SPECIES	COMMON NAME	TOTAL NUMBER CAUGHT	TOTAL NUMBER WEIGHED	TOTAL WEIGHT
Caretta caretta	Loggerhead	2	0	
Micropogonias undulatus	Atlantic croaker	1	1	0.1
Cynoscion nothus	silver seatrout	1	1	0.2
Epinephelus niveatus	snowy grouper	1	1	2.4
Dasyatis centroura	clam cracker	1	0	
Dasyatis say	bluntnose stingray	1	0	
Mycteroperca phenax	scamp	1	1	9.0
Coryphaena hippurus	dolphin	1	1	3.1
Urophycis cirratus	Gulf hake	1	1	0.4
Astropecten cingulatus		1	0	
Caranx hippos	crevalle jack	1	1	12.4
Thunnus atlanticus	blackfin tuna	1	0	
Scomberomorus maculatus	Atlantic Spanish mackerel	1	1	2.0
Brotula barbatum	bearded brotula	1	1	6.0
Urophycis floridanus		1	1	1.0
Megalops atlanticus	tarpon	1	0	
Callinectes sapidus	blue crab	1	0	
Ophichthus puncticeps	palespotted eel	1	0	
Sphyrna tiburo	bonnethead	1	1	6.0
Manta birostris	Atlantic manta	1	0	
Echiophis punctifer	snapper eel	1	0	
Carcharhinidae	requiem sharks	1	0	

Table 5. 2014 Vertical Line Survey species composition list. Species with no weight recorded were too large to measure.

GENUS/SPECIES	COMMON NAME	TOTAL NUMBER CAUGHT	TOTAL NUMBER WEIGHED	TOTAL WEIGHT
Finfishes				
Lutjanus campechanus	red snapper	1211	1210	2633.6
Rhomboplites aurorubens	vermilion snapper	31	31	19.0
Balistes capriscus	gray triggerfish	28	28	50.5
Caranx crysos	blue runner	15	15	
Seriola dumerili	greater amberjack	13	13	18.1
Arius felis	hardhead catfish	9	9	
Carcharhinus brevipinna	spinner shark	5	4	
Pagrus pagrus	red porgy	4	4	2.7
Echeneis naucrates	sharksucker	4	3	4.1
Cynoscion arenarius	sand seatrout	4	4	
Seriola rivoliana	almaco jack	3	3	4.0
Rhizoprionodon terraenovae	Atlantic sharpnose shark	2	2	4.1
Haemulon aurolineatum	tomtate	2	1	0.2
Lutjanus synagris	lane snapper	1	1	0.8
Lutjanus griseus	gray snapper	1	1	4.5
Diplectrum formosum	sand perch	1	1	0.2
Carcharhinus falciformis	silky shark	1	1	
Scomber japonicus	chub mackerel	1	1	
Sciaenops ocellatus	red drum	1	1	4.4
Sarda	bonitos	1	1	1.8
Epinephelus nigritus	warsaw grouper	1	1	6.5
Epinephelus morio	red grouper	1	1	4.4
Epinephelus niveatus	snowy grouper	1	1	2.6

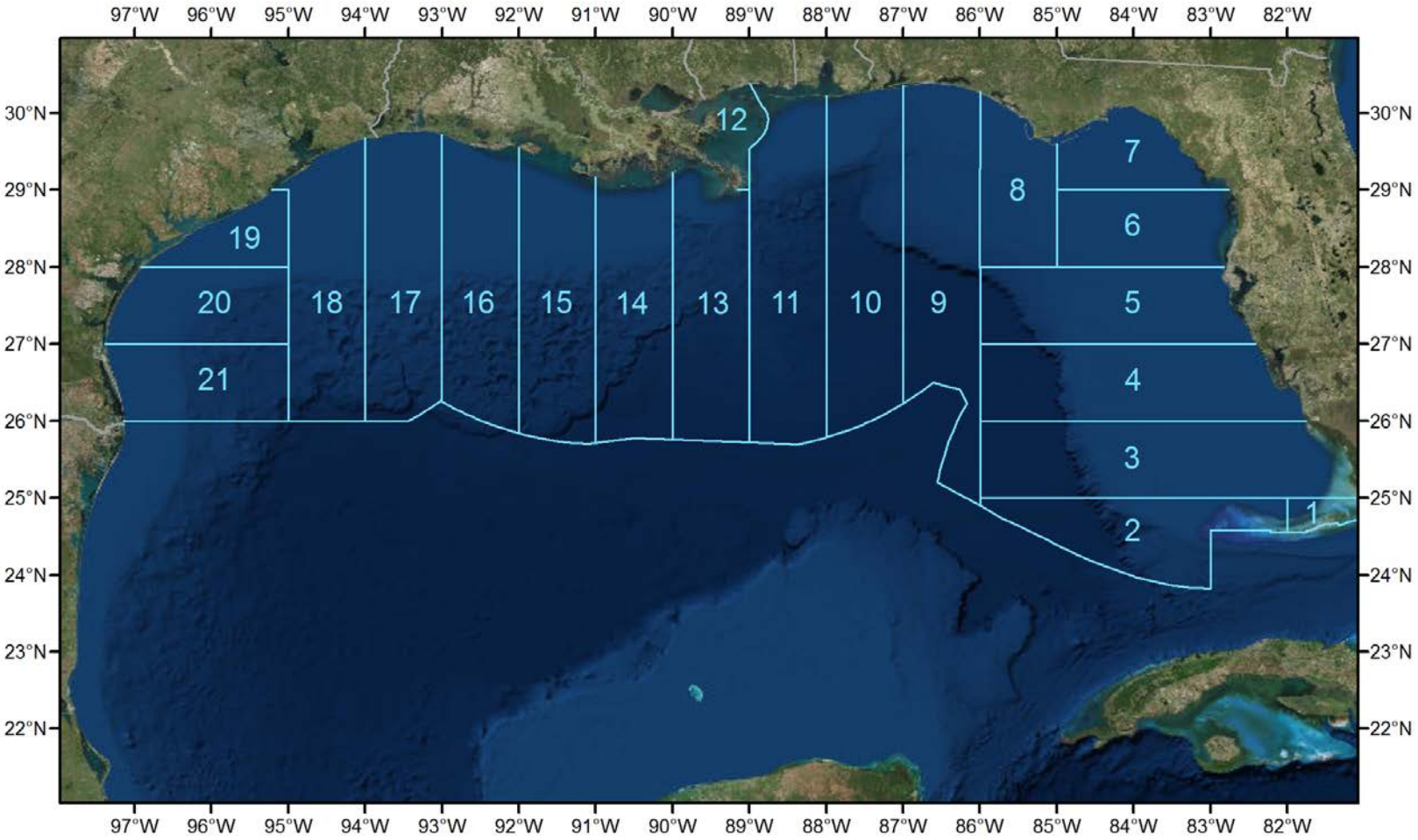

Figure 1. Statistical zones for shrimp in the Gulf of Mexico.

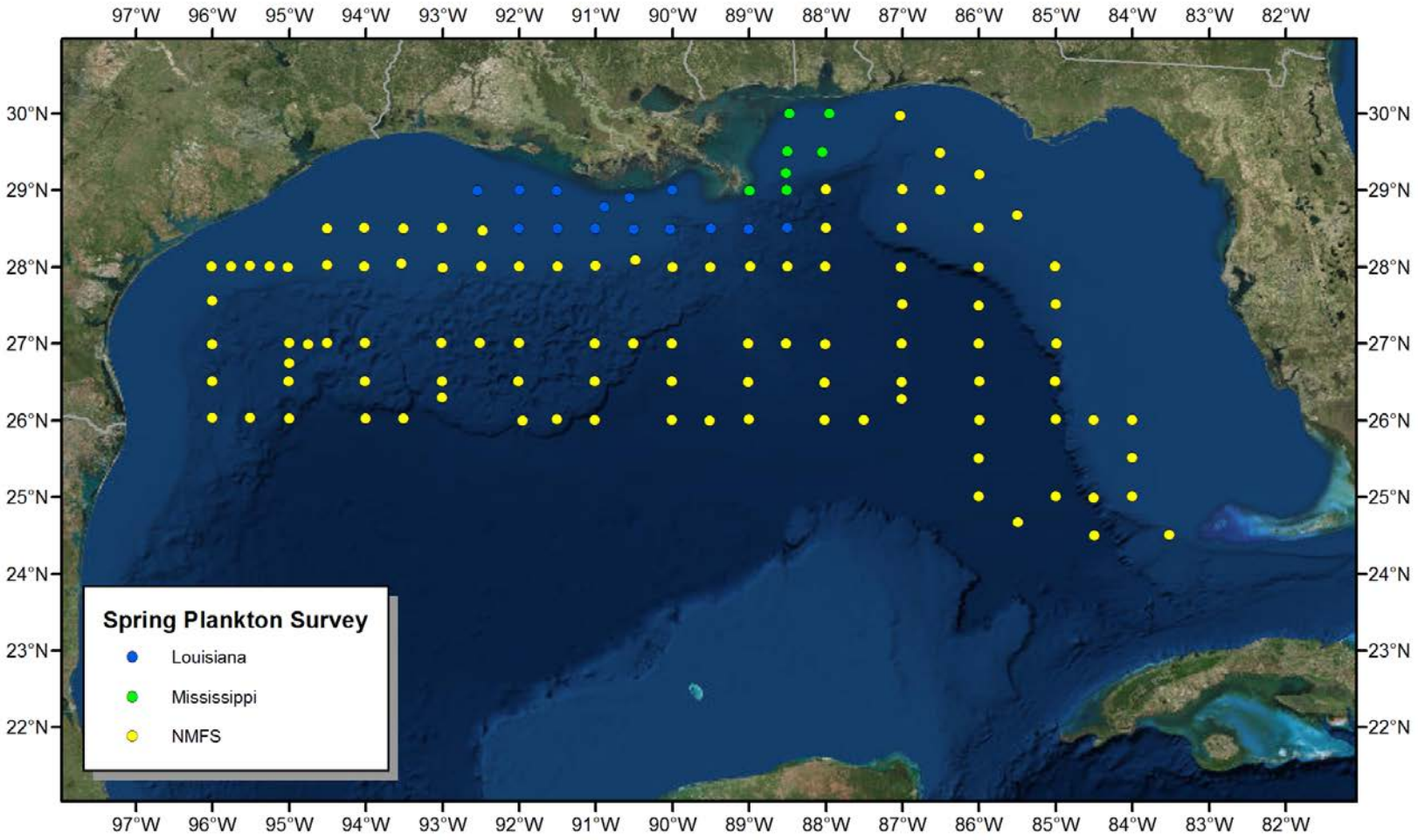

Figure 2. Location of plankton and environmental stations during the 2014 Spring Plankton Survey.

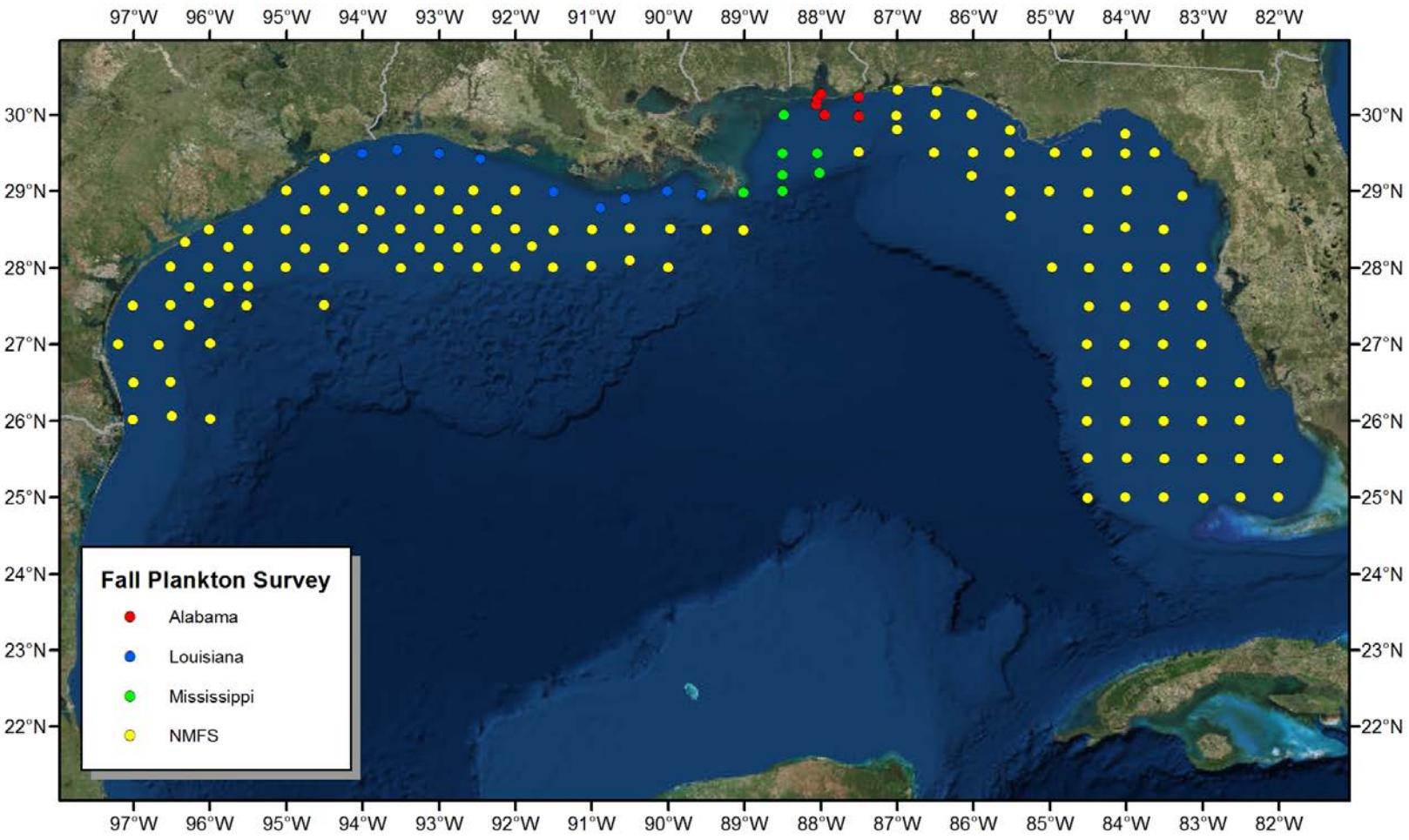

Figure 3. Locations of stations during the 2014 Fall Plankton Survey.

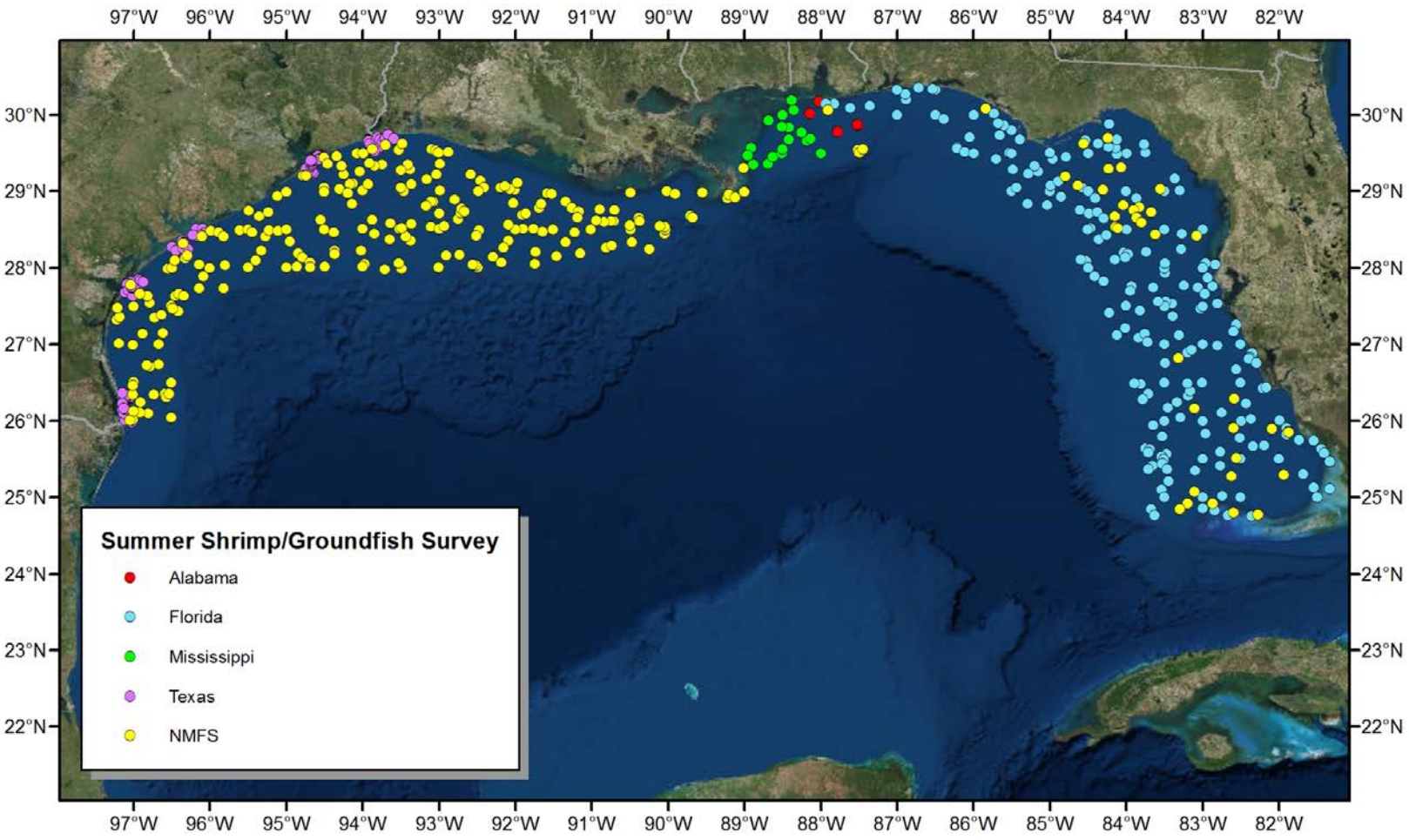

Figure 4. Locations of stations during the 2014 Summer Shrimp/Groundfish Survey.

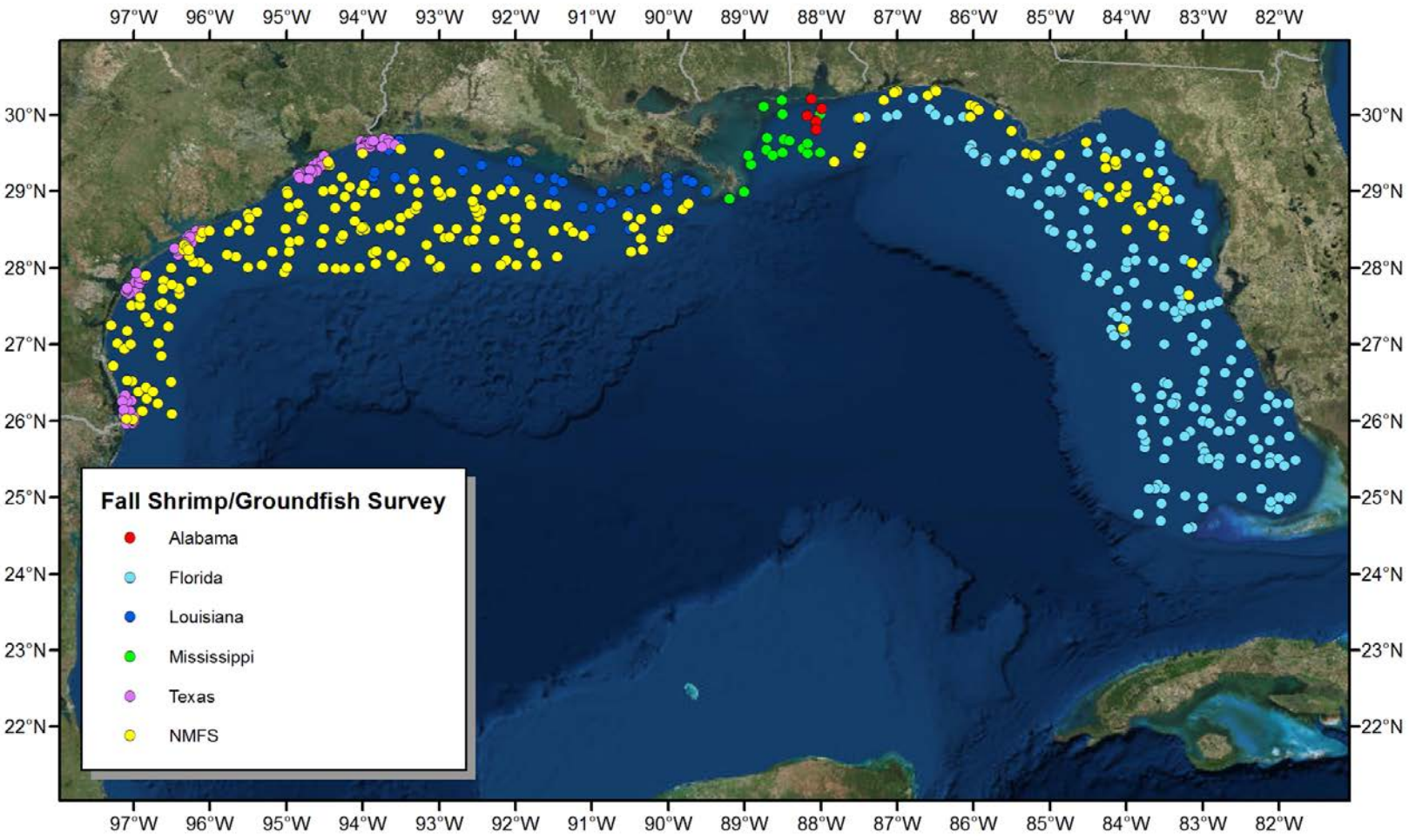

Figure 5. Locations of stations during the 2014 Fall Shrimp/Groundfish Survey.

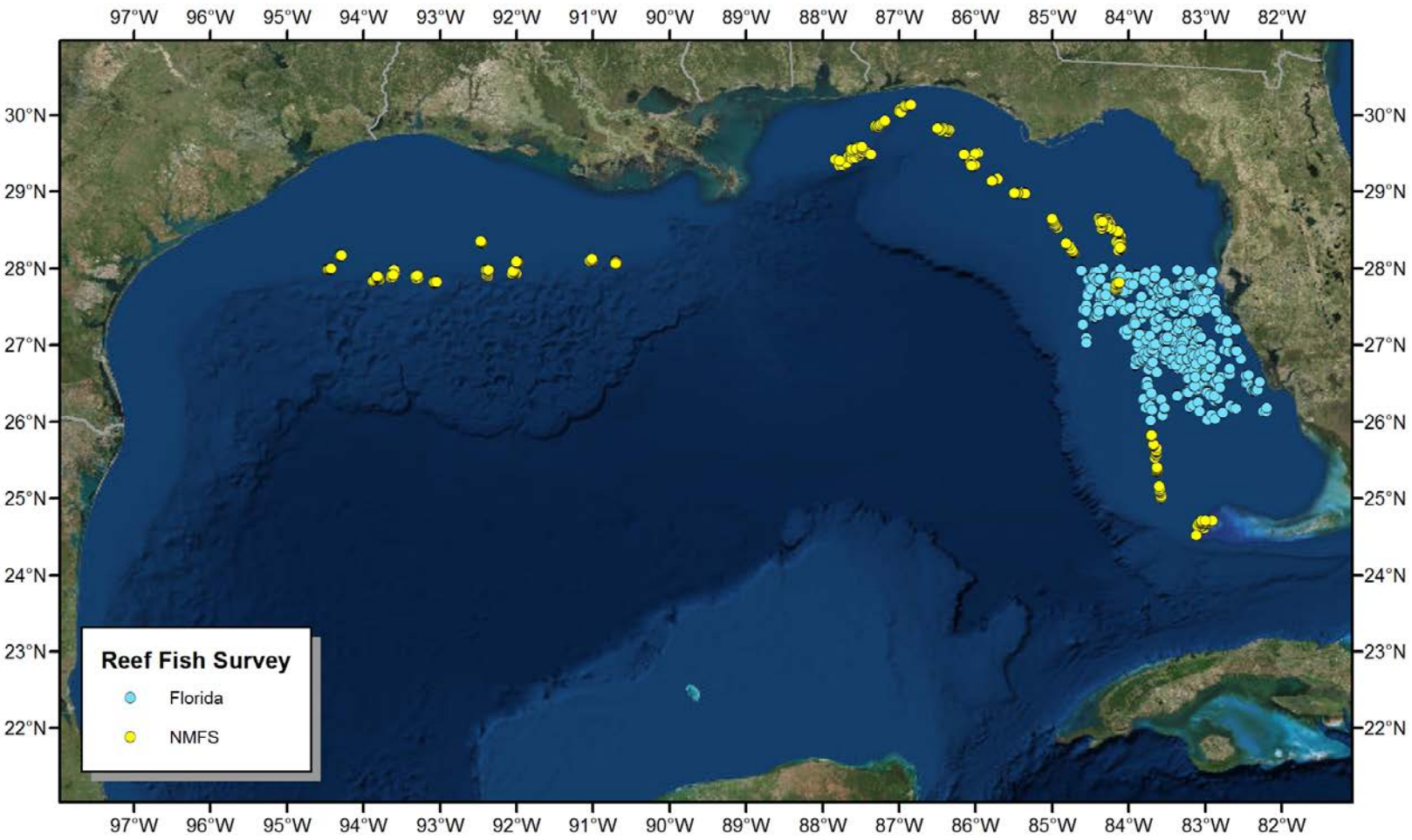

Figure 6. Locations of stations during the 2014 Reef Fish Survey.

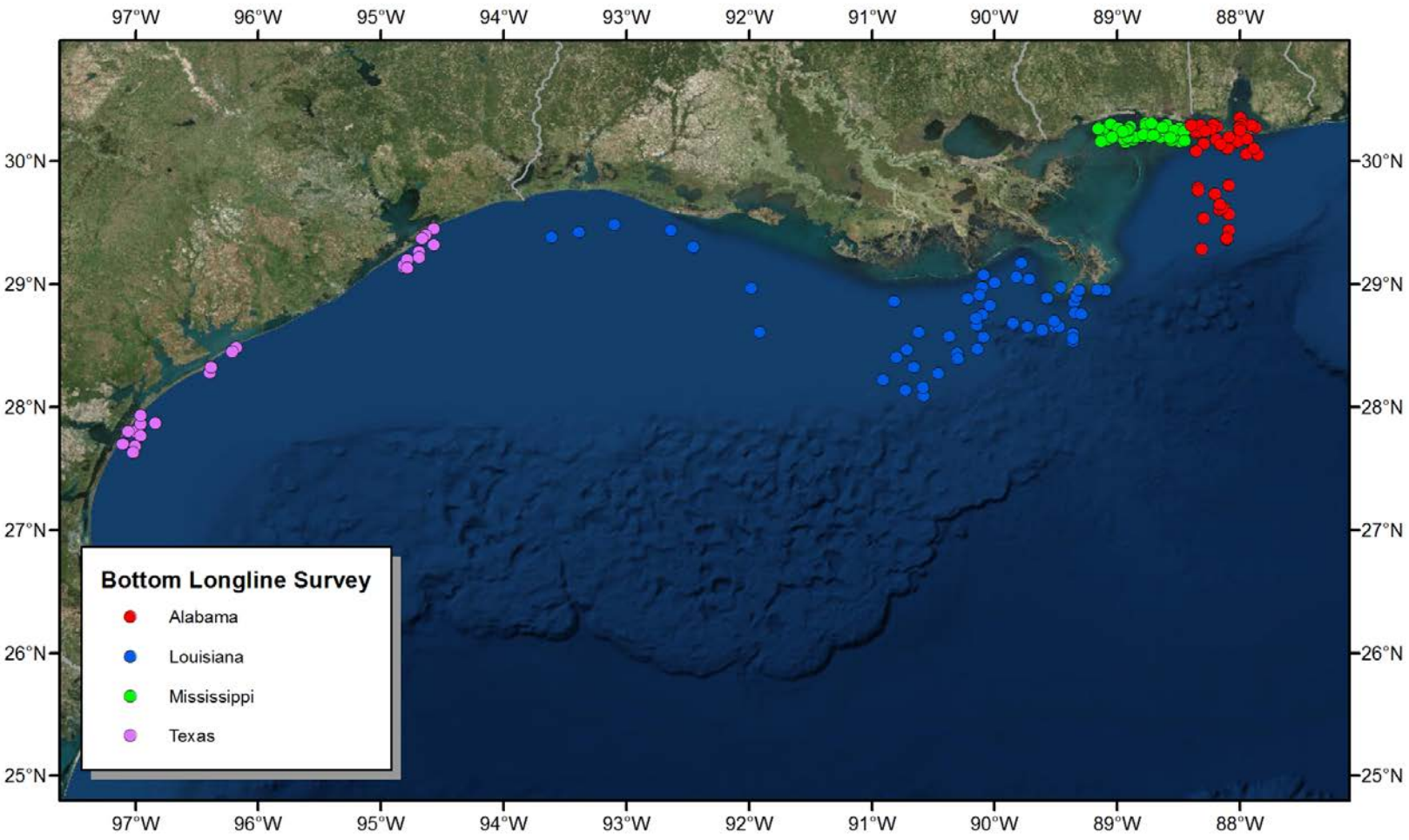

Figure 7. Locations of stations during the 2014 Inshore Bottom Longline Survey.

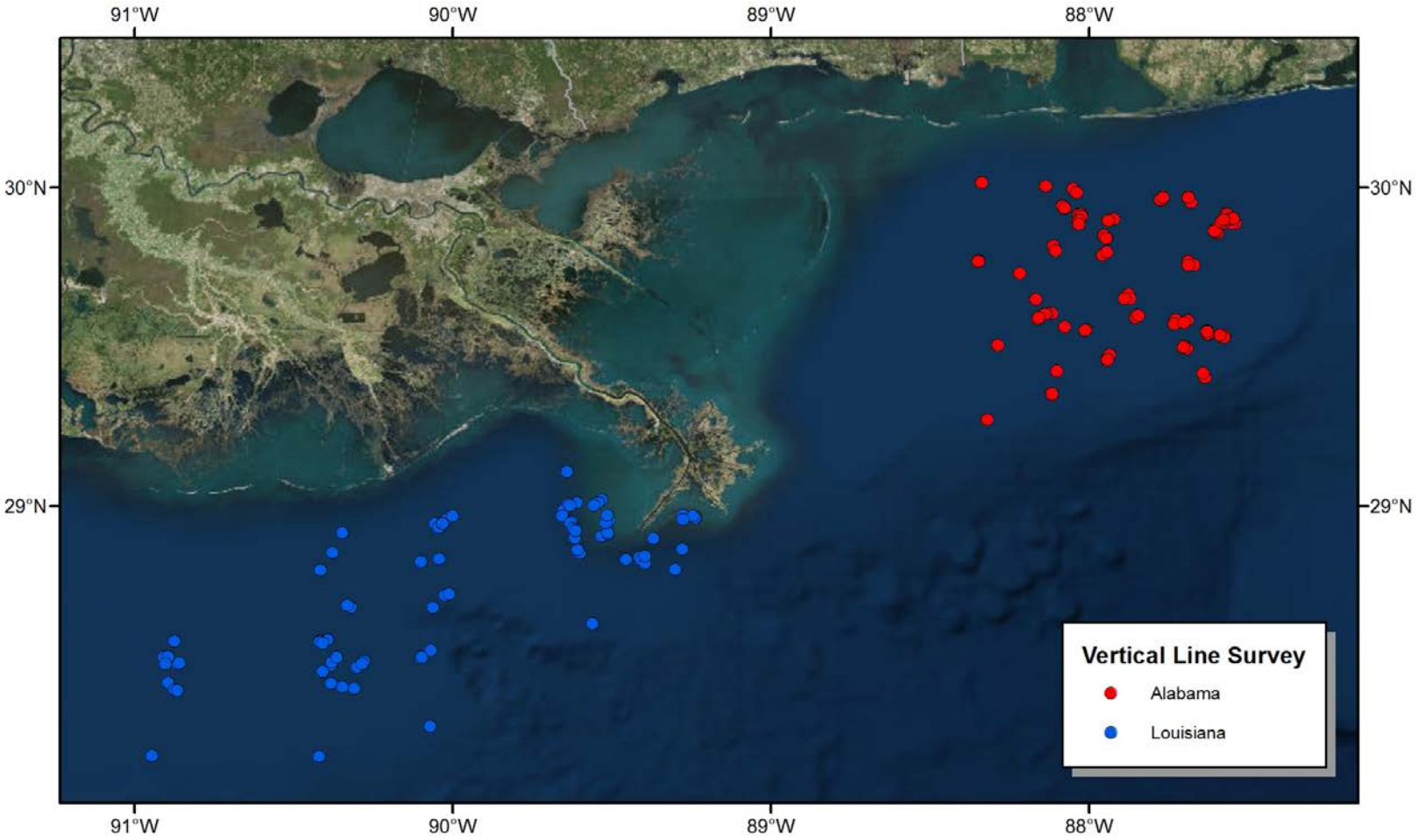

Figure 8. Locations of stations during the 2014 Vertical Line Survey.