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INTRODUCTION

The Southeast Area Monitoring and Assessment Program (SEAMAP) is a State/Federal/university program for the collection, management, and dissemination of fishery-independent data (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 2017 (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. 2009a); 2004 (Rester 2009b); 2005 (Rester 2010a); 2006 (Rester 2010b); 2007 (Rester 2010c); 2008 (Rester 2011a); 2009 (Rester 2011b); 2010 (Rester 2012); 2011 (Rester 2014); 2012 (Rester 2014), 2013 (Rester 2015), 2014 (Rester 2017a), 2015 (Rester 2017b) and 2016 (Rester 2017c). 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 2017, 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 2016. Overall survey objectives in 1982 to 2017 were to assess the distribution and abundance of recreational and commercial organisms collected by plankton, 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 was designed to determine the relative abundance of reef fish populations and habitat using a 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-sixth in a series of SEAMAP environmental and biological atlases presents such data, in a summarized form, collected during the 2017 SEAMAP surveys.

MATERIALS AND METHODS

Methodology for the 2017 SEAMAP surveys is similar to that of the 1982 through 2016 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 April 29 – May 29. Vessels that participated in collecting plankton and environmental data during the Fall Plankton Survey included the NOAA Ship GORDON GUNTER (September 5-30) and the Louisiana vessel R/V DEFENDER (September 16-17).

Vessels that participated in the Summer Shrimp/Groundfish Survey included the USM/GCRL vessel R/V TOMMY MUNRO (May 30 – June 1), Florida using the R/V TOMMY MUNRO (June 7-24), Louisiana using the R/V POINT SUR (June 26-28), the NOAA Ship OREGON II (June 9 – July 19) and the Alabama vessel R/V ALABAMA DISCOVERY (June 26-27 and June 30).

The NOAA ship PISCES participated in the Reef Fish Survey from April 11 – June 15. Florida conducted several reef fish cruises aboard the R/V GULF MARINER (May 18 – August 4), R/V TOMMY MUNRO (June 24-29), and the R/V WEATHERBIRD II (June 27 – July 4).

Vessels that participated in the Fall Shrimp/Groundfish Survey included the NOAA Ships OREGON II (October 12 – November 20), the USM/GCRL vessel R/V TOMMY MUNRO (November 6-8), Florida using the R/V TOMMY MUNRO (October 14-22), the Louisiana vessel R/V POINT SUR (November 15-16), and the Alabama vessel R/V ALABAMA DISCOVERY (October 26).

Alabama, Mississippi, Louisiana, and Texas conducted bottom longline sampling monthly from April to October as part of the Bottom Longline Survey.

Alabama, Louisiana, and Texas sampled reef fish over artificial reefs, oil and gas platforms, and natural habitat from April through November during the Vertical Line Survey.

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 dedicated plankton 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 2017 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 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 2017.

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:

[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.

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: Gross water color data were 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 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.
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 (≈ 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.

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 fish 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 42-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.

REEF FISH SURVEY

The primary purpose of this survey is to assess relative abundance and compute population estimates of reef fish in the Gulf of Mexico. For the NMFS portion of the Reef Fish Survey, a two-stage procedure was used to select sample sites on natural reef fish habitat. Sample blocks were first selected using stratified random sampling, with strata defined by region of the Gulf of Mexico 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 an orthogonal stereo camera array with four cylindrical pressure housings positioned orthogonally and center mounted 51 cm above the bottom of the array. Each of the four housings contained paired black-and-white Videre stereo cameras along with a color mpeg camera. The reef investigation and observation tower contained one 360° FOV SphereCam housing consisting of five horizontally mounted 2.3MP machine vision cameras and one vertically mounted 5MP machine vision camera as well as one of the previously mentioned stereo camera housings. The SphereCam and stereo camera housing were center mounted vertically at 96.5 cm and 53 cm above the bottom of the array, respectively. The camera arrays were baited with squid and were retrieved 30 minutes after the systems were switched on for 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 a 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 cameras were separated from any other deployed gear by approximately 100 m. All camera arrays were freshly baited with Atlantic mackerel prior to deployment. The stationary video camera array was equipped with a pair of underwater camera units positioned at an angle of 180° from one another to maximize the total field of view. Each camera unit consisted of an underwater housing that contained computer hardware and connections to two video cameras each within underwater housings separated by 30 cm. The stationary video camera array was allowed to soak at the bottom for a minimum of thirty-five minutes to assure that twenty minutes of continuous video and stereo images were recorded.

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

BOTTOM LONGLINE SURVEY

Until 2014 each partner randomly selected stations off their coast independent of other states. There were discrepancies among the partners regarding number of stations sampled, the frequency of sampling, the size of the sampling universe, and the depth strata targeted. In an effort to make the bottom longline data as useful as possible in federal and state stock assessments, the SEAMAP Subcommittee began an effort in 2014 to develop a standardized protocol for station selection procedures. This effort sought to better standardize the sampling effort among the partners and develop a more uniform design and resultant data set. At the March 2015 SEAMAP Subcommittee meeting, firm station selection protocols were established.

Sampling now occurs during three seasons Spring (April-May), Summer (June-July), and Fall (August-September). Sampling is conducted in waters defined by the 3-10m depth contour. NMFS Statistical Zones (Figure 1) are used as guides to ensure effective distribution of sampling effort. Stations are proportionally allocated and randomly distributed within the 3-10m depth contour in each statistical zone based on the proportion of those depths present. Since the 3-10m depth strata is smaller in some statistical zones relative to other statistical zones, each statistical zone is allocated at least two stations during each season in order to ensure adequate sampling coverage. Partners usually survey the stations that occur off their state boundaries for each season. When seasonal effort cannot be accomplished due to weather or mechanical problems the partners should decrease effort proportionally across their area. The Gulf States Marine Fisheries Commission selects all stations for all seasons and annually distributes them to the partners.

Given the limited number of samples that can be conducted during the Bottom Longline Survey, the large area of the statistical zones, and spatial autocorrelation of most fish species, station locations are buffered 4 nautical miles. Sampling effort by each partner must have a two week buffer between consecutive seasons. For example, if the last day of spring sampling was conducted on May 30th, summer sampling should not begin until June 15th.

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 scombrus*. The mainline was weighted down with a beginning, 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 hour and then retrieved.

VERTICAL LINE SURVEY

The Vertical Line Survey design was standardized in 2016. The SEAMAP Subcommittee decided to divide the Gulf offshore waters between 10 and 150m into 150x150m grid blocks. Unknown habitat, known natural reef (hard bottom), presumed reef either natural or artificial, oil/gas platforms, and artificial reefs were the five habitat classifications developed by the SEAMAP Subcommittee. Each 150x150m grid block is assigned a habitat classification based upon several different datasets used to develop the sampling universe. A grid block can be classified as more than one habitat type if it has more than one habitat located within it.

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

All partners use three 22-foot backbones containing ten 18-inch gangions outfitted with either an 8/0, 11/0 or 15/0 circle hook (each backbone has only one hook size), and terminating in a 10 pound lead weight. Three bandit reels deploy the gear simultaneously on or near a reef structure and, once locked in at depth, are allowed to fish for 5 minutes. All bandit reels then retrieve the lines simultaneously. Catch data are collected once the lines are onboard. Environmental data is collected upon completion of fishing at each station.

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 from May through 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 data. A species composition listing from the 42-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 November from south Florida to Brownsville, Texas. Figure 5 shows the station locations. The Fall Shrimp/Groundfish Survey consisted of biological trawl data and concomitant environmental data. A species composition listing from the 42-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

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. 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, 1985-2017. 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 2017. This report contained the results and an overview of the effect of the 2016 Texas Closure. After review of these data and other information, the GMFMC voted to continue the Texas Closure for 2017.

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: 2016-2020 (ASMFC 2017).

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 2017.

	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
2015	--	MAY	--	MAY-JULY	--	AUGUST-SEPTEMBER
2016	--	APRIL-MAY	--	MAY-JULY	--	SEPTEMBER
2017	--	APRIL-MAY	--	MAY-JULY	--	SEPTEMBER

Table 1. List of SEAMAP survey activities from 1982 to 2017 (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	JANUARY-FEBRUARY	--		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	FEBRUARY-MARCH	MARCH-OCTOBER		FEBRUARY-AUGUST
2009	SEPTEMBER-NOVEMBER	FEBRUARY-MARCH	MARCH-OCTOBER		APRIL-AUGUST
2010	SEPTEMBER-NOVEMBER	FEBRUARY-MARCH	MARCH-OCTOBER	APRIL-DECEMBER	MARCH-SEPTEMBER
2011	OCTOBER-NOVEMBER	--	MARCH-OCTOBER	MAY-DECEMBER	APRIL-JULY
2012	OCTOBER-NOVEMBER	JANUARY-FEBRUARY	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
2015	OCTOBER-NOVEMBER	MARCH-APRIL	APRIL-OCTOBER	MAY-OCTOBER	MAY-OCTOBER
2016	OCTOBER-NOVEMBER	--	APRIL-SEPTEMBER	APRIL-OCTOBER	APRIL-SEPTEMBER
2017	OCTOBER-NOVEMBER	--	APRIL-SEPTEMBER	APRIL-NOVEMBER	APRIL-AUGUST

Table 2. 2017 Summer Shrimp/Groundfish Survey species composition list, 342 trawl stations, for those vessels that used a 40-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	71430	2458.2	128	37.4
Stenotomus caprinus	Longspine Porgy	11005	400.8	130	38
Chloroscombrus chrysurus	Atlantic Bumper	8505	275.4	96	28.1
Prionotus longispinosus	Bigeye Searobin	6081	78.7	140	40.9
Syacium papillosum	Dusky Flounder	5713	291.8	143	41.8
Leiostomus xanthurus	Spot	5638	446.1	73	21.3
Lagodon rhomboides	Pinfish	4253	289	150	43.9
Lutjanus synagris	Lane Snapper	3636	476.6	98	28.7
Stephanolepis hispida	Planehead Filefish	3586	56.2	112	32.7
Peprilus burti	Gulf Butterfish	3499	255.1	91	26.6
Trichiurus lepturus	Atlantic Cutlassfish	3232	70.9	88	25.7
Saurida brasiliensis	Largescale Lizardfish	3190	13.6	88	25.7
Cynoscion nothus	Silver Seatrout	3133	87.4	80	23.4
Upeneus parvus	Dwarf Goatfish	2756	58.1	88	25.7
Haemulon aurolineatum	Tomtate	2697	236.5	87	25.4
Cynoscion arenarius	Sand Seatrout	2467	113.3	97	28.4
Synodus foetens	Inshore Lizardfish	2425	257.4	240	70.2
Trachurus lathami	Rough Scad	2360	53.8	80	23.4
Syacium gunteri	Shoal Flounder	2049	35.5	95	27.8
Pristipomoides aquilonaris	Wenchman	1935	87.6	88	25.7
Eucinostomus gula	Silver Jenny	1675	70	47	13.7
Diplectrum formosum	Sand Perch	1625	172.9	135	39.5
Scorpaena calcarata	Smoothhead Scorpionfish	1523	38.2	57	16.7
Serranus atrobranchus	Blackear Bass	1490	17.5	77	22.5
Larimus fasciatus	Banded Drum	1159	44.9	55	16.1
Prionotus stearnsi	Shortwing Searobin	1121	14	62	18.1
Trachinocephalus myops	Bluntnose Lizardfish	1102	80	90	26.3

Table 2. Species composition list (continued)

GENUS/SPECIES	COMMON NAME	TOTAL NUMBER CAUGHT	TOTAL WEIGHT CAUGHT (KG)	NUMBER OF TOWS WHERE CAUGHT	% FREQUENCY OCCURRENCE
Haemulon plumierii	White Grunt	1041	135.1	24	7
Harengula jaguana	Scaled Herring	1028	43.3	56	16.4
Centropristis philadelphicus	Rock Sea Bass	957	45.9	113	33
Calamus proridens	Littlehead Porgy	913	169.5	51	14.9
Trichopsetta ventralis	Sash Flounder	890	17.2	54	15.8
Anchoa hepsetus	Broad-striped Anchovy	804	13.7	47	13.7
Stellifer lanceolatus	Star Drum	788	9.9	21	6.1
Synodus poeyi	Offshore Lizardfish	714	7.2	94	27.5
Halieutichthys		712	4.3	55	16.1
Decapterus punctatus	Round Scad	706	27.2	45	13.2
Lutjanus campechanus	Red Snapper	705	196.7	136	39.8
Acanthostracion quadricornis	Scrawled Cowfish	700	107.2	97	28.4
Synodus macrostigmus	Largespot Lizardfish	663	49.6	69	20.2
Citharichthys spilopterus	Bay Whiff	621	6.5	37	10.8
Bothus robinsi	Twospot Flounder	574	19.4	71	20.8
Diplectrum bivittatum	Dwarf Sand Perch	569	12.9	56	16.4
Monacanthus ciliatus	Fringed Filefish	548	13.2	44	12.9
Bellator militaris	Horned Searobin	526	6.8	36	10.5
Scorpaena brasiliensis	Barbfish	509	54.2	54	15.8
Serranus phoebe	Tattler	503	18.1	28	8.2
Rhomboplites aurorubens	Vermilion Snapper	496	60.2	68	19.9
Selene setapinnis	Atlantic Moonfish	475	40.9	67	19.6
Sphoeroides dorsalis	Marbled Puffer	454	24.1	70	20.5
Cyclopsetta chittendeni	Mexican Flounder	440	43	68	19.9
Pterois	Lion Fishes	410	79.9	55	16.1
Saurida normani	Shortjaw Lizardfish	404	27.8	23	6.7
Equetus lanceolatus	Jackknife Fish	403	34.3	80	23.4
Prionotus roseus	Bluespotted Searobin	382	10.9	43	12.6
Sphoeroides parvus	Least Puffer	377	2	37	10.8
Etropus crossotus	Fringed Flounder	361	5.2	54	15.8
Lepophidium brevibarbe	Blackedge Cusk-eel	353	12.2	42	12.3

Table 2. Species composition list (continued)

GENUS/SPECIES	COMMON NAME	TOTAL NUMBER CAUGHT	TOTAL WEIGHT CAUGHT (KG)	NUMBER OF TOWS WHERE CAUGHT	% FREQUENCY OCCURRENCE
Orthopristis chrysoptera	Pigfish	346	37.9	30	8.8
Sphoeroides spengleri	Bandtail Puffer	322	13.8	61	17.8
Prionotus scitulus	Leopard Searobin	294	12.3	23	6.7
Symphurus plagiusa	Blackcheek Tonguefish	274	8.2	41	12
Prionotus rubio	Blackfin Searobin	272	17.4	45	13.2
Scorpaena agassizii	Longfin Scorpionfish	254	9.2	21	6.1
Aluterus schoepfii	Orange Filefish	244	135.5	43	12.6
Calamus arctifrons	Grass Porgy	239	24.9	10	2.9
Cynoscion	Sea Trout	227	0.3	14	4.1
Lepophidium jeannae	Mottled Cusk-eel	225	12.3	25	7.3
Prionotus martis	Barred Searobin	223	8.4	23	6.7
Porichthys plectrodon	Atlantic Midshipman	218	6	68	19.9
Eucinostomus argenteus	Spotfin Mojarra	211	5.9	12	3.5
Serranus notospilus	Saddle Bass	199	1.6	9	2.6
Ophidion holbrookii	Bank Cusk-eel	197	21.4	35	10.2
Mullus auratus	Red Goatfish	194	10.8	24	7
Centropristis ocyurus	Bank Sea Bass	190	12.6	32	9.4
Syacium micrurum	Channel Flounder	178	4.8	21	6.1
Prionotus paralatus	Mexican Searobin	172	5.9	19	5.6
Ogcocephalus pantostictus	Spotted Batfish	170	7.3	31	9.1
Pareques umbrosus	Cubbyu	167	7.5	31	9.1
Sardinella aurita	Round Sardinella	151	5.7	27	7.9
Anchoa mitchilli	Bay Anchovy	139	0.2	13	3.8
Nicholsina usta	Emerald Parrotfish	134	12.9	29	8.5
Eucinostomus harengulus	Tidewater Mojarra	125	6.9	22	6.4
Haemulon striatum	Striped Grunt	125	5.1	9	2.6
Prionotus ophryas	Bandtail Searobin	124	8.8	46	13.5
Halieutichthys aculeatus	Pancake Batfish	119	1.4	33	9.6
Opisthonema oglinum	Atlantic Thread Herring	111	10.1	25	7.3
Pterois volitans	Lion Fish	110	21.2	21	6.1
Chaetodon ocellatus	Spotfin Butterflyfish	110	9	36	10.5

Table 2. Species composition list (continued)

GENUS/SPECIES	COMMON NAME	TOTAL NUMBER CAUGHT	TOTAL WEIGHT CAUGHT (KG)	NUMBER OF TOWS WHERE CAUGHT	% FREQUENCY OCCURRENCE
Chaetodon sedentarius	Reef Butterflyfish	102	2	12	3.5
Aluterus scriptus	Scrawled Filefish	101	8.2	13	3.8
Menticirrhus americanus	Jewsharp Drummer	99	14.3	15	4.4
Lutjanus griseus	Gray Snapper	99	32.5	27	7.9
Etrumeus teres	Atlantic Red Herring	92	0.9	6	1.8
Ariopsis felis	Hardhead Catfish	88	16.7	14	4.1
Synodus intermedius	Sand Diver	86	9.3	26	7.6
Apogon affinis	Bigtooth Cardinalfish	84	0.7	12	3.5
Citharichthys macrops	Spotted Whiff	83	3.5	27	7.9
Balistes capriscus	Gray Triggerfish	82	21.8	42	12.3
Gymnothorax saxicola	Honeycomb Moray	81	9.8	41	12
Bollmannia communis	Ragged Goby	75	0.2	17	5
Xyrichtys novacula	Pearly Razorfish	71	3.5	28	8.2
Kathetostoma albigutta	Lancer Stargazer	70	2.7	31	9.1
Lagocephalus laevigatus	Smooth Puffer	65	1.8	29	8.5
Antennarius radiosus	Big-eyed Frogfish	64	0.5	28	8.2
Pagrus pagrus	Red Porgy	64	11.7	18	5.3
Brevoortia patronus	Gulf Menhaden	64	6.1	15	4.4
Cyclopsetta fimbriata	Spotfin Flounder	63	8.6	33	9.6
Calamus penna	Sheepshead Porgy	61	6.8	4	1.2
Lachnolaimus maximus	Hogfish	60	18	11	3.2
Prionotus tribulus	Bighead Searobin	58	3.7	19	5.6
Apogon quadrisquamatus	Sawcheek Cardinalfish	55	0.2	4	1.2
Ogcocephalus cubifrons	Polka-dot Batfish	55	2.2	4	1.2
Epinephelus morio	Red Grouper	53	22.1	22	6.4
Ophidion holbrookii	Longnose Cusk-eel	51	3.7	10	2.9
Etropus rimosus	Gray Flounder	50	0.8	9	2.6
Symphurus diomedeanus	Spottedfin Tonguefish	50	1.8	18	5.3
Rhynchoconger flavus	Yellow Conger	46	2.4	17	5
Sphoeroides nephelus	Southern Puffer	45	4.4	18	5.3
Pontinus longispinis	Longspine Scorpionfish	44	1.1	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
Prionotus alatus	Spiny Searobin	43	1.1	12	3.5
Etropus cyclosquamus	Shelf Flounder	42	0.4	8	2.3
Canthigaster rostrata	Sharpnose Puffer	41	0.4	10	2.9
Synodus	Lizard Fishes	41	1.7	6	1.8
Calamus		41	10.9	2	0.6
Apogon aurolineatus	Bridle Cardinalfish	41	0.4	7	2
Paralichthys lethostigma	Southern Flounder	40	13.5	20	5.8
Steindachneria argentea	Luminous Hake	39	0.1	1	0.3
Chaetodipterus faber	Atlantic Spadefish	39	7.6	16	4.7
Ogcocephalus declivirostris	Slantbrow Batfish	38	0.6	12	3.5
Ancylopsetta ommata	Ocellated Flounder	36	6.5	25	7.3
Caranx crysos	Blue Runner	36	7	15	4.4
Ogcocephalus parvus	Roughback Batfish	36	0.6	18	5.3
Ophidion antipholus	Longnose Cusk-eel	34	2.2	8	2.3
Sphyraena borealis	Northern Sennet	34	5.4	1	0.3
Diplectrum	Perch	34	0.2	3	0.9
Brotula barbata	Bearded Brotula	34	3.3	18	5.3
Bothus ocellatus	Eyed Flounder	32	0.6	13	3.8
Chilomycterus schoepfii	Burrfish	32	9.1	21	6.1
Decodon puellaris	Red Hogfish	32	1.2	9	2.6
Ophidion josephi	Crested Cusk-eel	31	1.2	10	2.9
Urophycis floridana	Southern Codling	31	2.3	12	3.5
Hoplunnis macrura	Freckled Pike-conger	30	0.2	7	2
Symphurus urospilus	Spottail Tonguefish	30	1	8	2.3
Calamus nodosus	Knobbed Porgy	29	6.4	11	3.2
Peprilus paru	Harvestfish	29	0.8	7	2
Mulloidichthys martinicus	Yellow Goatfish	28	1.7	1	0.3
Holacanthus bermudensis	Blue Angelfish	27	13	14	4.1
Caulolatilus intermedius	Anchor Tilefish	27	2.3	10	2.9
Bairdiella chrysoura	Silver Perch	27	0.5	1	0.3
Ancylopsetta dilecta	Three-eye Flounder	27	1.8	13	3.8

Table 2. Species composition list (continued)

GENUS/SPECIES	COMMON NAME	TOTAL NUMBER CAUGHT	TOTAL WEIGHT CAUGHT (KG)	NUMBER OF TOWS WHERE CAUGHT	% FREQUENCY OCCURRENCE
Antennarius striatus	Striated Frogfish	26	0.2	7	2
Raja texana	Roundel Skate	26	8.7	24	7
Chromis enchrysura	Yellowtail Reeffish	25	0.5	9	2.6
Saurida caribbaea	Smallscale Lizardfish	25	0.1	2	0.6
Paralichthys albigutta	Gulf Flounder	22	10.3	16	4.7
Sphyrna tiburo	Bonnethead	22	74.8	4	1.2
Trinectes maculatus	Hogchoker	21	0.3	5	1.5
Gymnachirus melas	Naked Sole	21	0.6	7	2
Hemanthias leptus	Longtail Bass	21	0.2	4	1.2
Priacanthus arenatus	Bigeye	21	3.1	16	4.7
Rypticus bistrispinus	Freckled Soapfish	20	0.3	14	4.1
Calamus bajonado	Jolthead Porgy	19	30.1	6	1.8
Polydactylus octonemus	Atlantic Threadfin	19	0.8	2	0.6
Pareques iwamotoi	Blackbar Drum	19	0.9	9	2.6
Paralichthys squamilentus	Broad Flounder	17	7	10	2.9
Anchoa lyolepis	Dusky Anchovy	17	0	2	0.6
Engyophrys senta	Spiny Flounder	17	0.1	11	3.2
Ogcocephalus cubifrons	Polka-dot Batfish	17	5	11	3.2
Gastropsetta frontalis	Shrimp Flounder	17	1.7	14	4.1
Otophidium omostigma	Polka-dot Cusk-eel	16	0.1	5	1.5
Pomacanthus arcuatus	Gray Angelfish	16	5.2	9	2.6
Aluterus heudelotii	Dotterel Filefish	16	1	9	2.6
Rhizoprionodon terraenovae	Atlantic Sharpnose Shark	16	7.5	12	3.5
Rachycentron canadum	Cobia	15	46.2	3	0.9
Neomerinthe hemingwayi	Spinycheek Scorpionfish	15	4	7	2
Calamus leucosteus	Whitebone Porgy	14	4.6	3	0.9
Seriola fasciata	Lesser Amberjack	14	1.8	4	1.2
Bregmaceros atlanticus	Antenna Codlet	13	0	8	2.3
Ophidion	Cusk-eels	12	0.5	5	1.5
Ogcocephalus corniger	Longnose Batfish	12	0.4	7	2
Bagre marinus	Gafftopsail Catfish	12	2.3	3	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
Seriola dumerili	Greater Amberjack	12	2.1	8	2.3
Selar crumenophthalmus	Bigeye Scad	12	0.5	6	1.8
Ocyurus chrysurus	Yellowtail Snapper	11	3.1	4	1.2
Prognathodes aya	Bank Butterflyfish	11	0.3	3	0.9
Ariomma regulus	Spotted Driftfish	11	1.8	4	1.2
Neobythites gilli	Twospot Brotula	11	0.1	4	1.2
Squatina dumeril	Atlantic Angel Shark	10	22.3	10	2.9
Rypticus maculatus	Whitespotted Soapfish	10	0.5	7	2
Canthigaster jamestyleri	Goldface Toby	10	0.1	4	1.2
Bathyanthias mexicanus	Yellowtail Bass	10	0.1	5	1.5
Hypoplectrus		10	0.4	2	0.6
Urophycis cirrata	Gulf Hake	10	0.3	7	2
Opsanus pardus	Leopard Toadfish	10	0.9	8	2.3
Engraulidae	Anchovies	10	0	2	0.6
Peristedion gracile	Slender Searobin	9	0.2	2	0.6
Hemanthias vivanus	Red Barbier	9	0.1	3	0.9
Echiophis intertinctus	Spotted Spoon-nose Eel	9	3.2	9	2.6
Phaeoptyx xenus	Sponge Cardinalfish	9	0	2	0.6
Ariomma melanum	Brown Driftfish	8	0.2	1	0.3
Apogon pseudomaculatus	Twospot Cardinalfish	8	0.1	1	0.3
Ophidion grayi	Blotched Cusk-eel	8	1	5	1.5
Narcine brasiliensis	Lesser Electric Ray	8	3.6	3	0.9
Lonchopisthus micrognathus	Swordtail Jawfish	8	0	5	1.5
Antennarius ocellatus	Ocellated Frogfish	8	1.2	7	2
Parablennius marmoreus	Seaweed Blenny	8	0	7	2
Symphurus civitatium	Offshore Tonguefish	8	0.1	5	1.5
Seriola zonata	Banded Rudderfish	8	1.7	3	0.9
Serranus tortugarum	Chalk Bass	8	0.1	2	0.6
Gymnachirus texae	Fringed Sole	8	0.1	6	1.8
Mustelus canis	Dusky Smooth-hound	7	4.5	5	1.5
Acanthostracion polygonius	Honeycomb Cowfish	7	6.1	5	1.5

Table 2. Species composition list (continued)

GENUS/SPECIES	COMMON NAME	TOTAL NUMBER CAUGHT	TOTAL WEIGHT CAUGHT (KG)	NUMBER OF TOWS WHERE CAUGHT	% FREQUENCY OCCURRENCE
Sphyraena guachancho	Guaguanche	7	1.4	6	1.8
Echeneis naucrates	Sharksucker	7	2.4	6	1.8
Pristigenys alta	Short Bigeye	7	0.9	6	1.8
Scomberomorus maculatus	Atlantic Spanish Mackerel	7	1.7	5	1.5
Rhinobatos lentiginosus	Atlantic Guitarfish	7	4.1	5	1.5
Citharichthys cornutus	Horned Whiff	6	0	4	1.2
Perciformes	Perch-like Fishes	6	0	2	0.6
Lepophidium		6	0	2	0.6
Physiculus fulvus	Hakeling	6	0	3	0.9
Raja eglanteria	Clearnose Skate	6	4.6	6	1.8
Centropristis striata	Black Sea Bass	6	2.1	3	0.9
Halichoeres bathyphilus	Greenband Wrasse	5	0.2	4	1.2
Carangoides bartholomaei	Yellow Jack	5	0.1	3	0.9
Syngnathus louisianae	Chain Pipefish	5	0	2	0.6
Pomacanthidae	Angelfishes	5	0	2	0.6
Hippocampus erectus	Lined Seahorse	5	0.1	5	1.5
Calamus calamus	Saucereye Porgy	5	1.7	1	0.3
Astrapogon alutus	Bronze Cardinalfish	5	0	4	1.2
Eucinostomus	Mojarras	4	0.2	2	0.6
Mycteroperca phenax	Scamp	4	1.6	4	1.2
Cheilopogon cyanopterus	Margined Flyingfish	4	0.2	1	0.3
Mustelus sinusmexicanus	Gulf Smoothhound	4	2.7	4	1.2
Paraconger caudilimbatus	Margintail Conger	4	0.1	3	0.9
Pomatomus saltatrix	Bluefish	4	1	1	0.3
Rajidae	Rays	4	0	2	0.6
Citharichthys gymnorhinus	Anglefin Whiff	4	0	4	1.2
Gymnothorax nigromarginatus	Blackedge Moray	4	0.6	4	1.2
Etropus microstomus	Smallmouth Flounder	4	0	1	0.3
Dasyatis sabina	Atlantic Stingray	4	4.4	4	1.2
Selene vomer	Lookdown	4	0.5	3	0.9
Urophycis	Codlings	4	0.3	3	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
Haemulon	Grunts	3	0	2	0.6
Gnathophis bracheatopos	Longeye Conger	3	0.2	1	0.3
Centropristis	Black Sea Basses	3	0.1	2	0.6
Mullidae	Goat Fishes	3	0	1	0.3
Exocoetidae	Flyingfishes	3	0	2	0.6
Ogcocephalus rostellum	Palefin Batfish	3	0	1	0.3
Hirundichthys rondeletii	Blackwing Flyingfish	3	0.2	2	0.6
Ophichthus gomesii	Shrimp Eel	3	0.4	1	0.3
Hemanthias aureorubens	Streamer Bass	3	0	2	0.6
Opistognathus lonchurus	Moustache Jawfish	3	0.1	1	0.3
Scomber japonicus	Chub Mackerel	3	0.2	2	0.6
Diodon holocanthus	Balloonfish	3	1.5	3	0.9
Fistularia petimba	Pacific Cornetfish	3	0.6	3	0.9
Holocentrus adscensionis	Squirrelfish	3	0.9	2	0.6
Echeneis	Sharksuckers	3	1	3	0.9
Menticirrhus saxatilis	Gulf Minkfish	3	0.6	2	0.6
Cryptotomus roseus	Bluelip Parrotfish	3	0.1	3	0.9
Carcharhinus acronotus	Blacknose Shark	3	1.9	3	0.9
Gobiesox strumosus	Skilletfish	3	0	2	0.6
Hoplunnis diomediana	Blacktail Pike-conger	3	0	3	0.9
Scorpaena inermis	Mushroom Scorpionfish	3	0	1	0.3
Bellator egretta	Streamer Searobin	3	0	2	0.6
Rhinoptera bonasus	Cownose Ray	2	21.8	1	0.3
Lutjanus vivanus	Silk Snapper	2	0.2	2	0.6
Sparisoma atomarium	Greenblotch Parrotfish	2	0	2	0.6
Hippocampus reidi	Longsnout Seahorse	2	0	2	0.6
Seriola rivoliana	Almaco Jack	2	0.8	2	0.6
Opistognathus	Spotfin Jawfishes	2	0	1	0.3
Schultzea beta	School Bass	2	0	1	0.3
Gobiidae	Gobies	2	0	1	0.3
Serranus annularis	Orangeback Bass	2	0	2	0.6

Table 2. Species composition list (continued)

GENUS/SPECIES	COMMON NAME	TOTAL NUMBER CAUGHT	TOTAL WEIGHT CAUGHT (KG)	NUMBER OF TOWS WHERE CAUGHT	% FREQUENCY OCCURRENCE
Lophius gastrophysus	Blackfin Goosefish	2	0.2	2	0.6
Citharichthys	Sanddabs	2	0	1	0.3
Dasyatis centroura	Clam Cracker	2	450	2	0.6
Bregmaceros cantori	Striped Codlet	2	0	2	0.6
Scorpaena dispar	Hunchback Scorpionfish	2	0.2	2	0.6
Sargocentron bullisi	Deepwater Squirrelfish	2	0.1	1	0.3
Stegastes variabilis	Cocoa Damselfish	2	0	1	0.3
Symphurus	Straightmouth Tonguefishes	2	0	1	0.3
Histrio histrio	Sargassum Frogfish	2	0	1	0.3
Apogon	Cardinalfishes	2	0	2	0.6
Fistularia tabacaria	Bluespotted Cornetfish	2	0.5	2	0.6
Syacium		2	0	1	0.3
Gymnura micrura	Smooth Butterfly Ray	2	10.3	2	0.6
Ophidion selenops	Mooneye Cusk-eel	2	0	2	0.6
Pogonias cromis	Black Drum	2	4.4	2	0.6
Anisotremus virginicus	Porkfish	2	0.6	1	0.3
Carangidae	Jacks	2	0	1	0.3
Mycteroperca		2	0.1	1	0.3
Pseudupeneus maculatus	Spotted Goatfish	2	0.3	2	0.6
Hyporthodus flavolimbatus		2	5.8	2	0.6
Ginglymostoma cirratum	Nurse Shark	2	0.5	2	0.6
Ariosoma belearicum		2	0.1	1	0.3
Cheilopogon		2	0.2	2	0.6
Ophioblennius atlanticus	Redlip Blenny	2	0	1	0.3
Halichoeres	Wrasses	1	0	1	0.3
Serranus subligarius	Belted Sandfish	1	0	1	0.3
Conodon nobilis	Barred Grunt	1	0	1	0.3
Torpedo nobiliana	Atlantic Torpedo	1	0.3	1	0.3
Echiophis punctifer	Snapper Eel	1	0.2	1	0.3
Canthidermis maculata	Rough Triggerfish	1	0	1	0.3
Gnatholepis thompsoni	Goldspot Goby	1	0	1	0.3

Table 2. Species composition list (continued)

GENUS/SPECIES	COMMON NAME	TOTAL NUMBER CAUGHT	TOTAL WEIGHT CAUGHT (KG)	NUMBER OF TOWS WHERE CAUGHT	% FREQUENCY OCCURRENCE
Carcharhinus falciformis	Silky Shark	1	1.3	1	0.3
Blenniidae	Blennies	1	0	1	0.3
Scomber colias	Atlantic chub mackerel	1	0	1	0.3
Opsanus tau	Oyster Toadfish	1	0.1	1	0.3
Ophidiidae	Brotulas	1	0	1	0.3
Paraclinus nigripinnis	Blackfin Blenny	1	0	1	0.3
Risor ruber	Tusked Goby	1	0	1	0.3
Holacanthus ciliaris	Queen Angelfish	1	0.2	1	0.3
Hypleurochilus bermudensis	Barred Blenny	1	0	1	0.3
Stegastes partitus	Bicolor Damselfish	1	0	1	0.3
Muraena retifera	Reticulate Moray	1	0.1	1	0.3
Elops saurus	Ladyfish	1	0.3	1	0.3
Hoplunnis		1	0	1	0.3
Paralichthyidae		1	0	1	0.3
Diplodus holbrookii	Spottail Pinfish	1	0.2	1	0.3
Eucinostomus melanopterus	Flagfin Mojarra	1	0	1	0.3
Phaeoptyx pigmentaria	Dusky Cardinalfish	1	0	1	0.3
Pronotogrammus martinicensis	Roughtongue bass	1	0.1	1	0.3
Prionotus	North American Searobins	1	0	1	0.3
Hemicaranx amblyrhynchus	Bluntnose Jack	1	0	1	0.3
Epinephelus niveatus	Snowy Grouper	1	0	1	0.3
Scorpaena brachyptera	Shortfin Scorpionfish	1	0	1	0.3
Serranidae	Groupers	1	0	1	0.3
Lutjanus analis	Mutton Snapper	1	3.1	1	0.3
Epinephelus itajara	Goliath Grouper	1	100	1	0.3
Hoplunnis tenuis	Spotted Pike-conger	1	0	1	0.3
Synodus synodus	Red Lizardfish	1	0	1	0.3
Scorpaena plumieri	Spotted Scorpionfish	1	0.4	1	0.3
Ariomma bondi	Silver-rag	1	0.1	1	0.3
Dactylopterus volitans	Flying Gurnard	1	0.5	1	0.3
Scomberomorus cavalla	King Mackerel	1	1.2	1	0.3

Table 2. Species composition list (continued)

GENUS/SPECIES	COMMON NAME	TOTAL NUMBER CAUGHT	TOTAL WEIGHT CAUGHT (KG)	NUMBER OF TOWS WHERE CAUGHT	% FREQUENCY OCCURRENCE
Dipturus olseni	Spreadfin Skate	1	0.5	1	0.3
Archosargus probatocephalus	Sheepshead	1	0.9	1	0.3
Haemulon sciurus	Bluestriped Grunt	1	0.2	1	0.3
Urobatis	Shortail Round Stingrays	1	0.4	1	0.3
Carcharhinus plumbeus	Sandbar Shark	1	3.5	1	0.3
Halichoeres caudalis	Painted Wrasse	1	0.1	1	0.3
Ophichthus puncticeps	Palespotted Eel	1	0.2	1	0.3
Crustaceans					
Farfantepenaeus aztecus	Brown Shrimp	27522	378.6	186	54.4
Callinectes similis	Lesser Blue Crab	16797	157.2	111	32.5
Rimapenaeus similis	Roughback Shrimp	6771	26	80	23.4
Squilla empusa	Mantis Shrimp	4099	35.2	95	27.8
Farfantepenaeus duorarum	Northern Pink Shrimp	2866	57.2	81	23.7
Litopenaeus setiferus	Northern White Shrimp	2846	110.9	57	16.7
Sicyonia brevirostris	Brown Rock Shrimp	1822	22.3	93	27.2
Portunus spinicarpus	Longspine Swimming Crab	1723	8.6	94	27.5
Sicyonia dorsalis	Lesser Rock Shrimp	1273	2.5	28	8.2
Rimapenaeus constrictus	Roughneck Shrimp	984	4.2	31	9.1
Portunus gibbesii	Iridescent Swimming Crab	951	9	77	22.5
Squilla chydaea		700	4.1	57	16.7
Xiphopenaeus kroyeri	Atlantic Seabob	571	4	11	3.2
Portunus spinimanus	Blotched Swimming Crab	510	14.8	75	21.9
Solenocera vioscai	Humpback Shrimp	503	2.1	33	9.6
Anasimus latus	Stilt Spider Crab	440	1.4	63	18.4
Solenocera atlantidis	Dwarf Humpback Shrimp	349	0.6	37	10.8
Callinectes sapidus	Blue Crab	338	55.7	66	19.3
Stenorhynchus seticornis	Yellowline Arrow Crab	269	1.1	61	17.8
Raninoides louisianensis	Gulf Frog Crab	233	1.6	44	12.9
Metapenaeopsis goodei	Caribbean Velvet Shrimp	230	0.4	29	8.5

Table 2. Species composition list (continued)

GENUS/SPECIES	COMMON NAME	TOTAL NUMBER CAUGHT	TOTAL WEIGHT CAUGHT (KG)	NUMBER OF TOWS WHERE CAUGHT	% FREQUENCY OCCURRENCE
Calappa sulcata	Yellow Box Crab	168	33	53	15.5
Scyllarus chacei	Chace Slipper Lobster	152	0.8	31	9.1
Leiolambrus nitidus	White Elbow Crab	135	0.3	40	11.7
Iliacantha liodactylus		89	0.3	23	6.7
Parapenaeus politus	Deep-water Rose Shrimp	79	0.1	7	2
Scyllarides nodifer	Ridged Slipper Lobster	78	20.6	27	7.9
Portunus ordwayi	Redhair Swimming Crab	72	0.6	21	6.1
Hepatus epheliticus	Calico Box Crab	62	2.5	16	4.7
Pseudorhombila quadridentata	Flecked Squareback Crab	60	0.3	20	5.8
Portunus sayi	Sargassum Swimming Crab	53	0.3	15	4.4
Alpheus		46	0	11	3.2
Sicyonia burkenroadi	Spiny Rock Shrimp	39	0	8	2.3
Cryptodromiopsis antillensis	Decorator Crab	37	0.2	24	7
Stenocionops spinimanus	Prickly Spider Crab	35	1.2	9	2.6
Euphrosynoplax clausa	Craggy Bathyal Crab	33	0.2	18	5.3
Platylambrus granulata	Bladetooth Elbow Crab	31	0.1	23	6.7
Paguristes hummi		29	0	1	0.3
Libinia emarginata	Portly Spider Crab	26	1.1	9	2.6
Paguristes sericeus	Blue-eye Hermit	23	0	15	4.4
Trachypenaeopsis mobilispinis		23	0.2	2	0.6
Parthenope agona	Yellow Elbow Crab	23	0	6	1.8
Mesopenaeus tropicalis	Salmon Shrimp	22	0.1	8	2.3
Stenorhynchus		22	0	14	4.1
Ovalipes floridanus	Florida Lady Crab	21	0.6	8	2.3
Podochela sidneyi	Shortfinger Neck Crab	21	0	7	2
Calappa flammea	Flame Box Crab	19	1.9	9	2.6
Dardanus insignis	Red Brocade Hermit	19	0.2	11	3.2
Stenocionops furcatus	Furcate Spider Crab	18	0.1	15	4.4
Persephona crinita	Pink Purse Crab	18	0.1	11	3.2
Speocarcinus lobatus	Gulf Squareback Crab	18	0	14	4.1
Pseudomedaeus agassizii	Rough Rubble Crab	17	0.1	9	2.6

Table 2. Species composition list (continued)

GENUS/SPECIES	COMMON NAME	TOTAL NUMBER CAUGHT	TOTAL WEIGHT CAUGHT (KG)	NUMBER OF TOWS WHERE CAUGHT	% FREQUENCY OCCURRENCE
Paguristes triangulatus		16	0.2	5	1.5
Pyromaia cuspidata	Dartnose Pear Crab	15	0.1	5	1.5
Porcellana sayana	Spotted Porcelain Crab	15	0	4	1.2
Petrochirus diogenes	Giant Hermit	14	0.3	10	2.9
Mithrax hispidus	Coral Clinging Crab	13	0	5	1.5
Munida forceps		13	0	7	2
Metoporhaphis calcarata	False Arrow Crab	11	0	5	1.5
Solenocera		11	0.1	2	0.6
Plesionika longicauda		10	0	5	1.5
Solenoceridae	Solenocerid Shrimps	10	0	1	0.3
Gibbesia neglecta		10	0.2	2	0.6
Pilumnus sayi	Spineback Hairy Crab	10	0	7	2
Squilla deceptrix		9	0	4	1.2
Mithrax		9	0	5	1.5
Munida pusilla		9	0	2	0.6
Munida		8	0	3	0.9
Sicyonia	Rock Shrimps	8	0	2	0.6
Nemausa acuticornis	Sharphorn Clinging Crab	8	0	4	1.2
Squilla rugosa		8	0.1	6	1.8
Iliacantha subglobosa	Longfinger Purse Crab	7	0	4	1.2
Collodes robustus		6	0	5	1.5
Decapoda	Crabs	6	0	3	0.9
Penaeidae	Penaeid Shrimps	6	0	1	0.3
Mithrax pleuracanthus	Shaggy Clinging Crab	6	0	4	1.2
Dyspanopeus texanus	Gulf Grassflat Crab	5	0	1	0.3
Gonodactylus torus		5	0	3	0.9
Majidae	Spider Crabs	5	0	2	0.6
Myropsis quinquespinosa	Fivespine Purse Crab	5	0	4	1.2
Macrocoeloma		4	0	1	0.3
Persephona mediterranea	Mottled Purse Crab	4	0	2	0.6
Lobopilumnus agassizii	Areolated Hairy Crab	4	0	4	1.2

Table 2. Species composition list (continued)

GENUS/SPECIES	COMMON NAME	TOTAL NUMBER CAUGHT	TOTAL WEIGHT CAUGHT (KG)	NUMBER OF TOWS WHERE CAUGHT	% FREQUENCY OCCURRENCE
Ethusa microphthalma	Broadback Sumo Crab	4	0	2	0.6
Hexapanopeus angustifrons	Smooth Mud Crab	4	0	1	0.3
Periclimenes		4	0	1	0.3
Stomatopoda	Mantis Shrimp	4	0	2	0.6
Stenocionops furcatus coelatus		4	0.4	3	0.9
Leiolambrus granulosus		4	0	1	0.3
Squilla		3	0	2	0.6
Munida irrasa		3	0	2	0.6
Xanthidae	Mud Crabs	3	0	2	0.6
Raninoides loevis	Furrowed Frog Crab	3	0	1	0.3
Nephropsis aculeata	Florida Lobsterette	3	0	2	0.6
Menippe adina	Gulf Stone Crab	3	0	2	0.6
Panulirus argus	Caribbean Spiny Lobster	3	4.1	3	0.9
Pagurus bullisi		3	0	3	0.9
Alpheus floridanus	Sand Snapping Shrimp	3	0	1	0.3
Stenopus		3	0	3	0.9
Macrocoeloma trispinosum	Spongy Decorator Crab	3	0	3	0.9
Glyptoxanthus erosus	Eroded Mud Crab	3	0.2	2	0.6
Mithraculus forceps	Red-ridged Clinging Crab	2	0	1	0.3
Dardanus fucosus	Bareye Hermit	2	0	1	0.3
Gonodactylus		2	0	2	0.6
Porcellanidae	Porcelain Crabs	2	0	1	0.3
Porcellana		2	0	1	0.3
Speocarcinus carolinensis	Carolinian Squareback Crab	2	0	2	0.6
Callinectes ornatus	Shelligs	2	0.1	1	0.3
Palicus alternata		2	0	2	0.6
Libinia dubia	Longnose Spider Crab	2	0	1	0.3
Tozeuma serratum	Serrate Arrow Shrimp	2	0	1	0.3
Nibilia antilocapra	Shorthorn Spiny Crab	2	0	1	0.3
Synalpheus townsendi	Townsend Snapping Shrimp	2	0	1	0.3
Galathea rostrata		2	0	1	0.3

Table 2. Species composition list (continued)

GENUS/SPECIES	COMMON NAME	TOTAL NUMBER CAUGHT	TOTAL WEIGHT CAUGHT (KG)	NUMBER OF TOWS WHERE CAUGHT	% FREQUENCY OCCURRENCE
Sicyonia laevigata	Coral Shrimp	2	0	1	0.3
Diogenidae	Left-handed Hermit Crabs	2	0	2	0.6
Lysiosquilla scabricauda		2	0.3	2	0.6
Platylambrus fraterculus	Rough Elbow Crab	1	0	1	0.3
Synalpheus		1	0	1	0.3
Gonodactylidae	Gonodactylid Mantis Shrimps	1	0	1	0.3
Pinnotheridae	Pea Crabs	1	0	1	0.3
Podochela lamelligera		1	0	1	0.3
Pilumnus floridanus	Plumed Hairy Crab	1	0	1	0.3
Paguristes oxyophthalmus		1	0	1	0.3
Macrocoeloma camptocerum	Florida Decorator Crab	1	0	1	0.3
Procambarus clarkii	Red Swamp Crayfish	1	0	1	0.3
Petrolisthes galathinus	Banded Porcelain Crab	1	0	1	0.3
Isopoda	Isopods	1	0	1	0.3
Menippe mercenaria	Florida Stone Crab	1	0.2	1	0.3
Scyllaridae	Slipper Lobsters	1	0	1	0.3
Pitho		1	0	1	0.3
Acanthilia intermedia	Granulose Purse Crab	1	0	1	0.3
Scyllarides aequinoctialis	Spanish Slipper Lobster	1	0	1	0.3
Homola barbata		1	0	1	0.3
Scyllarus depressus	Scaled Slipper Lobster	1	0	1	0.3
Stenopus scutellatus	Golden Coral Shrimp	1	0	1	0.3
Palicus faxoni	Finned Stilt Crab	1	0	1	0.3
Iliacantha sparsa	Shouldered Purse Crab	1	0	1	0.3
Podochela gracilipes	Unicorn Neck Crab	1	0	1	0.3
Neogonodactylus oerstedii		1	0	1	0.3
Danielum ixbauchac		1	0	1	0.3
Inachidae		1	0	1	0.3
Glypturus		1	0	1	0.3
Arenaeus cribrarius	Speckled Swimming Crab	1	0.1	1	0.3
Lophopanopeus distinctus		1	0	1	0.3

Table 2. Species composition list (continued)

GENUS/SPECIES	COMMON NAME	TOTAL NUMBER CAUGHT	TOTAL WEIGHT CAUGHT (KG)	NUMBER OF TOWS WHERE CAUGHT	% FREQUENCY OCCURRENCE
Others					
Loligo pealeii	Longfin Inshore Squid	9130	131.8	120	35.1
Amusium papyraceum	Paper Scallop	9096	64.9	74	21.6
Loligo		8079	132.4	153	44.7
Argopecten gibbus	Atlantic Calico Scallop	4807	40.4	19	5.6
Lolliguncula brevis	Atlantic Brief Squid	1501	18.7	70	20.5
Pitar cordatus	Corded Pitar	536	10.7	51	14.9
Anadara baughmani	Skewed Ark	418	6.5	19	5.6
Euvola raveneli	Round-rib Scallop	176	0.5	16	4.7
Macoma brevifrons	Short Macoma	124	1.1	9	2.6
Polystira albida	White Giant-turris	118	1.4	21	6.1
Lirophora clenchi	Clench Venus	54	0.6	12	3.5
Conus austini		50	0.4	10	2.9
Laevicardium mortoni	Yellow Eggcockle	43	0.9	14	4.1
Laevicardium laevigatum	Eggcockle	39	1.2	8	2.3
Pteria colymbus	Atlantic Wing-oyster	33	1.2	3	0.9
Fusinus helenae	Brown Spindle	29	0.3	1	0.3
Dendostrea frons	Frond Oyster	28	0.4	2	0.6
Polystira tellea	Delicate Giant-turris	23	0.2	5	1.5
Tonna galea	Giant Tun	22	2	12	3.5
Octopus vulgaris	Common Octopus	20	6.4	16	4.7
Macoma pulleyi	Delta Macoma	19	0.1	3	0.9
Pinctada		19	0.5	1	0.3
Octopus joubini	Atlantic Pygmy Octopus	18	0.5	12	3.5
Aplysiidae		16	0.1	2	0.6
Distorsio clathrata	Atlantic Distorsio	15	0.2	10	2.9
Hexaplex fulvescens	Giant Eastern Murex	15	0.3	6	1.8
Aplysia brasiliana	Mottled Seahare	13	0.4	2	0.6
Atrina		12	0.5	2	0.6
Arca zebra	Turkey Wing	11	0.1	4	1.2

Table 2. Species composition list (continued)

GENUS/SPECIES	COMMON NAME	TOTAL NUMBER CAUGHT	TOTAL WEIGHT CAUGHT (KG)	NUMBER OF TOWS WHERE CAUGHT	% FREQUENCY OCCURRENCE
Cantharus cancellarius	Cancellate Cantharus	10	0	2	0.6
Conus cancellatus	Cancellate Cone	10	0.1	2	0.6
Sconsia striata	Royal Bonnet	9	0.2	5	1.5
Arca imbricata	Mossy Ark	8	0.1	2	0.6
Aplysia		8	1.5	3	0.9
Oliva sayana	Lettered Olive	7	0.1	2	0.6
Lindapecten muscosus	Rough Scallop	7	0	5	1.5
Ficus communis	Atlantic Figsnail	6	0.3	5	1.5
Agriopoma texasiana		6	0.1	3	0.9
Laevicardium pictum	Painted Eggcockle	6	0	1	0.3
Pleurobranchus		5	0.5	5	1.5
Spondylus americanus	Atlantic Thorny Oyster	4	0.3	1	0.3
Astrea americana		4	0	1	0.3
Armina tigrina	Tiger Armina	4	0	1	0.3
Narcissia trigonaria		4	0	2	0.6
Cerithium		3	0	1	0.3
Muricidae		3	0	1	0.3
Diodora cayenensis	Cayenne Keyhole Limpet	3	0	1	0.3
Pecten tereinus		3	0	2	0.6
Neverita duplicata	Shark Eye	3	0	1	0.3
Fasciolaria tulipa	True Tulip	3	0.2	3	0.9
Anadara ovalis	Blood Ark	3	0	2	0.6
Discodoris		2	0	2	0.6
Atrina serrata	Sawtooth Penshell	2	0	1	0.3
Cymatium parthenopeum	Giant Triton	2	0	1	0.3
Laevicardium		2	0	1	0.3
Cypraea cinera		2	0	2	0.6
Scyllaeidae		1	0	1	0.3
Atrina seminuda	Half-naked Penshell	1	0	1	0.3
Pitar morrhuanus	False Quahog	1	0	1	0.3
Chicoreus florifer		1	0	1	0.3

Table 2. Species composition list (continued)

GENUS/SPECIES	COMMON NAME	TOTAL NUMBER CAUGHT	TOTAL WEIGHT CAUGHT (KG)	NUMBER OF TOWS WHERE CAUGHT	% FREQUENCY OCCURRENCE
Strombus costatus	Milk Conch	1	0.1	1	0.3
Murex hildalgoi		1	0	1	0.3
Ostrea stentina	Crested Oyster	1	0	1	0.3
Umbraculum plicatulum		1	0	1	0.3
Macrocallista maculata	Calico Clam	1	0	1	0.3
Semirossia tenera		1	0	1	0.3
Busycon perversum		1	0.5	1	0.3
Muricopsis hexagona		1	0	1	0.3
Busycon lyonsi		1	0.1	1	0.3
Elysia		1	0.2	1	0.3
Semirossia equalis		1	0	1	0.3
Cypraea cervus	Atlantic Deer Cowrie	1	0	1	0.3
Chicoreus		1	0	1	0.3
Narcissia		1	0	1	0.3

Table 3. 2017 Fall Shrimp/Groundfish Survey species composition list, 290 trawl stations, for those vessels that used a 40-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	68281	2856.7	153	52.8
Syacium papillosum	Dusky Flounder	9004	532	126	43.4
Chloroscombrus chrysurus	Atlantic Bumper	7920	246.6	98	33.8
Mullus auratus	Red Goatfish	7519	417	19	6.6
Stenotomus caprinus	Longspine Porgy	5416	233	103	35.5
Lagodon rhomboides	Pinfish	4685	336.4	127	43.8
Leiostomus xanthurus	Spot	4614	389.8	101	34.8
Cynoscion nothus	Silver Seatrout	3001	181.5	97	33.4
Peprilus burti	Gulf Butterfish	2552	195.4	85	29.3
Trachurus lathami	Rough Scad	2473	137.6	61	21
Scorpaena calcarata	Smoothhead Scorpionfish	2363	47.1	68	23.4
Serranus atrobranchus	Blackear Bass	2281	28.7	60	20.7
Trichiurus lepturus	Atlantic Cutlassfish	1944	104.8	70	24.1
Lutjanus synagris	Lane Snapper	1880	296.3	96	33.1
Stephanolepis hispida	Planehead Filefish	1579	66.1	92	31.7
Larimus fasciatus	Banded Drum	1499	81.4	64	22.1
Haemulon aurolineatum	Tomtate	1466	137.8	87	30
Synodus foetens	Inshore Lizardfish	1435	178.3	205	70.7
Diplectrum formosum	Sand Perch	1383	133	117	40.3
Syacium gunteri	Shoal Flounder	1346	26.2	80	27.6
Lutjanus campechanus	Red Snapper	1329	147.5	131	45.2
Trachinocephalus myops	Bluntnose Lizardfish	1229	87	95	32.8
Peprilus paru	Harvestfish	1190	50.4	61	21
Prionotus longispinosus	Bigeye Searobin	1163	39.1	105	36.2
Ariopsis felis	Hardhead Catfish	1112	159.9	62	21.4
Cynoscion arenarius	Sand Seatrout	1095	92.8	83	28.6
Anchoa hepsetus	Broad-striped Anchovy	1088	17.3	52	17.9

Table 3. Species composition list (continued)

GENUS/SPECIES	COMMON NAME	TOTAL NUMBER CAUGHT	TOTAL WEIGHT CAUGHT (KG)	NUMBER OF TOWS WHERE CAUGHT	% FREQUENCY OCCURRENCE
Sphoeroides dorsalis	Marbled Puffer	969	32	65	22.4
Selene setapinnis	Atlantic Moonfish	967	69.3	79	27.2
Orthopristis chrysoptera	Pigfish	944	89.8	42	14.5
Scorpaena brasiliensis	Barbfish	904	74.1	55	19
Decapterus punctatus	Round Scad	897	28.7	35	12.1
Eucinostomus gula	Silver Jenny	896	34.5	48	16.6
Centropristis philadelphicus	Rock Sea Bass	830	48.7	100	34.5
Trichopsetta ventralis	Sash Flounder	822	16.4	28	9.7
Calamus proridens	Littlehead Porgy	777	152.5	58	20
Bellator militaris	Horned Searobin	742	14.6	40	13.8
Harengula jaguana	Scaled Herring	736	35.3	50	17.2
Rhomboplites aurorubens	Vermilion Snapper	708	78.4	62	21.4
Pristipomoides aquilonaris	Wenchman	684	42.2	42	14.5
Upeneus parvus	Dwarf Goatfish	676	26.9	56	19.3
Haemulon plumierii	White Grunt	672	130	21	7.2
Saurida brasiliensis	Largescale Lizardfish	659	2.2	45	15.5
Bothus robinsi	Twospot Flounder	626	17.8	71	24.5
Synodus macrostigmus	Largespot Lizardfish	618	45.6	56	19.3
Chaetodipterus faber	Atlantic Spadefish	597	28.6	93	32.1
Acanthostracion quadricornis	Scrawled Cowfish	589	97.6	85	29.3
Chromis enchrysura	Yellowtail Reeffish	511	16.6	5	1.7
Equetus lanceolatus	Jackknife Fish	485	29.9	75	25.9
Lepophidium jeannae	Mottled Cusk-eel	465	23.6	38	13.1
Monacanthus ciliatus	Fringed Filefish	396	8.9	39	13.4
Prionotus roseus	Bluespotted Searobin	389	17.1	64	22.1
Sphoeroides parvus	Least Puffer	371	2.1	36	12.4
Eucinostomus argenteus	Spotfin Mojarra	344	10.4	23	7.9
Lepophidium brevibarbe	Blackedge Cusk-eel	341	11.7	38	13.1
Diplectrum bivittatum	Dwarf Sand Perch	341	6.6	48	16.6
Halieutichthys		340	2.6	54	18.6
Stellifer lanceolatus	Star Drum	320	5	23	7.9

Table 3. Species composition list (continued)

GENUS/SPECIES	COMMON NAME	TOTAL NUMBER CAUGHT	TOTAL WEIGHT CAUGHT (KG)	NUMBER OF TOWS WHERE CAUGHT	% FREQUENCY OCCURRENCE
Synodus poeyi	Offshore Lizardfish	312	3.2	47	16.2
Etropus crossotus	Fringed Flounder	308	5.2	47	16.2
Pterois	Lion Fishes	285	45.9	32	11
Caranx crysos	Blue Runner	278	19	68	23.4
Haemulon striatum	Striped Grunt	275	11	6	2.1
Ophidion holbrookii	Bank Cusk-eel	271	28.9	49	16.9
Prionotus martis	Barred Searobin	262	15.3	21	7.2
Sphoeroides spengleri	Bandtail Puffer	256	13.6	52	17.9
Aluterus schoepfii	Orange Filefish	246	129.5	42	14.5
Cyclopsetta chittendeni	Mexican Flounder	246	18.6	55	19
Lutjanus griseus	Gray Snapper	225	50.4	37	12.8
Halieutichthys aculeatus	Pancake Batfish	225	2.4	34	11.7
Brevoortia patronus	Gulf Menhaden	216	21.2	17	5.9
Serranus phoebe	Tattler	200	7.9	16	5.5
Prionotus scitulus	Leopard Searobin	196	9.2	14	4.8
Symphurus diomedeanus	Spottedfin Tonguefish	190	5.5	32	11
Porichthys plectrodon	Atlantic Midshipman	187	3.8	60	20.7
Calamus arctifrons	Grass Porgy	185	24.5	10	3.4
Synodus intermedius	Sand Diver	184	16.5	28	9.7
Citharichthys spilopterus	Bay Whiff	160	2.4	39	13.4
Prionotus paralatus	Mexican Searobin	151	5.9	11	3.8
Balistes capriscus	Gray Triggerfish	141	13	53	18.3
Etropus microstomus	Smallmouth Flounder	140	2.3	5	1.7
Eucinostomus harengulus	Tidewater Mojarra	140	9.2	24	8.3
Gymnothorax saxicola	Honeycomb Moray	139	17.1	44	15.2
Prionotus stearnsi	Shortwing Searobin	128	1.9	16	5.5
Ogcocephalus declivirostris	Slantbrow Batfish	123	2.3	34	11.7
Cyclopsetta fimbriata	Spotfin Flounder	121	11.2	56	19.3
Opisthonema oglinum	Atlantic Thread Herring	118	9.3	28	9.7
Chaetodon ocellatus	Spotfin Butterflyfish	118	9.3	37	12.8
Scorpaena agassizii	Longfin Scorpionfish	115	3.7	18	6.2

Table 3. Species composition list (continued)

GENUS/SPECIES	COMMON NAME	TOTAL NUMBER CAUGHT	TOTAL WEIGHT CAUGHT (KG)	NUMBER OF TOWS WHERE CAUGHT	% FREQUENCY OCCURRENCE
Saurida normani	Shortjaw Lizardfish	101	9.2	12	4.1
Pareques umbrosus	Cubbyu	101	7.2	30	10.3
Prionotus rubio	Blackfin Searobin	97	8.2	23	7.9
Sardinella aurita	Round Sardinella	96	3.5	16	5.5
Calamus nodosus	Knobbed Porgy	89	24.1	9	3.1
Centropristis ocyurus	Bank Sea Bass	86	5.3	19	6.6
Lachnolaimus maximus	Hogfish	78	25.3	13	4.5
Serranus notospilus	Saddle Bass	78	0.6	6	2.1
Lagocephalus laevigatus	Smooth Puffer	74	3.6	23	7.9
Prionotus ophryas	Bandtail Searobin	74	4.2	30	10.3
Citharichthys macrops	Spotted Whiff	71	2.5	17	5.9
Chaetodon sedentarius	Reef Butterflyfish	65	2.6	10	3.4
Pterois volitans	Lion Fish	63	12.8	12	4.1
Ogcocephalus parvus	Roughback Batfish	63	1.8	22	7.6
Sphoeroides nephelus	Southern Puffer	59	7.3	13	4.5
Nicholsina usta	Emerald Parrotfish	57	5.8	23	7.9
Kathetostoma albigutta	Lancer Stargazer	56	2.1	23	7.9
Gastropsetta frontalis	Shrimp Flounder	53	5.1	23	7.9
Ophidion holbrookii	Longnose Cusk-eel	52	3.6	12	4.1
Bagre marinus	Gafftopsail Catfish	50	9.4	17	5.9
Ophidion josephi	Crested Cusk-eel	49	2.4	11	3.8
Sphyrna tiburo	Bonnethead	48	28.2	21	7.2
Anchoa mitchilli	Bay Anchovy	47	0.1	5	1.7
Epinephelus morio	Red Grouper	45	21.2	24	8.3
Aluterus heudelotii	Dotterel Filefish	44	8.2	23	7.9
Cynoscion	Sea Trout	44	0.4	11	3.8
Apogon affinis	Bigtooth Cardinalfish	43	0.7	11	3.8
Calamus bajonado	Jolthead Porgy	41	31.2	10	3.4
Priacanthus arenatus	Bigeye	39	4.4	14	4.8
Brotula barbata	Bearded Brotula	38	4	20	6.9
Otophidium dormitator	Sleeper Cusk-eel	36	2.3	6	2.1

Table 3. Species composition list (continued)

GENUS/SPECIES	COMMON NAME	TOTAL NUMBER CAUGHT	TOTAL WEIGHT CAUGHT (KG)	NUMBER OF TOWS WHERE CAUGHT	% FREQUENCY OCCURRENCE
Rhynchoconger flavus	Yellow Conger	33	2.2	8	2.8
Etropus rimosus	Gray Flounder	33	0.6	7	2.4
Prionotus alatus	Spiny Searobin	33	1.7	10	3.4
Xyrichtys novacula	Pearly Razorfish	32	2.1	9	3.1
Bathyanthias mexicanus	Yellowtail Bass	32	0.8	7	2.4
Bollmannia communis	Ragged Goby	31	0.1	8	2.8
Prionotus tribulus	Bighead Searobin	31	3.7	15	5.2
Ophidion	Cusk-eels	29	1.8	5	1.7
Holacanthus bermudensis	Blue Angelfish	28	13.7	16	5.5
Menticirrhus americanus	Jewsharp Drummer	27	4.2	12	4.1
Sciaenops ocellatus	Red Drum	26	128.4	2	0.7
Synodontidae	Bombay Ducks	26	2.9	1	0.3
Symphurus civitatium	Offshore Tonguefish	26	0.5	7	2.4
Pristigenys alta	Short Bigeye	26	2.5	18	6.2
Pomacanthus arcuatus	Gray Angelfish	25	13.8	13	4.5
Raja texana	Roundel Skate	25	9.5	22	7.6
Selar crumenophthalmus	Bigeye Scad	24	1.4	13	4.5
Chilomycterus schoepfii	Burrfish	23	7.6	14	4.8
Antennarius radiosus	Big-eyed Frogfish	22	0.1	10	3.4
Apogon pseudomaculatus	Twospot Cardinalfish	22	0.3	6	2.1
Diplodus holbrookii	Spottail Pinfish	22	2	3	1
Ariomma regulus	Spotted Driftfish	22	1.4	11	3.8
Ancylopsetta ommata	Ocellated Flounder	21	3.7	15	5.2
Etrumeus teres	Atlantic Red Herring	21	0.6	2	0.7
Scomberomorus maculatus	Atlantic Spanish Mackerel	21	5.7	13	4.5
Ogcocephalus pantostictus	Spotted Batfish	17	0.6	5	1.7
Symphurus plagiusa	Blackcheek Tonguefish	17	0.4	8	2.8
Hoplunnis macrura	Freckled Pike-conger	16	0.2	8	2.8
Centropristis striata	Black Sea Bass	16	3.3	6	2.1
Ogcocephalus corniger	Longnose Batfish	15	0.4	8	2.8
Rypticus maculatus	Whitespotted Soapfish	15	0.6	9	3.1

Table 3. Species composition list (continued)

GENUS/SPECIES	COMMON NAME	TOTAL NUMBER CAUGHT	TOTAL WEIGHT CAUGHT (KG)	NUMBER OF TOWS WHERE CAUGHT	% FREQUENCY OCCURRENCE
Bathyanthias cubensis		15	0.2	1	0.3
Pagrus pagrus	Red Porgy	15	3.4	4	1.4
Engyophrys senta	Spiny Flounder	15	0.1	8	2.8
Scorpaena	Scorpionfishes	15	0.5	2	0.7
Apogon quadrisquamatus	Sawcheek Cardinalfish	15	0.1	8	2.8
Paralichthyidae		14	0.5	1	0.3
Rypticus bistrispinus	Freckled Soapfish	14	0.2	10	3.4
Neomerinthe hemingwayi	Spinycheek Scorpionfish	14	2.8	6	2.1
Caulolatilus intermedius	Anchor Tilefish	13	1.3	3	1
Acanthostracion polygonius	Honeycomb Cowfish	13	5.2	5	1.7
Sphyraena guachancho	Guaguanche	13	2.1	9	3.1
Echeneis neucratoides	Whitefin Sharksucker	13	7.2	7	2.4
Paralichthys albigutta	Gulf Flounder	13	3.7	9	3.1
Bothus ocellatus	Eyed Flounder	12	0.3	7	2.4
Ocyurus chrysurus	Yellowtail Snapper	12	1.8	4	1.4
Pareques iwamotoi	Blackbar Drum	12	1.5	5	1.7
Hippocampus erectus	Lined Seahorse	12	0.2	8	2.8
Symphurus urospilus	Spottail Tonguefish	12	0.4	6	2.1
Ophidion selenops	Mooneye Cusk-eel	11	0.7	4	1.4
Trinectes maculatus	Hogchoker	11	0.1	3	1
Calamus penna	Sheepshead Porgy	11	2.6	5	1.7
Sargocentron bullisi	Deepwater Squirrelfish	11	1	3	1
Gymnachirus melas	Naked Sole	10	0.4	7	2.4
Raja eglanteria	Clearnose Skate	10	2.4	6	2.1
Trachinotus carolinus	Florida Pompano	10	2	6	2.1
Syacium micrurum	Channel Flounder	10	0.1	1	0.3
Selene vomer	Lookdown	10	0.4	6	2.1
Ogcocephalus cubifrons	Polka-dot Batfish	10	3.9	10	3.4
Decodon puellaris	Red Hogfish	10	0.5	5	1.7
Antennarius striatus	Striated Frogfish	10	0.3	8	2.8
Paralichthys lethostigma	Southern Flounder	9	3.7	7	2.4

Table 3. Species composition list (continued)

GENUS/SPECIES	COMMON NAME	TOTAL NUMBER CAUGHT	TOTAL WEIGHT CAUGHT (KG)	NUMBER OF TOWS WHERE CAUGHT	% FREQUENCY OCCURRENCE
Rhizoprionodon terraenovae	Atlantic Sharpnose Shark	9	16.3	8	2.8
Opsanus beta	Gulf Toadfish	9	0.9	5	1.7
Pseudupeneus maculatus	Spotted Goatfish	9	1	2	0.7
Rhinoptera bonasus	Cownose Ray	8	12	1	0.3
Antennarius ocellatus	Ocellated Frogfish	8	0.3	8	2.8
Dasyatis americana	Southern Stingray	8	16.3	7	2.4
Ophidion grayi	Blotched Cusk-eel	8	0.9	5	1.7
Lonchopisthus micrognathus	Swordtail Jawfish	8	0	4	1.4
Holocentrus adscensionis	Squirrelfish	7	1.1	2	0.7
Anchoa lyolepis	Dusky Anchovy	7	0	2	0.7
Anisotremus virginicus	Porkfish	7	1.9	2	0.7
Seriola dumerili	Greater Amberjack	7	3.1	4	1.4
Dactylopterus volitans	Flying Gurnard	7	0.3	2	0.7
Calamus leucosteus	Whitebone Porgy	6	3	1	0.3
Gobiesox strumosus	Skilletfish	6	0	5	1.7
Gymnachirus texae	Fringed Sole	6	0.1	4	1.4
Hoplunnis diomediana	Blacktail Pike-conger	6	0	5	1.7
Citharichthys gymnorhinus	Anglefin Whiff	6	0	4	1.4
Serranus tortugarum	Chalk Bass	6	0.1	3	1
Conodon nobilis	Barred Grunt	6	0.9	1	0.3
Urophycis floridana	Southern Codling	6	1	2	0.7
Archosargus probatocephalus	Sheepshead	6	1.3	3	1
Mycteroperca microlepis	Gag	5	10.4	4	1.4
Rhinobatos lentiginosus	Atlantic Guitarfish	5	2.2	4	1.4
Echeneis	Sharksuckers	5	2.1	4	1.4
Apogon	Cardinalfishes	5	0	3	1
Paraconger caudilimbatus	Margintail Conger	5	0.3	3	1
Synodus synodus	Red Lizardfish	4	0.1	3	1
Fistularia tabacaria	Bluespotted Cornetfish	4	1.5	2	0.7
Hippocampus reidi	Longsnout Seahorse	4	0	2	0.7
Echiophis intertinctus	Spotted Spoon-nose Eel	4	1.4	4	1.4

Table 3. Species composition list (continued)

GENUS/SPECIES	COMMON NAME	TOTAL NUMBER CAUGHT	TOTAL WEIGHT CAUGHT (KG)	NUMBER OF TOWS WHERE CAUGHT	% FREQUENCY OCCURRENCE
Cheilopogon melanurus	Atlantic Flying Fish	4	0.5	1	0.3
Neobythites gilli	Twospot Brotula	4	0	2	0.7
Echeneis naucrates	Sharksucker	4	2.7	4	1.4
Fistularia petimba	Pacific Cornetfish	4	0.4	2	0.7
Alectis ciliaris	African Pompano	4	0.1	3	1
Ophidion antipholus	Longnose Cusk-eel	4	0.2	2	0.7
Chromis insolatus		4	0	3	1
Opsanus pardus	Leopard Toadfish	4	1.3	4	1.4
Prognathodes aya	Bank Butterflyfish	3	0.1	2	0.7
Odontoscion dentex	Reef Croaker	3	0.2	1	0.3
Diodon holocanthus	Balloonfish	3	0.7	2	0.7
Sphoeroides	Common Puffers	3	0	2	0.7
Apogon aurolineatus	Bridle Cardinalfish	3	0	1	0.3
Achirus lineatus	Lined Sole	3	0	1	0.3
Eucinostomus jonesii	Slender Mojarra	3	0	2	0.7
Anchoa cubana	Cuban Anchovy	3	0	1	0.3
Dasyatis sabina	Atlantic Stingray	3	0.5	2	0.7
Elacatinus xanthiprora	Yellowprow Goby	3	0	1	0.3
Aluterus monoceros	Unicorn Filefish	3	1	3	1
Lutjanus apodus	Schoolmaster	3	0.2	1	0.3
Otophidium omostigma	Polka-dot Cusk-eel	2	0	1	0.3
Sphoeroides maculatus	Northern Puffer	2	0.4	1	0.3
Perciformes	Perch-like Fishes	2	0	1	0.3
Stephanolepis setifer	Pygmy Filefish	2	0	1	0.3
Rachycentron canadum	Cobia	2	4.7	2	0.7
Caranx hippos	Crevalle Jack	2	0.3	1	0.3
Pontinus longispinis	Longspine Scorpionfish	2	0	1	0.3
Scorpaena dispar	Hunchback Scorpionfish	2	0.7	1	0.3
Uroconger syringinus	Threadtail Conger	2	0.1	2	0.7
Symphurus	Straightmouth Tonguefishes	2	0	1	0.3
Phaeoptyx xenus	Sponge Cardinalfish	2	0	1	0.3

Table 3. Species composition list (continued)

GENUS/SPECIES	COMMON NAME	TOTAL NUMBER CAUGHT	TOTAL WEIGHT CAUGHT (KG)	NUMBER OF TOWS WHERE CAUGHT	% FREQUENCY OCCURRENCE
Lutjanus analis	Mutton Snapper	2	2.5	2	0.7
Hemanthias leptus	Longtail Bass	2	0	1	0.3
Eucinostomus jonesii	Slender Mojarra	2	0.1	1	0.3
Anthias nicholsi	Yellowfin Bass	2	0	1	0.3
Scorpaena plumieri	Spotted Scorpionfish	2	0	1	0.3
Pomatomus saltatrix	Bluefish	2	0.7	2	0.7
Seriola rivoliana	Almaco Jack	2	0.5	2	0.7
Eucinostomus melanopterus	Flagfin Mojarra	2	0.1	1	0.3
Canthigaster jamestyleri	Goldface Toby	1	0	1	0.3
Halichoeres garnoti	Yellowhead Wrasse	1	0	1	0.3
Blenniidae	Blennies	1	0	1	0.3
Caulolatilus cyanops	Blackline Tilefish	1	0.1	1	0.3
Opistognathus lonchurus	Moustache Jawfish	1	0	1	0.3
Acanthurus chirurgus	Doctorfish	1	0.2	1	0.3
Halichoeres caudalis	Painted Wrasse	1	0.1	1	0.3
Myliobatis freminvillii	Bullnose Ray	1	0.6	1	0.3
Urophycis regia	Spotted Codling	1	0.1	1	0.3
Calamus calamus	Saucereye Porgy	1	0.4	1	0.3
Parablennius marmoreus	Seaweed Blenny	1	0	1	0.3
Carangoides ruber	Bar Jack	1	0.1	1	0.3
Gymnothorax moringa	Spotted Moray	1	0.1	1	0.3
Risor ruber	Tusked Goby	1	0	1	0.3
Carcharhinus acronotus	Blacknose Shark	1	5.1	1	0.3
Bothus		1	0	1	0.3
Microspathodon chrysurus	Yellowtail Damselfish	1	0	1	0.3
Aluterus scriptus	Scrawled Filefish	1	0	1	0.3
Ophichthus puncticeps	Palespotted Eel	1	0.1	1	0.3
Parexocoetus brachypterus	Sailfin Flyingfish	1	0	1	0.3
Rhynchoconger gracilior	Whiptail Conger	1	0.1	1	0.3
Canthigaster rostrata	Sharpnose Puffer	1	0	1	0.3
Urophycis earllii	Carolina Hake	1	0.1	1	0.3

Table 3. Species composition list (continued)

GENUS/SPECIES	COMMON NAME	TOTAL NUMBER CAUGHT	TOTAL WEIGHT CAUGHT (KG)	NUMBER OF TOWS WHERE CAUGHT	% FREQUENCY OCCURRENCE
Emblemaria atlantica	Banner Blenny	1	0	1	0.3
Hemiramphus brasiliensis	Ballyhoo	1	0.1	1	0.3
Ptereleotris calliura	Blue Goby	1	0	1	0.3
Anguilliformes	Eels	1	0	1	0.3
Zalieutes mcgintyi	Tricorn Batfish	1	0	1	0.3
Elacatinus horsti	Yellowline Goby	1	0	1	0.3
Cosmocampus albirostris	Whitenose Pipefish	1	0	1	0.3
Menticirrhus saxatilis	Gulf Minkfish	1	0.2	1	0.3
Sphoeroides pachygaster	Blunthead Puffer	1	0	1	0.3
Paralichthys squamilentus	Broad Flounder	1	0.1	1	0.3
Rypticus subbifrenatus	Spotted Soapfish	1	0	1	0.3
Liopropoma eukrines	Wrasse Bass	1	0	1	0.3
Citharichthys cornutus	Horned Whiff	1	0	1	0.3
Holacanthus ciliaris	Queen Angelfish	1	0.4	1	0.3
Bregmaceros cantori	Striped Codlet	1	0	1	0.3
Gymnura micrura	Smooth Butterfly Ray	1	3.5	1	0.3
Astrapogon alutus	Bronze Cardinalfish	1	0	1	0.3
Engyophrys		1	0	1	0.3
Eucinostomus	Mojarras	1	0	1	0.3
Diapterus	Longspine Mojarras	1	0.1	1	0.3
Pontinus rathbuni	Highfin Scorpionfish	1	0	1	0.3
Gymnothorax kolpos	Blacktail Moray	1	0.6	1	0.3
Torpedo nobiliana	Atlantic Torpedo	1	0.3	1	0.3
Dasyatis say	Bluntnose Stingray	1	0.5	1	0.3
Scomber colias	Chub Mackerel	1	0.1	1	0.3
Etropus cyclosquamus	Shelf Flounder	1	0	1	0.3
Elops saurus	Ladyfish	1	0.2	1	0.3
Gymnothorax nigromarginatus	Blackedge Moray	1	0.1	1	0.3
Bregmaceros atlanticus	Antenna Codlet	1	0	1	0.3
Lophiodes reticulatus	Reticulate Goosefish	1	0	1	0.3
Phaeoptyx pigmentaria	Dusky Cardinalfish	1	0	1	0.3

Table 3. Species composition list (continued)

GENUS/SPECIES	COMMON NAME	TOTAL NUMBER CAUGHT	TOTAL WEIGHT CAUGHT (KG)	NUMBER OF TOWS WHERE CAUGHT	% FREQUENCY OCCURRENCE
Mobula hypostoma	Atlantic Devil Ray	1	5.2	1	0.3
Astroscopus y-graecum	Southern Stargazer	1	0.1	1	0.3
Sphyraena borealis	Northern Sennet	1	0.2	1	0.3
Ariomma bondi	Silver-rag	1	0	1	0.3
Carcharhinus limbatus	Blacktip Shark	1	4.1	1	0.3
Lepophidium		1	0	1	0.3
Epinephelus itajara	Goliath Grouper	1	13.4	1	0.3
<u>Crustaceans</u>					
Farfantepenaeus aztecus	Brown Shrimp	13098	269.1	148	51
Portunus spinicarpus	Longspine Swimming Crab	3335	20.1	94	32.4
Sicyonia brevirostris	Brown Rock Shrimp	3306	48.8	68	23.4
Farfantepenaeus duorarum	Northern Pink Shrimp	2717	68.5	65	22.4
Litopenaeus setiferus	Northern White Shrimp	1618	47.7	44	15.2
Callinectes similis	Lesser Blue Crab	1453	26.8	85	29.3
Portunus spinimanus	Blotched Swimming Crab	675	29.7	67	23.1
Squilla empusa	Mantis Shrimp	671	6.3	53	18.3
Portunus gibbesii	Iridescent Swimming Crab	388	3.1	61	21
Raninoides louisianensis	Gulf Frog Crab	357	2.6	26	9
Anasimus latus	Stilt Spider Crab	350	2	34	11.7
Solenocera vioscai	Humpback Shrimp	343	1.9	25	8.6
Squilla chydaea		332	2.1	33	11.4
Portunus ordwayi	Redhair Swimming Crab	272	2.2	19	6.6
Metapenaeopsis goodei	Caribbean Velvet Shrimp	271	0.4	32	11
Solenocera atlantidis	Dwarf Humpback Shrimp	235	0.6	24	8.3
Scyllarus chacei	Chace Slipper Lobster	184	0.7	33	11.4
Stenorhynchus seticornis	Yellowline Arrow Crab	166	0.6	41	14.1
Scyllarides nodifer	Ridged Slipper Lobster	92	21.5	27	9.3
Rimapenaeus constrictus	Roughneck Shrimp	90	0.2	16	5.5
Calappa sulcata	Yellow Box Crab	78	13.3	33	11.4

Table 3. Species composition list (continued)

GENUS/SPECIES	COMMON NAME	TOTAL NUMBER CAUGHT	TOTAL WEIGHT CAUGHT (KG)	NUMBER OF TOWS WHERE CAUGHT	% FREQUENCY OCCURRENCE
Iliacantha liodactylus		72	0.4	13	4.5
Sicyonia dorsalis	Lesser Rock Shrimp	71	0.2	10	3.4
Rimapenaeus similis	Roughback Shrimp	62	0.2	18	6.2
Libinia emarginata	Portly Spider Crab	43	0.5	7	2.4
Portunus		40	0.5	2	0.7
Leiolambrus nitidus	White Elbow Crab	37	0.1	18	6.2
Squilla rugosa		36	0.3	7	2.4
Pseudorhombila quadridentata	Flecked Squareback Crab	33	0.2	10	3.4
Stenocionops furcatus	Furcate Spider Crab	26	0.3	15	5.2
Callinectes sapidus	Blue Crab	22	3.6	14	4.8
Paguristes sericeus	Blue-eye Hermit	21	0	12	4.1
Petrochirus diogenes	Giant Hermit	20	0.2	14	4.8
Macrocoeloma trispinosum	Spongy Decorator Crab	18	0.2	9	3.1
Cryptodromiopsis antillensis	Decorator Crab	18	0.1	11	3.8
Calappa flammea	Flame Box Crab	17	2.7	9	3.1
Hepatus epheliticus	Calico Box Crab	17	0.6	8	2.8
Solenoceridae	Solenocerid Shrimps	14	0	1	0.3
Mesopenaeus tropicalis	Salmon Shrimp	13	0	3	1
Euphrosynoplax clausa	Craggy Bathyal Crab	13	0.1	7	2.4
Myropsis quinquespinosa	Fivespine Purse Crab	13	0.1	7	2.4
Squilla deceptrix		13	0	5	1.7
Stenocionops spinimanus	Prickly Spider Crab	12	0.1	3	1
Sicyonia parri		12	0	3	1
Mithrax		12	0	3	1
Sicyonia typica	Kinglet Rock Shrimp	12	0.1	2	0.7
Dardanus fucosus	Bareye Hermit	12	0	10	3.4
Scyllaridae	Slipper Lobsters	11	0.1	1	0.3
Plesionika longicauda		11	0	3	1
Pilumnus sayi	Spineback Hairy Crab	11	0	8	2.8
Persephona crinita	Pink Purse Crab	10	0	7	2.4
Pseudomedaeus agassizii	Rough Rubble Crab	10	0	5	1.7

Table 3. Species composition list (continued)

GENUS/SPECIES	COMMON NAME	TOTAL NUMBER CAUGHT	TOTAL WEIGHT CAUGHT (KG)	NUMBER OF TOWS WHERE CAUGHT	% FREQUENCY OCCURRENCE
Leiolambrus granulosus		10	0	7	2.4
Platylambrus granulata	Bladetooth Elbow Crab	10	0	7	2.4
Scyllarus depressus	Scaled Slipper Lobster	9	0	3	1
Pagurus pollicaris	Flatclaw Hermit	9	0	3	1
Pagurus bullisi		9	0	4	1.4
Ovalipes floridanus	Florida Lady Crab	8	0.6	3	1
Panulirus argus	Caribbean Spiny Lobster	7	7.7	5	1.7
Mithraculus forceps	Red-ridged Clinging Crab	7	0	4	1.4
Stenorhynchus		6	0	4	1.4
Mithrax pleuracanthus	Shaggy Clinging Crab	6	0	3	1
Paguristes		5	0	3	1
Munida		5	0	2	0.7
Petrolisthes galathinus	Banded Porcelain Crab	5	0	3	1
Squilla		4	0	1	0.3
Paguristes triangulatus		4	0	3	1
Sicyonia burkenroadi	Spiny Rock Shrimp	4	0	2	0.7
Palicus affinis	Antillean Stilt Crab	4	0	2	0.7
Persephona mediterranea	Mottled Purse Crab	4	0	4	1.4
Palicus alternata		4	0	1	0.3
Nephropsis aculeata	Florida Lobsterette	4	0	1	0.3
Parthenope agona	Yellow Elbow Crab	4	0	4	1.4
Munida pusilla		3	0	2	0.7
Parapenaeus politus	Deep-water Rose Shrimp	3	0	2	0.7
Speocarcinus lobatus	Gulf Squareback Crab	3	0	1	0.3
Dardanus insignis	Red Brocade Hermit	3	0	2	0.7
Porcellana sayana	Spotted Porcelain Crab	3	0	2	0.7
Portunus sayi	Sargassum Swimming Crab	3	0.2	1	0.3
Menippe mercenaria	Florida Stone Crab	3	0.3	1	0.3
Callinectes ornatus	Shelligs	3	0.1	3	1
Porcellana sigsbeiana	Striped Porcelain Crab	3	0	2	0.7
Diogenidae	Left-handed Hermit Crabs	2	0	2	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
Mithrax hispidus	Coral Clinging Crab	2	0	2	0.7
Stenocionops		2	0	1	0.3
Gibbesia neglecta		2	0	1	0.3
Iliacantha subglobosa	Longfinger Purse Crab	2	0	2	0.7
Acanthilia intermedia	Granulose Purse Crab	2	0	1	0.3
Raninoides loevis	Furrowed Frog Crab	2	0	2	0.7
Frevillea		2	0	2	0.7
Alpheus		2	0	1	0.3
Munida forceps		2	0	1	0.3
Stenopus scutellatus	Golden Coral Shrimp	2	0	2	0.7
Euchirograpsus americanus	American Talon Crab	2	0	2	0.7
Danielum ixbauchac		2	0	1	0.3
Xanthidae	Mud Crabs	2	0	1	0.3
Parasquilla meridionalis		1	0	1	0.3
Scyllarus		1	0	1	0.3
Manucomplanus ungulatus		1	0	1	0.3
Nemausa acuticornis	Sharphorn Clinging Crab	1	0	1	0.3
Iliacantha sparsa	Shouldered Purse Crab	1	0	1	0.3
Synalpheus minus	Minor Snapping Shrimp	1	0	1	0.3
Hypoconcha arcuata	Granulate Shellback Crab	1	0	1	0.3
Petrochirus		1	0	1	0.3
Alpheus floridanus	Sand Snapping Shrimp	1	0	1	0.3
Callidactylus asper	Spurfinger Purse Crab	1	0	1	0.3
Upogebia affinis	Coastal Mud Shrimp	1	0	1	0.3
Galathea rostrata		1	0	1	0.3
Lysmata		1	0	1	0.3
Lobopilumnus agassizii	Areolated Hairy Crab	1	0	1	0.3
Synalpheus		1	0	1	0.3
Calappa		1	0	1	0.3
Lysiosquilla scabricauda		1	0.1	1	0.3

Table 3. Species composition list (continued)

GENUS/SPECIES	COMMON NAME	TOTAL NUMBER CAUGHT	TOTAL WEIGHT CAUGHT (KG)	NUMBER OF TOWS WHERE CAUGHT	% FREQUENCY OCCURRENCE
Panopeus occidentalis	Furrowed Mud Crab	1	0	1	0.3
Gonodactylus		1	0	1	0.3
Gonodactylus torus		1	0	1	0.3
Trachypenaeopsis mobilispinis		1	0	1	0.3
Dardanus venosus	Stareye Hermit	1	0	1	0.3
Portunus depressifrons	Flatface Swimming Crab	1	0	1	0.3
Squilla edentata		1	0	1	0.3
Podochela sidneyi	Shortfinger Neck Crab	1	0	1	0.3
Coelocerus spinosus	Channelnose Spider Crab	1	0.4	1	0.3
Pilumnus dasypodus	Shortspine Hairy Crab	1	0	1	0.3
Palicus obesus	Inflated Stilt Crab	1	0	1	0.3
<u>Others</u>					
Amusium papyraceum	Paper Scallop	5533	66.3	58	20
Loligo		1277	25.3	92	31.7
Loligo pealeii	Longfin Inshore Squid	968	32.2	101	34.8
Oliva sayana	Lettered Olive	492	4.5	2	0.7
Pitar cordatus	Corded Pitar	416	8.2	33	11.4
Lolliguncula brevis	Atlantic Brief Squid	140	1.2	29	10
Anadara baughmani	Skewed Ark	139	2.4	16	5.5
Polystira albida	White Giant-turris	138	1.2	15	5.2
Aplysia		65	28.8	3	1
Polystira tellea	Delicate Giant-turris	54	0.6	4	1.4
Anadara transversa	Transverse Ark	53	2.6	5	1.7
Euvola raveneli	Round-rib Scallop	49	0.2	16	5.5
Conus austini		34	0.4	8	2.8
Lirophora clenchi	Clench Venus	32	0.5	10	3.4
Sconsia striata	Royal Bonnet	31	0.5	7	2.4
Tonna galea	Giant Tun	18	3.4	11	3.8
Argopecten gibbus	Atlantic Calico Scallop	16	0.1	9	3.1

Table 3. Species composition list (continued)

GENUS/SPECIES	COMMON NAME	TOTAL NUMBER CAUGHT	TOTAL WEIGHT CAUGHT (KG)	NUMBER OF TOWS WHERE CAUGHT	% FREQUENCY OCCURRENCE
Laevicardium mortoni	Yellow Eggcockle	15	0.8	6	2.1
Atrina serrata	Sawtooth Penshell	14	2	5	1.7
Distorsio clathrata	Atlantic Distorsio	12	0.1	6	2.1
Octopus vulgaris	Common Octopus	12	1.5	7	2.4
Octopus joubini	Atlantic Pygmy Octopus	9	0.5	8	2.8
Hexaplex fulvescens	Giant Eastern Murex	7	0.1	5	1.7
Narcissia trigonaria		7	0.6	4	1.4
Aequipecten glyptus	Red-ribbed Scallop	6	0.1	2	0.7
Chicoreus florifer		5	0.1	4	1.4
Pecten tereinus		5	0	2	0.7
Macoma brevifrons	Short Macoma	5	0.1	1	0.3
Pitar		4	0.1	1	0.3
Fasciolaria lilium hunteria	Banded Tulip	4	0	2	0.7
Lima scabra	Rough Fileclam	4	0	1	0.3
Stramonita haemastoma	Florida Rocksnail	4	0	3	1
Arcinella cornuta	Florida Spiny Jewelbox	4	0	1	0.3
Phyllonotum pomum		3	0.1	1	0.3
Macoma pulleyi	Delta Macoma	3	0	2	0.7
Octopus briareus	Caribbean Reef Octopus	3	0.7	2	0.7
Xenophora caribaea	Caribbean Carriersnail	3	0	1	0.3
Crepidula maculosa	Spotted Slippersnail	3	0	1	0.3
Lindapecten muscosus	Rough Scallop	3	0	2	0.7
Busycon candelabrum	Splendid Whelk	2	0	1	0.3
Busycon sinistrum	Lightning Whelk	2	1.4	2	0.7
Arca zebra	Turkey Wing	2	0.2	1	0.3
Cypraea cinera		2	0	1	0.3
Cassis madagascariensis	Cameo Helmet	2	4	2	0.7
Macrocallista maculata	Calico Clam	2	0	1	0.3
Nudibranchia	Nudibranchs	2	0	1	0.3
Ficus communis	Atlantic Figsnail	2	0.1	2	0.7
Ostrea		2	0	1	0.3

Table 3. Species composition list (continued)

GENUS/SPECIES	COMMON NAME	TOTAL NUMBER CAUGHT	TOTAL WEIGHT CAUGHT (KG)	NUMBER OF TOWS WHERE CAUGHT	% FREQUENCY OCCURRENCE
Nodipecten nodosus	Lions-paw Scallop	2	0.2	1	0.3
Anadara brasiliana	Incongruous Ark	1	0	1	0.3
Lolliguncula		1	0	1	0.3
Laevicardium laevigatum	Eggcockle	1	0	1	0.3
Neverita duplicata	Shark Eye	1	0	1	0.3
Latirus infundibulum	Brown-line Latirus	1	0	1	0.3
Pododesmus		1	0.1	1	0.3
Spondylus		1	0.2	1	0.3
Nodipecten		1	0.4	1	0.3
Modiolus americanus	American Horsemussel	1	0.1	1	0.3
Notaspidea		1	0	1	0.3
Conus amphiurgus		1	0	1	0.3
Strombus alatus	Florida Fighting Conch	1	0.1	1	0.3
Lima pellucida	Antillean Fileclam	1	0	1	0.3
Astrea phoebia		1	0	1	0.3
Fasciolaria tulipa	True Tulip	1	0.4	1	0.3
Spondylus americanus	Atlantic Thorny Oyster	1	0.4	1	0.3
Octopus		1	0	1	0.3
Cypraea		1	0	1	0.3
Fusinus couei	Yucatan Spindle	1	0	1	0.3
Amaea		1	0	1	0.3
Anadara ovalis	Blood Ark	1	0	1	0.3
Euvola		1	0	1	0.3
Fasciolaria papillosa		1	0.1	1	0.3
Coralliophaga coralliophaga	Coralclam	1	0	1	0.3
Arca imbricata	Mossy Ark	1	0.1	1	0.3
Busycon perversum		1	0	1	0.3

Table 4. 2017 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				
Bagre marinus	Gafftopsail Catfish	951	862	1176.16
Rhizoprionodon terraenovae	Atlantic Sharpnose Shark	638	501	1406.19
Carcharhinus limbatus	Blacktip Shark	598	462	6388.09
Sciaenops ocellatus	Red Drum	316	296	2518.41
Carcharhinus leucas	Bull Shark	194	112	3733.95
Dasyatis americana	Southern Stingray	122	37	1815.98
Carcharhinus brevipinna	Spinner Shark	92	82	260.15
Ariopsis felis	Hardhead Catfish	43	41	19.7
Carcharhinus isodon	Finetooth Shark	35	32	231.13
Carcharhinus acronotus	Blacknose Shark	32	30	322.6
Pogonias cromis	Black Drum	15	13	121.6
Rhinoptera bonasus	Cownose Ray	9	0	
Sphyrna mokarran	Great Hammerhead	6	2	31.6
Sphyrna tiburo	Bonnethead	6	5	14.82
Caranx hippos	Crevalle Jack	4	3	24.9
Negaprion brevirostris	Lemon Shark	3	2	85.85
Caretta caretta	Loggerhead	2	1	56.4
Lepidochelys kempii	Atlantic Ridley	2	1	14.8
Rhinoptera	Cownosed Rays	2	0	
Echeneis naucrates	Sharksucker	1	1	0.7
Lagocephalus laevigatus	Smooth Puffer	1	1	2.2
Sphyrna lewini	Scalloped Hammerhead	1	1	0.73
Galeocerdo cuvier	Tiger Shark	1	0	
Ophichthus rex	King Snake Eel	1	1	0.4
Carcharhinidae	Requiem Sharks	1	0	
Remora remora	Common Remora	1	1	0.9
Carcharhinus plumbeus	Sandbar Shark	1	1	4.8
Rachycentron canadum	Cobia	1	1	1.8

Table 4. Species composition list (continued)

GENUS/SPECIES	COMMON NAME	TOTAL NUMBER CAUGHT	TOTAL NUMBER WEIGHED	TOTAL WEIGHT
Dasyatis centroura	Clam Cracker	1	1	94

Table 5. 2017 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
<u>Finfishes</u>				
Lutjanus campechanus	Red Snapper	872	865	1397.59
Rhomboplites aurorubens	Vermilion Snapper	31	31	15.34
Pagrus pagrus	Red Porgy	17	17	17.59
Carcharhinus falciformis	Silky Shark	15	14	64.4
Balistes capriscus	Gray Triggerfish	15	15	29.71
Ariopsis felis	Hardhead Catfish	5	3	1.3
Seriola dumerili	Greater Amberjack	4	4	40.3
Sciaenops ocellatus	Red Drum	4	4	21.56
Mycteroperca phenax	Scamp	4	4	6.43
Caranx crysos	Blue Runner	4	4	2.97
Cynoscion arenarius	Sand Seatrout	3	3	1.35
Pristipomoides aquilonaris	Wenchman	3	3	0.41
Lutjanus synagris	Lane Snapper	3	3	1.57
Epinephelus flavolimbatus	Yellowedge Grouper	2	2	5.54
Seriola rivoliana	Almaco Jack	2	2	7
Remora remora	Common Remora	1	1	1
Lutjanus buccanella	Blackfin Snapper	1	1	2.11
Euthynnus alletteratus	False Albacore	1	1	6.38
Rhizoprionodon terraenovae	Atlantic Sharpnose Shark	1	0	
Caretta caretta	Loggerhead	1	0	
Selene setapinnis	Atlantic Moonfish	1	1	0.45
Rachycentron canadum	Cobia	1	1	7.66
Calamus leucosteus	Whitebone Porgy	1	1	0.79
Carcharhinus limbatus	Blacktip Shark	1	0	
Mycteroperca microlepis	Gag	1	1	5.84
Scomber colias	Chub Mackerel	1	1	0.15
Caranx hippos	Crevalle Jack	1	1	0.44

Table 5. Species composition list (continued)

GENUS/SPECIES	COMMON NAME	TOTAL NUMBER CAUGHT	TOTAL NUMBER WEIGHED	TOTAL WEIGHT
Sphyraena guachancho	Guaguanche	1	1	0.45

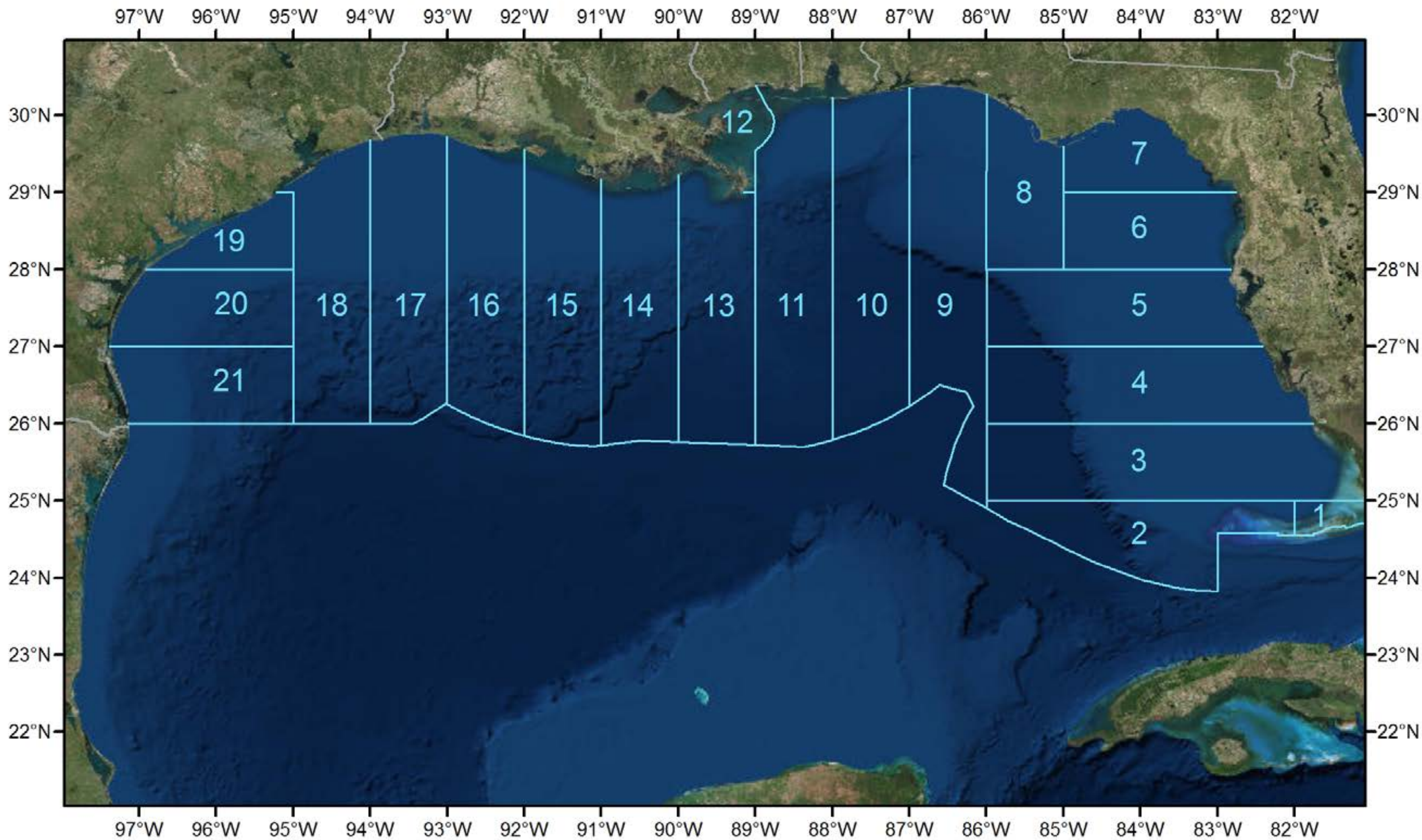

Figure 1. Statistical zones for shrimp in the Gulf of Mexico.

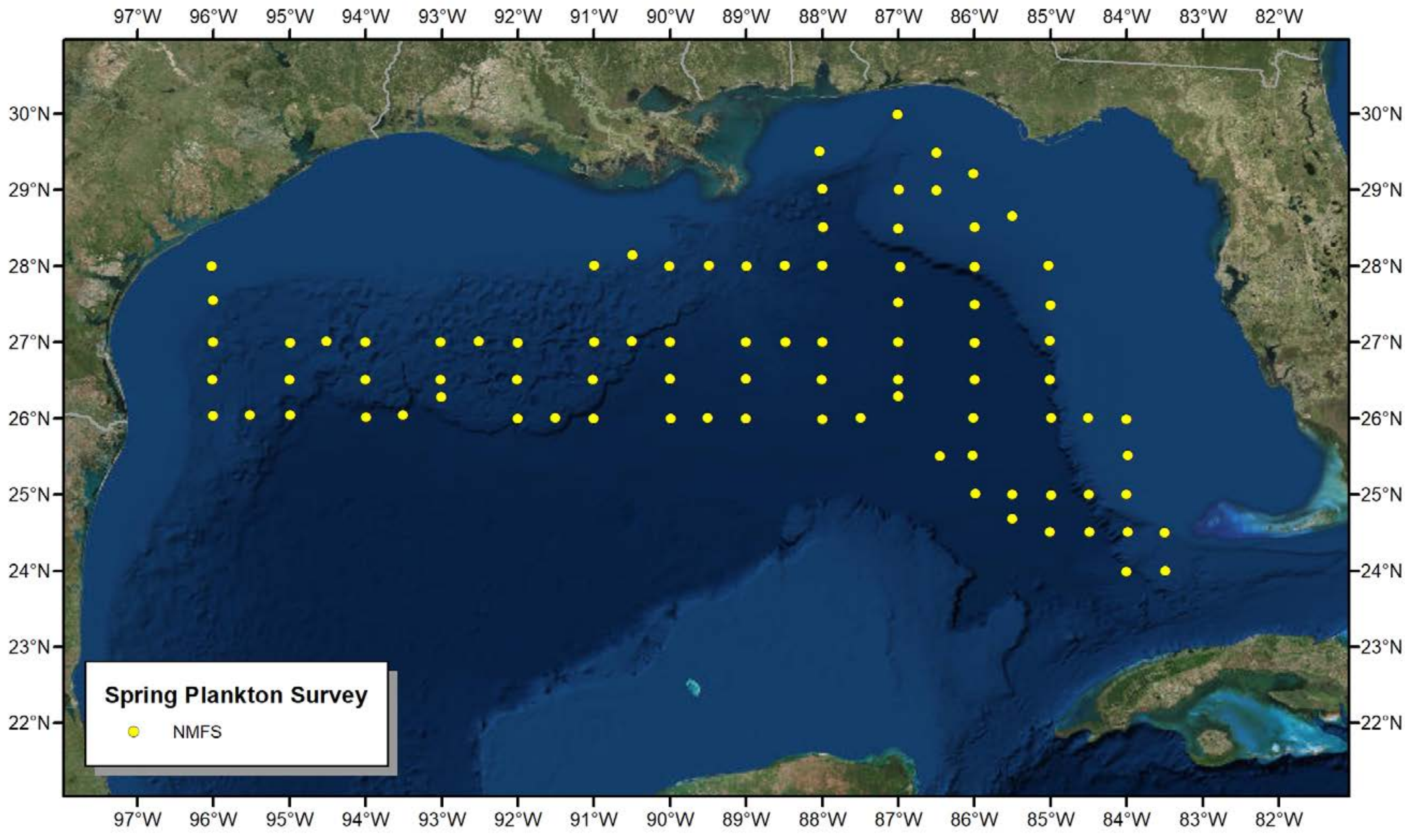

Figure 2. Locations of plankton and environmental stations during the 2017 Spring Plankton Survey.

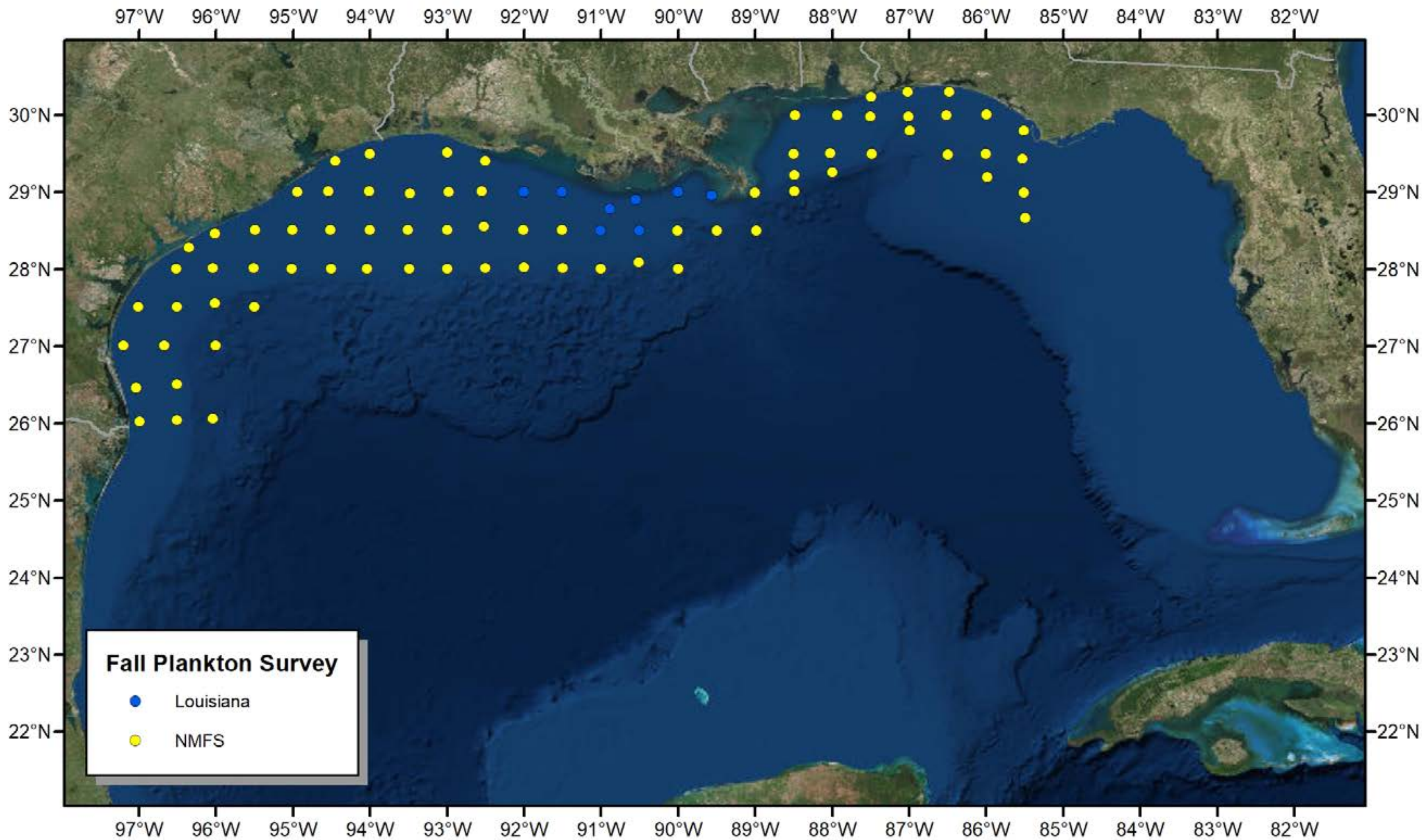

Figure 3. Locations of stations during the 2017 Fall Plankton Survey.

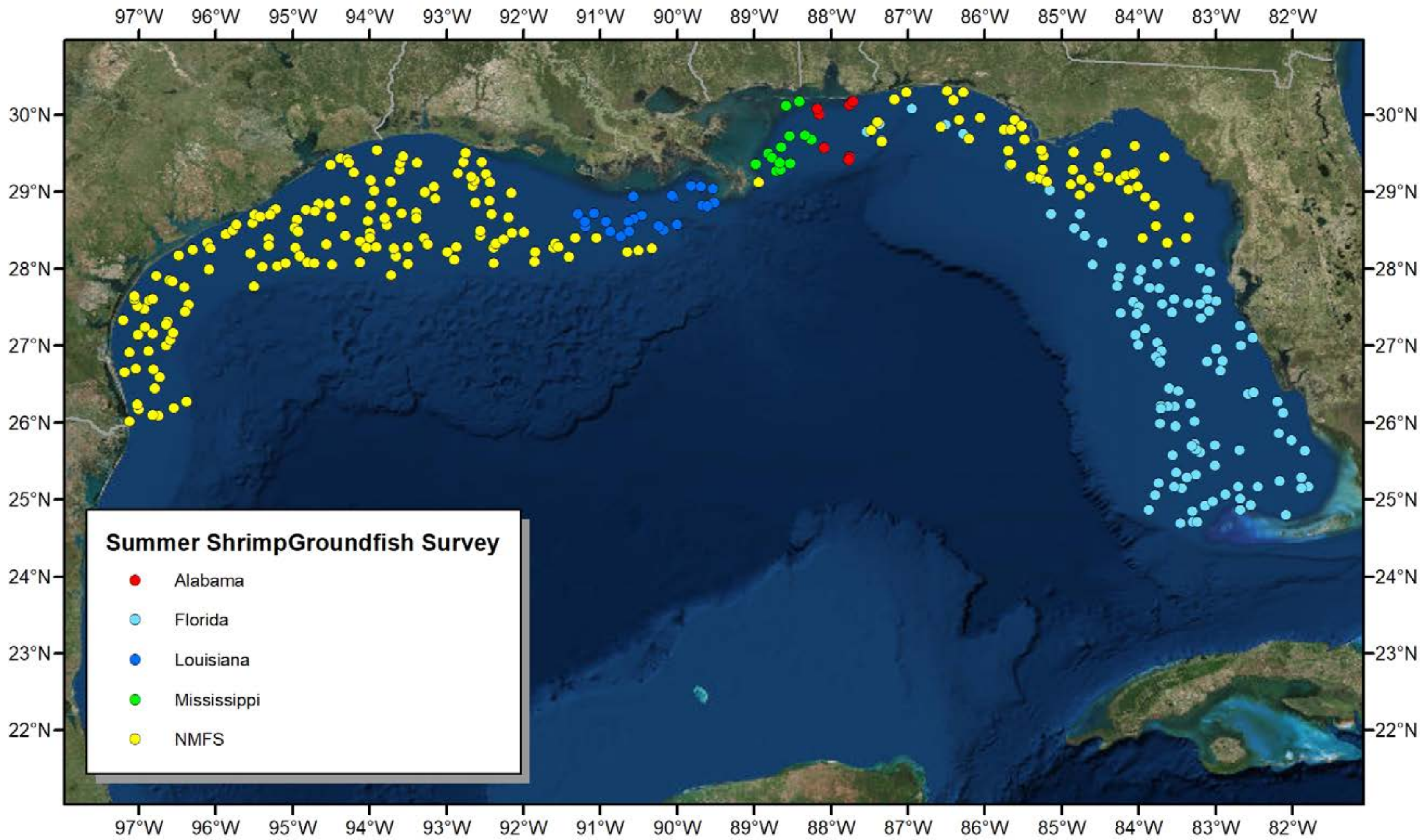

Figure 4. Locations of stations during the 2017 Summer Shrimp/Groundfish Survey.

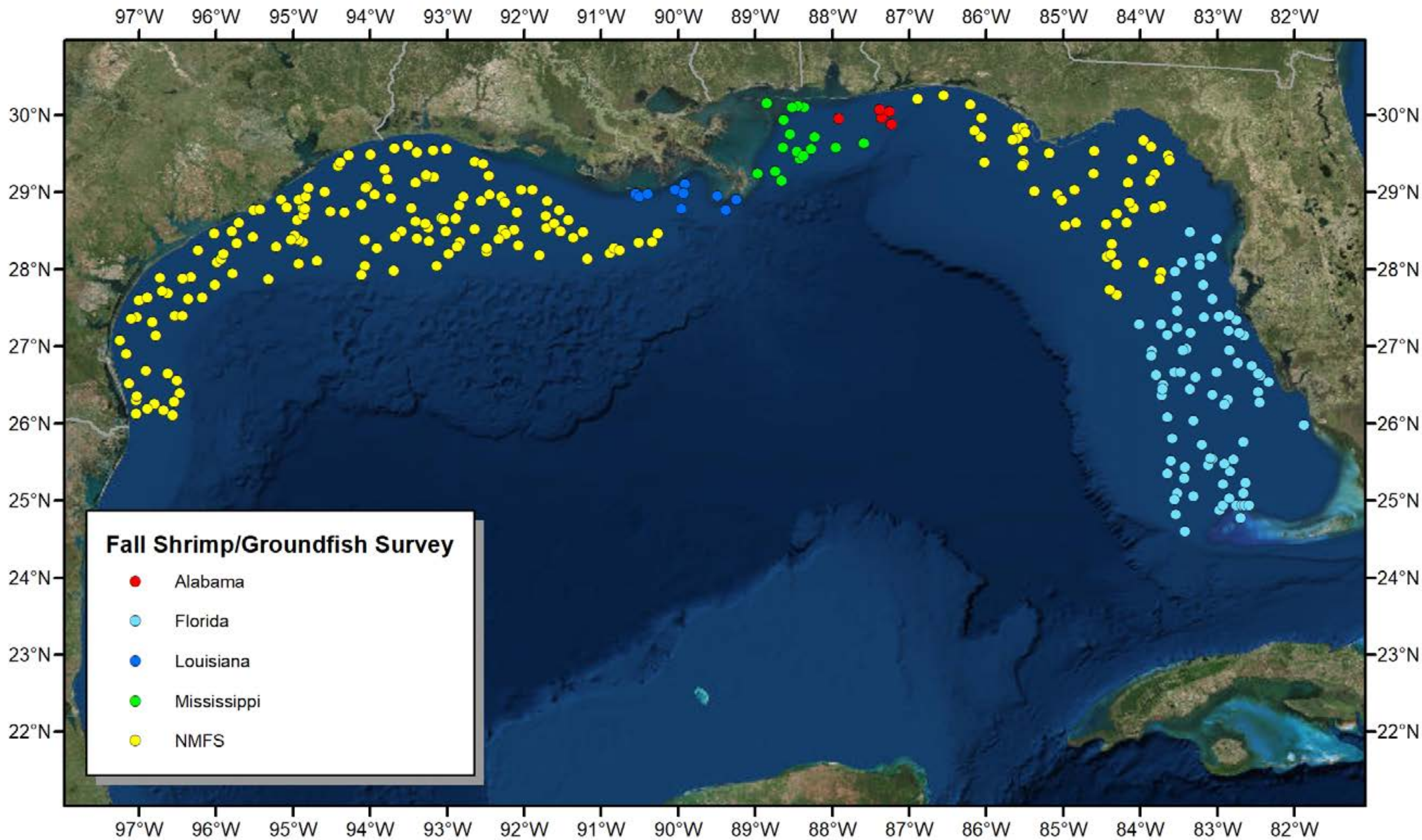

Figure 5. Locations of stations during the 2017 Fall Shrimp/Groundfish Survey.

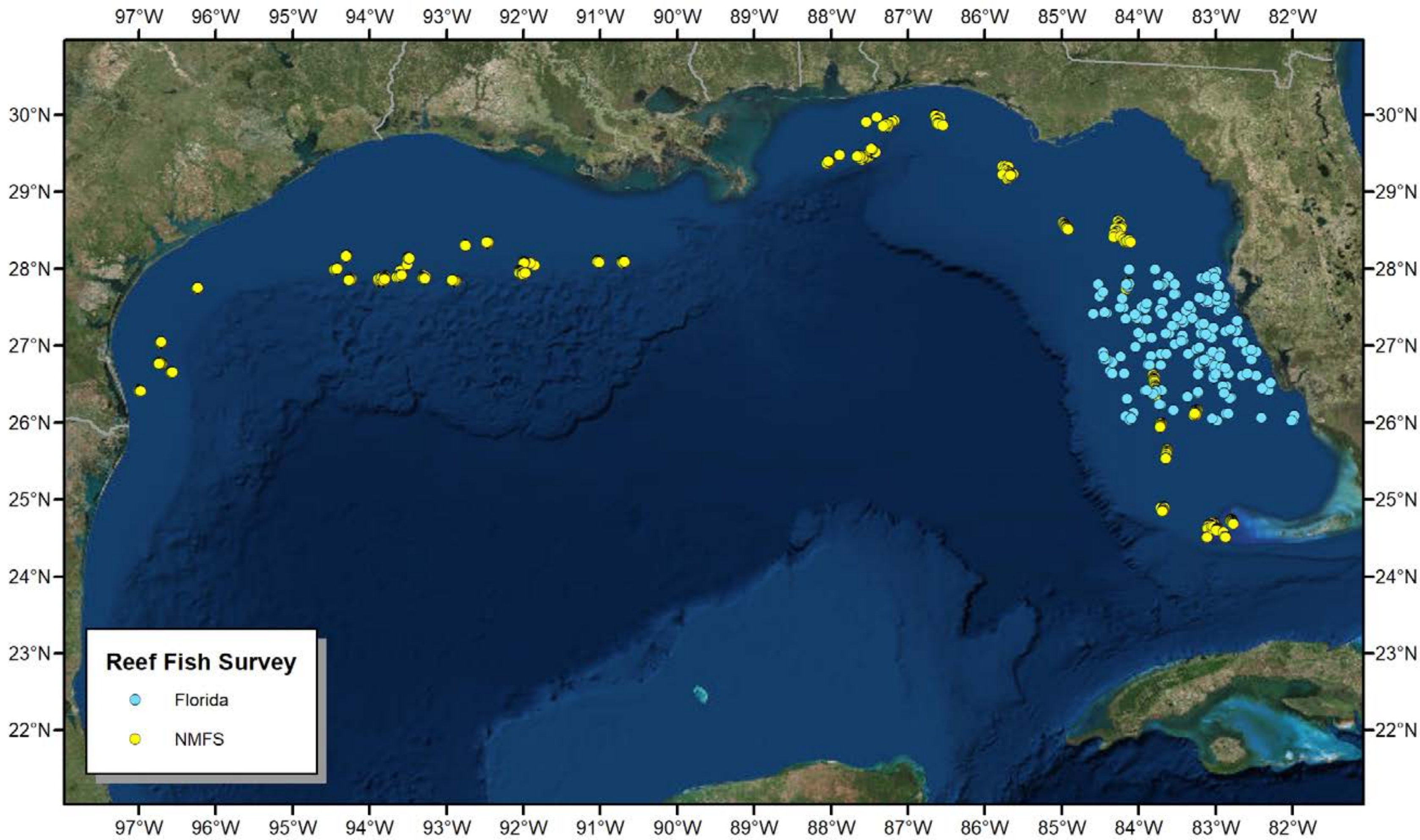

Figure 6. Locations of stations during the 2017 Reef Fish Survey.

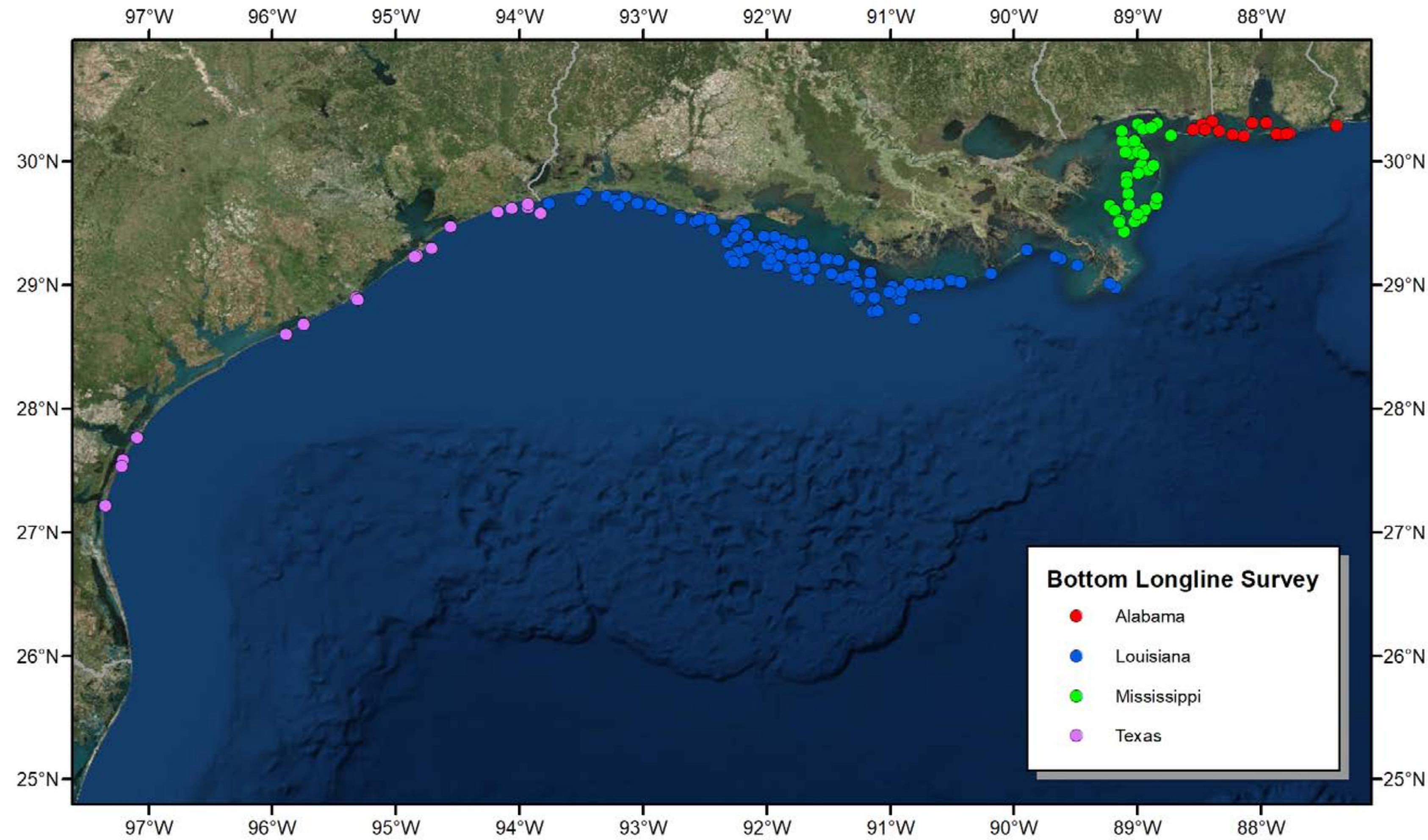

Figure 7. Locations of stations during the 2017 Bottom Longline Survey.

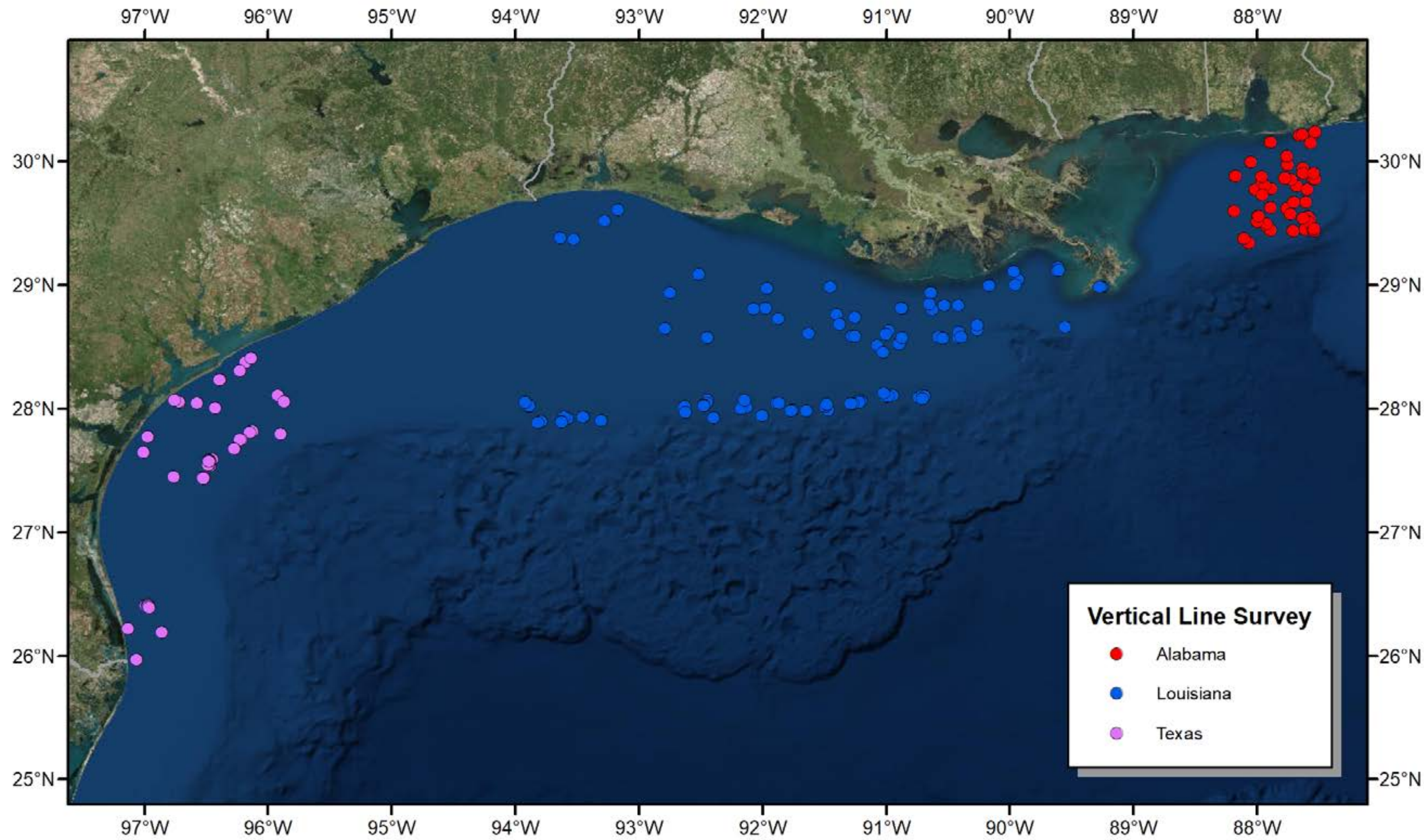

Figure 8. Locations of stations during the 2017 Vertical Line Survey.