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SEAMAP ENVIRONMENTAL AND BIOLOGICAL ATLAS OF THE GULF OF MEXICO, 2011

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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 2010 (Table 1). The resultant data are published in atlases for the surveys in 1982 (Stuntz et al. 1985); 1983 (Thompson and Bane 1986a); 1984 (Thompson and Bane 1986b); 1985 (Thompson et al. 1988); 1986 (Sanders et al. 1990a); 1987 (Sanders et al. 1990b); 1988 (Sanders et al. 1991a); 1989 (Sanders et al. 1991b); 1990 (Sanders et al. 1992); 1991 (Donaldson et al. 1993); 1992 (Donaldson et al. 1994); 1993 (Donaldson et al. 1996); 1994 (Donaldson et al. 1997a); 1995 (Donaldson et al. 1997b); 1996 (Donaldson et al. 1998); 1997 (Rester et al. 1999); 1998 (Rester et al. 2000); 1999 (Rester et al. 2001); 2000 (Rester et al. 2002); 2001 (Rester et al. 2004); 2002 (Rester et al. 2008); 2003 (Rester et al. 2009); 2004 (Rester 2009); 2005 (Rester 2010); 2006 (Rester 2010); 2007 (Rester 2010); 2008 (Rester 2011); 2009 (Rester 2011); and 2010 (Rester 2012). 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 2011, 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 2010. Overall survey objectives in 1982 to 2011 were to assess the distribution and abundance of recreational and commercial organisms collected by plankton, trap/video, bottom longlines, hook and line, and trawl gears, and document environmental factors that might affect their distribution and abundance. Data from plankton surveys are used for detection and assessment of fishery resources; in the determination of spawning seasons and areas; in investigations of early survival and recruitment mechanisms; and in estimation of the abundance of a stock based on its spawning production (Sherman et al. 1983). Assessment of the Texas Closure (Nichols 1982, 1984; Nichols and Poffenberger 1987) was the rationale for the establishment of the trawl surveys and to establish a seasonal database to assess the abundance and distribution of the shrimp and groundfish

stocks across the northern Gulf of Mexico. The Reef Fish Survey is designed to determine the relative abundance of reef fish populations and habitat using a fish trap/video recording system (Russell, unpublished report).

A major purpose of SEAMAP is to provide resource survey data to State and Federal management agencies and universities participating in SEAMAP activities. This twenty-ninth in a series of SEAMAP environmental and biological atlases presents such data, in a summarized form, collected during the 2011 SEAMAP surveys.

MATERIALS AND METHODS

Methodology for the 2011 SEAMAP surveys is similar to that of the 1982 through 2010 surveys. Sampling was conducted within the U.S. Exclusive Economic Zone (EEZ) and state territorial waters. The Alabama vessel DISCOVERY (February 15) and Texas vessels SAN JACINTO, SABINE LAKE, MATAGORDA BAY, NUECES BAY and R.J. KEMP (February 8-23) sampled waters off Alabama and Texas as part of the Winter Shrimp/Groundfish Survey.

The NOAA Ship GORDON GUNTER collected plankton and environmental data during the Spring Plankton Survey from May 3 to May 27. Vessels that participated in collecting plankton and environmental data during the Fall Plankton Survey included the NOAA Ship GORDON GUNTER (August 26 - September 28), the Alabama vessel DISCOVERY (September 20) and USM/GCRL vessel TOMMY MUNRO (September 9-10).

Vessels that participated in the Summer Shrimp/Groundfish Survey and concurrently sampled plankton and environmental data included the USM/GCRL vessel TOMMY MUNRO (June 3 – June 5), the Louisiana vessel PELICAN (June 20-23), and the NOAA Ship OREGON II (June 25 – July 17). The Alabama vessel DISCOVERY (June 15), Texas vessels SAN JACINTO, SABINE, MATAGORDA BAY, NUECES BAY and R.J. KEMP (June 1-29), and Florida using the TOMMY MUNRO (June 8 - July 31) did not sample plankton in conjunction with the summer survey.

The NOAA Ship OREGON II participated in the Reef Fish Survey from April 8 – April 25, while the NOAA Ship GANDY participated in the Reef Fish Survey from May 9 – July 11. Florida sampled from July 7-29 aboard the R/V BELLOWS.

Vessels that participated in the Fall Shrimp/Groundfish Survey and concurrently sampled plankton and environmental data included the NOAA Ships OREGON II (October 10 - November 6); the USM/GCRL vessel TOMMY MUNRO (October 21-25); and the Louisiana vessel PELICAN (October 3-6). The Alabama vessel DISCOVERY (October 17-18) and Texas vessels SAN JACINTO, SABINE, MATAGORDA BAY, NUECES BAY and R.J. KEMP (November 1-29) did not sample plankton in conjunction with the fall survey.

Mississippi and Alabama conducted bottom longline sampling monthly from March to October as part of the Bottom Longline Survey. Texas conducted bottom longline sampling June through September. Louisiana began participating the Bottom Longline Survey in 2011 and conducted sampling in August, September, and October.

Alabama sampled reef fish over artificial and natural reefs during the Vertical Line Survey. Alabama conducted sampling in May and September. Louisiana joined the Vertical Line Survey in 2011 and sampled in August, September, November, and December.

PLANKTON SURVEYS

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

The sampling gear and methodology used to collect SEAMAP plankton samples are similar to those recommended by Kramer et al. (1972), Smith and Richardson (1977) and Posgay and Marak (1980). A 61 cm bongo net fitted with 0.333 (0.335)¹ mm mesh netting is fished in an oblique tow path from a maximum depth of 200 m or to 2-5 m off the bottom at depths less than 200 m. A mechanical flowmeter is mounted off-center in the mouth of each bongo net to record the volume of water filtered. Volume filtered ranges from ~20 to 600 m³, but is typically 30 to 40 m³ at the shallowest stations and 300 to 400 m³ at the deepest stations. A single or double 2x1 m pipe frame neuston net fitted with 0.947 (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 2010 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

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.

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. Refer to the NOAA vessel cruise reports for more specific information on the individual SEAMAP Plankton Surveys conducted during 2011.

ENVIRONMENTAL DATA

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

Vessel: Vessel code for each vessel.

Station: Station identifiers varied by state and vessel.

Cruise: Cruise numbers varied by state and vessels.

Date: Month/Day/Year.

Time: Local time and time zone, recorded at the start of sampling.

Latitude/longitude: Recorded to seconds.

Barometric pressure: Recorded in millibars.

Wave height: Estimated visually in meters.

Wind speed and direction: Recorded in knots with direction recorded in compass degrees from which the wind was blowing.

Air temperature: Recorded in Centigrade.

Cloud cover: Estimated visually in percent cloud cover.

Secchi depth: Secchi depth in meters, estimated at each daylight station. Standard oceanographic 30-cm white discs were lowered until no longer visible, and then raised until visible. If different depths were recorded, an average was used.

Water Color: Forel-Ule data was recorded.

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

Water temperature: Temperatures were measured by a hand-held thermometer or by in situ electronic sensors onboard ship. No attempt was made to intercalibrate the various instruments used on individual vessels although several vessels did sample together to calibrate other sampling gear. Some error can be expected.

Salinity: Salinity samples were collected by Niskin bottles and stored for laboratory analysis with a salinometer. Conductivity probes or refractometers were used on some vessels. Salinity samples were also measured with in situ electronic sensors.

Chlorophyll: Chlorophyll samples were collected and frozen for later laboratory analysis. The general procedure for shipboard collection of chlorophyll was to collect more than 9 liters of water from the surface. This was kept stirred by bubbling air through it while filtration was being done. Three samples, to each of which a 1 ml, 1% (W/V), suspension of MgCO₃ was added, of up to 3 liters of water from the 9 liter sample were filtered through GF/C filters.

The three filters were placed individually in Petri dishes, wrapped in opaque material and frozen until analysis. Each of the three samples was analyzed separately in the laboratory.

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

In addition, chlorophyll samples data were also collected using a CTD. This method only obtains measures of chlorophyll a and is a measure of fluorescence (FL).

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

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

TRAWL SURVEYS

Summer Shrimp/Groundfish Survey

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

Bathymetry data were downloaded from the National Geophysical Data Center (NGDC) web site (Divins, D.L., and D. Metzger, NGDC Coastal Relief Model, <http://www.ngdc.noaa.gov/mgg/coastal/coastal.html>). Because of the magnitude of data, they were downloaded by single NMFS Shrimp Statistical Zones (Figure 1). The download process allows for the definition of a desired data block through user supplied latitude and longitude boundaries. Since the data definition process is controlled by latitude and longitude only, some undesired depths were included in downloads (i.e., for NMFS, depths less than five or greater than sixty fathoms). These records were deleted later through a Statistical Analysis System (SAS) program. Each bathymetric record represents a 3 arc-second element of data (≈ 0.05 -by- 0.05 minutes of latitude and longitude);

therefore, the number of data records was used as a measure of size for each respective statistical zone. The bathymetry data were then used as input to a SAS program which performed three functions; defined the sampling universe, determined the sampling proportions according to sizes of statistical zones, and randomly selected the sample sites according to the defined proportions.

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

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

Fall Shrimp/Groundfish Survey

The design of the Fall Survey was similar to the Summer Shrimp/Groundfish Survey. During the Fall Survey trawl stations were made with the standard 40-ft and 20-ft SEAMAP nets and covered NMFS shrimp statistical zones 8 through 21 (Figure 1). Catch rates on all the vessels sampling were treated in the same manner as the Summer Shrimp/Groundfish Survey, with the exception to shrimp catches, where only 20 shrimp of each species from every trawl were measured, although Louisiana and Texas measure a minimum of 50 shrimp.

Winter Shrimp/Groundfish Survey

The design of the Winter Shrimp/Groundfish Survey was similar to the other Shrimp/Groundfish Surveys. The Winter Shrimp/Groundfish Survey sampled waters off Alabama in NMFS statistical zones 10-11 and off Texas in NMFS statistical zones 17-21 (Figure 1).

REEF FISH SURVEY

The primary purpose of this survey is to assess relative abundance and compute population estimates of reef fish found on natural reef fish habitat in the Gulf of Mexico. Two types of gear are used to deploy video cameras: 1) a single-funnel fish trap (2.13 m long by 0.76 m square) with the camera mounted at a height of 25 cm above the bottom of the trap; or 2) a 4 camera array with 4 cameras mounted orthogonal to each other at a height of 25 cm above the bottom. Both gears are baited with squid before deployment. The resultant video recordings (typically of one-hour duration) are processed back at the laboratory where fish are identified and counted independently by two tape readers. Final counts are entered into the SEAMAP reef fish database along with additional observations on habitat and fish activity.

The hardbottom database from which sampling sites for this survey are chosen was developed in the following manner. Areas of natural reef habitat from Brownsville, Texas to the southern tip of Florida (at 81° 00' W longitude and 24° 02' N latitude) and between 9 and 110 m water depth were

first inscribed on navigation charts, then divided into 10 by 10 nautical mile blocks (primary sample units). Each block was subdivided into 100-m², secondary sample units that were numbered and initially classified as being “reef” or “nonreef” and then entered into a database. Prior to the survey, blocks are selected from this database in the eastern and western Gulf with probability proportional to the number of “reef” sample units within a block. Within each selected block, 100 sample sites are randomly selected. During the survey each selected block is occupied for one 24-h period, where night hours are devoted to ship’s echo sounder surveys of up to 100 sites and daytime hours to trap/video sampling. Each potential sample site surveyed at night is given a final determination as being either a reef site or not based on echo patterns, vertical relief and other characteristics. Up to 8 actual “reef” sites are then randomly selected for sampling during that day (Russell, unpublished report). Trap/video sampling begins one hour after sunrise and ends one hour before sunset. Trap soak time is one hour.

Associated environmental data collected at each site usually includes profiles of salinity, temperature, and surface chlorophyll; and may include profiles of dissolved oxygen, light transmittance, and fluorescence. Additional environmental and meteorological observations taken on stations follow standard SEAMAP methodology. During the NMFS component of the Reef Fish Survey, fish abundance is also measured with a fisheries acoustic device.

BOTTOM LONGLINE SURVEY

This nearshore survey complements an existing long-term fisheries independent survey currently being conducted by NMFS offshore, by targeting shark and finfish species within the shallow waters of the north central Gulf of Mexico. The objectives of the survey were to collect information on coastal shark and finfish abundances and distribution with a 1-mile longline and to collect environmental data. During the 2011 Bottom Longline Survey, the survey design included several sampling regions: Mississippi Sound, south of the Mississippi and Alabama Barrier Islands, northern Chandeleur Sound, Galveston Bay, Corpus Christi Bay, and Aransas Bay.

Stations were chosen randomly within each area and were stratified by depth (0-5m, 5-10m, and 10-20m). The stations were sampled over a four-day period between the hours of 7:30 a.m. and 7:30 p.m. each month. The sampling protocol follows the procedures established by the NMFS bottom longline survey. All equipment used in this inshore shark survey is identical to the equipment used by NMFS. The longline gear consisted of a 1.6 km (426 kg test monofilament) mainline with 100 gangions (3.66 m, 332 kg test monofilament) containing #15/0 circle hooks (0 offset) and baited with Atlantic mackerel, *Scomber scomber*. The mainline was weighted down with a midpoint and endpoint weight. Radar high-flyers with strobe bullet buoys were used to mark the longline locations. A hydraulic longline reel was used for setting and retrieving the mainline. The longline was fished for 1-hr and then retrieved.

VERTICAL LINE SURVEY

In 2010, Alabama started a new vertical line survey to sample reef fish over artificial reefs and other areas. The sampling gear used a typical commercial bandit rig that holds approximately 500 feet of clear 300 lb test mainline. A 24-ft. backbone (leader) was attached to the terminal end of the mainline. An approximately ten pound weight was attached to the terminal end of the backbone. The backbone was rigged with ten 18-inch long gangions at intervals of two feet. A total of 12 grids were fished per survey. Two structure and two non-structure areas were randomly chosen and

equally allocated across three depth strata. Vertical line reels were randomly baited with either Atlantic mackerel or squid. Soak time was five minutes. Fish were retained and processed for age and fecundity. All fish were sacrificed for otoliths at stations deeper than 60 m. In water depth less than 60 m, stations were assigned as tag and release or collection sites.

Louisiana started vertical line sampling in 2011. In Louisiana, the sampling frame is subdivided into 3 sampling blocks based on depth between 89 degrees longitude and 91 degrees longitude, with the water depth ranging from 60 to 360 feet. Each block is sampled quarterly in a rotation. Within these sampling blocks there is a possibility of randomly selecting 40 different corridors within the block. The actual sites are randomly selected within the corridor boundary and sampled at the chief scientist's discretion. The sites roughly consist of artificial reefs, natural bottom, and petroleum production platforms.

RESULTS

PLANKTON SURVEYS

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

TRAWL SURVEYS

Winter Shrimp/Groundfish Survey

Alabama and Texas completed the Winter Shrimp/Groundfish Survey in February. A plot of station locations is presented in Figure 4. A species composition list is presented in Table 2 ranked in order of abundance, within the categories of finfish, crustaceans, and other invertebrates.

Summer Shrimp/Groundfish Survey

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

Fall Shrimp/Groundfish Survey

Shrimp and groundfish sampling was conducted during October and November from Florida to Brownsville, Texas. Figure 6 shows the station locations. The Fall Shrimp/Groundfish Survey consisted of biological trawl data, concomitant environmental, and plankton data. A species composition listing from the 40-ft and 20-ft trawls is presented in Table 4, 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 100 individuals during the Summer Shrimp/Groundfish Survey. The summarized data in the form of computer plots and data listings were sent to management agencies and industry members. These plots showed station locations, catches of brown, pink, and white shrimp in lb/hr and count/lb, and total finfish catch in lb/hr.

REEF FISH SURVEY

Primary data collection and sampling for reef fish assessment were conducted during April through July by NMFS personnel and during July by Florida personnel. Station locations are plotted in Figure 7. 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 8. A species composition list is presented in Table 5. The species list is ranked in order of abundance.

VERTICAL LINE SURVEY

Station locations for the Vertical Line Survey are plotted in Figure 9. A species composition list, ranked in order of abundance, is presented in Table 6.

DISCUSSION

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

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

Much use has already been made of SEAMAP data. For example, during the past SEAMAP surveys an area of very low dissolved bottom oxygen was found off Louisiana in the summers of 1982, 1985-2010. 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 the Atlantic bluefin 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 2011. This report contained the results and an overview of the effect of the 2010 Texas Closure. After review of these data and other information, the GMFMC voted to continue the Texas Closure for 2011.

DATA REQUESTS

It is the policy of the SEAMAP Subcommittee that all verified non-confidential SEAMAP data, collected specimens, and samples shall be available to all SEAMAP participants, other fishery

researchers, and management organizations. This atlas presents, to those individuals interested in the data or specimens, a chance to review the data in a summary form.

Data and specimen requests from SEAMAP participants, cooperators and others will normally be handled on a first-come, first-served, and time-available basis. Because of personnel and funding limitations, however, certain priorities must be assigned to the data and specimen requests. These priorities are reviewed by the SEAMAP Subcommittee. For further information on SEAMAP data management, see the Southeast Area Monitoring and Assessment Program (SEAMAP) Management Plan: 2011-2015 (ASMFC 2011).

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

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Table 1. List of SEAMAP survey activities from 1982 to 2011.

SEAMAP SURVEY ACTIVITIES						
YEAR	WINTER	SPRING	SPRING	SUMMER		FALL
	SHRIMP/GROUNDFISH	PLANKTON	SHRIMP/GROUNDFISH	SHRIMP/GROUNDFISH	BUTTERFISH	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		MAY		JUNE-JULY	--	AUGUST-SEPTEMBER

Table 1. List of SEAMAP survey activities from 1982 to 2011 (continued).

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

Table 2. 2011 Winter Shrimp/Groundfish Survey species composition list, 86 trawl stations, for those vessels that used either a 40-ft or 20-ft trawl.

Species with a total weight of less than 0.0227 kg (0.05 lb) are indicated on the table as 0.0 kg.

GENUS/SPECIES	COMMON NAME	TOTAL NUMBER	TOTAL WEIGHT	NUMBER OF	% FREQUENCY
		CAUGHT	CAUGHT (KG)	TOWS WHERE CAUGHT	OCCURRENCE
<u>Finfishes</u>					
Micropogonias undulatus	Atlantic croaker	1258	21.2	41	47.7
Urophycis regia	spotted hake	734	7.2	6	7.0
Cynoscion nothus	silver seatrout	594	8.1	31	36.0
Leiostomus xanthurus	spot	321	12.8	35	40.7
Peprilus burti	gulf butterfish	266	1.8	27	31.4
Cynoscion arenarius	sand seatrout	206	5.7	36	41.9
Stellifer lanceolatus	star drum	183	1.6	30	34.9
Anchoa mitchilli	bay anchovy	160	0.2	14	16.3
Urophycis floridana	southern hake	118	1.4	26	30.2
Ariopsis felis	hardhead catfish	109	14.3	17	19.8
Etropus crossotus	fringed flounder	65	0.9	21	24.4
Larimus fasciatus	banded drum	49	0.2	17	19.8
Synodus foetens	inshore lizardfish	48	1.5	5	5.8
Prionotus longispinosus	bigeye searobin	41	0.4	3	3.5
Orthopristis chrysoptera	pigfish	34	1.6	6	7.0
Syacium gunteri	shoal flounder	32	0.6	17	19.8
Diplectrum bivittatum	dwarf sand perch	30	0.5	3	3.5
Peprilus paru	harvestfish	25	0.6	13	15.1
Menticirrhus americanus	southern kingfish	25	3.5	13	15.1
Centropristis philadelphica	rock sea bass	23	0.6	4	4.7
Sphoeroides parvus	least puffer	23	0.1	8	9.3
Stenotomus caprinus	longspine porgy	17	0.4	3	3.5
Prionotus scitulus	leopard searobin	17	0.3	3	3.5
Trichiurus lepturus	Atlantic cutlassfish	15	0.0	11	12.8
Brevoortia patronus	gulf menhaden	15	0.3	6	7.0
Dorosoma petenense	threadfin shad	15	0.5	6	7.0
Chilomycterus schoepfii	striped burrfish	12	2.6	4	4.7

Table 2. Species composition list (continued)

GENUS/SPECIES	COMMON NAME	TOTAL NUMBER	TOTAL WEIGHT	NUMBER OF	% FREQUENCY
		CAUGHT	CAUGHT (KG)	TOWS WHERE CAUGHT	OCCURRENCE
<i>Symphurus plagiusa</i>	blackcheek tonguefish	11	0.2	7	8.1
<i>Citharichthys spilopterus</i>	bay whiff	11	0.1	8	9.3
<i>Chloroscombrus chrysurus</i>	Atlantic bumper	10	0.1	6	7.0
<i>Anchoa hepsetus</i>	striped anchovy	10	0.1	3	3.5
<i>Synodus poeyi</i>	offshore lizardfish	10	0.1	2	2.3
<i>Prionotus rubio</i>	blackwing searobin	9	0.0	5	5.8
<i>Prionotus tribulus</i>	bighead searobin	8	0.0	5	5.8
<i>Paralichthys lethostigma</i>	southern flounder	7	2.2	3	3.5
<i>Trachurus lathami</i>	rough scad	7	0.2	3	3.5
<i>Prionotus ophryas</i>	bandtail searobin	7	0.0	2	2.3
<i>Lagodon rhomboides</i>	pinfish	7	0.2	6	7.0
<i>Bairdiella chrysoura</i>	silver perch	6	0.2	6	7.0
<i>Chaetodipterus faber</i>	Atlantic spadefish	4	0.1	3	3.5
<i>Bagre marinus</i>	gafftopsail catfish	4	0.1	4	4.7
<i>Pogonias cromis</i>	black drum	3	22.5	2	2.3
<i>Citharichthys macrops</i>	spotted whiff	3	0.0	2	2.3
<i>Dasyatis sabina</i>	Atlantic stringray	3	2.7	2	2.3
<i>Menticirrhus littoralis</i>	gulf kingfish	2	0.5	2	2.3
<i>Narcine brasiliensis</i>	lesser electric ray	2	0.0	2	2.3
<i>Trinectes maculatus</i>	hogchoker	1	0.0	1	1.2
<i>Dasyatis centroura</i>	clam cracker	1	0.9	1	1.2
<i>Mugil cephalus</i>	black mullet	1	0.0	1	1.2
<i>Sciaenops ocellatus</i>	red drum	1	10.0	1	1.2
<i>Syngnathus scovelli</i>	Gulf pipefish	1	0.0	1	1.2
<i>Porichthys plectrodon</i>	Atlantic midshipman	1	0.0	1	1.2
<i>Astroscopus y-graecum</i>	southern stargazer	1	0.0	1	1.2
<i>Syacium papillosum</i>	dusky flounder	1	0.0	1	1.2
<i>Squatina dumeril</i>	Atlantic angel shark	1	5.3	1	1.2
<i>Ophidion grayi</i>	blotched cusk-eel	1	0.1	1	1.2
<i>Etropus cyclosquamus</i>	shelf flounder	1	0.0	1	1.2
<i>Ancylopsetta ommata</i>	ocellated flounder	1	0.0	1	1.2

Table 2. Species composition list (continued)

GENUS/SPECIES	COMMON NAME	TOTAL NUMBER	TOTAL WEIGHT	NUMBER OF	% FREQUENCY
		CAUGHT	CAUGHT (KG)	TOWS WHERE CAUGHT	OCCURRENCE
Ogcocephalus corniger	longnose batfish	1	0.0	1	1.2
Halieutichthys aculeatus	pancake batfish	1	0.0	1	1.2
Raja texana	roundel skate	1	1.1	1	1.2
Lutjanus campechanus	red snapper	1	0.0	1	1.2
Upeneus parvus	dwarf goatfish	1	0.0	1	1.2
<u>Crustaceans</u>					
Litopenaeus setiferus	white shrimp	474	4.6	49	57.0
Xiphopenaeus kroyeri	seabob	203	0.7	6	7.0
Rimapenaeus similis	roughback shrimp	141	0.2	30	34.9
Portunus gibbesii	iridescent swimming crab	42	0.4	20	23.3
Sicyonia brevirostris	brown rock shrimp	40	0.2	2	2.3
Rimapenaeus constrictus	roughneck shrimp	34	0.1	3	3.5
Pagurus pollicaris	flatclaw hermit crab	28	0.2	9	10.5
Squilla empusa	mantis shrimp	20	0.4	9	10.5
Libinia dubia	longnose spider crab	20	0.8	11	12.8
Callinectes sapidus	blue crab	18	0.2	5	5.8
Persephona crinita	pink purse crab	17	0.1	12	14.0
Solenocera atlantidis	dwarf humpback shrimp	16	0.0	1	1.2
Sicyonia dorsalis	lesser rock shrimp	12	0.0	5	5.8
Ovalipes floridanus	Florida lady crab	12	0.0	10	11.6
Metoporphaphis calcarata	false arrow crab	11	0.0	5	5.8
Leiolambrus nitidus	white elbow crab	8	0.0	3	3.5
Farfantepenaeus duorarum	pink shrimp	7	0.1	4	4.7
Podochela sidneyi	shortfinger neck crab	7	0.0	4	4.7
Callinectes similis	lesser blue crab	6	0.0	6	7.0
Farfantepenaeus aztecus	brown shrimp	5	0.1	2	2.3
Libinia emarginata	portly spider crab	4	0.3	2	2.3
Portunus spinimanus	blotched swimming crab	3	0.0	3	3.5
Hepatus epheliticus	calico crab	2	0.0	2	2.3

Table 2. Species composition list (continued)

GENUS/SPECIES	COMMON NAME	TOTAL NUMBER	TOTAL WEIGHT	NUMBER OF	% FREQUENCY
		CAUGHT	CAUGHT (KG)	TOWS WHERE CAUGHT	OCCURRENCE
<i>Portunus spinimanus</i>	blotched swimming crab	3	0.0	3	3.5
<i>Hepatus epheliticus</i>	calico crab	2	0.0	2	2.3
<i>Gibbesia neglecta</i>	mantis shrimp	2	0.0	1	1.2
<i>Persephona mediterranea</i>	mottled purse crab	2	0.0	1	1.2
<i>Petrochirus diogenes</i>	giant hermit crab	2	0.0	2	2.3
<i>Clibanarius vittatus</i>	thinripe hermit crab	1	0.0	1	1.2
<i>Dawsonius latispina</i>	broadspine ghost shrimp	1	0.0	1	1.2
<i>Porcellana sayana</i>	spotted porcelain crab	1	0.0	1	1.2
<i>Anasimus latus</i>	stilt spider crab	1	0.0	1	1.2
<i>Porcellana sigsbeiana</i>	striped porcelain crab	1	0.0	1	1.2
<u>Others</u>					
<i>Loligo plei</i>	arrow squid	557	5.7	12	14.0
<i>Lolliguncula brevis</i>	Atlantic brief squid	407	2.3	39	45.3
<i>Loligo pealeii</i>	longfin squid	112	4.4	22	25.6
<i>Neverita</i>		35	0.3	19	22.1
<i>Cantharus cancellarius</i>	cancellate cantharus	24	0.1	7	8.1
<i>Nassarius acutus</i>	sharp nassa	7	0.0	1	1.2
<i>Anadara ovalis</i>	blood ark	3	0.0	3	3.5
<i>Anachis avara</i>	greedy dovesnail	3	0.0	1	1.2
<i>Neverita duplicata</i>	shark eye	2	0.1	2	2.3
<i>Hexaplex fulvescens</i>	giant eastern murex	2	0.3	2	2.3
Tellinidae		2	0.0	2	2.3
Polyceridae		2	0.0	1	1.2
<i>Octopus vulgaris</i>	common Atlantic octopus	1	0.3	1	1.2
<i>Oliva sayana</i>	lettered olive	1	0.0	1	1.2
<i>Busycon sinistrum</i>	lightning whelk	1	0.0	1	1.2
<i>Armina</i>		1	0.0	1	1.2
<i>Sinum perspectivum</i>	white baby-ear	1	0.0	1	1.2
<i>Lirophora clenchi</i>	Clench venus	1	0.0	1	1.2

Table 3. 2011 Summer Shrimp/Groundfish Survey species composition list, 411 trawl stations, for those vessels that used either a 40-ft or 20-ft trawl.

Species with a total weight of less than 0.0227 kg (0.05 lb) are indicated on the table as 0.0 kg.

GENUS/SPECIES	COMMON NAME	TOTAL NUMBER CAUGHT	TOTAL WEIGHT CAUGHT (KG)	NUMBER OF TOWS WHERE CAUGHT	% FREQUENCY OCCURRENCE
<u>Finfishes</u>					
Micropogonias undulatus	Atlantic croaker	118460	4065.9	199	48.4
Stenotomus caprinus	longspine porgy	28340	817.7	163	39.7
Peprilus burti	gulf butterfish	18253	859.2	134	32.6
Trachurus lathami	rough scad	13170	212.8	119	29
Leiostomus xanthurus	spot	12177	978.6	125	30.4
Lagodon rhomboides	pinfish	11621	732.7	162	39.4
Chloroscombrus chrysurus	Atlantic bumper	10423	385.6	73	17.8
Trichiurus lepturus	Atlantic cutlassfish	7917	320.7	129	31.4
Haemulon aurolineatum	tomtate	6586	484.1	90	21.9
Cynoscion nothus	silver seatrout	5981	268.8	112	27.3
Larimus fasciatus	banded drum	4930	222.2	78	19
Prionotus longispinosus	bigeye searobin	4897	95.5	112	27.3
Syacium papillosum	dusky flounder	3989	215	130	31.6
Cynoscion spp.	seatrouts	3868	35.7	29	7.1
Mullus auratus	red goatfish	3829	118.6	38	9.2
Cynoscion arenarius	sand seatrout	3538	165.9	130	31.6
Synodus foetens	inshore lizardfish	3455	501.3	212	51.6
Prionotus roseus	bluespotted searobin	3178	64.8	63	15.3
Serranus atrobranchus	blackear bass	3168	42.6	73	17.8
Lutjanus synagris	lane snapper	3090	372.8	67	16.3
Prionotus stearnsi	shortwing searobin	2496	26.5	55	13.4
Centropristis ocyurus	bank sea bass	2193	95.7	73	17.8
Centropristis philadelphica	rock sea bass	2150	89	117	28.5
Saurida brasiliensis	largescale lizardfish	2056	10.7	71	17.3
Syacium gunteri	shoal flounder	1993	39.4	112	27.3
Pristipomoides aquilonaris	wenchman	1954	101.3	71	17.3
Anchoa hepsetus	striped anchovy	1931	35.9	44	10.7

Table 3. Species composition list (continued)

GENUS/SPECIES	COMMON NAME	TOTAL NUMBER	TOTAL WEIGHT	NUMBER OF	% FREQUENCY
		CAUGHT	CAUGHT (KG)	TOWS WHERE CAUGHT	OCCURRENCE
<i>Scorpaena calcarata</i>	smoothhead scorpionfish	1504	36.6	57	13.9
<i>Selene setapinnis</i>	Atlantic moonfish	1369	55.6	131	31.9
<i>Trichopsetta ventralis</i>	sash flounder	1329	35.6	38	9.2
<i>Upeneus parvus</i>	dwarf goatfish	1309	23.8	64	15.6
<i>Halieutichthys aculeatus</i>	pancake batfish	1294	9.9	107	26
<i>Eucinostomus gula</i>	silver jenny	1291	50.2	24	5.8
<i>Harengula jaguana</i>	scaled sardine	1250	68.7	36	8.8
<i>Calamus proridens</i>	littlehead porgy	1229	261	58	14.1
<i>Rhomboplites aurorubens</i>	vermillion snapper	1163	121.7	49	11.9
<i>Synodus intermedius</i>	sand diver	1118	101.5	98	23.8
<i>Orthopristis chrysoptera</i>	pigfish	1091	105.5	43	10.5
<i>Etropus rimosus</i>	gray flounder	1088	17.8	27	6.6
<i>Stellifer lanceolatus</i>	star drum	1047	17.1	69	16.8
<i>Diplectrum formosum</i>	sand perch	1002	107.3	108	26.3
<i>Lutjanus campechanus</i>	red snapper	985	110.9	119	29
<i>Etropus crossotus</i>	fringed flounder	876	14.8	55	13.4
<i>Sardinella aurita</i>	Spanish sardine	872	16.3	23	5.6
<i>Synodus poeyi</i>	offshore lizardfish	828	8.9	82	20
<i>Equetus lanceolatus</i>	jackknife fish	773	76.3	69	16.8
<i>Stephanolepis hispida</i>		763	54.6	89	21.7
<i>Lepophidium brevibarbe</i>	blackedge cusk-eel	759	22.9	50	12.2
<i>Urophycis floridana</i>	southern hake	747	52.6	66	16.1
<i>Acanthostracion quadricornis</i>		703	111.3	88	21.4
<i>Lagocephalus laevigatus</i>	smooth puffer	693	14.8	66	16.1
<i>Opisthonema oglinum</i>	Atlantic thread herring	663	56.9	40	9.7
<i>Steindachneria argentea</i>	luminous hake	650	3.3	3	0.7
<i>Prionotus paralatus</i>	Mexican searobin	590	14.3	38	9.2
<i>Monacanthus ciliatus</i>	fringed filefish	573	12.5	73	17.8
<i>Brevoortia patronus</i>	gulf menhaden	564	27.5	49	11.9
<i>Anchoa lyolepis</i>	dusky anchovy	546	1.8	11	2.7
<i>Scorpaena brasiliensis</i>	barbfish	528	47.6	71	17.3

Table 3. Species composition list (continued)

GENUS/SPECIES	COMMON NAME	TOTAL NUMBER	TOTAL WEIGHT	NUMBER OF	% FREQUENCY
		CAUGHT	CAUGHT (KG)	TOWS WHERE CAUGHT	OCCURRENCE
<i>Calamus arctifrons</i>	grass porgy	522	44.3	12	2.9
<i>Diplectrum bivittatum</i>	dwarf sand perch	513	11.7	40	9.7
<i>Sphoeroides dorsalis</i>	marbled puffer	485	25.2	80	19.5
<i>Haemulon plumierii</i>	white grunt	482	66.8	20	4.9
<i>Polydactylus octonemus</i>	Atlantic threadfin	465	19.8	45	10.9
<i>Prionotus rubio</i>	blackwing searobin	459	32.6	53	12.9
<i>Trachinocephalus myops</i>	snakefish	443	34.7	63	15.3
<i>Cyclopsetta chittendeni</i>	Mexican flounder	422	53.9	65	15.8
<i>Menticirrhus americanus</i>	southern kingfish	422	62.6	38	9.2
<i>Pagrus pagrus</i>	red porgy	419	37.3	33	8
<i>Bairdiella chrysoura</i>	silver perch	399	7.9	14	3.4
<i>Sphoeroides parvus</i>	least puffer	368	2.9	32	7.8
<i>Lepophidium jeannae</i>	mottled cusk-eel	345	19.5	26	6.3
<i>Symphurus plagiusa</i>	blackcheek tonguefish	329	6.7	45	10.9
<i>Serranus phoebe</i>	tattler	329	11.6	22	5.4
<i>Selar crumenophthalmus</i>	bigeye scad	297	5.1	12	2.9
<i>Prionotus tribulus</i>	bighead searobin	286	10.4	35	8.5
<i>Bothus robinsi</i>	twospot flounder	278	11	52	12.7
<i>Bellator militaris</i>	horned searobin	275	4	26	6.3
<i>Stephanolepis hispida</i>	planehead filefish	272	4.7	43	10.5
<i>Prionotus scitulus</i>	leopard searobin	268	4.6	14	3.4
<i>Antennarius radiosus</i>	singlespot frogfish	263	3	31	7.5
<i>Sphoeroides spengleri</i>	bandtail puffer	262	15.4	57	13.9
<i>Porichthys plectrodon</i>	Atlantic midshipman	259	6.3	58	14.1
<i>Urophycis cirrata</i>	gulf hake	257	8.8	29	7.1
<i>Ophidion holbrookii</i>	bank cusk-eel	254	29	30	7.3
<i>Etropus cyclosquamus</i>	shelf flounder	243	2	9	2.2
<i>Ogcocephalus declivirostris</i>	slantbrow batfish	225	3.1	30	7.3
<i>Prionotus ophryas</i>	bandtail searobin	206	14.3	45	10.9
<i>Bollmannia communis</i>	ragged goby	204	0.6	20	4.9
<i>Serranus notospilus</i>	saddle bass	190	1.2	13	3.2

Table 3. Species composition list (continued)

GENUS/SPECIES	COMMON NAME	TOTAL NUMBER	TOTAL WEIGHT	NUMBER OF	% FREQUENCY
		CAUGHT	CAUGHT (KG)	TOWS WHERE CAUGHT	OCCURRENCE
<i>Scorpaena agassizii</i>	longfin scorpionfish	189	3.9	16	3.9
<i>Aluterus schoepfii</i>	orange filefish	188	89.8	50	12.2
<i>Pareques umbrosus</i>	cubbyu	187	11.8	35	8.5
<i>Saurida normani</i>	shortjaw lizardfish	183	17.1	11	2.7
<i>Ancylopsetta dilecta</i>	three-eye flounder	168	5.9	32	7.8
<i>Chaetodipterus faber</i>	Atlantic spadefish	164	7.7	27	6.6
<i>Symphurus diomedeanus</i>	spottedfin tonguefish	163	5.5	27	6.6
<i>Balistes capriscus</i>	gray triggerfish	158	19.4	42	10.2
<i>Decapterus punctatus</i>	round scad	158	4.2	27	6.6
<i>Kathetostoma albigutta</i>	lancer stargazer	152	4.8	31	7.5
<i>Ophidion beani</i>	longnose cusk-eel	151	10.5	28	6.8
<i>Citharichthys spilopterus</i>	bay whiff	149	2.1	26	6.3
<i>Nicholsina usta</i>	emerald parrotfish	140	14.6	34	8.3
<i>Gymnothorax saxicola</i>	honeycomb moray	134	12.2	47	11.4
<i>Ogcocephalus parvus</i>	roughback batfish	131	1.9	43	10.5
<i>Haemulon striatum</i>	striped grunt	131	6.4	3	0.7
<i>Peprilus paru</i>	harvestfish	127	4	17	4.1
<i>Eucinostomus harengulus</i>	tidewater mojarra	126	9.5	15	3.6
<i>Epinephelus morio</i>	red grouper	115	76.4	31	7.5
<i>Prionotus martis</i>	barred searobin	114	3.6	16	3.9
<i>Bathyanthias mexicanus</i>	yellowtail bass	113	1.2	9	2.2
<i>Prionotus alatus</i>	spiny searobin	112	2.7	22	5.4
<i>Lutjanus griseus</i>	grey snapper	112	33	26	6.3
<i>Ancylopsetta ommata</i>	ocellated flounder	110	9.5	35	8.5
<i>Ariopsis felis</i>	hardhead catfish	102	20.3	27	6.6
<i>Bagre marinus</i>	gafftopsail catfish	99	1.3	5	1.2
<i>Syacium micrurum</i>	channel flounder	99	0.8	5	1.2
<i>Engyophrys senta</i>	spiny flounder	97	0.5	14	3.4
<i>Calamus leucosteus</i>	whitebone porgy	94	32.9	9	2.2
<i>Lachnolaimus maximus</i>	hogfish	84	16.6	11	2.7
<i>Etrumeus teres</i>	round herring	84	0.8	14	3.4

Table 3. Species composition list (continued)

GENUS/SPECIES	COMMON NAME	TOTAL NUMBER	TOTAL WEIGHT	NUMBER OF	% FREQUENCY
		CAUGHT	CAUGHT (KG)	TOWS WHERE CAUGHT	OCCURRENCE
<i>Apogon pseudomaculatus</i>	twospot cardinalfish	83	0.6	26	6.3
<i>Anchoa mitchilli</i>	bay anchovy	77	0.3	8	1.9
<i>Ophidion josephi</i>	crested cusk-eel	74	2.4	13	3.2
<i>Hemipteronotus novacula</i>	pearly razorfish	70	3.6	27	6.6
<i>Citharichthys macrops</i>	spotted whiff	68	2.6	25	6.1
<i>Chromis enchrysur</i>	yellowtail reefish	66	1.1	13	3.2
<i>Decodon puellaris</i>	red hogfish	65	2.4	9	2.2
<i>Pristigenys alta</i>	short bigeye	63	3.4	15	3.6
<i>Brotula barbata</i>	bearded brotula	61	6.3	20	4.9
<i>Chaetodon ocellatus</i>	spotfin butterflyfish	61	4	27	6.6
<i>Raja texana</i>	roundel skate	60	23.3	39	9.5
<i>Paralichthys lethostigma</i>	southern flounder	58	20.3	25	6.1
<i>Paralichthys albigutta</i>	gulf flounder	55	19.6	24	5.8
<i>Gymnachirus texae</i>	fringed sole	52	0.8	15	3.6
<i>Hippocampus erectus</i>	lined seahorse	47	0.5	36	8.8
<i>Seriola zonata</i>	banded rudderfish	44	6.3	6	1.5
<i>Eucinostomus argenteus</i>	spotfin mojarra	41	1.3	2	0.5
<i>Pontinus longispinis</i>	longspine scorpionfish	41	0.4	10	2.4
<i>Hoplunnis diomedianus</i>	blacktail pike-conger	40	0.6	9	2.2
<i>Ophidion grayi</i>	blotched cusk-eel	40	2.1	5	1.2
<i>Pterois volitans</i>	lion fish	40	1.9	9	2.2
<i>Pareques iwamotoi</i>	blackbar drum	37	3	9	2.2
<i>Symphurus civitatum</i>	offshore tonguefish	35	0.7	8	1.9
<i>Rhynchoconger flavus</i>	yellow conger	35	2.6	11	2.7
<i>Priacanthus arenatus</i>	bigeye	34	1.6	16	3.9
<i>Raja eglanteria</i>	clearnose skate	34	26	23	5.6
<i>Ogcocephalus cubifrons</i>	polka-dot batfish	32	10.2	26	6.3
<i>Urophycis regia</i>	spotted hake	32	2	7	1.7
<i>Chilomycterus schoepfii</i>	striped burrfish	32	7.4	25	6.1
<i>Caulolatilus intermedius</i>	anchor tilefish	31	2.9	12	2.9
<i>Cyclopsetta fimbriata</i>	spotfin flounder	30	4.1	16	3.9

Table 3. Species composition list (continued)

GENUS/SPECIES	COMMON NAME	TOTAL NUMBER	TOTAL WEIGHT	NUMBER OF	% FREQUENCY
		CAUGHT	CAUGHT (KG)	TOWS WHERE CAUGHT	OCCURRENCE
<i>Etropus</i>		30	0.4	2	0.5
<i>Hemicaranx amblyrhynchus</i>	bluntnose jack	30	4.3	4	1
<i>Aluterus heudelotii</i>	dotterel filefish	30	8.4	18	4.4
<i>Caranx crysos</i>	blue runner	28	2.5	9	2.2
<i>Apogon affinis</i>	bigtooth cardinalfish	26	0.3	4	1
<i>Neomerinthe hemingwayi</i>	spinycheek scorpionfish	26	2.6	9	2.2
<i>Seriola dumerili</i>	greater amberjack	24	3.2	7	1.7
<i>Rypticus maculatus</i>	whitespotted soapfish	23	0.7	16	3.9
<i>Holocentrus marianus</i>	longjaw squirrelfish	22	0.7	4	1
<i>Schultzea beta</i>	school bass	22	0.4	1	0.2
<i>Paralichthys squamilentus</i>	broad flounder	21	7.4	9	2.2
<i>Hemanthias vivanus</i>	red barbier	21	0.3	4	1
<i>Symphurus urospilus</i>	spottail tonguefish	21	0.8	10	2.4
<i>Echeneis neucratoides</i>	whitefin sharksucker	20	4.5	8	1.9
<i>Calamus nodosus</i>	knobbed porgy	20	4.6	9	2.2
<i>Bothus ocellatus</i>	eyed flounder	20	0.5	6	1.5
<i>Mustelus canis</i>	smooth dogfish	20	27.4	16	3.9
<i>Rhizoprionodon terraenovae</i>	Atlantic sharpnose shark	19	12.6	13	3.2
<i>Echiophis intertinctus</i>	spotted spoon-nose eel	19	4.5	13	3.2
<i>Apogon quadrisquamatus</i>	sawcheek cardinalfish	18	0.1	2	0.5
<i>Astrapogon alutus</i>	bronze cardinalfish	17	0.1	10	2.4
<i>Gastropsetta frontalis</i>	shrimp flounder	17	1.6	13	3.2
<i>Neobythites gilli</i>	cusck-eel	17	0.1	6	1.5
<i>Ogcocephalus corniger</i>	longnose batfish	16	0.4	10	2.4
<i>Otophidium omostigmum</i>	polka-dot cusck-eel	16	0.1	8	1.9
<i>Sphyraena guachancho</i>	guaguanche	15	2.4	7	1.7
<i>Hoplunnis macrura</i>	freckled pike-conger	15	0.2	6	1.5
<i>Estropus microstomus</i>	smallmouth flounder	15	0.1	3	0.7
<i>Pomacanthus arcuatus</i>	gray angelfish	15	7.6	8	1.9
<i>Menticirrhus littoralis</i>	gulf kingfish	15	4.9	3	0.7
<i>Ogcocephalus pantostictus</i>	spotted batfish	15	4.9	7	1.7

Table 3. Species composition list (continued)

GENUS/SPECIES	COMMON NAME	TOTAL NUMBER	TOTAL WEIGHT	NUMBER OF	% FREQUENCY
		CAUGHT	CAUGHT (KG)	TOWS WHERE CAUGHT	OCCURRENCE
<i>Narcine brasiliensis</i>	lesser electric ray	14	3.5	7	1.7
<i>Gymnura micrura</i>	smooth butterfly ray	13	11.9	4	1
<i>Scomberomorus cavalla</i>	king mackerel	12	2.8	6	1.5
<i>Chaetodon sedentarius</i>	reef butterflyfish	12	0.6	5	1.2
<i>Opsanus pardus</i>	leopard toadfish	12	1.1	9	2.2
<i>Bregmaceros atlanticus</i>	antenna codlet	12	0	5	1.2
<i>Trinectes maculatus</i>	hogchoker	12	0.2	1	0.2
<i>Rypticus bistrispinus</i>	freckled soapfish	12	0.2	7	1.7
<i>Conodon nobilis</i>	barred grunt	12	0.7	4	1
<i>Pomatomus saltatrix</i>	bluefish	11	1.8	5	1.2
<i>Holacanthus bermudensis</i>	blue angelfish	11	6.1	6	1.5
<i>Squatina dumeril</i>	Atlantic angel shark	11	6.2	7	1.7
<i>Antennarius ocellatus</i>	ocellated frogfish	10	0.4	8	1.9
<i>Rhinoptera bonasus</i>	cownose ray	10	114.4	8	1.9
<i>Bellator egretta</i>	streamer searobin	10	0.1	4	1
<i>Phaeoptyx xenus</i>	sponge cardinalfish	10	0	7	1.7
<i>Scomber colias</i>		9	0.2	5	1.2
<i>Acanthostracion quadricornis</i>	scrawled cowfish	9	2.2	3	0.7
<i>Selene vomer</i>	lookdown	9	0.4	4	1
<i>Serraniculus pumilio</i>	pygmy sea bass	9	0	3	0.7
<i>Ariosoma balearicum</i>	bandtooth conger	8	0.5	6	1.5
<i>Mycteroperca microlepis</i>	gag	8	9.5	4	1
<i>Rhinobatos lentiginosus</i>	Atlantic guitarfish	8	4.3	7	1.7
<i>Peristedion gracile</i>	slender searobin	8	0	3	0.7
<i>Echeneis naucrates</i>	sharksucker	8	1.3	4	1
<i>Parablennius marmoreus</i>	seaweed blenny	8	0	7	1.7
<i>Echiophis punctifer</i>	snapper eel	7	3.8	4	1
<i>Sphyræna borealis</i>	northern sennet	7	0.9	3	0.7
<i>Ophidion selenops</i>	mooneye cusk-eel	7	0	5	1.2
<i>Pseudupeneus maculatus</i>	spotted goatfish	7	0.6	3	0.7
<i>Gobiesox strumosus</i>	skilletfish	7	0	5	1.2

Table 3. Species composition list (continued)

GENUS/SPECIES	COMMON NAME	TOTAL NUMBER	TOTAL WEIGHT	NUMBER OF	% FREQUENCY
		CAUGHT	CAUGHT (KG)	TOWS WHERE CAUGHT	OCCURRENCE
Anisotremus virginicus	porkfish	7	1.1	2	0.5
Ophidion	cusk-eels	6	0.3	4	1
Centropristis striatus	black sea bass	6	0.6	3	0.7
Canthigaster rostratus		6	0	2	0.5
Pomacentrus variabilis	cocoa damselfish	6	0.1	5	1.2
Scorpaena plumieri	spotted scorpionfish	6	0.9	1	0.2
Sphoeroides nephelus	southern puffer	6	0.9	5	1.2
Ophichthus puncticeps	palespotted eel	6	0.9	6	1.5
Urophycis earli	Carolina hake	6	0.7	5	1.2
Paraconger caudilimbatus	margintail conger	5	0.5	4	1
Gymnachirus melas	naked sole	5	0.3	3	0.7
Trachinotus carolinus	Florida pompano	5	0.9	3	0.7
Antennarius striatus	striated frogfish	5	0.2	5	1.2
Ophichthus gomesii	shrimp eel	5	0.7	4	1
Scomberomorus maculatus	Spanish mackerel	5	1.2	3	0.7
Synagrops bellus	blackmouth bass	5	0.1	1	0.2
Syngnathus springeri	bull pipefish	5	0.1	4	1
Dactylopterus volitans	flying gurnard	5	0	1	0.2
Citharichthys cornutus	horned whiff	5	0	2	0.5
Phaeoptyx pigmentaria	dusky cardinalfish	4	0	1	0.2
Citharichthys gymnorhinus	anglefin whiff	4	0	3	0.7
Calamus penna	sheepshead porgy	4	1.7	4	1
Ocyurus chrysurus	yellowtail snapper	4	0.5	1	0.2
Unid.fish	fishes	4	0	2	0.5
Physiculus fulvus	metallic codling	4	0	1	0.2
Sphyrna tiburo	bonnethead	4	7.7	4	1
Peprilus paru	harvestfish	4	0.6	1	0.2
Gymnothorax kolpos	blacktail moray	4	2	3	0.7
Prognathodes aya	bank butterflyfish	4	0.1	3	0.7
Apogon aurolineatus	bridle cardinalfish	4	0	2	0.5
Mycteroperca phenax	scamp	3	0.5	3	0.7

Table 3. Species composition list (continued)

GENUS/SPECIES	COMMON NAME	TOTAL NUMBER	TOTAL WEIGHT	NUMBER OF	% FREQUENCY
		CAUGHT	CAUGHT (KG)	TOWS WHERE CAUGHT	OCCURRENCE
<i>Acanthostracion polygonius</i>	honeycomb cowfish	3	1.3	1	0.2
<i>Hemanthias leptus</i>	longtail bass	3	0	2	0.5
<i>Calamus bajonado</i>	jolthead porgy	3	3.1	2	0.5
<i>Dysomma anguillare</i>	shortbelly eel	3	0.1	1	0.2
<i>Bairdiella batabana</i>	blue croaker	3	0.3	2	0.5
<i>Hypoplectrus puella</i>	barred hamlet	3	0.2	3	0.7
<i>Carcharhinus acronotus</i>	blacknose shark	3	8.8	3	0.7
<i>Dasyatis americana</i>	southern stingray	3	5	3	0.7
<i>Serranus subligarius</i>	belted sandfish	3	0	3	0.7
<i>Ariomma bondi</i>	silver-rag	3	0	2	0.5
<i>Gymnothorax nigromarginatus</i>	blackedge moray	3	0.3	3	0.7
<i>Menticirrhus saxatilis</i>	northern kingfish	3	0.4	2	0.5
<i>Chaenopsis ocellata</i>	bluethroat pikeblenny	3	0.3	1	0.2
<i>Halichoeres caudalis</i>	painted wrasse	3	0.3	2	0.5
<i>Pronotogrammus martinicensis</i>		2	0	1	0.2
<i>Mustelus norrisi</i>	Florida smoothhound	2	2.9	1	0.2
<i>Strongylura marina</i>	Atlantic needlefish	2	0	1	0.2
<i>Corythoichthys albirostris</i>		2	0	2	0.5
<i>Eucinostomus</i>	mojarra	2	0.2	1	0.2
<i>Coryphaena hippurus</i>	dolphin	2	1.6	1	0.2
<i>Epinephelus flavolimbatus</i>	yellowedge grouper	2	0.3	2	0.5
<i>Gnathagnus egregius</i>	freckled stargazer	2	0.1	1	0.2
<i>Fistularia petimba</i>	red cornetfish	2	0	2	0.5
Gobiidae	gobies	2	0	2	0.5
<i>Holocentrus bullisi</i>	deepwater squirrelfish	2	0.1	2	0.5
<i>Cryptotomus roseus</i>	bluelip parrotfish	2	0	2	0.5
Phaeoptyx		2	0	1	0.2
<i>Uraspis secunda</i>	cottonmouth jack	2	0.8	2	0.5
<i>Dasyatis centroura</i>	clam cracker	2	132.6	2	0.5
<i>Serranus tortugarum</i>	chalk bass	2	0	1	0.2
<i>Liopropoma eukrines</i>	wrasse bass	2	0	1	0.2

Table 3. Species composition list (continued)

GENUS/SPECIES	COMMON NAME	TOTAL NUMBER	TOTAL WEIGHT	NUMBER OF	% FREQUENCY
		CAUGHT	CAUGHT (KG)	TOWS WHERE CAUGHT	OCCURRENCE
Lutjanus vivanus	silk snapper	1	0.6	1	0.2
Epinephelus niveatus	snowy grouper	1	0	1	0.2
Chromis scotti	purple reeffish	1	0	1	0.2
Pagrus spp.	pagrus spp.	1	0	1	0.2
Gobiosoma horsti	yellowline goby	1	0	1	0.2
Serranidae	sea basses and groupers	1	0	1	0.2
Caranx hippos	crevalle jack	1	0.2	1	0.2
Seriola rivoliana	almaco jack	1	0.1	1	0.2
Calamus		1	0	1	0.2
Prognichthys		1	0.1	1	0.2
Stephanolepis setifer	pygmy filefish	1	0	1	0.2
Hypleurochilus		1	0	1	0.2
Dipturus olseni	spreadfin skate	1	1.7	1	0.2
Stephanolepis setifer	pygmy filefish	1	0	1	0.2
Lophius americanus	goosefish	1	0	1	0.2
Sphoeroides pachygaster	blunthead puffer	1	0.1	1	0.2
Caulolatilus cyanops	blackline tilefish	1	0	1	0.2
Centropristis	black sea basses	1	0	1	0.2
Gobiosoma xanthiprora	yellowprow goby	1	0	1	0.2
Dorosoma petenense	threadfin shad	1	0	1	0.2
Archosargus probatocephalus	sheepshead	1	0.4	1	0.2
Hippocampus reidi	longsnout seahorse	1	0	1	0.2
loglossus calliurus	blue goby	1	0	1	0.2
Hippoglossoides platessoides	American dab	1	0	1	0.2
Ariomma regulus	spotted driftfish	1	0.3	1	0.2
Diodon holocanthus	balloonfish	1	0.1	1	0.2
Paradiplogrammus bairdi	lancer dragonet	1	0	1	0.2
Rhinoptera brasiliensis	Brazilian cow-nosed ray	1	4.6	1	0.2
Urolophus jamaicensis		1	0.5	1	0.2
Pomacentrus leucostictus	beaugregory	1	0	1	0.2
Synodus synodus	red lizardfish	1	0	1	0.2

Table 3. Species composition list (continued)

GENUS/SPECIES	COMMON NAME	TOTAL NUMBER	TOTAL WEIGHT	NUMBER OF	% FREQUENCY
		CAUGHT	CAUGHT (KG)	TOWS WHERE CAUGHT	OCCURRENCE
<i>Diplogrammus pauciradiatus</i>	spotted dragonet	1	0	1	0.2
<i>Ginglymostoma cirratum</i>	nurse shark	1	14	1	0.2
<i>Muraena retifera</i>	reticulate moray	1	0.1	1	0.2
<i>Ophichthus</i> spp.	snake eels	1	0.1	1	0.2
<i>Starksia ocellata</i>	checkered blenny	1	0	1	0.2
<i>Dasyatis sabina</i>	Atlantic stringray	1	0.2	1	0.2
<i>Achirus lineatus</i>	lined sole	1	0	1	0.2
<i>Lonchopisthus micrognathus</i>	swordtail jawfish	1	0	1	0.2
<u>Crustaceans</u>					
<i>Callinectes similis</i>	lesser blue crab	63112	545.2	207	50.4
<i>Farfantepenaeus aztecus</i>	brown shrimp	53575	790.0	229	55.7
<i>Squilla empusa</i>	mantis shrimp	9356	81.5	126	30.7
<i>Rimapenaeus similis</i>	roughback shrimp	9218	47.9	84	20.4
<i>Portunus spinicarpus</i>	longspine swimming crab	6789	44.4	108	26.3
<i>Sicyonia brevirostris</i>	brown rock shrimp	5744	71.1	105	25.5
<i>Farfantepenaeus duorarum</i>	pink shrimp	3915	60.4	79	19.2
<i>Parapenaeus politus</i>	deepwater rose shrimp	3534	5.8	18	4.4
<i>Litopenaeus setiferus</i>	white shrimp	3433	165.5	102	24.8
<i>Rimapenaeus constrictus</i>	roughneck shrimp	2509	10.8	21	5.1
<i>Solenocera vioscai</i>	humpback shrimp	2197	10.5	35	8.5
<i>Sicyonia dorsalis</i>	lesser rock shrimp	2070	5.2	35	8.5
<i>Squilla chydæa</i>	mantis shrimp	1679	11.4	62	15.1
<i>Portunus gibbesii</i>	iridescent swimming crab	1375	10.6	87	21.2
<i>Solenocera atlantidis</i>	dwarf humpback shrimp	1076	1.6	39	9.5
<i>Metapenaeopsis goodei</i>	Caribbean velvet shrimp	671	1.3	29	7.1
<i>Portunus spinimanus</i>	blotched swimming crab	667	19.6	69	16.8
<i>Anasimus latus</i>	stilt spider crab	650	4.6	51	12.4
<i>Callinectes sapidus</i>	blue crab	431	78.5	90	21.9
<i>Calappa sulcata</i>	yellow box crab	281	52.2	61	14.8

Table 3. Species composition list (continued)

GENUS/SPECIES	COMMON NAME	TOTAL NUMBER	TOTAL WEIGHT	NUMBER OF	% FREQUENCY
		CAUGHT	CAUGHT (KG)	TOWS WHERE CAUGHT	OCCURRENCE
<i>Scyllarides nodifer</i>	ridged slipper lobster	228	27.4	44	10.7
<i>Scyllarus chacei</i>	chace slipper lobster	176	3.2	20	4.9
<i>Cryptodromiopsis antillensis</i>	hairy sponge crab	107	0.5	50	12.2
<i>Stenorhynchus seticornis</i>	yellowline arrow crab	98	0.2	44	10.7
<i>Hepatus epheliticus</i>	calico crab	81	3.1	23	5.6
<i>Myropsis quinquespinosa</i>	fivespine purse crab	73	0.3	12	2.9
<i>Leiolambrus nitidus</i>	white elbow crab	72	0.2	13	3.2
<i>Podochela sidneyi</i>	shortfinger neck crab	72	0.2	28	6.8
<i>Acanthocarpus alexandri</i>	gladiator box crab	70	0.5	6	1.5
<i>Raninoides louisianensis</i>	gulf frog crab	65	0.6	12	2.9
<i>Portunus ordwayii</i>		59	0.5	11	2.7
<i>Xiphopenaeus kroyeri</i>	seabob	59	0.2	16	3.9
<i>Paguristes sericeus</i>	blue-eyed hermit	53	0.1	27	6.6
<i>Arenaeus cribrarius</i>	speckled swimming crab	52	1.1	16	3.9
<i>Mesopenaeus tropicalis</i>	salmon shrimp	52	0.1	4	1.0
<i>Plesionika</i>		51	0.0	1	0.2
<i>Ovalipes floridanus</i>	Florida lady crab	46	0.8	15	3.6
<i>Mithrax hispidus</i>	coral clinging crab	41	0.1	18	4.4
<i>Stenocionops furcatus furcatus</i>	furcate crab	38	1.1	27	6.6
<i>Pagurus bullisi</i>	hermit crab	38	0.1	7	1.7
<i>Libinia emarginata</i>	portly spider crab	38	0.8	14	3.4
<i>Libinia dubia</i>	longnose spider crab	37	0.4	19	4.6
<i>Pseudorhombila quadridentata</i>	flecked squareback crab	34	0.5	7	1.7
<i>Dardanus insignis</i>	red brocade hermit	32	0.1	13	3.2
<i>Sicyonia burkenroadi</i>	spiny rock shrimp	32	0.1	5	1.2
<i>Platylambrus granulata</i>	bladetooth elbow crab	32	0.1	18	4.4
<i>Petrochirus diogenes</i>	giant hermit crab	29	0.6	21	5.1
<i>Portunus sayi</i>	sargassum swimming crab	28	0.1	15	3.6
<i>Porcellana sigsbeiana</i>	striped porcelain crab	27	0.0	9	2.2
<i>Persephona crinita</i>	pink purse crab	26	0.1	15	3.6
<i>Parthenope agonus</i>		25	0.0	15	3.6

Table 3. Species composition list (continued)

GENUS/SPECIES	COMMON NAME	TOTAL NUMBER	TOTAL WEIGHT	NUMBER OF	% FREQUENCY
		CAUGHT	CAUGHT (KG)	TOWS WHERE CAUGHT	OCCURRENCE
<i>Manucomplanus ungulatus</i>		24	0.0	15	3.6
<i>Speocarcinus lobatus</i>	gulf squareback crab	22	0.0	9	2.2
<i>Gibbesia neglecta</i>	mantis shrimp	20	0.2	3	0.7
<i>Paguristes</i> spp.	hermit crabs	19	0.0	6	1.5
Isopoda	isopods	18	0.0	9	2.2
<i>Dardanus fucosus</i>	bareye hermit	18	0.1	10	2.4
<i>Pilumnus sayi</i>	spineback hairy crab	17	0.1	10	2.4
<i>Mithrax pleuracanthus</i>	shaggy clinging crab	16	0.0	10	2.4
<i>Lobopilumnus agassizii</i>	areolated hairy crab	15	0.1	11	2.7
<i>Munida pusilla</i>		14	0.0	3	0.7
<i>Paguristes tortugae</i>	bandeye hermit	14	0.0	4	1.0
<i>Raninoides loevis</i>	furrowed frog crab	13	0.1	7	1.7
<i>Squilla rugosa</i>		13	0.1	7	1.7
<i>Macrocoeloma trispinosum</i>	spongy decorator crab	13	0.1	11	2.7
<i>Phimochirus holthuisi</i>	red-striped hermit	13	0.0	6	1.5
<i>Mithrax</i>		12	0.0	10	2.4
<i>Stenocionops spinimanus</i>	prickly spider crab	12	2.4	5	1.2
<i>Pagurus pollicaris</i>	flatclaw hermit crab	11	0.2	10	2.4
<i>Calappa flammea</i>	flame box crab	11	1.9	10	2.4
<i>Synalpheus longicarpus</i>		10	0.0	3	0.7
<i>Manucomplanus corallinus</i>		10	0.0	4	1.0
<i>Squilla deceptrix</i>		10	0.0	6	1.5
<i>Palicus alternata</i>		9	0.0	5	1.2
<i>Pilumnus floridanus</i>	plumed hairy crab	9	0.0	8	1.9
<i>Pilumnus dasypodus</i>	shortspine hairy crab	9	0.0	5	1.2
<i>Gonodactylus bredini</i>		9	0.0	5	1.2
<i>Mithrax forceps</i>	red-ridged clinging crab	9	0.0	5	1.2
<i>Galathea rostrata</i>		7	0.0	3	0.7
<i>Collodes trispinosus</i>		7	0.0	1	0.2
<i>Collodes robustus</i>	spider crab	6	0.0	3	0.7
<i>Danielum ixbauchac</i>	red sea crab	6	0.0	3	0.7

Table 3. Species composition list (continued)

GENUS/SPECIES	COMMON NAME	TOTAL NUMBER	TOTAL WEIGHT	NUMBER OF	% FREQUENCY
		CAUGHT	CAUGHT (KG)	TOWS WHERE CAUGHT	OCCURRENCE
<i>Nibilia antilocapra</i>	shorthorn spiny crab	6	0.0	3	0.7
<i>Podochela</i>		5	0.0	2	0.5
<i>Podochela riisei</i>	longfinger neck crab	5	0.0	5	1.2
<i>Munida flinti</i>		5	0.0	1	0.2
<i>Metoporphaphis calcarata</i>	false arrow crab	5	0.0	1	0.2
<i>Pseudomedeus agassizii</i>	rough rubble crab	5	0.0	3	0.7
<i>Hypoconcha spinosissima</i>	spiny shellback crab	4	0.0	4	1.0
<i>Portunus depressifrons</i>	flatface swimming crab	4	0.1	3	0.7
<i>Axiopsis hirsutimana</i>	lobster shrimps	4	0.0	1	0.2
<i>Macrocoeloma camptocerum</i>	Florida decorator crab	4	0.0	4	1.0
<i>Paguristes triangulatus</i>	hermit crab	4	0.0	1	0.2
<i>Scyllarus depressus</i>	scaled slipper lobster	3	0.0	2	0.5
<i>Petrolisthes galathinus</i>	banded porcelain crab	3	0.0	3	0.7
<i>Squilla</i> spp.	mantis shrimps	3	0.0	3	0.7
<i>Tyche emarginata</i>	fourhorn crab	3	0.0	2	0.5
<i>Munida forceps</i>	squat lobster	3	0.0	1	0.2
<i>Persephona mediterranea</i>	mottled purse crab	3	0.0	2	0.5
<i>Ethusa microphthalma</i>	broadback sumo crab	3	0.0	2	0.5
<i>Collodes</i>		3	0.0	1	0.2
<i>Parthenope fraterculus</i>	rough elbow crab	3	0.0	2	0.5
<i>Pagurus</i>	hermits	3	0.0	3	0.7
<i>Munida</i>		2	0.0	1	0.2
<i>Stomatopoda</i>	mantis shrimps	2	0.0	1	0.2
<i>Stenocionops furcatus coelatus</i>	spider crab	2	0.0	1	0.2
<i>Pachycheles rugimanus</i>	sculptured porcelain crab	2	0.0	1	0.2
<i>Palicus faxoni</i>	finned stilt crab	2	0.0	2	0.5
<i>Pilumnus</i>		2	0.0	1	0.2
<i>Sicyonia typica</i>	kinglet rock shrimp	2	0.0	2	0.5
<i>Paguristes hummi</i>	left-handed hermit crabs	2	0.0	2	0.5
<i>Synalpheus</i>		2	0.0	2	0.5
<i>Iliacantha subglobosa</i>	longfinger purse crab	2	0.0	2	0.5

Table 3. Species composition list (continued)

GENUS/SPECIES	COMMON NAME	TOTAL NUMBER	TOTAL WEIGHT	NUMBER OF	% FREQUENCY
		CAUGHT	CAUGHT (KG)	TOWS WHERE CAUGHT	OCCURRENCE
<i>Euphosynoplax clausa</i>	craggy bathyal crab	2	0.0	1	0.2
<i>Tozeuma serratum</i>	serrate arrow shrimp	1	0.0	1	0.2
<i>Solenocera</i> spp.	humpback shrimps	1	0.0	1	0.2
<i>Euceramus praelongus</i>	olivepit porcelain crab	1	0.0	1	0.2
<i>Lysiosquilla scabricauda</i>	mantis shrimp	1	0.1	1	0.2
<i>Processa</i>		1	0.0	1	0.2
<i>Menippe mercenaria</i>	Florida stone crab	1	0.2	1	0.2
<i>Synalpheus townsendi</i>	Townsend snapping shrimp	1	0.0	1	0.2
<i>Carpoporus papulosus</i>	narrowfront rubble crab	1	0.0	1	0.2
<i>Periclimenes</i>		1	0.0	1	0.2
<i>Meiosquilla quadridens</i>		1	0.0	1	0.2
<i>Pagurus carolinensis</i>	wormreef hermit	1	0.0	1	0.2
<i>Manucomplanus</i>		1	0.0	1	0.2
Penaeidae	penaeid shrimps	1	0.0	1	0.2
<i>Glyptoplax smithii</i>	truncate rubble crab	1	0.0	1	0.2
<i>Ovalipes stephensoni</i>	coarsehand lady crab	1	0.0	1	0.2
<i>Calappa ocellata</i>	ocellate box crab	1	0.1	1	0.2
<i>Ranilia muricata</i>	muricate frog crab	1	0.0	1	0.2
Decapoda	crabs	1	0.0	1	0.2
<i>Callinassa</i> spp.	ghost shrimps	1	0.0	1	0.2
<i>Squilla edentata</i>		1	0.0	1	0.2
<i>Glypturus</i>		1	0.0	1	0.2
<i>Hexapanopeus angustifrons</i>	smooth mud crab	1	0.0	1	0.2
<i>Sicyonia</i> spp.	rock shrimps	1	0.0	1	0.2
Gnathophyllidae	bumblebee shrimps	1	0.0	1	0.2
<i>Petrolisthes armatus</i>	green porcelain crab	1	0.0	1	0.2
<i>Alpheus</i>	snapping shrimps	1	0.0	1	0.2
Paguridae	right-handed hermit crabs	1	0.0	1	0.2
<i>Lysmata wurdemanni</i>	peppermint shrimp	1	0.0	1	0.2
<i>Parthenope pourtalesii</i>	spinous elbow crab	1	0.0	1	0.2
<i>Callidactylus asper</i>	spurfinger purse crab	1	0.0	1	0.2

Table 3. Species composition list (continued)

GENUS/SPECIES	COMMON NAME	TOTAL NUMBER	TOTAL WEIGHT	NUMBER OF	% FREQUENCY
		CAUGHT	CAUGHT (KG)	TOWS WHERE CAUGHT	OCCURRENCE
Pagurus impressus	dimpled hermit	1	0.0	1	0.2
Nanoplax xanthiformis	rough squareback crab	1	0.0	1	0.2
<u>Others</u>					
Loligo plei	arrow squid	10341	143.6	150	36.5
Amusium papyraceum	paper scallop	8061	76.2	61	14.8
Loligo pealeii	longfin squid	6165	114.7	112	27.3
Lolliguncula brevis	Atlantic brief squid	2350	26.4	133	32.4
Loligo spp.	squids	495	3.3	8	1.9
Anadara baughmani	Baughman's ark	215	2.8	11	2.7
Pitar cordatus	Schwengel's pitar	77	1.9	17	4.1
Aplysia	opisthobranchs	75	5.5	5	1.2
Aplysia morio	sooty seahare	73	14.1	6	1.5
Octopus vulgaris	common Atlantic octopus	60	21.5	38	9.2
Argopecten gibbus	calico scallop	41	0.2	12	2.9
Polystira tellea	delicate giant turret	41	0.4	5	1.2
Semirossia equalis	greater shining bobtail	29	0.1	6	1.5
Polystira albida	white giant turris	23	0.1	4	1.0
Turbo castaneus		23	0.1	4	1.0
Distorsio clathrata	Atlantic distorsio	19	0.1	4	1.0
Eucrassatella speciosa	beautiful crassatella	17	0.3	1	0.2
Sconsia striata	royal bonnet	17	0.2	5	1.2
Arca zebra	turkey wing	16	1.6	1	0.2
Conus austini	cone shell	15	0.2	4	1.0
Tonna galea	giant tun	15	1.7	8	1.9
Aplysia brasiliana	mottled seahare	14	0.6	6	1.5
Aplysiidae	opisthobranchs	13	0.4	2	0.5
Aequipecten muscosus	rough scallop	13	0.1	10	2.4
Pitar		12	0.1	1	0.2
Vermicularia knorri		10	0.0	2	0.5

Table 3. Species composition list (continued)

GENUS/SPECIES	COMMON NAME	TOTAL NUMBER	TOTAL WEIGHT	NUMBER OF	% FREQUENCY
		CAUGHT	CAUGHT (KG)	TOWS WHERE CAUGHT	OCCURRENCE
<i>Pteria colymbus</i>	Atlantic wing-oyster	9	0.2	6	1.5
<i>Euvola raveneli</i>	Ravenel's scallop	9	0.1	8	1.9
<i>Ficus communis</i>	Atlantic figsnail	9	0.4	5	1.2
<i>Lirophora clenchi</i>	Clench venus	8	0.1	4	1.0
<i>Calliostoma</i>		8	0.0	7	1.7
<i>Laevicardium laevigatum</i>	egg cockle	7	0.4	2	0.5
<i>Cassis madagascariensis</i>	cameo helmet	7	21.9	5	1.2
<i>Narcissia trigonaria</i>		7	0.5	6	1.5
<i>Cantharus cancellarius</i>	cancellate cantharus	6	0.0	5	1.2
<i>Laevicardium mortoni</i>	yellow eggcockle	6	0.0	3	0.7
<i>Busycon plagosus</i>		5	0.4	3	0.7
<i>Macoma pulleyi</i>	delta macoma	5	0.0	1	0.2
Buccinidae		4	0.0	3	0.7
<i>Anadara ovalis</i>	blood ark	4	0.1	1	0.2
<i>Parabornia squillina</i>	squillaclam	4	0.0	1	0.2
<i>Arcinella cornuta</i>	Florida spiny jewelbox	4	0.1	2	0.5
<i>Cypraea cervus</i>	atlantic deer cowrie	3	0.3	3	0.7
<i>Chama macerophylla</i>	leafy jewelbox	3	0.5	3	0.7
Octopus		3	0.8	2	0.5
<i>Hypselodoris edenticulata</i>	florida regal doris	3	0.0	3	0.7
<i>Dendrodoris</i>		3	0.2	3	0.7
<i>Sinum maculatum</i>	brown baby ear	3	0.1	3	0.7
<i>Atrina seminuda</i>	half-naked penshell	3	1.1	1	0.2
<i>Lyropecten nodosus</i>	lions-paw scallop	3	0.4	2	0.5
<i>Hypselodoris</i>		3	0.0	2	0.5
<i>Strombus costatus</i>	milk conch	3	0.2	2	0.5
<i>Hiatella arctica</i>	Arctic hiatella	2	0.0	2	0.5
<i>Murex cabritti</i>		2	0.0	2	0.5
<i>Chama congregata</i>	corrugate jewelbox	2	0.0	1	0.2
<i>Atrina rigida</i>	stiff penshell	2	1.0	2	0.5
<i>Calliostoma euglyptum</i>	sculptured topsnail	2	0.0	2	0.5

Table 3. Species composition list (continued)

GENUS/SPECIES	COMMON NAME	TOTAL NUMBER	TOTAL WEIGHT	NUMBER OF	% FREQUENCY
		CAUGHT	CAUGHT (KG)	TOWS WHERE CAUGHT	OCCURRENCE
<i>Xenophora conchyliophora</i>	American carriersnail	2	0.0	2	0.5
<i>Macrocallista maculata</i>	calico clam	2	0.1	2	0.5
<i>Conus daucus</i>	carrot cone	2	0.0	2	0.5
<i>Crepidula convexa</i>	convex slippersnail	2	0.0	1	0.2
<i>Chione latilirata</i>	imperial venus	2	0.0	1	0.2
<i>Chicoreus</i>		2	0.0	2	0.5
<i>Americardia media</i>	Atlantic strawberry-cockle	2	0.0	2	0.5
Cypraeidae		2	0.0	2	0.5
<i>Cymatium parthenopeum</i>	giant triton	1	0.0	1	0.2
<i>Oliva sayana</i>	lettered olive	1	0.0	1	0.2
<i>Sinum perspectivum</i>	white baby-ear	1	0.0	1	0.2
Pleurobranchus	slugs	1	0.0	1	0.2
<i>Astrea americana</i>		1	0.0	1	0.2
<i>Ischadium recurvum</i>	hooked mussel	1	0.0	1	0.2
Cephalopoda	octopuses	1	0.0	1	0.2
<i>Latirus mcgintyi</i>		1	0.0	1	0.2
<i>Natica</i>		1	0.0	1	0.2
<i>Varicorbula</i>		1	0.0	1	0.2
Cancellaridae		1	0.0	1	0.2
<i>Chlamys benedicti</i>	Benedict scallop	1	0.0	1	0.2
<i>Fusinus couei</i>	Yucatan spindle	1	0.0	1	0.2
<i>Arca imbric</i>	mossy ark	1	0.1	1	0.2
<i>Busycon sinistrum</i>	lightning whelk	1	0.1	1	0.2
<i>Fasciolaria liliium</i>	banded tulip	1	0.0	1	0.2
<i>Cypraea cinera</i>		1	0.0	1	0.2
<i>Anadara notabilis</i>	eared ark	1	0.0	1	0.2
<i>Cymatium krebsii</i>		1	0.0	1	0.2
<i>Busycon pulleyi</i>	prickly whelk	1	1.5	1	0.2
<i>Strombus alatus</i>	Florida fighting conch	1	0.0	1	0.2
<i>Cyphoma mcgintyi</i>		1	0.0	1	0.2
<i>Distorsio</i>		1	0.0	1	0.2

Table 3. Species composition list (continued)

GENUS/SPECIES	COMMON NAME	TOTAL NUMBER	TOTAL WEIGHT	NUMBER OF	% FREQUENCY
		CAUGHT	CAUGHT (KG)	TOWS WHERE CAUGHT	OCCURRENCE
Astrea phoebia		1	0.0	1	0.2
Chicoreus florifer-dilectus		1	0.0	1	0.2
Laevicardium		1	0.0	1	0.2
Spengleria rostrata	rostrate gastrochaenid	1	0.0	1	0.2
Hiatella		1	0.0	1	0.2
Callista eucymata	glory-of-the-seas venus	1	0.0	1	0.2
Strombus gigas	queen conch	1	0.1	1	0.2

Table 4. 2011 Fall Shrimp/Groundfish Survey species composition list, 302 trawl stations, for those vessels that used either a 40-ft or 20-ft trawl.
 Species with a total weight of less than 0.0227 kg (0.05 lb) are indicated on the table as 0.0 kg.

GENUS/SPECIES	COMMON NAME	TOTAL NUMBER CAUGHT	TOTAL WEIGHT CAUGHT (KG)	NUMBER OF TOWS WHERE CAUGHT	% FREQUENCY OCCURRENCE
<u>Finfishes</u>					
Micropogonias undulatus	Atlantic croaker	145169	6664.0	200	66.2
Stenotomus caprinus	longspine porgy	21300	795.3	195	64.6
Chloroscombrus chrysurus	Atlantic bumper	11742	275.3	91	30.1
Leiostomus xanthurus	spot	9259	815.3	136	45.0
Cynoscion nothus	silver seatrout	6189	384.5	122	40.4
Peprilus burti	gulf butterflyfish	5739	393.1	128	42.4
Serranus atrobranchus	blackear bass	5139	60.3	83	27.5
Trichiurus lepturus	Atlantic cutlassfish	4928	361.9	89	29.5
Trachurus lathami	rough scad	4777	162.6	97	32.1
Larimus fasciatus	banded drum	3409	215.6	84	27.8
Prionotus longispinosus	bigeye searobin	3380	133.4	134	44.4
Syacium gunteri	shoal flounder	3354	64.6	119	39.4
Cynoscion arenarius	sand seatrout	2425	225.6	126	41.7
Steindachneria argentea	luminous hake	2162	10.5	2	0.7
Centropristis philadelphica	rock sea bass	2156	122.4	128	42.4
Upeneus parvus	dwarf goatfish	2006	61.9	83	27.5
Pristipomoides aquilonaris	wenchman	1996	96.7	50	16.6
Lutjanus campechanus	red snapper	1914	171.4	144	47.7
Lagodon rhomboides	pinfish	1790	118.5	132	43.7
Synodus foetens	inshore lizardfish	1757	276.1	140	46.4
Selene setapinnis	Atlantic moonfish	1649	85.4	104	34.4
Trichopsetta ventralis	sash flounder	1579	38.3	38	12.6
Stellifer lanceolatus	star drum	1448	20.6	40	13.2
Harengula jaguana	scaled sardine	1292	77.5	43	14.2
Anchoa hepsetus	striped anchovy	1207	19.1	47	15.6
Decapterus punctatus	round scad	833	8.5	7	2.3
Orthopristis chrysoptera	pigfish	777	98.1	25	8.3

Table 4. Species composition list (continued)

GENUS/SPECIES	COMMON NAME	TOTAL NUMBER	TOTAL WEIGHT	NUMBER OF	% FREQUENCY
		CAUGHT	CAUGHT (KG)	TOWS WHERE CAUGHT	OCCURRENCE
<i>Haemulon aurolineatum</i>	tomtate	751	67.3	16	5.3
<i>Diplectrum bivittatum</i>	dwarf sand perch	743	10.9	48	15.9
<i>Halieutichthys aculeatus</i>	pancake batfish	739	5.3	56	18.5
<i>Prionotus paralatus</i>	Mexican searobin	722	18.7	31	10.3
<i>Ariopsis felis</i>	hardhead catfish	694	128.4	55	18.2
<i>Sphoeroides parvus</i>	least puffer	604	3.2	61	20.2
<i>Prionotus roseus</i>	bluespotted searobin	593	15.1	26	8.6
<i>Saurida brasiliensis</i>	largescale lizardfish	575	1.9	40	13.2
<i>Cyclopsetta chittendeni</i>	Mexican flounder	560	58.7	95	31.5
<i>Mullus auratus</i>	red goatfish	553	30.8	20	6.6
<i>Lepophidium brevibarbe</i>	blackedge cusk-eel	518	17.2	48	15.9
<i>Centropristis ocyurus</i>	bank sea bass	411	24.2	18	6.0
<i>Chaetodipterus faber</i>	Atlantic spadefish	378	22.1	75	24.8
<i>Syacium papillosum</i>	dusky flounder	375	30.8	27	8.9
<i>Prionotus stearnsi</i>	shortwing searobin	363	4.1	27	8.9
<i>Synodus intermedius</i>	sand diver	340	55.7	11	3.6
<i>Menticirrhus americanus</i>	southern kingfish	327	44.1	33	10.9
<i>Lutjanus synagris</i>	lane snapper	320	27.7	53	17.5
<i>Etropus crossotus</i>	fringed flounder	316	5.4	61	20.2
<i>Rhomboplites aurorubens</i>	vermillion snapper	259	22.6	19	6.3
<i>Citharichthys spilopterus</i>	bay whiff	247	3.9	34	11.3
<i>Urophycis floridana</i>	southern hake	242	27.1	16	5.3
<i>Prionotus scitulus</i>	leopard searobin	234	10.3	13	4.3
<i>Diplectrum formosum</i>	sand perch	233	22.0	20	6.6
<i>Eucinostomus gula</i>	silver jenny	230	7.2	38	12.6
<i>Neomerinthe hemingwayi</i>	spinycheek scorpionfish	219	22.8	21	7.0
<i>Opisthonema oglinum</i>	Atlantic thread herring	218	21.1	26	8.6
<i>Peprilus paru</i>	harvestfish	201	8.1	41	13.6
<i>Bagre marinus</i>	gafftopsail catfish	175	28.7	30	9.9
<i>Porichthys plectrodon</i>	Atlantic midshipman	169	3.4	44	14.6
<i>Synodus poeyi</i>	offshore lizardfish	161	1.5	22	7.3

Table 4. Species composition list (continued)

GENUS/SPECIES	COMMON NAME	TOTAL NUMBER	TOTAL WEIGHT	NUMBER OF	% FREQUENCY
		CAUGHT	CAUGHT (KG)	TOWS WHERE CAUGHT	OCCURRENCE
<i>Lagocephalus laevigatus</i>	smooth puffer	156	13.6	52	17.2
<i>Balistes capriscus</i>	gray triggerfish	149	15.5	51	16.9
<i>Stephanolepis hispida</i>	planehead filefish	135	5.1	19	6.3
<i>Caranx crysos</i>	blue runner	134	17.9	31	10.3
<i>Symphurus diomedeanus</i>	spottedfin tonguefish	118	3.2	23	7.6
<i>Ophidion josephi</i>	crested cusk-eel	104	5.2	15	5.0
<i>Bellator egretta</i>	streamer searobin	102	1.4	1	0.3
<i>Rhynchoconger flavus</i>	yellow conger	102	6.4	18	6.0
<i>Ancylopsetta ommata</i>	ocellated flounder	89	15.8	29	9.6
<i>Ophidion holbrookii</i>	bank cusk-eel	86	11.1	6	2.0
<i>Ogcocephalus declivirostris</i>	slantbrow batfish	80	1.3	21	7.0
<i>Bathyanthias mexicanus</i>	yellowtail bass	78	0.7	8	2.6
<i>Kathetostoma albigutta</i>	lancer stargazer	76	2.7	18	6.0
<i>Pagrus pagrus</i>	red porgy	76	12.1	5	1.7
<i>Urophycis cirrata</i>	gulf hake	69	3.1	6	2.0
<i>Gymnachirus texae</i>	fringed sole	67	0.9	21	7.0
<i>Antennarius radiosus</i>	singlespot frogfish	66	1.1	16	5.3
<i>Raja texana</i>	roundel skate	60	27.1	28	9.3
<i>Pareques iwamotoi</i>	blackbar drum	59	2.9	11	3.6
<i>Calamus leucosteus</i>	whitebone porgy	58	14.0	9	3.0
<i>Pareques umbrosus</i>	cubbyu	58	3.0	12	4.0
<i>Paralichthys lethostigma</i>	southern flounder	57	18.1	29	9.6
<i>Engyophrys senta</i>	spiny flounder	56	0.3	15	5.0
<i>Stephanolepis setifer</i>	pygmy filefish	54	3.0	3	1.0
<i>Prionotus tribulus</i>	bighead searobin	54	3.6	17	5.6
<i>Etrumeus teres</i>	round herring	53	1.4	3	1.0
<i>Ancylopsetta dilecta</i>	three-eye flounder	53	2.1	15	5.0
<i>Sphyræna guachancho</i>	guaguanche	51	10.6	13	4.3
<i>Caulolatilus intermedius</i>	anchor tilefish	51	4.4	13	4.3
<i>Hemicaranx amblyrhynchus</i>	bluntnose jack	51	6.6	15	5.0
<i>Brevoortia patronus</i>	gulf menhaden	48	3.7	14	4.6

Table 4. Species composition list (continued)

GENUS/SPECIES	COMMON NAME	TOTAL NUMBER	TOTAL WEIGHT	NUMBER OF	% FREQUENCY
		CAUGHT	CAUGHT (KG)	TOWS WHERE CAUGHT	OCCURRENCE
<i>Sardinella aurita</i>	Spanish sardine	47	2.6	8	2.6
<i>Selene vomer</i>	lookdown	45	3.4	5	1.7
<i>Bollmannia communis</i>	ragged goby	42	0.2	7	2.3
<i>Brotula barbata</i>	bearded brotula	41	5.1	17	5.6
<i>Prionotus rubio</i>	blackwing searobin	41	5.5	11	3.6
<i>Symphurus plagiusa</i>	blackcheek tonguefish	40	0.9	15	5.0
<i>Apogon pseudomaculatus</i>	twospot cardinalfish	40	0.3	3	1.0
<i>Cynoscion</i> spp.	seatrouts	40	0.1	3	1.0
<i>Selar crumenophthalmus</i>	bigeye scad	37	3.2	14	4.6
<i>Prionotus ophryas</i>	bandtail searobin	35	1.1	8	2.6
<i>Anchoa mitchilli</i>	bay anchovy	34	0.0	15	5.0
<i>Rhizoprionodon terraenovae</i>	Atlantic sharpnose shark	34	37.5	16	5.3
<i>Apogon affinis</i>	bigtooth cardinalfish	28	0.2	1	0.3
<i>Symphurus civitatum</i>	offshore tonguefish	27	0.5	8	2.6
<i>Sphoeroides spengleri</i>	bandtail puffer	26	1.6	6	2.0
<i>Lepophidium jeannae</i>	mottled cusk-eel	25	1.4	2	0.7
<i>Citharichthys macrops</i>	spotted whiff	25	0.9	8	2.6
<i>Priacanthus arenatus</i>	bigeye	25	3.0	8	2.6
<i>Conodon nobilis</i>	barred grunt	23	1.2	4	1.3
<i>Sphyrna tiburo</i>	bonnethead	22	8.5	12	4.0
<i>Pomatomus saltatrix</i>	bluefish	20	7.1	10	3.3
<i>Scorpaena calcarata</i>	smoothhead scorpionfish	19	0.2	4	1.3
<i>Acanthostracion quadricornis</i>	scrawled cowfish	19	3.4	10	3.3
<i>Caranx hippos</i>	crevalle jack	19	1.2	7	2.3
<i>Hoplunnis macrura</i>	freckled pike-conger	18	0.1	8	2.6
<i>Trachinocephalus myops</i>	snakefish	17	1.7	6	2.0
<i>Hemanthias aureorubens</i>	streamer bass	17	0.2	3	1.0
<i>Dasyatis say</i>	bluntnose stingray	15	33.4	3	1.0
<i>Ariomma regulus</i>	spotted driftfish	14	0.7	5	1.7
<i>Echeneis naucrates</i>	sharksucker	14	3.8	8	2.6
<i>Scomberomorus maculatus</i>	Spanish mackerel	13	3.0	9	3.0

Table 4. Species composition list (continued)

GENUS/SPECIES	COMMON NAME	TOTAL NUMBER	TOTAL WEIGHT	NUMBER OF	% FREQUENCY
		CAUGHT	CAUGHT (KG)	TOWS WHERE CAUGHT	OCCURRENCE
<i>Physiculus fulvus</i>	metallic codling	12	0.2	1	0.3
<i>Serranus phoebe</i>	tattler	11	0.2	2	0.7
<i>Mustelus</i>	smooth hound sharks	11	11.6	7	2.3
<i>Paralichthys albigutta</i>	gulf flounder	11	3.7	5	1.7
<i>Raja eglanteria</i>	clearnose skate	10	5.4	8	2.6
<i>Aluterus scriptus</i>	scrawled filefish	10	2.6	5	1.7
<i>Decodon puellaris</i>	red hogfish	9	0.3	3	1.0
<i>Estropus microstomus</i>	smallmouth flounder	9	0.1	3	1.0
<i>Calamus nodosus</i>	knobbed porgy	9	2.3	4	1.3
<i>Pontinus longispinis</i>	longspine scorpionfish	9	0.0	4	1.3
<i>Equetus lanceolatus</i>	jackknife fish	8	1.8	1	0.3
<i>Ophidion grayi</i>	blotched cusk-eel	8	0.6	1	0.3
<i>Hemipteronotus novacula</i>	pearly razorfish	8	0.4	3	1.0
<i>Caulolatilus cyanops</i>	blackline tilefish	7	0.2	1	0.3
<i>Squatina dumeril</i>	Atlantic angel shark	7	3.1	5	1.7
<i>Scorpaena</i> spp.	scorpionfishes	7	0.0	1	0.3
<i>Serraniculus pumilio</i>	pygmy sea bass	7	0.1	1	0.3
<i>Cyclosetta fimbriata</i>	spotfin flounder	7	1.1	3	1.0
<i>Otophidium omostigmum</i>	polka-dot cusk-eel	7	0.0	1	0.3
<i>Pristigenys alta</i>	short bigeye	7	0.6	2	0.7
<i>Aluterus schoepfii</i>	orange filefish	7	4.6	2	0.7
<i>Mustelus sinusmexicanus</i>	Gulf smoothhound	7	28.7	3	1.0
<i>Bellator militaris</i>	horned searobin	6	0.1	1	0.3
<i>Urophycis regia</i>	spotted hake	6	0.3	1	0.3
<i>Sphyraena borealis</i>	northern sennet	6	0.9	2	0.7
<i>Rypticus bistrispinus</i>	freckled soapfish	6	0.2	1	0.3
<i>Saurida normani</i>	shortjaw lizardfish	5	0.3	2	0.7
<i>Narcine brasiliensis</i>	lesser electric ray	5	1.1	3	1.0
<i>Sciaenops ocellatus</i>	red drum	5	12.5	4	1.3
<i>Rypticus maculatus</i>	whitespotted soapfish	5	0.3	3	1.0
<i>Opsanus pardus</i>	leopard toadfish	5	0.1	2	0.7

Table 4. Species composition list (continued)

GENUS/SPECIES	COMMON NAME	TOTAL NUMBER	TOTAL WEIGHT	NUMBER OF	% FREQUENCY
		CAUGHT	CAUGHT (KG)	TOWS WHERE CAUGHT	OCCURRENCE
Haemulon plumierii	white grunt	5	0.7	1	0.3
Holacanthus bermudensis	blue angelfish	4	1.2	2	0.7
Gobiidae	gobies	4	0.0	1	0.3
Echiophis punctifer	snapper eel	4	1.0	1	0.3
Scomberomorus cavalla	king mackerel	4	2.3	3	1.0
Rachycentron canadum	cobia	4	0.8	3	1.0
Gymnothorax saxicola	honeycomb moray	4	0.7	2	0.7
Chilomycterus schoepfii	striped burrfish	4	1.1	4	1.3
Chaetodon sedentarius	reef butterflyfish	3	0.1	2	0.7
Uroconger syringinus	threadtail conger	3	0.2	1	0.3
Epinephelus flavolimbatus	yellowedge grouper	3	0.7	3	1.0
Dorosoma petenense	threadfin shad	3	0.1	2	0.7
Chromis enchrysur	yellowtail reeffish	3	0.1	2	0.7
Mugil cephalus	black mullet	3	0.1	1	0.3
Dasyatis americana	southern stingray	3	4.3	3	1.0
Rypticus	soapfishes	2	0.1	1	0.3
Apogon aurolineatus	bridle cardinalfish	2	0.0	1	0.3
Echiophis intertinctus	spotted spoon-nose eel	2	0.5	1	0.3
Monacanthus ciliatus	fringed filefish	2	0.1	1	0.3
Stephanolepis setifer	pygmy filefish	2	0.0	1	0.3
Ogcocephalus cubifrons	polka-dot batfish	2	0.0	1	0.3
Gymnura micrura	smooth butterfly ray	2	10.3	2	0.7
Seriola dumerili	greater amberjack	2	0.5	2	0.7
Lutjanus griseus	grey snapper	2	1.0	2	0.7
Ophichthus gomesii	shrimp eel	2	0.2	2	0.7
Trinectes maculatus	hogchoker	2	0.0	1	0.3
Menticirrhus littoralis	gulf kingfish	2	0.2	2	0.7
Gastropsetta frontalis	shrimp flounder	2	0.2	2	0.7
Myliobatis freminvillii	Bullnose ray	2	1.6	1	0.3
Gymnothorax nigromarginatus	blackedge moray	2	0.2	2	0.7
Polydactylus octonemus	Atlantic threadfin	2	0.1	1	0.3

Table 4. Species composition list (continued)

GENUS/SPECIES	COMMON NAME	TOTAL NUMBER	TOTAL WEIGHT	NUMBER OF	% FREQUENCY
		CAUGHT	CAUGHT (KG)	TOWS WHERE CAUGHT	OCCURRENCE
<i>Carcharhinus acronotus</i>	blacknose shark	2	12.5	2	0.7
<i>Mustelus canis</i>	smooth dogfish	2	1.4	2	0.7
<i>Caulolatilus chrysops</i>	goldface tilefish	2	0.0	2	0.7
<i>Trachinotus carolinus</i>	Florida pompano	2	0.8	2	0.7
<i>Gymnachirus melas</i>	naked sole	1	0.0	1	0.3
<i>Hippocampus reidi</i>	longsnout seahorse	1	0.0	1	0.3
<i>Aetobatus narinari</i>	bonnetray	1	14.3	1	0.3
<i>Ogcocephalus parvus</i>	roughback batfish	1	0.0	1	0.3
<i>Gymnura altavela</i>	spiny butterfly ray	1	0.4	1	0.3
<i>Paraconger caudilimbatus</i>	margintail conger	1	0.0	1	0.3
<i>Dasyatis centroura</i>	clam cracker	1	100.0	1	0.3
<i>Scorpaena plumieri</i>	spotted scorpionfish	1	0.0	1	0.3
<i>Pterois volitans</i>	lion fish	1	0.0	1	0.3
<i>Antennarius striatus</i>	striated frogfish	1	0.0	1	0.3
<i>Epinephelus niveatus</i>	snowy grouper	1	0.0	1	0.3
<i>Eucinostomus argenteus</i>	spotfin mojarra	1	0.0	1	0.3
<i>Hippocampus erectus</i>	lined seahorse	1	0.0	1	0.3
<i>Citharichthys cornutus</i>	horned whiff	1	0.0	1	0.3
<i>Bothus robinsi</i>	twospot flounder	1	0.1	1	0.3
<i>Mugil curema</i>	silver mullet	1	0.0	1	0.3
<i>Eucinostomus melanopterus</i>	flagfin mojarra	1	0.0	1	0.3
<u>Crustaceans</u>					
<i>Farfantepenaeus aztecus</i>	brown shrimp	14679	391.8	194	64.2
<i>Callinectes similis</i>	lesser blue crab	7168	129.8	151	50.0
<i>Squilla empusa</i>	mantis shrimp	1707	18.9	91	30.1
<i>Litopenaeus setiferus</i>	white shrimp	1620	48.7	92	30.5
<i>Portunus spinicarpus</i>	longspine swimming crab	1569	14.0	54	17.9
<i>Solenocera vioscai</i>	humpback shrimp	705	4.7	26	8.6
<i>Anasimus latus</i>	stilt spider crab	667	6.5	39	12.9

Table 4. Species composition list (continued)

GENUS/SPECIES	COMMON NAME	TOTAL NUMBER	TOTAL WEIGHT	NUMBER OF	% FREQUENCY
		CAUGHT	CAUGHT (KG)	TOWS WHERE CAUGHT	OCCURRENCE
<i>Squilla chydæa</i>	mantis shrimp	547	4.6	50	16.6
<i>Portunus gibbesii</i>	iridescent swimming crab	496	3.3	64	21.2
<i>Rimapenæus similis</i>	roughback shrimp	405	1.1	48	15.9
<i>Rimapenæus constrictus</i>	roughneck shrimp	369	1.4	26	8.6
<i>Sicyonia brevirostris</i>	brown rock shrimp	368	6.7	30	9.9
<i>Callinectes sapidus</i>	blue crab	291	29.0	33	10.9
<i>Calappa sulcata</i>	yellow box crab	237	61.2	62	20.5
<i>Raninoides louisianensis</i>	gulf frog crab	183	1.7	25	8.3
<i>Portunus spinimanus</i>	blotched swimming crab	110	4.3	26	8.6
<i>Stenorhynchus seticornis</i>	yellowline arrow crab	92	0.4	16	5.3
<i>Myropsis quinquespinosa</i>	fivespine purse crab	85	0.6	13	4.3
<i>Farfantepenæus duorarum</i>	pink shrimp	80	1.9	18	6.0
<i>Podochela sidneyi</i>	shortfinger neck crab	77	0.3	13	4.3
<i>Leiolambrus nitidus</i>	white elbow crab	72	0.2	13	4.3
<i>Parapenæus politus</i>	deepwater rose shrimp	71	0.1	5	1.7
<i>Pseudorhombila quadridentata</i>	flecked squareback crab	34	0.5	11	3.6
<i>Sicyonia dorsalis</i>	lesser rock shrimp	32	0.3	12	4.0
<i>Xiphopenæus kroyeri</i>	seabob	30	0.1	5	1.7
<i>Paguristes sericeus</i>	blue-eyed hermit	25	0.0	1	0.3
<i>Gibbesia neglecta</i>	mantis shrimp	24	0.1	2	0.7
<i>Pagurus bullisi</i>	hermit crab	24	0.1	5	1.7
<i>Collodes robustus</i>	spider crab	21	0.1	4	1.3
<i>Pagurus pollicaris</i>	flatclaw hermit crab	18	0.4	9	3.0
<i>Petrochirus diogenes</i>	giant hermit crab	15	0.4	6	2.0
<i>Persephona crinita</i>	pink purse crab	13	0.1	6	2.0
<i>Euphrosynoplax clausa</i>	craggy bathyal crab	12	0.1	4	1.3
<i>Sicyonia burkenroadi</i>	spiny rock shrimp	11	0.0	3	1.0
<i>Acanthocarpus alexandri</i>	gladiator box crab	10	0.1	3	1.0
<i>Munida forceps</i>	squat lobster	10	0.0	3	1.0
<i>Persephona mediterranea</i>	mottled purse crab	10	0.0	4	1.3
<i>Dardanus insignis</i>	red brocade hermit	9	0.2	3	1.0

Table 4. Species composition list (continued)

GENUS/SPECIES	COMMON NAME	TOTAL NUMBER	TOTAL WEIGHT	NUMBER OF	% FREQUENCY
		CAUGHT	CAUGHT (KG)	TOWS WHERE CAUGHT	OCCURRENCE
<i>Menippe mercenaria</i>	Florida stone crab	9	0.0	1	0.3
<i>Ethusa microphthalma</i>	broadback sumo crab	8	0.0	1	0.3
<i>Hepatus epheliticus</i>	calico crab	7	0.5	3	1.0
<i>Paguristes triangulatus</i>	hermit crab	7	0.0	3	1.0
<i>Porcellana sigsbeiana</i>	striped porcelain crab	7	0.0	3	1.0
<i>Menippe adina</i>	Gulf stone crab	6	0.0	2	0.7
<i>Libinia dubia</i>	longnose spider crab	6	0.3	5	1.7
<i>Stenocionops furcatus furcatus</i>	furcate crab	5	0.1	2	0.7
<i>Pilumnus sayi</i>	spineback hairy crab	4	0.0	1	0.3
<i>Speocarcinus lobatus</i>	gulf squareback crab	4	0.0	4	1.3
<i>Ovalipes floridanus</i>	Florida lady crab	4	0.1	1	0.3
<i>Libinia emarginata</i>	portly spider crab	4	0.1	2	0.7
<i>Stenocionops spinimanus</i>	prickly spider crab	3	1.2	2	0.7
<i>Calappa flammea</i>	flame box crab	3	0.4	2	0.7
<i>Scyllarides nodifer</i>	ridged slipper lobster	3	0.5	3	1.0
<i>Danielum ixbauchac</i>	red sea crab	2	0.0	1	0.3
<i>Arenaeus cribrarius</i>	speckled swimming crab	2	0.4	1	0.3
<i>Platylambrus granulata</i>	bladetooth elbow crab	2	0.0	2	0.7
<i>Stenocionops furcatus coelatus</i>	spider crab	2	0.0	2	0.7
<i>Raninoides loevis</i>	furrowed frog crab	1	0.0	1	0.3
<i>Cryptodromiopsis antillensis</i>	hairy sponge crab	1	0.0	1	0.3
<i>Parthenope serrata</i>	sawtooth elbow crab	1	0.0	1	0.3
Xanthidae	mud crabs	1	0.0	1	0.3
<i>Pagurus longicarpus</i>	long-armed hermit crab	1	0.0	1	0.3
<i>Axiopsis hirsutimana</i>	lobster shrimps	1	0.0	1	0.3
<i>Pagurus annulipes</i>		1	0.0	1	0.3
<i>Hexapanopeus paulensis</i>	knobbed mud crab	1	0.0	1	0.3
Isopoda	isopods	1	0.0	1	0.3
<u>Others</u>					

Table 4. Species composition list (continued)

GENUS/SPECIES	COMMON NAME	TOTAL NUMBER	TOTAL WEIGHT	NUMBER OF	% FREQUENCY
		CAUGHT	CAUGHT (KG)	TOWS WHERE CAUGHT	OCCURRENCE
<i>Amusium papyraceum</i>	paper scallop	18266	184.5	64	21.2
<i>Loligo pealeii</i>	longfin squid	1263	46.1	65	21.5
<i>Loligo plei</i>	arrow squid	483	7.1	35	11.6
<i>Pitar cordatus</i>	Schwengel's pitar	291	6.9	31	10.3
<i>Lolliguncula brevis</i>	Atlantic brief squid	215	1.5	39	12.9
<i>Anadara baughmani</i>	Baughman's ark	198	2.7	13	4.3
<i>Polystira albida</i>	white giant turris	174	1.9	13	4.3
<i>Loligo</i> spp.	squids	123	0.5	5	1.7
<i>Sconsia striata</i>	royal bonnet	103	1.5	11	3.6
<i>Distorsio clathrata</i>	Atlantic distorsio	21	0.2	5	1.7
<i>Argopecten gibbus</i>	calico scallop	19	0.0	2	0.7
<i>Lirophora clenchi</i>	Clench venus	16	0.1	5	1.7
<i>Laevicardium mortoni</i>	yellow eggcockle	14	0.8	2	0.7
<i>Cantharus cancellarius</i>	cancellate cantharus	13	0.1	6	2.0
<i>Neverita</i>		11	0.1	6	2.0
<i>Hexaplex fulvescens</i>	giant eastern murex	5	0.0	3	1.0
<i>Conus austini</i>	cone shell	5	0.1	3	1.0
<i>Macoma brevifrons</i>	short macoma	4	0.0	1	0.3
<i>Busycon sinistrum</i>	lightning whelk	4	2.6	4	1.3
<i>Noetia ponderosa</i>	ponderous ark	3	0.0	1	0.3
<i>Cantharus</i>		3	0.1	1	0.3
<i>Tonna galea</i>	giant tun	3	1.2	1	0.3
<i>Chicoreus pomum</i>	apple murex	3	0.0	1	0.3
<i>Anadara ovalis</i>	blood ark	2	0.0	2	0.7
Loliginidae		2	0.0	1	0.3
<i>Octopus vulgaris</i>	common Atlantic octopus	2	0.4	2	0.7
Gastropoda	snails	2	0.1	1	0.3
<i>Eucrassatella speciosa</i>	beautiful crassatella	1	0.0	1	0.3
<i>Calliostoma euglyptum</i>	sculptured topsnail	1	0.0	1	0.3
Fasciolhunter	mollusks	1	0.1	1	0.3
Octopodidae		1	0.0	1	0.3

Table 5. 2011 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
<u>Finfishes</u>				
Rhizoprionodon terraenovae	Atlantic sharpnose shark	670	618	1764.93
Bagre marinus	gafftopsail catfish	257	238	389.8
Sciaenops ocellatus	red drum	143	137	1155.9
Carcharhinus limbatus	blacktip shark	94	77	699.41
Carcharhinus brevipinna	spinner shark	61	44	350.64
Carcharhinus acronotus	blacknose shark	58	57	484.75
Arius felis	hardhead catfish	49	40	24.05
Carcharhinus leucas	bull shark	42	10	113.85
Dasyatis americana	southern stingray	39	5	83.8
Galeocerdo cuvier	tiger shark	39	2	63.5
Ophichthus rex	king snake eel	25	18	384.4
Mustelus canis	dusky smooth-hound	19	17	229
Lutjanus campechanus	red snapper	10	4	15.1
Pogonias cromis	black drum	9	8	122.85
Sphyrna lewini	scalloped hammerhead	9	4	99
Rhinoptera bonasus	cownose ray	6	0	
Carcharhinus isodon	finetooth shark	4	4	14.75
Carcharhinus plumbeus	sandbar shark	3	2	15.8
Dasyatis sabina	Atlantic stingray	2	0	
Brotula barbatum	bearded brotula	2	1	10
Urophycis cirratus	Gulf hake	2	2	4
Dasyatidae	stingrays	1	0	
Carcharhinidae	requiem sharks	1	0	
Caranx hippos	crevalle jack	1	0	
Siluriformes	catfishes	1	1	0.6
Xiphias gladius	swordfish	1	1	97
Sphyrna	bonnethead sharks	1	1	2.9
Carcharhinus falciformis	silky shark	1	1	6

Table 5. 2011 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
<u>Others</u>				
Lepidochelys kempii	Kemp's ridley	2	0	
Caretta caretta	Loggerhead	1	0	

Table 6. 2011 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	573	572	1203.25
Rhizoprionodon terraenovae	Atlantic sharpnose shark	5	4	14.9
Rhomboplites aurorubens	vermillion snapper	5	5	2.25
Cynoscion arenarius	sand seatrout	5	5	1.8
Epinephelus morio	red grouper	4	4	9.25
Carcharhinus brevipinna	spinner shark	4	0	
Caranx crysos	blue runner	4	1	0.7
Echeneis naucrates	sharksucker	4	4	4.5
Seriola rivoliana	almaco jack	4	4	4.8
Balistes capriscus	gray triggerfish	3	3	6.5
Remora remora	common remora	3	0	
Pagrus pagrus	red porgy	2	2	1.65
Carcharhinus falciformis	silky shark	2	2	8.7
Pomatomus saltatrix	bluefish	1	0	
Haemulon aurolineatum	tomtate	1	1	0.05
Seriola dumerili	greater amberjack	1	1	18.5
Mycteroperca phenax	scamp	1	1	2.4

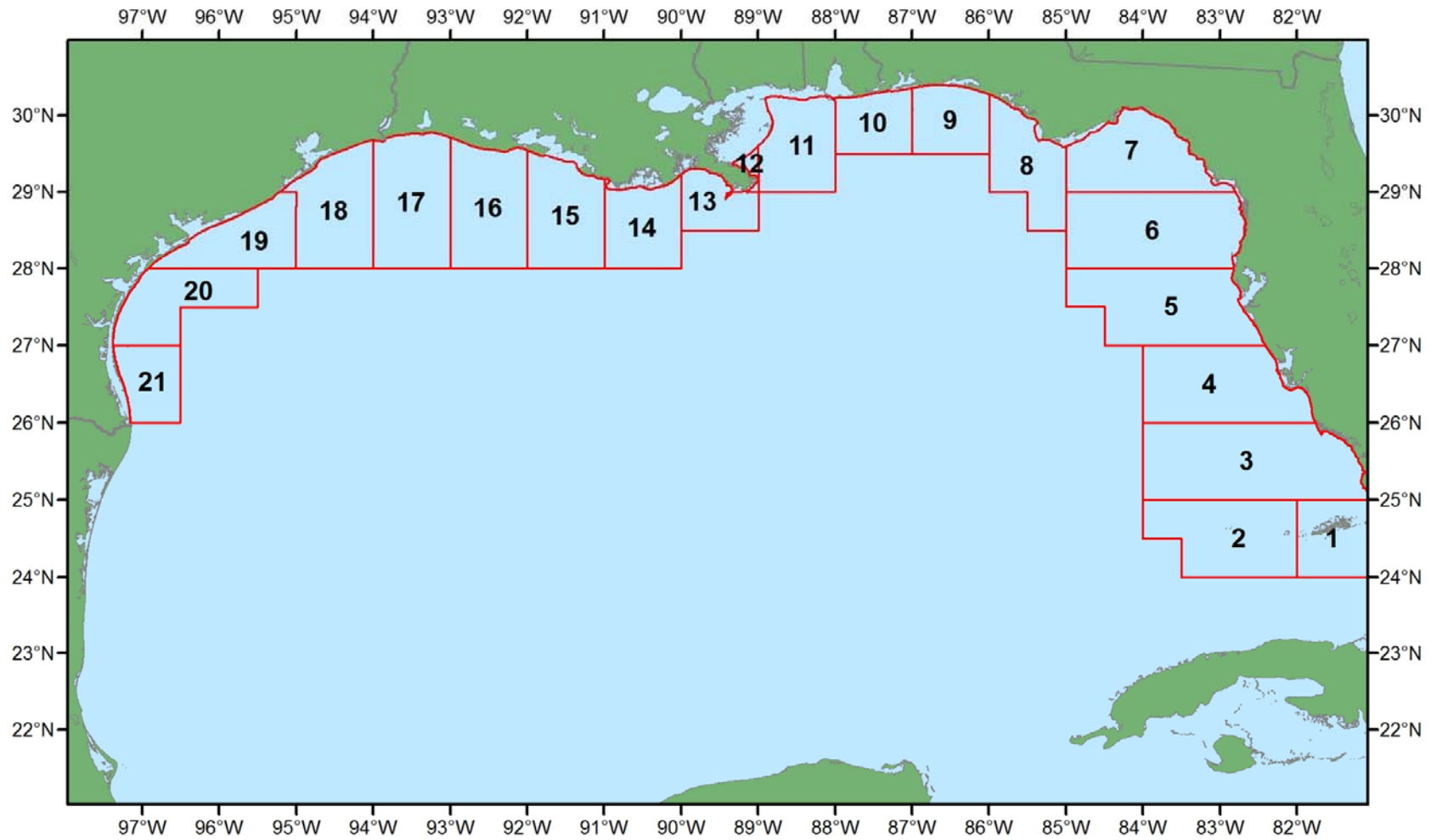


Figure 1. Statistical zones for shrimp in the Gulf of Mexico.

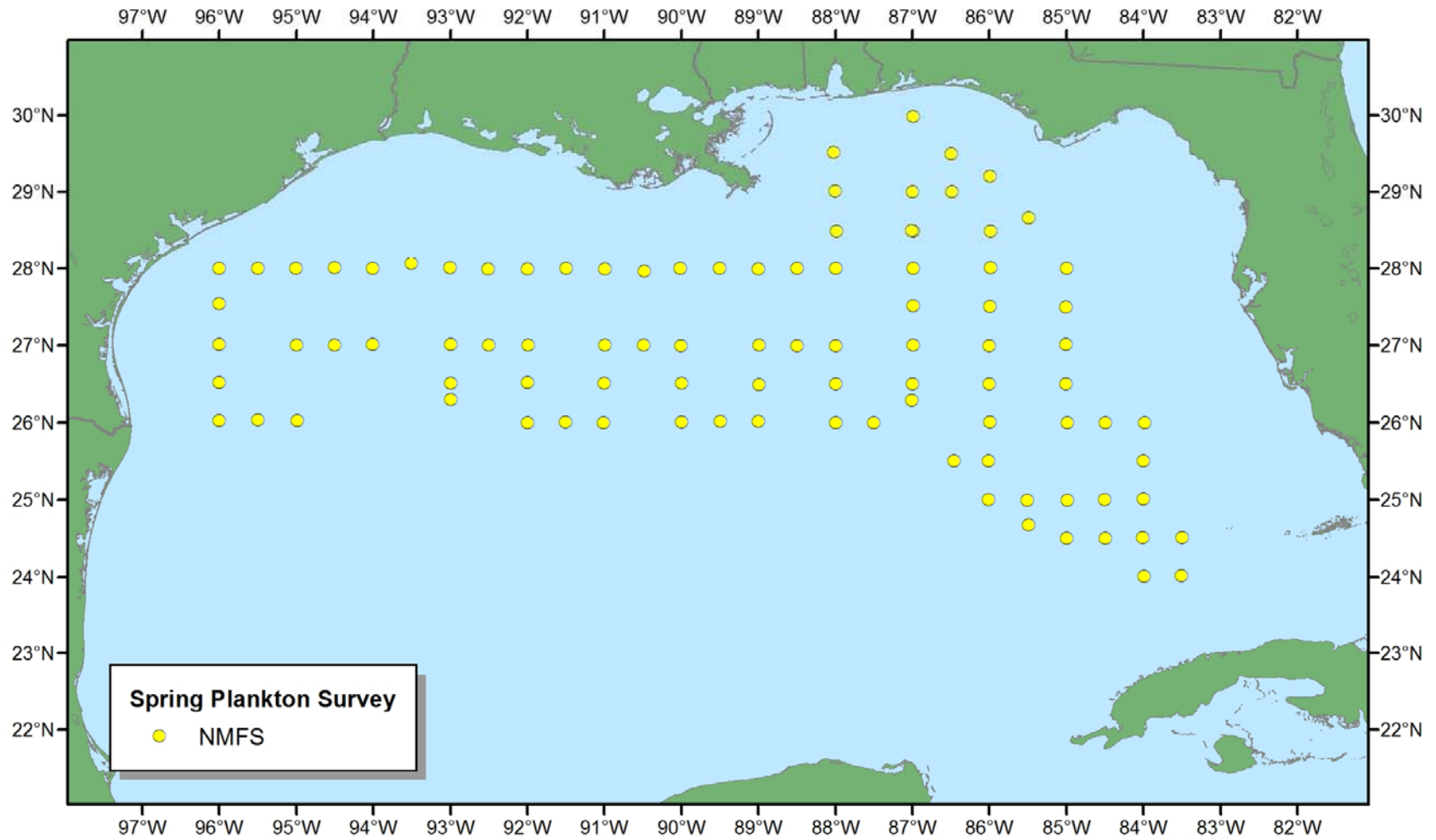


Figure 2. Locations of plankton and environmental stations during the 2011 Spring Plankton Survey.

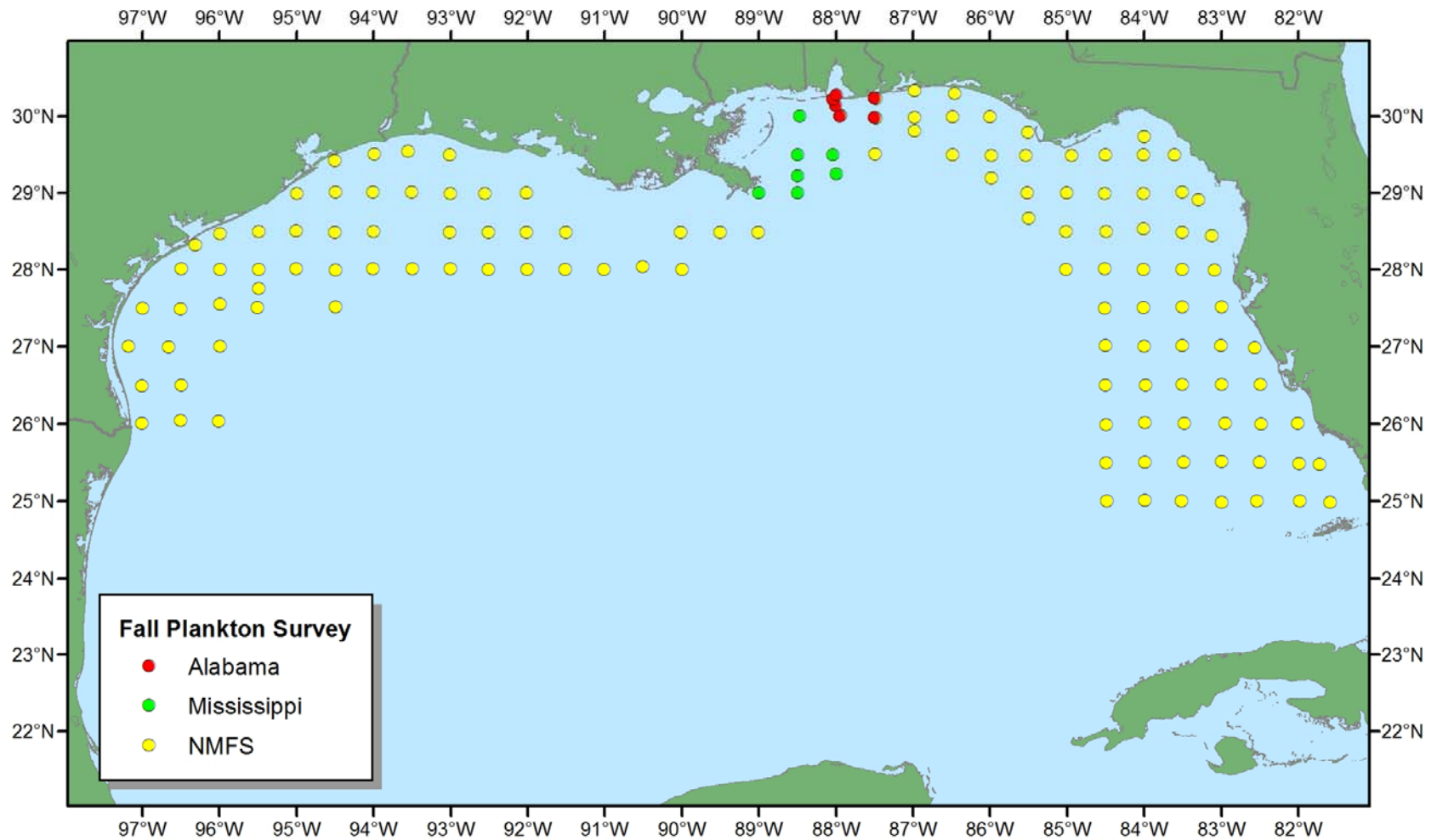


Figure 3. Locations of plankton and environmental stations during the 2011 Fall Plankton Survey.

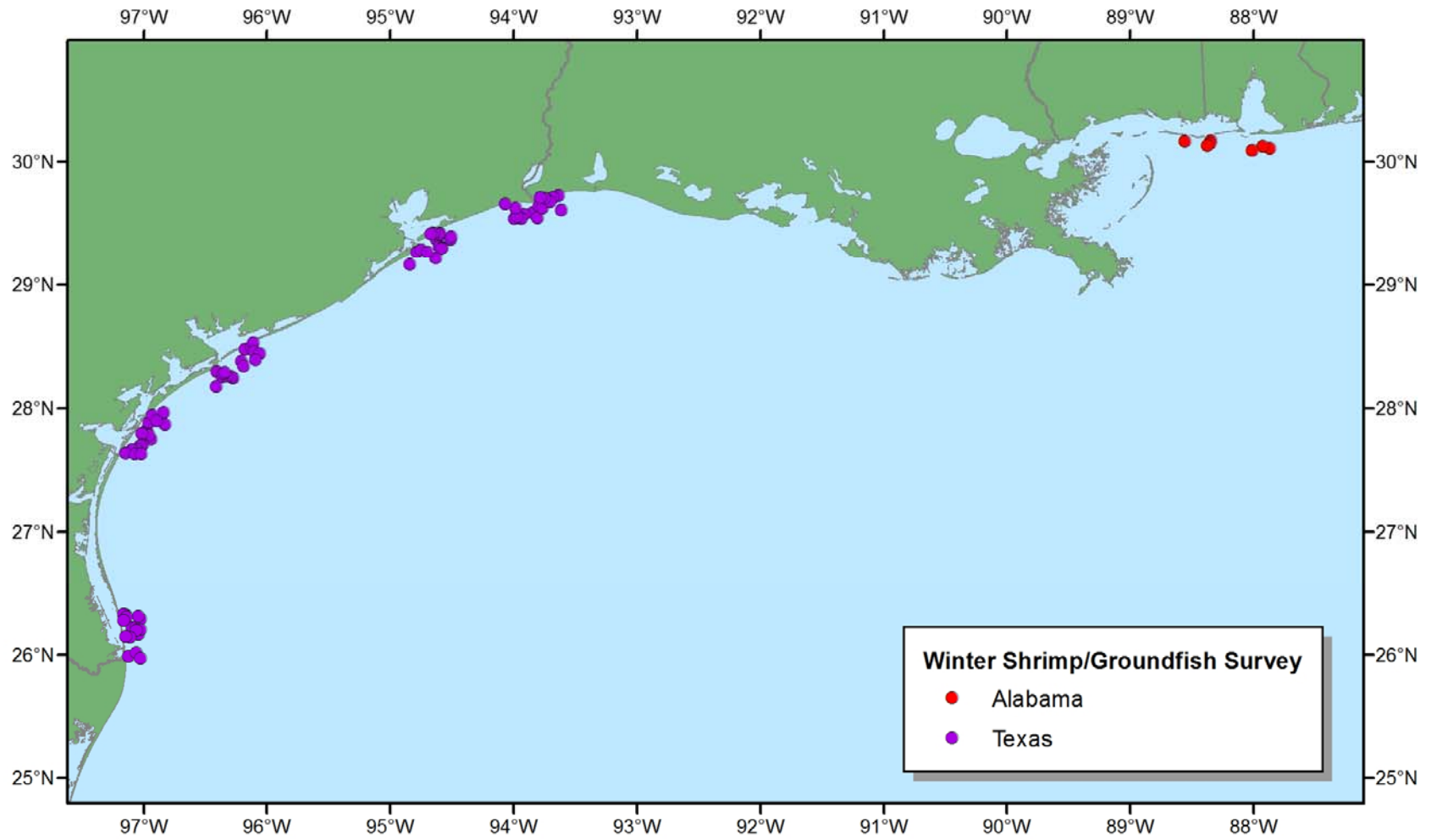


Figure 4. Locations of stations during the 2011 Winter Shrimp/Groundfish Survey.

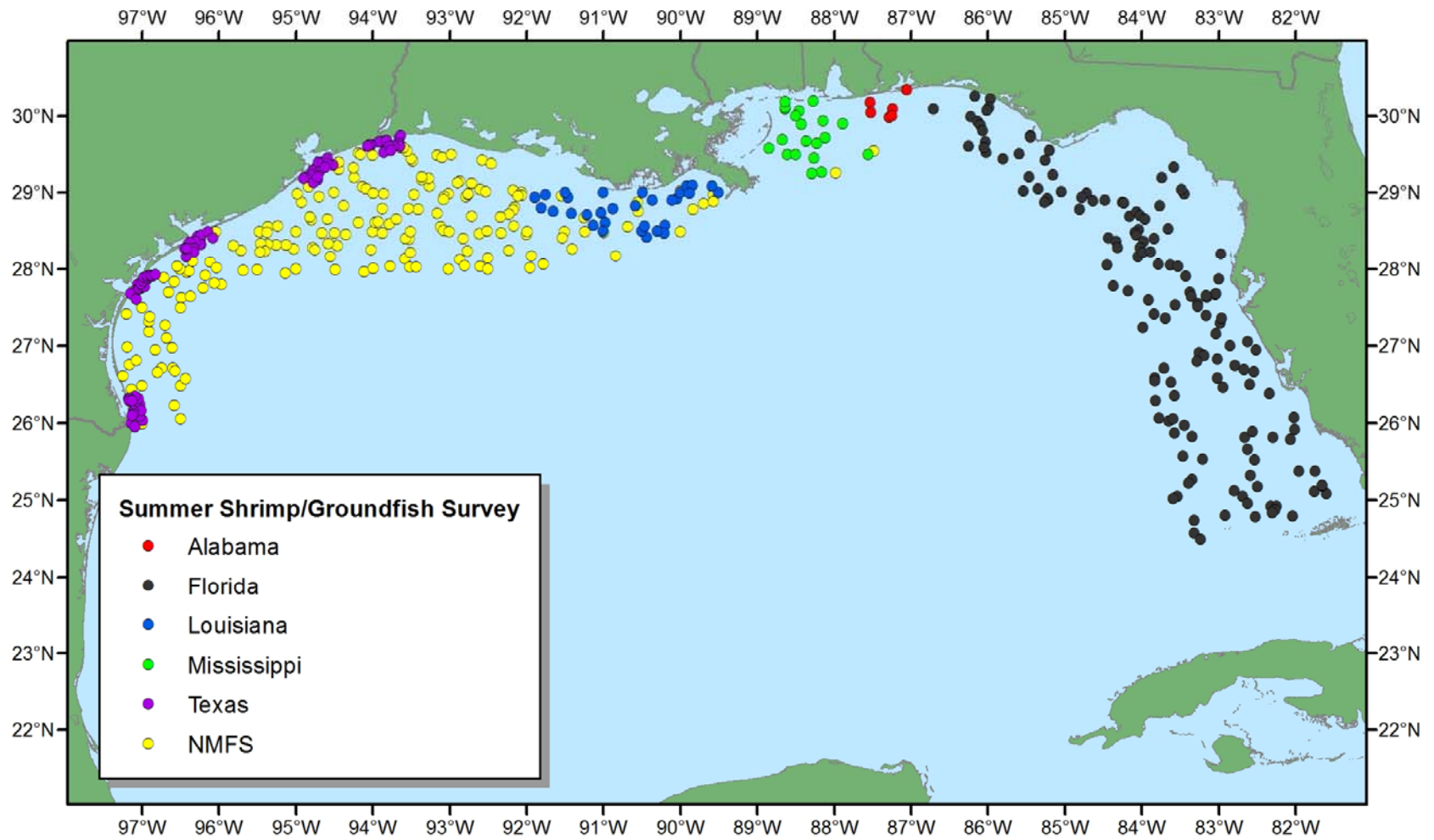


Figure 5. Locations of stations during the 2011 Summer Shrimp/Groundfish Survey.

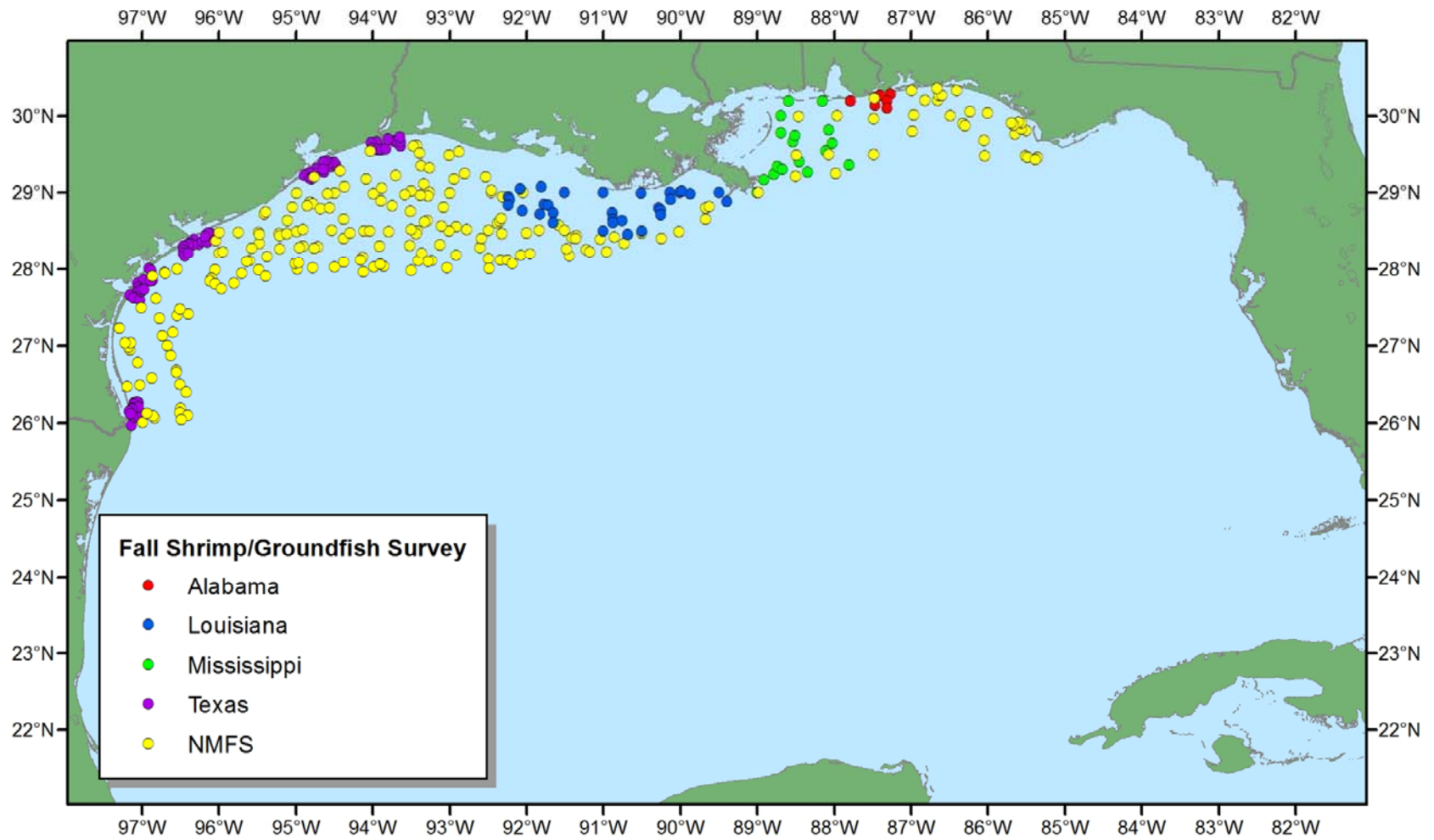


Figure 6. Locations of stations during the 2011 Fall Shrimp/Groundfish Survey.

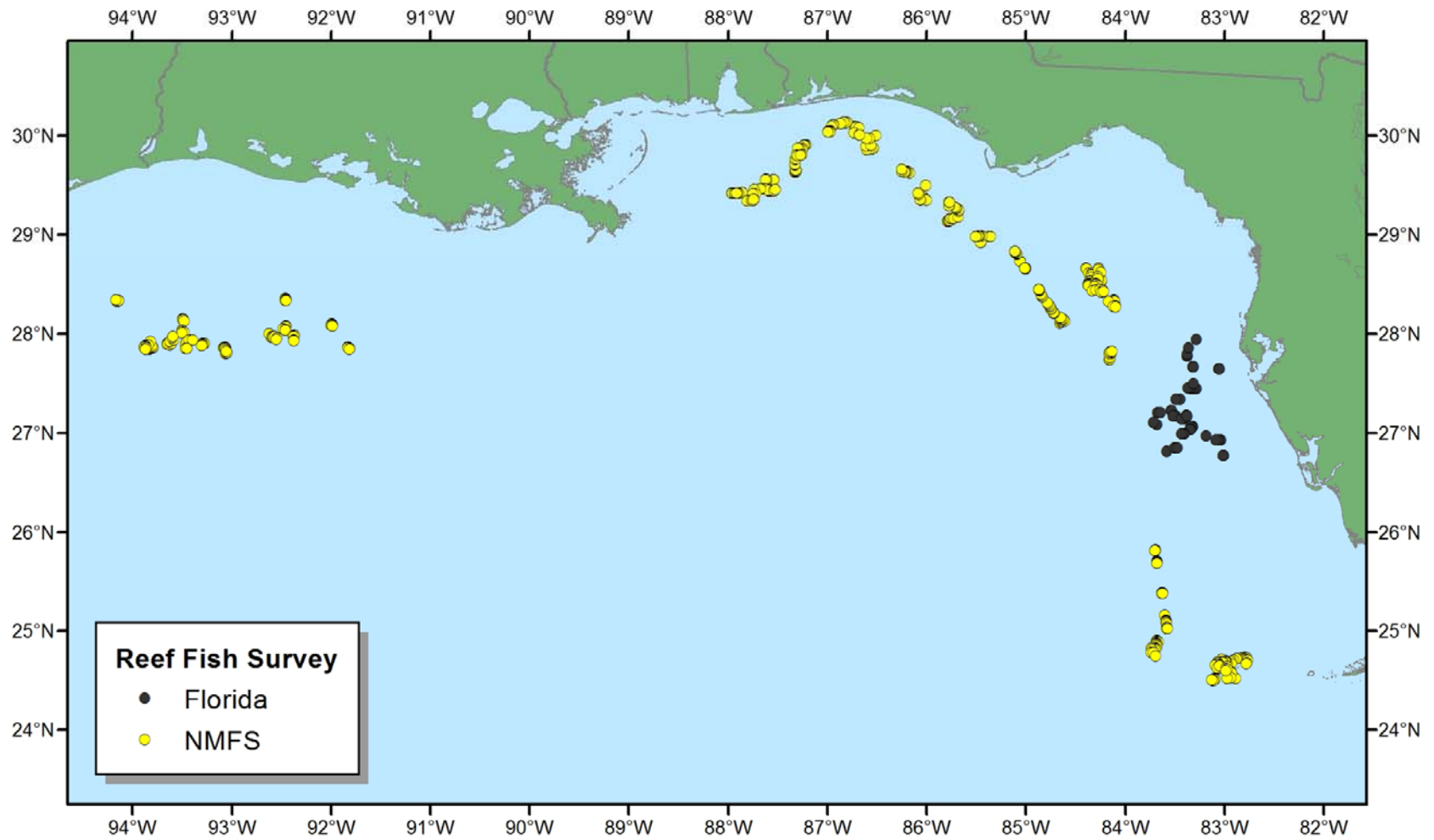


Figure 7. Locations of stations during the 2011 Reef Fish Survey.

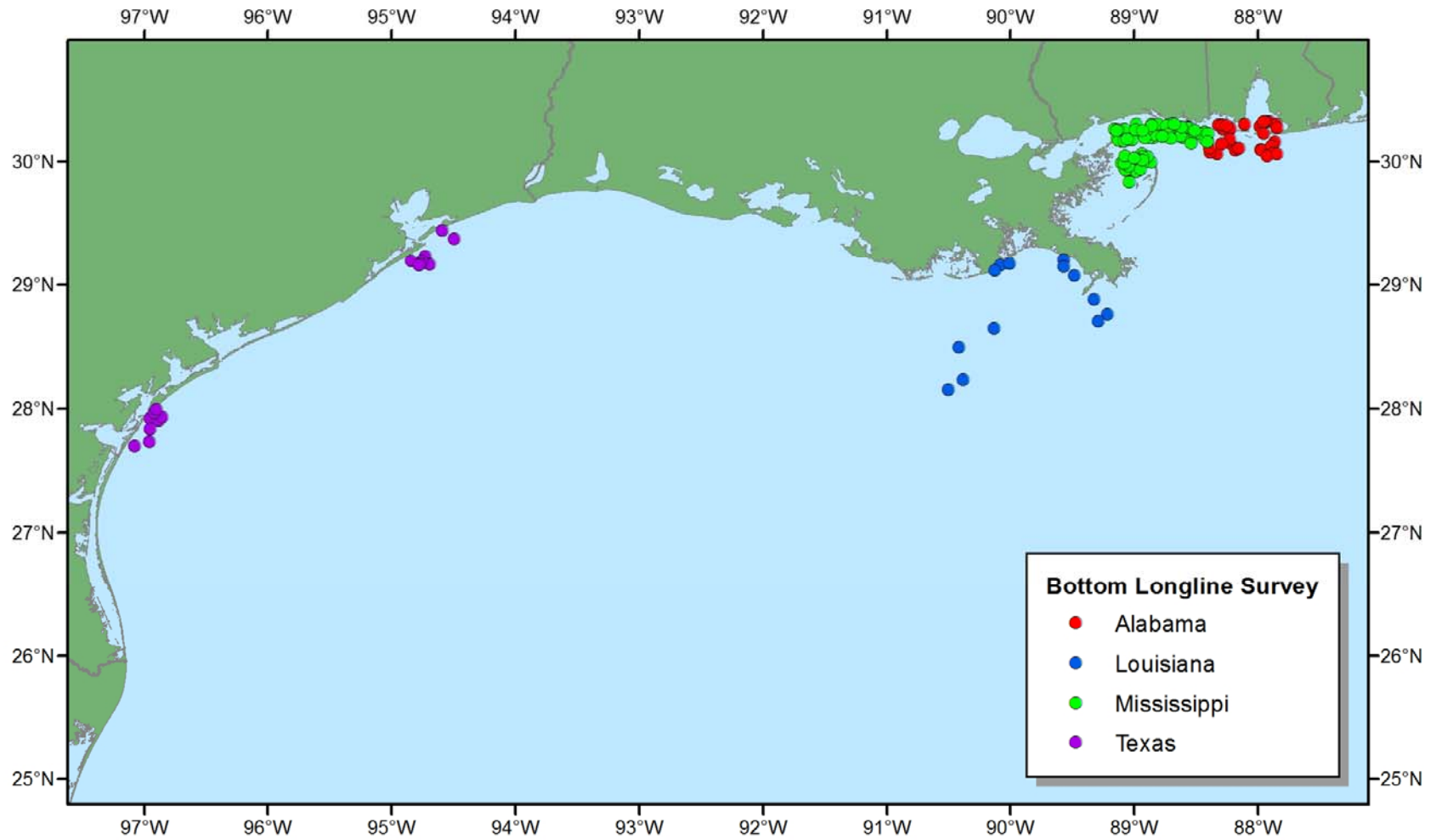


Figure 8. Locations of stations during the 2011 Inshore Bottom Longline Survey.

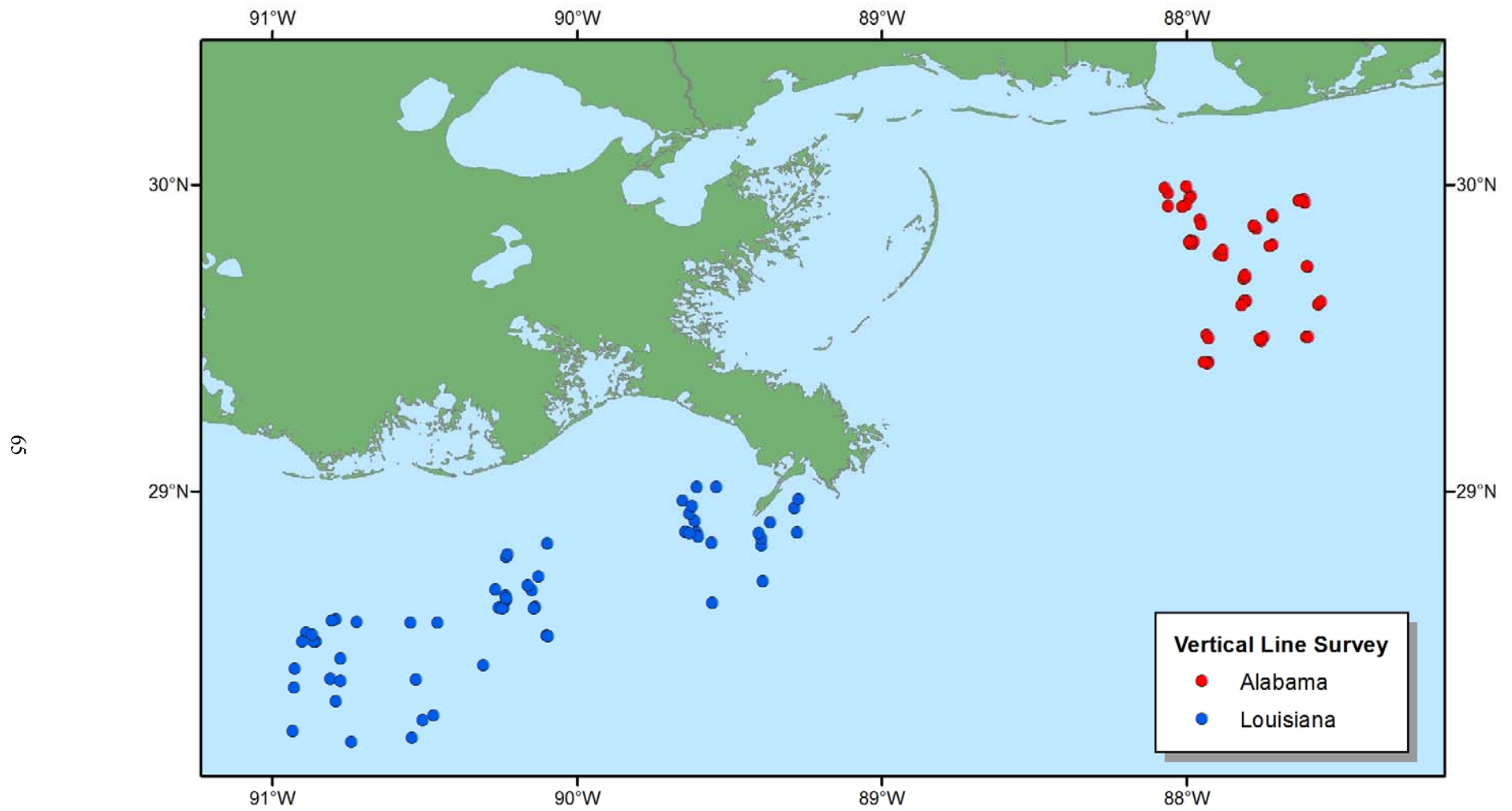


Figure 9. Locations of stations during the 2011 Vertical Line Survey.