

seamap

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the gulf of mexico
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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 data base needed by management agencies, industry and scientists to wisely manage and develop fishery resources for the least possible cost. 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 (FFWCC); Alabama Department of Conservation and Natural Resources (ADCNR); Mississippi Department of Marine Resources (MDMR) represented by the University of Southern Mississippi, Institute of Marine Science, Gulf Coast Research Laboratory (USM/IMS/GCRL); Louisiana Department of Wildlife and Fisheries (LDWF) and Texas Parks and Wildlife Department (TPWD)], one from NMFS Southeast Fisheries Science Center 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 1998 (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); and 1997 (Rester et al. 1999). Environmental assessment activities occurred with each of the surveys found in Table 1.

In March 1998, 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 data base, it was decided to continue the same types of survey activities conducted in 1982 through 1997. Overall survey objectives in 1982 to 1998 were to assess the distribution and abundance of recreational and commercial organisms collected by plankton, trap/video and trawl gears and document environmental factors that might affect their distribution and abundance. The basis for plankton work was primarily assessment of selected finfish and invertebrate eggs and larvae across the northern Gulf of Mexico (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 data base 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) and a fisheries acoustic system.

A major purpose of SEAMAP is to provide resource survey data to State and Federal management agencies and universities participating in SEAMAP activities. This seventeenth in a series of SEAMAP environmental and biological atlases presents such data, in a summarized form, collected during the 1998 SEAMAP surveys. The area covered in the Gulf of Mexico for all SEAMAP survey activities during 1998 is shown in Figure 1.

MATERIALS AND METHODS

Methodology for the 1998 SEAMAP surveys is similar to that of the 1982 through 1997 surveys. Sampling was conducted within the U.S. Exclusive Economic Zone (EEZ) and state territorial waters. Vessels that participated in collecting plankton and environmental data during the Spring Plankton Survey included the NOAA Ship CHAPMAN (April 19-May 30) and the Florida vessel SUNCOASTER (June 21-23).

Vessels that participated in the Summer Shrimp/Groundfish Survey and concurrently sampled plankton and environmental data included the USM/IMS/GCRL vessel TOMMY MUNRO (June 27-30 and July 7-9); the NOAA Ship OREGON II (June 22 - July 16); and the Louisiana vessel PELICAN (July 6-9). The TPWD vessels ARANSAS BAY, MATAGORDA BAY, LAGUNA MADRE, GALVESTON BAY and SABINE (June 1-25) and the Alabama vessel A.E. VERRILL (June 2) did not sample plankton in conjunction with the summer survey.

The Alabama vessel A.E. VERRILL was the only vessel that participated in the Reef Fish Survey (May 19; July 15 and 29; and August 28).

Vessels that participated in collecting plankton and environmental data during the Fall Plankton Survey included the NOAA Ship GORDON GUNTER (September 4-25); the USM/IMS/GCRL vessel TOMMY MUNRO (September 22-24); the Alabama vessel A.E. VERRILL (October 6); and the Louisiana vessel PELICAN (September 30-October 3).

Vessels that participated in the Fall Shrimp/Groundfish Survey and concurrently sampled plankton and environmental data included the NOAA Ship OREGON II (October 12-November 18); the USM/IMS/GCRL vessel TOMMY MUNRO (October 26-November 1) and the Louisiana vessel PELICAN (November 17-20). The Alabama vessel A.E. VERRILL (October 27-29); and the TPWD vessels ARANSAS BAY, MATAGORDA BAY, LAGUNA MADRE, GALVESTON BAY and SABINE (November 2-17) did not sample plankton in conjunction with the fall survey.

The Winter Plankton Survey has been identified as a priority by the SEAMAP Subcommittee; however, due to limited funding, a long term survey has not yet been implemented. Therefore, winter sampling is opportunistic and does not occur on a regular basis. Due to lack of funding, the Winter Plankton Survey did not occur in 1998.

PLANKTON SURVEYS

Plankton samples were taken at stations arranged in a systematic grid across the Gulf of Mexico. Such a grid was chosen because of the large survey area. Stations were set at minimum intervals of 30 miles ($\frac{1}{2}$ degree) and during the Fall Plankton Survey, Mississippi sampled stations set at intervals of 6 nautical miles.

Sampling gear and procedures were similar to those recommended by Kramer et al. (1972), Smith and Richardson (1977) and Posgay and Marak (1980). Plankton sampling gear consisted of standard 61-cm bongos and a 2x1-m neuston net for the large vessels. The bongos were fitted with 0.333-mm mesh nets with either hard (PVC) or soft (0.333-mm mesh net) cod ends. The Tucker trawl, with 1 m² mouth, is outfitted with 0.335 micron mesh net. A flowmeter was mounted off-center in the mouth of each net to record the volume of water filtered. A 50-lb weight was attached approximately 1 m below the bongo frame attachment. The neuston net consisted of a 2x1-m pipe frame fitted with a 0.948-mm mesh net on which the cod end was tied off.

At each designated plankton station, either an oblique bongo/surface neuston tow or a surface neuston tow was made. In deep water bongo stations (more than 95 m) a standard oblique tow was made to 200 m, or to 2 m off the bottom at depths less than 200 m, with a payout speed of 50 m/min, 30-second settling time depths under 100 m and a 1-minute settling time for depths over 100 m, and a retrieval speed of 20 m/min, at a vessel speed of 1.5 knots to maintain a 45° angle. Neuston tows were made at the surface with the net

half-submerged for 10 minutes at a vessel speed of 1.5 knots. Tucker trawls fitted with three 0.335-mm mesh nets sampled the water column in the following method: net 1 was fished obliquely from the surface to near-bottom; net 2 was opened at the near bottom and fished for three minutes; and net 3 was fished during trawl retrieval from near bottom to the surface.

Samples were preserved initially in 10% buffered formalin. After a 48-hr period, all plankton samples were transferred to 95% ethyl alcohol for final preservation. The Pascagoula Laboratory curated and computerized the sample data. The right bongo sample and the neuston sample from each station were transshipped to the Polish Sorting and Identification Center in Szczecin, Poland, for sorting and identification. Plankton samples from Louisiana vessels were retained by LDWF for sorting and identification at their facilities. All ichthyoplankton components (eggs and larvae) were removed from each sample and the fish larvae identified to the lowest feasible taxon (families in most cases).

Sorted ichthyoplankton specimens from the Polish Sorting and Identification Center were returned to the SEAMAP Archiving Center, managed in conjunction with the FFWCC, for long-term storage under museum-like conditions. Sorted ichthyoplankton samples from 1982 through 1998 are available for loan to researchers throughout the country. Plankton volumes were determined according to procedures in Smith and Richardson (1977). The alternate bongo sample from each station was retained at USM/IMS/GCRL as a backup for those samples transshipped to the Polish Sorting and Identification Center, in case of loss or damage during transit. These backup unsorted plankton samples containing zooplankton and phytoplankton are stored at the SEAMAP Invertebrate Plankton Archiving Center, managed in conjunction with USM/IMS/GCRL, for use by researchers.

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, 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. Values in the tables that follow, are the mean of the three samples.

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 data base because of analytical errors. In addition, chlorophyll samples data were also collected using a Seabird CTD. This method only obtains measures of chlorophyll a and is a measure of fluorescence (FL) and appears in the Tables as such.

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

The sampling strategy and a description of the statistical rationale for the sampling design as described by Nichols in the 1982 SEAMAP Atlas (Stuntz et al. 1985) has been modified. Since 1987, the strategy has been that day/night sampling sites were chosen randomly in areas stratified by depth and statistical area. These areas are shrimp statistical zones 11 through 22 (Figure 2). Trawl stations for NMFS, Alabama, Mississippi and Louisiana vessels are made with a standard SEAMAP 40-ft net, and 20-ft net for Texas vessels. Depth strata consisted of 1 fm intervals from 5 to 20 fm, a 2 fm interval from 20 to 22 fm, a 3 fm interval from 22 to 25 fm, 5 fm intervals from 25 to 50 fm and a 10 fm interval from 50 to 60 fm. Additionally, the USM/IMS/GCRL vessel TOMMY MUNRO sampled 1 fm intervals from 2 to 5 fm off Louisiana in July. Trawls were towed perpendicularly to the depth contours and covered the entire depth stratum on each station. Single tows were for a maximum of 60 minutes; for certain stations, a series of consecutive trawl tows was necessary to cover a given depth stratum, with a minimum individual tow across each stratum of 10 minutes and a maximum tow of 60 minutes. The Texas vessels towed 10 minutes parallel

to the depth stratum. The Louisiana vessels did not cover a complete depth stratum on several stations because of the distance between depth strata.

All *Penaeus* spp. shrimp 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 11 through 21 (Figure 2). 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 measures a minimum of 50 shrimp.

REEF FISH SURVEY

The primary purpose of this survey is to assess relative abundance and compute population estimates of reef fishes 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 fishes 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", 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 also 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.

RESULTS

PLANKTON SURVEYS

Thirteen thousand seven hundred and seventy (13,770) identified ichthyoplankton lots were received at the SEAMAP Archiving Center in 1998. Most of these samples have been accessioned into the SEAMAP Archiving Center computer systems and the remaining samples are being prepared for accession; both in dBase and SEAMAP Data Management System.

Plankton stations for the Spring Plankton Survey in conjunction with environmental stations are shown in Figure 3, the Summer Shrimp/Groundfish Survey stations are shown in Figure 4, the Fall Plankton Survey Stations in conjunction with environmental stations are shown in Figure 5, the Fall Shrimp/Groundfish survey stations are shown in Figure 6. Forty-five additional collections were taken by Mississippi during the fall plankton survey in waters of the east Louisiana-Mississippi-Alabama shelf. The Fall Plankton Survey was negatively impacted in 1998 due to continuous patterns of bad weather.

ENVIRONMENTAL DATA

Environmental data were collected in conjunction with each plankton station for the Spring (Figure 3) and Fall (Figure 5) plankton surveys. Environmental data stations for the Summer Shrimp/Groundfish Survey are shown in Figure 7 and the Fall Shrimp/Groundfish Survey in Figure 8. Environmental sampling locations are summarized in Figures 7 and 8 by 10-minute squares. A complete listing of environmental stations and dates of sampling by vessel for all SEAMAP surveys is shown in Table 2. In Table 2 under statistical zone, the 99 codes are stations located outside the shrimp statistical zones. Additional environmental information (Secchi readings, Forel-Ule, cloud cover, etc.) may be obtained from the SEAMAP Information System by contacting the SEAMAP Data Manager.

TRAWL SURVEYS

Summer Shrimp/Groundfish Survey

Shrimp and groundfish sampling was conducted during June and July from off Fort Morgan, Alabama to Brownsville, Texas and summarized by 10-minute squares in Figure 9. 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.

Tables 4a-14a present the biological data, from the 40-ft and 20-ft nets, of the eight most abundant fish, six most abundant invertebrates and squid within NMFS shrimp statistical zones 11 through 22, by depth stratum. Tables 4b-14b list the total catch and environmental data from the 40-ft and 20-ft nets within NMFS statistical zones listed above, by depth stratum.

For all catch rate tables, the standard error of the mean (SEM) was calculated with the equation:

$$SEM = \frac{\alpha}{\sqrt{n}} \quad \text{where } \alpha = \text{population standard deviation} \\ \quad \quad \quad n = \text{number of samples}$$

On all tables, NUM = number per hour; all weights shown are in kilograms per hour.

For all "b" tables, discrepancies between catch and environmental data may appear in the number of samples (n). These discrepancies may be due to different sampling depths for trawl and environmental stations, unsuccessful trawl stations and/or stations where only plankton data were collected.

Biological distributions of the ten most abundant finfish plus red snapper, three main penaeid shrimps, five most abundant non-Penaeus invertebrates and squid species, taken from Table 3 are displayed in plots of number/hour and lb/hour in Figures 12-51. Data for the biological plots were computed from the 40-ft and 20-ft trawl data, standardized to 40-ft trawls using relative headrope length. In the plots of lb/hour, a zero value indicates less than 0.5 lb/hr taken; only stations where some of the species were taken are shown. During this time frame, the state of Florida did not participate in any SEAMAP survey activities.

Fall Shrimp/Groundfish Survey

Shrimp and groundfish sampling was conducted during October through December from off Fort Morgan, Alabama to Brownsville, Texas and summarized by 10-minute squares in Figure 10. The Fall Shrimp/Groundfish Survey consisted 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 15. The species lists for Table 15 are ranked in order of abundance within the categories of finfish, crustaceans and other invertebrates.

Biological distributions of the ten most abundant finfish plus red snapper, three main penaeid shrimps, five most abundant non-Penaeus invertebrates and squid species, taken from Table 15 are displayed in plots of number/hour and lb/hour in Figures 52 to 91. Data for the biological plots were computed from the 40-ft and 20-ft trawl data, standardized to 40-ft trawls using relative headrope length. In the plots of lb/hour, a zero value indicates less than 0.5 lb/hr taken; only stations where some of the species were taken are shown. During this time frame, the state of Florida did not participate in any SEAMAP survey activities.

Tables 16a-26a present the biological data, from the 40-ft and 20-ft nets, of the eight most abundant fish, six most abundant invertebrates and squid species within NMFS shrimp statistical zones 11 and 13 through 21, by depth stratum. Tables 16b-26b list the total catch and environmental data from the 40-ft and 20-ft nets within the NMFS statistical zone listed above, by depth stratum.

The catch data were calculated using the same equation that was used to compute catch rates for the Summer Shrimp/Groundfish Survey. And, as in the Summer Shrimp/Groundfish Survey, discrepancies in the "b" tables may have occurred.

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. To distribute near real-time data, NMFS utilized a cellular phone and/or satellite communications aboard the NOAA Ship OREGON II. This enabled personnel aboard the vessel to transmit daily catch rates and environmental data to the NMFS computer system located at the NMFS Mississippi Laboratories in Pascagoula.

Summarized data were distributed weekly to approximately 285 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.

In the summer of 1998, discussions with representatives from the shrimp industry led the NMFS to request that near-real-time data not be produced during the 1998 survey. At their request, only one near-real-time mailing was produced in the summer of 1998.

Due to the cancellation of near-real-time data distribution during the Summer Shrimp/Groundfish Survey in 1998, the SEAMAP Subcommittee decided to produce near-real-time data for the Fall Shrimp/Groundfish Survey. This was the first time the data were distributed during the fall. Plots of station locations and catch rates of red snapper were prepared and edited at the NMFS Mississippi Laboratories, and processed by GSMFC for a summary distribution at the end of the Survey to management agencies, fishermen, processors and researchers.

REEF FISH SURVEY

Primary data collection and sampling for reef fish assessment was conducted throughout the year by personnel of the State of Alabama in artificial reef zones off their state. Station data for these observations can be found in Table 2 and station locations are plotted in Figure 11. A species composition listing from the traps is presented in Table 27. The species list for Table 27 is ranked in order of abundance. Video tapes from all sources were analyzed using NMFS standardized protocols. Due to a lack of funding in 1998, the NMFS portion of the reef fish survey was not conducted.

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 Gulf-wide plankton and Fall Mackerel 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, 1985-1998. 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 in review). 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. in press; 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 of 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 (Nance 1998) to the GMFMC in December 1998. This report contained the results and an overview of the effect of the 1998 Texas Closure. After review of these data and other information, the GMFMC voted to continue the Texas Closure for 1999.

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 approved by the Subcommittee. 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: 1996-2000](#) (ASMFC 1996).

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, P.O. Box 726, Ocean Springs, MS 39566-0726; 228/875-5912 or via e-mail at jrester@gsmfc.org.

Table 1. List of SEAMAP survey activities from 1982 to 1998.

SEAMAP SURVEY ACTIVITIES

YEAR	SPRING PLANKTON	SUMMER SHRIMP/GROUNDFISH	BUTTERFISH	FALL PLANKTON	FALL SHRIMP/GROUNDFISH	WINTER PLANKTON	REEF FISH
1982	APRIL-MAY	JUNE-JULY	--	--	--	--	--
1983	APRIL-MAY	JUNE-JULY	--	--	--	DECEMBER	--
1984	APRIL-MAY	JUNE-JULY	--	AUGUST	--	DECEMBER	--
1985	--	JUNE-JULY	JULY-AUGUST	SEPTEMBER	SEPTEMBER-DECEMBER	--	--
1986	APRIL-MAY	JUNE-JULY	MAY-JUNE	SEPTEMBER	OCTOBER-DECEMBER	--	--
1987	APRIL-MAY	JUNE-JULY	--	SEPTEMBER	SEPTEMBER-DECEMBER	--	--
1988	MARCH-MAY	JUNE-JULY	--	SEPTEMBER-OCTOBER	OCTOBER-DECEMBER	--	--
1989	APRIL-MAY	JUNE-JULY	--	SEPTEMBER-OCTOBER	OCTOBER-DECEMBER	--	--
1990	APRIL-MAY	JUNE-JULY	--	SEPTEMBER-OCTOBER	OCTOBER-DECEMBER	--	--
1991	APRIL-MAY	JUNE-JULY	--	AUGUST-SEPTEMBER	SEPTEMBER-DECEMBER	--	--
1992	APRIL-MAY	JUNE-JULY	--	AUGUST-OCTOBER	OCTOBER-DECEMBER	--	MAY-JUNE
1993	APRIL-MAY	JUNE-JULY	--	SEPTEMBER-OCTOBER	OCTOBER-DECEMBER	DECEMBER	MAY-JULY, SEPTEMBER/NOVEMBER
1994	APRIL-MAY	JUNE-JULY	--	SEPTEMBER-OCTOBER	OCTOBER-NOVEMBER	--	MAY-JULY, AUGUST-OCTOBER, DECEMBER
1995	APRIL-JUNE	JUNE-JULY	--	SEPTEMBER	OCTOBER-DECEMBER	--	JANUARY, JUNE-AUGUST, DECEMBER
1996	APRIL-JUNE	JUNE-JULY	--	SEPTEMBER-OCTOBER	OCTOBER-DECEMBER	DECEMBER	JULY, AUGUST, NOVEMBER
1997	APRIL-JUNE	JUNE-JULY	--	SEPTEMBER-OCTOBER	OCTOBER-DECEMBER	--	JUNE, JULY, AUGUST, NOVEMBER
1998	APRIL-JUNE	JUNE-JULY	--	SEPTEMBER-OCTOBER	OCTOBER-NOVEMBER	--	MAY, JULY, AUGUST

Table 2. Selected environmental parameters measured during 1998 SEAMAP surveys in the Gulf of Mexico, by individual vessel and survey.
(Gear codes: ST = trawl; PN = bongo and/or neuston; TV = trap/video; EV = environmental).

CHAPMAN, SPRING PLANKTON SURVEY																				
STA#	DATE		POSITION		STAT ZONE	DEPTH (M)	SAMPLE DEPTHS (M)		TEMPERATURE, C			SALINITY, PPT			CL, MG/M3 SUR	FL SUR	DISSOLVED OXYGEN, PPM			GEAR
	MM/DD/YY	TIME	LAT	LONG			MID	MAX	SUR	MID	MAX	SUR	MID	MAX			SUR	SUR	SUR	
28001	4/19/98	1015	3000.0	8700.0	10	68	34	66	21.6	20.0	18.5	30.8	36.1	36.0			6.9	6.6	5.7	PN
28002	4/19/98	1545	2929.9	8630.0	0	208	100	200	21.5	18.6	14.9	35.0	36.3	36.0			6.3	3.8	4.0	PN
28003	4/19/98	2115	2900.0	8600.2	0	241	101	200	21.8	19.5	15.4	36.0	36.3	36.1			5.5	4.5	3.6	PN
28004	4/20/98	0437	2830.0	8530.2	0	195	98	195	22.6	18.5	16.4	36.3	35.9	36.2			5.9	5.7	3.8	PN
28005	4/20/98	1052	2800.1	8500.2	0	245	101	201	23.9	19.8	15.3	36.1	36.3	36.2			6.1	5.4	4.0	PN
28006	4/26/98	0744	2900.2	8700.2	0	676	100	201	21.8	19.5	15.7	36.3	36.1	36.1			6.1	5.9	3.9	PN
28007	4/26/98	1459	2830.1	8700.0	0	831	102	200	22.5	19.2	14.4	36.1	36.3	36.0			6.7	5.2	4.3	PN
28008	4/26/98	1950	2800.0	8700.0	0	2875	100	200	23.3	18.4	15.1	36.3	36.1	36.0			6.4	4.9	4.3	PN
28009	4/27/98	0105	2729.9	8700.2	0	3040	100	200	21.9	17.5	13.4	35.7	36.2	35.7			6.8	4.0	3.9	PN
28010	4/27/98	0542	2700.1	8659.9	0	3000	100	200	22.1	17.7	12.9	35.7	36.3	35.6			6.7	4.0	3.8	PN
28011	4/27/98	1055	2629.9	8659.9	0	2946	100	200	22.1	18.6	13.5	35.3	36.2	35.7			6.8	4.6	3.9	PN
28012	4/27/98	1338	2615.9	8659.8	0	3092	100	202	22.4	18.0	13.5	35.1	36.2	35.8			6.9	4.2	3.8	PN
28013	4/27/98	1938	2559.6	8729.5	0	3148	99	201	24.4	23.5	18.7	36.3	36.5	36.3			6.4	6.5	4.5	PN
28014	4/28/98	0037	2559.9	8759.9	0	3012	100	200	24.3	24.1	22.9	36.3	36.3	36.9			6.3	6.3	4.8	PN
28015	4/28/98	0644	2629.8	8759.7	0	2745	100	200	24.4	24.2	21.7	36.3	36.3	37.0			6.4	6.3	4.6	PN
28016	4/28/98	1159	2659.9	8759.9	0	2745	100	202	24.3	24.2	20.5	36.3	36.3	36.8			6.4	6.2	4.5	PN
28017	4/28/98	1734	2700.3	8805.0	0	2507	100	201	24.4	24.1	21.0	36.3	36.3	37.0			6.4	6.3	4.6	PN
28018	4/28/98	2246	2700.0	8759.7	0	2269	100	201	24.4	24.1	21.4	36.3	36.3	36.9			6.4	6.3	4.6	PN
28019	4/29/98	0527	2630.2	8900.0	0	2855	100	200	24.4	24.1	23.7	36.3	36.3	36.7			6.4	6.3	5.0	PN
28020	4/29/98	1506	2630.1	9000.0	0	2708	100	200	25.4	23.8	21.3	36.1	36.4	36.9			5.9	6.3	4.6	PN
28021	4/29/98	1911	2659.7	8959.8	0	2379	99	201	24.1	24.1	20.4	36.2	36.3	36.8			6.0	6.0	4.3	PN
28022	4/30/98	0033	2700.1	9029.9	0	1473	100	200	24.2	24.1	19.9	36.1	36.3	37.0			6.1	6.1	4.6	PN
28023	4/30/98	0423	2700.1	9100.1	0	1830	100	200	25.4	23.9	18.5	36.4	36.7	36.6			5.9	5.4	4.6	PN
28024	4/30/98	0956	2630.0	9100.2	0	2105	100	201	24.1	21.8	17.0	36.4	36.3	36.4			6.1	6.4	3.8	PN
28025	4/30/98	1423	2600.1	9059.9	0	2708	100	201	24.1	21.3	15.4	36.5	36.4	36.1			6.3	5.7	3.8	PN
28026	4/30/98	1903	2600.0	9130.0	0	2196	101	200	24.7	20.2	15.0	36.4	36.4	36.1			6.2	4.5	3.8	PN
28027	4/30/98	2243	2600.1	9200.3	0	2196	100	200	22.7	19.0	14.2	36.0	36.2	35.9			6.5	4.4	4.0	PN
28028	5/ 1/98	0319	2630.0	9200.0	0	1879	100	201	22.8	19.5	13.8	36.0	36.4	35.8			6.5	4.6	4.0	PN
28029	5/ 1/98	0714	2659.9	9200.1	0	1693	100	202	22.7	19.7	14.1	36.0	36.3	35.9			6.6	5.2	3.7	PN
28030	5/ 1/98	1136	2700.0	9229.9	0	1446	100	201	23.2	20.3	14.9	36.2	36.3	36.0			6.5	5.0	4.0	PN

Table 2. Selected environmental parameters (continued)

CHAPMAN, SPRING PLANKTON SURVEY																				
STA#	DATE		POSITION		STAT ZONE	DEPTH (M)	SAMPLE DEPTHS (M)		TEMPERATURE, C			SALINITY, PPT			CL, MG/M3 SUR	FL SUR	DISSOLVED OXYGEN, PPM			GEAR
	MM/DD/YY	TIME	LAT	LONG			MID	MAX	SUR	MID	MAX	SUR	MID	MAX			SUR	MID	MAX	
28031	5/ 1/98	1534	2700.0	9259.9	0	1299	100	201	23.2	20.3	15.5	35.9	36.2	36.1			6.6	6.3	4.0	PN
28032	5/ 1/98	1940	2630.0	9300.1	0	1627	100	200	23.8	19.7	14.4	36.3	36.4	35.9			6.4	4.7	4.1	PN
28033	5/ 1/98	2347	2559.9	9300.0	0	2196	100	201	23.2	18.9	14.1	36.1	36.3	35.9			6.6	4.4	3.5	PN
28034	5/ 2/98	0432	2559.8	9329.7	0	2288	100	201	23.7	21.5	17.0	36.4	36.4	36.2			6.4	6.5	3.6	PN
28035	5/ 2/98	1023	2600.0	9400.0	0	2286	100	201	23.6	22.1	19.5	36.5	36.4	36.6			6.5	6.4	4.0	PN
28036	5/ 2/98	1456	2630.0	9400.0	0	1556	101	200	23.8	21.9	18.7	36.6	36.4	36.5			6.6	6.5	4.0	PN
28037	5/ 2/98	1851	2700.2	9359.9	0	952	100	200	23.8	21.8	17.0	36.8	36.4	36.3			6.5	6.4	3.4	PN
28038	5/ 3/98	0008	2700.1	9430.0	0	1208	100	201	23.9	21.7	15.8	36.3	36.3	36.2			6.4	5.6	3.8	PN
28039	5/ 3/98	0411	2700.1	9500.1	0	1501	100	200	23.8	21.5	15.5	36.1	36.3	36.1			6.4	6.4	3.7	PN
28040	5/ 3/98	1250	2630.2	9459.8	0	1665	100	201	24.3	21.7	15.7	36.4	36.4	36.1			6.4	4.5	3.5	PN
28041	5/ 3/98	1830	2600.1	9459.9	0	2342	101	201	24.7	21.6	16.6	36.5	36.4	36.2			6.3	6.3	3.8	PN
28042	5/ 3/98	2306	2600.0	9529.8	0	1455	101	202	24.0	18.2	13.7	35.3	36.5	35.8			6.5	3.6	3.6	PN
28043	5/ 4/98	0255	2600.0	9600.0	0	1005	100	201	23.6	19.5	14.3	36.2	36.3	35.9			6.5	3.9	3.6	PN
28044	5/ 4/98	0732	2630.1	9600.2	0	1867	100	200	24.0	20.9	15.4	36.4	36.3	36.0			6.4	4.8	3.8	PN
28045	5/ 4/98	1123	2700.2	9600.1	0	1413	100	200	24.1	21.5	16.4	36.4	36.4	36.2			6.4	6.5	3.6	PN
28046	5/ 4/98	1541	2730.0	9559.9	20	203	97	193	24.2	21.3	14.7	32.9	36.4	35.9			6.6	6.3	3.6	PN
28047	5/ 4/98	2014	2759.9	9600.0	20	42	21	39	22.4	20.2	20.8	29.9	33.5	35.8			6.9	5.9	5.0	PN
28048	5/ 5/98	0001	2800.0	9530.1	19	50	24	50	22.9	20.5	20.5	33.4	34.0	35.5			6.7	6.4	5.3	PN
28049	5/ 5/98	0332	2800.1	9500.1	19	80	40	79	22.7	20.4	20.2	32.9	35.9	36.4			6.9	5.3	4.7	PN
28050	5/ 5/98	0716	2800.1	9430.0	18	64	31	63	22.4	21.8	21.0	35.1	35.6	36.3			6.8	6.7	5.8	PN
28051	5/ 5/98	1046	2800.0	9400.0	18	77	37	74	23.1	21.9	19.9	35.3	35.9	36.2			6.7	6.7	5.4	PN
28052	5/ 5/98	1432	2800.1	9330.1	17	87	43	84	23.4	21.6	19.0	35.5	36.2	36.0			6.7	6.7	5.6	PN
28053	5/ 5/98	1758	2800.0	9259.9	16	100	49	98	23.8	20.7	18.9	35.6	36.0	36.2			6.7	6.8	4.8	PN
28054	5/ 5/98	2155	2800.1	9230.0	16	101	49	99	23.6	22.7	19.8	35.5	36.4	36.3			6.7	6.7	5.8	PN
28055	5/ 6/98	0125	2800.1	9200.1	16	113	56	113	23.6	21.8	19.5	36.1	36.3	36.4			6.6	6.8	5.1	PN
28056	5/ 6/98	0521	2800.0	9130.1	15	155	78	155	23.8	21.3	17.7	36.3	36.3	36.3			6.5	6.5	4.2	PN
28057	5/ 6/98	0858	2800.1	9059.9	14	147	71	143	24.1	21.5	17.4	36.3	36.1	36.2			6.5	6.7	4.1	PN
28058	5/ 6/98	1252	2759.1	9030.1	0	384	100	200	24.0	19.2	15.5	36.3	36.0	36.0			6.5	6.0	3.0	PN
28059	5/ 6/98	1618	2800.0	8960.0	0	530	100	202	23.8	19.0	15.1	35.9	36.1	36.0			6.6	4.9	3.9	PN
28060	5/ 6/98	2021	2800.0	8930.0	0	951	100	200	24.0	18.6	15.1	36.2	36.2	36.0			6.6	4.9	4.0	PN
28061	5/ 7/98	0008	2800.1	8900.1	0	1336	100	200	24.0	18.4	14.0	35.5	36.3	35.9			6.6	4.5	3.9	PN

Table 2. Selected environmental parameters (continued)

CHAPMAN, SPRING PLANKTON SURVEY																				
STA#	DATE		POSITION		STAT ZONE	DEPTH (M)	SAMPLE DEPTHS (M)		TEMPERATURE, C			SALINITY, PPT			CL, MG/M3 SUR	FL SUR	DISSOLVED OXYGEN, PPM			GEAR
	MM/DD/YY	TIME	LAT	LONG			MID	MAX	SUR	MID	MAX	SUR	MID	MAX			SUR	MID	MAX	
28062	5/ 7/98	0433	2800.0	8829.9	0	2178	100	201	23.1	18.8	14.1	35.3	36.3	35.8			6.7	4.4	4.0	PN
28063	5/ 7/98	0823	2800.1	8800.0	0	2434	100	200	24.8	18.9	14.3	36.4	36.2	35.9			6.4	5.2	4.0	EV
28064	5/ 7/98	1233	2830.1	8759.9	0	2306	100	200	24.3	19.0	14.4	36.1	36.2	35.9			5.3	5.1	4.0	PN
28065	5/ 7/98	1633	2900.0	8759.8	0	1383	100	200	24.4	19.3	15.2	36.4	36.1	36.0			6.5	6.3	4.0	PN
28066	5/ 7/98	2056	2925.0	8800.0	11	70	36	69	23.4	20.3	18.6	32.4	36.0	36.2			6.8	6.3	4.7	PN
28067	5/11/98	2021	2959.9	8700.1	10	70	34	69	23.9	21.0	18.8	28.9	36.2	36.2			7.2	7.0	5.0	PN
28068	5/12/98	0103	2930.0	8630.0	0	204	100	200	23.4	18.6	16.3	30.3	36.3	36.2			7.1	4.3	4.3	PN
28069	5/12/98	0612	2859.9	8559.9	0	241	100	200	23.5	19.4	15.7	33.9	36.1	36.1			6.8	6.3	4.2	PN
28070	5/12/98	1225	2830.3	8530.1	0	195	96	192	23.4	20.1	16.6	34.9	36.2	36.2			6.9	6.2	4.0	PN
28071	5/12/98	1801	2759.9	8500.0	0	246	100	201	24.4	20.4	16.4	36.3	36.2	36.2			6.7	6.7	4.0	PN
28072	5/12/98	2224	2730.3	8459.9	5	390	100	201	25.7	20.8	16.9	36.3	36.2	36.3			6.6	6.8	4.2	PN
28073	5/13/98	0228	2659.9	8500.0	0	835	100	200	25.4	20.4	17.0	36.3	36.3	36.3			6.5	6.4	4.6	PN
28074	5/13/98	0707	2630.1	8500.0	0	1619	100	201	26.2	17.1	13.8	36.5	36.2	35.8			6.5	4.5	4.4	PN
28075	5/13/98	1133	2600.3	8500.0	0	3294	100	200	26.6	17.2	12.5	36.5	36.3	35.6			6.4	4.4	4.1	PN
28076	5/13/98	1618	2600.0	8430.1	0	214	100	201	26.8	17.6	14.4	36.4	36.4	35.9			6.4	4.9	4.3	PN
28077	5/13/98	2018	2600.1	8400.3	0	134	66	132	26.7	20.0	17.7	36.5	36.5	36.4			6.4	5.1	4.9	PN
28078	5/14/98	0105	2530.2	8359.9	3	134	67	133	25.8	20.1	17.2	36.0	36.7	36.3			6.5	5.0	4.7	PN
28079	5/14/98	0505	2459.9	8359.9	0	123	62	122	27.1	23.7	19.2	36.4	36.4	36.6			6.2	6.8	4.8	PN
28080	5/14/98	0900	2429.9	8359.7	0	1830	100	201	27.7	26.5	19.9	36.3	36.2	36.8			6.2	6.2	4.9	PN
28081	5/14/98	1337	2430.1	8429.9	0	3422	100	200	28.1	26.4	20.8	36.3	36.2	36.9			6.1	6.2	5.0	PN
28082	5/14/98	1859	2430.2	8459.9	0	3389	101	200	28.2	24.9	18.2	36.3	36.8	36.5			6.1	5.5	5.3	PN
28083	5/14/98	2221	2459.8	8500.0	0	3348	100	200	27.6	21.5	14.9	36.4	36.8	36.2			6.2	5.0	4.3	PN
28084	5/15/98	0257	2500.0	8530.0	0	3303	100	200	26.0	18.2	13.4	36.2	36.3	35.7			6.5	4.2	3.9	PN
28085	5/15/98	0648	2500.0	8600.0	0	3294	101	202	25.9	17.8	13.5	36.1	36.4	35.7			6.4	4.5	4.2	PN
28086	5/15/98	1133	2530.5	8600.0	0	3294	100	201	26.3	16.5	12.5	36.4	36.1	35.6			6.4	4.0	4.1	PN
28087	5/15/98	1513	2530.0	8630.0	0	3276	100	202	26.3	20.0	13.9	36.5	36.3	35.8			6.4	6.1	4.1	PN
28088	5/15/98	2037	2559.9	8600.1	0	3239	99	202	26.4	16.8	11.6	36.5	36.2	35.5			6.5	4.4	4.0	PN
28089	5/16/98	0108	2630.1	8600.2	0	3203	100	200	26.7	16.3	13.2	36.5	36.3	35.8			6.4	4.5	4.2	PN
28090	5/16/98	0500	2700.1	8600.0	0	3203	100	200	25.9	20.6	14.1	35.4	36.7	35.8			6.4	4.9	4.2	PN
28091	5/16/98	0920	2729.9	8600.9	0	3239	100	200	26.3	22.1	18.3	36.4	36.4	36.5			6.3	6.5	4.5	PN
28092	5/16/98	1400	2759.9	8600.1	0	915	100	200	26.6	24.0	18.6	36.5	36.7	36.6			6.3	5.5	4.5	PN

Table 2. Selected environmental parameters (continued)

CHAPMAN, SPRING PLANKTON SURVEY																				
STA#	DATE		POSITION		STAT ZONE	DEPTH (M)	SAMPLE DEPTHS (M)		TEMPERATURE, C			SALINITY, PPT			CL, MG/M3 SUR	FL SUR	DISSOLVED OXYGEN, PPM			GEAR
	MM/DD/YY	TIME	LAT	LONG			MID	MAX	SUR	MID	MAX	SUR	MID	MAX			SUR	MID	MAX	
28093	5/16/98	1844	2830.0	8559.8	0	328	100	202	25.8	20.5	15.9	36.1	36.2	36.1			6.6	6.6	3.9	PN
28094	5/16/98	2357	2900.1	8630.1	0	373	100	200	25.3	19.5	16.7	32.7	36.1	36.3			6.8	5.9	4.3	PN
28095	5/20/98	0635	2859.9	8700.0	0	676	101	201	27.2	20.1	15.9	35.8	36.2	36.1			3.2	6.5	4.1	PN
28096	5/20/98	1113	2829.5	8700.0	0	840	101	200	27.0	21.8	17.5	36.6	36.5	36.4			6.3	5.7	4.4	PN
28097	5/20/98	1529	2800.1	8700.1	0	2873	100	200	27.2	21.5	16.2	36.9	36.5	36.2			6.4	6.0	4.2	PN
28098	5/20/98	2003	2730.2	8700.2	0	3056	100	201	27.6	18.9	14.0	35.8	36.4	35.9			6.4	4.3	3.9	PN
28099	5/21/98	0004	2700.0	8700.0	0	2946	100	201	26.4	19.2	14.0	35.6	36.3	35.9			6.5	4.8	4.1	PN
28100	5/21/98	0448	2630.0	8700.0	0	3038	101	201	26.5	18.3	13.6	35.7	36.2	35.8			6.4	4.4	3.9	PN
28101	5/21/98	0711	2616.0	8700.0	0	2964	100	202	26.7	18.2	13.3	35.8	36.3	35.8			6.4	4.4	4.0	PN
28102	5/21/98	1145	2600.1	8730.1	0	3148	101	202	26.9	19.0	13.6	35.8	36.1	35.8			6.4	5.6	3.7	PN
28103	5/21/98	1539	2559.9	8759.8	0	2965	100	202	27.7	21.3	16.1	36.5	36.3	36.3			6.3	6.7	4.1	PN
28104	5/21/98	2044	2629.9	8759.9	0	2745	100	201	27.0	18.5	13.5	34.9	36.5	35.8			6.5	4.6	3.9	PN
28105	5/22/98	0043	2700.0	8800.0	0	2745	100	201	26.9	17.4	13.4	35.5	36.2	35.9			6.6	4.0	3.9	PN
28106	5/22/98	0449	2700.0	8830.0	0	2410	101	201	26.8	19.2	14.6	34.6	36.2	35.9			6.5	5.6	3.9	PN
28107	5/22/98	0837	2700.1	8859.9	0	2562	100	198	27.4	20.1	15.7	33.6	36.2	36.1			6.5	6.4	4.1	PN
28108	5/22/98	1309	2629.9	8859.8	0	2873	100	202	26.6	24.1	19.9	36.3	36.3	36.8			6.3	6.3	4.7	PN
28109	5/22/98	1650	2600.0	8859.8	0	3111	101	201	26.6	24.1	23.4	36.3	36.3	36.7			6.3	6.4	5.1	PN
28110	5/22/98	2136	2600.0	8929.6	0	3294	100	200	26.5	24.1	23.8	36.3	36.3	36.4			6.3	6.4	6.1	PN
28111	5/23/98	0128	2600.3	8959.8	0	2909	100	201	26.4	24.2	23.5	36.3	36.3	36.9			6.3	6.4	5.0	PN
28112	5/23/98	0527	2630.1	9000.0	0	2727	101	200	26.4	24.2	22.4	36.3	36.3	37.0			6.3	6.4	4.9	PN
28113	5/23/98	0910	2659.9	8959.7	0	2471	100	201	26.5	24.0	19.6	36.5	36.4	36.8			6.2	6.3	4.7	PN
28114	5/23/98	1504	2702.1	9028.2	0	1995	101	199	26.8	23.1	18.3	36.4	36.5	36.4			6.3	6.4	4.1	PN
28115	5/23/98	1943	2659.7	9059.8	0	1830	101	201	26.9	22.0	16.4	36.5	36.5	36.2			6.3	5.9	4.0	PN
28116	5/24/98	0102	2630.1	9059.8	0	2105	100	201	26.8	22.9	18.6	36.5	36.4	36.6			6.2	6.3	4.9	PN
28117	5/24/98	0532	2600.1	9100.0	0	2708	100	201	26.7	21.9	18.3	36.5	36.4	36.7			6.2	6.4	4.9	PN
28118	5/24/98	0930	2559.9	9129.9	0	2196	100	201	26.5	21.0	17.0	36.5	36.2	36.4			6.3	5.8	4.9	PN
28119	5/24/98	1301	2600.2	9159.9	0	2159	101	201	26.1	20.2	15.2	36.3	36.3	36.1			6.3	5.3	3.8	PN
28120	5/24/98	1659	2630.0	9159.9	0	1879	100	201	26.7	20.0	14.0	36.5	36.5	35.8			6.3	4.6	4.0	PN
28121	5/24/98	2042	2659.5	9159.9	0	1830	101	203	26.3	20.0	14.9	36.4	36.3	36.0			6.3	6.1	4.1	PN
28122	5/25/98	0037	2700.0	9230.0	0	1446	100	201	26.3	21.2	15.9	36.5	36.2	36.2			6.3	6.1	4.5	PN
28123	5/25/98	0418	2700.1	9300.0	0	1299	99	202	26.3	22.3	17.4	36.5	36.5	36.4			6.2	5.8	4.2	PN

Table 2. Selected environmental parameters (continued)

CHAPMAN, SPRING PLANKTON SURVEY																				
STA#	DATE		POSITION		STAT ZONE	DEPTH (M)	SAMPLE DEPTHS (M)		TEMPERATURE, C			SALINITY, PPT			CL, MG/M3 SUR	FL SUR	DISSOLVED OXYGEN, PPM			GEAR
	MM/DD/YY	TIME	LAT	LONG			MID	MAX	SUR	MID	MAX	SUR	MID	MAX			SUR	MID	MAX	
28124	5/25/98	0909	2630.9	9300.0	0	1830	101	200	26.3	21.6	15.8	36.4	36.3	32.3			6.3	6.2	4.1	PN
28125	5/25/98	1409	2600.1	9330.0	0	2288	100	201	25.9	22.2	15.9	36.3	36.4	36.1			6.4	6.6	3.8	PN
28126	5/25/98	1743	2600.0	9400.0	0	3166	101	201	26.4	21.9	17.2	36.5	36.4	36.3			6.3	6.6	3.8	PN
28127	5/25/98	2154	2630.4	9400.1	0	1647	100	202	26.2	21.9	17.0	36.5	36.4	36.4			6.3	6.6	4.1	PN
28128	5/26/98	0143	2700.0	9359.8	0	1537	101	201	26.0	21.6	15.9	36.5	36.3	36.4			6.3	6.3	3.9	PN
28129	5/26/98	0619	2659.0	9430.0	0	1265	100	201	26.3	21.8	15.8	35.0	36.3	36.3			6.3	6.4	3.9	PN
28130	5/26/98	1003	2700.4	9459.8	0	1501	101	200	26.3	20.4	15.3	34.6	36.3	36.1			6.4	5.2	3.9	PN
28131	5/26/98	1502	2630.2	9459.9	0	1665	100	201	26.8	21.0	15.5	34.0	36.4	36.1			6.3	5.7	3.8	PN
28132	5/26/98	1929	2600.3	9500.0	0	2342	101	203	26.7	21.7	16.2	36.3	36.4	36.2			6.2	6.5	3.8	PN
28133	5/26/98	2340	2600.2	9530.0	0	1455	100	201	26.4	20.2	14.6	34.9	36.3	36.1			6.3	4.6	3.7	PN
28134	5/27/98	0312	2600.4	9559.7	0	1043	100	201	26.3	21.4	15.6	34.4	36.4	36.2			6.3	6.5	3.7	PN
28135	5/27/98	0741	2630.2	9559.9	0	1025	101	200	25.9	21.6	15.0	35.6	36.4	36.1			6.3	6.5	3.7	PN
28136	5/27/98	1140	2700.2	9560.0	0	787	100	201	26.1	20.0	15.6	33.8	36.3	36.2			6.0	5.1	3.8	PN
28137	5/27/98	1555	2730.0	9600.0	20	207	102	199	26.0	20.0	15.3	33.0	36.4	36.0			6.5	4.6	3.7	PN
28138	5/27/98	1950	2759.9	9600.0	20	45	22	45	26.3	22.0	21.1	31.5	33.6	36.3			6.5	6.8	5.0	PN
28139	5/27/98	2325	2800.0	9530.3	20	53	26	51	26.3	21.5	20.9	37.1	34.1	36.4			6.6	5.8	5.4	PN
28140	5/28/98	0258	2800.6	9500.0	18	79	38	79	26.6	21.6	19.7	33.2	36.0	36.3			6.4	6.9	5.7	PN
28141	5/28/98	0644	2800.0	9430.0	0	70	34	69	25.9	22.7	20.2	31.6	36.2	36.8			6.5	6.9	6.4	PN
28142	5/28/98	1001	2800.1	9400.0	18	80	40	79	26.4	23.7	21.0	33.7	36.4	36.3			6.4	6.7	6.3	PN
28143	5/28/98	1341	2800.2	9330.0	17	88	44	86	27.1	23.4	20.5	35.0	36.4	36.4			6.3	6.8	6.3	PN
28144	5/28/98	1712	2800.2	9300.0	16	104	52	104	27.1	23.3	20.1	35.1	36.3	36.3			6.2	6.7	5.9	PN
28145	5/28/98	2039	2800.3	9230.3	16	103	51	103	27.0	23.7	20.3	35.7	36.3	36.4			6.3	6.7	6.3	PN
28146	5/28/98	2353	2800.6	9159.8	15	116	57	115	26.4	23.3	19.4	35.4	36.2	36.4			6.4	6.7	5.2	PN
28147	5/29/98	0326	2800.0	9129.8	15	154	76	150	26.8	21.4	17.5	36.0	36.1	36.4			6.3	6.5	4.3	PN
28148	5/29/98	0641	2800.0	9059.9	14	149	75	148	26.3	20.6	17.5	35.4	36.2	36.3			6.4	6.3	3.9	PN
28149	5/29/98	1013	2800.0	9030.0	14	301	100	200	26.5	18.9	16.8	34.7	36.2	36.3			6.4	4.7	4.6	PN
28150	5/29/98	1318	2800.1	8959.8	0	530	100	200	28.1	19.7	15.1	27.5	36.3	36.0			6.6	5.2	3.9	PN
28151	5/29/98	1702	2759.9	8929.9	0	955	103	200	29.2	19.3	13.5	30.5	36.1	35.8			6.9	6.5	4.1	PN
28152	5/29/98	2034	2800.0	8900.4	0	1244	100	201	27.7	19.5	15.5	34.2	36.4	36.1			6.3	4.9	4.2	PN
28153	5/30/98	0055	2800.0	8830.1	0	2196	100	201	27.4	19.4	14.8	34.8	36.2	36.1			6.1	5.1	4.2	PN
28154	5/30/98	0438	2800.0	8760.0	0	2434	100	201	26.9	18.4	13.9	35.7	36.2	35.9			5.9	4.2	3.9	PN

Table 2. Selected environmental parameters (continued)

CHAPMAN, SPRING PLANKTON SURVEY																				
STA#	DATE		POSITION		STAT ZONE	DEPTH (M)	SAMPLE DEPTHS (M)		TEMPERATURE, C			SALINITY, PPT			CL, MG/M3 SUR	FL SUR	DISSOLVED OXYGEN, PPM			GEAR
	MM/DD/YY	TIME	LAT	LONG			MID	MAX	SUR	MID	MAX	SUR	MID	MAX			SUR	MID	MAX	
28155	5/30/98	0842	2829.9	8759.8	0	2379	100	201	27.7	20.0	14.7	36.3	36.5	36.0			5.8	4.6	4.1	PN
28156	5/30/98	1252	2800.0	8800.0	0	1383	100	200	27.4	19.8	15.6	34.1	36.2	36.2			6.2	5.6	3.9	PN
28157	5/30/98	1704	2824.9	8759.9	0	69	33	66	29.1	21.3	19.6	29.0	36.0	36.1			7.1	5.3	4.8	PN

Table 2. Selected environmental parameters (continued)

SUNCOASTER, SPRING PLANKTON SURVEY																				
STA#	DATE		POSITION		STAT ZONE	DEPTH (M)	SAMPLE DEPTHS (M)		TEMPERATURE, C			SALINITY, PPT			CL, MG/M3 SUR	FL SUR	DISSOLVED OXYGEN, PPM			GEAR
	MM/DD/YY	TIME	LAT	LONG			MID	MAX	SUR	MID	MAX	SUR	MID	MAX			SUR	SUR	SUR	
26001	6/21/98	0230	2800.0	8500.0	5	234	100	200	30.0	20.6	16.2	32.3	36.3	36.2	2.330		5.2	4.9	3.7	PN
26002	6/21/98	0708	2730.0	8459.9	5	408	100	200	30.2	20.0	17.1	33.1	36.2	36.3	2.575		5.1	4.9	3.8	PN
26003	6/21/98	1109	2700.0	8500.0	0	1600	100	200	30.4	23.0	16.7	36.3	36.4	36.3	2.429		5.0	5.1	3.7	PN
26004	6/21/98	1521	2630.0	8500.0	0	1609	100	205	30.5	22.2	14.8	36.1	36.6	36.0	2.641		5.0	4.5	3.7	PN
26005	6/21/98	2003	2700.0	8459.9	0	3240	100	209	30.4	19.7	14.9	35.8	36.5	36.0	2.483		5.1	4.1	3.7	PN
26006	6/21/98	2346	2700.0	8500.0	0	214	100	201	30.2	20.1	16.2	36.0	36.3	36.2	2.260		5.0	4.6	3.9	PN
26007	6/22/98	0334	2500.0	8400.0	3	135	65	130	30.1	22.7	18.0	36.1	36.4	36.4	2.415		5.0	5.7	3.8	PN
26008	6/22/98	0728	2502.0	8400.0	3	138	68	137	30.0	21.9	17.9	36.4	36.4	36.4	2.360		5.0	5.1	3.5	PN
26009	6/22/98	1129	2500.0	8400.0	3	127	62	125	29.6	21.5	18.4	36.4	36.7	36.5	2.219		5.1	4.2	3.7	PN
26010	6/22/98	1502	2500.1	8430.0	0	1350	104	208	30.1	17.6	13.3	36.3	36.4	35.7	2.414		5.1	3.9	3.6	PN
26011	6/22/98	1842	2500.0	8500.0	0	3240	101	202	30.1	19.3	14.4	36.3	36.6	35.9	2.265		5.1	4.0	3.7	PN
26012	6/22/98	2215	2500.0	8530.0	0	3240	101	203	29.9	18.0	14.4	36.2	36.4	35.9	2.293		5.1	3.9	3.6	PN
26013	6/23/98	0233	2430.0	8530.0	0	3240	102	204	29.4	19.5	14.9	36.4	36.4	36.0	2.406		5.1	3.9	3.6	PN
26014	6/23/98	0718	2430.0	8459.9	0	3419	102	204	29.3	20.1	15.1	36.4	36.2	36.0	2.227		5.0	4.9	3.7	PN
26015	6/23/98	1117	2430.0	8430.0	0	2450	101	202	29.3	20.0	15.9	36.4	36.3	36.1	2.277		5.0	4.5	3.9	PN
26016	6/23/98	1603	2430.0	8400.0	0	1500	105	210	29.4	19.0	14.8	36.3	36.4	35.9	2.304		5.1	3.8	3.8	PN
26017	6/23/98	2013	2430.0	8330.0	2	288	102	204	29.7	19.4	14.6	36.3	36.5	35.9	2.248		5.0	3.9	3.6	PN
26001	6/21/98	0230	2800.0	8500.0	5	234	100	200	30.0	20.6	16.2	32.3	36.3	36.2	2.330		5.2	4.9	3.7	PN
26002	6/21/98	0708	2730.0	8459.9	5	408	100	200	30.2	20.0	17.1	33.1	36.2	36.3	2.575		5.1	4.9	3.8	PN
26003	6/21/98	1109	2700.0	8500.0	0	1600	100	200	30.4	23.0	16.7	36.3	36.4	36.3	2.429		5.0	5.1	3.7	PN
26004	6/21/98	1521	2630.0	8500.0	0	1609	100	205	30.5	22.2	14.8	36.1	36.6	36.0	2.641		5.0	4.5	3.7	PN
26005	6/21/98	2003	2700.0	8459.9	0	3240	100	209	30.4	19.7	14.9	35.8	36.5	36.0	2.483		5.1	4.1	3.7	PN
26006	6/21/98	2346	2700.0	8500.0	0	214	100	201	30.2	20.1	16.2	36.0	36.3	36.2	2.260		5.0	4.6	3.9	PN
26007	6/22/98	0334	2500.0	8400.0	3	135	65	130	30.1	22.7	18.0	36.1	36.4	36.4	2.415		5.0	5.7	3.8	PN
26008	6/22/98	0728	2502.0	8400.0	3	138	68	137	30.0	21.9	17.9	36.4	36.4	36.4	2.360		5.0	5.1	3.5	PN
26009	6/22/98	1129	2500.0	8400.0	3	127	62	125	29.6	21.5	18.4	36.4	36.7	36.5	2.219		5.1	4.2	3.7	PN
26010	6/22/98	1502	2500.1	8430.0	0	1350	104	208	30.1	17.6	13.3	36.3	36.4	35.7	2.414		5.1	3.9	3.6	PN
26011	6/22/98	1842	2500.0	8500.0	0	3240	101	202	30.1	19.3	14.4	36.3	36.6	35.9	2.265		5.1	4.0	3.7	PN
26012	6/22/98	2215	2500.0	8530.0	0	3240	101	203	29.9	18.0	14.4	36.2	36.4	35.9	2.293		5.1	3.9	3.6	PN
26013	6/23/98	0233	2430.0	8530.0	0	3240	102	204	29.4	19.5	14.9	36.4	36.4	36.0	2.406		5.1	3.9	3.6	PN
26014	6/23/98	0718	2430.0	8459.9	0	3419	102	204	29.3	20.1	15.1	36.4	36.2	36.0	2.227		5.0	4.9	3.7	PN

Table 2. Selected environmental parameters (continued)

SUNCOASTER, SPRING PLANKTON SURVEY																				
STA#	DATE		POSITION		STAT ZONE	DEPTH (M)	SAMPLE DEPTHS (M)		TEMPERATURE, C			SALINITY, PPT			CL, MG/M3 SUR	FL SUR	DISSOLVED OXYGEN, PPM			GEAR
	MM/DD/YY	TIME	LAT	LONG			MID	MAX	SUR	MID	MAX	SUR	MID	MAX			SUR	MID	MAX	
26015	6/23/98	1117	2430.0	8430.0	0	2450	101	202	29.3	20.0	15.9	36.4	36.3	36.1	2.277		5.0	4.5	3.9	PN
26016	6/23/98	1603	2430.0	8400.0	0	1500	105	210	29.4	19.0	14.8	36.3	36.4	35.9	2.304		5.1	3.8	3.8	PN
26017	6/23/98	2013	2430.0	8330.0	2	288	102	204	29.7	19.4	14.6	36.3	36.5	35.9	2.248		5.0	3.9	3.6	PN

Table 2. Selected environmental parameters (continued)

ALABAMA INSHORE VESSELS, REEF FISH SURVEY																				
STA#	DATE		POSITION		STAT ZONE	DEPTH (M)	SAMPLE DEPTHS (M)		TEMPERATURE, C			SALINITY, PPT			CL, MG/M3 SUR	FL SUR	DISSOLVED OXYGEN, PPM			GEAR
	MM/DD/YY	TIME	LAT	LONG			MID	MAX	SUR	MID	MAX	SUR	MID	MAX			SUR	MID	MAX	
02301	5/19/98	1032	3002.3	8813.0	11	23	12	23	30.0	24.0	24.0									TV
02302	7/15/98	1000	3002.8	8804.7	11	24	12	24	31.0	27.0	28.0	30.0	32.0	32.0			6.8	5.6	6.2	TV
02303	7/29/98	0900	3000.8	8805.8	11	23	12	23	32.0	32.0	30.0	28.0	28.0	30.0			7.4	7.2	6.4	TV
02304	7/29/98	1030	3001.1	8804.8	11	21	11	21	32.0	31.0	28.0	32.0	31.0	28.0			7.6	7.9	4.8	TV
02305	8/28/98	1040	2957.4	8745.6	10	34	17	34	30.0	30.0	28.0	28.0	32.0	32.0			6.2	7.4	6.4	TV

Table 2. Selected environmental parameters (continued)

OREGON II, SUMMER SHRIMP/GROUNDFISH SURVEY																				
STA#	DATE		POSITION		STAT ZONE	DEPTH (M)	SAMPLE DEPTHS (M)		TEMPERATURE, C			SALINITY, PPT			CL, MG/M3 SUR	FL SUR	DISSOLVED OXYGEN, PPM			GEAR
	MM/DD/YY	TIME	LAT	LONG			MID	MAX	SUR	MID	MAX	SUR	MID	MAX			SUR	MID	MAX	
00001	6/22/98	1912	2604.6	9702.4	21	22	11	22	25.2	22.9	22.7	34.6	36.7	36.4		0.347	5.6	6.3	5.8	ST
00002	6/22/98	2120	2606.5	9654.9	21	34	17	33	27.4	22.9	22.3	36.4	36.4	36.4		0.169	5.3	6.3	6.0	ST
00003	6/23/98	0012	2600.1	9653.1	21	33	16	33	27.3	24.3	22.1	35.6	36.4	36.4		0.151	5.1	6.5	6.3	ST
00004	6/23/98	0215	2601.9	9703.1	21	22	11	22	25.7	22.9	22.8	35.3	36.4	33.9		0.503	5.4	5.5	6.5	ST
00005	6/23/98	0414	2609.6	9708.6	21	14	7	12	25.0	23.2	23.1	35.4	36.3	36.4		0.608	4.6	5.6	4.9	ST
00006	6/23/98	0551	2617.3	9704.6	21	18	8	17	25.8	23.6	23.0	35.2	36.3	36.5		0.320	6.0	5.6	5.9	ST
00007	6/23/98	0752	2619.0	9659.9	21	29	14	29	26.9	26.7	22.2	36.4	36.4	36.4		0.237	5.3	5.8	5.6	ST
00008	6/23/98	0936	2623.3	9711.7	21	13	6	13	25.2	23.7	23.5	35.9	36.4	36.5		0.415	5.7	4.8	5.4	ST
00009	6/23/98	1043	2624.4	9712.3	21	12	6	12	24.3	23.6	23.6	36.1	36.4	36.4		0.684	5.7	5.5	5.3	ST
00010	6/23/98	1619	2629.3	9638.9	21	52	25	52	28.5	25.8	19.8	33.9	36.4	36.3		0.092	4.4	6.0	4.1	ST
00011	6/23/98	1812	2631.5	9634.2	21	71	35	71	28.8	23.6	19.5	36.4	36.4	36.3		0.122	5.4	6.3	4.2	ST
00012	6/23/98	2111	2624.4	9622.1	21	92	46	92	27.6	22.9	19.1	36.2	36.4	36.3		0.159	5.0	6.2	3.9	ST
00014	6/24/98	0036	2619.4	9632.8	21	55	27	55	28.2	23.8	20.7	36.3	36.4	36.4		0.129	4.9	6.3	4.8	ST
00015	6/24/98	0159	2619.5	9632.8	21	54	27	54	28.2	23.9	20.7	36.4	36.4	36.4		0.134	5.5	6.3	4.8	ST
00018	6/24/98	0755	2630.2	9700.5	21	34	16	34	27.0	23.7	22.5	34.8	35.7	36.4		0.208	4.0	4.6	5.3	PN
00019	6/24/98	1421	2703.6	9643.8	20	75	38	75	28.1	23.2	20.2	35.8	36.3	36.3		0.122	4.5	6.2	4.6	ST
00021	6/24/98	1824	2704.3	9704.4	20	35	17	35	27.7	23.3	20.9	36.3	36.4	36.3		0.200	5.2	6.0	6.9	ST
00022	6/24/98	1929	2707.4	9710.8	20	23	11	23	27.5	25.8	22.4	36.2	36.4	36.3		0.269	5.4	5.7	5.9	ST
00023	6/24/98	2223	2654.7	9712.1	21	25	12	25	26.6	25.5	22.4	36.3	36.3	36.3		0.213	5.4	5.7	5.5	ST
00024	6/25/98	0044	2651.0	9720.5	21	12	6	12	25.9	25.9	23.5	36.4	36.4	36.3		0.506	5.5	5.5	5.2	ST
00025	6/25/98	0221	2658.2	9721.1	21	14	7	14	26.1	26.1	24.4	36.4	36.4	36.5		0.386	5.5	5.5	4.8	ST
00026	6/25/98	0522	2709.5	9702.6	20	37	17	37	27.5	24.2	21.2	36.4	36.4	36.3		0.186	5.4	6.2	6.5	ST
00027	6/25/98	0832	2702.5	9717.8	20	18	8	17	27.1	26.9	24.4	35.8	35.2	36.3		0.276	4.7	3.7	5.0	ST
00028	6/25/98	1209	2716.4	9701.5	20	32	17	32	27.9	25.8	21.6	36.4	36.2	36.3		0.171	5.5	5.7	6.1	ST
00029	6/25/98	1457	2719.4	9715.5	20	17	8	16	28.7	28.1	26.3	35.8	35.8	36.2		0.244	5.6	4.7	5.5	ST
00030	6/25/98	1545	2720.3	9718.0	20	14	7	14	28.8	28.3	27.5	36.1	36.2	36.2		0.271	4.9	5.3	5.6	ST
00031	6/25/98	1910	2731.9	9708.4	20	16	8	16	29.4	29.2	28.6	35.8	35.7	36.0		0.398	5.1	5.0	5.4	ST
00032	6/25/98	2117	2732.1	9657.9	20	27	13	27	28.1	26.5	22.7	36.2	36.3	36.3		0.217	4.8	5.6	6.1	ST
00033	6/25/98	2329	2730.9	9647.3	20	40	20	40	27.7	23.5	21.2	36.4	36.5	36.4		0.193	5.5	6.0	6.5	ST
00034	6/26/98	0241	2728.0	9630.6	20	73	36	73	28.3	23.0	20.5	36.4	36.2	36.3		0.124	4.2	6.1	4.7	ST
00035	6/26/98	0515	2720.9	9633.3	20	80	41	80	28.3	22.7	20.3	36.2	36.3	36.3		0.132	3.9	6.0	4.1	ST

Table 2. Selected environmental parameters (continued)

OREGON II, SUMMER SHRIMP/GROUNDFISH SURVEY																					
STA#	DATE		POSITION		STAT ZONE	DEPTH (M)	SAMPLE DEPTHS (M)			TEMPERATURE, C			SALINITY, PPT			CL, MG/M3 SUR	FL SUR	DISSOLVED OXYGEN, PPM			GEAR
	MM/DD/YY	TIME	LAT	LONG			MID	MAX	SUR	MID	MAX	SUR	MID	MAX	SUR			MID	MAX	SUR	
00036	6/26/98	0820	2726.1	9625.3	20	93	46	93	28.6	23.0	20.1	35.6	36.3	36.3		0.147	3.9	5.9	4.4	ST	
00038	6/26/98	1328	2723.2	9627.0	20	94	47	94	28.6	23.0	20.2	36.4	36.3	36.3		0.110	5.1	6.1	4.6	ST	
00040	6/26/98	1750	2726.5	9647.7	20	46	22	46	28.7	24.0	21.3	36.4	36.3	36.3		0.169	5.4	6.1	6.6	ST	
00041	6/26/98	2114	2741.1	9704.6	20	15	7	15	30.0	30.0	29.8	35.2	35.2	35.4		0.718	5.1	5.1	5.9	ST	
00042	6/27/98	0019	2748.2	9656.3	20	18	9	17	29.5	29.4	29.1	34.5	34.5	34.7		0.332	4.7	4.5	4.8	ST	
00043	6/27/98	0307	2746.6	9642.9	20	29	15	29	28.0	27.5	23.5	36.4	36.4	36.1		0.173	4.7	5.2	4.7	ST	
00044	6/27/98	0532	2739.5	9625.2	20	74	36	74	28.8	25.0	20.9	35.4	36.1	36.3		0.139	3.7	6.0	5.1	ST	
00045	6/27/98	0823	2742.9	9627.1	20	55	27	54	28.4	26.8	21.5	36.3	36.2	36.3		0.127	5.4	5.6	6.2	ST	
00047	6/27/98	1126	2750.9	9635.8	20	32	16	31	28.6	28.1	23.5	35.4	36.2	35.9		0.247	4.2	5.2	4.5	ST	
00048	6/27/98	1316	2753.1	9642.8	20	23	12	23	29.8	27.9	24.8	34.4	35.1	35.1		0.655	5.1	5.1	4.0	ST	
00049	6/27/98	1520	2750.6	9648.8	20	22	11	22	26.7	27.5	25.7	34.2	34.9	35.3		1.070	5.4	5.1	4.6	ST	
00050	6/27/98	1717	2759.1	9654.1	20	10	5	10	30.1	31.1	30.8	34.8	34.8	30.8		1.219	4.4	4.9	5.1	ST	
00051	6/27/98	1856	2758.6	9644.7	20	16	8	16	30.0	28.8	28.4	34.1	34.6	34.9		1.871	5.2	5.0	5.1	ST	
00052	6/27/98	2121	2759.0	9632.2	20	26	13	25	28.5	27.5	25.8	35.3	35.3	35.7		0.322	5.2	5.0	5.0	ST	
00053	6/27/98	2307	2759.3	9623.0	19	31	16	30	28.5	28.0	24.2	35.8	36.0	35.8		0.193	4.9	5.4	5.1	ST	
00054	6/28/98	0123	2800.8	9617.2	19	31	16	31	28.8	27.7	24.5	35.1	35.6	35.5		0.488	4.7	5.4	5.0	ST	
00055	6/28/98	0436	2811.5	9637.8	19	10	5	10	30.5	30.5	30.5	33.5	33.5	33.5		1.304	4.1	4.1	4.9	ST	
00056	6/28/98	0641	2809.3	9640.7	19	10	5	10	30.5	30.5	30.4	33.5	33.5	33.6		1.389	5.2	5.2	5.1	ST	
00057	6/28/98	0832	2805.2	9634.0	19	20	9	19	28.7	28.7	28.7	35.1	35.1	35.1		0.728	4.9	5.3	5.3	ST	
00058	6/28/98	1006	2804.8	9628.2	19	23	11	23	28.7	28.7	28.6	34.5	34.7	35.0		1.375	5.1	5.1	5.0	ST	
00059	6/28/98	1316	2751.4	9629.8	20	35	17	35	28.5	26.8	23.6	36.7	36.3	36.0		0.200	5.4	5.6	5.8	ST	
00060	6/28/98	1519	2753.2	9627.3	20	36	18	35	28.6	27.9	23.7	35.7	36.3	35.9		0.181	5.4	5.5	5.7	ST	
00061	6/28/98	1807	2802.4	9614.2	19	31	16	31	28.9	28.4	24.6	35.5	36.0	35.6		0.203	5.3	5.5	5.2	ST	
00062	6/28/98	2056	2819.3	9620.8	19	15	7	15	29.4	29.4	29.4	33.4	33.4	33.4		1.990	5.1	5.2	5.1	ST	
00063	6/28/98	2320	2821.0	9612.3	19	18	9	18	29.4	29.4	29.4	33.4	33.3	33.4		1.683	4.0	5.0	4.8	ST	
00064	6/29/98	0255	2824.4	9550.5	19	21	10	21	29.4	29.4	29.3	32.6	32.6	32.8		1.924	5.0	5.1	5.0	ST	
00066	6/29/98	0522	2818.3	9549.2	19	24	12	24	28.8	28.9	28.3	32.2	34.1	34.2		0.899	5.3	5.2	5.1	ST	
00067	6/29/98	0713	2822.5	9549.6	19	23	12	22	29.2	29.2	28.9	32.8	32.8	33.4		1.282	5.2	5.3	5.0	ST	
00068	6/29/98	1236	2745.7	9553.1	20	65	32	64	29.1	26.8	21.4	36.0	36.2	36.3		0.110	5.4	5.8	5.6	ST	
00069	6/29/98	1444	2743.8	9556.5	20	86	43	85	29.3	24.0	20.1	35.6	36.2	36.3		0.952	5.3	6.2	4.6	ST	
00070	6/29/98	1648	2744.6	9546.6	20	73	36	73	29.1	27.5	21.6	35.8	36.4	36.4		0.122	5.3	5.6	5.8	ST	

Table 2. Selected environmental parameters (continued)

OREGON II, SUMMER SHRIMP/GROUNDFISH SURVEY																				
STA#	DATE		POSITION		STAT ZONE	DEPTH (M)	SAMPLE DEPTHS (M)		TEMPERATURE, C			SALINITY, PPT			CL, MG/M3 SUR	FL SUR	DISSOLVED OXYGEN, PPM			GEAR
	MM/DD/YY	TIME	LAT	LONG			MID	MAX	SUR	MID	MAX	SUR	MID	MAX			SUR	MID	MAX	
00071	6/29/98	2026	2747.6	9532.5	20	83	41	82	29.1	26.7	19.1	35.8	36.0	36.3		0.142	4.5	5.8	4.0	ST
00072	6/29/98	2148	2748.9	9527.4	20	86	43	86	29.1	24.6	19.2	36.0	36.2	36.3		0.166	5.3	6.1	4.0	ST
00073	7/ 1/98	2031	2924.4	9436.1	18	9	4	9	30.4	29.6	29.1	28.4	28.5	27.7		4.552	4.7	4.4	5.5	ST
00074	7/ 2/98	0309	2856.7	9510.2	19	14	7	14	30.4	30.4	29.7	26.3	28.6	30.4		1.433	5.0	3.2	3.6	ST
00075	7/ 2/98	0524	2845.7	9456.0	18	22	11	22	29.6	29.4	27.1	32.0	32.9	34.6		0.400	4.8	5.5	4.7	ST
00076	7/ 2/98	1017	2815.4	9515.7	19	39	19	39	28.9	28.8	22.1	36.3	36.2	36.2		0.122	5.6	5.7	5.8	ST
00078	7/ 2/98	1458	2820.7	9529.8	19	29	15	29	29.2	29.0	27.0	35.7	36.0	35.8		0.217	4.5	5.5	6.3	ST
00079	7/ 2/98	1759	2816.1	9530.5	19	33	17	33	28.1	28.8	22.9	36.1	36.2	36.0		0.129	5.1	5.5	6.6	ST
00080	7/ 2/98	1912	2808.3	9528.0	19	45	22	45	29.0	28.4	22.0	36.2	36.2	36.3		0.161	5.6	5.8	6.0	ST
00081	7/ 2/98	2239	2815.3	9536.4	19	30	15	30	29.0	28.9	25.3	36.1	36.2	35.8		0.142	5.6	5.6	6.3	ST
00082	7/ 3/98	0155	2808.1	9547.8	19	35	17	34	28.9	27.5	22.8	35.7	35.0	36.2		0.122	5.2	5.3	5.5	ST
00083	7/ 3/98	0527	2753.1	9526.5	20	76	38	76	29.1	26.9	20.1	35.9	36.1	36.3		0.127	4.8	6.1	4.5	ST
00084	7/ 4/98	1226	2912.6	9442.2	18	14	7	14	29.4	29.4	29.2	24.5	26.8	28.6		6.002	4.0	3.1	3.0	ST
00085	7/ 4/98	1642	2925.2	9418.9	18	13	6	13	30.0	29.4	29.1	15.8	24.9	29.2		4.435	5.2	3.6	2.9	ST
00087	7/ 5/98	0126	2815.5	9441.6	18	47	23	46	28.7	27.7	21.8	35.3	35.2	36.1		0.256	5.6	6.0	5.8	ST
00089	7/ 5/98	0508	2758.7	9444.7	18	86	43	86	28.7	24.5	20.2	36.0	36.3	36.3		0.147	4.6	6.6	4.7	ST
00090	7/ 5/98	0716	2757.1	9446.4	18	89	44	88	28.7	24.2	20.1	35.2	36.3	36.4		0.151	4.9	6.5	5.6	ST
00091	7/ 5/98	1200	2800.4	9432.6	18	66	33	66	28.7	26.6	20.7	35.6	35.9	36.3		0.142	4.4	5.9	5.1	ST
00092	7/ 5/98	1452	2809.1	9440.8	18	55	28	55	29.8	27.8	21.5	35.7	36.6	36.5		0.137	4.2	5.4	5.3	ST
00094	7/ 5/98	2059	2814.4	9503.7	19	48	24	48	29.1	28.6	21.9	36.0	36.1	36.2		0.147	5.6	5.8	5.9	ST
00095	7/ 5/98	2346	2818.0	9514.5	19	38	19	38	28.8	28.4	22.6	36.1	36.2	36.1		0.166	5.5	5.8	6.1	ST
00096	7/ 6/98	0223	2832.2	9517.9	19	28	13	28	29.1	28.9	28.7	35.5	35.7	35.9		0.186	5.8	5.7	5.8	ST
00097	7/ 6/98	0444	2835.9	9512.4	19	28	14	27	29.4	28.4	24.4	34.0	33.2	35.0		0.484	4.2	3.1	4.1	ST
00098	7/ 6/98	0753	2841.9	9456.3	18	26	12	25	29.2	28.9	24.0	31.9	33.8	35.2		0.466	5.8	5.8	5.1	ST
00099	7/ 6/98	1040	2831.8	9448.1	18	34	17	34	29.2	28.7	23.1	33.8	35.6	35.4		0.193	4.1	5.7	5.3	ST
00100	7/ 6/98	1530	2837.7	9402.0	18	32	16	32	29.4	28.8	23.4	34.0	35.1	36.7		0.183	5.7	5.8	6.1	ST
00101	7/ 6/98	1937	2906.1	9410.3	18	15	7	14	29.8	29.6	29.1	29.1	30.0	32.5		0.869	5.8	5.9	5.1	ST
00102	7/ 6/98	2152	2909.0	9400.3	18	17	9	17	29.9	29.5	29.5	27.6	29.1	32.3		1.560	6.3	5.8	5.5	ST
00103	7/ 7/98	0036	2916.1	9356.2	17	15	7	15	30.6	29.4	29.3	23.9	29.4	29.4		3.211	6.4	5.1	5.2	ST
00104	7/ 7/98	0139	2916.1	9354.5	17	15	7	15	30.1	29.5	28.7	25.9	29.3	31.5		2.149	5.8	5.1	4.1	ST
00105	7/ 7/98	0522	2909.1	9336.5	17	18	9	18	29.8	28.9	28.9	30.9	31.8	31.8		1.902	3.9	3.9	4.1	ST

Table 2. Selected environmental parameters (continued)

OREGON II, SUMMER SHRIMP/GROUNDFISH SURVEY																				
STA#	DATE		POSITION		STAT ZONE	DEPTH (M)	SAMPLE DEPTHS (M)		TEMPERATURE, C			SALINITY, PPT			CL, MG/M3 SUR	FL SUR	DISSOLVED OXYGEN, PPM			GEAR
	MM/DD/YY	TIME	LAT	LONG			MID	MAX	SUR	MID	MAX	SUR	MID	MAX			SUR	MID	MAX	
00106	7/ 7/98	0954	2939.6	9340.7	17	8	4	8	29.6	29.3	28.9	20.4	24.7	27.9		3.150	4.2	2.0	0.5	ST
00107	7/ 7/98	1409	2914.4	9357.7	17	15	7	15	29.8	29.5	28.8	31.2	31.3	28.7		2.195	3.3	3.5	6.9	ST
00108	7/ 7/98	1537	2914.0	9352.3	17	14	7	14	30.0	29.6	28.8	24.4	29.2	31.1		2.623	6.4	5.1	5.1	ST
00109	7/ 7/98	1931	2847.2	9328.5	17	26	13	26	30.5	28.9	22.1	29.7	33.4	35.2		0.464	5.9	5.7	5.4	ST
00110	7/ 7/98	2258	2833.4	9340.8	17	34	16	34	29.3	29.0	21.6	34.3	34.7	35.9		0.198	5.1	5.6	5.7	ST
00111	7/ 8/98	0108	2832.9	9348.7	17	37	17	37	29.2	28.8	21.4	35.0	34.9	36.1		0.225	3.9	5.4	5.2	ST
00112	7/ 8/98	0345	2826.6	9352.5	17	48	24	47	29.1	26.7	20.8	34.3	33.8	36.7		0.169	4.3	6.0	5.7	ST
00113	7/ 8/98	0533	2828.9	9352.4	17	43	21	42	29.3	28.8	21.1	34.6	34.9	36.3		0.198	5.1	5.6	4.5	ST
00114	7/ 8/98	1154	2813.3	9304.2	17	66	34	66	30.1	25.3	20.8	33.5	35.7	36.3		0.134	3.7	6.1	4.4	ST
00115	7/ 8/98	1345	2806.3	9302.7	17	87	42	87	29.9	23.0	20.1	31.2	36.0	36.4		0.171	4.7	6.2	4.6	ST
00116	7/ 8/98	1549	2806.2	9301.8	17	87	42	87	29.9	23.0	20.1	31.2	36.0	36.4		0.171	4.7	6.2	4.6	ST
00117	7/ 8/98	1931	2803.3	9253.4	16	90	45	90	30.0	24.0	19.8	32.3	36.2	36.4		0.215	5.4	6.4	4.2	ST
00118	7/ 8/98	2242	2806.6	9236.6	16	87	43	87	30.1	23.2	20.2	33.2	36.2	36.4		0.208	4.4	6.2	4.4	ST
00119	7/ 9/98	0026	2809.4	9233.1	16	74	37	74	29.6	22.8	20.4	31.9	35.8	36.4		0.220	5.4	6.1	4.7	ST
00120	7/ 9/98	0307	2804.9	9224.3	16	95	47	94	30.0	22.7	20.0	31.8	36.1	36.4		0.217	4.9	6.1	4.0	ST
00121	7/ 9/98	0518	2813.0	9223.5	16	65	33	65	29.5	23.8	20.6	32.5	35.3	36.3		0.229	5.0	6.2	5.0	ST
00122	7/ 9/98	0900	2813.5	9245.9	16	64	32	64	29.5	26.3	20.6	32.6	34.9	36.3		0.195	5.5	5.9	4.1	ST
00123	7/ 9/98	1227	2831.5	9237.7	16	47	23	47	29.9	29.2	21.0	33.1	35.5	36.3		0.191	5.3	5.5	4.0	ST
00124	7/ 9/98	1348	2835.4	9240.2	16	38	18	37	30.4	27.9	21.5	33.1	34.8	36.2		0.164	5.5	5.8	4.8	ST
00125	7/ 9/98	1706	2829.5	9257.6	16	46	22	45	30.2	28.5	21.2	32.7	34.3	36.0		0.183	5.6	5.6	4.5	ST
00126	7/ 9/98	1918	2836.6	9303.1	17	34	17	33	29.7	29.5	21.2	33.0	33.7	35.8		0.213	5.5	5.5	4.9	ST
00127	7/ 9/98	2115	2837.1	9309.9	17	35	16	35	29.7	29.2	21.2	34.4	34.6	36.0		0.171	3.8	5.0	5.0	ST
00128	7/ 9/98	2328	2846.8	9304.9	17	27	13	27	30.1	29.1	22.0	31.9	32.9	35.4		0.247	4.8	5.4	5.3	ST
00129	7/10/98	0226	2843.4	9248.6	16	32	16	32	30.0	29.0	21.5	31.1	34.1	35.8		0.234	5.1	5.5	5.1	ST
00130	7/10/98	0623	2837.4	9304.9	17	34	17	33	29.1	29.5	21.2	33.1	34.5	35.9		0.222	5.4	5.4	4.7	ST
00131	7/10/98	0754	2839.6	9302.3	17	31	16	31	29.6	29.5	21.3	34.2	34.3	35.9		0.203	4.8	5.3	4.7	ST
00132	7/10/98	1024	2843.8	9303.2	17	31	14	31	29.5	28.7	21.6	31.1	33.3	35.7		0.173	5.2	5.5	4.8	ST
00133	7/10/98	1319	2847.3	9243.7	16	30	15	30	30.1	29.2	21.9	32.8	31.6	36.7		0.254	4.2	4.8	5.5	ST
00134	7/10/98	1554	2852.7	9233.3	16	27	13	27	30.6	29.0	22.0	25.2	32.2	36.1		3.297	6.6	5.7	4.8	ST
00135	7/10/98	1852	2906.1	9242.3	16	19	9	19	31.2	29.8	29.4	30.0	31.6	31.8		1.050	4.5	3.9	5.0	ST
00136	7/10/98	2104	2905.5	9247.2	16	22	12	22	30.0	29.3	26.2	28.4	32.1	32.7		0.738	5.4	5.4	4.1	ST

Table 2. Selected environmental parameters (continued)

OREGON II, SUMMER SHRIMP/GROUNDFISH SURVEY																				
STA#	DATE		POSITION		STAT ZONE	DEPTH (M)	SAMPLE DEPTHS (M)		TEMPERATURE, C			SALINITY, PPT			CL, MG/M3 SUR	FL SUR	DISSOLVED OXYGEN, PPM			GEAR
	MM/DD/YY	TIME	LAT	LONG			MID	MAX	SUR	MID	MAX	SUR	MID	MAX			SUR	MID	MAX	
00137	7/10/98	2354	2905.3	9254.9	16	22	11	22	30.7	29.2	27.5	31.2	31.8	32.9		1.011	4.2	4.5	5.1	ST
00138	7/11/98	0119	2910.0	9257.7	16	18	9	18	30.7	29.8	27.6	23.8	31.8	33.0		1.197	4.8	4.8	4.7	ST
00139	7/11/98	0538	2930.2	9238.5	16	9	4	8	30.1	30.1	28.7	22.0	23.7	30.9		3.717	5.3	2.4	1.9	ST
00140	7/11/98	0807	2925.1	9228.5	16	10	5	10	30.2	29.1	28.8	21.9	28.8	30.9		3.717	5.1	2.6	2.4	ST
00141	7/11/98	1105	2908.5	9228.2	16	19	9	19	30.3	29.3	25.0	21.8	27.8	33.7		1.748	5.3	4.0	2.5	ST
00142	7/11/98	1402	2858.8	9210.8	16	22	11	22	30.6	29.5	23.0	22.7	32.1	34.8		3.590	6.1	5.5	4.1	ST
00143	7/11/98	1600	2901.1	9202.0	16	19	10	19	31.3	29.1	27.8	21.6	32.3	36.2		3.116	6.3	5.0	6.0	ST
00144	7/11/98	1803	2901.5	9150.3	15	15	7	13	30.7	28.8	22.9	23.1	31.3	34.0		4.134	5.0	5.0	0.4	ST
00145	7/11/98	2007	2900.1	9146.4	15	16	7	14	30.6	28.8	22.8	23.8	31.1	34.2		5.004	5.8	4.2	0.6	ST
00146	7/11/98	2244	2905.5	9200.1	16	12	6	12	30.5	28.4	23.1	31.1	31.8	34.1		6.901	3.6	3.7	1.3	ST
00147	7/12/98	0219	2857.3	9213.7	16	24	12	24	30.4	29.6	22.0	22.3	32.4	35.5		3.062	5.6	5.1	3.7	ST
00148	7/12/98	0330	2853.0	9214.0	16	29	14	27	30.3	29.2	21.4	21.6	32.5	35.5		2.042	5.8	5.4	3.5	ST
00149	7/12/98	0516	2849.5	9220.0	16	33	16	31	30.1	29.4	21.3	26.3	33.3	35.6		1.226	5.5	5.4	3.4	ST
00150	7/12/98	0922	2850.7	9149.4	15	23	12	23	30.0	29.3	21.9	24.2	32.5	34.9		2.134	4.7	5.1	2.7	ST
00151	7/12/98	1218	2847.8	9147.3	15	24	12	24	30.2	29.2	26.9	22.7	32.6	34.3		1.504	6.0	5.5	5.5	ST
00152	7/12/98	1447	2835.9	9139.4	15	38	19	38	30.6	29.6	20.5	30.1	31.8	36.0		0.339	5.4	5.2	2.9	ST
00153	7/12/98	1712	2831.4	9151.2	15	54	27	53	30.4	28.5	20.8	32.3	35.2	36.2		0.081	5.4	5.6	4.0	ST
00154	7/12/98	2010	2835.1	9147.6	15	39	20	38	30.6	28.6	20.5	27.9	33.9	35.9		0.711	5.5	5.7	3.0	ST
00155	7/12/98	2207	2840.5	9145.0	15	30	15	30	30.3	29.7	20.8	28.2	33.0	35.5		1.028	5.6	5.2	3.4	ST
00156	7/13/98	0012	2841.5	9140.5	15	29	15	29	30.3	29.2	21.0	24.5	32.6	35.4		1.814	5.7	5.5	3.4	ST
00157	7/13/98	0250	2842.2	9125.6	15	25	12	24	30.0	28.9	21.2	30.9	33.0	35.2		2.300	5.1	5.4	2.5	ST
00158	7/13/98	0453	2836.9	9117.2	15	29	14	27	30.3	29.3	20.0	24.0	32.5	35.5		1.958	5.6	5.5	2.2	ST
00159	7/13/98	0618	2842.7	9117.2	15	20	10	18	30.2	29.4	21.8	23.5	32.8	34.8		2.549	5.4	5.2	2.2	ST
00160	7/13/98	0811	2841.3	9110.5	15	17	8	16	30.2	30.0	22.7	30.3	32.0	34.5		1.153	4.8	4.8	0.9	ST
00161	7/13/98	0954	2837.9	9106.4	15	19	10	19	30.3	30.2	20.3	24.2	31.8	35.3		2.225	5.4	5.2	1.3	ST
00162	7/13/98	1103	2836.5	9105.2	15	22	11	22	30.4	29.5	20.1	24.1	31.5	35.4		1.934	5.7	5.3	1.8	ST
00163	7/13/98	1248	2831.7	9100.4	15	31	15	31	30.5	29.0	19.9	30.4	32.1	35.8		1.734	4.4	5.3	3.3	ST
00164	7/13/98	1540	2822.7	9115.0	15	57	28	56	30.8	24.6	20.1	29.1	34.5	36.1		0.535	5.4	5.9	3.6	ST
00165	7/13/98	1844	2815.4	9122.1	15	77	38	75	29.8	23.7	20.2	32.5	35.1	36.3		0.232	4.9	5.2	4.3	ST
00166	7/13/98	2027	2809.6	9121.0	15	114	57	114	30.0	22.6	17.2	32.4	36.4	36.3		0.222	5.4	6.3	3.8	ST
00167	7/14/98	0002	2812.3	9113.1	15	84	42	84	30.0	22.0	18.2	32.6	35.7	36.3		0.217	5.3	5.9	3.9	ST

Table 2. Selected environmental parameters (continued)

OREGON II, SUMMER SHRIMP/GROUNDFISH SURVEY																					
STA#	DATE		POSITION		STAT ZONE	DEPTH (M)	SAMPLE DEPTHS (M)			TEMPERATURE, C			SALINITY, PPT			CL, MG/M3 SUR	FL SUR	DISSOLVED OXYGEN, PPM			GEAR
	MM/DD/YY	TIME	LAT	LONG			MID	MAX	SUR	MID	MAX	SUR	MID	MAX	SUR			MID	MAX	SUR	
00168	7/14/98	0303	2817.1	9101.0	15	65	32	65	30.7	21.4	19.6	26.8	35.7	36.1		0.894	5.7	5.7	3.8	ST	
00169	7/14/98	0438	2820.0	9101.6	15	58	29	56	30.6	22.5	19.5	26.3	35.2	36.0		0.913	5.6	5.8	3.6	ST	
00170	7/14/98	0841	2811.9	9041.5	14	84	42	84	30.2	22.7	18.1	27.8	35.9	36.3		1.011	4.2	6.1	3.6	ST	
00171	7/14/98	1053	2807.9	9031.6	14	111	55	111	30.4	21.8	16.6	29.2	35.9	36.5		0.757	5.5	5.7	3.7	ST	
00172	7/14/98	1410	2813.5	9037.1	14	76	38	76	30.6	23.1	18.8	26.9	35.3	36.5		0.899	5.7	6.1	3.6	ST	
00173	7/14/98	1818	2836.8	9018.9	14	38	18	36	30.5	22.4	20.0	19.5	34.9	35.9		7.993	7.6	5.5	1.6	ST	
00174	7/14/98	1859	2838.6	9018.2	14	32	16	30	30.5	27.3	20.1	28.3	32.4	35.8		5.890	4.2	4.0	1.1	ST	
00175	7/14/98	2130	2839.6	9006.7	14	88	44	88	30.5	19.8	16.4	21.4	36.0	36.2		4.772	5.3	2.1	3.5	ST	
00176	7/14/98	2301	2839.1	9010.4	14	58	25	58	30.5	22.1	19.0	20.7	34.9	36.3		5.018	6.7	4.8	3.5	ST	
00177	7/15/98	0146	2828.1	9021.2	14	48	24	47	30.0	28.8	20.1	27.9	33.9	35.9		1.597	5.3	5.7	3.1	ST	
00178	7/15/98	0333	2835.9	9021.3	14	35	17	32	29.8	28.8	20.2	22.6	32.3	35.7		6.159	6.1	5.3	1.7	ST	
00179	7/15/98	0524	2834.5	9029.0	14	32	16	30	30.0	28.9	20.4	30.0	32.2	35.6		1.824				ST	
00180	7/15/98	0911	2858.3	9036.5	14	11	5	11	29.1	29.2	26.1	23.3	23.9	32.4		3.797	4.8	5.0	3.1	ST	
00181	7/15/98	1232	2901.2	9013.1	14	12	6	12	29.3	28.9	25.4	28.0	29.6	33.9		8.794	6.7	5.3	0.5	ST	
00182	7/15/98	1444	2854.9	9004.3	14	28	14	28	30.3	28.0	20.7	27.8	32.2	36.0		2.479	4.7	3.9	0.4	ST	
00183	7/15/98	1614	2849.3	9003.8	14	35	18	35	30.8	25.3	20.3	23.3	33.3	36.3		7.438	7.7	4.6	3.9	ST	
00184	7/15/98	2058	2908.8	9001.8	14	11	5	11	28.8	28.1	27.5	32.4	32.8	33.2		1.551	4.6	4.0	2.4	ST	
00185	7/15/98	2306	2904.4	9005.0	14	14	7	14	28.7	28.2	25.9	32.1	32.6	33.7		5.079	3.4	2.3	2.2	ST	
00186	7/16/98	0121	2858.4	9012.3	14	17	8	17	29.3	27.2	24.2	28.9	32.1	34.3		3.368	5.1	3.5	0.3	ST	
00187	7/16/98	0258	2856.5	9013.4	14	20	10	20	29.7	28.3	22.6	26.2	31.5	35.1		6.288	6.4	4.3	0.2	ST	
00188	7/16/98	0445	2856.2	9008.3	14	21	10	21	29.5	29.3	21.8	27.3	31.2	35.3		5.346	6.1	4.6	0.1	ST	
00189	7/16/98	0726	2859.6	8945.7	13	39	19	38	29.0	23.0	20.2	30.5	34.8	36.2		1.626	5.2	2.6	1.3	ST	
00190	7/16/98	0945	2859.0	8932.5	13	22	10	22	29.3	29.3	28.3	30.4	30.6	32.4		0.923	5.4	5.5	4.6	ST	
00191	7/16/98	1448	2907.3	8840.8	11	97	48	96	30.4	20.4	17.4	27.9	36.1	36.4		3.883	5.6	4.8	3.6	ST	
00192	7/16/98	1723	2916.2	8825.6	11	68	34	68	30.1	21.1	18.8	23.4	36.4	36.3		1.000	12.1	5.6	3.9	ST	
00193	7/16/98	1830	2918.1	8826.3	11	67	33	65	29.7	20.6	18.8	24.2	36.1	36.3		1.000	10.4	5.0	3.1	ST	
00194	7/16/98	2031	2915.6	8829.6	11	74	37	74	29.8	21.1	18.8	32.8	36.2	36.3		1.000	5.5	5.4	3.8	ST	
00195	7/16/98	2235	2915.0	8829.9	11	91	45	91	29.5	20.9	18.4	31.8	36.3	36.3		3.797	5.8	5.4	3.5	ST	

Table 2. Selected environmental parameters (continued)

ARANSAS BAY, SUMMER SHRIMP/GROUNDFISH SURVEY																				
STA#	DATE		POSITION		STAT ZONE	DEPTH (M)	SAMPLE DEPTHS (M)		TEMPERATURE, C			SALINITY, PPT			CL, MG/M3 SUR	FL SUR	DISSOLVED OXYGEN, PPM			GEAR
	MM/DD/YY	TIME	LAT	LONG			MID	MAX	SUR	MID	MAX	SUR	MID	MAX			SUR	MID	MAX	
31001	6/16/98	0909	2750.7	9700.4	20	11	6	11	28.8	28.8	28.2	36.4	36.9	35.7			5.6	5.4	5.2	ST
31002	6/16/98	0949	2751.4	9700.6	20	10	5	10	28.8	28.8	26.3	36.5	36.8	36.3			5.8	6.1	6.2	ST
31003	6/16/98	1049	2752.9	9654.5	20	16	8	16	27.9	27.1	23.6	36.0	36.8	36.8			5.9	5.8	5.7	ST
31004	6/16/98	1141	2749.4	9653.5	20	20	10	20	27.3	26.4	23.1	36.1	37.0	37.0			5.9	5.9	5.8	ST
31005	6/16/98	1221	2749.9	9656.5	20	17	9	17	27.5	27.2	24.0	36.2	36.5	37.0			6.1	6.0	5.9	ST
31006	6/16/98	1321	2745.3	9700.3	20	17	9	17	27.7	27.0	24.9	36.3	36.9	37.2			6.0	6.1	6.1	ST
31007	6/16/98	1357	2747.8	9701.4	20	13	7	13	28.2	27.5	24.8	36.3	36.7	36.7			6.0	6.1	6.1	ST
31008	6/16/98	1430	2749.3	9702.1	20	6	3	6	29.0	29.0	29.0	36.8	36.8	37.0			5.9	6.0	5.9	ST
31009	6/23/98	0920	2741.5	9706.6	20	13	7	13	28.1	28.1	28.1	36.7	37.1	37.2			6.1	6.2	6.1	ST
31010	6/23/98	1005	2738.6	9706.4	20	15	8	15	28.2	28.1	27.6	36.3	36.6	37.2			6.1	6.1	6.1	ST
31011	6/23/98	1044	2738.5	9703.6	20	19	10	19	28.2	27.9	23.7	36.5	36.8	37.2			6.2	6.6	5.1	ST
31012	6/23/98	1128	2736.6	9701.3	20	23	12	23	27.9	27.7	27.0	37.1	37.0	37.3			6.2	6.2	6.1	ST
31013	6/23/98	1158	2737.4	9700.7	20	23	12	23	28.0	27.4	23.1	36.9	37.5	37.3			6.1	6.1	5.1	ST
31014	6/23/98	1242	2740.6	9700.5	20	21	10	21	28.6	28.3	28.1	36.6	36.7	37.0			6.2	6.6	6.5	ST
31015	6/23/98	1324	2741.6	9657.7	20	23	12	23	28.8	27.8	23.2	36.8	37.0	37.2			6.3	6.5	5.7	ST
31016	6/23/98	1406	2744.5	9658.2	20	20	10	20	29.1	28.6	28.4	36.8	36.9	36.9			6.2	6.6	6.6	ST

Table 2. Selected environmental parameters (continued)

MATAGORDA BAY, SUMMER SHRIMP/GROUNDFISH SURVEY																				
STA#	DATE		POSITION		STAT ZONE	DEPTH (M)	SAMPLE DEPTHS (M)		TEMPERATURE, C			SALINITY, PPT			CL, MG/M3 SUR	FL SUR	DISSOLVED OXYGEN, PPM			GEAR
	MM/DD/YY	TIME	LAT	LONG			MID	MAX	SUR	MID	MAX	SUR	MID	MAX			SUR	MID	MAX	
32001	6/ 1/98	0959	2823.3	9610.3	19	16	8	16	27.5	26.0	22.9	32.2	32.8	33.2			6.2	6.3	5.3	ST
32002	6/ 1/98	1034	2823.3	9608.3	19	17	9	17	26.0	25.8	22.3	32.3	32.1	34.0			6.4	6.3	5.2	ST
32003	6/ 1/98	1133	2823.3	9607.3	19	19	9	19	26.1	25.9	22.2	32.2	32.2	34.0			6.3	6.3	5.2	ST
32004	6/ 1/98	1220	2824.3	9602.3	19	19	9	19	26.9	26.6	22.3	32.3	32.2	33.0			6.2	6.2	5.1	ST
32005	6/ 1/98	1313	2825.3	9606.3	19	16	8	16	26.6	26.0	23.3	32.3	32.1	33.2			6.4	6.3	5.6	ST
32006	6/ 1/98	1405	2829.3	9608.3	19	11	5	11	28.0	26.7	25.8	31.8	32.9	32.9			6.1	6.3	6.4	ST
32007	6/ 1/98	1502	2826.3	9615.3	19	9	5	9	28.2	28.9	26.8	31.6	31.7	33.2			6.3	6.4	6.2	ST
32008	6/ 1/98	1535	2825.3	9615.3	19	11	5	11	28.4	28.8	24.4	32.2	32.5	33.3			6.3	6.3	5.6	ST
32009	6/25/98	0941	2819.3	9622.3	19	12	6	12	29.5	29.5	28.8	33.3	34.0	34.2			6.5	6.2	5.5	ST
32010	6/25/98	1030	2817.3	9628.3	19	6	3	6	29.7	29.7	29.6	34.6	34.7	34.7			6.0	6.0	5.9	ST
32011	6/25/98	1057	2817.2	9629.4	19	4	2	4	29.7	29.7	29.6	34.8	34.7	34.8			6.1	6.0	6.0	ST
32012	6/25/98	1130	2816.3	9628.3	19	8	4	8	29.8	29.7	29.6	34.7	34.5	34.6			6.0	6.0	5.9	ST
32013	6/25/98	1219	2815.3	9625.3	19	15	7	15	29.2	29.0	28.8	34.7	34.8	35.0			6.0	6.1	6.0	ST
32014	6/25/98	1302	2812.3	9626.3	19	18	9	18	29.0	28.7	24.9	34.9	35.3	35.8			6.3	6.2	4.4	ST
32015	6/25/98	1432	2819.3	9615.3	19	19	9	19	29.4	29.1	24.9	35.0	35.4	35.5			6.2	6.2	4.4	ST
32016	6/25/98	1519	2822.3	9614.3	19	16	8	16	29.6	28.9	27.1	34.8	34.9	35.4			6.2	6.1	4.9	ST

Table 2. Selected environmental parameters (continued)

LAGUNA MADRE, SUMMER SHRIMP/GROUNDFISH SURVEY																				
STA#	DATE		POSITION		STAT ZONE	DEPTH (M)	SAMPLE DEPTHS (M)		TEMPERATURE, C			SALINITY, PPT			CL, MG/M3 SUR	FL SUR	DISSOLVED OXYGEN, PPM			GEAR
	MM/DD/YY	TIME	LAT	LONG			MID	MAX	SUR	MID	MAX	SUR	MID	MAX			SUR	MID	MAX	
33001	6/ 1/98	0904	2604.5	9708.7	21	10	5	10	26.8	25.4	25.1	37.2	37.3	37.4			5.7	5.7	5.9	ST
33002	6/ 1/98	0945	2601.5	9707.7	21	12	6	12	25.6	25.6	25.1	37.3	37.2	37.3			6.2	6.2	6.4	ST
33003	6/ 1/98	1041	2557.6	9706.7	22	15	8	15	26.0	25.4	23.6	37.3	37.4	37.4			6.2	6.2	6.4	ST
33004	6/ 1/98	1125	2600.5	9704.5	21	20	10	20	26.7	26.6	24.9	37.4	37.3	37.4			5.9	6.1	6.1	ST
33005	6/ 1/98	1218	2600.5	9659.6	21	26	13	26	26.7	25.4	24.4	37.3	37.4	37.6			6.1	6.4	6.5	ST
33006	6/ 1/98	1311	2605.6	9701.6	21	26	13	26	27.0	26.6	25.2	37.3	37.5	37.2			6.2	6.4	6.7	ST
33007	6/ 1/98	1402	2605.6	9705.8	21	18	9	18	26.4	25.9	23.5	37.3	37.3	37.4			6.5	6.6	6.4	ST
33008	6/ 1/98	1446	2607.5	9705.8	21	18	9	18	26.4	26.2	25.9	37.2	37.2	37.2			6.2	6.4	6.4	ST
33009	6/17/98	1112	2607.6	9702.6	21	22	11	22	25.3	25.2	23.3	37.2	37.2	37.3			6.2	6.3	6.6	ST
33010	6/17/98	1143	2608.5	9702.6	21	22	11	22	25.3	25.2	23.2	37.2	37.4	37.3			6.2	6.3	6.6	ST
33011	6/17/98	1237	2609.4	9709.6	21	9	5	9	24.2	24.3	23.4	37.2	37.3	37.4			6.3	6.2	6.3	ST
33012	6/17/98	1350	2611.5	9707.7	21	17	9	17	25.0	24.5	23.4	37.2	37.3	37.4			6.3	6.3	6.2	ST
33013	6/17/98	1434	2616.4	9706.7	21	17	9	17	25.4	24.4	23.3	37.2	37.4	37.4			6.4	6.4	6.5	ST
33014	6/17/98	1504	2618.5	9707.7	21	17	9	17	25.2	24.5	23.4	37.3	37.3	37.2			6.3	6.4	6.6	ST
33015	6/17/98	1554	2619.4	9702.6	21	22	11	22	25.8	23.8	23.1	37.3	37.4	37.3			6.1	6.4	6.6	ST
33016	6/17/98	1629	2621.4	9702.7	21	24	12	24	25.7	25.0	23.1	37.4	37.3	37.3			6.2	6.3	6.6	ST

Table 2. Selected environmental parameters (continued)

GALVESTON BAY, SUMMER SHRIMP/GROUNDFISH SURVEY																				
STA#	DATE		POSITION		STAT ZONE	DEPTH (M)	SAMPLE DEPTHS (M)		TEMPERATURE, C			SALINITY, PPT			CL, MG/M3 SUR	FL SUR	DISSOLVED OXYGEN, PPM			GEAR
	MM/DD/YY	TIME	LAT	LONG			MID	MAX	SUR	MID	MAX	SUR	MID	MAX			SUR	MID	MAX	
34001	6/16/98	1020	2915.4	9443.4	18	9	5	9	28.0	27.7	27.5	32.7	32.5	32.5			5.9	5.7	5.6	ST
34002	6/16/98	1048	2917.5	9442.3	18	9	5	9	29.1	28.3	28.3	32.5	32.5	32.5			7.1	6.5	6.3	ST
34003	6/16/98	1123	2917.4	9440.4	18	9	5	9	29.0	28.3	28.3	32.5	32.5	32.6			6.9	6.5	6.2	ST
34004	6/16/98	1149	2919.5	9439.3	18	9	5	9	29.8	28.6	28.6	30.4	32.2	32.2			7.6	6.9	6.6	ST
34005	6/16/98	1216	2921.4	9433.5	18	12	6	12	30.1	28.5	28.4	30.9	31.2	32.3			4.5	4.3	4.2	ST
34006	6/16/98	1247	2921.5	9428.2	18	14	7	14	30.2	28.4	28.1	30.9	32.3	32.3			9.0	3.3	6.1	ST
34007	6/16/98	1311	2923.1	9429.3	18	12	6	12	30.1	28.6	28.3	30.9	32.2	32.4			7.0	3.0	3.7	ST
34008	6/16/98	1328	2923.4	9430.3	18	12	6	12	30.1	28.5	28.3	31.3	31.8	32.1			7.0	4.4	4.1	ST
34009	6/22/98	1039	2911.5	9441.3	18	15	8	15	28.1	27.9	27.7	33.0	33.1	33.1			6.7	6.9	6.7	ST
34010	6/22/98	1120	2910.2	9446.5	18	16	8	16	28.9	28.6	28.6	33.0	33.2	33.1			7.0	7.1	7.1	ST
34011	6/22/98	1157	2909.1	9449.5	18	13	7	13	29.2	28.8	28.8	33.3	33.2	33.2			7.9	7.9	7.8	ST
34012	6/22/98	1222	2908.3	9450.1	18	14	7	14	29.3	28.8	28.8	33.2	33.1	33.2			7.6	7.4	7.7	ST
34013	6/22/98	1241	2907.3	9450.2	18	14	7	14	29.4	28.9	28.9	33.1	33.1	33.4			8.2	8.2	7.9	ST
34014	6/22/98	1308	2906.3	9449.4	18	15	8	15	29.4	28.8	28.9	33.2	33.1	33.2			7.9	8.1	7.1	ST
34015	6/22/98	1344	2911.4	9453.3	18	10	5	10	29.6	28.8	28.8	33.4	33.4	33.4			6.6	7.3	5.2	ST
34016	6/22/98	1414	2913.4	9449.3	18	9	5	9	29.7	28.9	28.8	33.3	33.4	33.3			6.6	6.8	7.0	ST

Table 2. Selected environmental parameters (continued)

SABINE, SUMMER SHRIMP/GROUNDFISH SURVEY																				
STA#	DATE		POSITION		STAT ZONE	DEPTH (M)	SAMPLE DEPTHS (M)		TEMPERATURE, C			SALINITY, PPT			CL, MG/M3 SUR	FL SUR	DISSOLVED OXYGEN, PPM			GEAR
	MM/DD/YY	TIME	LAT	LONG			MID	MAX	SUR	MID	MAX	SUR	MID	MAX			SUR	MID	MAX	
40001	6/13/98	1022	2939.2	9342.4	17	8	4	8	28.7	28.9	27.7	20.0	22.8	27.5			6.9	5.9	2.4	ST
40002	6/13/98	1109	2937.3	9341.2	17	10	5	10	28.6	28.9	27.9	20.0	22.5	28.3			7.8	6.8	4.3	ST
40003	6/13/98	1204	2938.3	9337.3	17	10	5	10	28.8	28.6	28.0	20.0	20.3	27.6			8.1	7.4	5.3	ST
40004	6/13/98	1248	2939.3	9335.2	17	9	4	9	28.5	28.4	28.0	18.1	19.1	27.6			7.3	6.2	3.7	ST
40005	6/13/98	1531	2941.3	9336.4	17	8	4	8	29.3	28.5	28.0	18.5	18.4	26.9			8.2	6.3	4.7	ST
40006	6/13/98	1608	2943.4	9337.2	17	6	3	6	29.4	29.3	28.9	20.6	20.6	25.4			7.6	7.0	6.1	ST
40007	6/13/98	1706	2942.4	9342.4	17	6	3	6	29.4	29.3	29.3	20.0	20.0	23.7			5.6	5.1	3.0	ST
40008	6/13/98	1743	2942.5	9343.3	17	6	3	6	29.2	29.3	29.1	20.0	20.0	22.2			7.1	6.8	5.8	ST
40009	6/23/98	1200	2939.3	9345.4	17	8	4	8	30.4	30.1	29.9	24.4	24.5	29.0			6.7	6.7	6.4	ST
40010	6/23/98	1300	2936.3	9341.4	17	10	5	10	30.4	29.9	29.7	28.3	29.7	30.7			7.0	6.8	6.3	ST
40011	6/23/98	1353	2934.6	9346.4	17	12	6	12	30.6	30.0	29.8	29.1	29.9	31.1			6.6	6.4	6.0	ST
40012	6/23/98	1430	2934.4	9348.3	17	11	6	11	30.7	29.9	29.8	29.0	30.3	31.1			6.5	6.1	5.7	ST
40013	6/23/98	1523	2932.4	9351.5	17	12	6	12	31.0	29.9	29.7	28.8	30.7	31.1			6.5	6.2	5.8	ST
40014	6/23/98	1654	2934.2	9400.3	18	9	4	9	30.8	30.7	30.1	30.7	30.6	31.3			6.5	6.4	6.2	ST
40015	6/23/98	1747	2935.3	9359.4	17	7	4	7	30.7	30.5	30.0	30.2	30.1	30.1			6.5	6.4	5.9	ST
40016	6/23/98	1901	2936.3	9354.3	17	6	3	6	31.2	30.9	29.9	25.8	25.7	27.8			6.6	6.3	5.1	ST

Table 2. Selected environmental parameters (continued)

A.E. VERRILL, SUMMER SHRIMP/GROUNDFISH SURVEY																				
STA#	DATE		POSITION		STAT ZONE	DEPTH (M)	SAMPLE DEPTHS (M)		TEMPERATURE, C			SALINITY, PPT			CL, MG/M3 SUR	FL SUR	DISSOLVED OXYGEN, PPM			GEAR
	MM/DD/YY	TIME	LAT	LONG			MID	MAX	SUR	MID	MAX	SUR	MID	MAX			SUR	MID	MAX	
2301	6/ 2/98	0952	3007.6	8808.0	11	17	9	17	24.9	20.0	20.0	30.4	36.2	36.2	0.991		6.3	4.6	4.5	ST
2302	6/ 2/98	1135	2959.7	8814.2	11	28	14	28	27.1	22.2	19.9	29.3	36.3	36.3	0.395		7.8	5.7	3.7	ST
2303	6/ 2/98	1251	2958.6	8813.4	11	31	16	31	27.9	22.0	20.5	28.6	36.3	36.3	0.318		7.6	5.7	4.1	ST
2304	6/ 2/98	1449	3001.9	8824.2	11	24	12	24	27.3	21.4	20.0	29.5	36.4	36.2	0.318		8.2	6.4	7.4	ST
2305	6/ 2/98	1605	3002.9	8829.8	11	27	11	27	28.5	20.4	22.2	28.0	36.1	35.7	0.294		8.1	4.7	7.9	ST
2306	6/ 2/98	1736	3011.1	8823.5	11	11	6	11	30.0	20.3	20.2	24.1	36.2	36.1	0.243		7.8	4.3	3.1	ST
2307	6/ 2/98	2000	3011.1	8820.1	11	13	7	13	24.3	20.1	20.0	30.3	36.1	36.1	0.561		5.1	3.8	3.6	ST
2308	6/ 2/98	2114	3012.3	8814.3	11	12	6	12	27.9	20.2	20.2	25.4	36.0	36.0	0.756		6.3	2.1	2.1	ST

Table 2. Selected environmental parameters (continued)

TOMMY MUNRO, SUMMER SHRIMP/GROUNDFISH SURVEY																				
STA#	DATE		POSITION		STAT ZONE	DEPTH (M)	SAMPLE DEPTHS (M)		TEMPERATURE, C			SALINITY, PPT			CL, MG/M3 SUR	FL SUR	DISSOLVED OXYGEN, PPM			GEAR
	MM/DD/YY	TIME	LAT	LONG			MID	MAX	SUR	MID	MAX	SUR	MID	MAX			SUR	MID	MAX	
17001	6/27/98	0850	2914.4	8849.5	11	65	32	64	27.4	23.0	21.4	25.3	35.6	35.9			5.9	5.6	5.6	ST
17002	6/27/98	1103	2918.9	8853.0	11	38	19	37	26.9	22.4	22.0	26.5	34.6	36.0			6.0	5.5	5.6	ST
17003	6/27/98	1327	2920.3	8851.1	11	34	17	33	27.2	22.2	22.4	25.5	35.3	35.8			6.8	4.8	5.1	ST
17004	6/27/98	1610	2922.6	8907.2	12	9	4	8	24.1	21.4	20.8	28.7	34.0	35.6			4.8	4.9	4.7	ST
17005	6/27/98	1900	2928.7	8845.7	11	19	9	18	27.0	25.4	21.8	26.3	35.2	35.7			6.7	5.5	5.1	ST
17006	6/27/98	2207	2915.6	8851.6	11	57	28	56	25.7	22.7	23.5	20.2	36.1	34.8			5.7	5.8	5.6	ST
17007	6/28/98	0105	2920.6	8855.4	11	22	11	21	23.7	21.9	21.6	30.4	35.7	36.0			5.2	5.2	5.3	ST
17008	6/28/98	0324	2922.1	8858.8	11	16	8	15	24.2	22.0	21.5	17.1	35.9	33.7			4.9	5.4	5.5	ST
17009	6/28/98	0527	2926.4	8850.0	11	18	9	17	24.0	23.1	21.9	24.1	35.5	35.9			6.0	5.8	5.4	ST
17010	6/28/98	0753	2927.6	8836.9	11	48	24	47	26.9	23.0	20.6	26.3	36.5	36.2			7.1	5.9	3.7	ST
17011	6/28/98	1039	2930.4	8838.8	11	32	16	31	27.2	24.3	21.4	26.3	34.6	36.3			7.2	5.8	4.3	ST
17012	6/28/98	1245	2933.9	8837.1	11	25	12	24	27.8	26.8	22.6	26.9	35.2	35.7			7.0	5.6	5.0	ST
17013	6/28/98	1528	2941.7	8853.8	11	5	2	4	28.3	26.3	26.0	32.8	34.1	34.3			7.1	6.3	6.0	ST
17014	6/28/98	1747	2941.1	8833.7	11	24	12	23	28.5	25.4	21.3	27.1	32.5	36.5			7.0	5.6	4.2	ST
17015	6/28/98	1940	2930.2	8830.1	11	50	25	49	29.4	23.4	21.2	30.6	36.0	36.2			5.8	5.8	4.8	PN
17016	6/28/98	2221	2923.3	8842.4	11	47	23	46	21.1	23.3	20.8	25.5	36.5	36.1			5.5	6.0	4.6	ST
17017	6/29/98	0102	2927.5	8841.0	11	35	17	34	27.9	22.9	21.3	26.1	36.2	36.2			5.7	5.9	4.8	ST
17018	6/29/98	0344	2928.4	8841.8	11	28	14	27	27.3	23.0	21.7	18.7	36.0	36.3			6.9	5.5	4.6	ST
17019	6/29/98	0551	2939.1	8833.5	11	27	13	26	26.7	22.8	21.0	26.1	35.5	36.3			8.3	5.0	4.2	ST
17020	6/29/98	0855	3000.0	8830.1	11	26	13	25	28.2	21.8	20.6	32.2	36.3	36.3			6.0	5.9	2.9	PN
17021	6/29/98	1022	3003.2	8829.8	11	21	10	20	29.0	22.6	21.5	31.6	36.4	36.3			5.3	6.1	4.5	ST
17022	6/29/98	1147	3005.6	8832.6	11	17	8	16	29.9	26.8	21.8	31.0	34.2	36.3			5.6	5.0	5.6	ST
17023	6/29/98	1404	3005.6	8845.5	11	13	7	12	30.2	28.1	23.1	32.2	33.5	35.8			5.3	5.8	3.7	ST
17024	6/29/98	1625	3011.7	8854.3	11	8	4	7	30.4	28.4	26.5	30.8	31.5	33.3			6.0	5.7	0.7	ST
17025	6/29/98	1813	3012.1	8842.3	11	12	6	11	30.2	29.1	22.7	30.5	31.5	36.0			6.0	6.1	0.5	ST
17026	6/29/98	2051	3002.9	8825.4	11	20	10	19	29.5	28.0	21.5	32.3	32.6	36.1			5.6	5.8	3.8	ST
17027	6/29/98	2305	3006.8	8834.8	11	15	7	14	29.2	28.1	21.7	32.1	33.0	35.9			5.3	6.0	4.7	ST
17028	6/30/98	0228	3002.4	8848.0	11	9	4	8	29.1	29.2	28.8	31.9	32.1	33.2			5.7	5.7	5.5	ST
17029	6/30/98	0408	3003.0	8851.1	11	6	3	5	29.0	29.1	28.9	30.9	31.2	31.4			5.6	5.8	5.6	ST
17031	7/ 7/98	0416	2913.3	8954.4	13	8	4	7	30.9	29.3	28.8	19.7	29.4	30.5			6.6	5.3	5.1	ST
17032	7/ 7/98	0633	2909.3	9005.8	14	4	2	3	30.4	30.7	30.9	27.4	27.6	28.1			5.7	5.8	5.5	ST

Table 2. Selected environmental parameters (continued)

TOMMY MUNRO, SUMMER SHRIMP/GROUNDFISH SURVEY																				
STA#	DATE		POSITION		STAT ZONE	DEPTH (M)	SAMPLE DEPTHS (M)		TEMPERATURE, C			SALINITY, PPT			CL, MG/M3 SUR	FL SUR	DISSOLVED OXYGEN, PPM			GEAR
	MM/DD/YY	TIME	LAT	LONG			MID	MAX	SUR	MID	MAX	SUR	MID	MAX			SUR	MID	MAX	
17033	7/ 7/98	1014	2902.1	9032.4	14	8	4	7	30.5	30.1	29.2	27.0	27.9	29.5			6.4	6.5	3.8	ST
17034	7/ 7/98	1734	2904.7	9139.5	15	6	3	5	34.0	29.7	30.1	8.3	26.9	27.7			17.4	5.2	4.9	ST
17035	7/ 7/98	2054	2859.8	9116.2	15	4	2	3	32.0	30.4	29.9	9.6	20.7	27.2			16.0	9.5	5.4	ST
17036	7/ 7/98	2338	2902.1	9137.0	15	6	3	5	32.6	30.0	29.3	4.0	22.2	28.5			15.0	6.3	4.5	ST
17037	7/ 8/98	0750	2915.4	9205.3	16	6	3	5	29.9	29.9	29.6	25.8	26.6	27.7			7.0	5.7	4.4	ST
17038	7/ 8/98	1352	2935.7	9242.2	16	4	2	3	32.6	30.4	30.3	19.6	23.3	25.1			8.7	4.2	3.2	ST
17039	7/ 8/98	1616	2939.4	9258.2	16	8	4	7	31.5	29.6	29.1	17.6	23.3	27.3			7.9	3.9	0.1	ST
17040	7/ 8/98	2006	2944.1	9323.3	17	4	2	3	31.5	31.4	31.1	15.8	17.8	18.2			7.4	7.1	6.4	ST
17041	7/ 9/98	0009	2937.6	9253.0	16	8	4	7	30.4	30.2	28.6	18.3	20.0	28.8			7.0	5.4	0.1	ST
17042	7/ 9/98	0224	2933.7	9238.6	16	6	3	5	30.4	30.4	28.8	19.2	20.5	29.5			6.7	6.1	1.8	ST

Table 2. Selected environmental parameters (continued)

PELICAN, SUMMER SHRIMP/GROUNDFISH SURVEY																				
STA#	DATE		POSITION		STAT ZONE	DEPTH (M)	SAMPLE DEPTHS (M)		TEMPERATURE, C			SALINITY, PPT			CL, MG/M3 SUR	FL SUR	DISSOLVED OXYGEN, PPM			GEAR
	MM/DD/YY	TIME	LAT	LONG			MID	MAX	SUR	MID	MAX	SUR	MID	MAX			SUR	MID	MAX	
37553	7/ 6/98	0927	2900.0	9030.0	14	10	5	10	29.8	29.8	27.4	27.1	27.6	31.2	1.455		6.6	6.3	2.6	PN
37554	7/ 6/98	1310	2829.0	9030.1	14	38	19	38	29.6	27.6	20.1	30.8	34.2	35.7	0.131		7.1	7.4	1.8	PN
37555	7/ 6/98	1535	2829.5	9035.4	14	36	18	36	29.8	28.1	20.1	31.1	33.5	35.7	0.189		6.6	6.8	2.8	ST
37556	7/ 6/98	1815	2835.3	9023.3	14	34	17	34	30.1	28.4	20.2	30.7	33.0	35.9	0.102		6.4	6.2	2.3	ST
37557	7/ 6/98	2054	2835.1	9023.2	14	35	17	35	30.7	28.2	20.3	30.8	33.2	35.8	0.047		6.2	6.2	2.4	ST
37558	7/ 6/98	2352	2829.3	9035.5	14	36	18	36	30.1	21.2	20.1	31.0	38.7	35.7	0.133		7.1	6.1	2.6	ST
37559	7/ 7/98	0232	2832.5	9051.3	14	25	13	25	29.7	28.7	20.5	31.5	32.0	35.5	0.068		6.6	5.6	3.1	ST
37560	7/ 7/98	0408	2834.6	9056.5	14	22	11	22	29.0	28.6	20.6	31.3	31.5	35.4	0.081		7.7	6.1	3.2	ST
37561	7/ 7/98	0717	2839.9	9109.1	15	17	9	17	29.9	29.2	21.8	27.2	31.0	35.0	3.097		7.1	6.1	3.0	ST
37562	7/ 7/98	0950	2834.6	9056.3	14	23	11	23	29.3	28.8	20.5	31.3	31.7	35.4	0.214		6.2	4.5	2.3	ST
37563	7/ 7/98	1110	2832.6	9051.2	14	26	13	26	29.5	28.9	20.4	31.4	31.6	35.5	0.178		7.0	6.4	3.5	ST
37564	7/ 7/98	1235	2830.0	9100.0	15	32	16	32	29.6	28.2	20.0	31.3	31.9	35.6	0.113		6.4	4.4	3.1	PN
37565	7/ 7/98	1418	2831.8	9104.0	15	31	19	31	29.6	22.9	19.8	31.2	34.4	35.5	0.693		6.9	5.9	0.1	ST
37566	7/ 7/98	1615	2839.4	9102.1	15	16	7	16	31.8	29.5	22.1	28.1	31.2	34.9	0.524		6.3	6.3	1.8	ST
37567	7/ 7/98	2035	2831.6	9103.9	15	30	16	30	30.2	28.7	19.9	30.4	31.7	35.5	3.355		7.6	6.2	1.7	ST
37568	7/ 7/98	2238	2839.5	9102.1	15	15	9	15	31.6	29.2	23.0	28.6	31.3	34.5	0.416		6.3	5.5	2.5	ST
37569	7/ 8/98	0035	2839.0	9108.6	15	17	9	17	31.3	29.3	23.0	26.8	31.3	34.6	2.052		7.6	6.3	5.6	ST
37570	7/ 8/98	0703	2859.4	9129.4	15	10	5	10	30.9	29.2	28.2	18.8	29.5	28.1	28.531		11.4	5.6	5.6	PN
37571	7/ 8/98	1029	2900.0	9100.0	14	6	3	6	31.0	30.2	29.6	24.0	27.1	28.2	6.604		8.1	6.5	6.8	PN
37572	7/ 8/98	1423	2858.0	9027.7	14	13	6	13	31.7	29.9	26.6	27.2	29.7	32.4	0.536		3.2	2.9	1.4	ST
37573	7/ 8/98	1703	2901.5	9010.0	14	11	6	11	31.4	28.4	27.5	27.4	31.1	32.0	1.444		6.6	5.8	3.9	ST
37574	7/ 8/98	1818	2903.3	9005.8	14	15	7	15	31.7	28.1	26.4	27.0	31.8	33.3	1.171		6.3	5.5	4.3	ST
37575	7/ 8/98	2120	2858.1	9027.7	14	13	8	13	31.6	30.0	26.8	27.0	30.0	32.3	0.301		6.3	6.3	3.3	ST
37576	7/ 8/98	2357	2903.6	9009.9	14	10	6	10	31.0	29.2	27.7	27.5	30.0	31.9	1.918		6.3	5.4	3.2	ST
37577	7/ 9/98	0117	2903.1	9005.8	14	14	9	14	31.0	28.6	27.2	27.0	32.0	33.1	1.010		6.4	5.6	5.6	ST
37578	7/ 9/98	0423	2906.5	8941.1	13	18	10	18	31.1	28.8	23.7	26.5	32.4	34.4	1.316		6.7	6.0	3.2	ST
37579	7/ 9/98	0525	2902.9	8939.1	13	24	15	24	31.2	28.9	21.6	26.6	32.6	35.3	1.193		6.2	5.9	1.7	ST
37580	7/ 9/98	0702	2859.8	8929.6	13	16	8	16							0.843		6.3	6.3	6.0	PN
37581	7/ 9/98	0939	2906.6	8941.1	13	14		14							1.513		6.6		4.2	ST

Table 2. Selected environmental parameters (continued)

PELICAN, SUMMER SHRIMP/GROUNDFISH SURVEY																				
STA#	DATE		POSITION		STAT ZONE	DEPTH (M)	SAMPLE DEPTHS (M)		TEMPERATURE, C			SALINITY, PPT			CL, MG/M3 SUR	FL SUR	DISSOLVED OXYGEN, PPM			GEAR
	MM/DD/YY	TIME	LAT	LONG			MID	MAX	SUR	MID	MAX	SUR	MID	MAX			SUR	MID	MAX	
37582	7/ 9/98	1051	2902.9	8939.0	13	26	12	26	31.0	29.0	22.9	27.3	32.6	34.7	1.334		6.5	5.4	2.7	ST
37583	7/ 9/98	1313	2859.9	9000.0	14	24	12	24	30.9	28.5	21.2	27.5	32.1	35.6	1.423		6.6	5.7	1.8	PN

Table 2. Selected environmental parameters (continued)

GORDON GUNTER, FALL PLANKTON SURVEY																				
STA#	DATE		POSITION		STAT ZONE	DEPTH (M)	SAMPLE DEPTHS (M)		TEMPERATURE, C			SALINITY, PPT			CL, MG/M3 SUR	FL SUR	DISSOLVED OXYGEN, PPM			GEAR
	MM/DD/YY	TIME	LAT	LONG			MID	MAX	SUR	MID	MAX	SUR	MID	MAX			SUR	MID	MAX	
63001	9/ 4/98	1502	3010.9	8835.8	11	8	4	8	29.1	28.8	28.5	29.1	29.7	32.2						PN
63002	9/ 4/98	1603	3005.1	8831.9	11	13	6	10	29.2	28.7	28.3	31.6	32.5	32.9						PN
63003	9/ 4/98	1733	3004.4	8843.7	11	11	5	9	29.2	29.3	28.9	28.2	30.2	31.7						PN
63004	9/ 4/98	1816	2959.3	8843.8	11	28	14	25	27.9	26.6	25.6	32.8	34.2	34.5						PN
63005	9/ 4/98	1946	2958.8	8831.9	11	21	5	8	28.9			32.2								PN
63006	9/ 4/98	2036	2953.2	8832.1	11	28	13	26	27.9	27.5	25.6	32.8	34.2	34.5						PN
63007	9/ 4/98	2157	2952.8	8843.9	11	11	5	8	28.9	28.3	28.1	32.2	32.3	32.5						PN
63008	9/ 4/98	2240	2947.8	8843.9	11	11	5	9	28.7	27.7	26.4	32.3	33.1	34.0						PN
63009	9/ 5/98	0009	2946.8	8832.0	11	25	12	22	27.2	26.2	25.0	34.8	34.5	35.0						PN
63010	9/ 5/98	0058	2941.8	8832.8	11	25	13	21	28.3	27.4	24.9	35.1	35.2	35.2						PN
63011	9/ 5/98	0216	2940.5	8843.7	11	10	5	8	28.4	26.7	26.5	32.5	33.5	34.3						PN
63012	9/ 5/98	0314	2934.8	8844.3	11	11	5	8	28.4	26.9	26.3	32.4	33.6	33.8						PN
63013	9/ 5/98	0518	2934.7	8832.8	11	37	19	35	28.2	24.0	22.4	35.6	35.6	35.9						PN
63014	9/ 5/98	0658	2928.8	8844.0	11	16	8	12	26.2	25.2	24.9	34.2	34.5	34.8						PN
63015	9/ 5/98	0747	2922.7	8844.2	11	44	22	29	28.5	24.2	23.2	32.2	35.4	35.5						PN
63016	9/ 7/98	0330	2602.4	9630.4	21	62	31	60	29.2	29.8	25.1	36.4	36.4	36.4			5.7	5.6	6.3	PN
63017	9/ 7/98	0801	2559.9	9700.1	22	23	11	21	29.6	29.6	29.6	36.3	36.4	36.4			5.1	5.3	5.4	PN
63018	9/ 7/98	1207	2629.9	9659.9	21	31	15	31	29.9	29.9	29.7	36.2	36.2	36.2			5.6	5.6	5.6	PN
63019	9/ 7/98	1631	2629.8	9629.9	0	90	42	83	29.3	25.2	22.3	36.5	36.5	35.3			4.1	4.9	4.2	PN
63020	9/ 7/98	2126	2700.1	9640.2	20	80	38	75	29.5	29.3	23.0	36.5	36.5	36.4			4.0	4.1	3.9	PN
63021	9/ 8/98	0133	2659.7	9712.0	21	22	11	21	30.0	30.0	30.0	34.9	34.9	35.0			4.0	4.1	3.9	PN
63022	9/13/98	1200	2729.5	9659.6	20	23	11	20	28.3	28.6	29.0	29.1	31.0	34.3			4.0	3.7	3.4	PN
63023	9/13/98	1423	2729.7	9630.1	20	67	33	65	28.9	28.8	24.1	33.7	36.3	36.4			4.4	3.9	4.2	PN
63024	9/13/98	2049	2800.0	9630.2	20	22	10	20	28.4	28.2	28.8	28.6	30.6	34.0			4.3	3.9	3.7	PN
63025	9/14/98	0025	2819.7	9620.3	19	11	5	10	27.3	27.3	28.2	26.3	26.0	29.6			4.0	3.8	3.2	PN
63026	9/14/98	0438	2800.1	9559.9	19	41	20	39	28.3	28.7	28.7	32.5	35.4	35.9			4.4	3.9	3.7	PN
63027	9/14/98	0805	2735.0	9600.0	20	136	67	134	28.8	22.9	17.8	36.5	36.4	36.3			4.1	4.6	2.5	PN
63028	9/14/98	1225	2744.8	9529.7	0	103	50	100	28.5	27.9	21.3	36.3	36.3	36.4			4.1	4.2	3.8	PN
63029	9/21/98	2110	2859.8	8859.0	0	75	37	74	27.5	22.2	19.3	31.6	36.3	36.4			8.1	5.5	4.0	PN
63030	9/22/98	0135	2912.7	8829.8	11	119	59	118	27.3	20.3	17.8	33.0	36.3	36.3			4.7	3.6	2.6	PN
63031	9/22/98	0615	2914.9	8800.4	11	240	100	200	27.6	18.3	15.8	34.7	36.4	36.1						PN

Table 2. Selected environmental parameters (continued)

GORDON GUNTER, FALL PLANKTON SURVEY																				
STA#	DATE		POSITION		STAT ZONE	DEPTH (M)	SAMPLE DEPTHS (M)		TEMPERATURE, C			SALINITY, PPT			CL, MG/M3 SUR	FL SUR	DISSOLVED OXYGEN, PPM			GEAR
	MM/DD/YY	TIME	LAT	LONG			MID	MAX	SUR	MID	MAX	SUR	MID	MAX			SUR	MID	MAX	
63032	9/22/98	1046	2930.0	8830.1	11	45	22	43	27.8	27.2	21.6	29.5	34.6	36.3			2.6	3.9	2.8	PN
63033	9/22/98	1629	3000.0	8830.1	11	21	10	19	27.8	27.6	27.6	29.3	33.9	34.1			2.6	4.3	4.0	PN
63034	9/22/98	1952	3000.0	8800.3	11	22	11	21	27.7	27.4	27.2	32.5	33.9	34.0			2.5	4.3	3.7	PN
63035	9/23/98	0021	3013.6	8730.1	10	10	5	9	27.6	27.6	26.9	32.6	33.3	34.9			2.5	4.0	3.4	PN
63036	9/23/98	0407	3020.0	8700.1	10	13	6	12	27.4	27.4	27.4	33.9	33.9	34.0			2.5	3.0	4.0	PN
63037	9/23/98	0717	3020.0	8630.1	9	16	7	14	27.5	27.5	27.4	31.2	33.7	33.9			2.1	4.1	3.7	PN
63038	9/23/98	1018	3000.1	8630.1	9	51	24	49	27.8	26.1	20.5	33.9	35.7	36.2			4.2	4.1	2.8	PN
63039	9/23/98	1400	2948.2	8700.1	10	180	89	178	27.8	19.6	16.7	33.9	36.7	36.2			4.4	3.3	3.0	PN
63040	9/23/98	1833	3000.3	8659.8	9	66	33	64	27.9	22.2	19.9	34.1	36.2	36.3			0.1	3.5	2.9	PN
63041	9/24/98	0030	2930.1	8730.2	10	61	31	60	27.8	26.1	20.1	35.4	36.3	32.3			4.0	4.5	3.1	PN
63042	9/24/98	0404	2930.1	8800.7	11	39	18	36	27.4	26.8	25.9	34.8	35.6	36.2			4.1	6.2	6.2	PN
63043	9/25/98	2038	2800.2	9459.9	18	73	37	72	28.6	28.5	23.4	36.3	36.3	36.4			4.1	4.2	4.1	EV

Table 2. Selected environmental parameters (continued)

TOMMY MUNRO, FALL PLANKTON SURVEY																				
STA#	DATE		POSITION		STAT ZONE	DEPTH (M)	SAMPLE DEPTHS (M)		TEMPERATURE, C			SALINITY, PPT			CL, MG/M3 SUR	FL SUR	DISSOLVED OXYGEN, PPM			GEAR
	MM/DD/YY	TIME	LAT	LONG			MID	MAX	SUR	MID	MAX	SUR	MID	MAX			SUR	MID	MAX	
17001	9/22/98	0804	2958.9	8743.6	10	28			27.1			34.0					5.6			PN
17002	9/22/98	0915	3004.9	8744.1	10	17			27.2			32.9					5.5			PN
17003	9/22/98	1015	3011.0	8744.0	10	12			27.1			32.8					5.2			PN
17005	9/22/98	1250	3004.9	8756.2	10	16			27.2			30.1					5.2			PN
17006	9/22/98	1352	2958.9	8756.1	10	23			27.5			33.1					5.1			PN
17007	9/22/98	1430	2952.9	8756.1	10	33			27.3			34.2					4.9			PN
17008	9/22/98	1600	2953.6	8808.3	11	33			27.7			33.4					5.1			PN
17009	9/22/98	1709	2958.9	8807.9	11	27			27.7			32.7					5.1			PN
17010	9/22/98	1802	3004.8	8808.1	11	20			27.9			30.6					5.9			PN
17011	9/22/98	1907	3010.9	8808.0	11	12			27.4			29.6					5.7			PN
17012	9/22/98	2032	3010.9	8820.0	11	12			27.4			23.6					6.2			PN
17013	9/22/98	2123	3005.1	8820.0	11	18			27.5			27.6					6.2			PN
17014	9/22/98	2219	2958.9	8820.0	11	30			27.1			31.2					4.8			PN
17015	9/22/98	2321	2953.1	8820.0	11	33			27.4			31.2					5.6			PN
17016	9/23/98	0022	2946.9	8820.3	11	35			27.5			30.2					5.4			PN
17017	9/23/98	0202	2941.0	8832.0	11	28			27.9			31.5					5.0			PN
17018	9/23/98	0300	2946.8	8832.3	11	28			27.5			27.1					6.3			PN
17019	9/23/98	0359	2953.0	8832.4	11	26			27.4			26.3					5.9			PN
17020	9/23/98	0457	2958.8	8832.3	11	24			27.4			28.1					5.4			PN
17021	9/23/98	0557	3004.9	8832.4	11	17			27.3			26.3					5.4			PN
17022	9/23/98	0655	3010.8	8832.0	11	12			27.1			21.4					5.8			PN
17023	9/23/98	1023	3010.9	8845.0	11	13			27.4			27.4					5.5			PN
17024	9/23/98	1125	3005.0	8844.1	11	15			27.4			25.9					6.3			PN
17025	9/23/98	1230	2958.8	8844.5	11	14			27.6			25.1					6.0			PN
17026	9/23/98	1305	2952.9	8844.0	11	15			27.9			25.8					5.8			PN
17027	9/23/98	1420	2946.9	8844.0	11	15			28.3			26.8					5.7			PN
17028	9/23/98	1527	2941.0	8844.0	11	15			28.4			29.6					5.5			PN
17029	9/23/98	1617	2935.0	8843.9	11	17			28.6			28.2					6.7			PN
17030	9/23/98	1717	2929.0	8843.9	11	19			28.4			29.7					6.6			PN
17031	9/23/98	2051	2923.0	8856.0	11	17			28.4			30.8					5.8			PN
17032	9/23/98	2138	2929.9	8856.0	11	12			28.6			28.7					7.4			PN

Table 2. Selected environmental parameters (continued)

TOMMY MUNRO, FALL PLANKTON SURVEY																				
STA#	DATE		POSITION		STAT ZONE	DEPTH (M)	SAMPLE DEPTHS (M)		TEMPERATURE, C			SALINITY, PPT			CL, MG/M3 SUR	FL SUR	DISSOLVED OXYGEN, PPM			GEAR
	MM/DD/YY	TIME	LAT	LONG			MID	MAX	SUR	MID	MAX	SUR	MID	MAX			SUR	MID	MAX	
17033	9/23/98	2228	2929.0	8901.5	12	9	4	8	28.3	28.0	27.1	27.7	31.0	32.4			7.6	6.5	4.3	PN
17034	9/24/98	0123	2922.0	8908.2	12	8			28.2			16.7					7.8			PN
17035	9/24/98	0246	2924.0	8916.1	12	5			28.5			14.1					6.1			PN
17036	9/24/98	0450	2930.7	8915.2	12	5			28.1			20.9					6.4			PN
17037	9/24/98	0550	2933.9	8911.7	12	6			27.8			23.7					6.3			PN
17038	9/24/98	0633	2937.1	8909.4	12	4			28.1			24.2					6.8			PN
17039	9/24/98	0725	2941.8	8907.0	12	3			28.0			24.4					7.6			PN
17040	9/24/98	0818	2946.3	8903.4	12	5			28.0			27.1					5.3			PN
17041	9/24/98	0902	2950.5	8901.5	12	5			27.9			28.5					5.2			PN
17042	9/24/98	0950	2954.6	8859.1	11	5			27.8			28.6					5.4			PN
17043	9/24/98	1043	2959.3	8859.9	11	6	3	5	27.6	27.7	27.7	27.2	27.2	27.2			5.7	5.7	5.7	PN
17044	9/24/98	1235	3003.5	8859.3	11	6			27.8			27.3					5.0			PN
17045	9/24/98	1331	3008.1	8900.1	12	8			27.8			26.0					5.6			PN

Table 2. Selected environmental parameters (continued)

PELICAN, FALL PLANKTON SURVEY																				
STA#	DATE		POSITION		STAT ZONE	DEPTH (M)	SAMPLE DEPTHS (M)		TEMPERATURE, C			SALINITY, PPT			CL, MG/M3 SUR	FL SUR	DISSOLVED OXYGEN, PPM			GEAR
	MM/DD/YY	TIME	LAT	LONG			MID	MAX	SUR	MID	MAX	SUR	MID	MAX			SUR	SUR	SUR	
37584	9/30/98	1203	2900.0	9000.1	14	23	12	23	27.2	27.4	27.6	32.9	33.9	34.7	1.407		6.2	5.7	5.5	PN
37585	9/30/98	1355	2903.1	8959.5	13	19	9	19	27.4	27.2	27.7	32.8	33.3	34.9	2.034		6.4	6.0	5.5	ST
37586	9/30/98	1551	2907.2	9002.4	14	12	6	12	27.5	27.2	27.7	32.5	33.2	34.5	2.172		6.5	6.4	5.4	ST
37587	9/30/98	1749	2910.9	8959.9	13	8	4	8	27.6	27.6	27.4	33.0	33.1	33.8	2.471		6.3	6.3	5.8	ST
37588	9/30/98	1932	2903.3	8959.4	13	19	10	19	27.5	27.5	27.6	33.1	33.9	34.8	1.812		6.4	5.7	5.3	ST
37589	9/30/98	2053	2907.3	9002.4	14	12	6	12	27.4	27.3	27.7	32.4	32.9	34.6	1.689		6.6	6.4	5.3	ST
37590	9/30/98	2228	2910.9	9000.0	13	8	3	8	27.5	27.6	27.5	32.3	33.4	33.8	2.432		6.5	6.3	5.9	ST
37591	10/ 1/98	0107	2906.2	8948.9	13	22	12	22	27.0	27.3	27.3	31.6	33.6	34.2	2.032		6.6	6.0	5.3	ST
37592	10/ 1/98	0316	2910.4	8937.3	13	9	6	9	27.3	27.6	27.2	32.4	33.4	33.9	1.869		6.1	5.8	5.2	ST
37593	10/ 1/98	0506	2900.5	8935.4	13	25	12	25	26.8	27.1	26.9	31.3	33.3	34.4	2.095		6.3	5.6	4.7	ST
37594	10/ 1/98	0612	2900.4	8932.1	13	15	7	15	26.8	26.9	27.1	31.1	32.3	34.3	2.140		6.4	5.7	4.6	ST
37595	10/ 1/98	0651	2859.9	8929.7	13	14	7	14	26.7	26.8	27.0	30.5	31.7	34.4	1.762		6.5	5.7	4.7	PN
37596	10/ 1/98	0807	2900.6	8932.0	13	16	8	16	26.7	26.9	27.1	31.1	32.1	34.2	2.557		6.4	5.8	4.9	ST
37597	10/ 1/98	0919	2900.3	8935.4	13	24	12	24	26.7	27.4	27.0	31.0	33.0	34.0	2.993		6.6	6.4	5.1	ST
37598	10/ 1/98	1115	2910.4	8937.4	13	10	5	10	27.5	27.5	27.2	32.9	33.4	34.0	2.039		6.5	5.5	5.2	ST
37599	10/ 1/98	1327	2906.3	8948.9	13	22	10	22	28.3	27.4	27.3	33.2	33.4	34.2	1.865		6.6	6.5	5.2	ST
37600	10/ 1/98	1833	2838.6	9019.3	14	29	15	29	27.6	27.3	26.1	34.0	34.4	35.1	1.258		7.4	6.5	5.2	ST
37601	10/ 1/98	1930	2838.5	9019.4	14	28	15	28	28.3	27.4	26.2	34.0	34.4	35.1	1.084		7.7	6.3	5.1	ST
37602	10/ 1/98	2044	2835.7	9024.0	14	33	15	33	27.9	27.3	26.1	34.1	34.6	35.2	0.567		6.9	5.6	5.0	ST
37603	10/ 1/98	2331	2833.8	9031.2	14	31	16	31	28.5	27.7	26.5	34.2	34.5	35.0	0.607		6.5	6.0	5.0	ST
37604	10/ 2/98	0112	2836.6	9036.0	14	21	11	21	28.1	27.5	27.2	34.3	34.7	34.7	0.518		6.5	5.6	5.2	ST
37605	10/ 2/98	0239	2832.7	9041.1	14	27	14	27	28.5	27.9	27.7	34.3	34.9	35.0	0.272		6.2	5.6	5.3	ST
37606	10/ 2/98	0659	2835.7	9023.9	14	33	17	33	28.0	27.6	26.3	34.2	34.4	35.1	0.507		6.5	5.9	5.0	ST
37607	10/ 2/98	0825	2830.1	9029.8	14	38	19	38	28.0	27.7	25.7	34.3	34.7	35.4	0.370		6.3	5.6	4.9	PN
37608	10/ 2/98	0948	2833.9	9031.2	14	31	15	31	28.1	27.5	26.7	34.3	34.7	35.1	0.410		6.3	5.5	5.0	ST
37609	10/ 2/98	1121	2836.7	9035.9	14	21	12	21	28.3	27.9	27.4	34.2	34.3	34.7	0.308		6.4	5.9	5.4	ST
37610	10/ 2/98	1244	2832.6	9041.1	14	26	12	26	28.5	28.1	27.9	34.3	34.7	35.1	0.189		6.2	6.1	5.4	ST
37611	10/ 2/98	1505	2830.0	9060.0	14	33	16	33	28.8	28.1	28.0	34.3	35.2	35.3	0.353		6.3	5.6	5.4	PN
37612	10/ 3/98	0638	2900.2	9059.8	14	6	3	6	28.4	28.4	28.4	26.8	26.8	26.8	3.937		4.3	4.5	4.0	PN
37613	10/ 3/98	0953	2900.0	9029.9	14	10	5	10	28.0	27.9	27.9	29.2	31.0	30.8	1.403		3.5	5.3	4.9	PN

Table 2. Selected environmental parameters (continued)

A.E. VERRILL, FALL PLANKTON SURVEY																				
STA#	DATE		POSITION		STAT ZONE	DEPTH (M)	SAMPLE DEPTHS (M)		TEMPERATURE, C			SALINITY, PPT			CL, MG/M3 SUR	FL SUR	DISSOLVED OXYGEN, PPM			GEAR
	MM/DD/YY	TIME	LAT	LONG			MID	MAX	SUR	MID	MAX	SUR	MID	MAX			SUR	SUR	SUR	
2301	10/ 6/98	836	3012.6	8802.5	11	14	7	14	26.7	26.6	26.4	13.5	20.5	32.3	10.766		5.2	4.5	4.0	PN
2302	10/ 6/98	935	3013.6	8807.4	11	8	4	8	27.0	27.3	26.6	19.6	22.6	32.3	5.588		6.6	6.5	3.4	PN
2303	10/ 6/98	1035	3007.9	8806.5	11	16	8	16	27.1	26.7	26.3	23.1	31.6	33.7	2.542		7.1	7.1	4.2	PN
2304	10/ 6/98	1109	3007.5	8804.2	11	19	10	19	27.2	26.5	26.4	24.2	32.7	34.0	2.261		7.0	5.9	3.9	PN
2305	10/ 6/98	1202	3007.8	8759.0	10	17	9	17	27.4	26.3	26.5	24.9	33.7	34.3	2.854		7.1	5.1	4.9	PN
2306	10/ 6/98	1247	3012.1	8759.3	10	11	6	11	27.7	27.6	26.3	22.2	22.3	34.0	3.196		7.2	7.0	3.6	PN
2307	10/ 6/98	1420	3016.2	8759.0	10	4	2	4	27.8	27.6	26.6	14.3	14.8	20.4	9.850		6.9	6.6	3.9	PN
2308	10/ 6/98	1454	3016.4	8802.2	11	15	8	15	27.4	27.2	26.4	15.0	21.2	26.0	13.774		6.9	5.7	2.7	PN
2309	10/ 6/98	1518	3015.6	8803.5	11	5	3	5	27.2	26.9	26.5	13.1	14.4	24.9	12.728		6.3	6.3	4.1	PN

Table 2. Selected environmental parameters (continued)

OREGON II, FALL SHRIMP/GROUNDFISH SURVEY																				
STA#	DATE		POSITION		STAT ZONE	DEPTH (M)	SAMPLE DEPTHS (M)		TEMPERATURE, C			SALINITY, PPT			CL, MG/M3 SUR	FL SUR	DISSOLVED OXYGEN, PPM			GEAR
	MM/DD/YY	TIME	LAT	LONG			MID	MAX	SUR	MID	MAX	SUR	MID	MAX			SUR	MID	MAX	
00001	10/12/98	813	2830.1	9159.8	15	47	24	47	27.9	27.9	27.9	36.0	35.9	35.9		0.217	4.3	5.3	5.4	PN
00002	10/12/98	1240	2900.1	9159.8	15	19	10	19	27.1	27.0	27.1	34.2	34.2	34.3		0.664	5.7	5.8	5.7	PN
00003	10/12/98	1725	2929.5	9229.9	16	9	4	8	25.6	24.9	26.3	16.3	23.3	30.4		8.037	8.0	6.1	1.9	PN
00004	10/12/98	2119	2900.1	9229.8	16	25	13	25	27.2	27.2	27.2	35.1	35.1	35.2		0.860	2.2	5.6	5.7	PN
00005	10/13/98	108	2830.0	9229.9	16	48	24	48	27.8	27.9	27.8	35.9	36.0	36.0		0.193	5.3	5.6	5.5	PN
00006	10/13/98	425	2830.1	9300.2	17	44	22	44	27.8	27.8	27.8	36.1	36.1	36.1		0.444	5.1	5.4	5.6	PN
00007	10/13/98	749	2900.0	9259.9	16	24	15	23	27.2	27.2	27.2	35.5	35.5	35.5		0.625	4.9	5.6	5.7	PN
00008	10/13/98	1120	2930.2	9259.9	16	13	6	13	26.1	26.1	26.5	31.8	32.3	32.9		1.133	6.2	6.3	5.3	PN
00009	10/13/98	1652	2929.9	9359.8	17	12	6	11	26.4	26.0	25.9	30.0	30.3	30.6		3.292	3.6	5.0	4.8	PN
00010	10/13/98	2005	2900.0	9400.0	17	20	11	19	27.1	27.1	27.1	35.2	35.3	35.3		0.427	6.2	6.2	5.9	PN
00011	10/13/98	2349	2829.9	9400.1	18	39	19	38	27.8	27.8	27.8	36.2	36.2	36.2		0.454	4.7	5.4	5.6	PN
00012	10/14/98	741	2755.3	9506.1	19	91	45	91	27.9	27.9	20.6	36.2	36.2	36.3		0.261	5.8	5.8	3.9	ST
00013	10/14/98	1115	2753.8	9524.6	19	70	35	70	28.1	28.0	20.6	35.9	36.1	36.4		0.129	5.3	5.9	2.9	ST
00014	10/14/98	1320	2749.9	9528.1	19	79	40	79	27.9	27.8	21.6	36.2	36.1	36.4		0.100	5.6	6.0	4.3	ST
00015	10/14/98	1523	2800.0	9529.9	19	52	26	52	28.3	28.1	28.0	36.0	36.0	36.2		0.195	5.3	5.9	5.7	PN
00016	10/14/98	1957	2756.3	9459.8	18	85	41	85	28.0	27.9	20.2	36.1	36.2	36.4		0.293	5.4	5.7	2.4	ST/PN
00017	10/14/98	2338	2759.4	9516.4	19	63	32	63	28.0	28.3	22.7	35.8	36.1	36.5		0.347	5.1	4.5	4.1	ST
00018	10/15/98	323	2746.9	9537.0	20	71	35	71	27.4	28.5	21.1	35.5	36.3	36.4		0.254	2.6	5.3	3.6	ST
00019	10/15/98	1306	2628.8	9627.8	21	82	41	82	27.3	29.0	20.2	32.7	36.3	36.6		0.303	5.9	5.6	2.4	ST/PN
00020	10/15/98	1533	2622.9	9622.3	21	82	42	82	28.9	28.6	21.2	35.8	36.2	36.5		0.129	1.9	5.9	3.4	ST
00021	10/15/98	2002	2601.0	9626.2	21	70	35	69	28.6	28.7	21.6	35.1	36.1	36.5		0.225	6.4	6.6	4.7	ST/PN
00022	10/16/98	33	2614.0	9658.0	21	28	13	26	27.6	27.4	27.6	34.3	34.5	34.9		0.381	6.4	6.7	6.6	ST
00023	10/16/98	156	2616.0	9700.3	21	27	14	27	27.2	27.2	27.5	33.9	33.9	34.7		0.992	5.9	7.0	6.5	ST
00024	10/16/98	339	2617.1	9710.1	21	12	6	11	27.5	27.5	27.5	34.4	34.4	34.4		0.584	6.5	6.7	6.8	ST
00025	10/16/98	541	2607.5	9709.2	21	11	5	10	27.4	27.4	27.4	34.6	34.6	34.6		1.172	6.8	6.7	6.7	ST
00026	10/16/98	932	2610.1	9657.2	21	29	14	29	27.3	27.4	27.7	31.4	34.4	35.0		0.891	6.0	6.7	6.6	ST
00027	10/16/98	1121	2608.5	9703.4	21	21	11	21	27.5	27.5	27.5	34.5	34.5	34.5		0.938	5.6	6.6	6.7	ST
00028	10/16/98	1545	2622.1	9711.3	21	12	6	11	27.6	27.7	27.6	34.4	34.3	34.3		0.159	6.9	7.0	7.2	ST
00029	10/16/98	1905	2625.9	9656.7	21	34	17	34	27.6	28.0	27.9	34.1	35.2	35.9		0.970	7.0	7.3	3.9	ST
00030	10/16/98	2122	2629.2	9704.8	21	22	11	22	27.6	27.6	27.6	34.0	34.0	34.7		1.074	5.7	6.4	5.8	ST
00031	10/16/98	2345	2640.0	9712.8	21	18	9	18	27.4	27.4	27.4	33.6	33.6	33.6		0.786	6.2	6.9	7.1	ST

Table 2. Selected environmental parameters (continued)

OREGON II, FALL SHRIMP/GROUNDFISH SURVEY																				
STA#	DATE		POSITION		STAT ZONE	DEPTH (M)	SAMPLE DEPTHS (M)		TEMPERATURE, C			SALINITY, PPT			CL, MG/M3 SUR	FL SUR	DISSOLVED OXYGEN, PPM			GEAR
	MM/DD/YY	TIME	LAT	LONG			MID	MAX	SUR	MID	MAX	SUR	MID	MAX			SUR	MID	MAX	
00032	10/17/98	204	2647.9	9717.9	21	17	8	17	27.4	27.4	27.3	33.6	33.6	34.0		0.703	5.3	7.5	4.5	ST
00033	10/17/98	504	2653.2	9715.5	21	21	10	20	27.3	27.3	27.3	33.2	33.2	34.3		1.338	7.3	7.7	4.7	ST
00034	10/17/98	737	2652.1	9720.9	21	9	4	9	27.3	27.3	21.3	32.9	32.9	32.7		1.839	6.0	7.3	7.0	ST
00035	10/17/98	1115	2640.9	9709.7	21	23	12	23	27.5	27.5	27.2	33.7	33.8	34.9		0.701	6.5	6.9	5.0	ST
00036	10/17/98	1329	2653.0	9706.7	21	31	15	30	27.4	27.4	28.0	33.4	33.5	35.2		0.882	6.7	7.4	6.2	ST
00037	10/17/98	1506	2650.0	9703.2	21	34	17	33	27.6	27.6	28.1	33.7	33.8	35.4		0.664	5.7	7.0	4.6	ST
00038	10/17/98	1749	2646.6	9655.7	21	46	22	46	27.7	28.9	27.4	34.0	35.6	36.2		0.454	6.9	6.6	4.3	ST
00039	10/17/98	2046	2647.8	9647.2	21	60	34	58	27.7	28.7	28.0	34.0	35.9	36.2		0.356	7.2	6.4	5.4	ST
00040	10/18/98	51	2650.0	9637.5	21	86	42	86	27.9	28.4	21.7	34.2	36.1	36.5		0.330	5.8	5.2	5.9	ST
00042	10/18/98	532	2712.0	9637.0	20	93	44	93	27.4	28.8	21.0	32.8	36.1	36.4		0.925	6.3	6.7	3.5	ST
00043	10/18/98	940	2659.6	9637.1	21	86	44	81	27.6	28.8	22.6	33.8	36.3	36.1		0.298	6.2	6.5	5.2	ST
00044	10/18/98	1346	2710.2	9641.3	20	77	36	73	27.6	28.8	22.6	32.8	35.9	36.4		1.089	6.8	6.4	4.2	ST
00046	10/18/98	1623	2710.6	9645.6	20	64	31	64	27.5	28.4	24.7	32.8	34.8	36.4		1.495	7.0	5.9	3.9	ST
00047	10/18/98	1936	2707.9	9703.8	20	33	16	33	27.4	27.4	27.7	32.5	32.5	33.9		0.960	3.3	7.3	5.9	ST
00048	10/18/98	2115	2707.7	9706.8	20	29	14	29	27.2	27.3	27.4	32.2	23.2	33.0		0.899	7.4	7.2	6.3	ST
00049	10/18/98	2312	2709.4	9714.7	20	22	11	21	27.0	27.3	27.4	32.4	32.2	32.2		1.082	6.7	6.8	7.2	ST
00050	10/19/98	228	2717.9	9702.4	20	30	15	30	27.2	27.4	27.5	31.6	32.4	33.1		1.031	6.7	7.0	5.9	ST
00051	10/19/98	428	2717.9	9651.8	20	55	28	54	27.4	27.5	28.3	32.5	33.8	36.2		0.703	7.3	7.0	3.5	ST
00053	10/19/98	817	2712.2	9650.1	20	55	27	55	27.4	27.5	28.4	32.7	33.1	36.2		0.872	6.0	6.7	4.9	ST
00054	10/19/98	1048	2711.7	9657.8	20	37	17	36	27.2	27.6	27.6	32.2	33.5	33.6		0.855	7.2	6.8	6.3	ST
00055	10/19/98	1254	2712.8	9707.7	20	25	10	25	27.1	27.1	27.2	31.2	31.2	31.4		2.603	2.6	6.9	6.5	ST
00056	10/19/98	1505	2710.9	9718.0	20	16	7	16	27.2	27.0	27.0	31.1	31.2	31.4		2.081	1.8	7.0	7.3	ST
00057	10/19/98	1715	2719.1	9715.8	20	17	9	16	27.0	27.0	26.9	30.3	30.4	30.9		1.836	6.7	6.9	7.0	ST
00058	10/19/98	2103	2716.6	9647.7	20	52	26	52	27.3	27.7	28.4	32.1	34.1	36.2		1.328	7.6	6.5	3.8	ST
00060	10/20/98	116	2729.2	9645.3	20	46	23	46	28.9	28.5	28.5	31.6	35.7	36.1		1.482	2.7	5.1	4.5	ST
00061	10/20/98	437	2742.8	9704.4	20	15	6	14	26.2	26.6	26.6	28.7	30.2	30.4		3.040	7.8	7.6	7.4	ST
00062	10/20/98	636	2752.6	9657.3	20	11	5	11	26.3	26.3	26.4	29.2	29.2	29.2		2.801	5.0	3.9	6.7	ST
00063	10/20/98	934	2738.3	9700.6	20	20	10	19	26.8	26.7	26.7	31.1	31.1	31.1		2.791	7.5	7.6	7.6	ST
00064	10/20/98	1139	2741.1	9650.4	20	25	12	24	26.8	26.9	28.0	30.8	31.4	34.9		1.976	6.7	6.8	5.2	ST
00065	10/20/98	1313	2740.9	9645.1	20	33	16	32	27.4	27.3	28.2	32.5	33.4	35.2		1.336	7.8	7.8	5.0	ST
00066	10/20/98	1534	2750.9	9647.8	20	22	11	22	27.2	26.8	26.9	31.0	31.7	32.1		2.745	8.0	7.5	7.2	ST

Table 2. Selected environmental parameters (continued)

OREGON II, FALL SHRIMP/GROUNDFISH SURVEY																				
STA#	DATE		POSITION		STAT ZONE	DEPTH (M)	SAMPLE DEPTHS (M)		TEMPERATURE, C			SALINITY, PPT			CL, MG/M3 SUR	FL SUR	DISSOLVED OXYGEN, PPM			GEAR
	MM/DD/YY	TIME	LAT	LONG			MID	MAX	SUR	MID	MAX	SUR	MID	MAX			SUR	MID	MAX	
00067	10/20/98	1716	2755.6	9654.7	20	13	6	13	26.9	26.8	26.4	29.6	29.7	30.3		4.071	8.5	8.5	7.4	ST
00068	10/20/98	2124	2753.4	9627.0	20	36	16	35	27.2	28.2	28.2	32.8	35.2	35.2		1.446	6.9	4.2	4.1	ST
00069	10/21/98	31	2805.1	9635.8	19	18	7	18	26.5	26.5	26.6	31.2	31.2	32.4		2.166	6.9	7.5	7.1	ST
00070	10/21/98	242	2808.8	9627.9	19	20	10	20	26.7	26.7	26.7	33.1	33.1	33.0		2.198	7.1	7.2	7.2	ST
00071	10/21/98	456	2814.7	9629.7	19	11	5	10	26.0	26.1	26.2	27.9	29.1	30.2		2.415	6.6	6.7	6.9	ST
00072	10/21/98	637	2817.0	9623.7	19	18	9	16	26.2	26.3	26.5	30.2	30.8	32.3		2.430	6.5	7.0	7.2	ST
00073	10/21/98	929	2808.3	9609.6	19	25	13	25	27.0	27.0	27.0	34.3	34.3	34.3		1.617	7.6	7.7	7.6	ST
00074	10/21/98	1054	2805.3	9611.1	19	31	16	31	27.1	27.1	27.2	34.5	34.5	34.6		1.609	7.7	7.9	7.4	ST
00075	10/21/98	1525	2755.4	9543.2	20	54	27	54	27.6	27.8	28.0	35.6	35.9	36.1		0.461	7.4	7.4	6.5	ST
00077	10/21/98	1925	2750.9	9538.5	20	60	30	56	27.9	27.9	27.7	36.0	36.0	36.2		0.481	7.6	7.4	7.1	ST
00078	10/24/98	2022	2859.2	9418.8	18	15	6	13	25.3	25.3	25.3	35.6	35.6	35.6		1.348	7.7	6.7	7.8	ST
00079	10/25/98	37	2852.8	9452.4	18	18	9	17	25.0	25.0	25.0	35.1	35.1	35.1		1.712	6.9	7.7	7.8	ST
00080	10/25/98	329	2835.9	9443.8	18	30	15	29	26.3	26.3	26.3	36.2	36.1	36.1		0.864	7.7	7.1	7.7	ST
00081	10/25/98	642	2835.9	9438.7	18	31	15	31	26.3	26.3	26.3	36.2	36.2	36.2		0.860	7.2	7.6	7.6	ST
00082	10/25/98	1148	2902.9	9506.2	19	12	6	12	23.5	23.4	24.1	25.9	26.9	32.1		2.366	7.3	6.9	8.3	ST
00083	10/25/98	1338	2854.9	9512.7	19	16	8	16	23.9	24.1	24.2	27.8	31.5	31.9		2.735	8.3	7.6	8.9	ST
00084	10/25/98	1644	2843.2	9509.3	19	22	11	21	25.2	25.2	25.2	35.5	35.5	35.5		1.465	7.3	7.7	7.7	ST
00085	10/25/98	2056	2829.9	9539.6	19	22	11	21	25.0	25.0	25.1	34.9	34.9	35.0		1.519	7.7	7.8	7.8	ST
00086	10/26/98	243	2805.0	9619.2	19	27	13	27	26.1	26.1	26.1	36.0	36.0	36.0		1.192	6.4	6.8	7.4	ST
00087	10/26/98	559	2824.6	9615.5	19	11	5	10	23.7	23.8	23.9	26.7	26.2	27.6		1.785	7.7	7.7	7.4	ST
00088	10/26/98	1025	2834.2	9553.3	19	13	6	12	23.6	23.6	24.2	27.5	27.9	32.1		2.059	8.2	8.2	8.0	ST
00089	10/26/98	1312	2842.3	9541.4	19	11	6	11	24.1	23.6	23.7	27.2	27.2	27.8		2.545	7.1	7.5	7.4	ST
00090	10/26/98	1550	2830.8	9542.8	19	20	10	19	25.6	25.0	25.0	34.9	34.9	35.0		2.054	5.6	8.4	8.0	ST
00091	10/26/98	1827	2821.8	9551.8	19	15	8	15	25.4	25.4	25.4	35.4	35.4	35.4		1.477	7.0	6.7	7.4	ST
00092	10/26/98	2135	2806.6	9543.8	19	37	18	36	26.6	26.6	26.6	36.3	36.3	36.3		0.818	5.0	7.0	7.3	ST
00093	10/27/98	55	2814.8	9537.3	19	34	17	33	26.3	26.4	26.4	36.3	36.3	36.3		0.874	7.3	7.7	7.7	ST
00094	10/27/98	234	2817.3	9540.2	19	31	14	30	26.2	26.2	26.2	36.1	36.1	36.1		1.170	7.7	7.7	7.7	ST
00095	10/27/98	526	2815.0	9529.8	19	36	20	36	26.5	26.5	26.5	36.3	36.3	36.3		0.781	5.4	7.3	7.7	ST
00096	10/27/98	734	2812.2	9533.4	19	36	20	36	26.5	26.5	26.5	36.3	36.3	36.3		0.857	7.6	7.6	7.7	ST
00097	10/27/98	1045	2818.3	9544.4	19	25	12	24	25.7	25.7	25.7	35.9	35.9	35.9		1.155	5.7	7.2	8.3	ST
00098	10/27/98	1510	2819.3	9517.9	19	36	19	35	26.5	26.4	26.4	36.3	36.3	36.3		1.021	7.2	7.7	7.7	ST

Table 2. Selected environmental parameters (continued)

OREGON II, FALL SHRIMP/GROUNDFISH SURVEY																				
STA#	DATE		POSITION		STAT ZONE	DEPTH (M)	SAMPLE DEPTHS (M)		TEMPERATURE, C			SALINITY, PPT			CL, MG/M3 SUR	FL SUR	DISSOLVED OXYGEN, PPM			GEAR
	MM/DD/YY	TIME	LAT	LONG			MID	MAX	SUR	MID	MAX	SUR	MID	MAX			SUR	MID	MAX	
00099	10/27/98	1646	2810.9	9516.1	19	48	24	48	26.8	26.8	26.8	36.2	36.3	36.3		0.359	7.1	7.7	7.6	ST
00100	10/27/98	2200	2835.3	9503.1	19	29	14	28	25.8	25.8	25.9	36.0	36.0	36.0		1.026	7.7	7.8	7.9	ST
00101	10/28/98	329	2831.8	9431.0	18	36	17	36	26.2	26.3	26.3	36.2	36.2	36.2		0.669	7.8	7.8	7.7	ST
00102	10/28/98	557	2819.4	9425.1	18	48	24	48	26.7	26.7	26.7	36.2	36.2	36.2		0.337	7.6	7.8	7.7	ST
00103	10/28/98	1007	2834.0	9415.7	18	35	17	35	26.3	26.3	26.3	36.1	36.0	36.1		0.476	7.7	7.7	7.6	ST
00104	10/28/98	1253	2848.2	9417.9	18	26	16	26	25.9	25.6	25.6	36.0	36.0	36.0		0.764	7.9	7.8	7.7	ST
00105	10/28/98	1513	2856.9	9414.3	18	20	10	19	25.9	25.3	25.3	35.7	35.7	35.7		1.006	8.1	8.0	7.8	ST
00106	10/28/98	1702	2905.9	9411.3	18	18	9	18	25.4	24.9	24.9	35.5	35.5	35.5		1.189	6.8	7.5	7.4	ST
00107	10/28/98	2043	2848.8	9357.0	17	24	12	22	25.9	25.9	25.7	36.0	35.9	36.0		0.701	7.2	7.8	7.6	ST
00108	10/29/98	111	2847.8	9330.0	17	26	15	26	25.7	25.7	25.8	36.0	36.0	36.0		0.691	7.8	7.8	7.6	ST
00109	10/29/98	406	2835.9	9339.9	17	20	11	19	26.3	26.3	26.3	36.0	36.0	36.0		0.300	7.5	7.7	7.7	ST
00110	10/29/98	725	2827.0	9343.7	17	45	22	44	26.5	26.5	26.5	36.0	36.0	36.0		0.344	7.6	7.8	7.7	ST
00111	10/29/98	1034	2834.4	9350.7	17	35	17	34	26.4	26.3	26.3	36.0	36.0	36.0		0.252	7.8	7.8	7.8	ST
00112	10/29/98	1401	2827.4	9410.9	18	42	21	41	26.8	26.5	26.5	36.0	36.1	36.1		0.335	7.7	7.7	7.7	ST
00113	10/29/98	1713	2807.6	9404.6	18	66	33	66	26.9	26.7	26.7	36.1	36.2	36.2		0.159	7.7	7.8	7.7	ST
00114	10/29/98	2027	2756.9	9404.4	18	83	41	83	26.8	26.8	22.4	36.1	36.1	36.4		0.191	7.8	7.8	5.5	ST
00115	10/29/98	2336	2759.6	9352.2	17	72	36	71	26.7	26.7	26.7	36.1	36.1	36.1		0.176	7.7	7.7	7.4	ST
00116	10/30/98	250	2759.4	9352.2	17	83	41	83	26.7	26.7	21.2	36.0	36.0	36.3		0.213	7.6	7.7	4.3	ST
00117	10/30/98	751	2820.3	9324.4	17	55	24	54	26.5	26.5	26.5	36.0	36.0	36.1		0.256	5.2	7.1	7.3	ST
00118	10/30/98	1058	2829.9	9317.8	17	40	20	39	26.6	26.4	26.4	36.0	36.0	36.0		0.195	7.7	7.7	7.8	ST
00119	10/30/98	1623	2805.7	9243.3	16	96	47	96	26.8	26.6	20.3	36.0	36.0	36.4		0.166	7.1	7.8	3.7	ST
00120	10/30/98	1941	2813.2	9246.1	16	63	31	63	26.6	26.6	26.7	35.9	35.9	36.0		0.317	5.6	7.5	7.7	ST
00121	10/31/98	56	2802.9	9316.7	17	94	46	94	26.6	26.7	20.9	36.0	36.0	36.4		0.149	6.5	7.7	3.5	ST
00122	10/31/98	412	2812.0	9315.2	17	65	32	64	26.7	26.7	26.7	36.0	36.0	36.0		0.298	7.2	7.7	7.6	ST
00123	10/31/98	1000	2851.4	9259.4	16	25	12	24	25.5	25.5	25.5	35.6	35.6	35.6		0.640	6.8	7.8	7.8	ST
00124	10/31/98	1259	2905.6	9259.9	16	22	11	21	24.8	24.8	24.9	34.8	34.8	34.9		1.448	8.0	8.0	7.9	ST
00125	10/31/98	1630	2858.5	9234.1	16	27	13	27	25.2	25.1	25.1	35.1	35.1	35.2		1.509	7.3	7.7	7.5	ST
00126	10/31/98	1950	2908.1	9233.8	16	20	11	20	24.9	25.0	24.8	33.5	34.3	34.7		1.626	7.9	8.0	7.4	ST
00127	10/31/98	2308	2906.7	9246.2	16	22	10	20	24.7	24.8	25.0	34.5	34.5	34.9		1.658	7.2	7.9	7.6	ST
00128	11/ 1/98	228	2916.7	9236.9	16	16	8	16	24.6	24.6	24.7	32.2	32.3	32.5		1.158	7.9	7.9	7.8	ST
00129	11/ 1/98	517	2925.3	9247.7	16	14	7	13	24.0	24.0	23.9	31.6	31.6	31.6		1.846	5.4	6.8	7.6	ST

Table 2. Selected environmental parameters (continued)

OREGON II, FALL SHRIMP/GROUNDFISH SURVEY																				
STA#	DATE		POSITION		STAT ZONE	DEPTH (M)	SAMPLE DEPTHS (M)		TEMPERATURE, C			SALINITY, PPT			CL, MG/M3 SUR	FL SUR	DISSOLVED OXYGEN, PPM			GEAR
	MM/DD/YY	TIME	LAT	LONG			MID	MAX	SUR	MID	MAX	SUR	MID	MAX			SUR	MID	MAX	
00130	11/ 1/98	740	2930.4	9250.2	16	13	6	12	23.3	23.7	23.7	30.5	31.1	31.4		2.159	6.4	7.2	7.5	ST
00131	11/ 1/98	2116	2847.3	9259.2	16	27	13	26	25.9	25.9	25.9	35.9	35.9	35.9		0.635	5.6	7.6	7.6	ST
00132	11/ 1/98	2318	2845.9	9254.1	16	28	14	26	25.7	25.8	25.8	35.8	35.8	35.8		0.608	7.8	7.8	7.8	ST
00133	11/ 2/98	244	2830.0	9253.0	16	48	23	47	26.4	26.4	26.4	35.9	35.9	36.0		0.530	6.9	7.5	7.6	ST
00134	11/ 2/98	728	2845.9	9229.8	16	33	16	32	25.9	25.9	25.9	35.9	35.9	35.9		0.723	7.6	7.6	7.6	ST
00136	11/ 2/98	1221	2836.7	9212.9	16	40	20	38	26.2	26.2	26.2	35.9	35.9	35.9		0.344	5.5	7.4	7.5	ST
00137	11/ 2/98	1530	2842.4	9213.8	16	36	18	36	26.0	25.9	25.9	35.8	35.8	35.8		0.435	7.8	7.8	7.7	ST
00138	11/ 2/98	1801	2847.6	9224.2	16	33	16	32	25.6	25.6	25.6	35.7	35.7	35.7		0.564	6.9	7.7	7.6	ST
00139	11/ 2/98	2047	2903.3	9226.3	16	22	11	20	25.1	25.1	25.3	34.8	34.8	35.0		1.158	3.6	7.1	7.5	ST
00140	11/ 2/98	2336	2912.4	9223.2	16	11	5	10	24.1	24.6	25.0	31.0	32.6	34.3		1.497	7.5	7.5	7.4	ST
00141	11/ 3/98	244	2908.7	9212.0	16	11	6	10	24.1	24.7	24.9	33.0	32.8	33.4		1.573	6.3	6.9	7.6	ST
00142	11/ 3/98	501	2902.1	9205.8	16	18	9	18	24.4	24.4	25.0	32.3	32.4	33.6		0.806	5.5	7.9	6.1	ST
00143	11/ 3/98	631	2903.1	9204.0	16	17	8	16	24.3	24.3	24.9	32.0	32.0	33.1		0.711	4.1	7.2	6.7	ST
00144	11/ 3/98	834	2906.4	9212.1	16	14	7	13	24.1	24.3	25.1	31.9	32.2	34.4		1.338	6.5	7.5	6.8	ST
00145	11/ 3/98	1040	2912.2	9221.7	16	10	5	8	23.6	25.0	25.0	34.7	34.2	34.2		3.961	7.4	4.1	6.5	ST
00146	11/ 3/98	1214	2907.8	9219.3	16	15	7	14	24.0	25.0	25.1	31.5	34.1	34.5		1.807	8.2	7.6	7.1	ST
00147	11/ 3/98	1423	2904.0	9213.8	16	18	9	17	24.4	24.8	25.1	33.1	33.8	34.4		0.728	8.0	7.9	7.4	ST
00148	11/ 3/98	1616	2859.2	9209.1	16	22	11	21	24.6	24.7	25.4	32.8	33.3	34.9		2.098	7.3	7.4	6.8	ST
00149	11/ 3/98	2002	2836.1	9218.1	16	40	20	40	26.0	26.1	26.1	35.9	35.9	35.9		0.645	7.3	7.6	7.7	ST
00150	11/ 3/98	2308	2841.7	9208.2	16	36	18	35	25.8	25.9	25.9	35.8	35.8	35.8		0.635	6.8	7.5	7.6	ST
00151	11/ 4/98	157	2840.2	9200.7	16	37	17	36	25.7	25.7	25.7	35.8	35.8	35.8		0.615	5.7	7.5	7.6	ST
00152	11/ 4/98	458	2843.9	9140.2	15	26	13	25	24.6	25.2	25.7	33.9	34.4	35.5		1.250	4.9	7.4	6.8	ST
00153	11/ 4/98	1043	2816.5	9209.1	16	63	32	62	26.3	26.3	26.3	36.0	36.0	36.0		0.354	7.5	7.5	7.6	ST
00154	11/ 4/98	1407	2801.6	9213.5	16	116	58	116	26.4	26.0	19.4	36.0	36.2	36.4		0.193	6.0	7.7	3.2	ST
00155	11/ 4/98	1619	2807.6	9206.5	16	73	37	73	26.3	26.3	22.8	36.0	36.0	36.3		0.315	6.2	7.4	4.0	ST
00156	11/ 4/98	2147	2810.5	9134.9	15	82	41	81	26.2	26.3	21.7	36.0	36.0	36.3		0.476	7.6	7.5	3.4	ST
00157	11/ 5/98	443	2810.8	9046.7	14	81	40	81	25.5	25.5	22.6	35.7	35.6	35.8		0.283	7.6	7.8	3.9	ST
00158	11/10/98	1220	2847.6	8930.7	13	77	38	76	23.9	25.4	19.7	34.2	35.4	36.5		0.569	6.9	9.8	1.6	ST
00159	11/10/98	1514	2858.3	8932.3	13	28	14	28	22.7	22.7	25.0	31.0	31.1	34.2		3.819	7.4	8.2	2.4	ST
00160	11/10/98	1602	2900.9	8934.5	13	24	11	22	22.7	22.7	23.8	31.3	31.5	33.6		3.541	4.4	5.9	4.8	ST
00161	11/10/98	1741	2903.8	8935.0	13	15	7	15	22.7	22.7	23.9	30.7	30.8	31.5		1.272	7.2	8.5	3.3	ST

Table 2. Selected environmental parameters (continued)

OREGON II, FALL SHRIMP/GROUNDFISH SURVEY																				
STA#	DATE		POSITION		STAT ZONE	DEPTH (M)	SAMPLE DEPTHS (M)		TEMPERATURE, C			SALINITY, PPT			CL, MG/M3 SUR	FL SUR	DISSOLVED OXYGEN, PPM			GEAR
	MM/DD/YY	TIME	LAT	LONG			MID	MAX	SUR	MID	MAX	SUR	MID	MAX			SUR	MID	MAX	
00162	11/10/98	2010	2853.8	8935.1	13	62	31	62	23.9	25.8	20.5	33.0	35.7	36.4		1.104	6.1	6.3	1.5	ST
00163	11/10/98	2356	2900.2	8947.2	13	37	18	37	23.4	23.8	25.6	31.8	34.1	35.5		3.778	7.9	8.6	5.1	ST
00164	11/11/98	219	2903.3	9001.7	14	18	8	18	22.8	23.3	25.2	31.5	31.1	34.3		2.129	5.8	7.5	1.3	ST
00165	11/11/98	512	2900.2	9017.0	14	13	6	12	22.8	22.9	23.1	31.4	32.8	33.5		1.521	7.0	4.7	9.7	ST
00166	11/11/98	819	2903.6	9003.7	14	15	7	15	21.8	21.9	24.4	28.7	29.0	31.9		2.271	7.3	7.9	3.1	ST
00167	11/11/98	1117	2909.9	8954.4	13	13	6	13	22.4	22.4	23.7	30.5	30.5	32.7		1.858	6.1	9.0	0.3	ST
00168	11/11/98	1416	2904.3	8942.3	13	27	14	26	23.2	23.8	25.0	32.1	33.6	35.7		2.029	6.3	7.6	1.8	ST
00169	11/11/98	1737	2844.8	8953.1	13	53	25	50	24.8	25.0	25.0	35.6	35.5	35.7		0.901	7.0	7.7	7.4	ST
00170	11/11/98	1910	2841.6	8953.1	13	80	40	80	25.3	25.6	20.1	35.6	35.6	36.4		0.645	6.3	7.5	1.5	ST
00171	11/11/98	2226	2850.4	9014.7	14	23	12	23	23.8	23.8	24.2	33.6	33.6	34.0		1.453	4.9	7.2	6.1	ST
00172	11/12/98	149	2859.9	9036.2	14	11	5	10	22.3	22.2	22.3	31.9	26.3	32.0		1.480	4.4	4.1	7.1	ST
00173	11/12/98	632	2844.5	9011.4	14	33	17	32	24.5	24.5	24.8	35.3	35.3	35.6		0.698	4.5	7.3	6.3	ST
00174	11/12/98	837	2838.0	9019.4	14	31	15	31	24.3	24.4	24.7	35.2	35.2	35.6		0.740	4.0	7.3	7.6	ST
00175	11/12/98	932	2836.6	9019.1	14	34	17	34	24.8	24.8	24.8	35.8	35.8	35.8		0.698	6.6	7.5	7.6	ST
00176	11/12/98	1133	2833.9	9021.3	14	38	19	38	24.6	24.6	24.7	35.6	35.6	35.8		0.842	6.0	7.7	7.5	ST
00177	11/12/98	1413	2821.0	9020.3	14	54	27	54	24.9	24.9	22.5	35.7	35.8	36.2		0.911	5.8	7.7	4.3	ST
00178	11/12/98	1622	2815.7	9031.4	14	76	36	76	25.8	25.3	20.4	35.8	35.9	36.5		0.698	4.4	6.7	3.0	ST
00179	11/12/98	2016	2827.9	9022.1	14	46	23	46	24.7	24.7	23.7	35.7	35.7	36.2		1.189	5.4	7.1	5.8	ST
00180	11/12/98	2303	2836.6	9018.6	14	37	18	37	24.7	24.8	24.8	35.8	35.8	35.8		0.989	7.7	7.9	7.9	ST
00181	11/13/98	12	2838.0	9023.4	14	23	11	23	24.3	24.4	24.7	35.3	35.4	35.7		0.921	7.6	7.8	7.8	ST
00182	11/13/98	237	2833.5	9031.1	14	31	15	31	24.3	24.4	24.4	35.3	35.3	35.3		0.821	7.4	7.7	7.7	ST
00183	11/13/98	627	2853.3	9042.5	14	10	6	9	22.4	22.4	22.4	31.8	31.8	31.8		1.582	7.5	7.6	7.6	ST
00184	11/13/98	825	2852.0	9053.5	14	9	4	9	22.0	22.0	21.9	32.1	32.1	32.2		1.297	5.5	5.6	5.6	ST
00185	11/13/98	1045	2836.5	9058.0	14	19	9	19	22.9	22.9	22.9	34.7	34.7	34.7		1.133	7.7	8.1	8.3	ST
00186	11/13/98	1236	2833.9	9106.4	15	28	14	28	23.7	23.7	23.7	35.1	35.2	35.2		0.884	8.2	8.0	8.0	ST
00187	11/13/98	1425	2837.9	9114.1	15	24	12	24	23.0	22.8	22.8	34.2	34.3	34.5		0.940	5.2	7.2	7.8	ST
00188	11/13/98	1602	2836.1	9120.1	15	29	14	29	23.6	23.5	23.7	34.8	34.7	34.9		0.982	8.0	7.9	7.9	ST
00189	11/13/98	1801	2834.4	9112.5	15	28	15	26	23.5	23.4	23.4	34.9	35.0	34.9		0.923	7.5	8.0	7.9	ST
00190	11/13/98	2147	2852.0	9128.5	15	15	7	15	22.1	22.0	22.0	32.3	32.4	32.8		1.385	8.5	8.3	8.0	ST
00191	11/14/98	59	2858.4	9130.8	15	13	6	13	21.4	21.4	21.4	31.5	31.5	31.6		1.551	8.1	8.1	8.1	ST
00192	11/14/98	641	2853.0	9216.2	16	27	13	26	23.7	23.7	23.8	35.4	35.4	35.5		0.901	7.5	7.9	7.9	ST

Table 2. Selected environmental parameters (continued)

OREGON II, FALL SHRIMP/GROUNDFISH SURVEY																				
STA#	DATE		POSITION		STAT ZONE	DEPTH (M)	SAMPLE DEPTHS (M)		TEMPERATURE, C			SALINITY, PPT			CL, MG/M3 SUR	FL SUR	DISSOLVED OXYGEN, PPM			GEAR
	MM/DD/YY	TIME	LAT	LONG			MID	MAX	SUR	MID	MAX	SUR	MID	MAX			SUR	MID	MAX	
00193	11/14/98	833	2849.4	9210.3	16	29	15	29	24.0	24.0	24.1	35.8	35.8	35.8		0.884	7.7	8.0	8.1	ST
00194	11/14/98	1127	2850.7	9149.7	15	24	12	24	23.5	23.5	23.5	34.5	34.5	34.6		0.786	8.0	8.1	7.9	ST
00195	11/14/98	1435	2859.0	9134.3	15	12	6	12	21.5	21.5	21.5	31.1	31.2	31.4		2.327	7.3	7.7	7.2	ST
00196	11/14/98	2105	2834.9	9047.4	14	20	10	20	23.8	23.8	24.2	34.9	34.9	35.3		1.563	3.2	7.6	7.0	ST
00197	11/14/98	2220	2829.8	9048.5	14	31	15	31	24.3	24.5	24.4	35.5	35.5	35.5		1.297	6.0	7.8	7.6	ST
00198	11/15/98	105	2823.6	9103.0	15	46	23	46	24.6	25.2	25.1	35.6	36.0	36.1		0.901	7.6	7.9	7.8	ST
00199	11/15/98	629	2823.9	9124.3	15	57	28	56	25.1	25.2	25.0	36.0	36.1	36.1		0.679	7.0	7.7	7.5	ST
00200	11/15/98	1040	2807.0	9136.4	15	92	46	92	25.5	25.5	19.4	36.1	36.1	36.4		0.266	7.8	8.0	3.1	ST
00201	11/15/98	1543	2812.0	9103.7	15	84	43	84	25.0	24.9	19.9	35.7	35.7	36.4		0.310	8.1	7.9	3.0	ST
00202	11/15/98	2021	2832.9	9040.3	14	24	12	24	24.0	24.1	24.3	34.9	34.9	35.4		0.750	3.9	7.4	6.5	ST
00203	11/16/98	823	2904.5	8852.3	11	88	43	88	22.6	25.3	20.0	32.3	36.1	36.5		1.937	7.5	8.6	3.4	ST
00204	11/16/98	1134	2909.9	8852.2	11	58	29	58	21.4	25.1	21.6	37.7	36.0	36.6		3.883	4.1	7.6	3.1	ST
00205	11/16/98	1451	2912.1	8836.3	11	75	37	75	24.8	25.1	21.2	36.3	36.2	36.5		1.690	4.6	7.6	4.0	ST
00206	11/16/98	1822	2908.2	8854.9	11	37	17	37	22.0	24.7	25.0	34.9	35.5	36.0		6.125	5.5	7.3	6.7	ST
00207	11/16/98	2239	2917.0	8821.2	11	72	36	72	23.6	25.3	21.8	35.7	36.2	36.4		1.487	3.5	7.4	4.5	ST
00208	11/17/98	213	2919.1	8817.5	11	78	39	78	25.5	25.3	20.8	34.4	36.1	36.4		1.531	7.6	7.3	3.6	ST
00209	11/17/98	419	2924.2	8811.4	11	54	27	53	23.8	24.6	23.7	34.5	35.7	36.1		1.001	7.7	7.9	5.2	ST
00210	11/17/98	726	2931.1	8817.6	11	46	23	46	23.9	24.8	24.8	34.6	35.8	35.9		1.971	7.6	7.5	7.3	ST
00211	11/17/98	935	2929.9	8813.3	11	45	22	45	23.7	24.4	25.2	34.4	35.3	36.0		2.447	8.5	7.8	7.1	ST
00215	11/17/98	1748	2920.7	8802.6	11	90	45	90	23.9	25.2	20.7	34.9	36.1	36.5		0.882	8.1	7.8	3.8	ST
00216	11/17/98	1955	2921.3	8805.9	11	79	39	79	24.0	24.8	21.1	35.0	35.8	36.4		0.701	8.1	7.5	4.0	ST
00217	11/18/98	38	2933.9	8818.1	11	40	20	40	23.7	24.4	25.2	34.4	35.3	36.0		1.514	7.4	8.0	7.0	ST
00218	11/18/98	629	2922.4	8801.4	11	79	39	79	23.9	24.6	21.2	35.1	35.7	36.4		0.672	7.3	7.1	3.8	ST
00219	11/18/98	1906	2955.4	8808.0	11	31	16	30	23.0	23.1	23.3	35.0	35.1	35.3		0.117	3.4	8.0	7.0	ST
00220	11/18/98	2113	2951.7	8815.4	11	34	17	34	23.5	23.5	23.7	34.3	35.0	35.5		0.112	8.3	8.7	6.6	ST

Table 2. Selected environmental parameters (continued)

TOMMY MUNRO, FALL SHRIMP/GROUNDFISH SURVEY																				
STA#	DATE		POSITION		STAT ZONE	DEPTH (M)	SAMPLE DEPTHS (M)		TEMPERATURE, C			SALINITY, PPT			CL, MG/M3 SUR	FL SUR	DISSOLVED OXYGEN, PPM			GEAR
	MM/DD/YY	TIME	LAT	LONG			MID	MAX	SUR	MID	MAX	SUR	MID	MAX			SUR	MID	MAX	
17001	10/26/98	2001	2926.4	8846.3	11	25	12	24	24.8	24.8	24.8	35.5	35.5	35.6			5.5	5.5	5.4	ST
17002	10/26/98	2125	2924.9	8844.3	11	37	18	36	24.9	25.0	24.9	35.9	35.8	36.0			5.5	5.1	5.4	ST
17003	10/26/98	2327	2930.3	8837.0	11	38	19	37	24.6	24.9	25.1	35.8	35.9	36.3			5.6	5.6	5.1	ST
17004	10/27/98	0112	2930.0	8830.4	11	50	25	49	25.0	25.1	25.0	36.2	36.2	36.3			5.4	5.3	4.7	PN
17005	10/27/98	1004	2923.7	8850.7	11	23	11	22	24.9	24.9	25.1	35.4	35.5	35.4			5.5	4.7	4.9	ST
17006	10/27/98	1319	2925.6	8829.0	11	55	27	54	25.1	25.0	23.7	36.3	36.1	36.6			5.6	5.4	5.1	ST
17007	10/27/98	1548	2931.9	8836.2	11	34	17	33	24.8	24.8	25.0	35.5	35.6	36.0			5.3	5.3	5.1	ST
17008	10/27/98	1806	2944.4	8844.5	11	15	7	14	23.5	24.2	24.1	32.3	34.3	34.0			6.5	5.6	5.4	ST
17009	10/27/98	2007	2936.7	8834.1	11	30	15	29	24.5	24.6	24.7	35.5	35.4	35.6			5.7	5.5	5.4	ST
17010	10/28/98	0640	2941.0	8833.4	11	29	14	28	24.4	24.7	24.7	35.3	35.5	35.5			5.8	5.8	5.5	ST
17011	10/28/98	0827	2942.4	8825.5	11	38	19	37	24.7	24.7	24.8	35.5	35.5	35.5			5.4	5.6	5.2	ST
17012	10/28/98	1017	2944.8	8830.2	11	32	16	31	24.6	24.6	24.6	35.3	35.3	35.4			5.3	5.2	4.5	ST
17013	10/28/98	1236	2947.2	8840.5	11	19	9	18	24.8	24.5	24.7	34.9	35.0	35.2			5.7	4.9	5.6	ST
17014	10/28/98	1504	2949.3	8828.0	11	32	16	31	24.8	24.6	24.7	35.1	34.6	35.2			5.4	5.6	5.3	ST
17015	10/28/98	1654	2954.8	8832.7	11	26	13	25	24.4	24.3	24.5	34.9	34.9	34.6			5.5	5.3	4.7	ST
17016	10/28/98	1950	2951.6	8833.5	11	26	13	25	24.7	24.5	24.5	35.4	35.3	35.0			5.3	5.6	5.2	ST
17017	10/28/98	2144	2958.6	8828.9	11	28	14	27	24.6	24.5	24.5	35.2	34.6	34.5			5.4	5.8	5.5	ST
17018	10/29/98	0600	2959.9	8829.9	11	26	13	25	24.2	24.2	24.2	34.8	34.3	35.0			5.6	5.4	5.2	PN
17019	10/29/98	0835	3005.5	8843.5	11	15	7	14	23.1	23.2	23.7	30.8	32.0	33.7			5.9	6.0	5.2	ST
17020	10/29/98	1023	3007.3	8847.6	11	13	6	12	23.2	23.1	23.5	30.5	31.2	32.3			6.1	5.9	4.3	ST
17021	10/29/98	1313	3012.0	8839.3	11	13	6	12	24.3	23.4	23.8	29.0	30.3	21.8			6.2	5.3	4.6	ST
17022	11/ 1/98	1827	3000.8	8847.3	11	12	6	11	24.1	24.0	24.2	29.1	29.7	34.7			6.6	6.8	4.6	ST
17023	11/ 1/98	2044	3011.5	8837.3	11	13	7	12	23.7	23.5	24.2	30.6	32.4	34.7			6.8	5.3	5.1	ST
17024	11/ 1/98	2313	3012.7	8851.6	11	10	5	9	23.7	23.7	23.2	26.7	27.7	31.8			6.7	6.8	3.9	ST

Table 2. Selected environmental parameters (continued)

A.E. VERRILL, FALL SHRIMP/GROUNDFISH SURVEY																				
STA#	DATE		POSITION		STAT ZONE	DEPTH (M)	SAMPLE DEPTHS (M)		TEMPERATURE, C			SALINITY, PPT			CL, MG/M3 SUR	FL SUR	DISSOLVED OXYGEN, PPM			GEAR
	MM/DD/YY	TIME	LAT	LONG			MID	MAX	SUR	MID	MAX	SUR	MID	MAX			SUR	MID	MAX	
2301	10/27/98	908	3008.2	8802.5	11	16	8	16	22.7	22.8	24.0	30.8	31.0	33.7			6.9	6.9	5.6	ST
2302	10/27/98	1047	3002.8	8811.2	11	23	12	23	24.6	24.5	24.5	34.5	34.5	34.5			6.8	6.8	6.8	ST
2303	10/27/98	1148	2959.9	8813.3	11	25	13	25	24.6	24.5	24.5	34.8	34.8	34.8			6.7	6.7	7.0	ST
2304	10/27/98	1351	2947.3	8815.6	11	37	19	37	24.8	24.8	25.1	34.8	34.9	35.5			6.8	6.9	6.0	ST
2305	10/27/98	1725	3002.2	8811.1	11	28	12	28	24.7	24.6	24.2	34.6	34.7	35.5			6.9	6.8	6.5	ST
2306	10/27/98	1918	3005.0	8806.3	11	22	12	22	24.2	24.2	24.5	33.9	34.0	34.3			7.0	6.9	6.7	ST
2307	10/29/98	1719	3006.6	8816.1	11	21	11	21	24.8	24.5	24.4	33.5	34.3	34.4			7.0	6.8	3.4	ST
2308	10/29/98	2003	3007.7	8800.3	11	19	10	19	24.4	24.3	24.2	32.0	33.7	33.8			7.5	7.1	6.4	ST

Table 2. Selected environmental parameters (continued)

ARANSAS BAY, FALL SHRIMP/GROUNDFISH SURVEY																				
STA#	DATE		POSITION		STAT ZONE	DEPTH (M)	SAMPLE DEPTHS (M)		TEMPERATURE, C			SALINITY, PPT			CL, MG/M3 SUR	FL SUR	DISSOLVED OXYGEN, PPM			GEAR
	MM/DD/YY	TIME	LAT	LONG			MID	MAX	SUR	MID	MAX	SUR	MID	MAX			SUR	MID	MAX	
31001	11/ 3/98	0830	2749.4	9659.4	20	14	7	14	23.5	24.1	24.1	21.3	24.4	33.7			6.5	7.0	6.7	ST
31002	11/15/98	0844	2754.6	9658.5	20	10	5	10	20.7	20.7	20.7	30.3	30.1	30.2			6.7	6.7	6.9	ST
31003	11/15/98	0936	2756.6	9653.4	20	13	7	13	20.6	20.6	20.6	30.1	30.4	30.5			6.9	6.8	6.9	ST
31004	11/15/98	1043	2751.5	9650.6	20	20	10	20	26.6	20.8	20.9	31.2	31.9	32.4			7.1	6.7	6.6	ST
31005	11/15/98	1126	2751.4	9652.6	20	19	10	19	20.6	20.7	20.0	30.9	31.7	32.1			6.6	6.5	6.5	ST
31006	11/15/98	1218	2747.5	9653.4	20	21	10	21	20.7	21.0	21.2	31.3	33.1	33.6			6.7	6.6	6.5	ST
31007	11/15/98	1321	2747.4	9659.5	20	16	8	16	20.6	20.6	21.0	24.1	31.3	31.5			6.8	6.9	6.6	ST
31008	11/15/98	1356	2747.6	9700.5	20	14	7	14	20.6	21.2	21.2	23.9	31.3	31.5			7.0	6.5	6.7	ST
31009	11/16/98	0819	2748.1	9701.5	20	11	6	11	20.2	20.7	20.8	23.1	30.1	30.5			7.0	6.9	6.9	ST
31010	11/16/98	0917	2742.3	9707.4	20	10	5	10	20.6	20.9	21.2	27.6	29.0	30.7			6.9	6.5	6.5	ST
31011	11/16/98	1019	2736.4	9704.8	20	19	10	19	20.0	21.3	21.4	29.4	30.8	32.9			6.7	6.6	6.4	ST
31012	11/16/98	1111	2737.5	9701.3	20	22	11	22	20.8	21.4	22.2	30.8	32.1	34.2			6.7	6.2	4.5	ST
31013	11/16/98	1216	2737.5	9700.3	20	23	12	23	21.1	21.3	22.2	31.7	32.1	34.5			6.8	6.8	6.1	ST
31014	11/16/98	1255	2740.5	9659.4	20	22	11	22	20.9	21.2	22.4	25.8	31.5	34.2			7.2	6.5	5.7	ST
31015	11/16/98	1334	2742.8	9659.4	20	20	10	20	20.7	20.9	22.2	27.4	31.2	33.3			7.1	6.8	5.7	ST
31016	11/16/98	1405	2744.5	9658.5	20	20	10	20	21.0	21.0	21.8	25.1	31.1	33.2			7.1	6.7	6.3	ST

Table 2. Selected environmental parameters (continued)

MATAGORDA BAY, FALL SHRIMP/GROUNDFISH SURVEY																				
STA#	DATE		POSITION		STAT ZONE	DEPTH (M)	SAMPLE DEPTHS (M)		TEMPERATURE, C			SALINITY, PPT			CL, MG/M3 SUR	FL SUR	DISSOLVED OXYGEN, PPM			GEAR
	MM/DD/YY	TIME	LAT	LONG			MID	MAX	SUR	MID	MAX	SUR	MID	MAX			SUR	MID	MAX	
32001	11/ 2/98	1009	2828.4	9607.6	19	14	7	14	23.6	23.8	24.3	28.3	29.6	30.3			7.3	7.3	7.0	ST
32002	11/ 2/98	1055	2828.5	9606.4	19	14	7	14	23.6	24.0	24.3	28.5	31.6	33.5			7.2	7.0	6.0	ST
32003	11/ 2/98	1132	2829.4	9605.5	19	13	7	13	23.7	24.3	24.3	28.5	30.5	33.2			7.3	6.9	6.0	ST
32004	11/ 2/98	1216	2825.5	9604.4	19	18	9	18	23.6	23.9	24.5	31.1	32.5	34.0			7.2	6.9	5.8	ST
32005	11/ 2/98	1312	2821.4	9609.6	19	20	10	20	24.0	24.0	24.5	32.0	33.3	33.9			7.1	6.9	6.6	ST
32006	11/ 2/98	1430	2822.5	9615.5	19	16	8	16	24.0	23.8	24.7	29.4	30.3	33.3			7.3	7.1	6.5	ST
32007	11/ 2/98	1504	2822.4	9616.6	19	16	8	16	24.0	23.9	24.5	28.9	29.7	32.3			7.4	7.2	6.7	ST
32008	11/ 2/98	1544	2824.5	9615.5	19	13	7	13	24.0	23.9	24.2	28.7	29.1	29.6			7.4	7.1	6.9	ST
32009	11/16/98	0743	2823.5	9619.5	19	9	4	9	18.5	20.3	21.0	14.4	29.2	30.2			7.5	6.4	5.9	ST
32010	11/16/98	0820	2820.5	9618.4	19	16	8	16	18.9	20.4	20.4	17.1	30.9	31.0			7.2	6.6	6.5	ST
32011	11/16/98	0903	2819.4	9619.6	19	17	8	17	18.9	20.4	20.8	14.5	30.9	32.0			7.1	6.6	6.3	ST
32012	11/16/98	0950	2817.5	9615.4	19	21	11	21	19.6	20.9	21.0	25.2	32.2	32.9			6.9	6.4	6.3	ST
32013	11/16/98	1039	2813.4	9618.5	19	23	12	23	19.6	20.3	21.2	23.1	33.2	34.0			7.0	6.6	6.2	ST
32014	11/16/98	1207	2817.5	9628.5	19	7	4	7	20.8	20.1	20.3	27.4	23.6	29.9			7.1	6.6	6.0	ST
32015	11/16/98	1335	2818.3	9627.3	19	3	2	3	20.6	20.1	22.2	21.3	27.3	28.5			7.2	6.3	6.0	ST
32016	11/16/98	1313	2818.6	9624.5	19	9	4	9	20.1	20.1	20.3	12.8	28.7	30.5			7.8	6.4	6.4	ST

Table 2. Selected environmental parameters (continued)

LAGUNA MADRE, FALL SHRIMP/GROUNDFISH SURVEY																				
STA#	DATE		POSITION		STAT ZONE	DEPTH (M)	SAMPLE DEPTHS (M)		TEMPERATURE, C			SALINITY, PPT			CL, MG/M3 SUR	FL SUR	DISSOLVED OXYGEN, PPM			GEAR
	MM/DD/YY	TIME	LAT	LONG			MID	MAX	SUR	MID	MAX	SUR	MID	MAX			SUR	MID	MAX	
33001	11/13/98	0814	2602.9	9707.4	21	13	7	13	23.7	23.7	23.7	32.6	32.9	33.2			6.2	6.1	5.9	ST
33002	11/13/98	0851	2601.6	9707.5	21	13	7	13	23.8	23.8	23.8	32.7	32.9	33.3			6.2	6.1	6.0	ST
33003	11/13/98	0932	2603.8	9704.4	21	20	10	20	23.9	24.0	24.2	32.8	33.4	33.6			6.4	6.1	5.8	ST
33004	11/13/98	1028	2605.9	9659.4	21	27	14	27	24.6	24.6	24.6	33.3	33.4	33.6			6.3	6.4	6.4	ST
33005	11/13/98	1116	2607.7	9701.4	21	24	12	24	24.4	24.4	24.5	33.4	33.3	33.7			6.5	6.5	6.3	ST
33006	11/13/98	1202	2606.9	9704.2	21	20	10	20	24.1	24.1	24.4	33.0	33.0	33.8			6.7	6.5	5.8	ST
33007	11/13/98	1243	2608.7	9706.4	21	18	9	18	23.7	23.7	23.7	33.0	33.0	33.4			6.6	6.4	6.3	ST
33008	11/13/98	1330	2605.8	9706.6	21	18	9	18	24.1	24.0	24.1	32.7	33.0	33.5			6.5	6.5	6.0	ST
33009	11/17/98	0905	2609.7	9704.3	21	19	10	19	23.0	22.9	22.8	33.0	33.5	33.8			6.0	6.3	6.5	ST
33010	11/17/98	0935	2611.6	9704.4	21	18	9	18	22.7	22.7	22.7	33.5	33.7	33.8			6.8	6.4	6.5	ST
33011	11/17/98	1019	2611.8	9700.5	21	27	14	27	23.1	22.9	22.7	33.7	33.8	33.7			6.5	6.5	9.8	ST
33012	11/17/98	1119	2617.6	9701.5	21	25	13	25	22.7	22.4	22.4	33.5	33.5	33.6			6.4	6.4	7.5	ST
33013	11/17/98	1155	2617.6	9702.6	21	21	11	21	23.0	22.3	22.3	33.5	33.5	33.5			6.9	6.5	6.4	ST
33014	11/17/98	1300	2621.7	9705.6	21	19	10	19	23.0	22.2	22.3	33.3	33.3	33.4			6.4	6.2	6.2	ST
33015	11/17/98	1356	2619.5	9706.7	21	18	9	18	23.0	22.3	22.3	33.6	33.6	33.6			7.7	7.6	6.5	ST
33016	11/17/98	1447	2615.6	9709.6	21	14	7	14	23.3	22.3	22.2	33.5	33.5	33.7			8.0	8.3	7.5	ST

Table 2. Selected environmental parameters (continued)

GALVESTON BAY, FALL SHRIMP/GROUNDFISH SURVEY																				
STA#	DATE		POSITION		STAT ZONE	DEPTH (M)	SAMPLE DEPTHS (M)		TEMPERATURE, C			SALINITY, PPT			CL, MG/M3 SUR	FL SUR	DISSOLVED OXYGEN, PPM			GEAR
	MM/DD/YY	TIME	LAT	LONG			MID	MAX	SUR	MID	MAX	SUR	MID	MAX			SUR	MID	MAX	
34001	11/ 3/98	1001	2919.5	9437.2	18	12	6	12	23.0	22.9	22.9	17.0	21.4	25.7			6.7	6.6	6.5	ST
34002	11/ 3/98	1038	2921.1	9436.8	18	10	5	10	23.2	23.2	23.3	19.8	26.5	30.6			6.5	6.7	5.7	ST
34003	11/ 3/98	1122	2920.9	9431.7	18	12	6	12	23.3	23.3	23.2	28.0	28.0	31.5			6.6	6.7	6.7	ST
34004	11/ 3/98	1138	2920.6	9430.7	18	13	7	13	23.3	23.4	23.4	28.2	28.3	28.5			6.8	6.7	6.7	ST
34005	11/ 3/98	1218	2926.7	9433.2	18	9	5	9	23.4	23.4	23.3	27.0	27.0	27.0			6.7	6.6	6.5	ST
34006	11/ 3/98	1254	2918.4	9439.4	18	10	5	10	23.4	23.3	23.2	18.4	25.4	26.0			6.5	7.7	7.6	ST
34007	11/ 3/98	1328	2917.7	9445.1	18	6	3	6	23.3	23.3	23.2	24.9	25.3	26.0			8.2	8.2	8.5	ST
34008	11/ 3/98	1402	2916.7	9447.6	18	4	2	4	23.1	23.2	23.1	23.1	25.5	28.9			8.2	8.2	7.4	ST
34009	11/16/98	1039	2916.1	9436.6	18	14	7	14	18.4	18.7	19.2	16.7	24.8	30.9			7.5	7.6	7.6	ST
34010	11/16/98	1119	2910.9	9440.2	18	16	8	16	18.8	20.2	20.4	21.4	31.8	32.0			7.3	7.3	7.2	ST
34011	11/16/98	1146	2910.3	9441.7	18	16	8	16	19.1	20.3	20.3	22.7	31.6	31.9			7.6	7.2	7.1	ST
34012	11/16/98	1220	2908.9	9443.3	18	16	8	16	19.0	19.8	19.9	23.0	29.7	30.3			7.5	7.3	7.3	ST
34013	11/16/98	1247	2909.3	9445.6	18	15	8	15	19.2	19.2	19.2	25.5	27.3	28.6			7.7	7.4	7.3	ST
34014	11/16/98	1311	2910.7	9446.2	18	14	7	14	19.2	19.0	20.5	26.1	26.9	31.1			7.4	7.3	6.5	ST
34015	11/16/98	1342	2911.6	9449.4	18	12	6	12	19.4	19.3	19.2	25.7	27.5	27.5			7.5	7.5	7.4	ST
34016	11/16/98	1412	2913.5	9446.3	18	11	6	11	19.2	18.9	19.8	26.0	29.9	30.9			9.4	9.0	8.0	ST

Table 2. Selected environmental parameters (continued)

SABINE, FALL SHRIMP/GROUNDFISH SURVEY																				
STA#	DATE		POSITION		STAT ZONE	DEPTH (M)	SAMPLE DEPTHS (M)		TEMPERATURE, C			SALINITY, PPT			CL, MG/M3 SUR	FL SUR	DISSOLVED OXYGEN, PPM			GEAR
	MM/DD/YY	TIME	LAT	LONG			MID	MAX	SUR	MID	MAX	SUR	MID	MAX			SUR	MID	MAX	
40001	11/ 3/98	0852	2932.5	9348.5	17	12	6	12	22.6	23.5	24.1	25.9	27.2	32.5			8.8	8.0	6.7	ST
40002	11/ 3/98	1015	2934.4	9355.7	17	9	4	9	22.7	22.9	23.9	24.3	25.5	31.4			8.0	7.8	5.9	ST
40003	11/ 3/98	1102	2934.5	9359.3	17	9	4	9	22.9	22.9	23.4	25.5	25.5	31.3			8.0	7.7	6.4	ST
40004	11/ 3/98	1157	2937.5	9403.7	18	6	3	6	22.8	23.3	23.8	26.1	26.7	31.5			8.0	7.3	6.0	ST
40005	11/ 3/98	1253	2939.5	9358.2	17	4	2	4	23.5	23.5	23.5	29.0	28.9	29.3			7.6	7.1	6.7	ST
40006	11/ 3/98	1340	2937.5	9356.9	17	6	3	6	23.2	23.3	23.5	23.8	27.9	29.8			8.2	7.6	6.2	ST
40007	11/ 3/98	1425	2939.5	9354.1	17	4	2	4	23.2	23.2	22.7	22.6	22.9	29.1			8.3	8.3	7.9	ST
40008	11/ 3/98	1501	2939.5	9353.7	17	4	2	4	23.3	23.2	23.7	23.1	23.0	29.1			8.4	8.1	6.1	ST
40009	11/16/98	0845	2939.6	9347.8	17	7	4	7	18.6	18.7	18.8	24.9	25.8	27.7			7.9	7.8	7.6	ST
40010	11/16/98	0924	2939.5	9345.2	17	8	4	8	18.8	19.0	19.0	25.1	25.6	27.5			7.9	7.5	7.0	ST
40011	11/16/98	1007	2937.5	9342.8	17	10	5	10	19.0	19.1	19.4	25.9	27.6	28.8			8.0	7.4	7.0	ST
40012	11/16/98	1122	2935.5	9341.2	17	11	6	11	19.2	19.7	19.8	26.5	28.6	29.4			7.9	7.3	7.0	ST
40013	11/16/98	1222	2939.5	9340.7	17	9	4	9	19.0	19.0	19.2	24.5	26.2	28.5			8.1	7.8	6.9	ST
40014	11/16/98	1525	2942.5	9341.2	17	6	2	6	18.8	18.9	18.9	25.2	25.4	26.8			8.0	7.8	7.6	ST
40015	11/16/98	1558	2942.5	9342.8	17	6	3	6	18.8	18.8	18.8	25.4	25.7	26.1			8.0	7.6	7.2	ST
40016	11/16/98	1641	2943.5	9344.2	17	4	2	4	18.9	18.8	18.8	26.0	26.0	26.1			7.9	7.6	7.3	ST

Table 2. Selected environmental parameters (continued)

PELICAN, FALL SHRIMP/GROUNDFISH SURVEY																				
STA#	DATE		POSITION		STAT ZONE	DEPTH (M)	SAMPLE DEPTHS (M)		TEMPERATURE, C			SALINITY, PPT			CL, MG/M3 SUR	FL SUR	DISSOLVED OXYGEN, PPM			GEAR
	MM/DD/YY	TIME	LAT	LONG			MID	MAX	SUR	MID	MAX	SUR	MID	MAX			SUR	SUR	SUR	
37614	11/17/98	1105	2900.0	9100.0	15	6	3	6	21.3	21.6	22.1	29.8	29.9	29.2	2.097		7.0	6.8	3.6	PN
37615	11/17/98	1605	2900.0	9130.0	15	10	5	10	21.1	21.0	22.3	30.5	30.9	32.7	2.334		7.3	6.9	6.2	PN
37616	11/17/98	2212	2837.0	9055.3	14	19	9	19	23.2	23.2	23.9	34.6	34.6	35.2	0.442		6.5	6.6	5.9	ST
37617	11/18/98	0007	2835.1	9046.0	14	20	12	20	23.5	23.6	24.2	34.7	34.8	35.2	0.154		6.5	6.5	6.3	ST
37618	11/18/98	0133	2832.3	9041.0	14	29	14	29	23.9	24.0	24.5	34.9	34.9	35.6	0.658		6.3	6.4	5.7	ST
37619	11/18/98	0312	2833.0	9050.4	14	25	13	25	24.0	24.0	24.0	35.3	35.3	35.3	0.433		6.3	6.4	6.4	ST
37620	11/18/98	0634	2830.0	9100.0	14	32	16	32	23.8	23.8	23.8	35.3	35.3	35.3	0.794		6.3	6.3	6.3	PN
37621	11/18/98	0825	2837.1	9055.3	14	17	8	17	23.4	23.4	23.4	34.8	34.8	34.8	0.338		6.6	6.5	6.5	ST
37622	11/18/98	0952	2833.1	9050.5	14	24	15	24	23.9	23.9	23.9	35.2	35.2	35.3	0.397		6.5	6.5	6.5	ST
37623	11/18/98	1121	2835.2	9046.0	14	19	9	19	23.9	23.8	23.8	34.8	34.8	34.8	0.338		6.5	6.5	6.6	ST
37624	11/18/98	1245	2832.0	9041.1	14	29	16	29	24.0	23.8	24.3	34.6	34.8	35.3	0.662		6.5	6.5	6.1	ST
37625	11/18/98	1438	2830.0	9030.0	14	38	21	38	24.7	24.5	24.5	35.7	35.8	35.7	0.474		6.3	6.1	6.2	PN
37626	11/18/98	1815	2844.5	9017.2	14	26	16	26	23.2	24.0	24.6	29.3	34.1	35.0	3.235		7.4	5.7	5.3	ST
37627	11/18/98	2031	2852.9	9011.6	14	24	12	24	22.8	23.4	23.8	27.9	32.8	33.9	2.358		7.6	5.9	5.8	ST
37628	11/18/98	2243	2902.5	9010.6	14	12	6	12	22.4	22.7	23.6	26.2	30.4	33.8	2.776		7.9	7.6	6.2	ST
37629	11/19/98	0102	2858.1	9021.3	14	14	8	14	22.5	22.6	23.7	30.3	31.3	34.2	1.867		7.2	7.0	5.2	ST
37630	11/19/98	0635	2900.7	9029.9	14	9	4	9	22.3	22.3	22.5	32.1	32.1	32.2	1.678		7.0	7.0	6.7	PN
37631	11/19/98	0811	2858.0	9021.4	14	14	6	14	22.5	23.0	23.6	31.2	32.7	34.1	1.490		7.2	6.8	5.3	ST
37632	11/19/98	1030	2844.6	9017.3	14	27	13	27	23.0	24.2	24.5	30.6	34.3	34.6	1.900		7.0	6.0	5.4	ST
37633	11/19/98	1242	2852.9	9011.5	14	24	12	24	23.1	23.4	23.8	30.7	32.4	33.6	0.703		7.1	6.1	5.7	ST
37634	11/19/98	1505	2902.5	9010.7	14	12	6	12	22.6	22.8	23.6	27.0	30.9	33.7	3.525		8.2	7.2	5.7	ST
37635	11/19/98	1641	2900.0	9000.0	14	24	12	24	23.1	23.0	24.1	27.1	31.3	34.0	6.764		8.7	6.8	4.9	PN
37636	11/19/98	1825	2901.7	8951.4	13	31	15	31	22.6	23.4	24.8	25.2	32.7	35.3	6.467		8.9	6.0	5.0	ST
37637	11/19/98	2027	2905.7	8941.3	13	26	13	26	22.8	23.4	24.9	22.1	32.7	35.4	6.445		9.6	6.5	5.1	ST
37638	11/19/98	2146	2905.9	8937.4	13	16	7	16	22.4	23.3	24.3	27.2	32.3	34.2	7.755		8.7	6.9	2.3	ST
37639	11/20/98	0002	2859.0	8934.3	13	35	17	35	21.9	24.6	24.8	21.3	35.0	35.6	4.258		8.4	6.1	5.7	ST
37640	11/20/98	0630	2900.0	8930.0	13	14	7	14	21.8	22.4	24.7	19.1	30.5	35.0	4.789		9.0	6.2	3.6	PN
37641	11/20/98	0804	2859.1	8934.3	13	34	17	34	21.0	24.6	24.8	18.8	34.9	35.6	3.477		8.4	4.9	5.9	ST
37642	11/20/98	0934	2906.0	8937.4	13	15	7	15	22.1	22.2	24.0	22.3	30.7	33.6	8.400		9.4	6.6	3.8	ST
37643	11/20/98	1109	2905.7	8941.3	13	21	11	21	22.4	23.1	24.6	23.8	32.2	35.1	5.551		8.9	6.2	3.5	ST
37644	11/20/98	1311	2901.6	8951.4	13	30	15	30	23.3	23.2	24.8	25.6	32.4	35.5	10.793		9.4	6.1	4.4	ST

Table 3. 1998 Summer Shrimp/Groundfish Survey species composition list, 354 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	71914	1532.6	146	43.5
Stenotomus caprinus	longspine porgy	66330	1142.9	186	55.4
Chloroscombrus chrysurus	Atlantic bumper	34200	805.2	144	42.9
Peprilus burti	gulf butterfish	29580	962.0	214	63.7
Leiostomus xanthurus	spot	9760	441.0	107	31.8
Etrumeus teres	round herring	9038	56.6	75	22.3
Prionotus longispinosus	bigeye searobin	7087	66.0	116	34.5
Cynoscion nothus	silver seatrout	5260	187.7	91	27.1
Cynoscion arenarius	sand seatrout	4982	109.0	111	33.0
Saurida brasiliensis	largescale lizardfish	4623	31.0	141	42.0
Trachurus lathami	rough scad	3729	75.2	106	31.5
Upeneus parvus	dwarf goatfish	3342	86.7	117	34.8
Lagodon rhomboides	pinfish	3339	132.5	125	37.2
Centropristis philadelphica	rock sea bass	3183	73.0	141	42.0
Prionotus stearnsi	shortwing searobin	3120	36.0	89	26.5
Serranus atrobranchus	blackear bass	3087	42.3	90	26.8
Pristipomoides aquilonaris	wenchman	2298	147.9	81	24.1
Anchoa hepsetus	striped anchovy	2271	39.4	64	19.0
Anchoa mitchilli	bay anchovy	2003	3.5	42	12.5
Syacium gunteri	shoal flounder	1984	31.0	127	37.8
Trichiurus lepturus	Atlantic cutlassfish	1891	80.0	82	24.4
Stellifer lanceolatus	star drum	1790	18.0	50	14.9

Table 3. Species composition list (continued)

GENUS/SPECIES	COMMON NAME	TOTAL NUMBER	TOTAL WEIGHT	NUMBER OF	% FREQUENCY
		CAUGHT	CAUGHT (KG)	TOWS WHERE CAUGHT	OCCURRENCE
Harengula jaguana	scaled sardine	1591	47.1	52	15.5
Peprilus alepidotus	harvestfish	1382	14.5	31	9.2
Synodus foetens	inshore lizardfish	1224	148.5	131	39.0
<u>Finfishes</u>					
Polydactylus octonemus	Atlantic threadfin	1224	24.9	48	14.3
Halieutichthys aculeatus	pancake batfish	1194	8.0	76	22.6
Trichopsetta ventralis	sash flounder	1038	29.0	40	11.9
Opisthonema oglinum	Atlantic thread herring	1014	87.3	33	9.8
Brevoortia patronus	gulf menhaden	1010	41.7	40	11.9
Larimus fasciatus	banded drum	971	24.3	33	9.8
Diplectrum bivittatum	dwarf sand perch	938	20.7	82	24.4
Prionotus rubio	blackwing searobin	917	7.0	41	12.2
Prionotus paralatus	Mexican searobin	784	24.6	55	16.4
Sphoeroides parvus	least puffer	744	4.0	81	24.1
Etropus crossotus	fringed flounder	721	10.9	60	17.9
Anchoviella perfasciata	flat anchovy	453	2.2	4	1.2
Selene setapinnis	Atlantic moonfish	440	31.0	66	19.6
Lepophidium brevibarbe	blackedge cusk-eel	422	14.7	54	16.1
Arius felis	hardhead catfish	420	77.7	36	10.7
Lutjanus campechanus	red snapper	410	44.5	71	21.1
Anchoa lyolepis	dusky anchovy	402	0.9	13	3.9
Engraulis eurystole	silver anchovy	402	2.1	16	4.8
Menticirrhus americanus	southern kingfish	391	27.6	39	11.6
Decapterus punctatus	round scad	332	9.6	21	6.3

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>Urophycis floridana</i>	southern hake	308	26.5	50	14.9
<i>Citharichthys spilopterus</i>	bay whiff	293	2.2	47	14.0
<i>Anchoa nasuta</i>	longnose anchovy	292	1.5	6	1.8
<i>Mullus auratus</i>	red goatfish	252	7.9	27	8.0
<i>Lagocephalus laevigatus</i>	smooth puffer	195	4.6	45	13.4
<i>Urophycis cirrata</i>	gulf hake	194	5.6	23	6.8
<i>Syacium papillosum</i>	dusky flounder	183	7.1	10	3.0
<i>Porichthys plectrodon</i>	Atlantic midshipman	158	3.2	46	13.7
<i>Sardinella aurita</i>	Spanish sardine	155	10.9	26	7.7
<i>Symphurus plagiosa</i>	blackcheek tonguefish	152	2.6	20	6.0
<i>Prionotus tribulus</i>	bighead searobin	146	3.3	32	9.5
<i>Orthopristis chrysoptera</i>	pigfish	145	2.9	21	6.3
<i>Bollmannia communis</i>	ragged goby	142	0.6	15	4.5
<i>Synodus poeyi</i>	offshore lizardfish	120	1.3	24	7.1
<i>Bagre marinus</i>	gafftopsail catfish	116	1.9	2	0.6
<i>Cynoscion</i> spp.	seatrouts	105	0.5	4	1.2
<i>Ogcocephalus declivirostris</i>	slantbrow batfish	105	4.3	23	6.8
<i>Cyclopsetta chittendeni</i>	Mexican flounder	104	12.5	35	10.4
<i>Bellator militaris</i>	horned searobin	98	1.0	3	0.9
<i>Ancylosetta dilecta</i>	three-eye flounder	97	5.5	26	7.7
<i>Pontinus longispinis</i>	longspine scorpionfish	94	3.3	11	3.3
<i>Engyophrys senta</i>	spiny flounder	88	0.3	18	5.4
<i>Scomberomorus maculatus</i>	Spanish mackerel	86	6.2	13	3.9
<i>Lepophidium jeannae</i>	mottled cusk-eel	65	2.0	9	2.7
<i>Rhizoprionodon terraenovae</i>	Atlantic sharpnose shark	64	27.0	20	6.0
<i>Scorpaena calcarata</i>	smoothhead scorpionfish	62	0.6	10	3.0

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>Prionotus scitulus</i>	leopard searobin	59	0.6	4	1.2
<i>Gymnachirus texae</i>	fringed sole	58	0.9	15	4.5
<i>Caulolatilus intermedius</i>	anchor tilefish	57	7.0	22	6.5
<i>Antennarius radiosus</i>	singlespot frogfish	57	1.0	22	6.5
<i>Peristedion gracile</i>	slender searobin	56	1.3	7	2.1
<i>Equetus umbrosus</i>	cubbyu	55	2.4	11	3.3
<i>Ancylosetta quadrocellata</i>	ocellated flounder	53	4.7	28	8.3
<i>Lutjanus synagris</i>	lane snapper	52	3.7	17	5.1
<i>Brotula barbata</i>	bearded brotula	52	7.2	18	5.4
<i>Scomberomorus cavalla</i>	king mackerel	50	0.7	4	1.2
<i>Selar crumenophthalmus</i>	bigeye scad	46	2.5	16	4.8
<i>Hildebrandia flava</i>	yellow conger	45	4.2	14	4.2
<i>Conodon nobilis</i>	barred grunt	44	1.8	5	1.5
<i>Bregmaceros atlanticus</i>	antenna codlet	42	0.0	16	4.8
<i>Steindachneria argentea</i>	luminous hake	41	0.3	3	0.9
<i>Symphurus civitatus</i>	offshore tonguefish	40	0.7	11	3.3
<i>Scomber japonicus</i>	chub mackerel	39	2.0	6	1.8
<i>Trinectes inscriptus</i>	scrawled sole	39	0.2	1	0.3
<i>Peprilus triacanthus</i>	butterfish	38	0.4	3	0.9
<i>Haemulon aurolineatum</i>	tomtate	36	0.4	3	0.9
<i>Bairdiella chrysoura</i>	silver perch	36	1.3	8	2.4
<i>Monacanthus hispidus</i>	planehead filefish	35	0.2	20	6.0
<i>Hoplunnis macrurus</i>	freckled pike-conger	31	0.4	13	3.9
<i>Diplectrum formosum</i>	sand perch	31	1.7	8	2.4
<i>Kathetostoma albigutta</i>	lancer stargazer	31	1.6	17	5.1
<i>Paralichthys lethostigma</i>	southern flounder	31	10.6	17	5.1

Table 3. Species composition list (continued)

GENUS/SPECIES	COMMON NAME	TOTAL NUMBER	TOTAL WEIGHT	NUMBER OF	% FREQUENCY
		CAUGHT	CAUGHT (KG)	TOWS WHERE CAUGHT	OCCURRENCE
Raja texana	roundel skate	30	16.7	21	6.3
Archosargus probatocephalus	sheepshead	30	17.3	1	0.3
Balistes capriscus	gray triggerfish	30	7.3	14	4.2
Ogcocephalus spp.	batfishes	27	1.6	3	0.9
Rypticus maculatus	whitespotted soapfish	25	1.1	5	1.5
Sphyraena guachancho	guaguanche	24	3.4	9	2.7
Decodon puellaris	red hogfish	24	1.0	8	2.4
Neomerinthe hemingwayi	spinycheek scorpionfish	20	15.3	10	3.0
Equetus iwamotoi	blackbar drum	19	2.1	9	2.7
Symphurus diomedianus	spottedfin tonguefish	19	0.4	10	3.0
Ophidion welschi	crested cusk-eel	18	1.4	10	3.0
Rhinoptera bonasus	cownose ray	17	180.7	10	3.0
Priacanthus arenatus	bigeye	17	2.4	11	3.3
Syacium spp.	lefteye flounders	16	0.2	3	0.9
Rhomboplites aurorubens	vermilion snapper	15	2.4	7	2.1
Etropus cyclosquamus	shelf flounder	15	0.1	5	1.5
Synagrops spinosus	keelcheek bass	14	1.2	1	0.3
Eucinostomus gula	silver jenny	14	0.6	9	2.7
Chaetodipterus faber	Atlantic spadefish	13	0.1	3	0.9
Chilomycterus schoepfi	striped burrfish	12	4.5	9	2.7
Squatina dumeril	Atlantic angel shark	11	6.0	7	2.1
Prionotus ophryas	bandtail searobin	11	0.0	5	1.5
Caranx hippos	crevalle jack	11	0.2	1	0.3
Physiculus fulvus	metallic codling	10	0.0	3	0.9
Mustelus canis	smooth dogfish	9	17.0	6	1.8
Alosa alabamae	Alabama shad	9	0.7	2	0.6

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>Astroscopus y-graecum</i>	southern stargazer	9	0.3	2	0.6
<i>Neobythites gillii</i>	cusck-eel	9	0.1	3	0.9
<i>Ariomma bondi</i>	silver-rag	9	0.1	5	1.5
<i>Dorosoma petenense</i>	threadfin shad	8	0.2	4	1.2
<i>Urophycis regia</i>	spotted hake	8	0.5	2	0.6
<i>Umbrina coroides</i>	sand drum	8	0.1	1	0.3
<i>Dasyatis say</i>	bluntnose stingray	7	1.5	3	0.9
<i>Bathyanthias mexicanus</i>	yellowtail bass	7	0.5	4	1.2
<i>Serraniculus pumilio</i>	pygmy sea bass	7	0.0	1	0.3
<i>Trachinocephalus myops</i>	snakefish	6	0.4	3	0.9
<i>Caranx crysos</i>	blue runner	6	0.7	4	1.2
<i>Citharichthys cornutus</i>	horned whiff	6	0.0	2	0.6
<i>Citharichthys macrops</i>	spotted whiff	6	0.1	4	1.2
<i>Paralichthys albigutta</i>	gulf flounder	6	0.8	3	0.9
<i>Trinectes maculatus</i>	hogchoker	6	0.0	2	0.6
<i>Ogcocephalus radiatus</i>	polka-dot batfish	6	0.6	3	0.9
<i>Lopholatilus chamaeleonticeps</i>	tilefish	5	0.1	1	0.3
<i>Eucinostomus argenteus</i>	spotfin mojarra	5	0.0	3	0.9
<i>Paralichthys squamilentus</i>	broad flounder	5	1.0	2	0.6
<i>Raja olseni</i>	spreadfin skate	4	0.7	3	0.9
<i>Narcine brasiliensis</i>	lesser electric ray	4	0.3	3	0.9
<i>Selene vomer</i>	lookdown	4	0.0	2	0.6
<i>Calamus calamus</i>	saucereye porgy	4	2.4	1	0.3
<i>Cyclopsetta fimbriata</i>	spotfin flounder	4	0.2	2	0.6
<i>Etropus rimosus</i>	gray flounder	4	0.1	2	0.6
<i>Ogcocephalus parvus</i>	roughback batfish	4	0.1	3	0.9

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>Dasyatis sabina</i>	Atlantic stringray	3	0.5	3	0.9
<i>Gymnothorax nigromarginatus</i>	blackedge moray	3	0.3	3	0.9
<i>Gymnothorax ocellatus</i>	ocellated moray	3	0.3	1	0.3
<i>Serranus phoebe</i>	tattler	3	0.0	2	0.6
<i>Trachinotus carolinus</i>	Florida pompano	3	0.1	1	0.3
<i>Calamus leucosteus</i>	whitebone porgy	3	1.0	3	0.9
<i>Etropus microstomus</i>	smallmouth flounder	3	0.0	3	0.9
<i>Ogcocephalus nasutus</i>	shortnose batfish	3	0.1	1	0.3
<i>Ogcocephalus corniger</i>	longnose batfish	3	0.0	1	0.3
<i>Mustelus norrisi</i>	Florida smoothhound	2	0.6	2	0.6
<i>Sphyrna tiburo</i>	bonnethead	2	1.8	2	0.6
<i>Hoplunnis diomedianus</i>	blacktail pike-conger	2	0.0	1	0.3
<i>Ophichthus gomesi</i>	shrimp eel	2	0.4	2	0.6
<i>Epinephelus flavolimbatus</i>	yellowedge grouper	2	9.5	1	0.3
<i>Centropristis ocyura</i>	bank sea bass	2	0.3	2	0.6
<i>Pristigenys alta</i>	short bigeye	2	0.0	1	0.3
<i>Pomatomus saltatrix</i>	bluefish	2	0.5	2	0.6
<i>Seriola fasciata</i>	lesser amberjack	2	0.1	1	0.3
<i>Ophidion grayi</i>	blotched cusk-eel	2	0.0	2	0.6
<i>Aluterus monoceros</i>	unicorn filefish	2	0.0	1	0.3
<i>Aluterus scriptus</i>	scrawled filefish	2	0.1	2	0.6
<i>Antennarius striatus</i>	striated frogfish	2	0.0	2	0.6
<i>Ogcocephalus pantostictus</i>	spotted batfish	2	0.1	2	0.6
<i>Carcharhinus acronotus</i>	blacknose shark	1	2.0	1	0.3
<i>Myliobatis fremin</i>	bullnose ray	1	2.8	1	0.3
<i>Synodus intermedius</i>	sand diver	1	0.0	1	0.3

Table 3. Species composition list (continued)

GENUS/SPECIES	COMMON NAME	TOTAL NUMBER CAUGHT	TOTAL WEIGHT CAUGHT (KG)	NUMBER OF TOWS WHERE CAUGHT	% FREQUENCY OCCURRENCE
<i>Conger oceanicus</i>	conger eel	1	2.5	1	0.3
<i>Echiophis punctifer</i>	snapper eel	1	0.2	1	0.3
<i>Parexocoetus brachypterus</i>	sailfin flyingfish	1	0.0	1	0.3
<i>Hippocampus erectus</i>	lined seahorse	1	0.0	1	0.3
<i>Scorpaena dispar</i>	hunchback scorpionfish	1	0.2	1	0.3
<i>Prionotus roseus</i>	bluespotted searobin	1	0.0	1	0.3
<i>Apogon aurolineatus</i>	bridle cardinalfish	1	0.0	1	0.3
<i>Echeneis naucrates</i>	sharksucker	1	0.0	1	0.3
<i>Menticirrhus littoralis</i>	gulf kingfish	1	0.1	1	0.3
<i>Pogonias cromis</i>	black drum	1	8.6	1	0.3
<i>Sciaenops ocellatus</i>	red drum	1	6.0	1	0.3
<i>Foetorepus agassizi</i>	spotfin dragonet	1	0.0	1	0.3
<i>Achirus lineatus</i>	lined sole	1	0.0	1	0.3
<i>Aluterus heudeloti</i>	dotterel filefish	1	0.0	1	0.3
<i>Aluterus schoepfi</i>	orange filefish	1	0.0	1	0.3
<i>Lophius americanus</i>	goosefish	1	0.1	1	0.3
<u>Crustaceans</u>					
<i>Trachypenaeus similis</i>	roughback shrimp	39811	133.6	142	42.3
<i>Penaeus aztecus</i>	brown shrimp	35518	380.3	277	82.4
<i>Xiphopenaeus kroyeri</i>	seabob	13133	49.4	46	13.7
<i>Callinectes similis</i>	lesser blue crab	8921	88.7	183	54.5
<i>Squilla empusa</i>	mantis shrimp	5855	56.8	141	42.0
<i>Sicyonia dorsalis</i>	lesser rock shrimp	2522	4.1	100	29.8
<i>Portunus spinicarpus</i>	longspine swimming crab	1759	13.0	67	19.9

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>Sicyonia brevirostris</i>	brown rock shrimp	1743	20.0	75	22.3
<i>Squilla chydrea</i>	mantis shrimp	1531	9.3	61	18.2
<i>Penaeus duorarum</i>	pink shrimp	1372	21.3	63	18.8
<i>Penaeus setiferus</i>	white shrimp	1248	48.8	87	25.9
<i>Solenocera vioscai</i>	humpback shrimp	976	4.5	28	8.3
<i>Portunus gibbesii</i>	iridescent swimming crab	817	4.5	89	26.5
<i>Trachypenaeus constrictus</i>	roughneck shrimp	372	1.5	14	4.2
<i>Callinectes sapidus</i>	blue crab	271	36.0	64	19.0
<i>Calappa sulcata</i>	yellow box crab	224	44.5	49	14.6
<i>Portunus spinimanus</i>	blotched swimming crab	143	2.4	32	9.5
<i>Raninoides louisianensis</i>	gulf frog crab	141	1.3	18	5.4
<i>Libinia dubia</i>	longnose spider crab	96	0.5	16	4.8
<i>Parapenaeus politus</i>	deepwater rose shrimp	89	0.3	8	2.4
<i>Arenaeus cribrarius</i>	speckled swimming crab	80	2.6	12	3.6
<i>Hepatus epheliticus</i>	calico crab	63	2.8	27	8.0
<i>Plesionika longicauda</i>	pandalid shrimp	55	0.0	4	1.2
<i>Anasimus latus</i>	stilt spider crab	49	0.6	17	5.1
<i>Ovalipes floridanus</i>	Florida lady crab	42	0.2	16	4.8
<i>Persephona crinita</i>	pink purse crab	37	0.2	15	4.5
<i>Solenolambrus tenellus</i>	elbow crab	27	0.0	3	0.9
<i>Pagurus pollicaris</i>	flatclaw hermit crab	23	0.3	18	5.4
<i>Pseudorhombila quadridentata</i>	flecked squareback crab	21	0.3	9	2.7
<i>Parthenope granulata</i>	bladetooth elbow crab	21	0.1	7	2.1
<i>Sicyonia burkenroadi</i>	spiny rock shrimp	20	0.0	8	2.4
<i>Stenorhynchus seticornis</i>	yellowline arrow crab	19	0.1	6	1.8
<i>Libinia emarginata</i>	portly spider crab	18	1.4	10	3.0

Table 3. Species composition list (continued)

GENUS/SPECIES	COMMON NAME	TOTAL NUMBER CAUGHT	TOTAL WEIGHT CAUGHT (KG)	NUMBER OF TOWS WHERE CAUGHT	% FREQUENCY OCCURRENCE
<i>Petrochirus diogenes</i>	giant hermit crab	15	0.4	8	2.4
<i>Persephona mediterranea</i>	mottled purse crab	15	0.0	11	3.3
<i>Paguristes triangulatus</i>	hermit crab	15	0.4	3	0.9
<i>Menippe adina</i>	Gulf stone crab	14	0.0	1	0.3
<i>Pagurus bullisi</i>	hermit crab	13	0.0	5	1.5
<i>Squilla neglecta</i>	mantis shrimp	11	0.0	4	1.2
<i>Leiolambrus nitidus</i>	white elbow crab	10	0.0	4	1.2
<i>Munida forceps</i>	squat lobster	9	0.0	3	0.9
<i>Podochela sidneyi</i>	shortfinger neck crab	7	0.0	3	0.9
<i>Myropsis quinquespinosa</i>	fivespine purse crab	6	0.0	2	0.6
<i>Porcellana sigsbeiana</i>	striped porcelain crab	6	0.0	4	1.2
<i>Acanthocarpus alexandri</i>	gladiator box crab	6	0.0	4	1.2
<i>Stenocionops spinimanus</i>	prickly spider crab	5	1.4	3	0.9
<i>Speocarcinus lobatus</i>	gulf squareback crab	5	0.0	5	1.5
<i>Dardanus insignis</i>	red brocade hermit	5	0.1	2	0.6
<i>Alpheus normanni</i>	green snapping shrimp	4	0.0	1	0.3
<i>Pagurus brevidactylus</i>	hermit crab	4	0.0	1	0.3
<i>Manucomplanus ungulatus</i>	right-handed hermit crab	4	0.0	2	0.6
<i>Stenocionops furcata</i>	furcate crab	4	0.0	2	0.6
<i>Euphosynoplax clausa</i>	craggy bathyal crab	4	0.0	3	0.9
<i>Parthenope serrata</i>	sawtooth elbow crab	4	0.0	1	0.3
<i>Portunus sayi</i>	sargassum swimming crab	3	0.0	2	0.6
<i>Collodes robustus</i>	spider crab	3	0.0	1	0.3
<i>Stenocionops spinosissimus</i>	tenspine spider crab	3	0.8	2	0.6
<i>Metoporphaphis calcarata</i>	false arrow crab	3	0.0	2	0.6
<i>Porcellana sayana</i>	spotted porcelain crab	3	0.0	2	0.6

Table 3. Species composition list (continued)

GENUS/SPECIES	COMMON NAME	TOTAL NUMBER CAUGHT	TOTAL WEIGHT CAUGHT (KG)	NUMBER OF TOWS WHERE CAUGHT	% FREQUENCY OCCURRENCE
Raninoides loevis	furrowed frog crab	3	0.0	1	0.3
Speocarcinus carolinensis	Carolinian squareback crab	3	0.0	1	0.3
Dardanus fucusus	bareye hermit	3	0.0	3	0.9
Alpheus floridanus	sand snapping shrimp	2	0.0	2	0.6
Alpheus heterochelis	big-clawed snapping shrimp	1	0.0	1	0.3
Plesionika longipes	shrimp	1	0.0	1	0.3
Sicyonia parri	rock shrimp	1	0.0	1	0.3
Xanthidae	mud crabs	1	0.0	1	0.3
Pseudomedeus agassizii	rough rubble crab	1	0.0	1	0.3
Lobopilumnus agassizii	areolated hairycrab	1	0.0	1	0.3
Calappa flammea	flame box crab	1	0.0	1	0.3
<u>Others</u>					
Loligo pleii	arrow squid	15264	209.0	138	41.1
Loligo pealeii	longfin squid	5180	111.7	107	31.8
Amusium papyraceum	paper scallop	2924	33.0	51	15.2
Chrysaora quinquecirrha	sea nettle	2594	57.1	83	24.7
Lolliguncula brevis	Atlantic brief squid	2013	22.2	125	37.2
Renilla mulleri	short-stemmed sea pansy	1977	10.2	61	18.2
Loligo spp.	squids	790	10.1	17	5.1
Astropecten duplicatus	spiny beaded sea star	690	0.9	61	18.2
Astropecten cingulatus	starfish	464	3.3	30	8.9
Zoobotryon	Bryozoan	445	0.5	1	0.3
Clypeaster ravenelii	cake urchin	316	13.5	7	2.1
Anadara baughmani	Baughman's ark	297	5.5	12	3.6

Table 3. Species composition list (continued)

GENUS/SPECIES	COMMON NAME	TOTAL NUMBER CAUGHT	TOTAL WEIGHT CAUGHT (KG)	NUMBER OF TOWS WHERE CAUGHT	% FREQUENCY OCCURRENCE
<i>Luidia clathrata</i>	sea star	263	3.0	44	13.1
<i>Ophiolepis elegans</i>	brittle star	139	0.2	19	5.7
<i>Schizaster orbignyianus</i>	heart urchin	113	0.2	5	1.5
<i>Polystira albidia</i>	white giant turris	110	1.5	5	1.5
<i>Aurelia aurita</i>	moon jellyfish	97	1.1	15	4.5
<i>Pitar cordatus</i>	Schwengel's pitar	81	1.5	14	4.2
<i>Mellita quinquesperforata</i>	five-slotted sand dollar	58	0.3	7	2.1
Actinidae	sea anemones	40	0.0	16	4.8
<i>Polystira tellea</i>	delicate giant turret	29	0.1	3	0.9
<i>Styela plicata</i>	tunicate	29	0.3	5	1.5
<i>Tethyaster grandis</i>	starfish	25	1.0	5	1.5
<i>Neverita duplicata</i>	shark eye	22	0.3	11	3.3
<i>Chione clenchi</i>	Clench venus	22	0.2	5	1.5
<i>Conus austini</i>	cone shell	21	0.2	2	0.6
<i>Semirossia equalis</i>	greater shining bobtail	20	0.0	5	1.5
<i>Molpadia cubana</i>	sea cucumber	20	0.2	4	1.2
<i>Sconsia striata</i>	royal bonnet	17	0.4	1	0.3
<i>Distorsio clathrata</i>	Atlantic distorsio	17	0.0	6	1.8
Porifera	sponges	17	1.4	6	1.8
<i>Luidia alternata</i>	banded luidia	17	0.4	10	3.0
<i>Echinaster</i> spp.	thorny sea stars	17	0.1	4	1.2
<i>Goniaster tessellatus</i>	starfish	12	0.1	1	0.3
<i>Hemipholis elongata</i>	brittle star	12	0.0	3	0.9
<i>Sargassum</i> spp.	sargassum	12	1.1	5	1.5
<i>Aplysia</i> spp.	sea hares	10	0.4	5	1.5
Cnidaria	jellyfish	10	0.0	3	0.9

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>Thais haemastoma</i>	rocksnail	9	0.1	4	1.2
<i>Macoma brevifrons</i>	short macoma	8	0.1	4	1.2
Anthozoa	anthozoans	8	0.0	2	0.6
<i>Cantharus cancellarius</i>	cancellate cantharus	7	0.0	7	2.1
Asteroidea	starfishes	7	0.0	3	0.9
<i>Protankyra grayi</i>	sea cucumber	6	0.1	2	0.6
<i>Muricanthus fulvescens</i>	giant eastern murex	5	0.3	1	0.3
<i>Busycon sinistrum</i>	lightning whelk	5	0.4	4	1.2
<i>Scaphella dubia</i>	dubious volute	5	0.4	2	0.6
<i>Calliactris tricolor</i>	common sea anemone	5	0.0	2	0.6
<i>Molpadia barbouri</i>	sea cucumber	5	0.1	1	0.3
Gastropoda	snails	4	0.0	1	0.3
<i>Cancellaria reticulata</i>	common nutmeg	4	0.0	1	0.3
<i>Eucrassatella speciosa</i>	beautiful crassatella	4	0.1	1	0.3
Actinaria spp.	sea anemones	4	0.0	1	0.3
<i>Anthenoides piercei</i>	starfish	4	0.1	2	0.6
<i>Busycon contrarium</i>	lightning whelk	3	0.2	2	0.6
<i>Sinum perspectivum</i>	white baby-ear	2	0.0	1	0.3
<i>Anadara ovalis</i>	blood ark	2	0.0	2	0.6
<i>Arcinella cornuta</i>	Florida spiny jewelbox	2	0.0	1	0.3
Cephalopoda	cephalopods	2	0.0	1	0.3
Tunicata	tunicates	2	0.2	1	0.3
<i>Paranthus rapiformis</i>	onion anemone	2	0.0	1	0.3
Aphrodita spp.	polychetes	2	0.0	2	0.6
<i>Encope aberrans</i>	sand dollar	2	0.1	1	0.3
<i>Strombus alatus</i>	Florida fighting conch	1	0.0	1	0.3

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>Busycon candelabrum</i>	splendid whelk	1	0.5	1	0.3
<i>Fasciolaria liliium</i>	banded tulip	1	0.0	1	0.3
<i>Conus</i> spp.	cone shells	1	0.0	1	0.3
<i>Pelecypoda</i>	bivalve mollusks	1	0.0	1	0.3
<i>Anadara transversa</i>	transverse ark	1	0.0	1	0.3
<i>Laevicardium laevigatum</i>	egg cockle	1	0.0	1	0.3
<i>Laevicardium sybariticum</i>	delicate eggcockle	1	0.0	1	0.3
<i>Solecurtus cumingianus</i>	corrugate solecurtus	1	0.0	1	0.3
<i>Circomphalus strigillinus</i>	empress venus	1	0.0	1	0.3
<i>Octopus vulgaris</i>	common Atlantic octopus	1	0.0	1	0.3
<i>Pelagia noctiluca</i>	jellyfish	1	0.0	1	0.3
<i>Chiropsalmus quadrumanus</i>	jellyfish	1	0.0	1	0.3
<i>Pennatula</i> spp.	sea pens	1	0.0	1	0.3
<i>Ctenophora</i>	comb jellies	1	0.0	1	0.3
Zoobotriidea	Bryozoan	1	0.0	1	0.3
<i>Hermodice carunculata</i>	green fire worm	1	0.0	1	0.3

Table 4a
 Statistical Zone 11

Summary of dominant organisms taken in statistical zone 11 during the 1998 Summer Shrimp/Groundfish Survey by depth stratum, collected with either a 40-ft or 20-ft trawl. The mean number (NUM) of organisms per hour, the standard error of the mean (SEM) for numbers, the mean weight (WT) in kg per hour, the SEM for weight and the number (N) of samples taken.

SPECIES	0- 5 FM					6-10 FM					11-20 FM				
	NUM	SEM	WT	SEM	N	NUM	SEM	WT	SEM	N	NUM	SEM	WT	SEM	N
Trachypenaeus similis	3.9	3.86	0.0	0.00	4	208.3	119.59	0.8	0.58	11	1096.2	541.93	4.7	2.29	15
Squilla spp.	3.5	2.42	0.0	0.02	4	25.2	17.69	0.2	0.15	11	159.6	67.75	1.2	0.53	15
Penaeus aztecus	85.5	68.34	1.2	0.93	4	33.7	24.29	0.5	0.34	11	118.1	51.75	1.9	0.74	15
Portunus spinicarpus	0.0	0.00	0.0	0.00	4	1.9	1.71	0.0	0.00	11	42.3	16.49	0.1	0.06	15
Callinectes similis	11.4	5.89	0.1	0.07	4	21.4	11.60	0.1	0.06	11	158.4	67.54	1.2	0.51	15
Sicyonia dorsalis	0.0	0.00	0.0	0.00	4	12.4	5.28	0.0	0.01	11	151.7	62.16	0.3	0.13	15
Peprilus burti	0.0	0.00	0.0	0.00	4	951.3	712.41	13.2	11.22	11	23.5	13.31	0.7	0.39	15
Stenotomus caprinus	7.7	7.71	0.0	0.04	4	101.2	50.70	0.4	0.20	11	1385.2	420.83	7.5	2.73	15
Anchoa hepsetus	20.4	15.64	0.2	0.13	4	99.2	67.26	1.7	1.41	11	270.6	118.68	5.7	2.47	15
Centropristis philadelphica	2.8	1.62	0.0	0.00	4	50.6	43.70	0.3	0.23	11	130.9	60.67	1.1	0.49	15
Harengula jaguana	3.4	2.89	0.2	0.20	4	141.3	141.07	3.9	3.88	11	0.6	0.44	0.0	0.01	15
Lagodon rhomboides	0.0	0.00	0.0	0.00	4	0.5	0.55	0.0	0.00	11	0.0	0.00	0.0	0.00	15
Anchoa mitchilli	0.9	0.86	0.0	0.00	4	107.3	54.59	0.2	0.09	11	6.8	6.34	0.0	0.02	15
Serranus atrobranchus	0.0	0.00	0.0	0.00	4	5.2	5.17	0.0	0.01	11	78.5	38.46	0.3	0.15	15
Squid	15.6	5.36	0.3	0.11	4	269.4	82.79	6.2	3.12	11	1082.3	243.52	11.0	2.29	15

Table 4a (continued)

Statistical Zone 11

Summary of dominant organisms taken in statistical zone 11 during the 1998 Summer Shrimp/Groundfish Survey by depth stratum, collected with either a 40-ft or 20-ft trawl. The mean number (NUM) of organisms per hour, the standard error of the mean (SEM) for numbers, the mean weight (WT) in kg per hour, the SEM for weight and the number (N) of samples taken.

SPECIES	21-30 FM					31-40 FM					>40 FM				
	NUM	SEM	WT	SEM	N	NUM	SEM	WT	SEM	N	NUM	SEM	WT	SEM	N
Trachypenaeus similis	625.3	309.37	3.5	1.82	3	2.0	2.00	0.0	0.02	5	0.0	0.00	0.0	0.00	1
Squilla spp.	394.0	214.22	2.6	1.52	3	8.9	5.75	0.1	0.07	5	0.0	0.00	0.0	0.00	1
Penaeus aztecus	55.3	37.35	1.0	0.64	3	4.2	1.76	0.4	0.28	5	0.0	0.00	0.0	0.00	1
Portunus spinicarpus	124.7	85.99	0.6	0.46	3	184.8	149.71	2.0	1.62	5	3.8	0.00	0.1	0.00	1
Callinectes similis	32.0	11.02	0.6	0.11	3	0.0	0.00	0.0	0.00	5	0.0	0.00	0.0	0.00	1
Sicyonia dorsalis	12.0	4.00	0.0	0.00	3	0.0	0.00	0.0	0.00	5	0.0	0.00	0.0	0.00	1
Peprilus burti	902.0	896.01	55.9	55.68	3	1693.6	1563.52	87.8	77.85	5	0.0	0.00	0.0	0.00	1
Stenotomus caprinus	0.0	0.00	0.0	0.00	3	883.5	376.93	54.8	22.85	5	56.3	0.00	6.4	0.00	1
Anchoa hepsetus	6.7	6.67	0.2	0.15	3	0.0	0.00	0.0	0.00	5	0.0	0.00	0.0	0.00	1
Centropristis philadelphica	126.0	77.25	2.9	2.19	3	19.7	6.96	1.8	0.67	5	1.9	0.00	0.0	0.00	1
Harengula jaguana	2.7	2.67	0.2	0.15	3	4.8	4.80	0.2	0.24	5	0.0	0.00	0.0	0.00	1
Lagodon rhomboides	0.0	0.00	0.0	0.00	3	144.0	118.60	10.4	8.65	5	0.0	0.00	0.0	0.00	1
Anchoa mitchilli	0.0	0.00	0.0	0.00	3	0.0	0.00	0.0	0.00	5	0.0	0.00	0.0	0.00	1
Serranus atrobranchus	96.0	69.90	1.5	0.93	3	33.1	15.42	0.7	0.37	5	7.5	0.00	0.2	0.00	1
Squid	9.3	8.35	0.3	0.23	3	468.2	275.68	7.6	4.16	5	112.5	0.00	0.8	0.00	1

Table 4b
 Statistical Zone 11

Summary of mean total catch and environmental data (X), the standard error of the mean (SEM) and the number (N) of samples taken during the 1998 Summer Shrimp/Groundfish Survey by depth stratum, collected with either a 40-ft or 20-ft trawl. Catch values in kg per hour, temperature in °C, salinity in ppt, chlorophyll in mg/m ³ , and oxygen in ppm.																		
Environmental category	0-5 FM			6-10 FM			11-20 FM			21-30 FM			31-40 FM			>40 FM		
	X	SEM	N	X	SEM	N	X	SEM	N	X	SEM	N	X	SEM	N	X	SEM	N
Total catch kg	10.9	5.89	4	55.5	30.26	11	62.8	13.47	15	91.5	58.85	3	195.0	67.63	5	40.1	0.00	1
Total finfish kg	8.5	5.48	4	38.4	31.04	11	38.9	11.65	15	80.3	63.07	3	181.0	69.06	5	39.2	0.00	1
Total crustacean kg	1.6	1.56	4	2.3	1.19	11	12.6	4.28	15	10.6	3.97	3	5.4	2.24	5	0.0	0.00	1
Total others kg	0.0	0.00	4	14.3	7.70	11	11.2	2.34	15	0.3	0.30	3	8.0	3.94	5	0.9	0.00	1
Surface temperature	29.1	0.36	5	27.4	0.80	11	27.5	0.36	14	26.1	1.76	4	28.5	0.86	5	30.0	0.45	2
Midwater temperature	26.7	1.65	5	23.9	1.10	11	23.4	0.54	14	23.0	0.22	4	21.7	0.48	5	20.6	0.28	2
Bottom temperature	27.6	0.76	4	21.4	0.33	11	21.2	0.21	14	21.1	0.31	4	20.2	0.96	5	17.9	0.50	2
Surface salinity	30.9	0.81	5	27.6	1.41	11	27.9	0.95	14	27.2	1.15	4	25.2	2.09	5	29.8	1.96	2
Midwater salinity	33.0	0.93	5	34.8	0.48	11	35.4	0.35	14	35.9	0.45	4	36.1	0.13	5	36.2	0.13	2
Bottom salinity	33.0	0.60	4	35.8	0.22	11	36.2	0.06	14	36.1	0.05	4	35.9	0.30	5	36.4	0.04	2
Surface chlorophyll	0.3	0.00	1	0.6	0.16	4	0.3	0.03	3	0.0	0.00	0	0.0	0.00	0	0.0	0.00	0
Surface fluorescence	3.8	0.00	5	3.8	0.00	11	3.8	0.00	14	3.8	0.00	4	2.1	0.69	5	3.8	0.04	2
Surface oxygen	6.5	0.48	5	5.9	0.25	11	6.8	0.28	14	6.1	0.35	4	7.9	1.39	5	5.7	0.10	2
Midwater oxygen	5.6	0.26	5	4.9	0.36	11	5.6	0.11	14	5.8	0.11	4	5.5	0.14	5	5.1	0.30	2
Bottom oxygen	4.4	1.25	4	4.0	0.48	11	4.6	0.28	14	4.7	0.39	4	4.4	0.51	5	3.5	0.05	2

Table 5a
 Statistical Zone 12

Summary of dominant organisms taken in statistical zone 12 during the 1998 Summer Shrimp/Groundfish Survey by depth stratum, collected with either a 40-ft or 20-ft trawl. The mean number (NUM) of organisms per hour, the standard error of the mean (SEM) for numbers, the mean weight (WT) in kg per hour, the SEM for weight and the number (N) of samples taken. No trawl samples were taken in depths greater than 5 fm.

SPECIES	0- 5 FM					6-10 FM					11-20 FM				
	NUM	SEM	WT	SEM	N	NUM	SEM	WT	SEM	N	NUM	SEM	WT	SEM	N
Callinectes similis	4.0	0.00	0.0	0.00	1	0.0	0.00	0.0	0.00	0	0.0	0.00	0.00	0	0
Penaeus aztecus	4.0	0.00	0.0	0.00	1	0.0	0.00	0.0	0.00	0	0.0	0.00	0.00	0	0
Sicyonia dorsalis	2.0	0.00	0.0	0.00	1	0.0	0.00	0.0	0.00	0	0.0	0.00	0.00	0	0
Speocarcinus lobatus	2.0	0.00	0.0	0.00	1	0.0	0.00	0.0	0.00	0	0.0	0.00	0.00	0	0
Anchoa mitchilli	1200.0	0.00	1.7	0.00	1	0.0	0.00	0.0	0.00	0	0.0	0.00	0.00	0	0
Anchoa lyolepis	126.0	0.00	0.2	0.00	1	0.0	0.00	0.0	0.00	0	0.0	0.00	0.00	0	0
Anchoa hepsetus	122.0	0.00	1.5	0.00	1	0.0	0.00	0.0	0.00	0	0.0	0.00	0.00	0	0
Trichiurus lepturus	12.0	0.00	0.1	0.00	1	0.0	0.00	0.0	0.00	0	0.0	0.00	0.00	0	0
Peprilus burti	8.0	0.00	0.1	0.00	1	0.0	0.00	0.0	0.00	0	0.0	0.00	0.00	0	0
Opisthonema oglinum	6.0	0.00	0.0	0.00	1	0.0	0.00	0.0	0.00	0	0.0	0.00	0.00	0	0
Harengula jaguana	4.0	0.00	0.1	0.00	1	0.0	0.00	0.0	0.00	0	0.0	0.00	0.00	0	0
Chloroscombrus chrysurus	2.0	0.00	0.1	0.00	1	0.0	0.00	0.0	0.00	0	0.0	0.00	0.00	0	0
Squid	22.0	0.00	0.2	0.00	1	0.0	0.00	0.0	0.00	0	0.0	0.00	0.00	0	0

Table 5b
 Statistical Zone 12

Summary of mean total catch and environmental data (X), the standard error of the mean (SEM) and the number (N) of samples taken during the 1998 Summer Shrimp/Groundfish Survey by depth stratum, collected with either a 40-ft or 20-ft trawl. Catch values in kg per hour, temperature in °C, salinity in ppt, chlorophyll in mg/m ³ , and oxygen in ppm. No trawl samples were taken in depths greater than 5 fm.																		
Environmental category	0-5 FM			6-10 FM			11-20 FM			21-30 FM			31-40 FM			>40 FM		
	X	SEM	N	X	SEM	N	X	SEM	N	X	SEM	N	X	SEM	N	X	SEM	N
Total catch kg	3.6	0.00	1	0.0	0.00	0	0.0	0.00	0	0.0	0.00	0	0.0	0.00	0	0.0	0.00	0
Total finfish kg	3.6	0.00	1	0.0	0.00	0	0.0	0.00	0	0.0	0.00	0	0.0	0.00	0	0.0	0.00	0
Total crustacean kg	0.0	0.00	1	0.0	0.00	0	0.0	0.00	0	0.0	0.00	0	0.0	0.00	0	0.0	0.00	0
Total others kg	0.0	0.00	1	0.0	0.00	0	0.0	0.00	0	0.0	0.00	0	0.0	0.00	0	0.0	0.00	0
Surface temperature	24.1	0.00	1	0.0	0.00	0	0.0	0.00	0	0.0	0.00	0	0.0	0.00	0	0.0	0.00	0
Midwater temperature	21.4	0.00	1	0.0	0.00	0	0.0	0.00	0	0.0	0.00	0	0.0	0.00	0	0.0	0.00	0
Bottom temperature	20.8	0.00	1	0.0	0.00	0	0.0	0.00	0	0.0	0.00	0	0.0	0.00	0	0.0	0.00	0
Surface salinity	28.7	0.00	1	0.0	0.00	0	0.0	0.00	0	0.0	0.00	0	0.0	0.00	0	0.0	0.00	0
Midwater salinity	34.0	0.00	1	0.0	0.00	0	0.0	0.00	0	0.0	0.00	0	0.0	0.00	0	0.0	0.00	0
Bottom salinity	35.6	0.00	1	0.0	0.00	0	0.0	0.00	0	0.0	0.00	0	0.0	0.00	0	0.0	0.00	0
Surface chlorophyll	0.0	0.00	0	0.0	0.00	0	0.0	0.00	0	0.0	0.00	0	0.0	0.00	0	0.0	0.00	0
Surface fluorescence	0.0	0.00	0	0.0	0.00	0	0.0	0.00	0	0.0	0.00	0	0.0	0.00	0	0.0	0.00	0
Surface oxygen	4.8	0.00	1	0.0	0.00	0	0.0	0.00	0	0.0	0.00	0	0.0	0.00	0	0.0	0.00	0
Midwater oxygen	4.9	0.00	1	0.0	0.00	0	0.0	0.00	0	0.0	0.00	0	0.0	0.00	0	0.0	0.00	0
Bottom oxygen	4.7	0.00	1	0.0	0.00	0	0.0	0.00	0	0.0	0.00	0	0.0	0.00	0	0.0	0.00	0

Table 6a
 Statistical Zone 13

Summary of dominant organisms taken in statistical zone 13 during the 1998 Summer Shrimp/Groundfish Survey by depth stratum, collected with either a 40-ft or 20-ft trawl. The mean number (NUM) of organisms per hour, the standard error of the mean (SEM) for numbers, the mean weight (WT) in kg per hour, the SEM for weight and the number (N) of samples taken. No trawl samples were taken in depths greater than 30 fm.

SPECIES	0- 5 FM					6-10 FM					11-20 FM				
	NUM	SEM	WT	SEM	N	NUM	SEM	WT	SEM	N	NUM	SEM	WT	SEM	N
Trachypenaeus similis	0.0	0.00	0.0	0.00	1	0.0	0.00	0.0	0.00	0	90.0	74.17	0.3	0.21	5
Squilla spp.	0.0	0.00	0.0	0.00	1	0.0	0.00	0.0	0.00	0	75.6	46.34	0.3	0.20	5
Penaeus aztecus	175.0	0.00	2.0	0.00	1	0.0	0.00	0.0	0.00	0	0.0	0.00	0.0	0.00	5
Penaeus duorarum	0.0	0.00	0.0	0.00	1	0.0	0.00	0.0	0.00	0	10.8	7.20	0.3	0.17	5
Penaeus setiferus	15.0	0.00	0.7	0.00	1	0.0	0.00	0.0	0.00	0	0.0	0.00	0.0	0.00	5
Callinectes similis	0.0	0.00	0.0	0.00	1	0.0	0.00	0.0	0.00	0	7.2	5.82	0.1	0.11	5
Peprilus burti	50.0	0.00	2.0	0.00	1	0.0	0.00	0.0	0.00	0	58.8	58.80	0.9	0.93	5
Prionotus longispinosus	0.0	0.00	0.0	0.00	1	0.0	0.00	0.0	0.00	0	600.0	435.08	2.2	1.57	5
Cynoscion arenarius	55.0	0.00	2.0	0.00	1	0.0	0.00	0.0	0.00	0	128.4	128.40	1.4	1.36	5
Micropogonias undulatus	545.0	0.00	15.0	0.00	1	0.0	0.00	0.0	0.00	0	9.6	9.60	0.3	0.27	5
Sphaeroides parvus	5.0	0.00	0.0	0.00	1	0.0	0.00	0.0	0.00	0	115.6	112.11	0.4	0.38	5
Chloroscombrus chrysurus	150.0	0.00	4.1	0.00	1	0.0	0.00	0.0	0.00	0	24.8	17.85	1.1	0.79	5
Leiostomus xanthurus	400.0	0.00	18.2	0.00	1	0.0	0.00	0.0	0.00	0	0.0	0.00	0.0	0.00	5
Cynoscion nothus	0.0	0.00	0.0	0.00	1	0.0	0.00	0.0	0.00	0	70.4	63.56	0.2	0.22	5
Squid	10.0	0.00	0.2	0.00	1	0.0	0.00	0.0	0.00	0	60.8	56.86	0.5	0.48	5

Table 6a (continued)

Statistical Zone 13

Summary of dominant organisms taken in statistical zone 13 during the 1998 Summer Shrimp/Groundfish Survey by depth stratum, collected with either a 40-ft or 20-ft trawl. The mean number (NUM) of organisms per hour, the standard error of the mean (SEM) for numbers, the mean weight (WT) in kg per hour, the SEM for weight and the number (N) of samples taken. No trawl samples were taken in depths greater than 30 fm.

SPECIES	21-30 FM					31-40 FM					>40 FM				
	NUM	SEM	WT	SEM	N	NUM	SEM	WT	SEM	N	NUM	SEM	WT	SEM	N
Trachypenaeus similis	5.2	0.00	0.1	0.00	1	0.0	0.00	0.0	0.00	0	0.0	0.00	0.00	0	0
Squilla spp.	2.6	0.00	0.0	0.00	1	0.0	0.00	0.0	0.00	0	0.0	0.00	0.00	0	0
Penaeus aztecus	13.0	0.00	0.1	0.00	1	0.0	0.00	0.0	0.00	0	0.0	0.00	0.00	0	0
Penaeus duorarum	0.0	0.00	0.0	0.00	1	0.0	0.00	0.0	0.00	0	0.0	0.00	0.00	0	0
Penaeus setiferus	5.2	0.00	0.2	0.00	1	0.0	0.00	0.0	0.00	0	0.0	0.00	0.00	0	0
Callinectes similis	0.0	0.00	0.0	0.00	1	0.0	0.00	0.0	0.00	0	0.0	0.00	0.00	0	0
Peprilus burti	1631.7	0.00	44.1	0.00	1	0.0	0.00	0.0	0.00	0	0.0	0.00	0.00	0	0
Prionotus longispinosus	0.0	0.00	0.0	0.00	1	0.0	0.00	0.0	0.00	0	0.0	0.00	0.00	0	0
Cynoscion arenarius	0.0	0.00	0.0	0.00	1	0.0	0.00	0.0	0.00	0	0.0	0.00	0.00	0	0
Micropogonias undulatus	0.0	0.00	0.0	0.00	1	0.0	0.00	0.0	0.00	0	0.0	0.00	0.00	0	0
Spherooides parvus	0.0	0.00	0.0	0.00	1	0.0	0.00	0.0	0.00	0	0.0	0.00	0.00	0	0
Chloroscombrus chrysurus	0.0	0.00	0.0	0.00	1	0.0	0.00	0.0	0.00	0	0.0	0.00	0.00	0	0
Leiostomus xanthurus	0.0	0.00	0.0	0.00	1	0.0	0.00	0.0	0.00	0	0.0	0.00	0.00	0	0
Cynoscion nothus	0.0	0.00	0.0	0.00	1	0.0	0.00	0.0	0.00	0	0.0	0.00	0.00	0	0
Squid	446.1	0.00	10.4	0.00	1	0.0	0.00	0.0	0.00	0	0.0	0.00	0.00	0	0

Table 6b
 Statistical Zone 13

Summary of mean total catch and environmental data (X), the standard error of the mean (SEM) and the number (N) of samples taken during the 1998 Summer Shrimp/Groundfish Survey by depth stratum, collected with either a 40-ft or 20-ft trawl. Catch values in kg per hour, temperature in °C, salinity in ppt, chlorophyll in mg/m ³ , and oxygen in ppm. No trawl samples were taken in depths greater than 30 fm.																		
Environmental category	0-5 FM			6-10 FM			11-20 FM			21-30 FM			31-40 FM			>40 FM		
	X	SEM	N	X	SEM	N	X	SEM	N	X	SEM	N	X	SEM	N	X	SEM	N
Total catch kg	77.3	0.00	1	0.0	0.00	0	36.0	21.60	5	56.9	0.00	1	0.0	0.00	0	0.0	0.00	0
Total finfish kg	70.5	0.00	1	0.0	0.00	0	34.4	21.91	5	45.7	0.00	1	0.0	0.00	0	0.0	0.00	0
Total crustacean kg	2.3	0.00	1	0.0	0.00	0	0.5	0.55	5	0.6	0.00	1	0.0	0.00	0	0.0	0.00	0
Total others kg	4.5	0.00	1	0.0	0.00	0	0.5	0.55	5	10.7	0.00	1	0.0	0.00	0	0.0	0.00	0
Surface temperature	30.9	0.00	1	31.1	0.00	1	30.5	0.61	3	29.0	0.00	1	0.0	0.00	0	0.0	0.00	0
Midwater temperature	29.3	0.00	1	28.8	0.00	1	29.1	0.11	3	23.0	0.00	1	0.0	0.00	0	0.0	0.00	0
Bottom temperature	28.8	0.00	1	23.7	0.00	1	24.3	2.03	3	20.2	0.00	1	0.0	0.00	0	0.0	0.00	0
Surface salinity	19.7	0.00	1	26.5	0.00	1	28.1	1.18	3	30.5	0.00	1	0.0	0.00	0	0.0	0.00	0
Midwater salinity	29.4	0.00	1	32.4	0.00	1	31.9	0.68	3	34.8	0.00	1	0.0	0.00	0	0.0	0.00	0
Bottom salinity	30.5	0.00	1	34.4	0.00	1	34.2	0.88	3	36.2	0.00	1	0.0	0.00	0	0.0	0.00	0
Surface chlorophyll	0.0	0.00	0	1.2	0.20	3	1.3	0.07	2	0.0	0.00	0	0.0	0.00	0	0.0	0.00	0
Surface fluorescence	0.9	0.00	1	0.9	0.00	3	0.9	0.00	3	1.6	0.00	1	0.0	0.00	0	0.0	0.00	0
Surface oxygen	6.6	0.00	1	6.5	0.12	3	6.0	0.33	3	5.2	0.00	1	0.0	0.00	0	0.0	0.00	0
Midwater oxygen	5.3	0.00	1	6.2	0.15	2	5.6	0.15	3	2.6	0.00	1	0.0	0.00	0	0.0	0.00	0
Bottom oxygen	5.1	0.00	1	4.5	0.82	3	3.0	0.85	3	1.3	0.00	1	0.0	0.00	0	0.0	0.00	0

Table 7a
 Statistical Zone 14

Summary of dominant organisms taken in statistical zone 14 during the 1998 Summer Shrimp/Groundfish Survey by depth stratum, collected with either a 40-ft or 20-ft trawl. The mean number (NUM) of organisms per hour, the standard error of the mean (SEM) for numbers, the mean weight (WT) in kg per hour, the SEM for weight and the number (N) of samples taken.

SPECIES	0- 5 FM					6-10 FM					11-20 FM				
	NUM	SEM	WT	SEM	N	NUM	SEM	WT	SEM	N	NUM	SEM	WT	SEM	N
Trachypenaeus similis	1.1	1.11	0.0	0.00	3	0.0	0.00	0.0	0.00	9	989.2	414.47	3.5	1.20	13
Penaeus aztecus	323.6	216.55	3.3	1.94	3	38.1	20.67	0.4	0.24	9	102.3	46.67	1.2	0.53	13
Squilla spp.	0.0	0.00	0.0	0.00	3	0.0	0.00	0.0	0.00	9	84.6	33.62	0.7	0.34	13
Portunus spinicarpus	0.0	0.00	0.0	0.00	3	0.0	0.00	0.0	0.00	9	2.7	2.42	0.0	0.00	13
Sicyonia dorsalis	0.0	0.00	0.0	0.00	3	0.0	0.00	0.0	0.00	9	45.2	39.02	0.1	0.09	13
Callinectes similis	7.8	7.78	0.1	0.05	3	1.4	0.69	0.0	0.00	9	25.7	14.07	0.5	0.28	13
Stenotomus caprinus	0.0	0.00	0.0	0.00	3	0.0	0.00	0.0	0.00	9	1174.9	430.61	4.9	1.52	13
Micropogonias undulatus	3064.7	2251.05	85.8	63.82	3	372.6	195.94	11.8	6.23	9	23.4	15.51	1.3	0.82	13
Peprilus burti	84.7	74.89	3.8	3.54	3	82.6	53.64	2.2	1.38	9	354.2	254.76	10.5	8.73	13
Chloroscombrus chrysurus	621.6	559.84	21.5	20.60	3	440.6	219.18	14.5	7.14	9	3.7	3.69	0.1	0.15	13
Etrumeus teres	0.0	0.00	0.0	0.00	3	0.0	0.00	0.0	0.00	9	333.3	157.68	1.9	0.93	13
Saurida brasiliensis	0.0	0.00	0.0	0.00	3	0.0	0.00	0.0	0.00	9	284.0	94.91	1.7	0.60	13
Prionotus longispinosus	0.0	0.00	0.0	0.00	3	1.4	1.43	0.0	0.01	9	115.6	73.52	1.6	1.21	13
Leiostomus xanthurus	274.7	195.91	12.4	9.27	3	70.8	46.31	2.8	1.40	9	2.5	1.13	0.2	0.10	13
Squid	19.3	14.37	0.2	0.18	3	29.3	18.23	0.6	0.39	9	192.7	85.18	2.9	1.34	13

Table 7a (continued)

Statistical Zone 14

Summary of dominant organisms taken in statistical zone 14 during the 1998 Summer Shrimp/Groundfish Survey by depth stratum, collected with either a 40-ft or 20-ft trawl. The mean number (NUM) of organisms per hour, the standard error of the mean (SEM) for numbers, the mean weight (WT) in kg per hour, the SEM for weight and the number (N) of samples taken.

SPECIES	21-30 FM					31-40 FM					>40 FM				
	NUM	SEM	WT	SEM	N	NUM	SEM	WT	SEM	N	NUM	SEM	WT	SEM	N
Trachypenaeus similis	142.3	79.70	1.1	0.31	2	0.0	0.00	0.0	0.00	1	0.0	0.00	0.0	0.00	2
Penaeus aztecus	126.5	27.46	2.8	1.12	2	17.1	0.00	1.0	0.00	1	2.4	2.40	0.1	0.11	2
Squilla spp.	134.2	9.24	2.2	0.44	2	0.0	0.00	0.0	0.00	1	6.0	6.00	0.0	0.00	2
Portunus spinicarpus	187.2	136.24	0.8	0.54	2	21.4	0.00	0.1	0.00	1	237.9	197.10	2.1	1.87	2
Sicyonia dorsalis	0.0	0.00	0.0	0.00	2	0.0	0.00	0.0	0.00	1	0.0	0.00	0.0	0.00	2
Callinectes similis	12.9	7.93	0.6	0.51	2	0.0	0.00	0.0	0.00	1	3.6	3.60	0.1	0.05	2
Stenotomus caprinus	70.9	43.89	3.5	2.55	2	310.0	0.00	13.9	0.00	1	103.2	103.20	6.2	6.22	2
Micropogonias undulatus	29.6	9.57	2.3	1.11	2	4.3	0.00	0.4	0.00	1	34.5	34.50	4.0	4.02	2
Peprilus burti	0.0	0.00	0.0	0.00	2	247.1	0.00	6.9	0.00	1	1555.5	1504.50	52.0	50.22	2
Chloroscombrus chrysurus	0.0	0.00	0.0	0.00	2	0.0	0.00	0.0	0.00	1	0.0	0.00	0.0	0.00	2
Etrumeus teres	0.0	0.00	0.0	0.00	2	0.0	0.00	0.0	0.00	1	0.0	0.00	0.0	0.00	2
Saurida brasiliensis	0.0	0.00	0.0	0.00	2	32.9	0.00	0.2	0.00	1	20.4	20.40	0.1	0.11	2
Prionotus longispinosus	82.9	31.89	3.9	2.88	2	11.4	0.00	0.4	0.00	1	108.6	101.40	8.1	7.99	2
Leiostomus xanthurus	52.5	52.50	4.5	4.52	2	0.0	0.00	0.0	0.00	1	0.0	0.00	0.0	0.00	2
Squid	7.8	7.83	0.1	0.06	2	197.1	0.00	5.8	0.00	1	307.2	307.20	5.5	5.51	2

Table 7b

Statistical Zone 14

Summary of mean total catch and environmental data (X), the standard error of the mean (SEM) and the number (N) of samples taken during the 1998 Summer Shrimp/Groundfish Survey by depth stratum, collected with either a 40-ft or 20-ft trawl. Catch values in kg per hour, temperature in °C, salinity in ppt, chlorophyll in mg/m ³ , and oxygen in ppm.																		
Environmental category	0-5 FM			6-10 FM			11-20 FM			21-30 FM			31-40 FM			>40 FM		
	X	SEM	N	X	SEM	N	X	SEM	N	X	SEM	N	X	SEM	N	X	SEM	N
Total catch kg	163.7	94.04	3	50.4	18.94	9	42.9	8.59	13	37.4	8.80	2	35.1	0.00	1	106.6	27.55	2
Total finfish kg	139.3	74.90	3	48.3	18.66	9	33.2	8.46	13	28.3	6.06	2	27.3	0.00	1	97.2	24.95	2
Total crustacean kg	7.5	4.53	3	0.8	0.37	9	6.5	1.86	13	8.5	2.15	2	1.3	0.00	1	4.0	2.86	2
Total others kg	16.6	13.65	3	0.9	0.49	9	2.9	1.40	13	0.0	0.00	2	6.5	0.00	1	5.5	5.45	2
Surface temperature	30.5	0.22	5	30.3	0.42	10	30.0	0.14	16	30.1	0.26	3	30.5	0.00	1	30.4	0.09	4
Midwater temperature	30.0	0.24	5	28.7	0.28	10	27.8	0.50	16	26.3	1.96	3	22.1	0.00	1	21.8	0.74	4
Bottom temperature	28.9	0.64	5	26.4	0.32	10	20.6	0.17	16	20.1	0.03	3	19.0	0.00	1	17.5	0.57	4
Surface salinity	26.6	0.66	5	28.0	0.84	10	28.9	0.72	16	26.1	3.39	3	20.7	0.00	1	26.3	1.72	4
Midwater salinity	28.0	0.50	5	30.6	0.82	10	32.6	0.44	16	34.4	0.29	3	34.9	0.00	1	35.8	0.16	4
Bottom salinity	29.8	0.77	5	33.1	0.25	10	35.6	0.07	16	35.8	0.05	3	36.3	0.00	1	36.4	0.09	4
Surface chlorophyll	3.3	1.64	3	0.9	0.21	5	0.3	0.15	9	0.1	0.00	1	0.0	0.00	0	0.0	0.00	0
Surface fluorescence	5.3	0.00	5	4.9	0.59	10	5.2	0.33	16	5.0	1.86	3	5.0	0.00	1	1.9	0.97	4
Surface oxygen	6.6	0.40	5	5.3	0.42	10	6.4	0.24	15	6.7	0.70	3	6.7	0.00	1	5.2	0.34	4
Midwater oxygen	6.1	0.22	5	4.6	0.43	10	5.4	0.25	15	6.2	0.60	3	4.8	0.00	1	5.0	0.97	4
Bottom oxygen	4.4	0.77	5	2.7	0.53	10	2.1	0.31	15	2.2	0.47	3	3.5	0.00	1	3.6	0.04	4

Table 8a
 Statistical Zone 15

Summary of dominant organisms taken in statistical zone 15 during the 1998 Summer Shrimp/Groundfish Survey by depth stratum, collected with either a 40-ft or 20-ft trawl. The mean number (NUM) of organisms per hour, the standard error of the mean (SEM) for numbers, the mean weight (WT) in kg per hour, the SEM for weight and the number (N) of samples taken.

SPECIES	0- 5 FM					6-10 FM					11-20 FM				
	NUM	SEM	WT	SEM	N	NUM	SEM	WT	SEM	N	NUM	SEM	WT	SEM	N
Trachypenaeus similis	0.0	0.00	0.0	0.00	3	216.3	119.55	0.5	0.25	7	735.4	304.03	2.6	1.20	12
Penaeus aztecus	84.7	33.91	0.9	0.34	3	92.6	50.76	1.1	0.56	7	69.3	27.14	0.9	0.35	12
Squilla spp.	0.0	0.00	0.0	0.00	3	81.7	40.05	0.3	0.15	7	50.8	42.60	0.4	0.29	12
Solenocera vioscai	0.0	0.00	0.0	0.00	3	0.0	0.00	0.0	0.00	7	0.0	0.00	0.0	0.00	12
Portunus spinicarpus	0.0	0.00	0.0	0.00	3	0.0	0.00	0.0	0.00	7	0.0	0.00	0.0	0.00	12
Callinectes similis	1.3	1.33	0.0	0.03	3	8.9	5.85	0.1	0.07	7	2.8	1.86	0.0	0.04	12
Stenotomus caprinus	0.0	0.00	0.0	0.00	3	638.9	285.68	2.9	1.35	7	1038.1	355.03	3.8	1.39	12
Peprilus burti	4.7	4.67	0.1	0.12	3	409.6	278.87	3.7	2.51	7	158.2	92.23	1.0	0.62	12
Micropogonias undulatus	1915.3	1359.69	21.2	9.75	3	287.1	225.60	6.5	4.97	7	0.2	0.17	0.0	0.01	12
Prionotus longispinosus	2.7	2.67	0.0	0.03	3	1056.1	719.06	3.3	2.30	7	15.3	9.94	0.1	0.08	12
Chloroscombrus chrysurus	1067.3	563.06	29.0	15.62	3	273.4	112.49	10.9	4.51	7	10.0	4.81	0.4	0.20	12
Etrumeus teres	0.0	0.00	0.0	0.00	3	2.8	1.81	0.0	0.01	7	202.1	131.00	0.9	0.66	12
Centropristis philadelphica	0.0	0.00	0.0	0.00	3	211.8	131.82	0.6	0.39	7	31.1	14.58	0.2	0.09	12
Serranus atrobranchus	0.0	0.00	0.0	0.00	3	0.0	0.00	0.0	0.00	7	22.3	19.16	0.1	0.06	12
Squid	16.0	7.02	0.3	0.20	3	121.6	58.57	1.1	0.54	7	92.9	25.30	1.4	0.52	12

Table 8a (continued)

Statistical Zone 15

Summary of dominant organisms taken in statistical zone 15 during the 1998 Summer Shrimp/Groundfish Survey by depth stratum, collected with either a 40-ft or 20-ft trawl. The mean number (NUM) of organisms per hour, the standard error of the mean (SEM) for numbers, the mean weight (WT) in kg per hour, the SEM for weight and the number (N) of samples taken.

SPECIES	21-30 FM					31-40 FM					>40 FM				
	NUM	SEM	WT	SEM	N	NUM	SEM	WT	SEM	N	NUM	SEM	WT	SEM	N
Trachypenaeus similis	104.7	78.52	0.8	0.57	4	0.0	0.00	0.0	0.00	2	0.0	0.00	0.0	0.00	2
Penaeus aztecus	50.6	16.87	1.1	0.34	4	29.0	13.00	1.2	0.61	2	10.5	8.50	0.7	0.50	2
Squilla spp.	43.8	34.48	0.4	0.34	4	27.0	27.00	0.4	0.39	2	1.0	1.00	0.0	0.00	2
Solenocera vioscai	15.9	12.07	0.1	0.06	4	30.0	30.00	0.1	0.09	2	16.5	9.50	0.1	0.02	2
Portunus spinicarpus	25.3	24.92	0.2	0.23	4	20.0	20.00	0.3	0.25	2	4.0	4.00	0.0	0.02	2
Callinectes similis	10.9	6.36	0.3	0.14	4	0.5	0.50	0.0	0.05	2	0.0	0.00	0.0	0.00	2
Stenotomus caprinus	330.1	274.79	3.6	1.66	4	181.5	81.50	8.3	4.66	2	142.0	4.00	8.0	0.32	2
Peprilus burti	396.3	251.41	6.5	3.45	4	347.5	344.50	12.6	12.45	2	53.5	42.50	2.2	1.61	2
Micropogonias undulatus	0.0	0.00	0.0	0.00	4	0.0	0.00	0.0	0.00	2	0.0	0.00	0.0	0.00	2
Prionotus longispinosus	9.8	5.45	0.3	0.15	4	3.0	3.00	0.2	0.16	2	13.0	1.00	1.1	0.30	2
Chloroscombrus chrysurus	0.0	0.00	0.0	0.00	4	0.0	0.00	0.0	0.00	2	0.0	0.00	0.0	0.00	2
Etrumeus teres	75.5	59.44	0.7	0.47	4	0.0	0.00	0.0	0.00	2	0.0	0.00	0.0	0.00	2
Centropristis philadelphica	18.8	10.52	0.7	0.31	4	9.5	0.50	0.9	0.30	2	8.0	1.00	1.0	0.36	2
Serranus atrobranchus	58.6	33.59	0.9	0.58	4	49.0	42.00	1.1	0.93	2	65.5	15.50	1.2	0.32	2
Squid	254.8	168.00	5.4	2.76	4	72.5	65.50	1.7	1.18	2	30.5	30.50	0.7	0.70	2

Table 8b

Statistical Zone 15

Summary of mean total catch and environmental data (X), the standard error of the mean (SEM) and the number (N) of samples taken during the 1998 Summer Shrimp/Groundfish Survey by depth stratum, collected with either a 40-ft or 20-ft trawl. Catch values in kg per hour, temperature in °C, salinity in ppt, chlorophyll in mg/m ³ , and oxygen in ppm.																		
Environmental category	0-5 FM			6-10 FM			11-20 FM			21-30 FM			31-40 FM			>40 FM		
	X	SEM	N	X	SEM	N	X	SEM	N	X	SEM	N	X	SEM	N	X	SEM	N
Total catch kg	70.9	9.64	3	37.5	9.82	7	13.9	3.45	12	29.9	4.10	4	36.4	15.91	2	27.7	5.45	2
Total finfish kg	67.0	8.48	3	33.9	8.89	7	8.5	1.91	12	21.3	3.47	4	31.8	15.45	2	25.2	5.23	2
Total crustacean kg	2.1	0.30	3	2.0	0.97	7	4.0	1.79	12	3.4	1.38	4	2.3	1.36	2	0.9	0.45	2
Total others kg	1.8	1.82	3	1.0	0.56	7	1.4	0.60	12	5.5	2.73	4	2.3	1.82	2	1.6	1.14	2
Surface temperature	32.4	0.65	4	30.8	0.25	8	30.1	0.08	12	30.6	0.06	3	30.7	0.08	3	29.9	0.06	3
Midwater temperature	29.8	0.24	4	29.4	0.18	8	28.6	0.53	12	28.9	0.37	3	22.8	0.95	3	22.7	0.51	3
Bottom temperature	29.4	0.43	4	22.3	0.32	8	21.1	0.57	12	20.6	0.10	3	19.7	0.19	3	18.5	0.87	3
Surface salinity	10.2	3.12	4	26.5	0.91	8	27.1	1.02	12	30.1	1.26	3	27.4	0.84	3	32.5	0.06	3
Midwater salinity	24.8	2.04	4	31.4	0.12	8	32.6	0.22	12	33.6	1.00	3	35.1	0.33	3	35.7	0.37	3
Bottom salinity	27.9	0.28	4	34.6	0.15	8	35.3	0.12	12	36.0	0.09	3	36.1	0.04	3	36.3	0.02	3
Surface chlorophyll	28.5	0.00	1	1.5	0.64	4	1.4	1.00	3	0.0	0.00	0	0.0	0.00	0	0.0	0.00	0
Surface fluorescence	0.9	0.00	4	2.0	0.58	8	1.6	0.17	12	0.4	0.18	3	0.8	0.12	3	0.2	0.00	3
Surface oxygen	15.0	1.28	4	6.0	0.35	8	5.8	0.26	12	5.4	0.03	3	5.6	0.09	3	5.2	0.15	3
Midwater oxygen	6.7	0.98	4	5.4	0.27	8	5.4	0.13	12	5.5	0.15	3	5.8	0.06	3	5.8	0.32	3
Bottom oxygen	5.1	0.25	4	2.0	0.60	8	2.7	0.37	12	3.3	0.35	3	3.7	0.07	3	4.0	0.15	3

Table 9a
 Statistical Zone 16

Summary of dominant organisms taken in statistical zone 16 during the 1998 Summer Shrimp/Groundfish Survey by depth stratum, collected with either a 40-ft or 20-ft trawl. The mean number (NUM) of organisms per hour, the standard error of the mean (SEM) for numbers, the mean weight (WT) in kg per hour, the SEM for weight and the number (N) of samples taken.

SPECIES	0- 5 FM					6-10 FM					11-20 FM				
	NUM	SEM	WT	SEM	N	NUM	SEM	WT	SEM	N	NUM	SEM	WT	SEM	N
Xiphopenaeus kroyeri	5026.7	4189.79	19.2	16.92	6	20.8	20.75	0.1	0.09	4	0.0	0.00	0.0	0.00	11
Trachypenaeus similis	0.0	0.00	0.0	0.00	6	0.0	0.00	0.0	0.00	4	441.2	229.28	1.0	0.47	11
Penaeus aztecus	32.3	12.86	0.3	0.15	6	25.1	15.90	0.3	0.16	4	170.2	64.61	2.3	0.88	11
Solenocera vioscai	0.0	0.00	0.0	0.00	6	0.0	0.00	0.0	0.00	4	0.0	0.00	0.0	0.00	11
Squilla spp.	0.0	0.00	0.0	0.00	6	0.0	0.00	0.0	0.00	4	12.0	4.25	0.1	0.04	11
Portunus spinicarpus	0.0	0.00	0.0	0.00	6	0.0	0.00	0.0	0.00	4	0.0	0.00	0.0	0.00	11
Chloroscombrus chrysurus	831.3	556.53	9.1	7.04	6	2922.8	1529.40	67.7	34.51	4	565.0	515.91	12.3	10.55	11
Stenotomus caprinus	0.8	0.83	0.0	0.00	6	0.0	0.00	0.0	0.00	4	1572.4	522.66	6.9	2.38	11
Micropogonias undulatus	1346.7	904.52	22.0	16.51	6	221.6	219.80	4.2	4.13	4	14.3	14.07	0.3	0.33	11
Peprilus burti	9.9	8.90	0.2	0.23	6	76.6	64.50	2.5	2.39	4	13.3	7.30	0.3	0.22	11
Leiostomus xanthurus	4.3	2.64	0.0	0.03	6	1.8	1.75	0.2	0.17	4	154.0	152.11	14.8	14.62	11
Prionotus stearnsi	0.0	0.00	0.0	0.00	6	0.0	0.00	0.0	0.00	4	13.5	10.13	0.0	0.03	11
Cynoscion nothus	36.6	24.41	0.8	0.64	6	116.8	112.45	4.9	4.79	4	1.1	0.81	0.1	0.08	11
Opisthonema oglinum	6.0	3.46	0.4	0.23	6	98.7	95.79	7.8	7.52	4	10.5	6.28	0.9	0.56	11
Squid	12.1	9.67	0.1	0.10	6	69.9	66.97	0.6	0.56	4	110.6	36.71	2.4	1.07	11

Table 9a (continued)

Statistical Zone 16

Summary of dominant organisms taken in statistical zone 16 during the 1998 Summer Shrimp/Groundfish Survey by depth stratum, collected with either a 40-ft or 20-ft trawl. The mean number (NUM) of organisms per hour, the standard error of the mean (SEM) for numbers, the mean weight (WT) in kg per hour, the SEM for weight and the number (N) of samples taken.

SPECIES	21-30 FM					31-40 FM					>40 FM				
	NUM	SEM	WT	SEM	N	NUM	SEM	WT	SEM	N	NUM	SEM	WT	SEM	N
Xiphopenaeus kroyeri	0.0	0.00	0.0	0.00	3	0.0	0.00	0.0	0.00	3	0.0	0.00	0.0	0.00	3
Trachypenaeus similis	0.0	0.00	0.0	0.00	3	0.0	0.00	0.0	0.00	3	0.0	0.00	0.0	0.00	3
Penaeus aztecus	8.2	0.59	0.2	0.04	3	10.3	5.24	0.6	0.33	3	11.1	7.32	0.8	0.50	3
Solenocera vioscai	0.0	0.00	0.0	0.00	3	21.1	20.12	0.1	0.08	3	97.1	96.10	0.4	0.42	3
Squilla spp.	0.6	0.59	0.0	0.00	3	7.6	5.67	0.0	0.02	3	29.1	14.47	0.3	0.14	3
Portunus spinicarpus	0.0	0.00	0.0	0.00	3	10.6	6.30	0.0	0.03	3	31.3	28.19	0.2	0.21	3
Chloroscombrus chrysurus	26.3	7.15	1.2	0.18	3	0.0	0.00	0.0	0.00	3	0.0	0.00	0.0	0.00	3
Stenotomus caprinus	834.6	84.13	22.7	2.59	3	204.9	43.93	10.3	2.28	3	205.6	45.26	11.1	1.58	3
Micropogonias undulatus	1.0	1.00	0.1	0.09	3	0.0	0.00	0.0	0.00	3	1.3	1.33	0.3	0.29	3
Peprilus burti	477.9	243.47	13.9	5.52	3	110.3	88.04	5.4	3.92	3	37.1	19.28	2.7	1.47	3
Leiostomus xanthurus	0.6	0.59	0.1	0.11	3	0.0	0.00	0.0	0.00	3	0.0	0.00	0.0	0.00	3
Prionotus stearnsi	3.7	3.67	0.0	0.02	3	149.6	107.74	2.4	1.72	3	101.0	63.52	1.0	0.67	3
Cynoscion nothus	0.0	0.00	0.0	0.00	3	0.0	0.00	0.0	0.00	3	0.0	0.00	0.0	0.00	3
Opisthonema oglinum	0.0	0.00	0.0	0.00	3	0.0	0.00	0.0	0.00	3	0.0	0.00	0.0	0.00	3
Squid	114.1	40.73	1.6	0.54	3	34.2	30.89	0.6	0.47	3	38.1	27.84	0.8	0.48	3

Table 9b

Statistical Zone 16

Summary of mean total catch and environmental data (X), the standard error of the mean (SEM) and the number (N) of samples taken during the 1998 Summer Shrimp/Groundfish Survey by depth stratum, collected with either a 40-ft or 20-ft trawl. Catch values in kg per hour, temperature in °C, salinity in ppt, chlorophyll in mg/m ³ , and oxygen in ppm.																		
Environmental category	0-5 FM			6-10 FM			11-20 FM			21-30 FM			31-40 FM			>40 FM		
	X	SEM	N	X	SEM	N	X	SEM	N	X	SEM	N	X	SEM	N	X	SEM	N
Total catch kg	62.0	21.52	6	92.6	54.97	4	46.5	15.96	11	47.5	6.98	3	41.2	6.11	3	44.5	6.68	3
Total finfish kg	41.3	18.08	6	91.3	55.07	4	40.1	16.37	11	45.4	7.07	3	34.5	6.01	3	37.6	5.57	3
Total crustacean kg	20.1	16.95	6	0.6	0.22	4	3.9	1.16	11	0.2	0.19	3	1.2	0.40	3	2.6	1.09	3
Total others kg	0.4	0.28	6	0.6	0.63	4	2.4	1.05	11	1.7	0.56	3	5.6	3.56	3	4.3	2.43	3
Surface temperature	30.7	0.37	7	30.8	0.20	5	30.3	0.10	9	30.2	0.16	3	29.5	0.04	3	30.0	0.05	3
Midwater temperature	30.0	0.18	7	29.3	0.26	5	29.3	0.07	9	28.5	0.39	3	24.3	1.04	3	23.3	0.38	3
Bottom temperature	29.1	0.23	7	26.6	1.11	5	23.0	0.76	9	21.2	0.12	3	20.6	0.06	3	20.0	0.12	3
Surface salinity	20.6	1.07	7	25.6	2.04	5	26.8	1.42	9	33.0	0.12	3	32.3	0.22	3	32.4	0.38	3
Midwater salinity	23.7	1.18	7	31.0	0.83	5	32.5	0.27	9	34.9	0.34	3	35.3	0.25	3	36.2	0.02	3
Bottom salinity	28.6	0.79	7	33.8	0.72	5	35.1	0.46	9	36.2	0.07	3	36.4	0.03	3	36.4	0.01	3
Surface chlorophyll	0.0	0.00	0	0.0	0.00	0	0.0	0.00	0	0.0	0.00	0	0.0	0.00	0	0.0	0.00	0
Surface fluorescence	1.9	0.46	7	2.8	1.09	5	1.7	0.44	9	0.2	0.01	3	0.2	0.01	3	0.2	0.00	3
Surface oxygen	6.8	0.49	7	4.9	0.45	5	5.4	0.27	9	5.5	0.09	3	5.3	0.15	3	4.9	0.29	3
Midwater oxygen	4.3	0.56	7	4.3	0.26	5	5.3	0.13	9	5.6	0.09	3	6.1	0.09	3	6.2	0.09	3
Bottom oxygen	2.0	0.59	7	3.9	0.87	5	4.4	0.26	9	4.4	0.23	3	4.6	0.26	3	4.2	0.12	3

Table 10a
 Statistical Zone 17

Summary of dominant organisms taken in statistical zone 17 during the 1998 Summer Shrimp/Groundfish Survey by depth stratum, collected with either a 40-ft or 20-ft trawl. The mean number (NUM) of organisms per hour, the standard error of the mean (SEM) for numbers, the mean weight (WT) in kg per hour, the SEM for weight and the number (N) of samples taken.

SPECIES	0- 5 FM					6-10 FM					11-20 FM				
	NUM	SEM	WT	SEM	N	NUM	SEM	WT	SEM	N	NUM	SEM	WT	SEM	N
Xiphopenaeus kroyeri	854.7	675.94	2.4	1.61	13	1.2	0.81	0.0	0.00	9	0.0	0.00	0.0	0.00	8
Penaeus aztecus	857.7	435.98	4.4	2.12	13	75.8	30.08	0.8	0.37	9	15.8	5.71	0.6	0.23	8
Callinectes similis	82.6	21.03	0.3	0.10	13	26.0	13.31	0.2	0.10	9	0.8	0.54	0.0	0.01	8
Sicyonia brevirostris	0.0	0.00	0.0	0.00	13	1.1	0.75	0.0	0.00	9	42.8	23.86	0.5	0.22	8
Trachypenaeus constrictus	0.0	0.00	0.0	0.00	13	41.8	26.51	0.2	0.09	9	0.0	0.00	0.0	0.00	8
Squilla spp.	9.3	3.88	0.0	0.02	13	20.9	8.90	0.2	0.11	9	2.3	1.35	0.0	0.02	8
Micropogonias undulatus	649.4	114.84	9.1	2.09	13	1938.0	1217.88	45.7	29.37	9	0.3	0.24	0.0	0.01	8
Stenotomus caprinus	0.0	0.00	0.0	0.00	13	96.5	85.92	0.6	0.52	9	1206.4	573.11	40.5	24.43	8
Leiostomus xanthurus	47.5	22.28	0.6	0.29	13	378.6	228.39	15.8	9.96	9	10.8	10.81	1.1	1.10	8
Chloroscombrus chrysurus	3.2	1.37	0.0	0.01	13	382.2	266.76	7.9	5.82	9	31.2	14.18	1.2	0.55	8
Etrumeus teres	0.0	0.00	0.0	0.00	13	0.0	0.00	0.0	0.00	9	321.7	253.63	2.0	1.66	8
Peprilus burti	23.1	5.48	0.2	0.06	13	75.4	64.51	1.9	1.17	9	28.6	10.63	0.9	0.39	8
Cynoscion nothus	28.2	14.73	0.8	0.46	13	161.3	110.88	6.6	4.43	9	0.5	0.54	0.0	0.02	8
Trachurus lathami	0.0	0.00	0.0	0.00	13	0.0	0.00	0.0	0.00	9	212.0	75.77	2.2	0.95	8
Squid	2.4	1.27	0.0	0.03	13	63.5	27.25	0.7	0.14	9	169.1	84.71	1.2	0.54	8

Table 10a (continued)

Statistical Zone 17

Summary of dominant organisms taken in statistical zone 17 during the 1998 Summer Shrimp/Groundfish Survey by depth stratum, collected with either a 40-ft or 20-ft trawl. The mean number (NUM) of organisms per hour, the standard error of the mean (SEM) for numbers, the mean weight (WT) in kg per hour, the SEM for weight and the number (N) of samples taken.

SPECIES	21-30 FM					31-40 FM					>40 FM				
	NUM	SEM	WT	SEM	N	NUM	SEM	WT	SEM	N	NUM	SEM	WT	SEM	N
Xiphopenaeus kroyeri	0.0	0.00	0.0	0.00	1	0.0	0.00	0.0	0.00	2	0.0	0.00	0.0	0.00	1
Penaeus aztecus	17.9	0.00	0.8	0.00	1	2.5	0.50	0.5	0.41	2	6.0	0.00	0.2	0.00	1
Callinectes similis	8.9	0.00	0.2	0.00	1	0.0	0.00	0.0	0.00	2	0.0	0.00	0.0	0.00	1
Sicyonia brevirostris	85.5	0.00	1.3	0.00	1	0.0	0.00	0.0	0.00	2	0.0	0.00	0.0	0.00	1
Trachypenaeus constrictus	0.0	0.00	0.0	0.00	1	0.0	0.00	0.0	0.00	2	0.0	0.00	0.0	0.00	1
Squilla spp.	0.0	0.00	0.0	0.00	1	0.0	0.00	0.0	0.00	2	0.0	0.00	0.0	0.00	1
Micropogonias undulatus	3.8	0.00	0.6	0.00	1	0.0	0.00	0.0	0.00	2	4.0	0.00	0.5	0.00	1
Stenotomus caprinus	2047.7	0.00	82.0	0.00	1	290.5	61.50	14.7	3.68	2	255.0	0.00	11.1	0.00	1
Leiostomus xanthurus	0.0	0.00	0.0	0.00	1	0.0	0.00	0.0	0.00	2	0.0	0.00	0.0	0.00	1
Chloroscombrus chrysurus	0.0	0.00	0.0	0.00	1	0.0	0.00	0.0	0.00	2	0.0	0.00	0.0	0.00	1
Etrumeus teres	85.5	0.00	1.0	0.00	1	0.0	0.00	0.0	0.00	2	4.0	0.00	0.0	0.00	1
Peprilus burti	227.2	0.00	12.0	0.00	1	269.5	90.50	19.2	6.66	2	18.0	0.00	1.1	0.00	1
Cynoscion nothus	0.0	0.00	0.0	0.00	1	0.0	0.00	0.0	0.00	2	0.0	0.00	0.0	0.00	1
Trachurus lathami	12.8	0.00	0.1	0.00	1	83.0	42.00	2.2	0.57	2	7.0	0.00	0.4	0.00	1
Squid	56.2	0.00	1.3	0.00	1	103.0	22.00	1.9	0.43	2	15.0	0.00	0.0	0.00	1

Table 10b

Statistical Zone 17

Summary of mean total catch and environmental data (X), the standard error of the mean (SEM) and the number (N) of samples taken during the 1998 Summer Shrimp/Groundfish Survey by depth stratum, collected with either a 40-ft or 20-ft trawl. Catch values in kg per hour, temperature in °C, salinity in ppt, chlorophyll in mg/m ³ , and oxygen in ppm.																		
Environmental category	0-5 FM			6-10 FM			11-20 FM			21-30 FM			31-40 FM			>40 FM		
	X	SEM	N	X	SEM	N	X	SEM	N	X	SEM	N	X	SEM	N	X	SEM	N
Total catch kg	28.5	7.29	13	100.0	43.04	9	58.2	24.25	8	117.2	0.00	1	48.9	13.41	2	28.6	0.00	1
Total finfish kg	16.1	3.51	13	95.9	42.69	9	55.8	24.20	8	112.6	0.00	1	45.0	14.55	2	25.0	0.00	1
Total crustacean kg	7.7	3.88	13	3.2	1.30	9	1.2	0.42	8	2.3	0.00	1	0.5	0.45	2	0.5	0.00	1
Total others kg	3.6	2.73	13	0.7	0.33	9	1.3	0.57	8	2.3	0.00	1	3.4	0.68	2	3.2	0.00	1
Surface temperature	29.7	0.26	14	30.3	0.16	8	29.6	0.15	9	29.2	0.06	2	30.1	0.00	1	29.9	0.00	2
Midwater temperature	29.5	0.25	14	29.6	0.12	8	29.1	0.10	9	27.7	1.04	2	25.3	0.00	1	23.0	0.00	2
Bottom temperature	29.0	0.27	14	29.2	0.17	8	21.5	0.12	9	21.0	0.17	2	20.8	0.00	1	20.1	0.00	2
Surface salinity	21.6	1.08	14	27.9	1.01	8	33.0	0.58	9	34.5	0.13	2	33.5	0.00	1	31.2	0.00	2
Midwater salinity	22.6	1.05	14	30.2	0.34	8	34.0	0.24	9	34.3	0.56	2	35.7	0.00	1	36.0	0.00	2
Bottom salinity	26.6	0.89	14	30.7	0.38	8	35.8	0.09	9	36.5	0.21	2	36.3	0.00	1	36.4	0.00	2
Surface chlorophyll	0.0	0.00	0	0.0	0.00	0	0.0	0.00	0	0.0	0.00	0	0.0	0.00	0	0.0	0.00	0
Surface fluorescence	0.4	0.21	14	1.6	0.43	8	0.2	0.03	9	0.2	0.01	2	0.1	0.00	1	0.2	0.00	2
Surface oxygen	6.9	0.28	14	5.7	0.46	8	4.9	0.23	9	4.7	0.40	2	3.7	0.00	1	4.7	0.00	2
Midwater oxygen	6.2	0.36	14	5.2	0.37	8	5.4	0.07	9	5.8	0.20	2	6.1	0.00	1	6.2	0.00	2
Bottom oxygen	4.7	0.47	14	5.4	0.34	8	5.1	0.12	9	5.1	0.60	2	4.4	0.00	1	4.6	0.00	2

Table 11a
 Statistical Zone 18

Summary of dominant organisms taken in statistical zone 18 during the 1998 Summer Shrimp/Groundfish Survey by depth stratum, collected with either a 40-ft or 20-ft trawl. The mean number (NUM) of organisms per hour, the standard error of the mean (SEM) for numbers, the mean weight (WT) in kg per hour, the SEM for weight and the number (N) of samples taken.

SPECIES	0- 5 FM					6-10 FM					11-20 FM				
	NUM	SEM	WT	SEM	N	NUM	SEM	WT	SEM	N	NUM	SEM	WT	SEM	N
Penaeus aztecus	155.1	48.72	1.1	0.25	8	174.3	50.10	1.3	0.37	15	651.7	637.92	6.2	6.05	4
Trachypenaeus similis	3.8	2.52	0.0	0.00	8	21.2	15.55	0.1	0.05	15	233.0	226.64	1.4	1.42	4
Squilla spp.	9.2	6.08	0.1	0.06	8	39.9	16.49	0.4	0.17	15	103.4	103.11	1.0	1.01	4
Sicyonia brevirostris	0.0	0.00	0.0	0.00	8	0.0	0.00	0.0	0.00	15	1.5	1.06	0.0	0.02	4
Penaeus setiferus	26.7	11.05	0.9	0.40	8	35.0	15.26	1.3	0.62	15	0.0	0.00	0.0	0.00	4
Callinectes similis	26.6	16.73	0.1	0.11	8	17.8	4.84	0.1	0.04	15	45.5	38.96	1.3	1.20	4
Micropogonias undulatus	1720.7	727.72	31.7	13.39	8	1743.8	621.01	37.5	15.13	15	12.3	12.27	0.2	0.21	4
Stenotomus caprinus	0.0	0.00	0.0	0.00	8	104.6	71.84	0.8	0.55	15	688.8	435.95	3.0	1.82	4
Chloroscombrus chrysurus	4.0	3.03	0.1	0.07	8	340.6	289.83	7.6	6.67	15	58.4	30.56	1.9	0.81	4
Cynoscion arenarius	61.5	54.74	1.1	0.71	8	128.3	81.17	3.6	2.14	15	0.0	0.00	0.0	0.00	4
Leiostomus xanthurus	41.1	27.74	0.8	0.43	8	139.3	32.11	2.3	0.48	15	254.5	254.55	4.6	4.65	4
Peprilus burti	14.7	13.90	0.1	0.10	8	44.7	17.95	0.8	0.32	15	30.7	27.45	0.7	0.58	4
Saurida brasiliensis	0.0	0.00	0.0	0.00	8	0.8	0.75	0.0	0.01	15	133.0	81.33	0.6	0.30	4
Cynoscion nothus	80.3	79.40	3.1	3.10	8	56.6	17.86	2.1	0.64	15	1.8	1.82	0.2	0.21	4
Squid	2.5	1.25	0.1	0.05	8	40.6	17.82	0.5	0.20	15	191.2	75.46	1.4	0.40	4

Table 11a (continued)

Statistical Zone 18

Summary of dominant organisms taken in statistical zone 18 during the 1998 Summer Shrimp/Groundfish Survey by depth stratum, collected with either a 40-ft or 20-ft trawl. The mean number (NUM) of organisms per hour, the standard error of the mean (SEM) for numbers, the mean weight (WT) in kg per hour, the SEM for weight and the number (N) of samples taken.

SPECIES	21-30 FM					31-40 FM					>40 FM				
	NUM	SEM	WT	SEM	N	NUM	SEM	WT	SEM	N	NUM	SEM	WT	SEM	N
Penaeus aztecus	8.8	5.09	0.4	0.22	4	1.1	1.09	0.0	0.05	2	1.2	0.00	0.1	0.00	1
Trachypenaeus similis	22.5	21.51	0.1	0.07	4	0.0	0.00	0.0	0.00	2	0.0	0.00	0.0	0.00	1
Squilla spp.	4.0	3.08	0.0	0.05	4	0.0	0.00	0.0	0.00	2	0.0	0.00	0.0	0.00	1
Sicyonia brevirostris	139.2	117.76	1.6	1.42	4	0.0	0.00	0.0	0.00	2	0.0	0.00	0.0	0.00	1
Penaeus setiferus	0.0	0.00	0.0	0.00	4	0.0	0.00	0.0	0.00	2	0.0	0.00	0.0	0.00	1
Callinectes similis	2.0	2.00	0.0	0.03	4	0.0	0.00	0.0	0.00	2	0.0	0.00	0.0	0.00	1
Micropogonias undulatus	2.7	1.03	0.2	0.07	4	0.0	0.00	0.0	0.00	2	0.0	0.00	0.0	0.00	1
Stenotomus caprinus	438.8	125.51	21.0	4.43	4	428.3	233.05	13.5	3.73	2	155.3	0.00	8.1	0.00	1
Chloroscombrus chrysurus	0.0	0.00	0.0	0.00	4	0.0	0.00	0.0	0.00	2	0.0	0.00	0.0	0.00	1
Cynoscion arenarius	1.3	1.25	0.2	0.20	4	0.0	0.00	0.0	0.00	2	0.0	0.00	0.0	0.00	1
Leiostomus xanthurus	1.3	1.25	0.2	0.19	4	0.0	0.00	0.0	0.00	2	0.0	0.00	0.0	0.00	1
Peprilus burti	10.7	3.18	0.5	0.11	4	10.9	10.91	0.6	0.62	2	62.4	0.00	4.8	0.00	1
Saurida brasiliensis	36.9	16.26	0.5	0.20	4	4.8	4.77	0.0	0.03	2	3.5	0.00	0.0	0.00	1
Cynoscion nothus	0.0	0.00	0.0	0.00	4	0.0	0.00	0.0	0.00	2	0.0	0.00	0.0	0.00	1
Squid	100.4	32.04	2.6	0.93	4	64.0	2.86	1.7	1.41	2	25.9	0.00	1.9	0.00	1

Table 11b

Statistical Zone 18

Summary of mean total catch and environmental data (X), the standard error of the mean (SEM) and the number (N) of samples taken during the 1998 Summer Shrimp/Groundfish Survey by depth stratum, collected with either a 40-ft or 20-ft trawl. Catch values in kg per hour, temperature in °C, salinity in ppt, chlorophyll in mg/m ³ , and oxygen in ppm.																			
Environmental category	0-5 FM			6-10 FM			11-20 FM			21-30 FM			31-40 FM			>40 FM			
	X	SEM	N	X	SEM	N	X	SEM	N	X	SEM	N	X	SEM	N	X	SEM	N	
Total catch kg	45.4	15.50	8	64.2	19.17	15	31.3	22.65	4	40.0	6.47	4	36.4	7.25	2	69.5	0.00	1	
Total finfish kg	39.7	14.82	8	59.7	18.37	15	16.2	10.11	4	33.1	5.34	4	33.5	5.64	2	59.9	0.00	1	
Total crustacean kg	3.2	0.68	8	3.2	1.08	15	12.8	11.98	4	3.7	2.86	4	0.7	0.74	2	6.4	0.00	1	
Total others kg	2.8	2.72	8	1.0	0.31	15	2.2	0.95	4	3.3	0.87	4	2.1	0.87	2	2.7	0.00	1	
Surface temperature	29.6	0.31	8	29.6	0.16	14	29.3	0.10	4	29.3	0.55	2	28.7	0.00	1	28.7	0.00	2	
Midwater temperature	28.9	0.33	8	28.8	0.13	14	28.9	0.14	4	27.7	0.01	2	26.6	0.00	1	24.3	0.13	2	
Bottom temperature	28.7	0.27	8	28.7	0.13	14	24.4	0.93	4	21.7	0.19	2	20.7	0.00	1	20.1	0.06	2	
Surface salinity	31.7	0.62	8	30.0	1.29	14	32.9	0.57	4	35.5	0.20	2	35.6	0.00	1	35.6	0.39	2	
Midwater salinity	31.9	0.57	8	31.2	0.70	14	34.4	0.62	4	35.9	0.71	2	35.9	0.00	1	36.3	0.02	2	
Bottom salinity	31.9	0.65	8	32.2	0.39	14	35.5	0.44	4	36.3	0.19	2	36.3	0.00	1	36.4	0.06	2	
Surface chlorophyll	0.0	0.00	0	0.0	0.00	0	0.0	0.00	0	0.0	0.00	0	0.0	0.00	0	0.0	0.00	0	
Surface fluorescence	1.9	0.37	8	2.0	0.37	14	0.3	0.07	4	0.2	0.06	2	0.1	0.00	1	0.1	0.00	2	
Surface oxygen	6.5	0.31	8	6.7	0.38	14	5.1	0.40	4	4.9	0.70	2	4.4	0.00	1	4.8	0.15	2	
Midwater oxygen	6.3	0.32	8	5.6	0.53	14	5.7	0.07	4	5.7	0.30	2	5.9	0.00	1	6.6	0.05	2	
Bottom oxygen	6.1	0.21	8	5.6	0.48	14	5.3	0.29	4	5.6	0.25	2	5.1	0.00	1	5.1	0.45	2	

Table 12a
 Statistical Zone 19

Summary of dominant organisms taken in statistical zone 19 during the 1998 Summer Shrimp/Groundfish Survey by depth stratum, collected with either a 40-ft or 20-ft trawl. The mean number (NUM) of organisms per hour, the standard error of the mean (SEM) for numbers, the mean weight (WT) in kg per hour, the SEM for weight and the number (N) of samples taken. No trawl samples were taken in depths greater than 30 fm.

SPECIES	0- 5 FM					6-10 FM					11-20 FM				
	NUM	SEM	WT	SEM	N	NUM	SEM	WT	SEM	N	NUM	SEM	WT	SEM	N
Trachypenaeus similis	0.0	0.00	0.0	0.00	4	83.1	45.13	0.1	0.10	17	1522.7	489.68	4.0	1.13	17
Penaeus aztecus	6.0	4.24	0.0	0.00	4	100.4	39.40	0.9	0.35	17	958.7	246.20	9.1	1.97	17
Callinectes similis	0.0	0.00	0.0	0.00	4	137.2	69.64	1.0	0.54	17	434.3	200.91	4.2	1.70	17
Squilla spp.	0.0	0.00	0.0	0.00	4	46.9	22.63	0.3	0.13	17	214.0	72.45	2.2	0.72	17
Xiphopenaeus kroyeri	1.5	1.50	0.0	0.00	4	119.5	70.72	0.9	0.64	17	0.0	0.00	0.0	0.00	17
Sicyonia dorsalis	0.0	0.00	0.0	0.00	4	1.9	1.76	0.0	0.00	17	130.2	54.14	0.2	0.06	17
Micropogonias undulatus	9.0	5.20	0.1	0.14	4	1585.7	605.41	30.2	12.13	17	268.9	95.56	5.7	2.05	17
Stenotomus caprinus	0.0	0.00	0.0	0.00	4	0.0	0.00	0.0	0.00	17	345.9	97.99	4.0	2.25	17
Chloroscombrus chrysurus	174.0	130.95	2.2	1.48	4	62.4	23.09	0.9	0.32	17	114.4	54.91	2.6	1.13	17
Prionotus longispinosus	0.0	0.00	0.0	0.00	4	9.7	4.48	0.1	0.04	17	153.9	81.75	0.9	0.49	17
Peprilus burti	0.0	0.00	0.0	0.00	4	186.9	165.18	2.8	2.37	17	72.1	25.17	2.1	0.79	17
Cynoscion nothus	7.5	3.77	0.2	0.07	4	141.2	48.05	3.6	1.54	17	58.1	31.56	2.0	1.08	17
Cynoscion arenarius	0.0	0.00	0.0	0.00	4	79.9	36.89	0.9	0.37	17	36.9	21.65	0.5	0.34	17
Syacium gunteri	0.0	0.00	0.0	0.00	4	7.5	5.12	0.1	0.04	17	58.8	18.53	0.7	0.20	17
Squid	9.0	3.00	0.2	0.07	4	58.8	14.59	0.6	0.14	17	130.6	44.41	1.7	0.59	17

Table 12a (continued)

Statistical Zone 19

Summary of dominant organisms taken in statistical zone 19 during the 1998 Summer Shrimp/Groundfish Survey by depth stratum, collected with either a 40-ft or 20-ft trawl. The mean number (NUM) of organisms per hour, the standard error of the mean (SEM) for numbers, the mean weight (WT) in kg per hour, the SEM for weight and the number (N) of samples taken. No trawl samples were taken in depths greater than 30 fm.

SPECIES	21-30 FM					31-40 FM					>40 FM				
	NUM	SEM	WT	SEM	N	NUM	SEM	WT	SEM	N	NUM	SEM	WT	SEM	N
Trachypenaeus similis	38.8	38.82	0.2	0.24	3	0.0	0.00	0.0	0.00	0	0.0	0.00	0.00	0	0
Penaeus aztecus	14.0	8.50	0.4	0.25	3	0.0	0.00	0.0	0.00	0	0.0	0.00	0.00	0	0
Callinectes similis	27.4	27.35	0.3	0.27	3	0.0	0.00	0.0	0.00	0	0.0	0.00	0.00	0	0
Squilla spp.	2.9	2.94	0.0	0.04	3	0.0	0.00	0.0	0.00	0	0.0	0.00	0.00	0	0
Xiphopenaeus kroyeri	0.0	0.00	0.0	0.00	3	0.0	0.00	0.0	0.00	0	0.0	0.00	0.00	0	0
Sicyonia dorsalis	0.5	0.51	0.0	0.00	3	0.0	0.00	0.0	0.00	0	0.0	0.00	0.00	0	0
Micropogonias undulatus	0.0	0.00	0.0	0.00	3	0.0	0.00	0.0	0.00	0	0.0	0.00	0.00	0	0
Stenotomus caprinus	923.5	540.34	23.0	16.56	3	0.0	0.00	0.0	0.00	0	0.0	0.00	0.00	0	0
Chloroscombrus chrysurus	0.0	0.00	0.0	0.00	3	0.0	0.00	0.0	0.00	0	0.0	0.00	0.00	0	0
Prionotus longispinosus	4.1	4.12	0.2	0.20	3	0.0	0.00	0.0	0.00	0	0.0	0.00	0.00	0	0
Peprilus burti	50.9	50.91	2.2	2.21	3	0.0	0.00	0.0	0.00	0	0.0	0.00	0.00	0	0
Cynoscion nothus	0.0	0.00	0.0	0.00	3	0.0	0.00	0.0	0.00	0	0.0	0.00	0.00	0	0
Cynoscion arenarius	0.0	0.00	0.0	0.00	3	0.0	0.00	0.0	0.00	0	0.0	0.00	0.00	0	0
Syacium gunteri	26.6	14.59	0.3	0.23	3	0.0	0.00	0.0	0.00	0	0.0	0.00	0.00	0	0
Squid	144.0	67.84	1.2	0.51	3	0.0	0.00	0.0	0.00	0	0.0	0.00	0.00	0	0

Table 12b

Statistical Zone 19

Summary of mean total catch and environmental data (X), the standard error of the mean (SEM) and the number (N) of samples taken during the 1998 Summer Shrimp/Groundfish Survey by depth stratum, collected with either a 40-ft or 20-ft trawl. Catch values in kg per hour, temperature in °C, salinity in ppt, chlorophyll in mg/m ³ , and oxygen in ppm. No trawl samples were taken in depths greater than 30 fm.																		
Environmental category	0-5 FM			6-10 FM			11-20 FM			21-30 FM			31-40 FM			>40 FM		
	X	SEM	N	X	SEM	N	X	SEM	N	X	SEM	N	X	SEM	N	X	SEM	N
Total catch kg	5.5	1.11	4	53.6	15.37	17	52.6	7.37	17	44.0	20.09	3	0.0	0.00	0	0.0	0.00	0
Total finfish kg	3.4	0.68	4	44.5	13.93	17	29.4	6.18	17	37.4	22.94	3	0.0	0.00	0	0.0	0.00	0
Total crustacean kg	0.0	0.00	4	5.6	1.86	17	21.3	3.89	17	4.6	3.34	3	0.0	0.00	0	0.0	0.00	0
Total others kg	0.7	0.68	4	3.7	1.28	17	1.8	0.61	17	1.9	0.79	3	0.0	0.00	0	0.0	0.00	0
Surface temperature	29.7	0.35	6	28.4	0.36	15	28.9	0.09	14	28.9	0.08	4	0.0	0.00	0	0.0	0.00	0
Midwater temperature	29.8	0.25	6	28.0	0.42	15	28.6	0.15	14	28.6	0.10	4	0.0	0.00	0	0.0	0.00	0
Bottom temperature	29.4	0.55	6	25.7	0.75	15	26.3	0.64	14	22.1	0.16	4	0.0	0.00	0	0.0	0.00	0
Surface salinity	33.8	0.49	6	32.7	0.54	15	34.8	0.36	14	36.2	0.07	4	0.0	0.00	0	0.0	0.00	0
Midwater salinity	33.8	0.47	6	33.1	0.45	15	34.9	0.35	14	36.2	0.04	4	0.0	0.00	0	0.0	0.00	0
Bottom salinity	34.1	0.29	6	33.8	0.35	15	35.1	0.27	14	36.2	0.04	4	0.0	0.00	0	0.0	0.00	0
Surface chlorophyll	0.0	0.00	0	0.0	0.00	0	0.0	0.00	0	0.0	0.00	0	0.0	0.00	0	0.0	0.00	0
Surface fluorescence	0.8	0.18	6	0.7	0.13	15	0.6	0.15	14	0.1	0.01	4	0.0	0.00	0	0.0	0.00	0
Surface oxygen	5.6	0.34	6	5.9	0.18	15	5.1	0.11	14	5.6	0.03	4	0.0	0.00	0	0.0	0.00	0
Midwater oxygen	5.6	0.34	6	5.9	0.22	15	5.2	0.17	14	5.8	0.03	4	0.0	0.00	0	0.0	0.00	0
Bottom oxygen	5.7	0.22	6	5.1	0.18	15	5.4	0.18	14	6.0	0.06	4	0.0	0.00	0	0.0	0.00	0

Table 13a
 Statistical Zone 20

Summary of dominant organisms taken in statistical zone 20 during the 1998 Summer Shrimp/Groundfish Survey by depth stratum, collected with either a 40-ft or 20-ft trawl. The mean number (NUM) of organisms per hour, the standard error of the mean (SEM) for numbers, the mean weight (WT) in kg per hour, the SEM for weight and the number (N) of samples taken.

SPECIES	0- 5 FM					6-10 FM					11-20 FM				
	NUM	SEM	WT	SEM	N	NUM	SEM	WT	SEM	N	NUM	SEM	WT	SEM	N
Penaeus aztecus	30.0	30.00	0.2	0.18	3	284.4	95.93	3.4	1.12	13	738.6	340.28	6.5	2.39	19
Trachypenaeus similis	8.0	8.00	0.0	0.00	3	225.7	153.58	0.4	0.25	13	269.5	134.19	1.1	0.55	19
Callinectes similis	26.3	15.60	0.3	0.17	3	132.1	54.46	1.3	0.52	13	53.7	19.51	0.5	0.23	19
Squilla spp.	3.7	1.86	0.0	0.00	3	71.5	36.34	0.6	0.36	13	37.8	20.96	0.3	0.22	19
Sicyonia dorsalis	0.0	0.00	0.0	0.00	3	9.3	4.71	0.0	0.01	13	39.7	17.81	0.1	0.03	19
Penaeus duorarum	4.0	4.00	0.1	0.09	3	14.1	10.87	0.2	0.20	13	0.7	0.36	0.0	0.01	19
Peprilus burti	1.7	1.67	0.1	0.08	3	158.4	155.87	5.0	4.90	13	139.1	52.10	3.5	1.44	19
Micropogonias undulatus	748.0	326.44	12.7	6.34	3	511.2	188.62	9.1	3.61	13	22.0	16.33	1.2	1.03	19
Stenotomus caprinus	0.0	0.00	0.0	0.00	3	0.2	0.23	0.0	0.00	13	106.0	47.45	0.2	0.09	19
Etrumeus teres	0.0	0.00	0.0	0.00	3	17.3	17.31	0.1	0.13	13	224.7	176.34	1.4	1.01	19
Chloroscombrus chrysurus	178.3	178.33	5.4	5.38	3	226.6	136.16	5.0	2.64	13	67.0	44.51	1.5	0.92	19
Leiostomus xanthurus	1307.0	613.75	23.3	12.80	3	233.2	148.03	3.6	2.05	13	0.5	0.55	0.0	0.04	19
Cynoscion nothus	16.0	13.11	0.3	0.27	3	120.3	50.15	3.8	1.69	13	51.0	25.22	1.5	0.79	19
Prionotus stearnsi	0.0	0.00	0.0	0.00	3	0.2	0.23	0.0	0.00	13	7.2	6.71	0.1	0.07	19
Squid	17.3	11.33	0.3	0.30	3	62.2	25.21	0.8	0.36	13	317.8	84.06	4.6	1.37	19

Table 13a (continued)

Statistical Zone 20

Summary of dominant organisms taken in statistical zone 20 during the 1998 Summer Shrimp/Groundfish Survey by depth stratum, collected with either a 40-ft or 20-ft trawl. The mean number (NUM) of organisms per hour, the standard error of the mean (SEM) for numbers, the mean weight (WT) in kg per hour, the SEM for weight and the number (N) of samples taken.

SPECIES	21-30 FM					31-40 FM					>40 FM				
	NUM	SEM	WT	SEM	N	NUM	SEM	WT	SEM	N	NUM	SEM	WT	SEM	N
Penaeus aztecus	95.8	86.88	0.9	0.74	4	13.3	4.39	0.7	0.23	7	5.0	1.90	0.3	0.13	8
Trachypenaeus similis	86.8	85.76	0.4	0.43	4	0.4	0.37	0.0	0.00	7	0.0	0.00	0.0	0.00	8
Callinectes similis	17.1	15.57	0.2	0.17	4	6.4	3.69	0.0	0.02	7	0.0	0.00	0.0	0.00	8
Squilla spp.	3.1	3.06	0.0	0.03	4	1.7	0.67	0.0	0.01	7	1.8	0.89	0.0	0.02	8
Sicyonia dorsalis	4.0	2.09	0.0	0.00	4	0.0	0.00	0.0	0.00	7	0.0	0.00	0.0	0.00	8
Penaeus duorarum	0.0	0.00	0.0	0.00	4	0.0	0.00	0.0	0.00	7	0.0	0.00	0.0	0.00	8
Peprilus burti	22.7	12.91	0.9	0.57	4	30.5	11.30	1.8	0.75	7	105.5	34.05	4.2	1.18	8
Micropogonias undulatus	0.0	0.00	0.0	0.00	4	0.0	0.00	0.0	0.00	7	0.0	0.00	0.0	0.00	8
Stenotomus caprinus	182.4	104.97	5.7	3.45	4	144.0	46.71	6.3	2.17	7	155.6	23.60	8.0	1.10	8
Etrumeus teres	284.8	120.06	2.3	0.99	4	0.0	0.00	0.0	0.00	7	2.8	1.92	0.1	0.05	8
Chloroscombrus chrysurus	0.0	0.00	0.0	0.00	4	0.5	0.54	0.0	0.04	7	0.0	0.00	0.0	0.00	8
Leiostomus xanthurus	0.0	0.00	0.0	0.00	4	0.1	0.14	0.0	0.03	7	0.0	0.00	0.0	0.00	8
Cynoscion nothus	0.0	0.00	0.0	0.00	4	0.0	0.00	0.0	0.00	7	0.0	0.00	0.0	0.00	8
Prionotus stearnsi	59.0	13.95	0.4	0.11	4	114.7	59.70	1.5	0.85	7	62.8	29.05	0.7	0.31	8
Squid	446.5	134.42	4.1	1.29	4	152.3	55.14	3.2	0.95	7	169.0	90.83	2.0	0.74	8

Table 13b

Statistical Zone 20

Summary of mean total catch and environmental data (X), the standard error of the mean (SEM) and the number (N) of samples taken during the 1998 Summer Shrimp/Groundfish Survey by depth stratum, collected with either a 40-ft or 20-ft trawl. Catch values in kg per hour, temperature in °C, salinity in ppt, chlorophyll in mg/m ³ , and oxygen in ppm.																		
Environmental category	0-5 FM			6-10 FM			11-20 FM			21-30 FM			31-40 FM			>40 FM		
	X	SEM	N	X	SEM	N	X	SEM	N	X	SEM	N	X	SEM	N	X	SEM	N
Total catch kg	57.9	29.44	3	42.2	12.05	13	29.9	6.11	19	24.3	5.48	4	35.8	5.82	7	46.7	8.49	8
Total finfish kg	53.6	29.05	3	33.1	11.09	13	15.9	5.63	19	18.3	6.24	4	28.5	4.71	7	42.5	7.96	8
Total crustacean kg	4.2	0.80	3	7.4	2.35	13	8.8	3.15	19	1.6	1.50	4	1.8	1.18	7	0.8	0.47	8
Total others kg	0.9	0.91	3	1.5	0.54	13	5.0	1.40	19	4.5	1.32	4	5.2	1.24	7	3.7	0.78	8
Surface temperature	29.3	0.40	3	28.5	0.23	15	28.2	0.17	18	28.3	0.28	3	28.8	0.19	4	28.8	0.16	8
Midwater temperature	29.6	0.73	3	28.2	0.24	15	26.9	0.33	18	24.8	1.03	3	25.6	1.01	4	24.3	0.60	8
Bottom temperature	28.7	1.30	3	26.6	0.56	15	24.0	0.52	18	21.3	0.07	3	21.1	0.25	4	19.9	0.17	8
Surface salinity	36.0	0.64	3	35.9	0.19	15	36.1	0.19	18	36.4	0.02	3	35.9	0.19	4	35.9	0.09	8
Midwater salinity	36.1	0.69	3	36.1	0.22	15	36.3	0.16	18	36.3	0.07	3	36.2	0.05	4	36.2	0.05	8
Bottom salinity	34.7	1.98	3	36.3	0.22	15	36.3	0.15	18	36.3	0.03	3	36.3	0.01	4	36.3	0.01	8
Surface chlorophyll	0.0	0.00	0	0.0	0.00	0	0.0	0.00	0	0.0	0.00	0	0.0	0.00	0	0.0	0.00	0
Surface fluorescence	0.5	0.36	3	0.3	0.12	15	0.3	0.06	18	0.2	0.02	3	0.1	0.01	4	0.2	0.10	8
Surface oxygen	5.4	0.48	3	5.6	0.14	15	5.5	0.14	18	5.4	0.03	3	4.6	0.42	4	4.7	0.20	8
Midwater oxygen	5.7	0.38	3	5.4	0.20	15	5.8	0.12	18	5.9	0.15	3	5.9	0.11	4	6.0	0.05	8
Bottom oxygen	5.7	0.33	3	5.6	0.12	15	5.6	0.19	18	6.4	0.12	3	5.3	0.25	4	4.4	0.10	8

Table 14a
 Statistical Zone 21

Summary of dominant organisms taken in statistical zone 21 during the 1998 Summer Shrimp/Groundfish Survey by depth stratum, collected with either a 40-ft or 20-ft trawl. The mean number (NUM) of organisms per hour, the standard error of the mean (SEM) for numbers, the mean weight (WT) in kg per hour, the SEM for weight and the number (N) of samples taken.

SPECIES	0- 5 FM					6-10 FM					11-20 FM				
	NUM	SEM	WT	SEM	N	NUM	SEM	WT	SEM	N	NUM	SEM	WT	SEM	N
Penaeus aztecus	534.6	248.80	5.9	2.77	4	320.7	224.78	2.7	1.97	9	443.3	246.20	5.5	3.19	14
Trachypenaeus similis	0.0	0.00	0.0	0.00	4	8.2	8.24	0.1	0.05	9	118.9	70.17	0.5	0.28	14
Penaeus duorarum	56.6	42.21	0.9	0.68	4	61.5	33.81	0.9	0.53	9	81.0	70.13	0.9	0.74	14
Callinectes similis	5.4	5.36	0.0	0.05	4	40.4	29.60	0.3	0.20	9	10.5	4.40	0.1	0.06	14
Sicyonia dorsalis	0.0	0.00	0.0	0.00	4	3.5	2.05	0.0	0.00	9	40.5	12.16	0.1	0.03	14
Portunus spinicarpus	0.0	0.00	0.0	0.00	4	0.0	0.00	0.0	0.00	9	5.4	2.81	0.0	0.01	14
Stenotomus caprinus	0.0	0.00	0.0	0.00	4	1.5	0.96	0.0	0.00	9	559.7	235.65	1.5	0.53	14
Peprilus burti	78.9	71.08	1.5	1.39	4	106.5	74.11	0.9	0.42	9	44.7	18.17	0.2	0.10	14
Leiostomus xanthurus	594.9	225.84	24.5	12.11	4	129.4	78.78	7.5	4.97	9	3.7	3.28	0.2	0.22	14
Lagodon rhomboides	125.4	72.80	2.2	1.32	4	91.1	54.02	1.7	0.94	9	67.0	61.08	1.7	1.50	14
Chloroscombrus chrysurus	520.7	312.14	8.4	4.89	4	88.3	62.46	1.7	1.17	9	0.8	0.53	0.0	0.03	14
Trachurus lathami	1.1	1.07	0.0	0.00	4	0.0	0.00	0.0	0.00	9	33.2	28.53	0.5	0.45	14
Upeneus parvus	19.3	19.29	0.3	0.34	4	14.4	10.53	0.3	0.21	9	38.6	15.87	0.5	0.20	14
Micropogonias undulatus	353.8	283.18	7.6	5.89	4	33.1	31.61	0.9	0.91	9	1.4	1.02	0.0	0.02	14
Squid	70.5	26.00	0.8	0.40	4	53.4	14.67	0.6	0.13	9	215.2	73.27	4.4	2.09	14

Table 14a (continued)

Statistical Zone 21

Summary of dominant organisms taken in statistical zone 21 during the 1998 Summer Shrimp/Groundfish Survey by depth stratum, collected with either a 40-ft or 20-ft trawl. The mean number (NUM) of organisms per hour, the standard error of the mean (SEM) for numbers, the mean weight (WT) in kg per hour, the SEM for weight and the number (N) of samples taken.

SPECIES	21-30 FM					31-40 FM					>40 FM				
	NUM	SEM	WT	SEM	N	NUM	SEM	WT	SEM	N	NUM	SEM	WT	SEM	N
Penaeus aztecus	16.3	5.01	0.7	0.22	4	14.0	7.05	0.6	0.20	3	0.0	0.00	0.0	0.00	1
Trachypenaeus similis	19.9	10.37	0.2	0.10	4	0.0	0.00	0.0	0.00	3	0.0	0.00	0.0	0.00	1
Penaeus duorarum	0.3	0.25	0.0	0.01	4	0.0	0.00	0.0	0.00	3	0.0	0.00	0.0	0.00	1
Callinectes similis	0.0	0.00	0.0	0.00	4	0.0	0.00	0.0	0.00	3	0.0	0.00	0.0	0.00	1
Sicyonia dorsalis	0.0	0.00	0.0	0.00	4	0.0	0.00	0.0	0.00	3	0.0	0.00	0.0	0.00	1
Portunus spinicarpus	19.0	6.56	0.2	0.07	4	9.5	4.89	0.0	0.02	3	2.3	0.00	0.0	0.00	1
Stenotomus caprinus	157.0	48.17	6.5	2.23	4	110.2	37.86	6.0	1.93	3	2.3	0.00	0.1	0.00	1
Peprilus burti	132.8	131.12	10.2	10.01	4	112.7	112.65	13.1	13.10	3	2.3	0.00	0.2	0.00	1
Leiostomus xanthurus	0.0	0.00	0.0	0.00	4	0.0	0.00	0.0	0.00	3	0.0	0.00	0.0	0.00	1
Lagodon rhomboides	17.5	11.31	1.0	0.63	4	2.2	1.68	0.2	0.16	3	0.0	0.00	0.0	0.00	1
Chloroscombrus chrysurus	0.0	0.00	0.0	0.00	4	0.0	0.00	0.0	0.00	3	0.0	0.00	0.0	0.00	1
Trachurus lathami	31.0	29.67	1.0	0.94	4	10.3	7.20	2.9	2.81	3	60.0	0.00	4.2	0.00	1
Upeneus parvus	32.3	29.25	1.0	0.93	4	7.6	4.61	2.7	2.58	3	4.6	0.00	0.1	0.00	1
Micropogonias undulatus	0.0	0.00	0.0	0.00	4	0.0	0.00	0.0	0.00	3	0.0	0.00	0.0	0.00	1
Squid	20.3	10.96	0.7	0.26	4	90.1	68.51	1.7	1.10	3	0.0	0.00	0.0	0.00	1

Table 14b

Statistical Zone 21

Summary of mean total catch and environmental data (X), the standard error of the mean (SEM) and the number (N) of samples taken during the 1998 Summer Shrimp/Groundfish Survey by depth stratum, collected with either a 40-ft or 20-ft trawl. Catch values in kg per hour, temperature in °C, salinity in ppt, chlorophyll in mg/m ³ , and oxygen in ppm.																		
Environmental category	0-5 FM			6-10 FM			11-20 FM			21-30 FM			31-40 FM			>40 FM		
	X	SEM	N	X	SEM	N	X	SEM	N	X	SEM	N	X	SEM	N	X	SEM	N
Total catch kg	68.5	30.34	4	24.6	11.25	9	18.1	4.75	14	28.5	13.16	4	36.7	20.88	3	51.4	0.00	1
Total finfish kg	58.5	28.91	4	18.7	9.65	9	6.1	2.06	14	26.3	12.84	4	33.6	19.68	3	50.3	0.00	1
Total crustacean kg	9.6	3.98	4	4.5	2.72	9	7.2	3.57	14	1.2	0.29	4	0.5	0.26	3	1.0	0.00	1
Total others kg	1.0	0.56	4	0.5	0.32	9	4.1	2.16	14	0.9	0.59	4	1.6	1.41	3	0.0	0.00	1
Surface temperature	25.5	1.30	2	25.5	0.18	12	26.3	0.21	14	28.3	0.11	3	28.8	0.00	1	27.6	0.00	1
Midwater temperature	24.8	0.55	2	24.8	0.32	12	24.8	0.37	14	24.5	0.66	3	23.6	0.00	1	22.9	0.00	1
Bottom temperature	24.3	0.85	2	23.8	0.25	12	23.2	0.27	14	20.4	0.31	3	19.5	0.00	1	19.1	0.00	1
Surface salinity	37.2	0.02	2	36.6	0.23	12	36.5	0.27	14	35.6	0.81	3	36.4	0.00	1	36.2	0.00	1
Midwater salinity	37.3	0.02	2	36.8	0.15	12	36.8	0.16	14	36.4	0.01	3	36.4	0.00	1	36.4	0.00	1
Bottom salinity	37.4	0.03	2	36.9	0.13	12	36.7	0.25	14	36.4	0.01	3	36.3	0.00	1	36.3	0.00	1
Surface chlorophyll	0.0	0.00	0	0.0	0.00	0	0.0	0.00	0	0.0	0.00	0	0.0	0.00	0	0.0	0.00	0
Surface fluorescence	0.4	0.00	2	0.4	0.03	12	0.3	0.03	14	0.1	0.01	3	0.1	0.00	1	0.2	0.00	1
Surface oxygen	6.0	0.30	2	5.9	0.16	12	5.6	0.17	14	4.9	0.32	3	5.4	0.00	1	5.0	0.00	1
Midwater oxygen	5.9	0.25	2	5.9	0.16	12	6.1	0.14	14	6.2	0.10	3	6.3	0.00	1	6.2	0.00	1
Bottom oxygen	6.1	0.20	2	5.8	0.19	12	6.2	0.13	14	4.6	0.23	3	4.2	0.00	1	3.9	0.00	1

Table 15a
 Statistical Zone 22

Summary of dominant organisms taken in statistical zone 22 during the 1998 Summer Shrimp/Groundfish Survey by depth stratum, collected with either a 40-ft or 20-ft trawl. The mean number (NUM) of organisms per hour, the standard error of the mean (SEM) for numbers, the mean weight (WT) in kg per hour, the SEM for weight and the number (N) of samples taken. No trawl samples were taken in depths less than 6 fm or greater than 10 fm.

SPECIES	0- 5 FM					6-10 FM					11-20 FM				
	NUM	SEM	WT	SEM	N	NUM	SEM	WT	SEM	N	NUM	SEM	WT	SEM	N
Penaeus aztecus	0.0	0.00	0.0	0.00	0	6.0	0.00	0.0	0.00	1	0.0	0.00	0.00	0	0
Centropristis philadelphica	0.0	0.00	0.0	0.00	0	12.0	0.00	0.0	0.00	1	0.0	0.00	0.00	0	0
Trichiurus lepturus	0.0	0.00	0.0	0.00	0	6.0	0.00	0.0	0.00	1	0.0	0.00	0.00	0	0
Lagocephalus laevigatus	0.0	0.00	0.0	0.00	0	6.0	0.00	0.0	0.00	1	0.0	0.00	0.00	0	0
Squid	0.0	0.00	0.0	0.00	0	18.0	0.00	0.3	0.00	1	0.0	0.00	0.00	0	0

Table 15b

Statistical Zone 22

Summary of mean total catch and environmental data (X), the standard error of the mean (SEM) and the number (N) of samples taken during the 1998 Summer Shrimp/Groundfish Survey by depth stratum, collected with either a 40-ft or 20-ft trawl. Catch values in kg per hour, temperature in °C, salinity in ppt, chlorophyll in mg/m ³ , and oxygen in ppm. No trawl samples were taken in depths less than 6 fm or greater than 10 fm.																		
Environmental category	0-5 FM			6-10 FM			11-20 FM			21-30 FM			31-40 FM			>40 FM		
	X	SEM	N	X	SEM	N	X	SEM	N	X	SEM	N	X	SEM	N	X	SEM	N
Total catch kg	0.0	0.00	0	2.7	0.00	1	0.0	0.00	0	0.0	0.00	0	0.0	0.00	0	0.0	0.00	0
Total finfish kg	0.0	0.00	0	0.0	0.00	1	0.0	0.00	0	0.0	0.00	0	0.0	0.00	0	0.0	0.00	0
Total crustacean kg	0.0	0.00	0	0.0	0.00	1	0.0	0.00	0	0.0	0.00	0	0.0	0.00	0	0.0	0.00	0
Total others kg	0.0	0.00	0	2.7	0.00	1	0.0	0.00	0	0.0	0.00	0	0.0	0.00	0	0.0	0.00	0
Surface temperature	0.0	0.00	0	26.0	0.00	1	0.0	0.00	0	0.0	0.00	0	0.0	0.00	0	0.0	0.00	0
Midwater temperature	0.0	0.00	0	25.4	0.00	1	0.0	0.00	0	0.0	0.00	0	0.0	0.00	0	0.0	0.00	0
Bottom temperature	0.0	0.00	0	23.6	0.00	1	0.0	0.00	0	0.0	0.00	0	0.0	0.00	0	0.0	0.00	0
Surface salinity	0.0	0.00	0	37.3	0.00	1	0.0	0.00	0	0.0	0.00	0	0.0	0.00	0	0.0	0.00	0
Midwater salinity	0.0	0.00	0	37.4	0.00	1	0.0	0.00	0	0.0	0.00	0	0.0	0.00	0	0.0	0.00	0
Bottom salinity	0.0	0.00	0	37.4	0.00	1	0.0	0.00	0	0.0	0.00	0	0.0	0.00	0	0.0	0.00	0
Surface chlorophyll	0.0	0.00	0	0.0	0.00	0	0.0	0.00	0	0.0	0.00	0	0.0	0.00	0	0.0	0.00	0
Surface fluorescence	0.0	0.00	0	0.0	0.00	0	0.0	0.00	0	0.0	0.00	0	0.0	0.00	0	0.0	0.00	0
Surface oxygen	0.0	0.00	0	6.2	0.00	1	0.0	0.00	0	0.0	0.00	0	0.0	0.00	0	0.0	0.00	0
Midwater oxygen	0.0	0.00	0	6.2	0.00	1	0.0	0.00	0	0.0	0.00	0	0.0	0.00	0	0.0	0.00	0
Bottom oxygen	0.0	0.00	0	6.4	0.00	1	0.0	0.00	0	0.0	0.00	0	0.0	0.00	0	0.0	0.00	0

Table 16. 1998 Fall Shrimp/Groundfish Survey species composition list, 362 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	70282	3331.3	217	64.8
Stenotomus caprinus	longspine porgy	42578	1316.5	189	56.4
Chloroscombrus chrysurus	Atlantic bumper	11389	191.7	99	29.6
Cynoscion spp.	seatrouts	9425	48.5	66	19.7
Peprilus burti	gulf butterfish	7376	452.9	170	50.7
Cynoscion nothus	silver seatrout	6978	130.6	192	57.3
Prionotus longispinosus	bigeye searobin	6715	176.5	177	52.8
Leiostomus xanthurus	spot	6427	587.9	167	49.9
Lagodon rhomboides	pinfish	4512	223.9	161	48.1
Stellifer lanceolatus	star drum	3957	32.9	100	29.9
Serranus atrobranchus	blackear bass	3919	49.1	69	20.6
Trichiurus lepturus	Atlantic cutlassfish	3227	131.3	141	42.1
Trachurus lathami	rough scad	3039	117.0	67	20.0
Cynoscion arenarius	sand seatrout	2935	337.2	224	66.9
Syacium gunteri	shoal flounder	2153	28.9	130	38.8
Centropristis philadelphica	rock sea bass	2149	110.2	171	51.0
Halieutichthys aculeatus	pancake batfish	2103	12.7	114	34.0
Diplectrum bivittatum	dwarf sand perch	1962	25.4	90	26.9
Harengula jaguana	scaled sardine	1852	57.9	66	19.7
Pristipomoides aquilonaris	wenchman	1829	143.2	46	13.7
Lutjanus campechanus	red snapper	1731	55.6	140	41.8
Arius felis	hardhead catfish	1678	357.5	81	24.2

Table 16. Species composition list (continued)

GENUS/SPECIES	COMMON NAME	TOTAL NUMBER	TOTAL WEIGHT	NUMBER OF	% FREQUENCY
		CAUGHT	CAUGHT (KG)	TOWS WHERE CAUGHT	OCCURRENCE
Prionotus paralatus	Mexican searobin	1490	41.5	35	10.4
Synodus foetens	inshore lizardfish	1429	189.3	136	40.6
Upeneus parvus	dwarf goatfish	1366	41.7	57	17.0
Anchoa hepsetus	striped anchovy	1268	17.0	56	16.7
Trichopsetta ventralis	sash flounder	910	18.3	40	11.9
Sphoeroides parvus	least puffer	903	5.6	108	32.2
Steindachneria argentea	luminous hake	766	3.1	3	0.9
Etropus crossotus	fringed flounder	751	12.0	99	29.6
Peprilus alepidotus	harvestfish	716	14.7	71	21.2
Chaetodipterus faber	Atlantic spadefish	664	38.3	113	33.7
Selene setapinnis	Atlantic moonfish	584	9.9	88	26.3
Prionotus stearnsi	shortwing searobin	563	5.7	27	8.1
Bagre marinus	gafftopsail catfish	521	48.0	53	15.8
Lutjanus synagris	lane snapper	460	13.9	56	16.7
Lepophidium brevibarbe	blackedge cusk-eel	453	17.4	56	16.7
Mullus auratus	red goatfish	425	27.4	20	6.0
Menticirrhus americanus	southern kingfish	418	41.7	68	20.3
Porichthys plectrodon	Atlantic midshipman	405	7.3	85	25.4
Eucinostomus gula	silver jenny	399	14.8	45	13.4
Opisthonema oglinum	Atlantic thread herring	363	18.7	51	15.2
Prionotus rubio	blackwing searobin	341	14.7	38	11.3
Syacium papillosum	dusky flounder	270	20.5	17	5.1
Citharichthys spilopterus	bay whiff	265	3.6	46	13.7
Brevoortia patronus	gulf menhaden	262	25.6	47	14.0
Larimus fasciatus	banded drum	238	9.4	43	12.8
Scorpaena calcarata	smoothhead scorpionfish	229	2.0	39	11.6

Table 16. Species composition list (continued)

GENUS/SPECIES	COMMON NAME	TOTAL NUMBER	TOTAL WEIGHT	NUMBER OF	% FREQUENCY
		CAUGHT	CAUGHT (KG)	TOWS WHERE CAUGHT	OCCURRENCE
Anchoa mitchilli	bay anchovy	203	0.0	47	14.0
Orthopristis chrysoptera	pigfish	197	9.9	49	14.6
Lepophidium jeannae	mottled cusk-eel	192	7.2	15	4.5
Cyclopsetta chittendeni	Mexican flounder	179	21.0	56	16.7
Saurida brasiliensis	largescale lizardfish	150	0.5	33	9.9
Symphurus plagiusa	blackcheek tonguefish	149	2.5	66	19.7
Decapterus punctatus	round scad	148	5.9	15	4.5
Ogcocephalus declivirostris	slantbrow batfish	132	3.0	34	10.1
Ophidion welschi	crested cusk-eel	115	5.5	33	9.9
Urophycis floridana	southern hake	109	10.9	19	5.7
Bollmannia communis	ragged goby	109	0.5	15	4.5
Gymnachirus texae	fringed sole	108	0.8	33	9.9
Selar crumenophthalmus	bigeye scad	99	3.5	18	5.4
Caranx crysos	blue runner	96	9.4	34	10.1
Caulolatilus intermedius	anchor tilefish	93	16.0	17	5.1
Selene vomer	lookdown	91	1.8	36	10.7
Bellator egretta	streamer searobin	81	0.6	3	0.9
Hildebrandia flava	yellow conger	72	9.5	14	4.2
Paralichthys lethostigma	southern flounder	72	24.1	45	13.4
Lagocephalus laevigatus	smooth puffer	71	3.2	23	6.9
Synodus poeyi	offshore lizardfish	70	0.5	19	5.7
Equetus iwamotoi	blackbar drum	69	6.0	11	3.3
Hoplunnis macrurus	freckled pike-conger	68	0.4	18	5.4
Pontinus longispinis	longspine scorpionfish	65	2.0	6	1.8
Etrumeus teres	round herring	58	1.1	8	2.4
Ancylopsetta dilecta	three-eye flounder	58	3.5	15	4.5

Table 16. Species composition list (continued)

GENUS/SPECIES	COMMON NAME	TOTAL NUMBER	TOTAL WEIGHT	NUMBER OF	% FREQUENCY
		CAUGHT	CAUGHT (KG)	TOWS WHERE CAUGHT	OCCURRENCE
Prionotus tribulus	bighead searobin	54	4.2	18	5.4
Equetus umbrosus	cubbyu	51	1.2	10	3.0
Ogocephalus pantostictus	spotted batfish	49	3.7	10	3.0
Bellator militaris	horned searobin	48	0.6	12	3.6
Prionotus roseus	bluespotted searobin	46	2.6	9	2.7
Urophycis cirrata	gulf hake	45	2.5	10	3.0
Sphyræna guachancho	guaguanche	44	3.8	20	6.0
Raja texana	roundel skate	42	17.8	28	8.4
Hemicaranx amblyrhynchus	bluntnose jack	40	0.9	14	4.2
Kathetostoma albigutta	lancer stargazer	40	1.4	17	5.1
Engyophrys senta	spiny flounder	39	0.1	14	4.2
Scomberomorus maculatus	Spanish mackerel	36	7.5	16	4.8
Ancylosetta quadrocellata	ocellated flounder	36	5.1	20	6.0
Rhizoprionodon terraenovae	Atlantic sharpnose shark	33	31.2	15	4.5
Etropus cyclosquamus	shelf flounder	30	0.3	4	1.2
Prionotus ophryas	bandtail searobin	28	0.9	13	3.9
Scomberomorus cavalla	king mackerel	28	5.3	16	4.8
Symphurus diomedianus	spottedfin tonguefish	28	1.0	11	3.3
Bellator brachyichir	shortfin searobin	26	0.1	3	0.9
Brotula barbata	bearded brotula	22	21.9	7	2.1
Citharichthys cornutus	horned whiff	21	0.0	4	1.2
Decodon puellaris	red hogfish	20	1.1	6	1.8
Antennarius radiosus	singlespot frogfish	20	0.5	8	2.4
Neomerinthe hemingwayi	spinycheek scorpionfish	19	8.7	10	3.0
Diplectrum formosum	sand perch	18	1.9	8	2.4
Rhomboplites aurorubens	vermilion snapper	17	1.7	5	1.5

Table 16. Species composition list (continued)

GENUS/SPECIES	COMMON NAME	TOTAL NUMBER	TOTAL WEIGHT	NUMBER OF	% FREQUENCY
		CAUGHT	CAUGHT (KG)	TOWS WHERE CAUGHT	OCCURRENCE
Ogcocephalus spp.	batfishes	16	0.5	4	1.2
Centropristis ocyura	bank sea bass	15	0.6	5	1.5
Eucinostomus argenteus	spotfin mojarra	14	0.2	5	1.5
Haemulon aurolineatum	tomtate	14	1.0	5	1.5
Ogcocephalus radiatus	polka-dot batfish	14	2.0	7	2.1
Squatina dumeril	Atlantic angel shark	13	18.8	10	3.0
Anchoa nasuta	longnose anchovy	13	0.0	2	0.6
Engraulis eurystole	silver anchovy	13	0.0	3	0.9
Physiculus fulvus	metallic codling	13	0.0	6	1.8
Priacanthus arenatus	bigeye	13	1.8	8	2.4
Balistes capriscus	gray triggerfish	13	2.0	8	2.4
Ophidion grayi	blotched cusk-eel	12	0.9	2	0.6
Syacium micrurum	channel flounder	12	0.2	3	0.9
Ophichthus gomesi	shrimp eel	11	3.7	3	0.9
Scorpaena dispar	hunchback scorpionfish	11	2.1	3	0.9
Sardinella aurita	Spanish sardine	10	0.8	6	1.8
Mustelus canis	smooth dogfish	9	25.5	6	1.8
Anchoa lyolepis	dusky anchovy	9	0.0	4	1.2
Gymnothorax nigromarginatus	blackedge moray	9	2.9	5	1.5
Rachycentron canadum	cobia	9	29.8	4	1.2
Syacium spp.	lefteye flounders	9	0.0	3	0.9
Canthidermis sufflamen	ocean triggerfish	9	1.6	3	0.9
Narcine brasiliensis	lesser electric ray	8	2.0	5	1.5
Holanthias martinicensis	rougtongue bass	8	0.6	2	0.6
Gobionellus hastatus	sharptail goby	8	0.0	3	0.9
Ogcocephalus parvus	roughback batfish	8	0.2	4	1.2

Table 16. Species composition list (continued)

GENUS/SPECIES	COMMON NAME	TOTAL NUMBER	TOTAL WEIGHT	NUMBER OF	% FREQUENCY
		CAUGHT	CAUGHT (KG)	TOWS WHERE CAUGHT	OCCURRENCE
Sphyrna tiburo	bonnethead	7	5.6	7	2.1
Raja eglanteria	clearnose skate	7	3.9	4	1.2
Trinectes maculatus	hogchoker	7	0.1	7	2.1
Ogcocephalus nasutus	shortnose batfish	7	0.3	3	0.9
Dasyatis say	bluntnose stingray	6	13.6	3	0.9
Rhinoptera bonasus	cownose ray	6	26.5	5	1.5
Trachinocephalus myops	snakefish	6	0.4	2	0.6
Ophidion holbrooki	bank cusk-eel	6	0.5	3	0.9
Etropus rimosus	gray flounder	6	0.0	2	0.6
Dasyatis americana	southern stingray	5	33.3	5	1.5
Dasyatis sabina	Atlantic stringray	5	1.5	4	1.2
Mugil curema	white mullet	5	0.1	1	0.3
Decapterus macarellus	mackerel scad	5	0.1	1	0.3
Menticirrhus littoralis	gulf kingfish	5	1.1	2	0.6
Gymnachirus melas	naked sole	5	0.1	1	0.3
Sciaenops ocellatus	red drum	4	14.0	4	1.2
Citharichthys macrops	spotted whiff	4	0.1	2	0.6
Paralichthys albigutta	gulf flounder	4	0.8	4	1.2
Achirus lineatus	lined sole	4	0.1	4	1.2
Monacanthus hispidus	planehead filefish	4	0.2	3	0.9
Opsanus tau	oyster toadfish	4	0.8	2	0.6
Ogcocephalus corniger	longnose batfish	4	0.0	2	0.6
Carcharhinus acronotus	blacknose shark	3	5.8	2	0.6
Dorosoma petenense	threadfin shad	3	0.0	2	0.6
Bathyanthias mexicanus	yellowtail bass	3	0.0	2	0.6
Pomatomus saltatrix	bluefish	3	1.0	3	0.9

Table 16. Species composition list (continued)

GENUS/SPECIES	COMMON NAME	TOTAL NUMBER	TOTAL WEIGHT	NUMBER OF	% FREQUENCY
		CAUGHT	CAUGHT (KG)	TOWS WHERE CAUGHT	OCCURRENCE
<i>Pagrus pagrus</i>	red porgy	3	2.0	2	0.6
<i>Lonchopisthus micrognathus</i>	swordtail jawfish	3	0.0	2	0.6
<i>Sphoeroides spengleri</i>	bandtail puffer	3	0.0	2	0.6
<i>Chilomycterus schoepfi</i>	striped burrfish	3	0.4	3	0.9
<i>Opsanus beta</i>	gulf toadfish	3	1.4	2	0.6
<i>Lophius americanus</i>	goosefish	3	0.9	2	0.6
<i>Anchoviella perfasciata</i>	flat anchovy	2	0.0	1	0.3
<i>Gymnothorax saxicola</i>	honeycomb moray	2	2.0	2	0.6
<i>Parexocoetus brachypterus</i>	sailfin flyingfish	2	0.0	1	0.3
<i>Polydactylus octonemus</i>	Atlantic threadfin	2	0.1	2	0.6
<i>Prionotus scitulus</i>	leopard searobin	2	0.0	1	0.3
<i>Epinephelus flavolimbatus</i>	yellowedge grouper	2	0.2	1	0.3
<i>Hemanthias leptus</i>	longtail bass	2	0.3	1	0.3
<i>Hemanthias aureorubens</i>	streamer bass	2	0.0	1	0.3
<i>Echeneis naucrates</i>	sharksucker	2	0.3	2	0.6
<i>Caranx hippos</i>	crevalle jack	2	0.4	1	0.3
<i>Pogonias cromis</i>	black drum	2	18.5	1	0.3
<i>Calamus leucosteus</i>	whitebone porgy	2	0.6	1	0.3
<i>Neobythites gillii</i>	cusk-eel	2	0.0	1	0.3
<i>Gobiosoma bosci</i>	naked goby	2	0.0	2	0.6
<i>Paralichthys squamilentus</i>	broad flounder	2	0.4	2	0.6
<i>Aluterus schoepfi</i>	orange filefish	2	0.0	1	0.3
<i>Lactophrys polygona</i>	honeycomb cowfish	2	0.2	1	0.3
<i>Lactophrys quadricornis</i>	scrawled cowfish	2	0.0	1	0.3
<i>Sphoeroides dorsalis</i>	marbled puffer	2	0.1	2	0.6
<i>Zalieutes mcgintyi</i>	tricorn batfish	2	0.4	1	0.3

Table 16. Species composition list (continued)

GENUS/SPECIES	COMMON NAME	TOTAL NUMBER CAUGHT	TOTAL WEIGHT CAUGHT (KG)	NUMBER OF TOWS WHERE CAUGHT	% FREQUENCY OCCURRENCE
Raja olseni	spreadfin skate	1	1.4	1	0.3
Dasyatis centroura	rougthead stingray	1	200.4	1	0.3
Myliobatis fremin	bullnose ray	1	1.4	1	0.3
Torpedo nobiliana	Atlantic torpedo	1	1.3	1	0.3
Myxeroperca microlepis	gag	1	1.2	1	0.3
Serraniculus pumilio	pygmy sea bass	1	0.0	1	0.3
Rypticus maculatus	whitespotted soapfish	1	0.1	1	0.3
Alectis ciliaris	African pompano	1	0.0	1	0.3
Oligoplites saurus	leatherjack	1	0.0	1	0.3
Chaetodon sedentarius	reef butterflyfish	1	0.1	1	0.3
Opistognathus spp.	jawfishes	1	0.0	1	0.3
Scomber japonicus	chub mackerel	1	0.1	1	0.3
Gobiidae	gobies	1	0.0	1	0.3
Cyclopsetta fimbriata	spotfin flounder	1	0.0	1	0.3
Bothus robinsi	twospot flounder	1	0.0	1	0.3
Monacanthus setifer	pygmy filefish	1	0.0	1	0.3
<u>Crustaceans</u>					
Trachypenaeus similis	roughback shrimp	12099	30.0	154	46.0
Penaeus aztecus	brown shrimp	10031	217.8	228	68.1
Portunus gibbesii	iridescent swimming crab	8701	47.9	215	64.2
Callinectes similis	lesser blue crab	7139	121.5	200	59.7
Penaeus setiferus	white shrimp	6207	146.8	168	50.1
Xiphopenaeus kroyeri	seabob	4082	12.7	65	19.4
Portunus spinicarpus	longspine swimming crab	3149	25.7	47	14.0

Table 16. Species composition list (continued)

GENUS/SPECIES	COMMON NAME	TOTAL NUMBER CAUGHT	TOTAL WEIGHT CAUGHT (KG)	NUMBER OF TOWS WHERE CAUGHT	% FREQUENCY OCCURRENCE
<i>Squilla empusa</i>	mantis shrimp	2869	32.6	172	51.3
<i>Sicyonia brevirostris</i>	brown rock shrimp	1382	28.4	65	19.4
<i>Sicyonia dorsalis</i>	lesser rock shrimp	1053	2.1	50	14.9
<i>Penaeus duorarum</i>	pink shrimp	948	19.8	94	28.1
<i>Squilla chydrea</i>	mantis shrimp	878	4.6	57	17.0
<i>Callinectes sapidus</i>	blue crab	707	22.0	52	15.5
<i>Solenocera vioscai</i>	humpback shrimp	632	2.8	33	9.9
<i>Trachypenaeus constrictus</i>	roughneck shrimp	247	0.8	24	7.2
<i>Calappa sulcata</i>	yellow box crab	225	33.5	55	16.4
<i>Portunus spinimanus</i>	blotched swimming crab	162	3.6	50	14.9
<i>Anasimus latus</i>	stilt spider crab	114	0.9	21	6.3
<i>Raninoides louisianensis</i>	gulf frog crab	53	0.5	14	4.2
<i>Parapenaeus politus</i>	deepwater rose shrimp	25	0.0	6	1.8
<i>Hepatus epheliticus</i>	calico crab	25	2.4	14	4.2
<i>Pagurus pollicaris</i>	flatclaw hermit crab	20	0.3	11	3.3
Diogenidae	left-handed hermit crabs	18	0.0	1	0.3
<i>Arenaeus cribrarius</i>	speckled swimming crab	17	0.7	4	1.2
<i>Porcellana sayana</i>	spotted porcelain crab	17	0.1	1	0.3
<i>Persephona crinita</i>	pink purse crab	16	0.0	11	3.3
<i>Pagurus bullisi</i>	hermit crab	12	0.0	4	1.2
<i>Stenorhynchus seticornis</i>	yellowline arrow crab	12	0.2	4	1.2
<i>Parthenope granulata</i>	bladetooth elbow crab	12	0.0	7	2.1
<i>Pseudorhombila quadridentata</i>	flecked squareback crab	11	0.0	4	1.2
<i>Stenocionops furcata</i>	furcate crab	10	0.2	3	0.9
<i>Dardanus insignis</i>	red brocade hermit	9	0.0	3	0.9
<i>Paguristes triangulatus</i>	hermit crab	9	0.0	1	0.3

Table 16. Species composition list (continued)

GENUS/SPECIES	COMMON NAME	TOTAL NUMBER CAUGHT	TOTAL WEIGHT CAUGHT (KG)	NUMBER OF TOWS WHERE CAUGHT	% FREQUENCY OCCURRENCE
<i>Persephona mediterranea</i>	mottled purse crab	8	0.0	7	2.1
<i>Squilla neglecta</i>	mantis shrimp	7	0.0	5	1.5
<i>Libinia emarginata</i>	portly spider crab	7	1.7	4	1.2
<i>Ovalipes floridanus</i>	Florida lady crab	7	0.1	6	1.8
Xanthidae	mud crabs	6	0.0	2	0.6
<i>Porcellana sigsbeiana</i>	striped porcelain crab	6	0.0	3	0.9
<i>Petrochirus diogenes</i>	giant hermit crab	5	0.7	5	1.5
<i>Myropsis quinquespinosa</i>	fivespine purse crab	5	0.0	2	0.6
<i>Libinia dubia</i>	longnose spider crab	5	0.0	5	1.5
<i>Plesionika longicauda</i>	pandalid shrimp	4	0.0	2	0.6
<i>Sicyonia burkenroadi</i>	spiny rock shrimp	4	0.0	2	0.6
Paguridae	right-handed hermit crabs	4	0.0	3	0.9
<i>Acanthocarpus alexandri</i>	gladiator box crab	4	0.0	2	0.6
<i>Danielum ixbauchac</i>	red sea crab	3	0.0	1	0.3
<i>Munida forceps</i>	squat lobster	3	0.0	2	0.6
<i>Collodes robustus</i>	spider crab	3	0.0	1	0.3
<i>Dardanus fucosus</i>	bareye hermit	3	0.0	1	0.3
<i>Exhippolysmata oplophoroides</i>	redleg humpback shrimp	2	0.0	2	0.6
Menippe spp.	stone crabs	2	0.0	1	0.3
<i>Podochela sidneyi</i>	shortfinger neck crab	2	0.0	1	0.3
<i>Stenocionops spinimanus</i>	prickly spider crab	2	0.3	1	0.3
<i>Metoporphaphis calcarata</i>	false arrow crab	2	0.0	1	0.3
Caridea	caridean shrimps	1	0.0	1	0.3
<i>Sicyonia stimpsoni</i>	eyespot rock shrimp	1	0.0	1	0.3
Scyllaridae	slipper lobsters	1	0.0	1	0.3
<i>Scyllarides nodifer</i>	ridged slipper lobster	1	0.0	1	0.3

Table 16. Species composition list (continued)

GENUS/SPECIES	COMMON NAME	TOTAL NUMBER CAUGHT	TOTAL WEIGHT CAUGHT (KG)	NUMBER OF TOWS WHERE CAUGHT	% FREQUENCY OCCURRENCE
Scyllarus spp.	slipper lobsters	1	0.0	1	0.3
Scyllarus chacei	chace slipper lobster	1	0.0	1	0.3
Stenocionops coelata	spider crab	1	0.0	1	0.3
Porcellana spp.	porcelain crabs	1	0.0	1	0.3
Hypoconcha arcuata	granulate shellback crab	1	0.0	1	0.3
Dromidia antillensis	hairy sponge crab	1	0.0	1	0.3
Paguristes sericeus	blue-eyed hermit	1	0.0	1	0.3
<u>Others</u>					
Aurelia aurita	moon jellyfish	4782	1831.7	86	25.7
Amusium papyraceum	paper scallop	1759	17.4	38	11.3
Loligo pleii	arrow squid	1600	10.0	51	15.2
Astropecten duplicatus	spiny beaded sea star	1468	1.6	50	14.9
Lolliguncula brevis	Atlantic brief squid	1257	16.0	153	45.7
Stomolophus meleagris	many-mouthed sea jelly	889	318.3	34	10.1
Chrysaora quinquecirrha	sea nettle	688	17.0	24	7.2
Loligo pealeii	longfin squid	633	16.2	58	17.3
Renilla mulleri	short-stemmed sea pansy	621	1.8	47	14.0
Aurelia spp.	jellyfishes	442	133.5	6	1.8
Luidia clathrata	sea star	330	4.6	47	14.0
Astropecten cingulatus	starfish	158	2.9	24	7.2
Polystira albida	white giant turris	150	0.8	7	2.1
Ophiolepis elegans	brittle star	146	0.3	17	5.1
Actinidae	sea anemones	97	0.3	20	6.0
Tethyaster grandis	starfish	89	3.1	8	2.4

Table 16. Species composition list (continued)

GENUS/SPECIES	COMMON NAME	TOTAL NUMBER CAUGHT	TOTAL WEIGHT CAUGHT (KG)	NUMBER OF TOWS WHERE CAUGHT	% FREQUENCY OCCURRENCE
Loligo spp.	squids	86	0.8	10	3.0
Anadara baughmani	Baughman's ark	69	1.4	7	2.1
Anthozoa	anthozoans	51	0.2	7	2.1
Pitar cordatus	Schwengel's pitar	43	0.8	4	1.2
Macoma breviprons	short macoma	30	0.3	2	0.6
Clypeaster prostratus	sea biscuit	27	5.0	6	1.8
Distorsio clathrata	Atlantic distorsio	25	0.2	6	1.8
Chione clenchi	Clench venus	16	0.1	4	1.2
Pennatula spp.	sea pens	15	0.0	1	0.3
Asteroidea	starfishes	12	0.0	6	1.8
Clypeaster ravenelii	cake urchin	12	0.5	4	1.2
Cantharus cancellarius	cancellate cantharus	11	0.0	8	2.4
Astrophyton muricatum	basket star	11	1.5	5	1.5
Neverita duplicata	shark eye	10	0.2	8	2.4
Polystira tellea	delicate giant turret	9	0.1	3	0.9
Conus austini	cone shell	7	0.1	1	0.3
Eucrassatella speciosa	beautiful crassatella	7	0.0	2	0.6
Tamoya haplonema	sea wasp	7	1.3	5	1.5
Busycon sinistrum	lightning whelk	6	0.9	5	1.5
Arcinella cornuta	Florida spiny jewelbox	6	0.0	1	0.3
Laevicardium sybariticum	delicate eggcockle	6	0.0	2	0.6
Encope aberrans	sand dollar	6	0.1	2	0.6
Astropecten articulatus	plated-margined sea star	5	0.0	3	0.9
Luidia alternata	banded luidia	5	0.1	3	0.9
Tonna galea	giant tun	4	0.8	1	0.3
Polystira spp.	turret shells	4	0.0	1	0.3

Table 16. Species composition list (continued)

GENUS/SPECIES	COMMON NAME	TOTAL NUMBER	TOTAL WEIGHT	NUMBER OF	% FREQUENCY
		CAUGHT	CAUGHT (KG)	TOWS WHERE CAUGHT	OCCURRENCE
Anadara ovalis	blood ark	4	0.0	2	0.6
Tunicata	tunicates	4	0.0	1	0.3
Dactylometra quinquecirrha	compass jellyfish	4	0.0	2	0.6
Ophiuroidea	brittlestars	4	0.0	1	0.3
Paranthus rapiformis	onion anemone	3	0.0	1	0.3
Gorgonidae	gorgonians	3	0.0	3	0.9
Astropecten americanus	starfish	3	0.0	2	0.6
Stylocidaris affinis	sea urchin	3	0.1	2	0.6
Sconsia striata	royal bonnet	2	0.0	2	0.6
Molgula manhattensis	Ascidacean	2	0.0	2	0.6
Physalia pelagica	Portuguese man-o-war	2	0.0	2	0.6
Phyllorhiza punctata	jellyfish	2	0.0	2	0.6
Calliactris tricolor	common sea anemone	2	0.0	1	0.3
Polychaeta	bristleworms	2	0.0	1	0.3
Echinoidea	echinoderms	2	0.0	1	0.3
Architectonica nobilis	common sundial	1	0.0	1	0.3
Cymatium pileare	Atlantic hairy triton	1	0.1	1	0.3
Muricanthus fulvescens	giant eastern murex	1	0.1	1	0.3
Busycon spp.	whelks	1	0.0	1	0.3
Busycotypus spiratus	pearwhelk	1	0.1	1	0.3
Fasciolaria spp.	tulip shells	1	0.0	1	0.3
Turridae	slit shells	1	0.0	1	0.3
Noetia ponderosa	ponderous ark	1	0.0	1	0.3
Macrocallista maculata	calico clam	1	0.0	1	0.3
Octopus vulgaris	common Atlantic octopus	1	0.1	1	0.3
Porifera	sponges	1	0.0	1	0.3

Table 16. Species composition list (continued)

GENUS/SPECIES	COMMON NAME	TOTAL NUMBER	TOTAL WEIGHT	NUMBER OF	% FREQUENCY
		CAUGHT	CAUGHT (KG)	TOWS WHERE CAUGHT	OCCURRENCE
Chiropsalmus quadrumanus	jellyfish	1	0.2	1	0.3
Gorgonocephalidae	basket stars	1	0.2	1	0.3
Echinidae	sea urchins	1	0.0	1	0.3
Molpadia cubana	sea cucumber	1	0.0	1	0.3

Table 17a

Statistical Zone 11

Summary of dominant organisms taken in statistical zone 11 during the 1998 Fall Shrimp/Groundfish Survey by depth stratum, collected with either a 40-ft or 20-ft trawl. The mean number (NUM) of organisms per hour, the standard error of the mean (SEM) for numbers, the mean weight (WT) in kg per hour, the SEM for weight and the number (N) of samples taken.															
SPECIES	0- 5 FM					6-10 FM					11-20 FM				
	NUM	SEM	WT	SEM	N	NUM	SEM	WT	SEM	N	NUM	SEM	WT	SEM	N
Portunus spinicarpus	0.0	0.00	0.0	0.00	1	0.0	0.00	0.0	0.00	9	0.6	0.60	0.0	0.00	21
Callinectes similis	18.0	0.00	0.1	0.00	1	27.7	9.65	0.6	0.25	9	57.8	17.86	1.4	0.54	21
Penaeus setiferus	48.0	0.00	1.3	0.00	1	192.4	56.96	6.3	1.76	9	26.1	11.52	1.1	0.47	21
Portunus gibbesii	230.0	0.00	0.8	0.00	1	27.4	8.75	0.2	0.10	9	113.0	29.47	1.2	0.36	21
Trachypenaeus similis	18.0	0.00	0.0	0.00	1	23.1	16.80	0.1	0.11	9	81.4	40.71	0.2	0.10	21
Sicyonia brevirostris	0.0	0.00	0.0	0.00	1	0.0	0.00	0.0	0.00	9	14.1	5.83	0.3	0.15	21
Stenotomus caprinus	0.0	0.00	0.0	0.00	1	1.1	1.11	0.0	0.01	9	1213.5	317.16	22.0	5.58	21
Micropogonias undulatus	246.0	0.00	12.0	0.00	1	1322.8	199.01	71.3	9.08	9	1089.2	235.42	60.9	13.10	21
Prionotus longispinosus	2.0	0.00	0.0	0.00	1	35.9	11.28	0.8	0.23	9	329.8	104.15	8.9	2.42	21
Leiostomus xanthurus	10.0	0.00	0.8	0.00	1	85.6	47.35	8.6	4.39	9	117.5	25.83	12.5	2.59	21
Peprilus burti	20.0	0.00	0.7	0.00	1	248.2	176.30	16.6	11.74	9	21.8	7.85	1.8	0.73	21
Cynoscion arenarius	22.0	0.00	1.5	0.00	1	119.0	23.42	11.1	2.05	9	50.4	24.03	10.0	6.26	21
Lagodon rhomboides	0.0	0.00	0.0	0.00	1	2.9	1.80	0.2	0.08	9	35.9	7.47	1.4	0.28	21
Arius felis	12.0	0.00	0.5	0.00	1	193.4	183.43	52.6	49.86	9	1.9	1.24	0.5	0.36	21
Squid	0.0	0.00	0.0	0.00	1	4.3	2.81	0.2	0.16	9	6.9	2.39	0.3	0.16	21

Table 17a (continued)

Statistical Zone 11

Summary of dominant organisms taken in statistical zone 11 during the 1998 Fall Shrimp/Groundfish Survey by depth stratum, collected with either a 40-ft or 20-ft trawl. The mean number (NUM) of organisms per hour, the standard error of the mean (SEM) for numbers, the mean weight (WT) in kg per hour, the SEM for weight and the number (N) of samples taken.

SPECIES	21-30 FM					31-40 FM					>40 FM				
	NUM	SEM	WT	SEM	N	NUM	SEM	WT	SEM	N	NUM	SEM	WT	SEM	N
Portunus spinicarpus	5.3	2.09	0.0	0.03	8	725.1	564.70	5.7	4.57	4	647.1	629.19	5.6	5.42	3
Callinectes similis	287.2	282.43	4.3	4.11	8	42.8	24.75	0.5	0.33	4	0.0	0.00	0.0	0.00	3
Penaeus setiferus	18.5	18.50	0.5	0.48	8	53.2	50.97	1.6	1.56	4	0.0	0.00	0.0	0.00	3
Portunus gibbesii	5.4	3.67	0.1	0.05	8	3.0	2.39	0.0	0.05	4	5.2	5.22	0.1	0.08	3
Trachypenaeus similis	95.0	95.00	0.2	0.18	8	64.0	64.00	0.2	0.18	4	29.1	29.09	0.1	0.08	3
Sicyonia brevirostris	46.7	35.08	1.0	0.76	8	345.2	234.49	7.0	4.61	4	0.9	0.87	0.0	0.04	3
Stenotomus caprinus	1358.7	625.79	65.1	27.82	8	88.1	30.31	7.4	3.20	4	264.1	111.20	17.2	9.39	3
Micropogonias undulatus	99.1	56.43	7.6	4.25	8	53.7	34.54	4.2	2.61	4	11.1	5.62	1.0	0.58	3
Prionotus longispinosus	39.8	15.60	1.4	0.45	8	24.7	11.53	1.2	0.48	4	69.7	47.52	4.7	3.13	3
Leiostomus xanthurus	205.4	120.54	21.1	12.45	8	9.5	8.20	1.3	1.09	4	14.4	14.38	1.6	1.56	3
Peprilus burti	225.2	101.91	16.8	7.28	8	247.3	246.65	21.8	21.74	4	47.9	45.21	3.9	3.64	3
Cynoscion arenarius	9.9	5.37	1.7	1.13	8	34.7	14.12	4.5	1.88	4	55.0	26.41	8.2	3.93	3
Lagodon rhomboides	91.7	29.72	6.0	1.98	8	35.6	14.27	3.4	1.58	4	6.1	6.06	0.4	0.41	3
Arius felis	0.0	0.00	0.0	0.00	8	0.0	0.00	0.0	0.00	4	0.0	0.00	0.0	0.00	3
Squid	2.7	1.65	0.0	0.00	8	3.0	2.39	0.0	0.02	4	18.3	18.26	0.1	0.08	3

Table 17b

Statistical Zone 11

Summary of mean total catch and environmental data (X), the standard error of the mean (SEM) and the number (N) of samples taken during the 1998 Fall Shrimp/Groundfish Survey by depth stratum, collected with either a 40-ft or 20-ft trawl. Catch values in kg per hour, temperature in °C, salinity in ppt, chlorophyll in mg/m ³ , and oxygen in ppm.																		
Environmental category	0-5 FM			6-10 FM			11-20 FM			21-30 FM			31-40 FM			>40 FM		
	X	SEM	N	X	SEM	N	X	SEM	N	X	SEM	N	X	SEM	N	X	SEM	N
Total catch kg	25.5	0.00	1	206.9	53.67	9	160.6	20.03	21	147.1	35.42	8	83.1	17.88	4	113.6	23.97	3
Total finfish kg	22.7	0.00	1	181.4	54.22	9	135.6	17.56	21	138.1	37.10	8	65.6	22.36	4	102.2	22.04	3
Total crustacean kg	2.7	0.00	1	8.0	1.91	9	8.6	1.51	21	8.2	5.30	8	17.1	8.47	4	10.4	6.94	3
Total others kg	0.0	0.00	1	17.5	10.94	9	16.5	11.89	21	0.9	0.67	8	0.0	0.00	4	0.0	0.00	3
Surface temperature	24.2	0.48	2	23.8	0.23	9	24.4	0.16	20	24.3	0.21	8	22.5	1.10	2	24.1	0.40	6
Midwater temperature	24.1	0.44	2	23.7	0.20	9	24.5	0.10	20	24.7	0.09	8	25.2	0.13	2	25.0	0.11	6
Bottom temperature	23.2	0.00	1	24.0	0.12	9	24.6	0.10	20	24.7	0.22	8	21.7	0.07	2	20.8	0.18	6
Surface salinity	30.6	3.95	2	31.1	0.60	9	35.0	0.13	20	35.2	0.30	8	36.7	1.03	2	34.7	0.53	6
Midwater salinity	31.2	3.48	2	32.2	0.61	9	35.0	0.11	20	35.7	0.12	8	36.1	0.07	2	36.0	0.08	6
Bottom salinity	31.8	0.00	1	32.7	1.39	9	35.2	0.12	20	36.1	0.12	8	36.5	0.09	2	36.5	0.01	6
Surface chlorophyll	0.0	0.00	0	0.0	0.00	0	0.0	0.00	0	0.0	0.00	0	0.0	0.00	0	0.0	0.00	0
Surface fluorescence	0.1	0.00	2	0.1	0.00	9	0.4	0.30	20	0.9	0.34	8	2.7	1.20	2	1.2	0.22	6
Surface oxygen	6.8	0.10	2	6.5	0.19	9	5.9	0.22	20	6.7	0.45	8	3.8	0.30	2	7.2	0.54	6
Midwater oxygen	6.8	0.00	2	6.0	0.26	9	6.1	0.24	20	6.6	0.44	8	7.5	0.10	2	7.6	0.21	6
Bottom oxygen	3.9	0.00	1	5.2	0.22	9	5.6	0.21	20	5.8	0.38	8	3.8	0.70	2	3.8	0.10	6

Table 18a

Statistical Zone 13

Summary of dominant organisms taken in statistical zone 13 during the 1998 Fall Shrimp/Groundfish Survey by depth stratum, collected with either a 40-ft or 20-ft trawl. The mean number (NUM) of organisms per hour, the standard error of the mean (SEM) for numbers, the mean weight (WT) in kg per hour, the SEM for weight and the number (N) of samples taken. No trawl samples were taken in depths less than 6 fm.

SPECIES	0- 5 FM					6-10 FM					11-20 FM				
	NUM	SEM	WT	SEM	N	NUM	SEM	WT	SEM	N	NUM	SEM	WT	SEM	N
Portunus gibbesii	0.0	0.00	0.0	0.00	0	322.7	138.78	1.5	0.52	5	380.2	117.60	1.8	0.51	8
Callinectes similis	0.0	0.00	0.0	0.00	0	33.0	13.76	0.5	0.11	5	290.0	121.38	5.8	2.49	8
Squilla spp.	0.0	0.00	0.0	0.00	0	56.8	26.95	0.5	0.25	5	220.2	122.56	1.8	1.09	8
Trachypenaeus similis	0.0	0.00	0.0	0.00	0	18.3	12.61	0.1	0.05	5	270.1	99.57	0.8	0.34	8
Penaeus aztecus	0.0	0.00	0.0	0.00	0	60.1	22.82	0.4	0.19	5	36.3	8.92	0.3	0.08	8
Penaeus setiferus	0.0	0.00	0.0	0.00	0	215.6	106.46	3.4	1.50	5	75.6	26.02	1.5	0.49	8
Micropogonias undulatus	0.0	0.00	0.0	0.00	0	1092.8	488.26	56.0	26.32	5	320.2	126.61	15.2	6.09	8
Trichiurus lepturus	0.0	0.00	0.0	0.00	0	79.7	64.06	1.7	1.40	5	333.3	170.17	9.4	4.78	8
Prionotus longispinosus	0.0	0.00	0.0	0.00	0	58.0	23.71	0.8	0.35	5	47.1	17.55	1.3	0.56	8
Serranus atrobranchus	0.0	0.00	0.0	0.00	0	0.8	0.80	0.0	0.02	5	72.3	41.93	0.5	0.31	8
Lagodon rhomboides	0.0	0.00	0.0	0.00	0	8.1	2.56	0.3	0.10	5	72.9	51.09	3.2	2.22	8
Cynoscion arenarius	0.0	0.00	0.0	0.00	0	25.5	9.78	1.4	0.45	5	102.6	45.88	2.8	0.44	8
Leiostomus xanthurus	0.0	0.00	0.0	0.00	0	88.6	41.63	7.9	3.71	5	26.6	8.39	3.0	1.04	8
Cynoscion spp.	0.0	0.00	0.0	0.00	0	17.2	11.31	0.2	0.12	5	157.4	151.60	0.5	0.51	8
Squid	0.0	0.00	0.0	0.00	0	23.2	15.34	0.4	0.22	5	44.9	20.19	0.3	0.17	8

Table 18a (continued)

Statistical Zone 13

Summary of dominant organisms taken in statistical zone 13 during the 1998 Fall Shrimp/Groundfish Survey by depth stratum, collected with either a 40-ft or 20-ft trawl. The mean number (NUM) of organisms per hour, the standard error of the mean (SEM) for numbers, the mean weight (WT) in kg per hour, the SEM for weight and the number (N) of samples taken. No trawl samples were taken in depths less than 6 fm.

SPECIES	21-30 FM					31-40 FM					>40 FM				
	NUM	SEM	WT	SEM	N	NUM	SEM	WT	SEM	N	NUM	SEM	WT	SEM	N
Portunus gibbesii	88.0	56.98	0.8	0.18	2	38.0	0.00	0.1	0.00	1	9.0	9.00	0.1	0.14	2
Callinectes similis	207.8	77.76	4.2	1.77	2	507.0	0.00	11.3	0.00	1	85.0	85.00	1.4	1.41	2
Squilla spp.	55.3	9.74	0.3	0.12	2	260.0	0.00	2.0	0.00	1	269.0	205.00	2.1	1.73	2
Trachypenaeus similis	237.3	175.22	0.7	0.37	2	171.0	0.00	0.6	0.00	1	141.0	57.00	0.3	0.05	2
Penaeus aztecus	322.5	289.96	5.7	5.48	2	62.0	0.00	1.3	0.00	1	271.0	47.00	6.6	1.32	2
Penaeus setiferus	42.5	42.50	1.1	1.08	2	1.0	0.00	0.0	0.00	1	0.0	0.00	0.0	0.00	2
Micropogonias undulatus	952.4	44.87	51.2	5.20	2	9.0	0.00	0.8	0.00	1	184.0	182.00	11.5	11.36	2
Trichiurus lepturus	4.1	4.14	0.0	0.05	2	3.0	0.00	0.0	0.00	1	69.0	69.00	1.2	1.18	2
Prionotus longispinosus	19.3	0.69	0.7	0.04	2	74.0	0.00	3.8	0.00	1	276.0	258.00	9.3	7.86	2
Serranus atrobranchus	38.5	23.53	0.4	0.22	2	59.0	0.00	0.6	0.00	1	265.0	65.00	3.5	1.36	2
Lagodon rhomboides	277.6	254.87	13.4	11.97	2	0.0	0.00	0.0	0.00	1	0.0	0.00	0.0	0.00	2
Cynoscion arenarius	43.9	26.42	5.4	3.20	2	27.0	0.00	4.2	0.00	1	26.0	8.00	4.7	1.41	2
Leiostomus xanthurus	83.8	23.79	9.1	2.07	2	6.0	0.00	0.8	0.00	1	61.0	59.00	5.7	5.50	2
Cynoscion spp.	18.8	18.75	0.1	0.06	2	41.0	0.00	0.2	0.00	1	10.0	10.00	0.0	0.05	2
Squid	0.0	0.00	0.0	0.00	2	0.0	0.00	0.0	0.00	1	21.0	3.00	1.2	0.45	2

Table 18b

Statistical Zone 13

Summary of mean total catch and environmental data (X), the standard error of the mean (SEM) and the number (N) of samples taken during the 1998 Fall Shrimp/Groundfish Survey by depth stratum, collected with either a 40-ft or 20-ft trawl. Catch values in kg per hour, temperature in °C, salinity in ppt, chlorophyll in mg/m ³ , and oxygen in ppm. No trawl samples were taken in depths less than 6 FM.																		
Environmental category	0-5 FM			6-10 FM			11-20 FM			21-30 FM			31-40 FM			>40 FM		
	X	SEM	N	X	SEM	N	X	SEM	N	X	SEM	N	X	SEM	N	X	SEM	N
Total catch kg	0.0	0.00	0	95.4	33.86	5	55.6	10.26	8	102.8	11.91	2	40.0	0.00	1	80.0	45.45	2
Total finfish kg	0.0	0.00	0	80.8	27.02	5	40.6	9.35	8	89.0	6.01	2	23.2	0.00	1	55.5	34.55	2
Total crustacean kg	0.0	0.00	0	7.3	1.29	5	12.3	3.51	8	13.9	5.90	2	16.8	0.00	1	23.2	12.27	2
Total others kg	0.0	0.00	0	7.3	7.09	5	2.4	2.36	8	0.0	0.00	2	0.0	0.00	1	2.3	0.45	2
Surface temperature	0.0	0.00	0	22.3	0.15	5	22.6	0.23	10	24.8	0.00	1	23.9	0.00	1	24.6	0.70	2
Midwater temperature	0.0	0.00	0	22.6	0.18	5	23.5	0.21	10	25.0	0.00	1	25.8	0.00	1	25.5	0.12	2
Bottom temperature	0.0	0.00	0	24.1	0.18	5	24.8	0.14	10	25.0	0.00	1	20.5	0.00	1	19.9	0.20	2
Surface salinity	0.0	0.00	0	26.0	2.30	5	26.3	1.56	10	35.6	0.00	1	33.0	0.00	1	34.9	0.70	2
Midwater salinity	0.0	0.00	0	31.0	0.33	5	33.0	0.43	10	35.5	0.00	1	35.7	0.00	1	35.5	0.13	2
Bottom salinity	0.0	0.00	0	33.4	0.60	5	35.2	0.22	10	35.7	0.00	1	36.4	0.00	1	36.4	0.06	2
Surface chlorophyll	0.0	0.00	0	7.0	1.11	3	6.2	1.05	6	0.0	0.00	0	0.0	0.00	0	0.0	0.00	0
Surface fluorescence	0.0	0.00	0	1.0	0.24	5	1.7	0.46	10	0.9	0.00	1	1.1	0.00	1	0.6	0.04	2
Surface oxygen	0.0	0.00	0	8.1	0.62	5	8.0	0.50	10	7.0	0.00	1	6.1	0.00	1	6.6	0.30	2
Midwater oxygen	0.0	0.00	0	7.4	0.55	5	6.6	0.36	10	7.7	0.00	1	6.3	0.00	1	8.6	1.15	2
Bottom oxygen	0.0	0.00	0	2.7	0.64	5	4.4	0.43	10	7.4	0.00	1	1.5	0.00	1	1.5	0.05	2

Table 19a
 Statistical Zone 14

Summary of dominant organisms taken in statistical zone 14 during the 1998 Fall Shrimp/Groundfish Survey by depth stratum, collected with either a 40-ft or 20-ft trawl. The mean number (NUM) of organisms per hour, the standard error of the mean (SEM) for numbers, the mean weight (WT) in kg per hour, the SEM for weight and the number (N) of samples taken.

SPECIES	0- 5 FM					6-10 FM					11-20 FM				
	NUM	SEM	WT	SEM	N	NUM	SEM	WT	SEM	N	NUM	SEM	WT	SEM	N
Penaeus aztecus	11.0	3.45	0.0	0.00	2	32.1	13.60	0.3	0.16	10	57.7	17.17	0.7	0.18	21
Penaeus setiferus	66.3	8.70	1.6	0.81	2	119.0	55.19	2.1	0.85	10	6.3	4.98	0.2	0.14	21
Portunus gibbesii	8.4	8.40	0.1	0.05	2	31.1	12.09	0.2	0.08	10	12.9	3.71	0.1	0.03	21
Callinectes similis	4.8	4.80	0.1	0.05	2	8.3	5.63	0.1	0.08	10	13.0	5.37	0.4	0.17	21
Trachypenaeus similis	6.0	6.00	0.0	0.00	2	21.1	15.06	0.0	0.03	10	1.9	1.00	0.0	0.00	21
Squilla spp.	1.2	1.20	0.0	0.00	2	15.4	11.98	0.1	0.10	10	2.2	1.05	0.0	0.01	21
Micropogonias undulatus	1414.5	970.50	62.5	42.18	2	603.5	278.10	27.2	12.48	10	2006.1	629.25	82.9	25.63	21
Leiostomus xanthurus	4.9	2.55	0.3	0.20	2	24.3	10.70	2.1	0.98	10	109.9	26.07	8.0	1.86	21
Stenotomus caprinus	2.4	2.40	0.1	0.05	2	6.3	5.24	0.1	0.09	10	73.2	18.02	1.2	0.29	21
Prionotus longispinosus	0.0	0.00	0.0	0.00	2	17.6	14.32	0.4	0.30	10	72.1	15.80	2.3	0.54	21
Trichiurus lepturus	0.0	0.00	0.0	0.00	2	64.3	56.77	1.4	1.14	10	3.1	1.34	0.2	0.17	21
Lagodon rhomboides	1.2	1.20	0.0	0.00	2	4.8	2.81	0.2	0.11	10	33.1	12.55	1.7	0.68	21
Arius felis	182.4	117.60	37.5	36.16	2	60.5	48.38	15.0	14.04	10	0.9	0.57	0.3	0.18	21
Cynoscion arenarius	8.6	1.05	0.5	0.04	2	28.8	13.93	2.1	1.12	10	12.2	4.22	1.4	0.57	21
Squid	2.4	2.40	0.1	0.05	2	10.5	5.01	0.2	0.08	10	9.3	3.57	0.1	0.06	21

Table 19a (continued)

Statistical Zone 14

Summary of dominant organisms taken in statistical zone 14 during the 1998 Fall Shrimp/Groundfish Survey by depth stratum, collected with either a 40-ft or 20-ft trawl. The mean number (NUM) of organisms per hour, the standard error of the mean (SEM) for numbers, the mean weight (WT) in kg per hour, the SEM for weight and the number (N) of samples taken.

SPECIES	21-30 FM					31-40 FM					>40 FM				
	NUM	SEM	WT	SEM	N	NUM	SEM	WT	SEM	N	NUM	SEM	WT	SEM	N
Penaeus aztecus	29.0	13.58	0.8	0.38	3	23.5	0.00	0.8	0.00	1	35.0	0.00	2.1	0.00	1
Penaeus setiferus	0.0	0.00	0.0	0.00	3	0.0	0.00	0.0	0.00	1	0.0	0.00	0.0	0.00	1
Portunus gibbesii	15.0	14.50	0.1	0.12	3	0.0	0.00	0.0	0.00	1	0.0	0.00	0.0	0.00	1
Callinectes similis	10.3	7.84	0.3	0.21	3	0.0	0.00	0.0	0.00	1	1.7	0.00	0.0	0.00	1
Trachypenaeus similis	0.0	0.00	0.0	0.00	3	0.0	0.00	0.0	0.00	1	0.0	0.00	0.0	0.00	1
Squilla spp.	0.0	0.00	0.0	0.00	3	0.0	0.00	0.0	0.00	1	0.0	0.00	0.0	0.00	1
Micropogonias undulatus	1067.0	857.10	46.2	36.72	3	7.8	0.00	0.7	0.00	1	3.3	0.00	0.5	0.00	1
Leiostomus xanthurus	21.7	7.22	1.9	0.70	3	0.0	0.00	0.0	0.00	1	13.3	0.00	1.5	0.00	1
Stenotomus caprinus	58.3	27.16	1.5	0.56	3	159.1	0.00	6.9	0.00	1	213.3	0.00	13.4	0.00	1
Prionotus longispinosus	15.3	14.33	0.6	0.49	3	0.0	0.00	0.0	0.00	1	20.0	0.00	0.3	0.00	1
Trichiurus lepturus	8.3	4.63	1.4	0.69	3	2.6	0.00	0.3	0.00	1	1.7	0.00	0.1	0.00	1
Lagodon rhomboides	6.0	5.03	0.3	0.27	3	1.3	0.00	0.2	0.00	1	0.0	0.00	0.0	0.00	1
Arius felis	0.0	0.00	0.0	0.00	3	0.0	0.00	0.0	0.00	1	0.0	0.00	0.0	0.00	1
Cynoscion arenarius	2.3	1.20	0.3	0.20	3	1.3	0.00	0.3	0.00	1	21.7	0.00	6.1	0.00	1
Squid	9.3	5.81	0.1	0.07	3	11.7	0.00	0.1	0.00	1	0.0	0.00	0.0	0.00	1

Table 19b

Statistical Zone 14

Summary of mean total catch and environmental data (X), the standard error of the mean (SEM) and the number (N) of samples taken during the 1998 Fall Shrimp/Groundfish Survey by depth stratum, collected with either a 40-ft or 20-ft trawl. Catch values in kg per hour, temperature in °C, salinity in ppt, chlorophyll in mg/m ³ , and oxygen in ppm.																		
Environmental category	0-5 FM			6-10 FM			11-20 FM			21-30 FM			31-40 FM			>40 FM		
	X	SEM	N	X	SEM	N	X	SEM	N	X	SEM	N	X	SEM	N	X	SEM	N
Total catch kg	129.0	63.58	2	145.7	100.83	10	107.3	27.65	21	64.8	37.85	3	14.2	0.00	1	42.4	0.00	1
Total finfish kg	105.1	78.95	2	54.2	28.15	10	102.7	27.26	21	62.1	36.51	3	13.0	0.00	1	39.4	0.00	1
Total crustacean kg	1.4	0.31	2	3.0	1.12	10	2.4	0.71	21	1.2	0.66	3	1.2	0.00	1	2.3	0.00	1
Total others kg	21.6	16.53	2	88.6	73.54	10	1.8	0.88	21	1.2	0.76	3	0.6	0.00	1	0.8	0.00	1
Surface temperature	22.2	0.12	3	22.8	0.16	12	23.9	0.13	21	24.7	0.05	4	0.0	0.00	0	25.7	0.18	2
Midwater temperature	22.2	0.12	3	22.9	0.15	12	24.0	0.10	21	24.7	0.07	4	0.0	0.00	0	25.4	0.13	2
Bottom temperature	22.3	0.19	3	23.6	0.21	12	24.3	0.07	21	23.8	0.51	4	0.0	0.00	0	21.5	1.10	2
Surface salinity	32.0	0.08	3	31.4	0.87	12	33.7	0.60	21	35.7	0.03	4	0.0	0.00	0	35.7	0.09	2
Midwater salinity	32.0	0.09	3	31.9	0.76	12	34.6	0.26	21	35.7	0.03	4	0.0	0.00	0	35.8	0.12	2
Bottom salinity	32.1	0.13	3	33.9	0.30	12	35.1	0.15	21	36.0	0.13	4	0.0	0.00	0	36.2	0.30	2
Surface chlorophyll	1.7	0.00	1	1.5	0.48	7	1.6	0.59	11	0.5	0.00	1	0.0	0.00	0	0.0	0.00	0
Surface fluorescence	1.2	0.24	3	1.1	0.16	12	0.9	0.06	21	0.9	0.09	4	0.0	0.00	0	0.5	0.21	2
Surface oxygen	6.7	0.60	3	6.9	0.30	12	6.3	0.31	21	5.9	0.19	4	0.0	0.00	0	6.0	1.60	2
Midwater oxygen	6.7	0.59	3	6.7	0.35	12	6.9	0.15	21	7.2	0.38	4	0.0	0.00	0	7.3	0.55	2
Bottom oxygen	6.6	0.58	3	5.9	0.63	12	6.5	0.20	21	5.9	0.66	4	0.0	0.00	0	3.5	0.45	2

Table 20a
 Statistical Zone 15

Summary of dominant organisms taken in statistical zone 15 during the 1998 Fall Shrimp/Groundfish Survey by depth stratum, collected with either a 40-ft or 20-ft trawl. The mean number (NUM) of organisms per hour, the standard error of the mean (SEM) for numbers, the mean weight (WT) in kg per hour, the SEM for weight and the number (N) of samples taken. No trawl samples were taken in depths less than 6 fm.

SPECIES	0- 5 FM					6-10 FM					11-20 FM				
	NUM	SEM	WT	SEM	N	NUM	SEM	WT	SEM	N	NUM	SEM	WT	SEM	N
Penaeus aztecus	0.0	0.00	0.0	0.00	0	10.1	5.77	0.1	0.05	3	72.1	28.42	1.0	0.43	6
Penaeus setiferus	0.0	0.00	0.0	0.00	0	110.2	34.05	2.0	1.03	3	11.7	10.86	0.5	0.49	6
Portunus gibbesii	0.0	0.00	0.0	0.00	0	20.1	3.90	0.1	0.02	3	6.0	2.97	0.1	0.03	6
Callinectes similis	0.0	0.00	0.0	0.00	0	8.5	3.38	0.1	0.05	3	9.8	4.21	0.1	0.10	6
Trachypenaeus similis	0.0	0.00	0.0	0.00	0	3.5	1.98	0.0	0.00	3	6.7	6.23	0.0	0.02	6
Squilla spp.	0.0	0.00	0.0	0.00	0	4.2	4.24	0.1	0.06	3	2.4	1.10	0.0	0.01	6
Micropogonias undulatus	0.0	0.00	0.0	0.00	0	2809.1	592.58	106.8	21.96	3	1493.9	375.13	60.3	15.15	6
Stenotomus caprinus	0.0	0.00	0.0	0.00	0	0.0	0.00	0.0	0.00	3	178.6	162.91	2.7	2.42	6
Trachurus lathamii	0.0	0.00	0.0	0.00	0	0.0	0.00	0.0	0.00	3	1.4	0.99	0.1	0.04	6
Peprilus burti	0.0	0.00	0.0	0.00	0	10.0	5.00	0.6	0.28	3	13.8	4.59	0.9	0.30	6
Leiostomus xanthurus	0.0	0.00	0.0	0.00	0	0.0	0.00	0.0	0.00	3	17.9	9.37	0.8	0.32	6
Prionotus longispinosus	0.0	0.00	0.0	0.00	0	2.9	1.49	0.1	0.06	3	41.7	26.18	1.1	0.75	6
Serranus atrobranchus	0.0	0.00	0.0	0.00	0	0.0	0.00	0.0	0.00	3	0.0	0.00	0.0	0.00	6
Pristipomoides aquilonaris	0.0	0.00	0.0	0.00	0	0.0	0.00	0.0	0.00	3	0.0	0.00	0.0	0.00	6
Squid	0.0	0.00	0.0	0.00	0	1.8	1.82	0.0	0.00	3	6.3	1.77	0.1	0.05	6

Table 20a (continued)

Statistical Zone 15

Summary of dominant organisms taken in statistical zone 15 during the 1998 Fall Shrimp/Groundfish Survey by depth stratum, collected with either a 40-ft or 20-ft trawl. The mean number (NUM) of organisms per hour, the standard error of the mean (SEM) for numbers, the mean weight (WT) in kg per hour, the SEM for weight and the number (N) of samples taken. No trawl samples were taken in depths less than 6 fm.

SPECIES	21-30 FM					31-40 FM					>40FM				
	NUM	SEM	WT	SEM	N	NUM	SEM	WT	SEM	N	NUM	SEM	WT	SEM	N
Penaeus aztecus	79.0	48.00	2.3	1.43	2	0.0	0.00	0.0	0.00	0	17.0	9.54	0.9	0.47	3
Penaeus setiferus	0.0	0.00	0.0	0.00	2	0.0	0.00	0.0	0.00	0	0.0	0.00	0.0	0.00	3
Portunus gibbesii	7.0	3.00	0.1	0.05	2	0.0	0.00	0.0	0.00	0	1.7	1.26	0.0	0.02	3
Callinectes similis	7.5	2.50	0.2	0.07	2	0.0	0.00	0.0	0.00	0	0.7	0.67	0.0	0.02	3
Trachypenaeus similis	4.0	3.00	0.0	0.02	2	0.0	0.00	0.0	0.00	0	0.0	0.00	0.0	0.00	3
Squilla spp.	7.5	4.50	0.1	0.09	2	0.0	0.00	0.0	0.00	0	0.0	0.00	0.0	0.00	3
Micropogonias undulatus	451.0	195.00	25.2	10.41	2	0.0	0.00	0.0	0.00	0	0.0	0.00	0.0	0.00	3
Stenotomus caprinus	189.5	132.50	3.5	1.98	2	0.0	0.00	0.0	0.00	0	261.2	78.15	12.6	4.05	3
Trachurus lathami	0.5	0.50	0.0	0.00	2	0.0	0.00	0.0	0.00	0	137.8	75.69	6.5	3.18	3
Peprilus burti	3.0	3.00	0.2	0.18	2	0.0	0.00	0.0	0.00	0	77.5	61.66	4.8	3.83	3
Leiostomus xanthurus	67.5	58.50	4.9	4.23	2	0.0	0.00	0.0	0.00	0	16.7	16.74	1.7	1.73	3
Prionotus longispinosus	22.0	3.00	1.1	0.27	2	0.0	0.00	0.0	0.00	0	4.7	4.18	0.4	0.34	3
Serranus atrobranchus	5.5	1.50	0.0	0.00	2	0.0	0.00	0.0	0.00	0	61.4	54.82	0.9	0.74	3
Pristipomoides aquilonaris	0.0	0.00	0.0	0.00	2	0.0	0.00	0.0	0.00	0	71.4	4.09	6.6	3.88	3
Squid	4.0	4.00	0.0	0.00	2	0.0	0.00	0.0	0.00	0	12.3	4.41	0.5	0.33	3

Table 20b

Statistical Zone 15

Summary of mean total catch and environmental data (X), the standard error of the mean (SEM) and the number (N) of samples taken during the 1998 Fall Shrimp/Groundfish Survey by depth stratum, collected with either a 40-ft or 20-ft trawl. Catch values in kg per hour, temperature in °C, salinity in ppt, chlorophyll in mg/m ³ , and oxygen in ppm. No trawl samples were taken in depths less than 6 fm.																		
Environmental category	0-5 FM			6-10 FM			11-20 FM			21-30 FM			31-40 FM			>40 FM		
	X	SEM	N	X	SEM	N	X	SEM	N	X	SEM	N	X	SEM	N	X	SEM	N
Total catch kg	0.0	0.00	0	464.9	214.90	3	91.3	20.54	6	46.4	14.55	2	0.0	0.00	0	54.0	14.79	3
Total finfish kg	0.0	0.00	0	119.3	23.13	3	77.7	14.89	6	43.4	12.95	2	0.0	0.00	0	50.6	15.10	3
Total crustacean kg	0.0	0.00	0	2.5	0.80	3	2.3	0.71	6	3.0	1.59	2	0.0	0.00	0	1.0	0.54	3
Total others kg	0.0	0.00	0	342.8	233.64	3	11.0	9.61	6	0.0	0.00	2	0.0	0.00	0	2.4	0.86	3
Surface temperature	21.2	0.10	2	23.0	1.38	4	23.7	0.22	6	26.3	1.65	2	25.1	0.00	1	25.6	0.36	3
Midwater temperature	21.3	0.30	2	23.0	1.36	4	23.7	0.33	6	26.5	1.36	2	25.2	0.00	1	25.5	0.38	3
Bottom temperature	22.2	0.11	2	23.0	1.36	4	23.8	0.41	6	26.5	1.37	2	25.0	0.00	1	20.3	0.69	3
Surface salinity	30.1	0.39	2	32.3	0.69	4	34.6	0.18	6	35.8	0.16	2	36.0	0.00	1	35.9	0.11	3
Midwater salinity	30.4	0.52	2	32.3	0.68	4	34.7	0.14	6	36.0	0.06	2	36.1	0.00	1	36.0	0.10	3
Bottom salinity	31.0	1.76	2	32.5	0.68	4	34.9	0.16	6	36.0	0.08	2	36.1	0.00	1	36.4	0.03	3
Surface chlorophyll	2.2	0.12	2	0.0	0.00	0	0.0	0.00	0	0.0	0.00	0	0.0	0.00	0	0.0	0.00	0
Surface fluorescence	0.3	0.00	2	1.5	0.34	4	1.0	0.06	6	0.6	0.34	2	0.7	0.00	1	0.4	0.06	3
Surface oxygen	7.2	0.15	2	7.4	0.62	4	7.0	0.61	6	5.9	1.65	2	7.0	0.00	1	7.8	0.15	3
Midwater oxygen	6.9	0.05	2	7.5	0.57	4	7.8	0.15	6	6.6	1.30	2	7.7	0.00	1	7.8	0.15	3
Bottom oxygen	4.9	1.30	2	7.3	0.55	4	7.7	0.19	6	6.6	1.20	2	7.5	0.00	1	3.2	0.12	3

Table 21a
 Statistical Zone 16

Summary of dominant organisms taken in statistical zone 16 during the 1998 Fall Shrimp/Groundfish Survey by depth stratum, collected with either a 40-ft or 20-ft trawl. The mean number (NUM) of organisms per hour, the standard error of the mean (SEM) for numbers, the mean weight (WT) in kg per hour, the SEM for weight and the number (N) of samples taken.

SPECIES	0- 5 FM					6-10 FM					11-20 FM				
	NUM	SEM	WT	SEM	N	NUM	SEM	WT	SEM	N	NUM	SEM	WT	SEM	N
Penaeus aztecus	10.0	10.00	0.1	0.06	2	2.8	1.37	0.0	0.02	9	94.0	28.32	1.6	0.54	16
Penaeus setiferus	100.3	14.02	2.9	0.02	2	83.8	36.55	1.6	0.63	9	14.8	6.12	0.5	0.21	16
Trachypenaeus similis	38.0	30.54	0.1	0.06	2	15.7	11.51	0.0	0.04	9	12.4	6.83	0.0	0.02	16
Squilla spp.	4.3	4.29	0.0	0.00	2	16.4	7.77	0.1	0.07	9	9.5	6.04	0.1	0.08	16
Xiphopenaeus kroyeri	8.6	8.57	0.1	0.06	2	21.4	19.97	0.1	0.10	9	0.0	0.00	0.0	0.00	16
Portunus gibbesii	13.2	1.79	0.1	0.09	2	11.0	5.75	0.0	0.02	9	6.3	3.54	0.0	0.02	16
Micropogonias undulatus	561.6	44.11	19.1	1.70	2	123.0	65.14	4.7	2.45	9	906.0	164.32	36.5	5.67	16
Stenotomus caprinus	11.4	11.43	0.1	0.13	2	31.4	29.46	0.4	0.41	9	270.9	55.23	5.6	0.95	16
Prionotus longispinosus	15.7	15.71	0.2	0.19	2	20.6	10.08	0.2	0.12	9	38.4	20.72	0.5	0.23	16
Peprilus burti	20.6	20.63	0.9	0.85	2	48.4	37.34	1.9	1.21	9	21.3	6.21	1.4	0.41	16
Leiostomus xanthurus	0.0	0.00	0.0	0.00	2	1.6	1.05	0.1	0.07	9	35.9	12.22	2.8	1.22	16
Trachurus lathami	0.0	0.00	0.0	0.00	2	0.0	0.00	0.0	0.00	9	11.4	4.85	0.3	0.12	16
Cynoscion nothus	56.3	56.25	2.1	2.13	2	3.4	1.99	0.2	0.13	9	33.8	11.30	2.1	0.70	16
Anchoa hepsetus	1.9	1.88	0.0	0.00	2	56.5	37.14	0.8	0.50	9	35.4	35.42	0.5	0.52	16
Squid	16.4	13.57	0.2	0.17	2	15.0	5.20	0.2	0.04	9	8.8	2.83	0.2	0.04	16

Table 21a (continued)

Statistical Zone 16

Summary of dominant organisms taken in statistical zone 16 during the 1998 Fall Shrimp/Groundfish Survey by depth stratum, collected with either a 40-ft or 20-ft trawl. The mean number (NUM) of organisms per hour, the standard error of the mean (SEM) for numbers, the mean weight (WT) in kg per hour, the SEM for weight and the number (N) of samples taken.

SPECIES	21-30 FM					31-40 FM					>40 FM				
	NUM	SEM	WT	SEM	N	NUM	SEM	WT	SEM	N	NUM	SEM	WT	SEM	N
Penaeus aztecus	178.0	11.00	4.2	1.00	2	39.5	16.50	1.8	0.80	2	10.9	5.10	0.5	0.27	3
Penaeus setiferus	0.0	0.00	0.0	0.00	2	0.0	0.00	0.0	0.00	2	0.0	0.00	0.0	0.00	3
Trachypenaeus similis	3.5	1.50	0.0	0.00	2	0.0	0.00	0.0	0.00	2	0.0	0.00	0.0	0.00	3
Squilla spp.	5.0	5.00	0.1	0.07	2	0.0	0.00	0.0	0.00	2	0.0	0.00	0.0	0.00	3
Xiphopenaeus kroyeri	0.0	0.00	0.0	0.00	2	0.0	0.00	0.0	0.00	2	0.0	0.00	0.0	0.00	3
Portunus gibbesii	1.0	1.00	0.0	0.00	2	4.0	4.00	0.0	0.02	2	0.0	0.00	0.0	0.00	3
Micropogonias undulatus	159.0	1.00	14.8	3.77	2	1.5	1.50	0.0	0.05	2	0.0	0.00	0.0	0.00	3
Stenotomus caprinus	111.5	75.50	4.3	2.89	2	106.0	16.00	4.6	1.52	2	332.6	5.34	14.2	0.97	3
Prionotus longispinosus	12.0	5.00	0.5	0.07	2	3.5	3.50	0.3	0.25	2	0.5	0.45	0.1	0.10	3
Peprilus burti	1.0	1.00	0.2	0.18	2	2.0	0.00	0.2	0.02	2	10.9	5.51	0.6	0.35	3
Leiostomus xanthurus	54.5	30.50	3.2	0.98	2	6.5	6.50	0.7	0.73	2	0.0	0.00	0.0	0.00	3
Trachurus lathami	0.0	0.00	0.0	0.00	2	2.0	2.00	0.2	0.16	2	124.0	63.66	4.1	2.47	3
Cynoscion nothus	1.5	0.50	0.1	0.09	2	0.0	0.00	0.0	0.00	2	0.0	0.00	0.0	0.00	3
Anchoa hepsetus	0.0	0.00	0.0	0.00	2	0.0	0.00	0.0	0.00	2	0.0	0.00	0.0	0.00	3
Squid	1.5	0.50	0.0	0.00	2	5.5	5.50	0.0	0.02	2	16.4	12.93	0.5	0.31	3

Table 21b

Statistical Zone 16

Summary of mean total catch and environmental data (X), the standard error of the mean (SEM) and the number (N) of samples taken during the 1998 Fall Shrimp/Groundfish Survey by depth stratum, collected with either a 40-ft or 20-ft trawl. Catch values in kg per hour, temperature in °C, salinity in ppt, chlorophyll in mg/m ³ , and oxygen in ppm.																		
Environmental category	0-5 FM			6-10 FM			11-20 FM			21-30 FM			31-40 FM			>40 FM		
	X	SEM	N	X	SEM	N	X	SEM	N	X	SEM	N	X	SEM	N	X	SEM	N
Total catch kg	77.4	16.36	2	52.6	14.28	9	65.4	8.01	16	36.6	1.59	2	20.2	8.86	2	47.9	15.16	3
Total finfish kg	71.2	14.04	2	15.5	3.51	9	61.7	7.55	16	31.6	0.23	2	16.1	6.59	2	45.9	15.95	3
Total crustacean kg	3.7	0.24	2	2.0	0.79	9	2.8	0.60	16	4.8	1.14	2	2.0	1.14	2	0.5	0.27	3
Total others kg	2.6	2.56	2	34.8	13.13	9	0.9	0.63	16	0.0	0.00	2	2.0	1.14	2	1.3	0.61	3
Surface temperature	24.6	1.00	2	24.3	0.21	11	25.4	0.22	18	26.6	0.40	4	26.4	0.10	3	26.6	0.18	2
Midwater temperature	25.0	0.08	2	24.6	0.19	11	25.4	0.21	18	26.6	0.42	4	26.4	0.08	3	26.3	0.33	2
Bottom temperature	25.7	0.64	2	24.9	0.22	11	25.5	0.20	18	26.6	0.41	4	25.3	1.24	3	19.9	0.45	2
Surface salinity	25.5	9.22	2	31.9	0.23	11	35.2	0.20	18	35.9	0.01	4	36.0	0.03	3	36.0	0.03	2
Midwater salinity	28.8	5.44	2	32.5	0.26	11	35.3	0.16	18	35.9	0.03	4	36.0	0.04	3	36.1	0.07	2
Bottom salinity	32.3	1.88	2	33.3	0.34	11	35.4	0.10	18	35.9	0.03	4	36.1	0.10	3	36.4	0.02	2
Surface chlorophyll	0.0	0.00	0	0.0	0.00	0	0.0	0.00	0	0.0	0.00	0	0.0	0.00	0	0.0	0.00	0
Surface fluorescence	6.0	2.04	2	1.3	0.15	11	1.0	0.11	18	0.4	0.10	4	0.3	0.01	3	0.2	0.01	2
Surface oxygen	7.7	0.30	2	6.5	0.38	11	6.6	0.38	18	6.3	0.50	4	6.4	0.56	3	6.6	0.55	2
Midwater oxygen	5.1	1.00	2	7.3	0.16	11	7.5	0.17	18	7.0	0.48	4	7.5	0.03	3	7.8	0.05	2
Bottom oxygen	4.2	2.30	2	7.0	0.23	11	7.4	0.16	18	7.1	0.53	4	6.4	1.22	3	3.5	0.25	2

Table 22a

Statistical Zone 17

Summary of dominant organisms taken in statistical zone 17 during the 1998 Fall Shrimp/Groundfish Survey by depth stratum, collected with either a 40-ft or 20-ft trawl. The mean number (NUM) of organisms per hour, the standard error of the mean (SEM) for numbers, the mean weight (WT) in kg per hour, the SEM for weight and the number (N) of samples taken.

SPECIES	0- 5 FM					6-10 FM					11-20 FM				
	NUM	SEM	WT	SEM	N	NUM	SEM	WT	SEM	N	NUM	SEM	WT	SEM	N
Xiphopenaeus kroyeri	948.0	521.29	3.0	1.51	12	4.0	4.00	0.0	0.00	3	0.0	0.00	0.0	0.00	4
Penaeus aztecus	0.5	0.50	0.0	0.00	12	2.0	2.00	0.0	0.00	3	90.7	9.55	1.8	0.29	4
Sicyonia brevirostris	0.0	0.00	0.0	0.00	12	0.0	0.00	0.0	0.00	3	63.1	20.08	1.5	0.88	4
Portunus gibbesii	2.0	1.13	0.0	0.00	12	4.0	4.00	0.0	0.00	3	52.5	25.06	0.6	0.26	4
Trachypenaeus similis	1.5	1.50	0.0	0.00	12	14.0	4.00	0.0	0.00	3	58.2	21.32	0.2	0.07	4
Callinectes similis	4.0	1.71	0.0	0.00	12	0.0	0.00	0.0	0.00	3	42.7	11.52	1.1	0.27	4
Stenotomus caprinus	0.0	0.00	0.0	0.00	12	0.0	0.00	0.0	0.00	3	437.4	268.42	19.2	13.58	4
Micropogonias undulatus	1.0	1.00	0.0	0.05	12	2.0	2.00	0.2	0.18	3	522.3	96.39	30.6	5.71	4
Leiostomus xanthurus	0.0	0.00	0.0	0.00	12	0.0	0.00	0.0	0.00	3	107.6	54.23	9.0	5.13	4
Prionotus longispinosus	0.0	0.00	0.0	0.00	12	0.0	0.00	0.0	0.00	3	103.5	41.96	2.3	0.90	4
Halieutichthys aculeatus	0.0	0.00	0.0	0.00	12	0.0	0.00	0.0	0.00	3	44.3	25.21	0.2	0.13	4
Stellifer lanceolatus	126.5	26.53	1.0	0.23	12	8.0	4.00	0.0	0.00	3	0.0	0.00	0.0	0.00	4
Centropristis philadelphica	0.5	0.50	0.0	0.00	12	0.0	0.00	0.0	0.00	3	14.1	9.22	0.8	0.73	4
Pristipomoides aquilonaris	0.0	0.00	0.0	0.00	12	0.0	0.00	0.0	0.00	3	0.0	0.00	0.0	0.00	4
Squid	9.5	2.71	0.1	0.07	12	14.0	5.29	0.1	0.09	3	0.0	0.00	0.0	0.00	4

Table 22a (continued)

Statistical Zone 17

Summary of dominant organisms taken in statistical zone 17 during the 1998 Fall Shrimp/Groundfish Survey by depth stratum, collected with either a 40-ft or 20-ft trawl. The mean number (NUM) of organisms per hour, the standard error of the mean (SEM) for numbers, the mean weight (WT) in kg per hour, the SEM for weight and the number (N) of samples taken.

SPECIES	21-30 FM					31-40 FM					>40 FM				
	NUM	SEM	WT	SEM	N	NUM	SEM	WT	SEM	N	NUM	SEM	WT	SEM	N
Xiphopenaeus kroyeri	0.0	0.00	0.0	0.00	3	0.0	0.00	0.0	0.00	2	0.0	0.00	0.0	0.00	2
Penaeus aztecus	13.3	5.36	0.5	0.19	3	29.5	5.50	1.4	0.23	2	25.0	21.84	1.3	1.13	2
Sicyonia brevirostris	10.0	5.00	0.1	0.07	3	26.8	12.17	0.6	0.26	2	5.9	5.85	0.1	0.10	2
Portunus gibbesii	7.7	7.67	0.1	0.09	3	0.0	0.00	0.0	0.00	2	0.0	0.00	0.0	0.00	2
Trachypenaeus similis	1.0	1.00	0.0	0.00	3	0.0	0.00	0.0	0.00	2	0.7	0.73	0.0	0.00	2
Callinectes similis	3.7	2.33	0.2	0.09	3	0.0	0.00	0.0	0.00	2	0.5	0.53	0.0	0.00	2
Stenotomus caprinus	718.0	240.48	30.8	13.22	3	183.5	92.50	9.8	5.04	2	197.8	71.48	8.0	1.25	2
Micropogonias undulatus	67.3	6.33	5.5	0.22	3	6.5	6.50	0.6	0.57	2	0.0	0.00	0.0	0.00	2
Leiostomus xanthurus	110.7	82.18	11.4	8.78	3	2.0	2.00	0.2	0.23	2	0.0	0.00	0.0	0.00	2
Prionotus longispinosus	18.3	14.08	0.5	0.32	3	0.0	0.00	0.0	0.00	2	1.1	1.05	0.1	0.10	2
Halieutichthys aculeatus	9.7	6.89	0.1	0.04	3	10.7	10.67	0.1	0.06	2	94.0	17.19	0.6	0.07	2
Stellifer lanceolatus	0.0	0.00	0.0	0.00	3	0.0	0.00	0.0	0.00	2	0.0	0.00	0.0	0.00	2
Centropristis philadelphica	7.3	4.06	0.7	0.34	3	67.8	49.17	4.5	3.69	2	27.1	0.74	1.9	0.44	2
Pristipomoides aquilonaris	0.0	0.00	0.0	0.00	3	12.5	3.50	1.1	0.31	2	127.5	44.08	7.9	5.02	2
Squid	0.3	0.33	0.0	0.05	3	2.7	1.33	0.3	0.19	2	5.6	0.30	0.6	0.07	2

Table 22b

Statistical Zone 17

Summary of mean total catch and environmental data (X), the standard error of the mean (SEM) and the number (N) of samples taken during the 1998 Fall Shrimp/Groundfish Survey by depth stratum, collected with either a 40-ft or 20-ft trawl. Catch values in kg per hour, temperature in °C, salinity in ppt, chlorophyll in mg/m ³ , and oxygen in ppm.																		
Environmental category	0-5 FM			6-10 FM			11-20 FM			21-30 FM			31-40 FM			>40 FM		
	X	SEM	N	X	SEM	N	X	SEM	N	X	SEM	N	X	SEM	N	X	SEM	N
Total catch kg	13.4	3.75	12	25.5	10.48	3	83.9	13.95	4	71.4	9.86	3	184.2	151.52	2	38.2	4.90	2
Total finfish kg	3.4	0.68	12	1.8	0.91	3	77.5	14.21	4	70.0	10.13	3	180.5	152.27	2	35.0	5.70	2
Total crustacean kg	3.9	1.52	12	0.0	0.00	3	6.5	1.28	4	1.1	0.15	3	2.5	0.68	2	2.1	1.18	2
Total others kg	6.1	3.86	12	21.8	11.35	3	0.0	0.00	4	0.5	0.26	3	1.3	0.08	2	1.1	0.39	2
Surface temperature	20.8	0.62	13	22.7	2.08	3	26.3	0.24	5	26.8	0.32	4	26.7	0.04	2	26.6	0.01	2
Midwater temperature	20.9	0.62	13	23.1	1.83	3	26.3	0.24	5	26.8	0.34	4	26.7	0.03	2	26.7	0.04	2
Bottom temperature	21.0	0.65	13	23.3	1.81	3	26.2	0.24	5	26.8	0.34	4	26.7	0.01	2	21.0	0.14	2
Surface salinity	25.0	0.44	13	27.5	1.28	3	35.8	0.16	5	36.0	0.01	4	36.0	0.04	2	36.0	0.04	2
Midwater salinity	25.8	0.47	13	28.7	0.88	3	35.8	0.14	5	36.0	0.02	4	36.0	0.05	2	36.0	0.02	2
Bottom salinity	28.6	0.47	13	30.8	0.91	3	35.9	0.13	5	36.0	0.02	4	36.1	0.06	2	36.4	0.00	2
Surface chlorophyll	0.0	0.00	0	0.0	0.00	0	0.0	0.00	0	0.0	0.00	0	0.0	0.00	0	0.0	0.00	0
Surface fluorescence	0.3	0.00	13	1.3	1.00	3	0.5	0.09	5	0.3	0.05	4	0.2	0.06	2	0.2	0.03	2
Surface oxygen	8.0	0.06	13	6.8	1.60	3	7.3	0.30	5	6.4	0.72	4	7.4	0.25	2	7.1	0.55	2
Midwater oxygen	7.7	0.08	13	6.8	0.91	3	7.5	0.32	5	7.0	0.56	4	7.7	0.00	2	7.7	0.00	2
Bottom oxygen	6.9	0.17	13	6.2	0.69	3	7.3	0.36	5	7.1	0.51	4	7.5	0.10	2	3.9	0.40	2

Table 23a
 Statistical Zone 18

Summary of dominant organisms taken in statistical zone 18 during the 1998 Fall Shrimp/Groundfish Survey by depth stratum, collected with either a 40-ft or 20-ft trawl. The mean number (NUM) of organisms per hour, the standard error of the mean (SEM) for numbers, the mean weight (WT) in kg per hour, the SEM for weight and the number (N) of samples taken.

SPECIES	0- 5 FM					6-10 FM					11-20 FM				
	NUM	SEM	WT	SEM	N	NUM	SEM	WT	SEM	N	NUM	SEM	WT	SEM	N
Xiphopenaeus kroyeri	687.0	279.96	1.9	0.78	4	117.1	89.39	0.3	0.19	16	0.0	0.00	0.0	0.00	6
Penaeus aztecus	0.0	0.00	0.0	0.00	4	8.4	8.05	0.1	0.09	16	101.2	18.78	2.1	0.33	6
Callinectes similis	1.5	1.50	0.0	0.00	4	5.1	1.64	0.0	0.01	16	59.7	23.93	1.6	0.64	6
Trachypenaeus similis	0.0	0.00	0.0	0.00	4	13.3	7.79	0.0	0.02	16	16.4	5.49	0.1	0.02	6
Penaeus setiferus	49.5	19.65	0.5	0.37	4	23.6	10.24	0.3	0.15	16	0.0	0.00	0.0	0.00	6
Portunus gibbesii	6.0	2.45	0.0	0.00	4	8.3	3.30	0.0	0.02	16	9.5	4.40	0.1	0.05	6
Stenotomus caprinus	0.0	0.00	0.0	0.00	4	11.1	6.94	0.1	0.08	16	588.1	275.21	19.5	13.90	6
Micropogonias undulatus	0.0	0.00	0.0	0.00	4	59.8	58.04	3.2	3.16	16	314.1	21.37	19.2	2.31	6
Lagodon rhomboides	0.0	0.00	0.0	0.00	4	0.8	0.51	0.0	0.02	16	4.6	2.97	0.1	0.12	6
Leiostomus xanthurus	0.0	0.00	0.0	0.00	4	2.6	1.55	0.3	0.17	16	44.1	28.82	2.8	1.72	6
Cynoscion nothus	28.5	11.84	0.1	0.07	4	71.5	20.92	0.4	0.10	16	45.2	21.57	2.9	1.34	6
Peprilus burti	1.5	1.50	0.1	0.07	4	7.0	2.40	0.2	0.10	16	68.1	28.63	3.6	1.39	6
Prionotus longispinosus	0.0	0.00	0.0	0.00	4	8.2	6.45	0.1	0.12	16	49.0	22.15	1.2	0.50	6
Pristipomoides aquilonaris	0.0	0.00	0.0	0.00	4	0.0	0.00	0.0	0.00	16	0.0	0.00	0.0	0.00	6
Squid	1.5	1.50	0.0	0.00	4	12.9	2.79	0.1	0.03	16	4.2	1.80	0.1	0.04	6

Table 23a (continued)

Statistical Zone 18

Summary of dominant organisms taken in statistical zone 18 during the 1998 Fall Shrimp/Groundfish Survey by depth stratum, collected with either a 40-ft or 20-ft trawl. The mean number (NUM) of organisms per hour, the standard error of the mean (SEM) for numbers, the mean weight (WT) in kg per hour, the SEM for weight and the number (N) of samples taken.

SPECIES	21-30 FM					31-40 FM					>40 FM				
	NUM	SEM	WT	SEM	N	NUM	SEM	WT	SEM	N	NUM	SEM	WT	SEM	N
Xiphopenaeus kroyeri	0.0	0.00	0.0	0.00	2	0.0	0.00	0.0	0.00	1	0.0	0.00	0.0	0.00	2
Penaeus aztecus	86.5	18.50	2.8	0.48	2	21.8	0.00	1.2	0.00	1	17.8	14.62	0.9	0.72	2
Callinectes similis	14.0	2.00	0.6	0.25	2	0.0	0.00	0.0	0.00	1	0.0	0.00	0.0	0.00	2
Trachypenaeus similis	2.5	2.50	0.2	0.16	2	0.0	0.00	0.0	0.00	1	0.0	0.00	0.0	0.00	2
Penaeus setiferus	0.0	0.00	0.0	0.00	2	0.0	0.00	0.0	0.00	1	0.0	0.00	0.0	0.00	2
Portunus gibbesii	4.0	1.00	0.2	0.14	2	0.0	0.00	0.0	0.00	1	0.0	0.00	0.0	0.00	2
Stenotomus caprinus	1822.0	1512.00	61.2	49.84	2	332.7	0.00	16.6	0.00	1	134.6	60.96	7.3	4.02	2
Micropogonias undulatus	73.5	37.50	5.0	2.48	2	5.5	0.00	0.5	0.00	1	0.0	0.00	0.0	0.00	2
Lagodon rhomboides	324.5	311.50	14.7	13.55	2	8.2	0.00	0.6	0.00	1	0.0	0.00	0.0	0.00	2
Leiostomus xanthurus	151.5	140.50	10.5	9.68	2	0.0	0.00	0.0	0.00	1	0.0	0.00	0.0	0.00	2
Cynoscion nothus	0.0	0.00	0.0	0.00	2	0.0	0.00	0.0	0.00	1	0.0	0.00	0.0	0.00	2
Peprilus burti	28.5	24.50	2.0	1.73	2	68.2	0.00	4.5	0.00	1	3.0	3.00	0.2	0.19	2
Prionotus longispinosus	2.0	2.00	0.1	0.07	2	0.0	0.00	0.0	0.00	1	1.1	1.05	0.1	0.12	2
Pristipomoides aquilonaris	0.0	0.00	0.0	0.00	2	2.7	0.00	0.1	0.00	1	160.9	128.54	12.8	10.58	2
Squid	1.5	1.50	0.0	0.02	2	10.9	0.00	0.0	0.00	1	1.8	1.80	0.1	0.11	2

Table 23b

Statistical Zone 18

Summary of mean total catch and environmental data (X), the standard error of the mean (SEM) and the number (N) of samples taken during the 1998 Fall Shrimp/Groundfish Survey by depth stratum, collected with either a 40-ft or 20-ft trawl. Catch values in kg per hour, temperature in °C, salinity in ppt, chlorophyll in mg/m ³ , and oxygen in ppm.																		
Environmental category	0-5 FM			6-10 FM			11-20 FM			21-30 FM			31-40 FM			>40 FM		
	X	SEM	N	X	SEM	N	X	SEM	N	X	SEM	N	X	SEM	N	X	SEM	N
Total catch kg	36.8	21.29	4	18.6	6.40	16	74.3	15.61	6	115.0	85.45	2	29.8	0.00	1	40.3	10.87	2
Total finfish kg	1.4	0.79	4	10.4	6.46	16	69.8	15.57	6	110.7	85.23	2	28.5	0.00	1	37.8	10.53	2
Total crustacean kg	2.0	1.31	4	0.7	0.39	16	4.5	0.75	6	3.9	0.23	2	1.2	0.00	1	2.0	0.38	2
Total others kg	33.4	21.60	4	6.5	2.23	16	0.1	0.11	6	0.2	0.23	2	0.0	0.00	1	0.5	0.48	2
Surface temperature	23.2	0.09	6	21.3	0.74	14	26.1	0.09	6	27.1	0.36	3	26.9	0.00	1	27.4	0.56	2
Midwater temperature	23.3	0.03	6	21.4	0.68	14	26.0	0.18	6	27.0	0.41	3	26.7	0.00	1	27.3	0.56	2
Bottom temperature	23.3	0.10	6	21.7	0.63	14	26.0	0.18	6	27.0	0.41	3	26.7	0.00	1	21.3	1.11	2
Surface salinity	23.2	1.42	6	26.2	1.63	14	36.1	0.07	6	36.2	0.06	3	36.1	0.00	1	36.1	0.03	2
Midwater salinity	26.1	0.33	6	29.5	1.10	14	36.0	0.08	6	36.2	0.05	3	36.2	0.00	1	36.1	0.07	2
Bottom salinity	28.3	0.96	6	31.1	0.79	14	36.0	0.07	6	36.2	0.05	3	36.2	0.00	1	36.4	0.00	2
Surface chlorophyll	0.0	0.00	0	0.0	0.00	0	0.0	0.00	0	0.0	0.00	0	0.0	0.00	0	0.0	0.00	0
Surface fluorescence	0.2	0.00	6	0.5	0.14	14	0.8	0.08	6	0.4	0.04	3	0.2	0.00	1	0.2	0.05	2
Surface oxygen	7.4	0.35	6	7.4	0.19	14	7.7	0.12	6	6.7	0.98	3	7.7	0.00	1	6.6	1.20	2
Midwater oxygen	7.5	0.29	6	7.3	0.16	14	7.7	0.13	6	7.0	0.78	3	7.8	0.00	1	6.8	1.05	2
Bottom oxygen	7.0	0.44	6	7.2	0.13	14	7.7	0.03	6	7.0	0.70	3	7.7	0.00	1	4.0	1.55	2

Table 24a

Statistical Zone 19

Summary of dominant organisms taken in statistical zone 19 during the 1998 Fall Shrimp/Groundfish Survey by depth stratum, collected with either a 40-ft or 20-ft trawl. The mean number (NUM) of organisms per hour, the standard error of the mean (SEM) for numbers, the mean weight (WT) in kg per hour, the SEM for weight and the number (N) of samples taken.

SPECIES	0- 5 FM					6-10 FM					11-20 FM				
	NUM	SEM	WT	SEM	N	NUM	SEM	WT	SEM	N	NUM	SEM	WT	SEM	N
Portunus gibbesii	26.0	21.61	0.2	0.11	5	106.7	50.16	0.4	0.21	16	147.2	39.08	0.7	0.17	18
Trachypenaeus similis	0.0	0.00	0.0	0.00	5	31.2	16.10	0.0	0.02	16	165.3	32.02	0.4	0.08	18
Penaeus aztecus	2.0	1.26	0.0	0.00	5	2.4	1.65	0.0	0.01	16	105.1	41.90	1.8	0.77	18
Callinectes similis	0.0	0.00	0.0	0.00	5	10.2	5.14	0.2	0.17	16	133.4	29.82	1.5	0.42	18
Penaeus setiferus	49.6	43.85	0.6	0.50	5	123.1	38.33	1.9	0.62	16	63.0	16.48	1.8	0.42	18
Xiphopenaeus kroyeri	15.2	8.73	0.1	0.05	5	191.6	87.38	0.5	0.24	16	11.1	5.08	0.1	0.03	18
Stenotomus caprinus	0.0	0.00	0.0	0.00	5	0.2	0.19	0.0	0.00	16	139.4	71.99	2.0	1.09	18
Micropogonias undulatus	0.0	0.00	0.0	0.00	5	3.7	1.56	0.2	0.12	16	297.9	101.10	18.0	6.12	18
Cynoscion spp.	53.6	53.60	0.3	0.29	5	239.4	84.96	1.0	0.32	16	112.8	39.55	0.6	0.18	18
Stellifer lanceolatus	131.2	66.32	1.4	0.77	5	325.5	105.80	2.7	1.04	16	18.4	8.24	0.1	0.05	18
Lagodon rhomboides	1.2	1.20	0.1	0.05	5	2.0	0.97	0.1	0.04	16	3.5	1.25	0.1	0.03	18
Chloroscombrus chrysurus	1.2	1.20	0.0	0.00	5	0.7	0.46	0.0	0.01	16	50.7	24.82	0.5	0.25	18
Peprilus burti	29.6	29.60	1.2	1.16	5	19.1	13.32	0.8	0.60	16	57.5	26.21	2.4	1.04	18
Halieutichthys aculeatus	0.0	0.00	0.0	0.00	5	2.5	1.60	0.0	0.01	16	46.6	17.60	0.3	0.10	18
Squid	15.2	5.31	0.1	0.06	5	20.0	5.16	0.2	0.07	16	14.5	4.83	0.2	0.08	18

Table 24a (continued)

Statistical Zone 19

Summary of dominant organisms taken in statistical zone 19 during the 1998 Fall Shrimp/Groundfish Survey by depth stratum, collected with either a 40-ft or 20-ft trawl. The mean number (NUM) of organisms per hour, the standard error of the mean (SEM) for numbers, the mean weight (WT) in kg per hour, the SEM for weight and the number (N) of samples taken.

SPECIES	21-30 FM					31-40 FM					>40 FM				
	NUM	SEM	WT	SEM	N	NUM	SEM	WT	SEM	N	NUM	SEM	WT	SEM	N
Portunus gibbesii	3.5	3.50	0.0	0.02	2	0.0	0.00	0.0	0.00	2	0.0	0.00	0.0	0.00	1
Trachypenaeus similis	76.0	76.00	0.3	0.30	2	0.0	0.00	0.0	0.00	2	0.0	0.00	0.0	0.00	1
Penaeus aztecus	113.5	2.50	3.0	0.25	2	20.8	11.23	0.9	0.36	2	0.0	0.00	0.0	0.00	1
Callinectes similis	51.5	51.50	1.1	1.11	2	2.0	0.70	0.1	0.00	2	0.0	0.00	0.0	0.00	1
Penaeus setiferus	0.0	0.00	0.0	0.00	2	0.0	0.00	0.0	0.00	2	0.0	0.00	0.0	0.00	1
Xiphopenaeus kroyeri	0.0	0.00	0.0	0.00	2	0.0	0.00	0.0	0.00	2	0.0	0.00	0.0	0.00	1
Stenotomus caprinus	782.0	733.00	26.4	25.68	2	16.9	2.21	0.7	0.07	2	42.4	0.00	2.1	0.00	1
Micropogonias undulatus	135.5	82.50	8.1	5.07	2	0.7	0.67	0.1	0.09	2	1.8	0.00	0.3	0.00	1
Cynoscion spp.	0.0	0.00	0.0	0.00	2	0.0	0.00	0.0	0.00	2	0.0	0.00	0.0	0.00	1
Stellifer lanceolatus	0.0	0.00	0.0	0.00	2	0.0	0.00	0.0	0.00	2	0.0	0.00	0.0	0.00	1
Lagodon rhomboides	866.5	866.50	40.0	39.95	2	2.0	0.65	0.2	0.03	2	0.0	0.00	0.0	0.00	1
Chloroscombrus chrysurus	264.5	262.50	4.4	4.39	2	0.0	0.00	0.0	0.00	2	0.0	0.00	0.0	0.00	1
Peprilus burti	114.0	112.00	5.9	5.77	2	31.4	31.36	1.9	1.92	2	0.0	0.00	0.0	0.00	1
Halieutichthys aculeatus	1.0	1.00	0.0	0.02	2	13.5	2.85	0.1	0.00	2	74.1	0.00	0.3	0.00	1
Squid	8.5	8.50	0.3	0.27	2	4.8	4.77	0.3	0.28	2	8.8	0.00	0.7	0.00	1

Table 24b

Statistical Zone 19

Summary of mean total catch and environmental data (X), the standard error of the mean (SEM) and the number (N) of samples taken during the 1998 Fall Shrimp/Groundfish Survey by depth stratum, collected with either a 40-ft or 20-ft trawl. Catch values in kg per hour, temperature in °C, salinity in ppt, chlorophyll in mg/m ³ , and oxygen in ppm.																		
Environmental category	0-5 FM			6-10 FM			11-20 FM			21-30 FM			31-40 FM			>40 FM		
	X	SEM	N	X	SEM	N	X	SEM	N	X	SEM	N	X	SEM	N	X	SEM	N
Total catch kg	87.1	47.27	5	33.2	18.39	16	39.4	8.04	18	117.5	91.14	2	16.0	6.92	2	28.1	0.00	1
Total finfish kg	7.3	5.94	5	10.5	2.83	16	31.7	7.40	18	111.8	92.73	2	10.8	4.10	2	22.5	0.00	1
Total crustacean kg	0.7	0.73	5	3.7	0.96	16	7.0	1.14	18	5.5	1.36	2	4.0	1.58	2	3.2	0.00	1
Total others kg	78.0	41.10	5	18.0	16.69	16	0.5	0.25	18	0.5	0.45	2	1.5	0.94	2	2.4	0.00	1
Surface temperature	20.0	0.52	4	23.7	0.47	18	25.3	0.52	18	27.5	0.74	2	28.1	0.01	2	27.9	0.02	2
Midwater temperature	20.1	0.05	4	24.0	0.38	18	25.4	0.45	18	27.4	0.66	2	28.1	0.20	2	27.8	0.04	2
Bottom temperature	21.0	0.45	4	24.3	0.38	18	25.5	0.41	18	27.4	0.62	2	21.7	1.08	2	21.1	0.49	2
Surface salinity	19.0	3.37	4	27.5	1.12	18	34.1	0.90	18	36.1	0.12	2	35.9	0.06	2	36.2	0.03	2
Midwater salinity	27.2	1.26	4	30.1	0.52	18	35.1	0.32	18	36.1	0.11	2	36.1	0.02	2	36.2	0.04	2
Bottom salinity	29.8	0.44	4	31.7	0.48	18	35.2	0.27	18	36.3	0.06	2	36.4	0.03	2	36.4	0.03	2
Surface chlorophyll	0.0	0.00	0	0.0	0.00	0	0.0	0.00	0	0.0	0.00	0	0.0	0.00	0	0.0	0.00	0
Surface fluorescence	1.0	0.00	4	1.6	0.16	18	1.2	0.10	18	0.3	0.08	2	0.2	0.11	2	0.2	0.08	2
Surface oxygen	7.4	0.16	4	7.3	0.11	18	6.9	0.21	18	6.2	0.90	2	5.2	0.10	2	5.7	0.10	2
Midwater oxygen	6.4	0.06	4	7.1	0.10	18	7.4	0.12	18	6.8	0.90	2	5.2	0.70	2	5.9	0.10	2
Bottom oxygen	6.1	0.11	4	7.0	0.19	18	7.5	0.13	18	6.6	0.95	2	3.5	0.60	2	4.1	0.20	2

Table 25a
 Statistical Zone 20

Summary of dominant organisms taken in statistical zone 20 during the 1998 Fall Shrimp/Groundfish Survey by depth stratum, collected with either a 40-ft or 20-ft trawl. The mean number (NUM) of organisms per hour, the standard error of the mean (SEM) for numbers, the mean weight (WT) in kg per hour, the SEM for weight and the number (N) of samples taken. No trawl samples were taken in depths less than 6 fm.

SPECIES	0- 5 FM					6-10 FM					11-20 FM				
	NUM	SEM	WT	SEM	N	NUM	SEM	WT	SEM	N	NUM	SEM	WT	SEM	N
Trachypenaeus similis	0.0	0.00	0.0	0.00	0	27.9	15.14	0.0	0.03	12	372.9	82.88	0.8	0.19	20
Portunus gibbesii	0.0	0.00	0.0	0.00	0	99.4	31.13	0.4	0.13	12	165.5	47.65	0.8	0.22	20
Callinectes similis	0.0	0.00	0.0	0.00	0	4.5	2.77	0.0	0.02	12	141.1	54.25	1.8	0.82	20
Penaeus aztecus	0.0	0.00	0.0	0.00	0	14.7	7.44	0.1	0.03	12	73.1	22.54	1.2	0.39	20
Penaeus setiferus	0.0	0.00	0.0	0.00	0	110.2	37.06	2.6	0.86	12	22.2	6.91	0.6	0.20	20
Squilla spp.	0.0	0.00	0.0	0.00	0	26.2	9.80	0.3	0.14	12	31.7	7.42	0.2	0.07	20
Cynoscion spp.	0.0	0.00	0.0	0.00	0	288.2	173.28	1.3	0.76	12	335.5	144.98	2.1	0.82	20
Chloroscombrus chrysurus	0.0	0.00	0.0	0.00	0	852.0	794.72	6.8	6.37	12	44.0	17.77	0.8	0.39	20
Cynoscion nothus	0.0	0.00	0.0	0.00	0	82.1	23.11	0.9	0.25	12	363.2	82.91	2.4	0.53	20
Serranus atrobranchus	0.0	0.00	0.0	0.00	0	0.0	0.00	0.0	0.00	12	4.6	2.91	0.0	0.02	20
Peprilus burti	0.0	0.00	0.0	0.00	0	15.7	8.59	0.5	0.31	12	17.9	10.35	0.8	0.43	20
Syacium gunteri	0.0	0.00	0.0	0.00	0	7.2	3.71	0.1	0.05	12	95.9	28.17	0.9	0.24	20
Harengula jaguana	0.0	0.00	0.0	0.00	0	19.0	17.49	0.4	0.32	12	42.4	34.87	1.1	0.84	20
Diplectrum bivittatum	0.0	0.00	0.0	0.00	0	1.5	1.50	0.0	0.02	12	73.8	30.48	0.8	0.31	20
Squid	0.0	0.00	0.0	0.00	0	40.9	9.44	0.5	0.12	12	44.2	10.05	0.6	0.10	20

Table 25a (continued)

Statistical Zone 20

Summary of dominant organisms taken in statistical zone 20 during the 1998 Fall Shrimp/Groundfish Survey by depth stratum, collected with either a 40-ft or 20-ft trawl. The mean number (NUM) of organisms per hour, the standard error of the mean (SEM) for numbers, the mean weight (WT) in kg per hour, the SEM for weight and the number (N) of samples taken. No trawl samples were taken in depths less than 6 fm.

SPECIES	21-30 FM					31-40 FM					>40 FM				
	NUM	SEM	WT	SEM	N	NUM	SEM	WT	SEM	N	NUM	SEM	WT	SEM	N
Trachypenaeus similis	776.4	319.48	1.8	0.74	6	18.2	18.19	0.1	0.05	6	0.0	0.00	0.0	0.00	1
Portunus gibbesii	4.8	3.49	0.0	0.01	6	0.0	0.00	0.0	0.00	6	0.0	0.00	0.0	0.00	1
Callinectes similis	186.4	97.45	3.7	2.10	6	16.5	6.53	0.3	0.16	6	0.0	0.00	0.0	0.00	1
Penaeus aztecus	110.4	28.32	3.0	0.79	6	107.0	39.12	3.2	1.19	6	63.6	0.00	3.0	0.00	1
Penaeus setiferus	0.0	0.00	0.0	0.00	6	0.0	0.00	0.0	0.00	6	0.0	0.00	0.0	0.00	1
Squilla spp.	60.0	22.92	0.6	0.25	6	0.3	0.34	0.0	0.00	6	5.4	0.00	0.0	0.00	1
Cynoscion spp.	9.0	7.14	0.0	0.03	6	0.0	0.00	0.0	0.00	6	0.0	0.00	0.0	0.00	1
Chloroscombrus chrysurus	35.3	22.83	1.3	0.83	6	38.3	14.95	1.7	0.62	6	0.0	0.00	0.0	0.00	1
Cynoscion nothus	640.1	559.49	2.6	1.32	6	0.6	0.56	0.1	0.05	6	0.0	0.00	0.0	0.00	1
Serranus atrobranchus	377.5	179.40	3.2	1.46	6	42.7	15.35	0.3	0.12	6	117.3	0.00	1.4	0.00	1
Peprilus burti	65.1	42.86	4.0	2.49	6	131.0	44.66	7.2	2.63	6	8.1	0.00	0.3	0.00	1
Syacium gunteri	22.4	8.73	0.2	0.10	6	3.4	1.93	0.0	0.02	6	0.0	0.00	0.0	0.00	1
Harengula jaguana	47.4	47.43	1.4	1.42	6	1.5	1.53	0.1	0.05	6	0.0	0.00	0.0	0.00	1
Diplectrum bivittatum	25.2	23.04	0.3	0.32	6	0.2	0.17	0.0	0.00	6	0.0	0.00	0.0	0.00	1
Squid	73.2	58.77	1.2	0.50	6	72.6	34.66	0.3	0.20	6	2.7	0.00	0.1	0.00	1

Table 25b

Statistical Zone 20

Summary of mean total catch and environmental data (X), the standard error of the mean (SEM) and the number (N) of samples taken during the 1998 Fall Shrimp/Groundfish Survey by depth stratum, collected with either a 40-ft or 20-ft trawl. Catch values in kg per hour, temperature in °C, salinity in ppt, chlorophyll in mg/m ³ , and oxygen in ppm. No trawl samples were taken in depths less than 6 fm.																		
Environmental category	0-5 FM			6-10 FM			11-20 FM			21-30 FM			31-40 FM			>40 FM		
	X	SEM	N	X	SEM	N	X	SEM	N	X	SEM	N	X	SEM	N	X	SEM	N
Total catch kg	0.0	0.00	0	52.9	20.20	12	26.0	4.24	20	36.8	7.58	6	30.5	3.01	6	27.3	0.00	1
Total finfish kg	0.0	0.00	0	18.8	8.09	12	16.4	2.96	20	24.9	4.62	6	25.3	3.15	6	23.6	0.00	1
Total crustacean kg	0.0	0.00	0	3.3	1.23	12	5.9	1.28	20	10.5	3.97	6	4.3	1.19	6	3.3	0.00	1
Total others kg	0.0	0.00	0	30.6	12.29	12	3.4	1.10	20	1.4	0.56	6	1.0	0.32	6	0.8	0.00	1
Surface temperature	20.7	0.05	2	23.3	0.91	12	25.0	0.71	18	27.7	0.30	5	27.6	0.15	3	27.5	0.09	2
Midwater temperature	20.8	0.10	2	23.6	0.85	12	24.9	0.74	18	27.8	0.18	5	28.3	0.19	3	28.8	0.02	2
Bottom temperature	21.0	0.25	2	23.5	0.85	12	25.3	0.68	18	28.3	0.08	5	24.5	1.89	3	21.8	0.77	2
Surface salinity	28.9	1.35	2	27.6	1.01	12	30.8	0.53	18	32.9	0.71	5	34.7	0.99	3	32.8	0.03	2
Midwater salinity	29.6	0.55	2	30.1	0.56	12	31.7	0.56	18	34.5	0.55	5	35.7	0.46	3	36.0	0.14	2
Bottom salinity	30.4	0.22	2	31.2	0.36	12	33.4	0.29	18	36.2	0.03	5	36.3	0.08	3	36.4	0.00	2
Surface chlorophyll	0.0	0.00	0	0.0	0.00	0	0.0	0.00	0	0.0	0.00	0	0.0	0.00	0	0.0	0.00	0
Surface fluorescence	0.5	0.00	2	1.4	0.37	12	1.2	0.19	18	1.0	0.19	5	0.7	0.38	3	1.0	0.08	2
Surface oxygen	6.8	0.10	2	6.4	0.48	12	6.6	0.33	18	6.2	0.92	5	5.7	1.58	3	6.6	0.25	2
Midwater oxygen	6.6	0.10	2	6.8	0.30	12	6.8	0.18	18	6.5	0.39	5	6.2	0.62	3	6.6	0.15	2
Bottom oxygen	6.7	0.20	2	6.9	0.10	12	6.0	0.22	18	4.6	0.53	5	4.9	1.12	3	3.8	0.35	2

Table 26a

Statistical Zone 21

Summary of dominant organisms taken in statistical zone 21 during the 1998 Fall Shrimp/Groundfish Survey by depth stratum, collected with either a 40-ft or 20-ft trawl. The mean number (NUM) of organisms per hour, the standard error of the mean (SEM) for numbers, the mean weight (WT) in kg per hour, the SEM for weight and the number (N) of samples taken.															
SPECIES	0- 5 FM					6-10 FM					11-20 FM				
	NUM	SEM	WT	SEM	N	NUM	SEM	WT	SEM	N	NUM	SEM	WT	SEM	N
Penaeus aztecus	7.5	7.50	0.0	0.00	2	3.1	1.73	0.0	0.02	13	73.6	25.80	1.3	0.41	17
Portunus gibbesii	30.0	0.00	0.1	0.11	2	46.9	15.27	0.2	0.07	13	58.3	20.60	0.3	0.09	17
Portunus spinicarpus	0.0	0.00	0.0	0.00	2	0.0	0.00	0.0	0.00	13	0.2	0.21	0.0	0.00	17
Trachypenaeus similis	0.0	0.00	0.0	0.00	2	2.9	1.77	0.0	0.00	13	36.2	19.83	0.1	0.07	17
Penaeus duorarum	5.0	5.00	0.1	0.11	2	23.1	9.89	0.4	0.21	13	15.7	8.72	0.2	0.12	17
Callinectes similis	0.0	0.00	0.0	0.00	2	5.1	3.71	0.1	0.05	13	10.6	4.06	0.2	0.10	17
Chloroscombrus chrysurus	1151.0	751.00	21.2	13.20	2	111.0	61.40	2.9	2.13	13	388.8	171.21	7.1	3.06	17
Serranus atrobranchus	0.0	0.00	0.0	0.00	2	0.0	0.00	0.0	0.00	13	0.7	0.44	0.0	0.00	17
Cynoscion nothus	345.0	345.00	1.3	1.25	2	42.5	22.09	0.7	0.33	13	91.1	36.12	1.2	0.40	17
Stenotomus caprinus	0.0	0.00	0.0	0.00	2	6.9	4.08	0.1	0.05	13	70.1	29.03	1.0	0.41	17
Pristipomoides aquilonaris	0.0	0.00	0.0	0.00	2	0.0	0.00	0.0	0.00	13	0.0	0.00	0.0	0.00	17
Cynoscion spp.	0.0	0.00	0.0	0.00	2	1.0	1.03	0.0	0.01	13	38.8	26.13	0.2	0.13	17
Peprilus burti	0.0	0.00	0.0	0.00	2	0.5	0.46	0.0	0.00	13	8.8	5.18	0.3	0.18	17
Diplectrum bivittatum	0.0	0.00	0.0	0.00	2	8.9	7.25	0.1	0.08	13	44.7	22.19	0.5	0.24	17
Squid	15.0	15.00	0.2	0.23	2	11.4	2.93	0.1	0.04	13	92.3	39.16	0.7	0.23	17

Table 26a (continued)

Statistical Zone 21

Summary of dominant organisms taken in statistical zone 21 during the 1998 Fall Shrimp/Groundfish Survey by depth stratum, collected with either a 40-ft or 20-ft trawl. The mean number (NUM) of organisms per hour, the standard error of the mean (SEM) for numbers, the mean weight (WT) in kg per hour, the SEM for weight and the number (N) of samples taken.

SPECIES	21-30 FM					31-40 FM					>40FM				
	NUM	SEM	WT	SEM	N	NUM	SEM	WT	SEM	N	NUM	SEM	WT	SEM	N
Penaeus aztecus	52.5	0.00	1.6	0.00	1	54.4	0.00	2.8	0.00	1	12.8	6.14	0.6	0.28	5
Portunus gibbesii	0.0	0.00	0.0	0.00	1	0.0	0.00	0.0	0.00	1	0.0	0.00	0.0	0.00	5
Portunus spinicarpus	0.0	0.00	0.0	0.00	1	271.9	0.00	1.8	0.00	1	36.5	15.44	0.3	0.12	5
Trachypenaeus similis	0.0	0.00	0.0	0.00	1	13.1	0.00	0.1	0.00	1	0.0	0.00	0.0	0.00	5
Penaeus duorarum	0.0	0.00	0.0	0.00	1	0.0	0.00	0.0	0.00	1	0.0	0.00	0.0	0.00	5
Callinectes similis	11.3	0.00	0.2	0.00	1	0.0	0.00	0.0	0.00	1	0.0	0.00	0.0	0.00	5
Chloroscombrus chrysurus	392.5	0.00	11.0	0.00	1	0.0	0.00	0.0	0.00	1	0.0	0.00	0.0	0.00	5
Serranus atrobranchus	12.5	0.00	0.1	0.00	1	418.1	0.00	5.5	0.00	1	224.0	101.79	6.2	3.71	5
Cynoscion nothus	13.8	0.00	0.5	0.00	1	0.0	0.00	0.0	0.00	1	0.0	0.00	0.0	0.00	5
Stenotomus caprinus	80.0	0.00	1.6	0.00	1	95.6	0.00	5.5	0.00	1	35.6	14.25	1.4	0.71	5
Pristipomoides aquilonaris	0.0	0.00	0.0	0.00	1	136.9	0.00	14.1	0.00	1	146.9	72.48	14.0	7.51	5
Cynoscion spp.	17.5	0.00	0.1	0.00	1	0.0	0.00	0.0	0.00	1	0.0	0.00	0.0	0.00	5
Peprilus burti	36.3	0.00	1.4	0.00	1	0.0	0.00	0.0	0.00	1	34.8	28.82	2.0	1.75	5
Diplectrum bivittatum	0.0	0.00	0.0	0.00	1	0.0	0.00	0.0	0.00	1	0.0	0.00	0.0	0.00	5
Squid	155.0	0.00	0.9	0.00	1	9.4	0.00	0.4	0.00	1	49.7	36.66	0.7	0.29	5

Table 26b

Statistical Zone 21

Summary of mean total catch and environmental data (X), the standard error of the mean (SEM) and the number (N) of samples taken during the 1998 Fall Shrimp/Groundfish Survey by depth stratum, collected with either a 40-ft or 20-ft trawl. Catch values in kg per hour, temperature in °C, salinity in ppt, chlorophyll in mg/m ³ , and oxygen in ppm.																		
Environmental category	0-5 FM			6-10 FM			11-20 FM			21-30 FM			31-40 FM			>40 FM		
	X	SEM	N	X	SEM	N	X	SEM	N	X	SEM	N	X	SEM	N	X	SEM	N
Total catch kg	423.2	386.82	2	43.9	33.94	13	31.3	8.53	17	29.0	0.00	1	86.1	0.00	1	38.5	12.60	5
Total finfish kg	33.0	7.95	2	6.3	2.64	13	17.1	4.01	17	26.1	0.00	1	71.6	0.00	1	35.5	12.27	5
Total crustacean kg	2.3	2.27	2	1.0	0.49	13	2.7	0.66	17	1.7	0.00	1	8.5	0.00	1	1.3	0.15	5
Total others kg	388.0	381.14	2	36.2	32.55	13	10.9	6.57	17	1.1	0.00	1	6.0	0.00	1	1.7	0.45	5
Surface temperature	27.3	0.00	1	24.8	0.55	14	25.9	0.48	17	27.7	0.00	1	28.2	0.45	2	27.9	0.33	4
Midwater temperature	27.3	0.00	1	24.6	0.60	14	25.9	0.51	17	28.9	0.00	1	28.7	0.04	2	28.7	0.14	4
Bottom temperature	21.3	0.00	1	24.6	0.60	14	26.0	0.53	17	27.4	0.00	1	24.8	3.17	2	21.4	0.51	4
Surface salinity	32.9	0.00	1	33.5	0.17	14	33.5	0.17	17	34.0	0.00	1	34.6	0.58	2	34.1	0.65	4
Midwater salinity	32.9	0.00	1	33.6	0.15	14	33.8	0.14	17	35.6	0.00	1	36.0	0.09	2	36.2	0.06	4
Bottom salinity	32.7	0.00	1	33.7	0.11	14	34.4	0.18	17	36.2	0.00	1	36.4	0.16	2	36.4	0.11	4
Surface chlorophyll	0.0	0.00	0	0.0	0.00	0	0.0	0.00	0	0.0	0.00	0	0.0	0.00	0	0.0	0.00	0
Surface fluorescence	1.8	0.00	1	0.4	0.07	14	0.6	0.09	17	0.5	0.00	1	0.3	0.07	2	0.3	0.05	4
Surface oxygen	6.0	0.00	1	6.6	0.18	14	6.4	0.12	17	6.9	0.00	1	6.8	0.40	2	4.9	1.02	4
Midwater oxygen	7.3	0.00	1	6.8	0.17	14	6.7	0.10	17	6.6	0.00	1	6.5	0.10	2	5.8	0.27	4
Bottom oxygen	7.0	0.00	1	6.4	0.19	14	6.2	0.32	17	4.3	0.00	1	5.1	0.35	2	4.2	0.80	4

Table 27. 1998 Reef Fish Survey species composition list, 5 trap stations where a fish trap was used.

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 SETS WHERE CAUGHT	% FREQUENCY OCCURRENCE
<i>Lutjanus campechanus</i>	red snapper	33	7.70	2	40.0
<i>Centropristis philadelphica</i>	rock sea bass	5	0.20	1	16.7
<i>Haemulon aurolineatum</i>	tomtate	5	0.12	1	16.7
<i>Diplectrum formosum</i>	sand perch	1	0.01	1	16.7
<i>Equetus umbrosus</i>	cubbyu	1	0.03	1	16.7

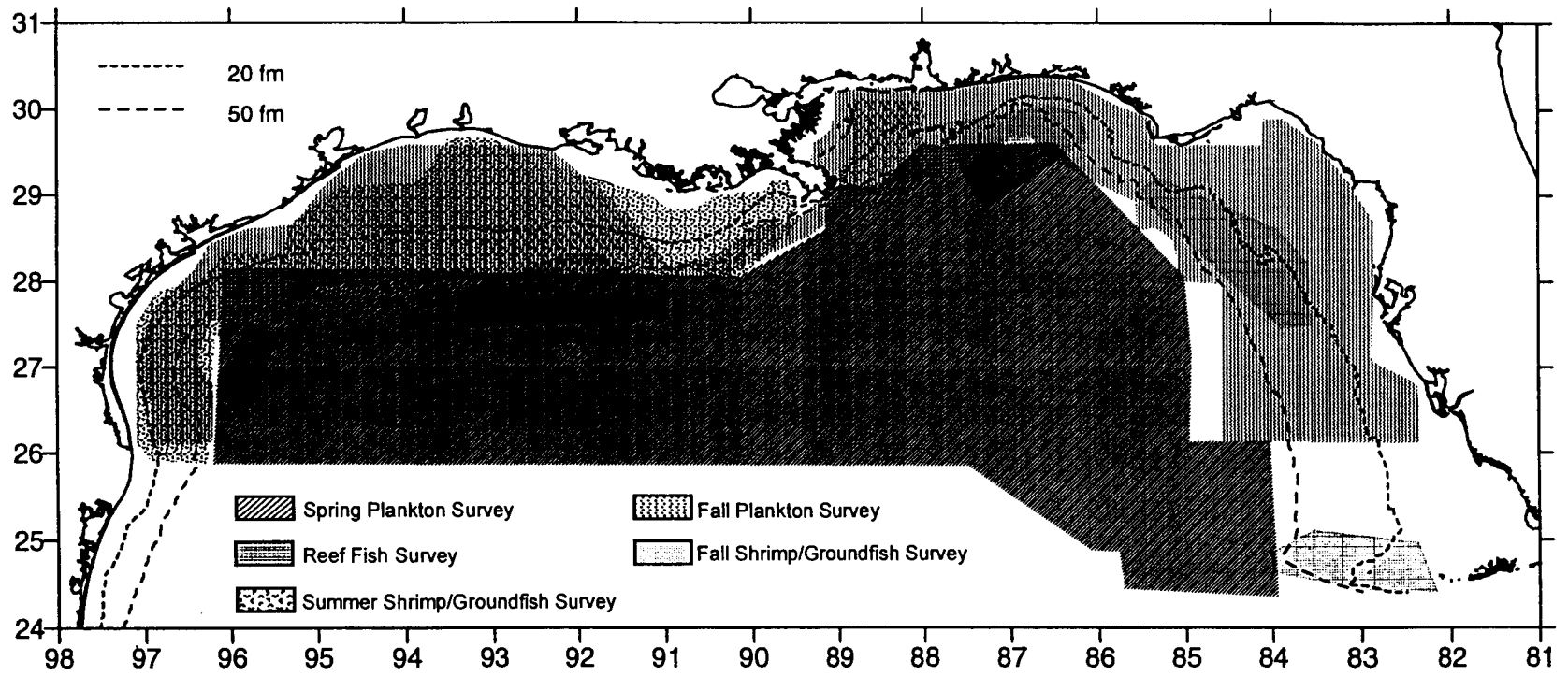


Figure 1. 1998 SEAMAP Surveys, Gulf of Mexico.

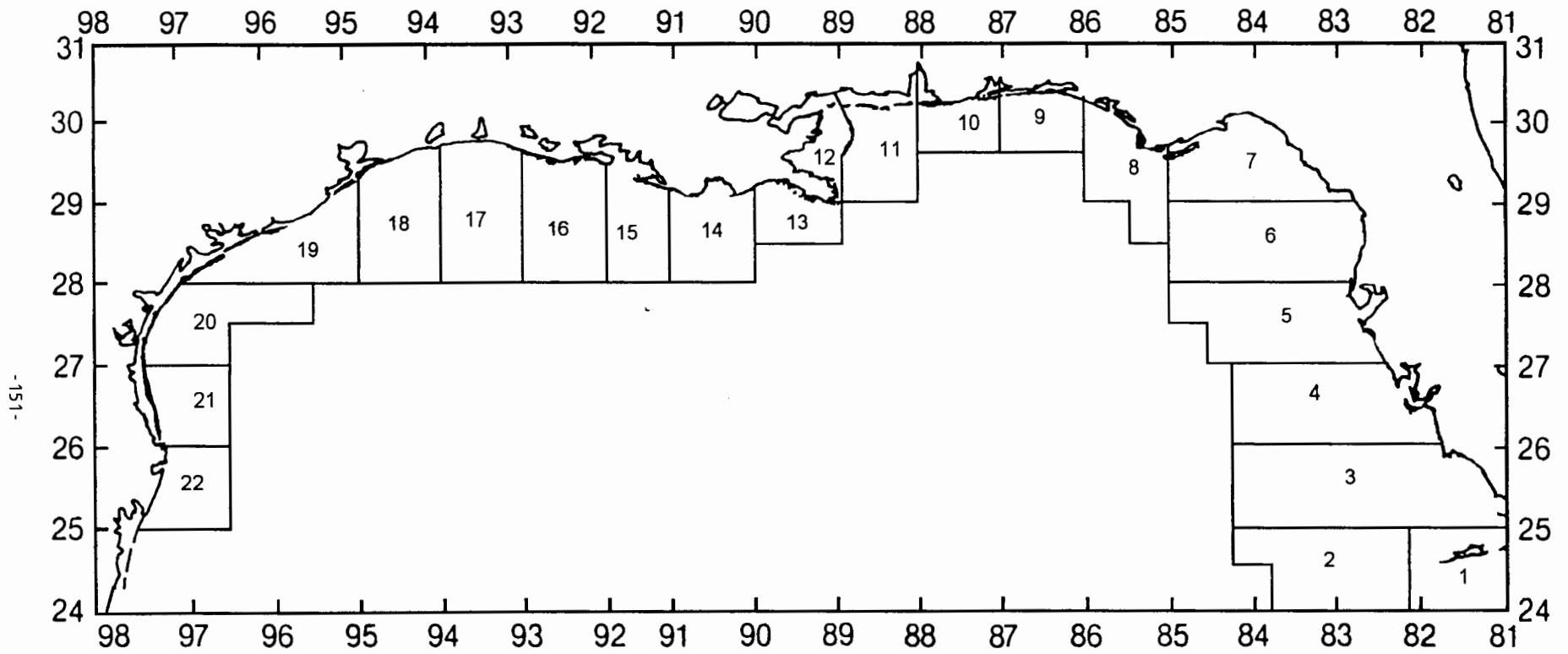


Figure 2. Statistical zones for shrimp in the Gulf of Mexico.

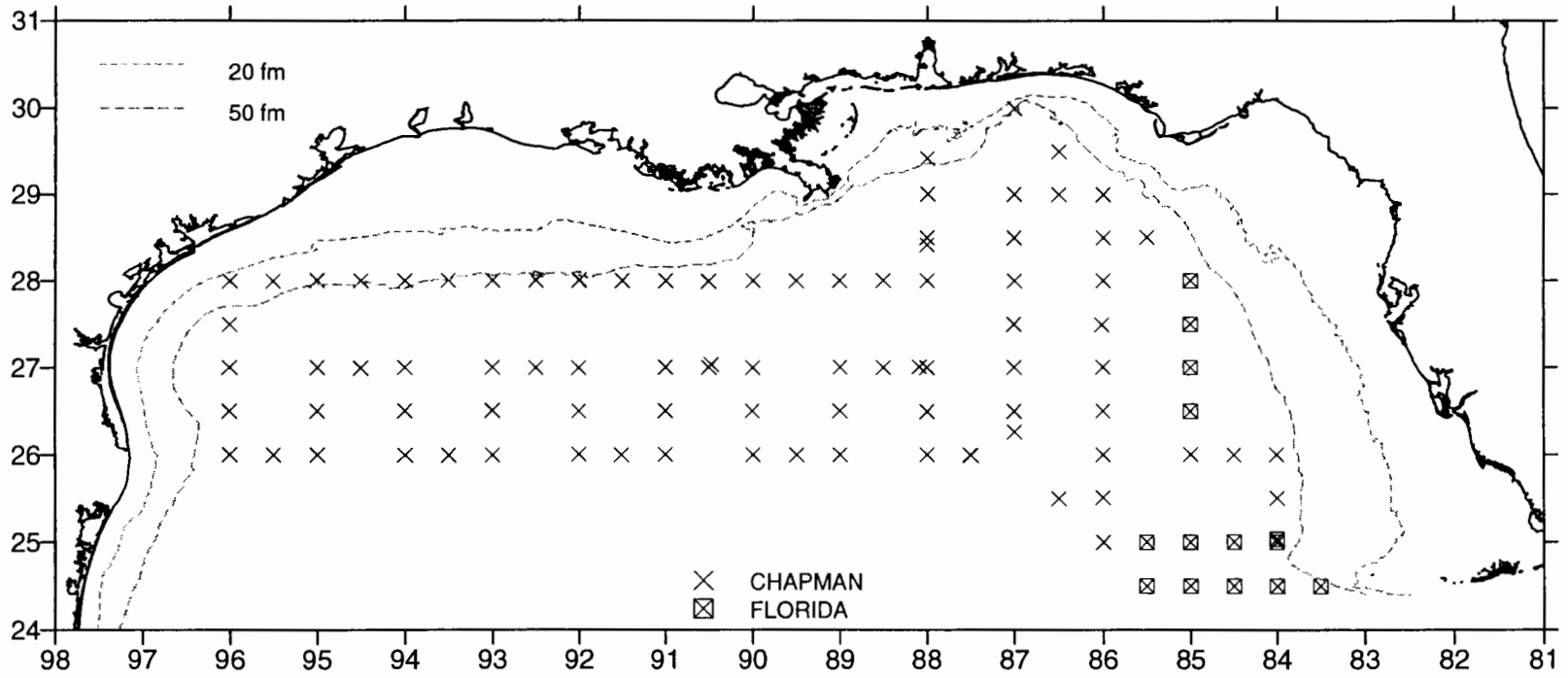


Figure 3. Locations of plankton and environmental stations during the 1998 Spring Plankton Survey.

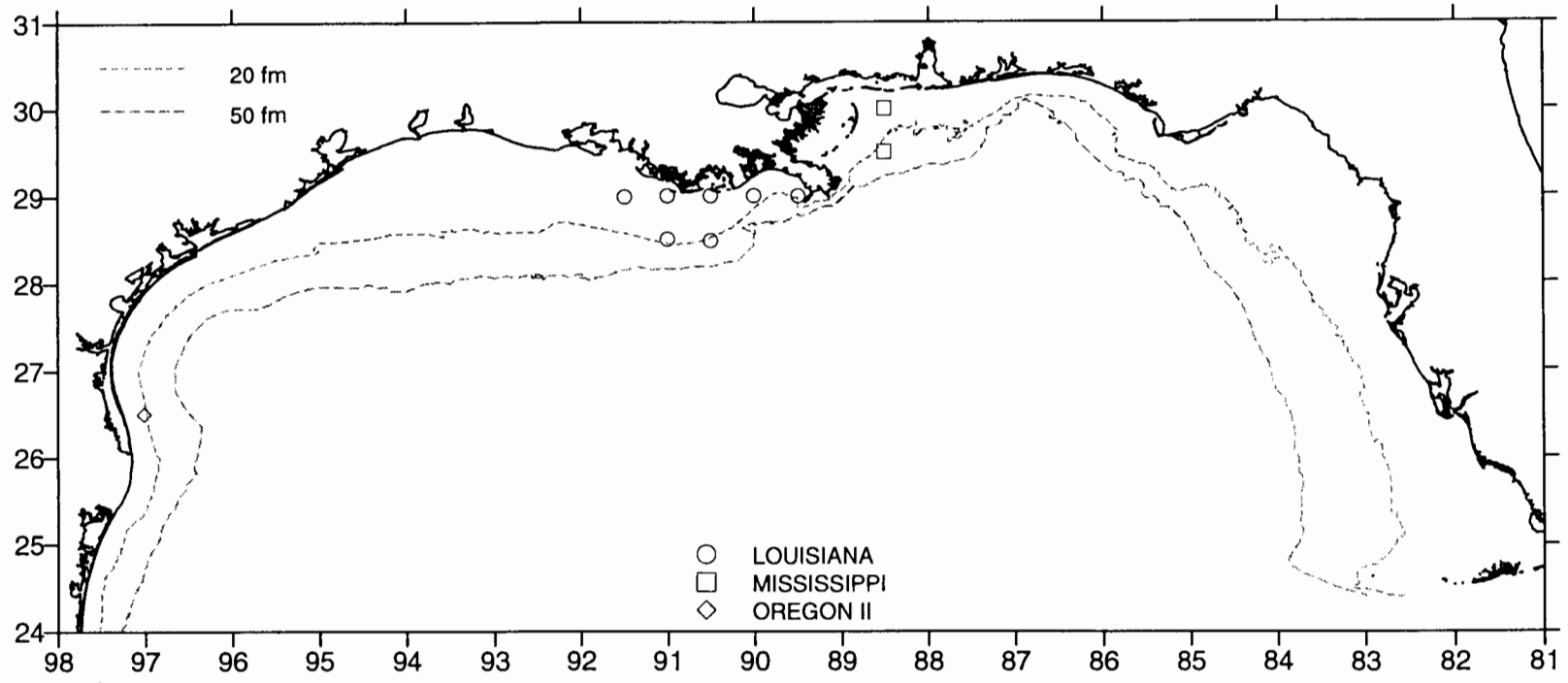


Figure 4. Locations of plankton stations during the 1998 Summer Shrimp/Groundfish Survey.

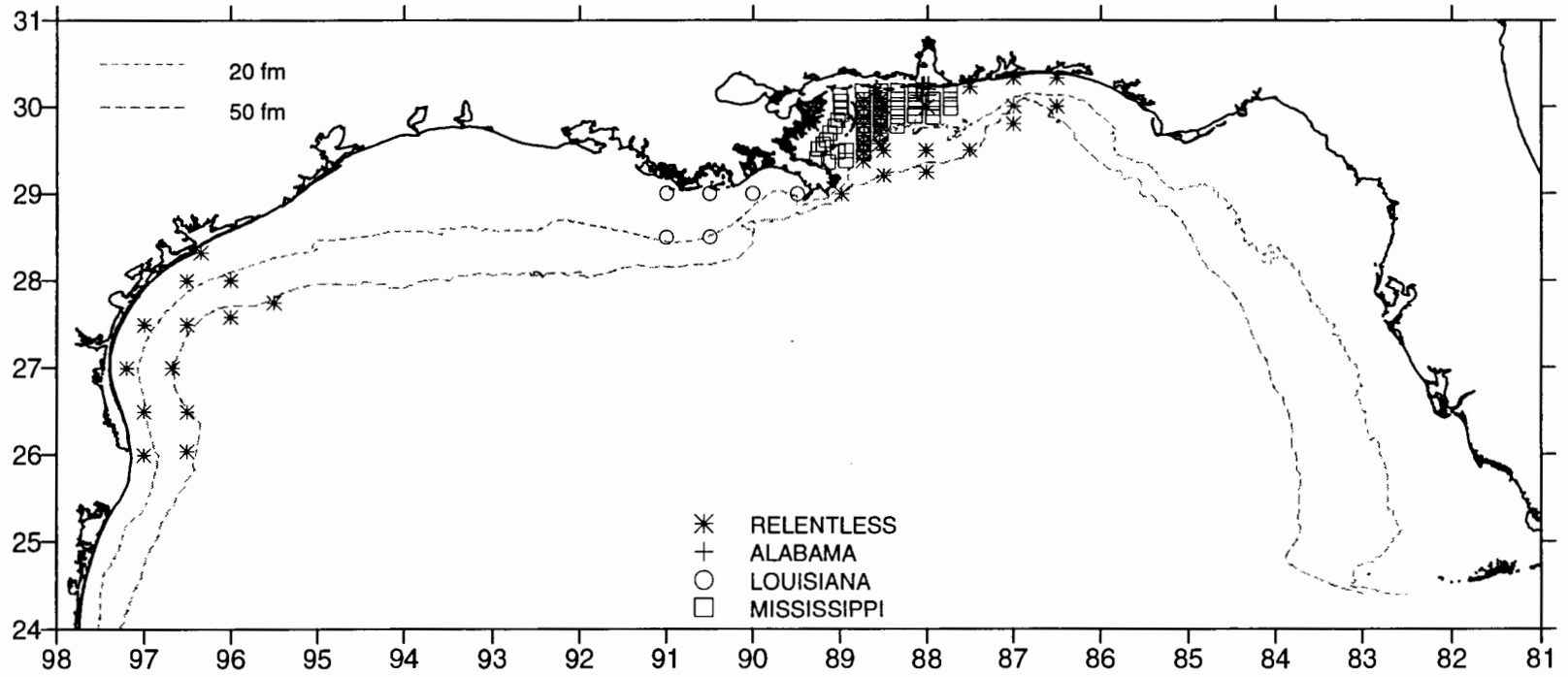


Figure 5. Locations of plankton and environmental stations during the 1998 Fall Plankton Survey.

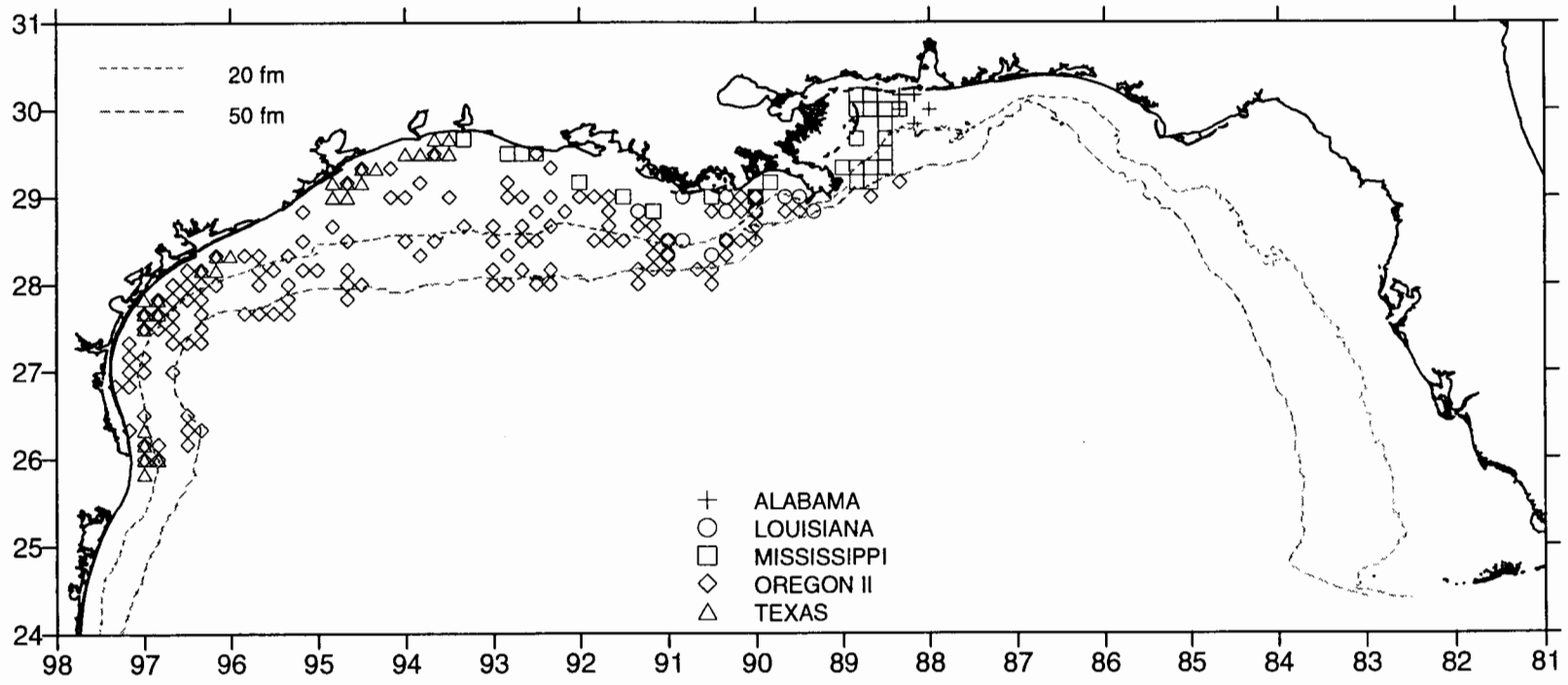


Figure 7. Locations of environmental stations during the 1998 Summer Shrimp/Groundfish Survey summarized by 10-minute squares.

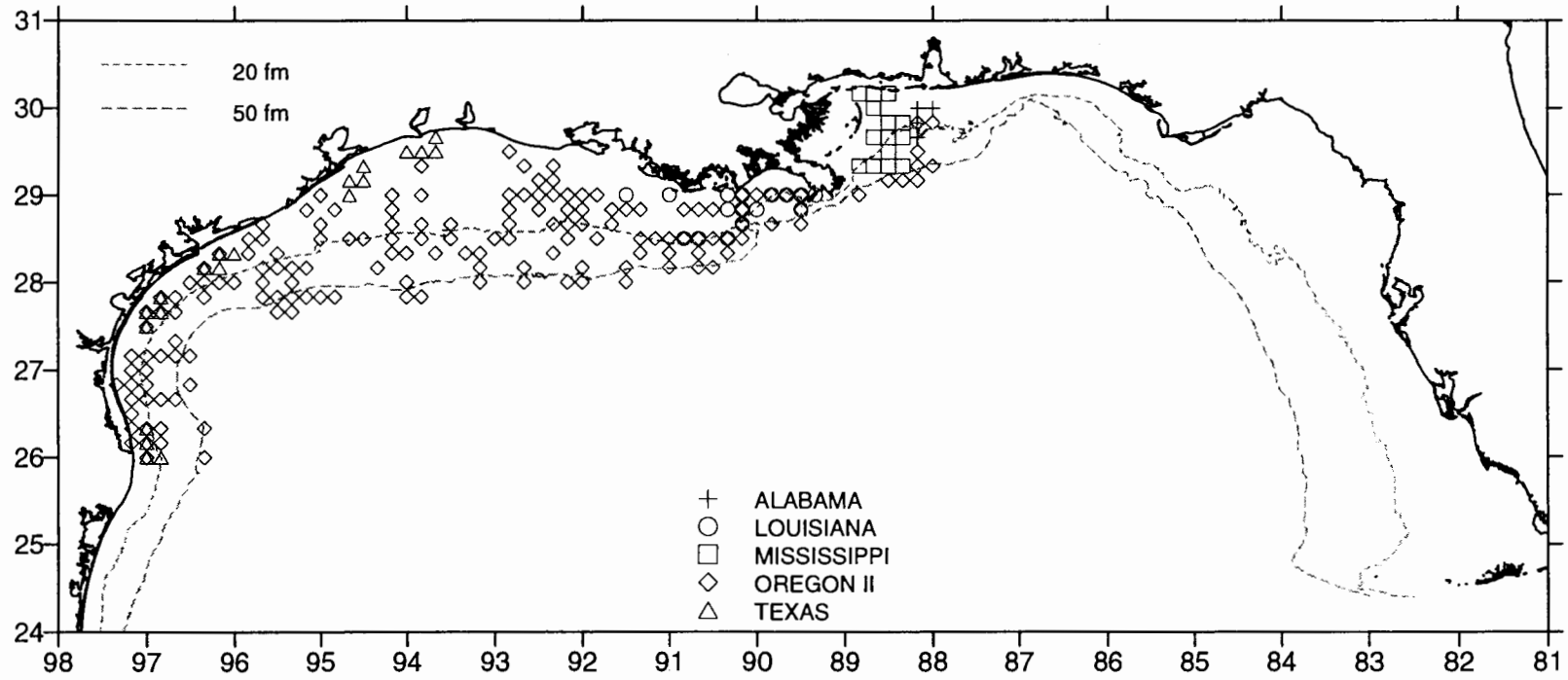


Figure 8. Locations of environmental stations during the 1998 Fall Shrimp/Groundfish Survey summarized by 10-minute squares.

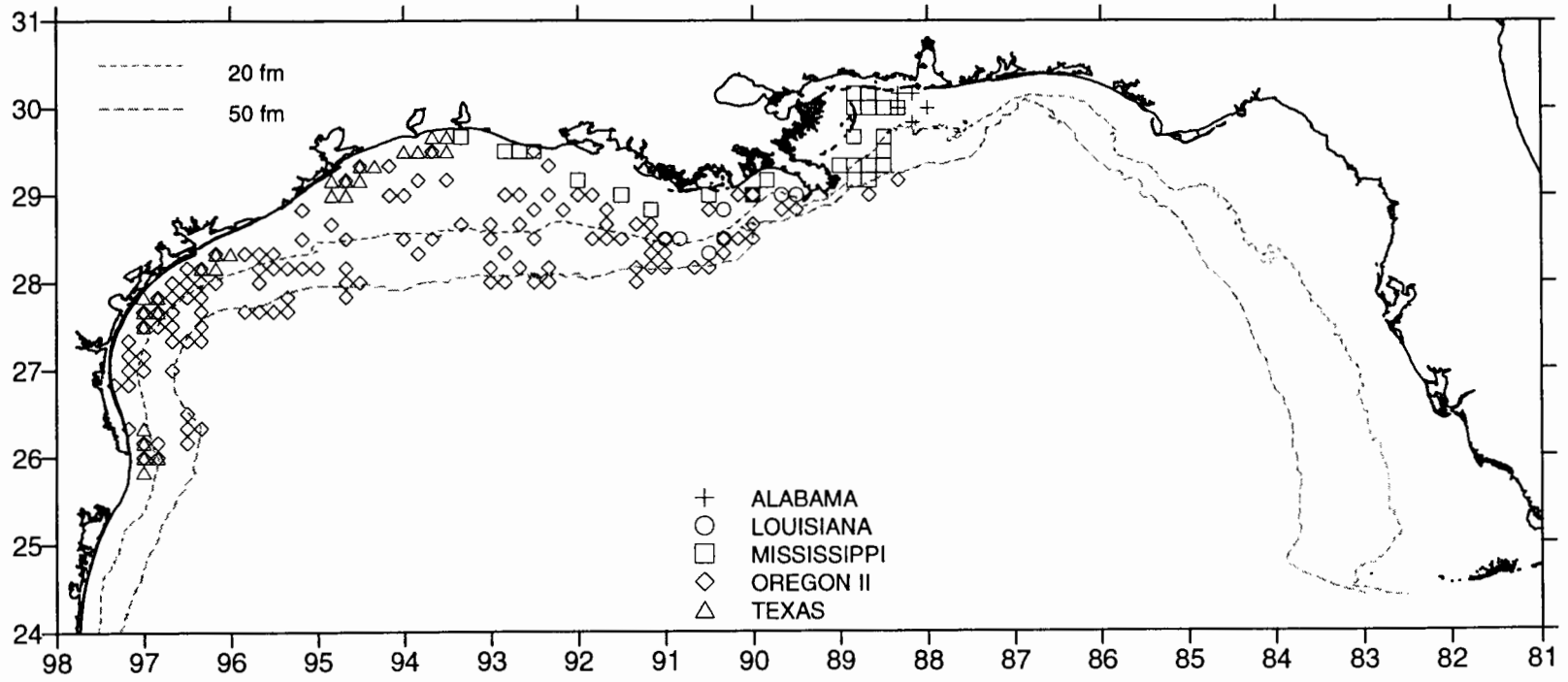


Figure 9. Locations of trawl stations during the 1998 Summer Shrimp/Groundfish Survey summarized by 10-minute squares.

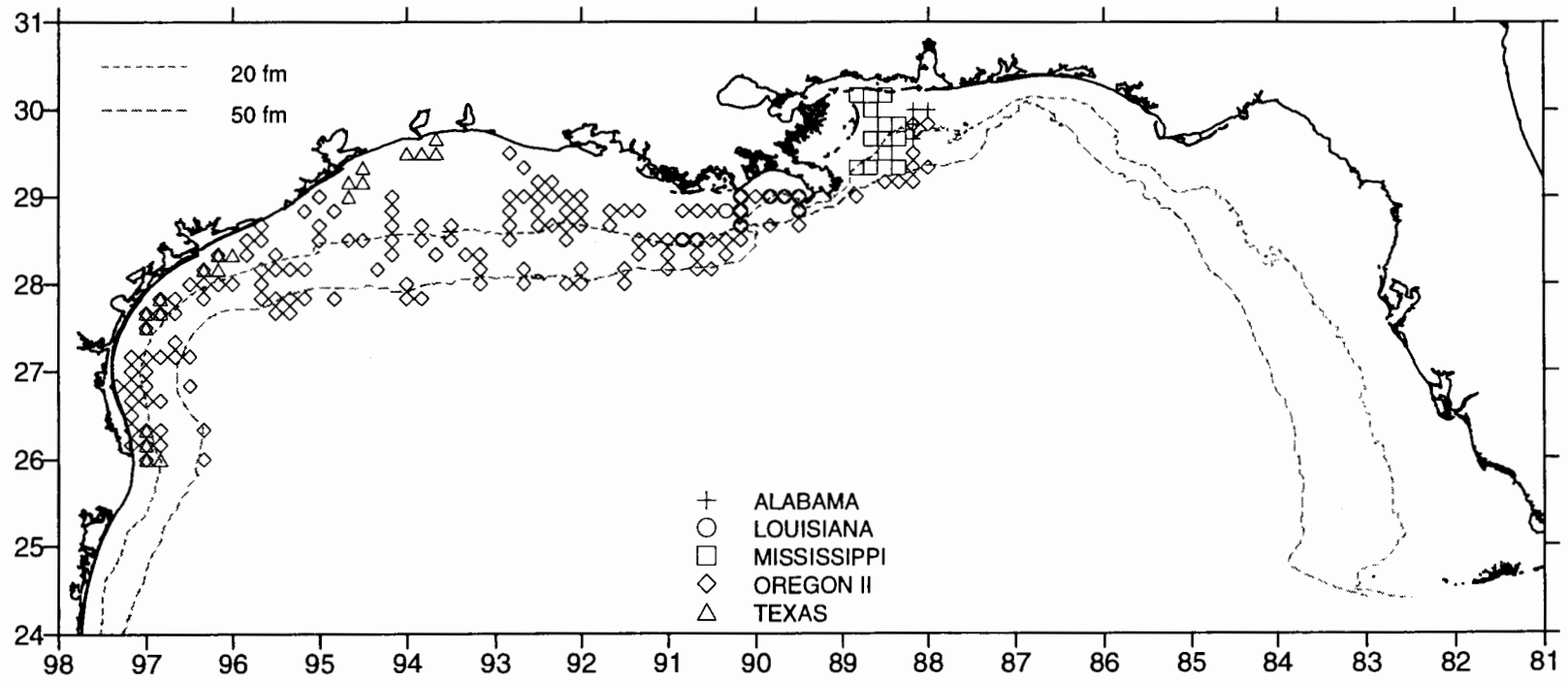


Figure 10. Locations of trawl stations during the 1998 Fall Shrimp/Groundfish Survey summarized by 10-minute squares.

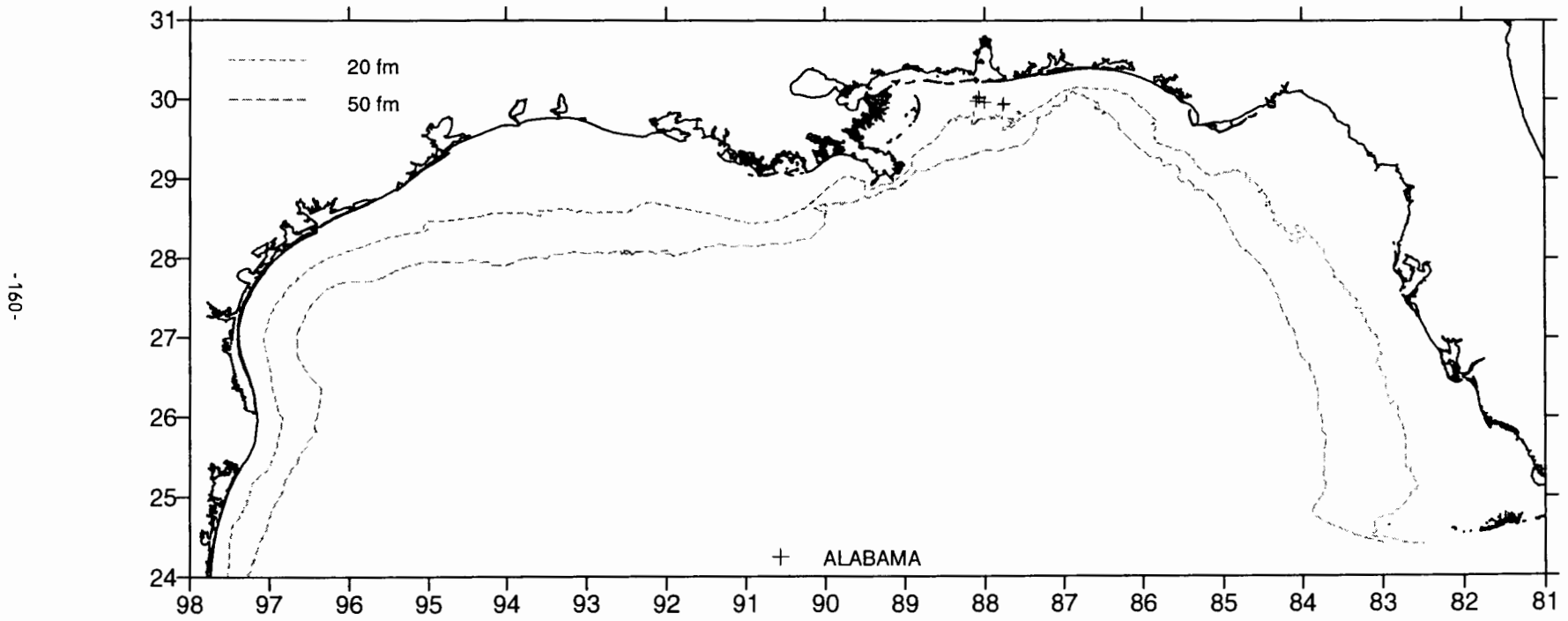


Figure 11. Locations of trap stations during the 1998 Reef Fish Survey.

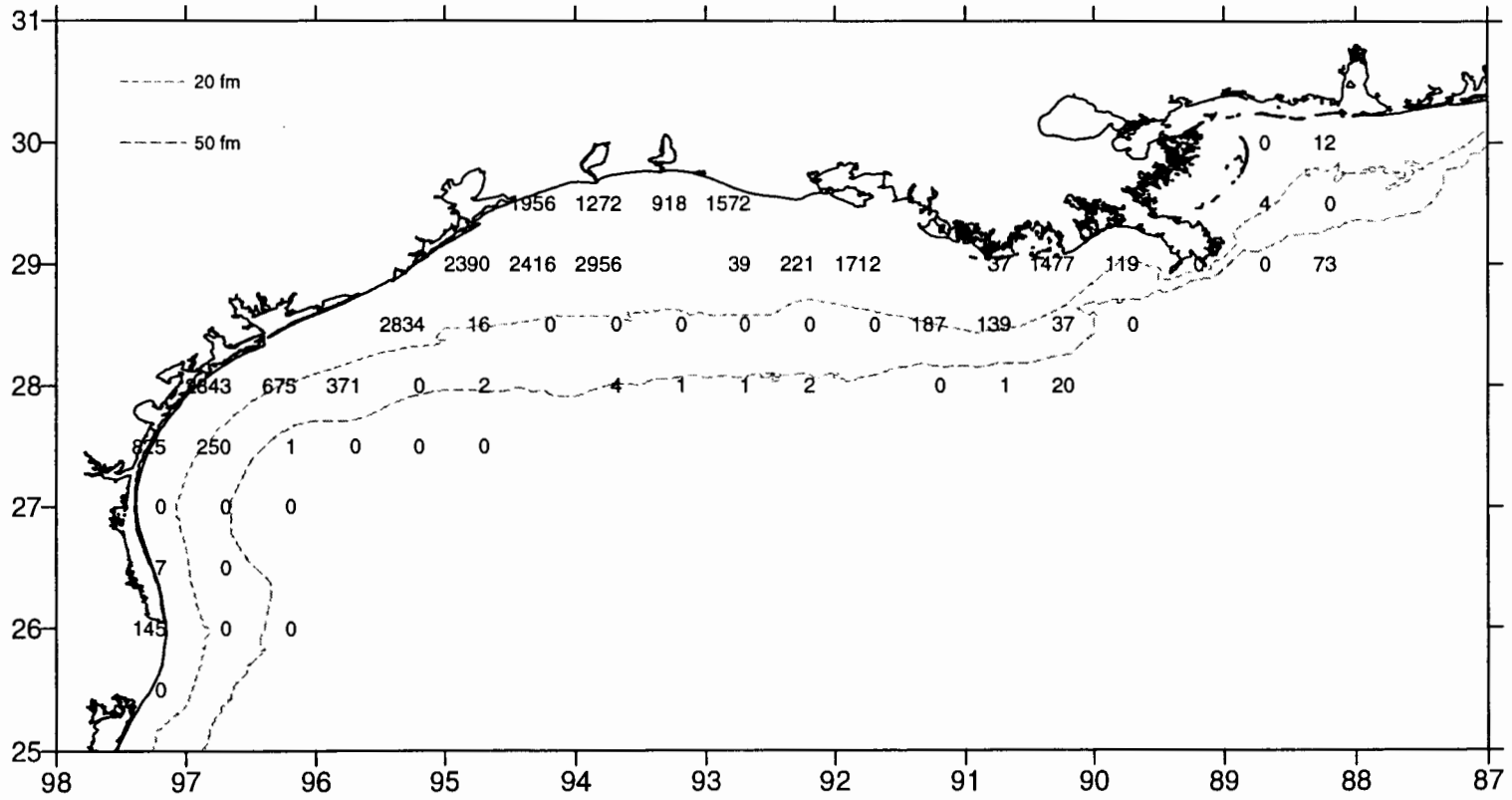


Figure 12. Atlantic croaker, *Micropogonias undulatus*, number/hour for June-July 1998.

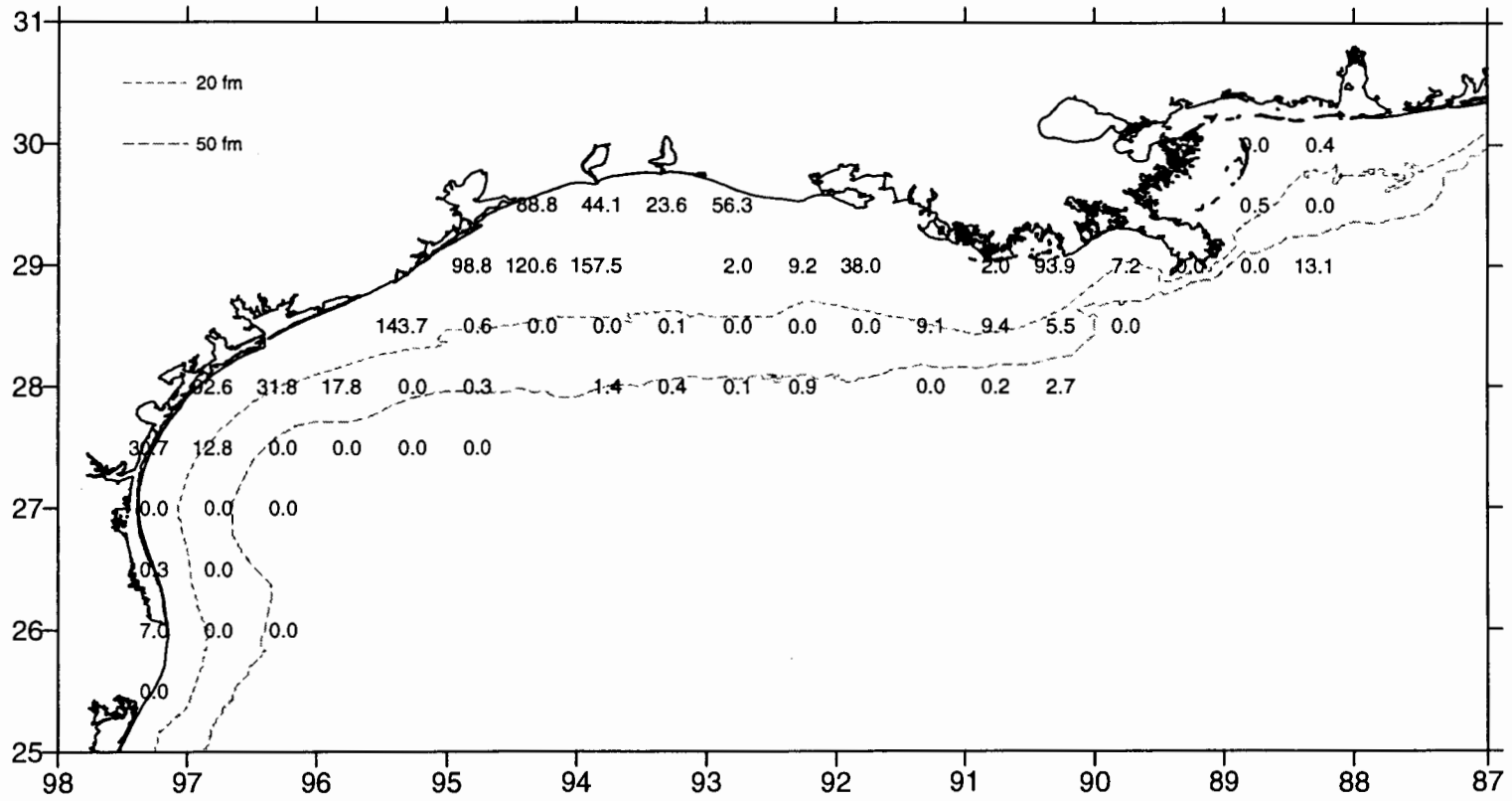


Figure 13. Atlantic croaker, *Micropogonias undulatus*, lb/hour for June-July 1998.

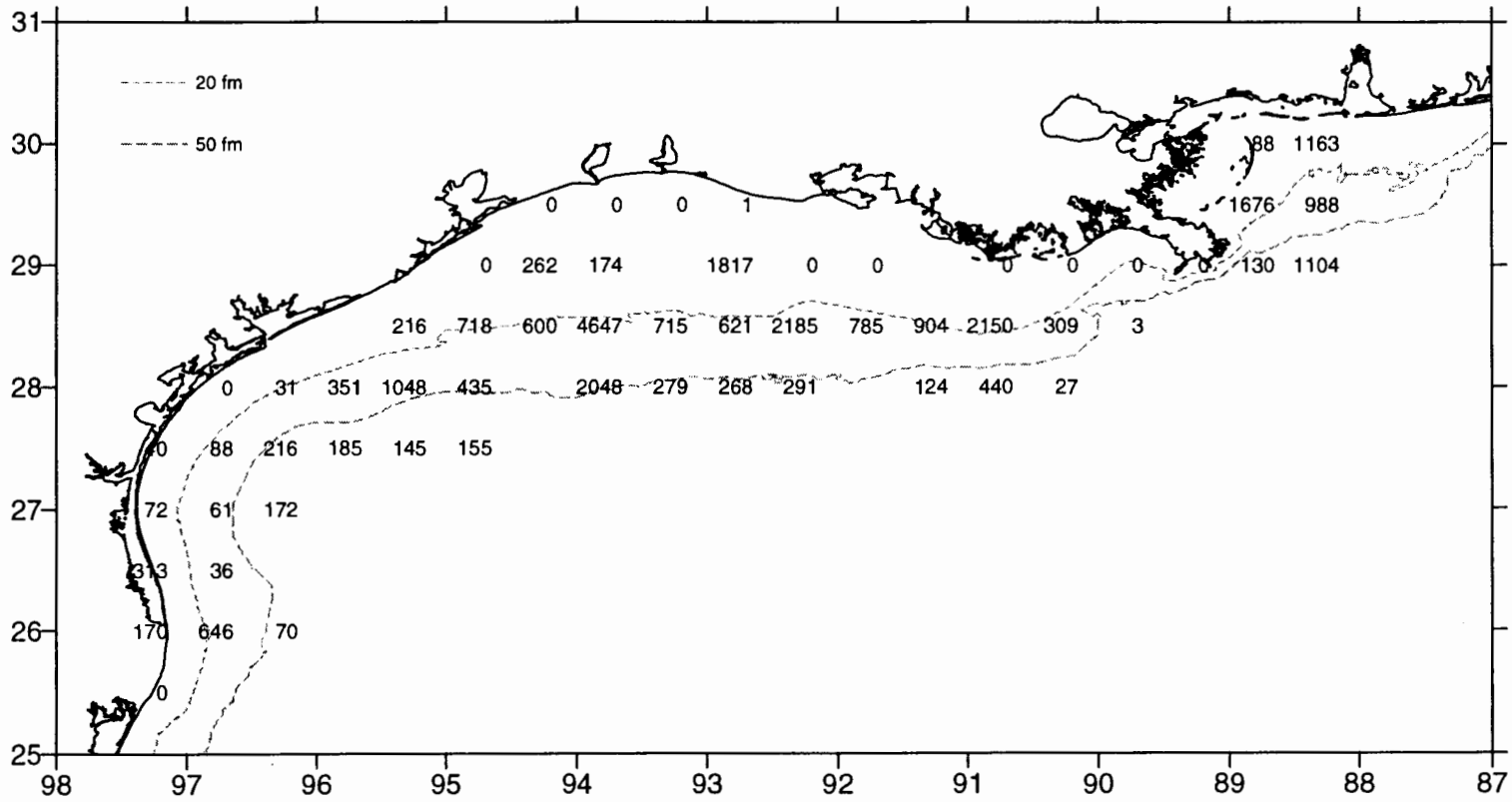


Figure 14. Longspine pogy, *Stenotomus caprinus*, number/hour for June-July 1998.

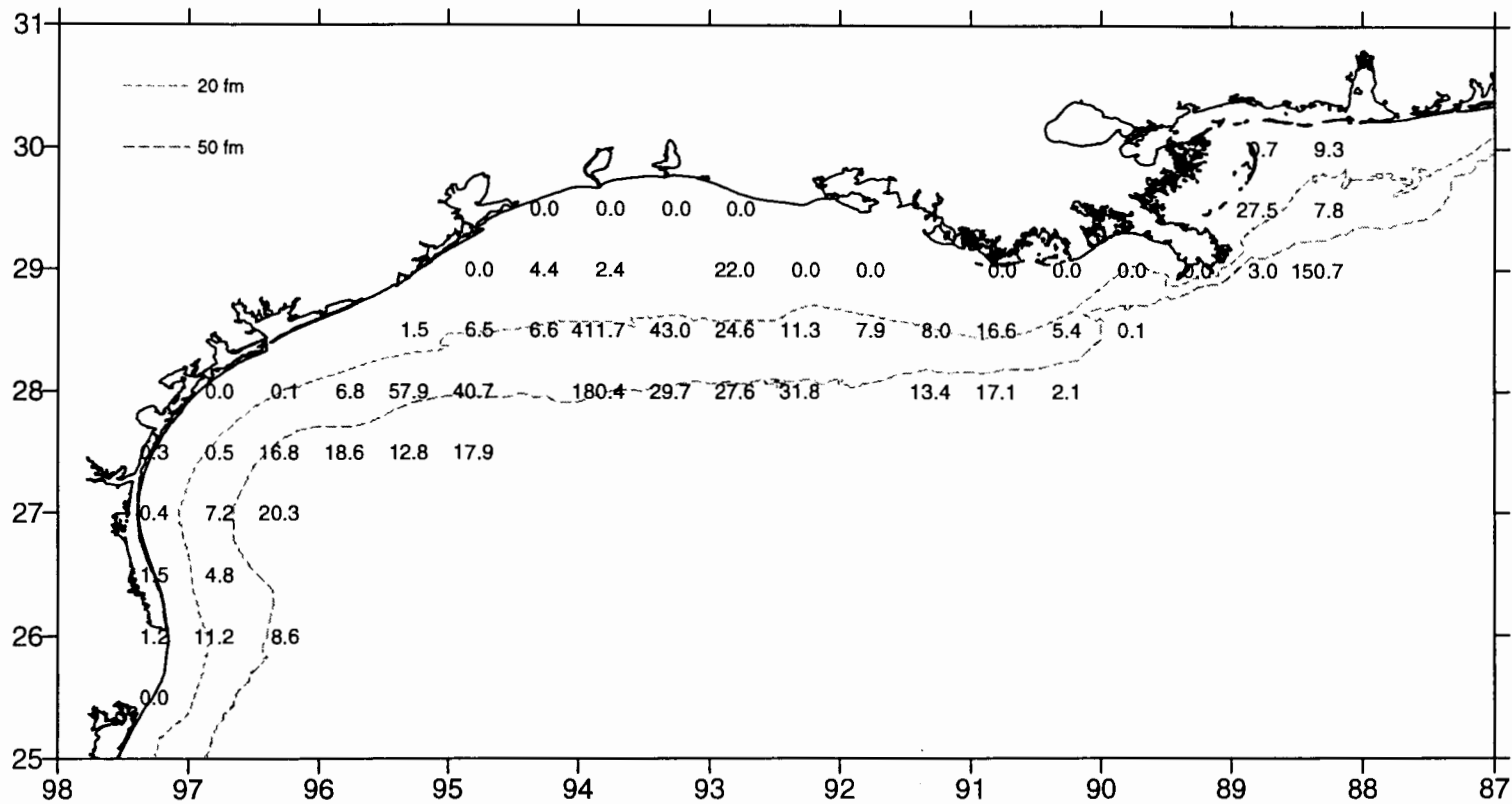


Figure 15. Longspine porgy, *Stenotomus caprinus*, lb/hour for June-July 1998.

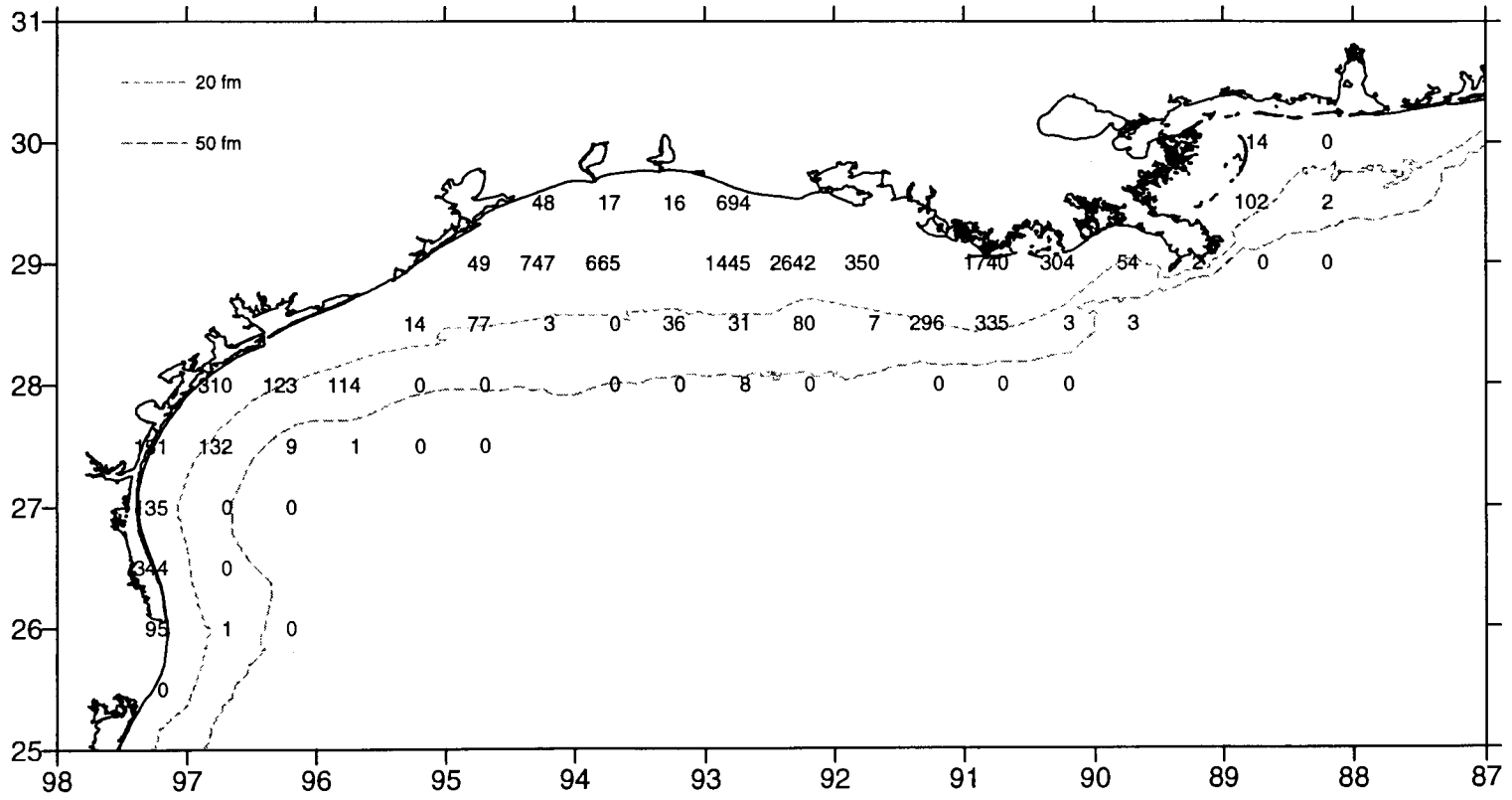


Figure 16. Atlantic bumper, *Chloroscombrus chrysurus*, number/hour for June-July 1998.

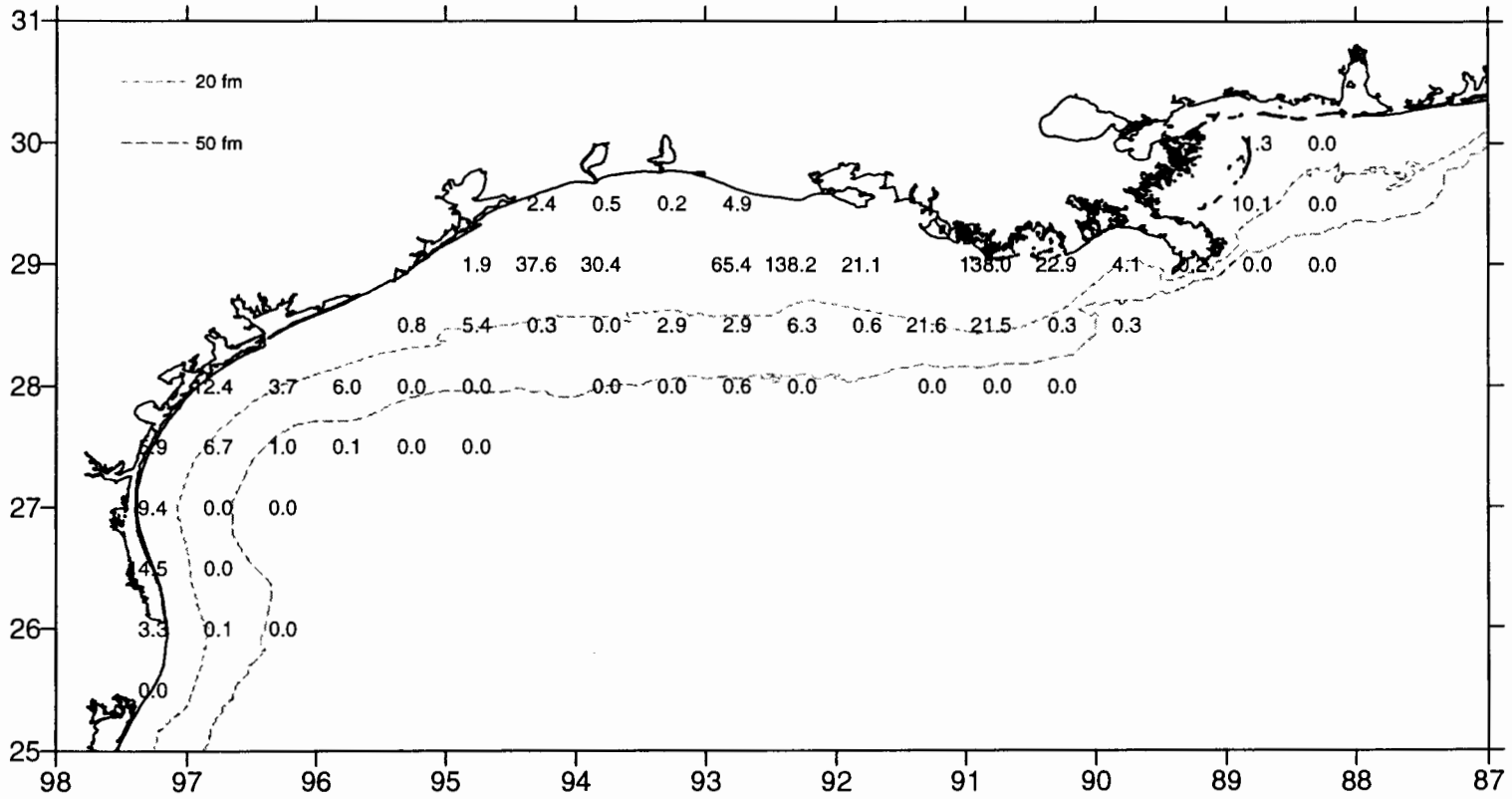


Figure 17. Atlantic bumper, *Chloroscombrus chrysurus*, lb/hour for June-July 1998.

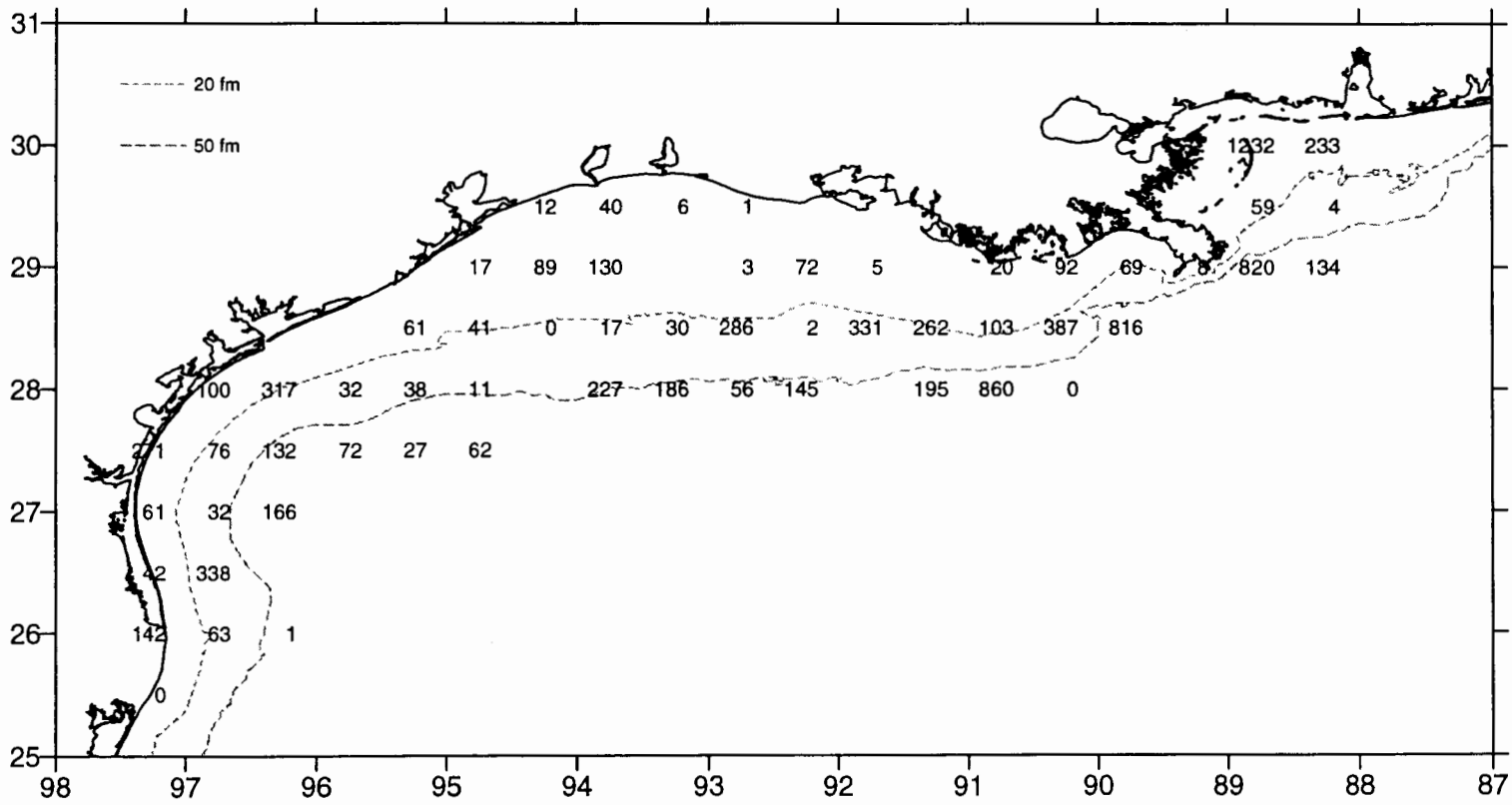


Figure 18. Gulf butterfish, *Peprilus burti*, number/hour for June-July 1998.

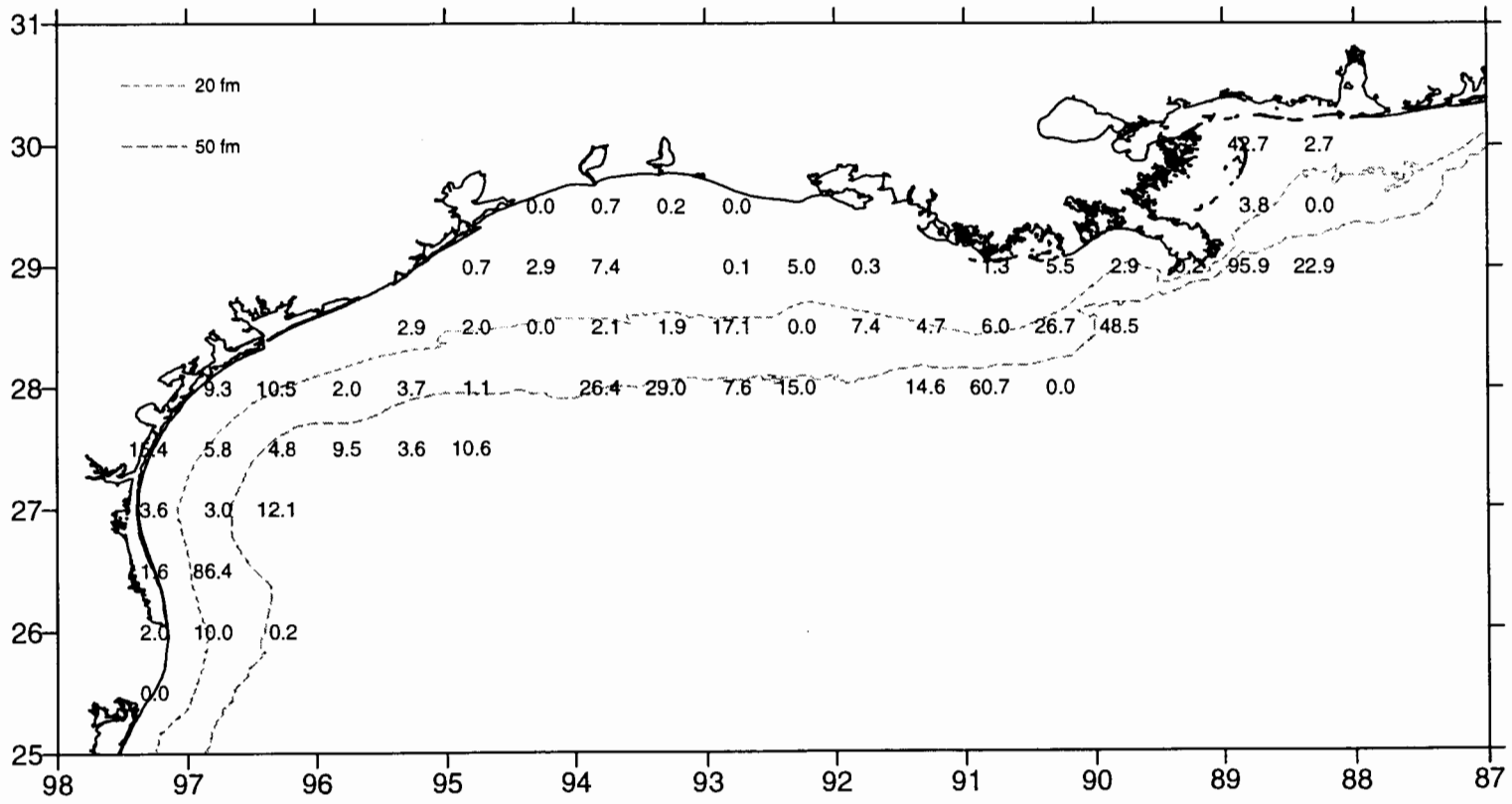


Figure 19. Gulf butterfish, *Peprilus burti*, lb/hour for June-July 1998.

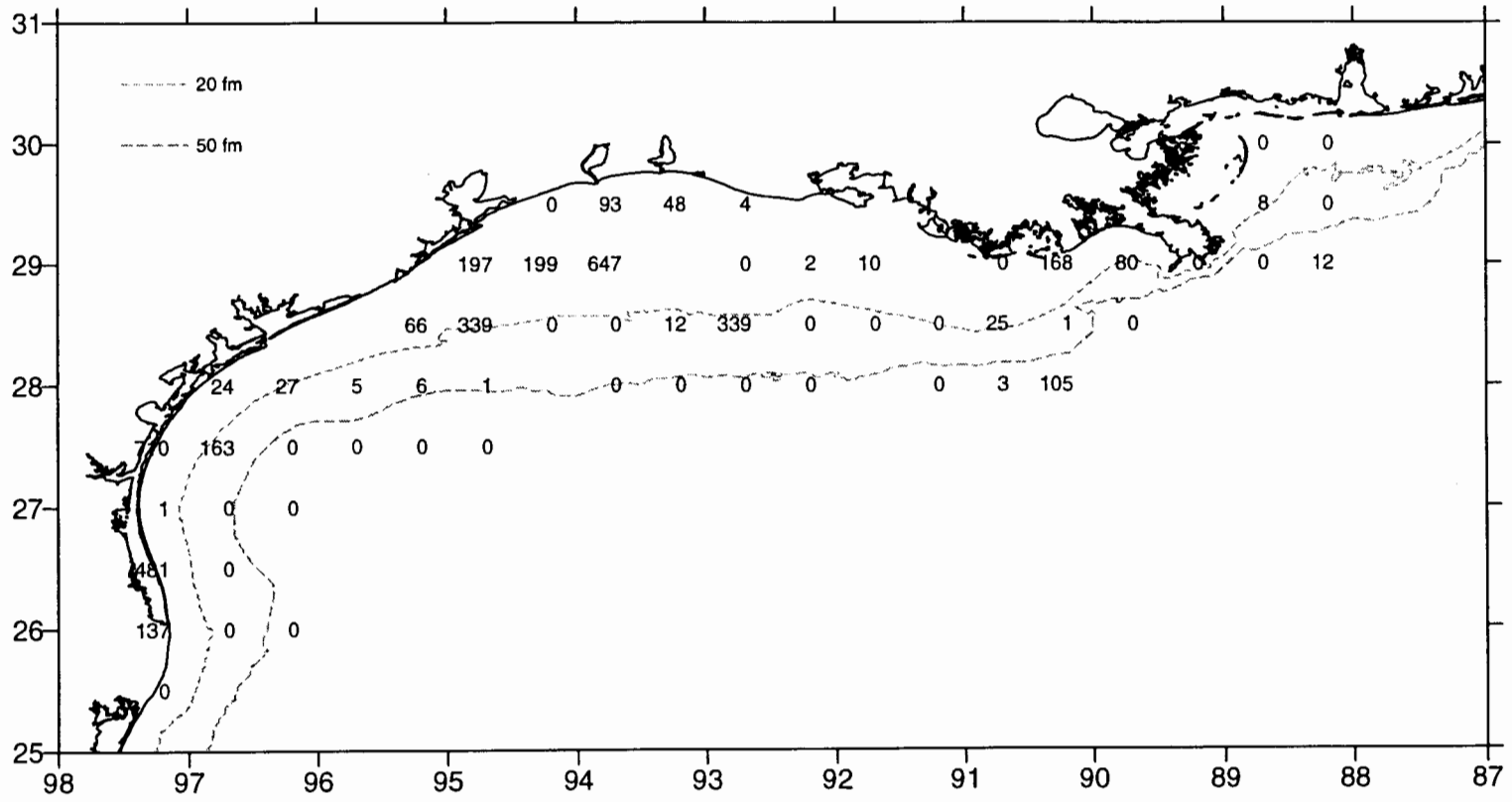


Figure 20. Spot, *Leioostomus xanthurus*, number/hour for June-July 1998.

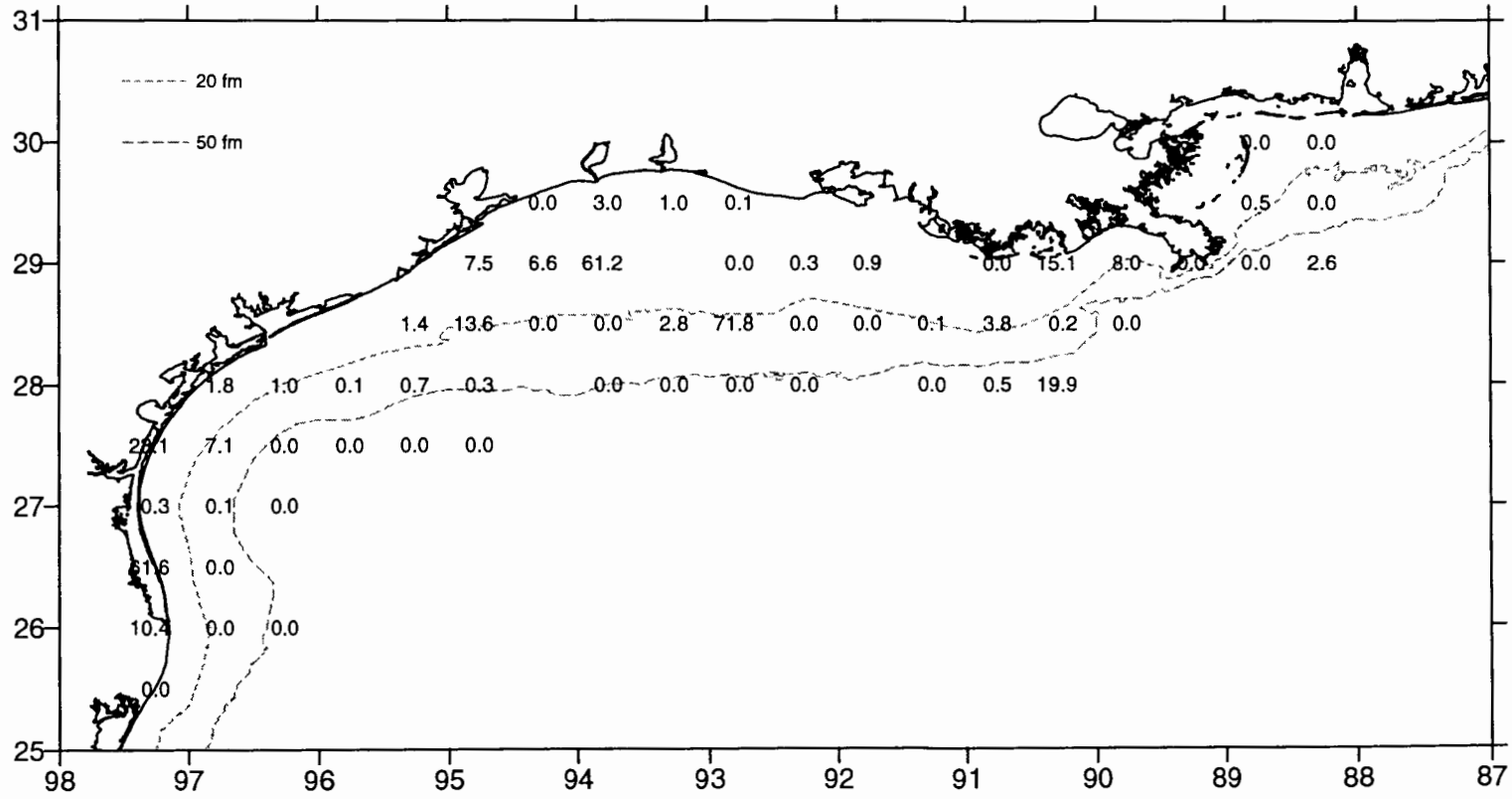


Figure 21. Spot, *Leiostranus xanthurus*, lb/hour for June-July 1998.

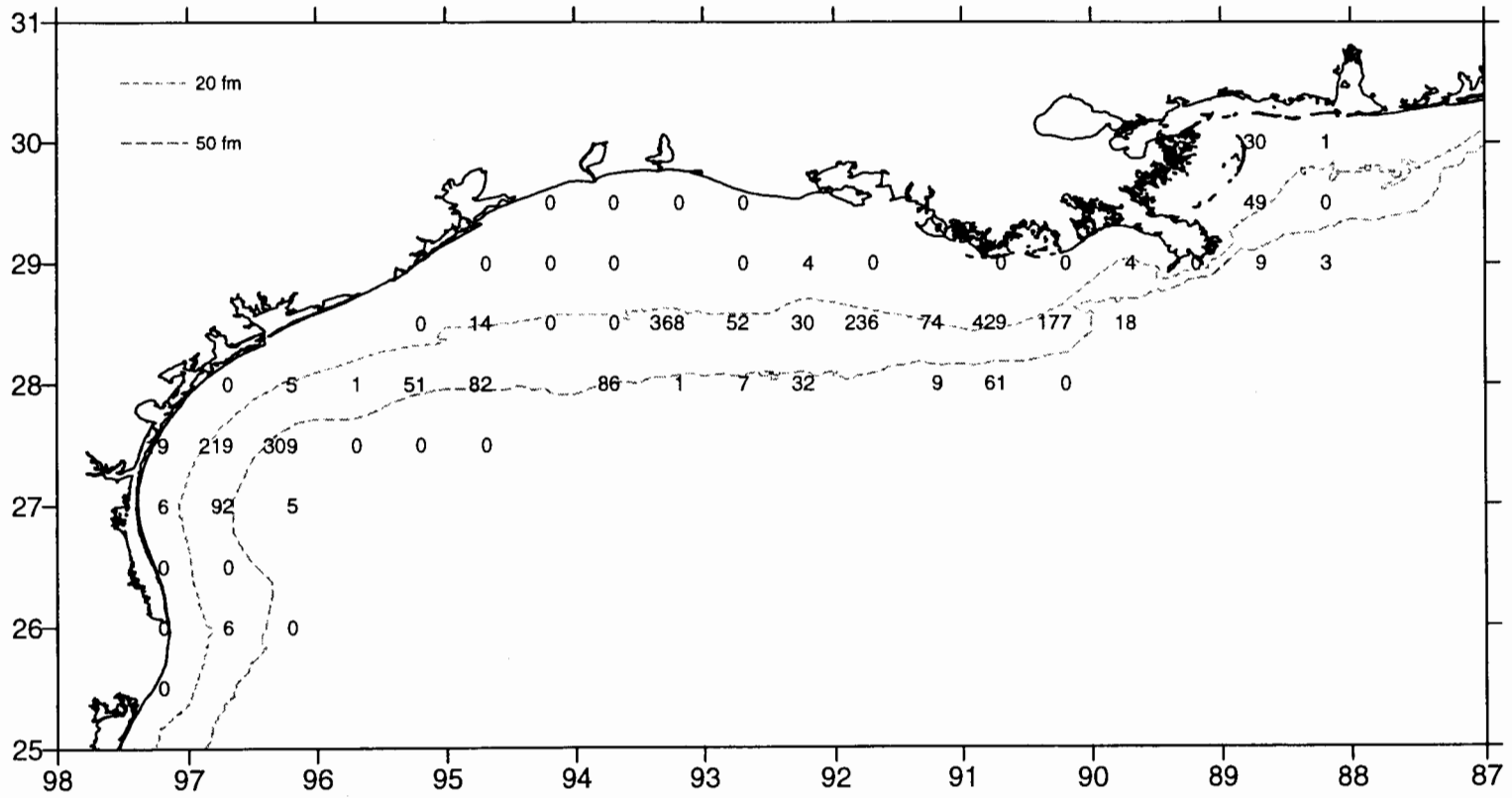


Figure 22. Round herring, *Etrumeus teres*, number/hour for October-December 1998.

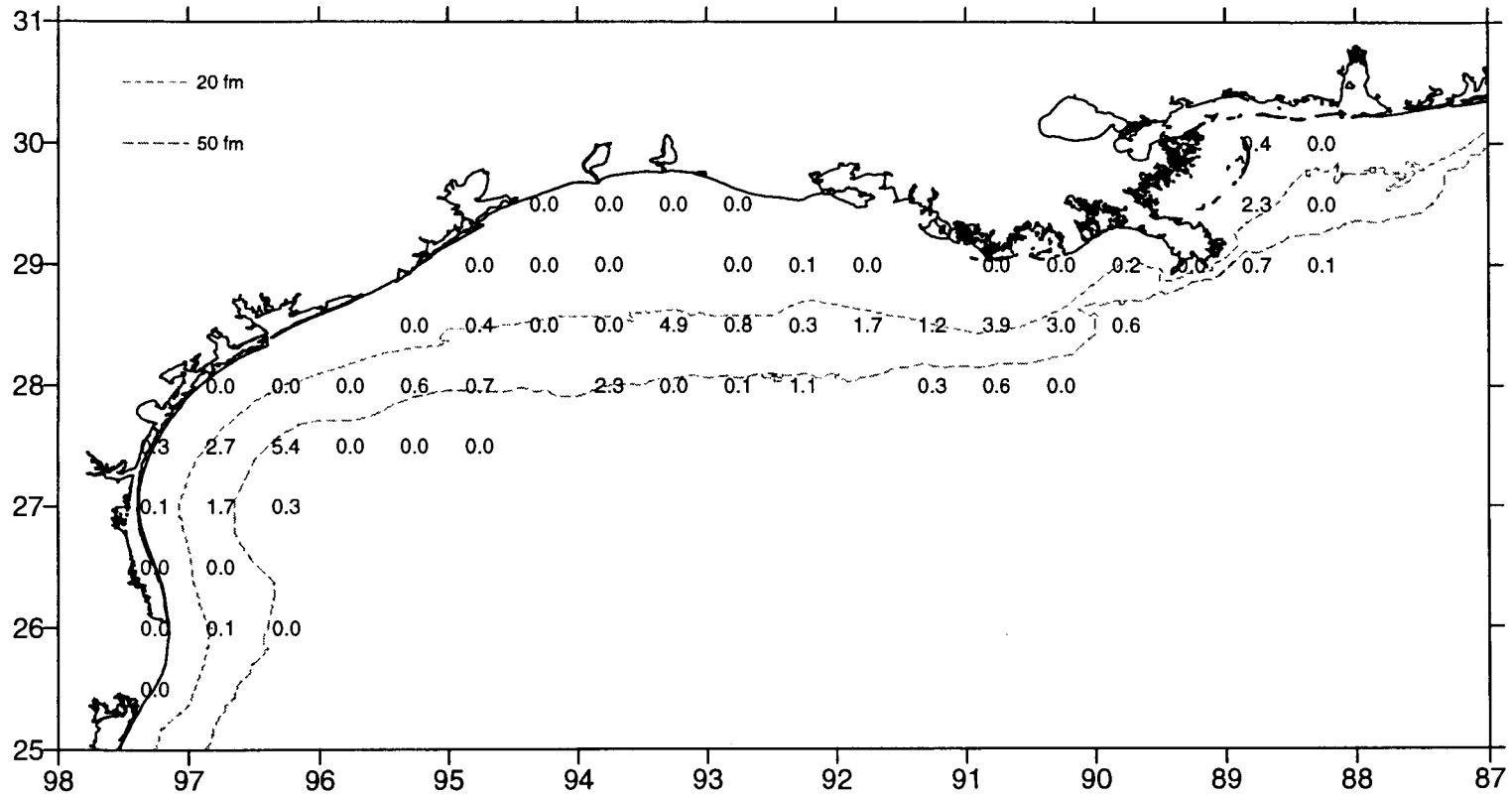


Figure 23. Round herring, *Etrumeus teres*, lb/hour for October-December 1998.

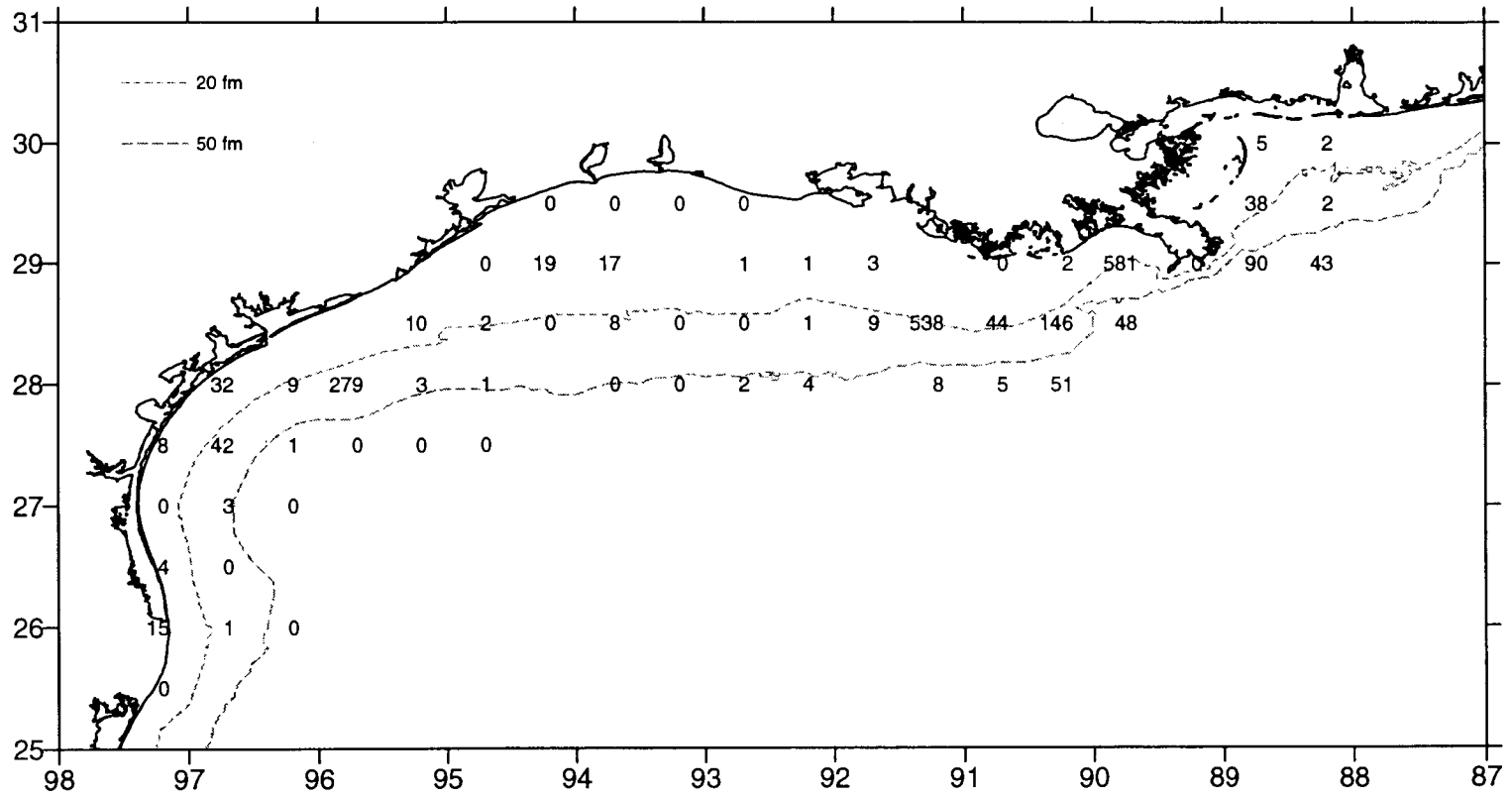


Figure 24. Bigeye searobin, *Prionotus longispinosus*, number/hour for June-July 1998.

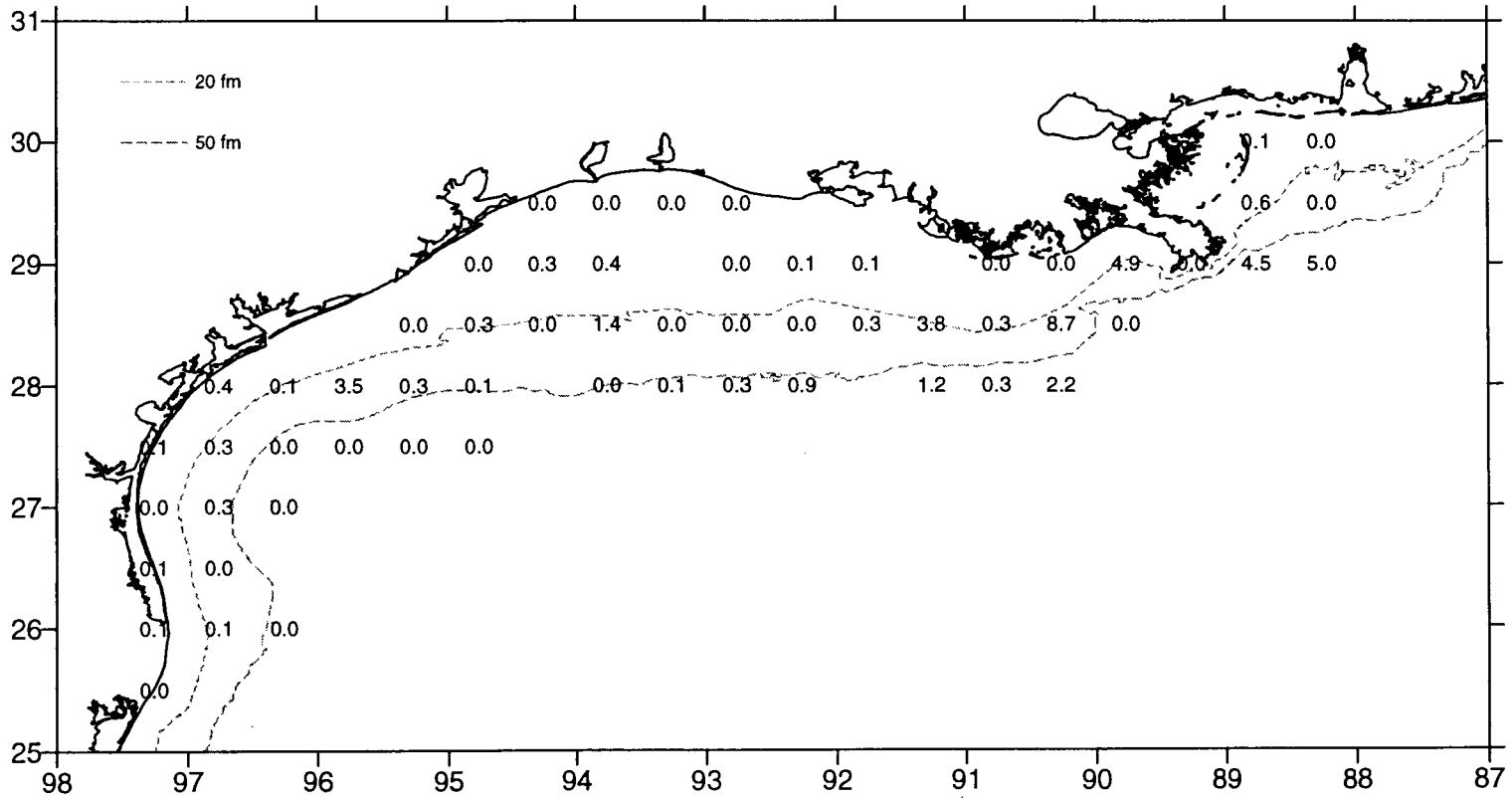


Figure 25. Bigeye searobin, *Prionotus longispinosus*, lb/hour for June-July 1998.

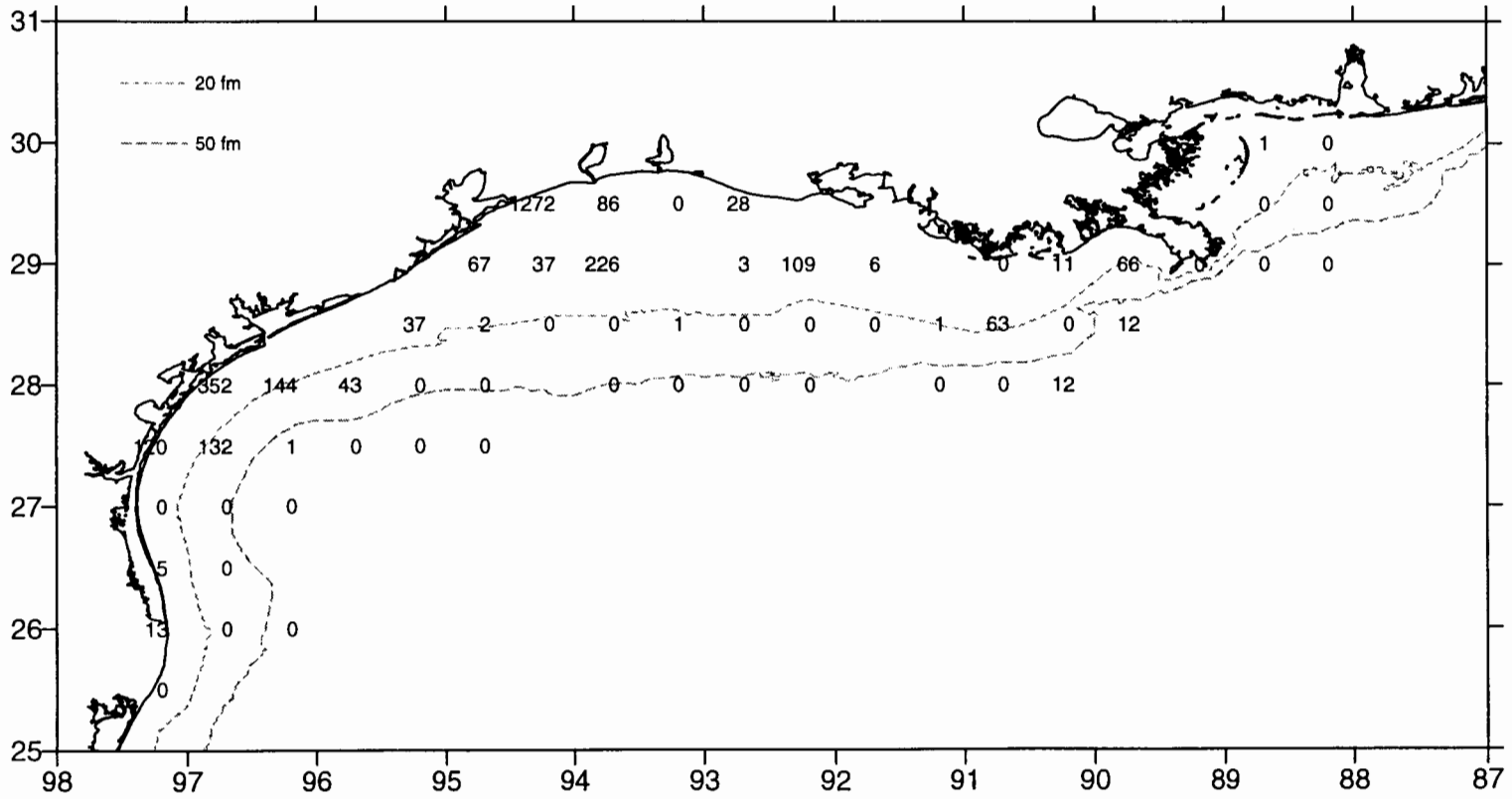


Figure 26. Silver seatrout, *Cynoscion nothus*, number/hour for June-July 1998.

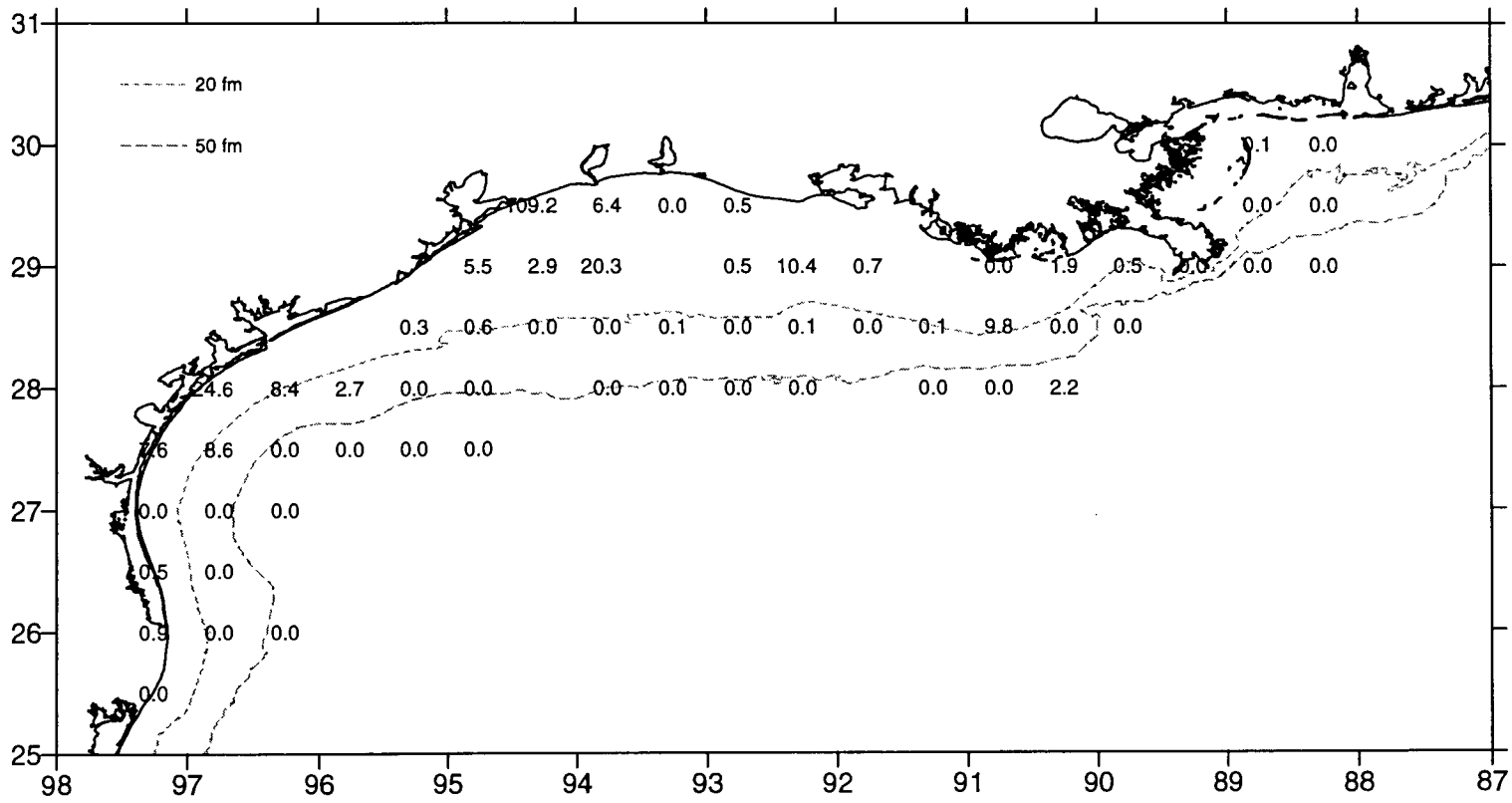


Figure 27. Silver seatrout, *Cynoscion nothus*, lb/hour for June-July 1998.

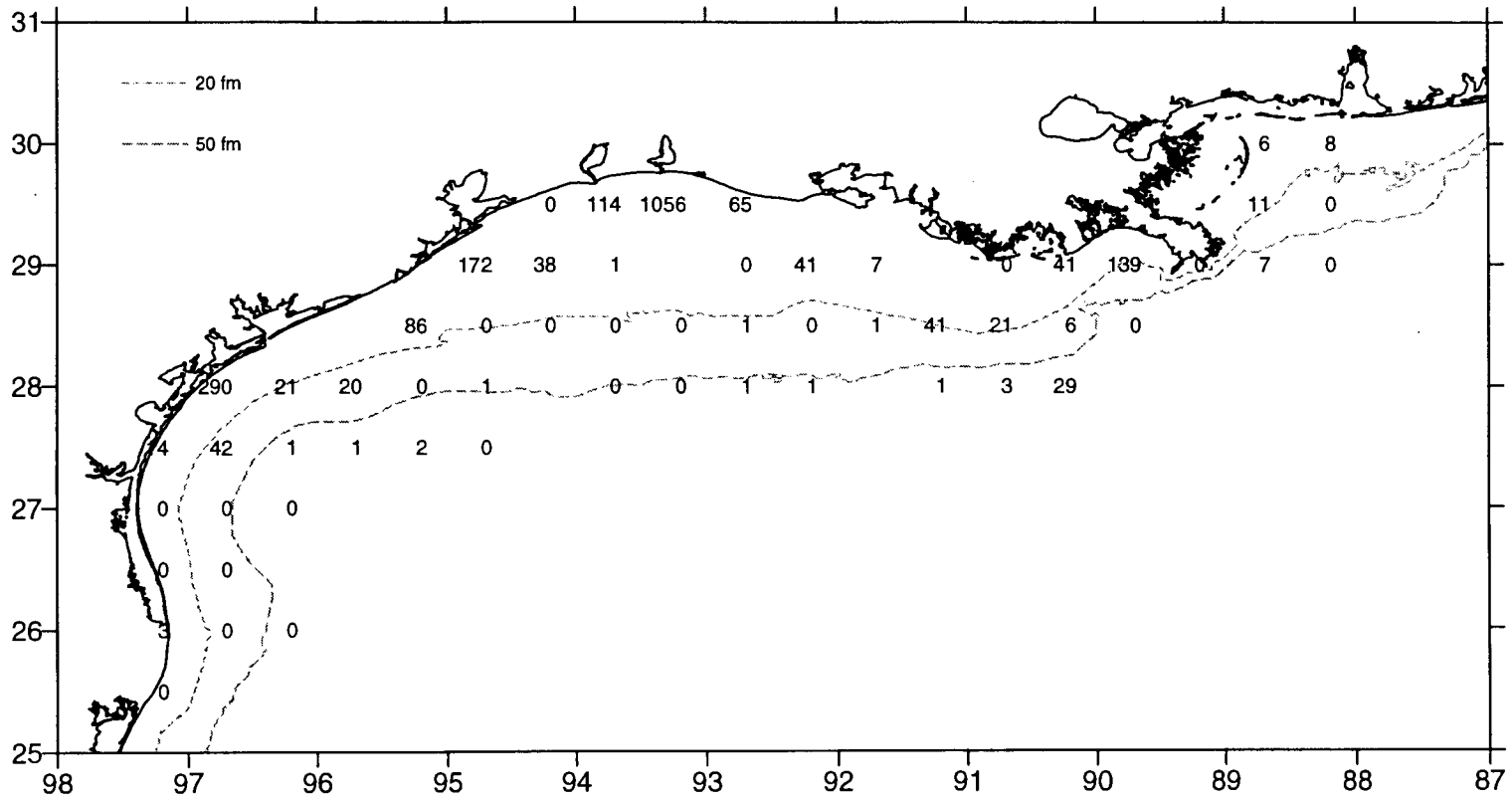


Figure 28. Sand seatrout, *Cynoscion arenarius*, number/hour for June-July 1998.

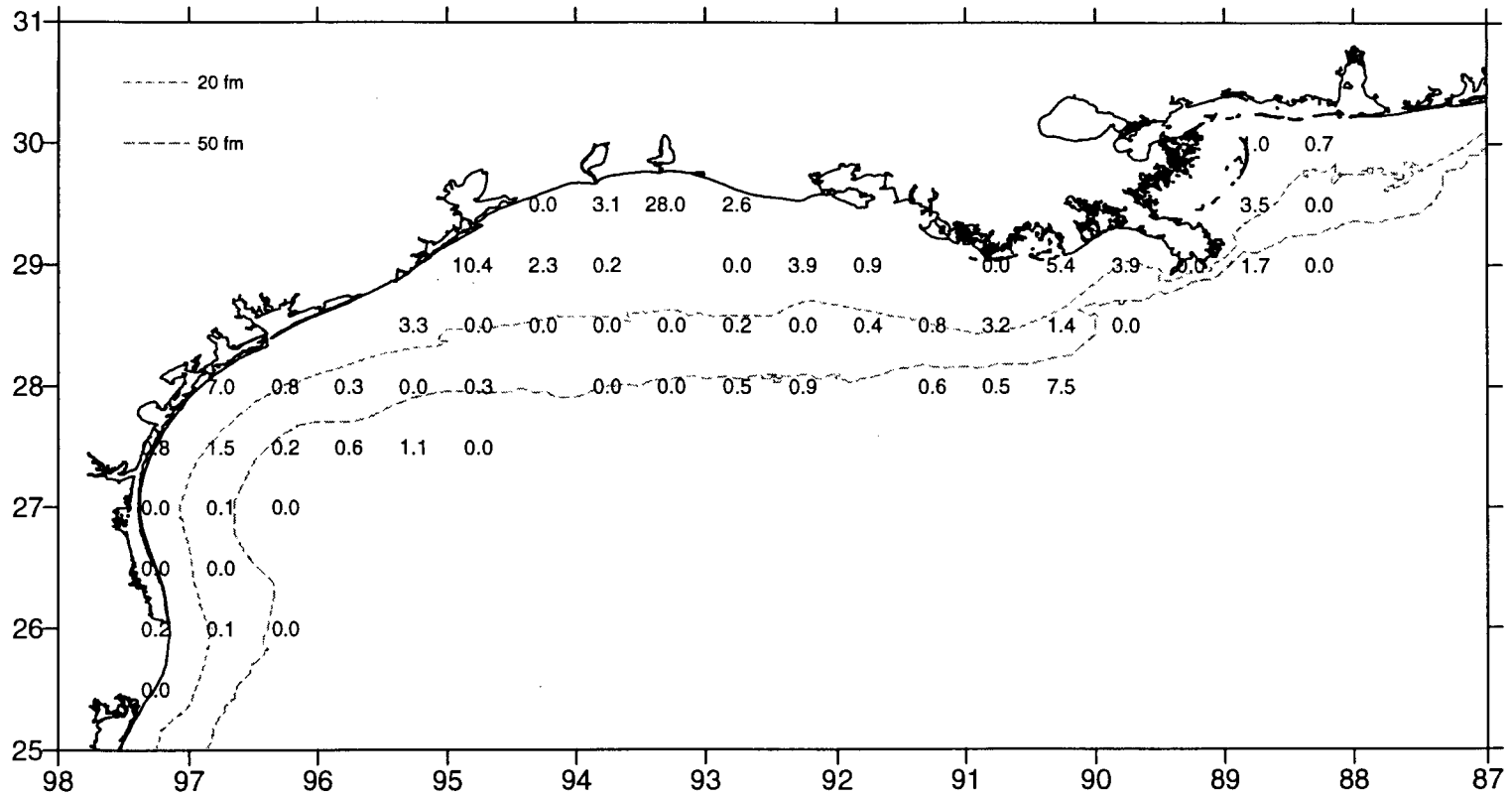


Figure 29. Sand seatrout, *Cynoscion arenarius*, lb/hour for June-July 1998.

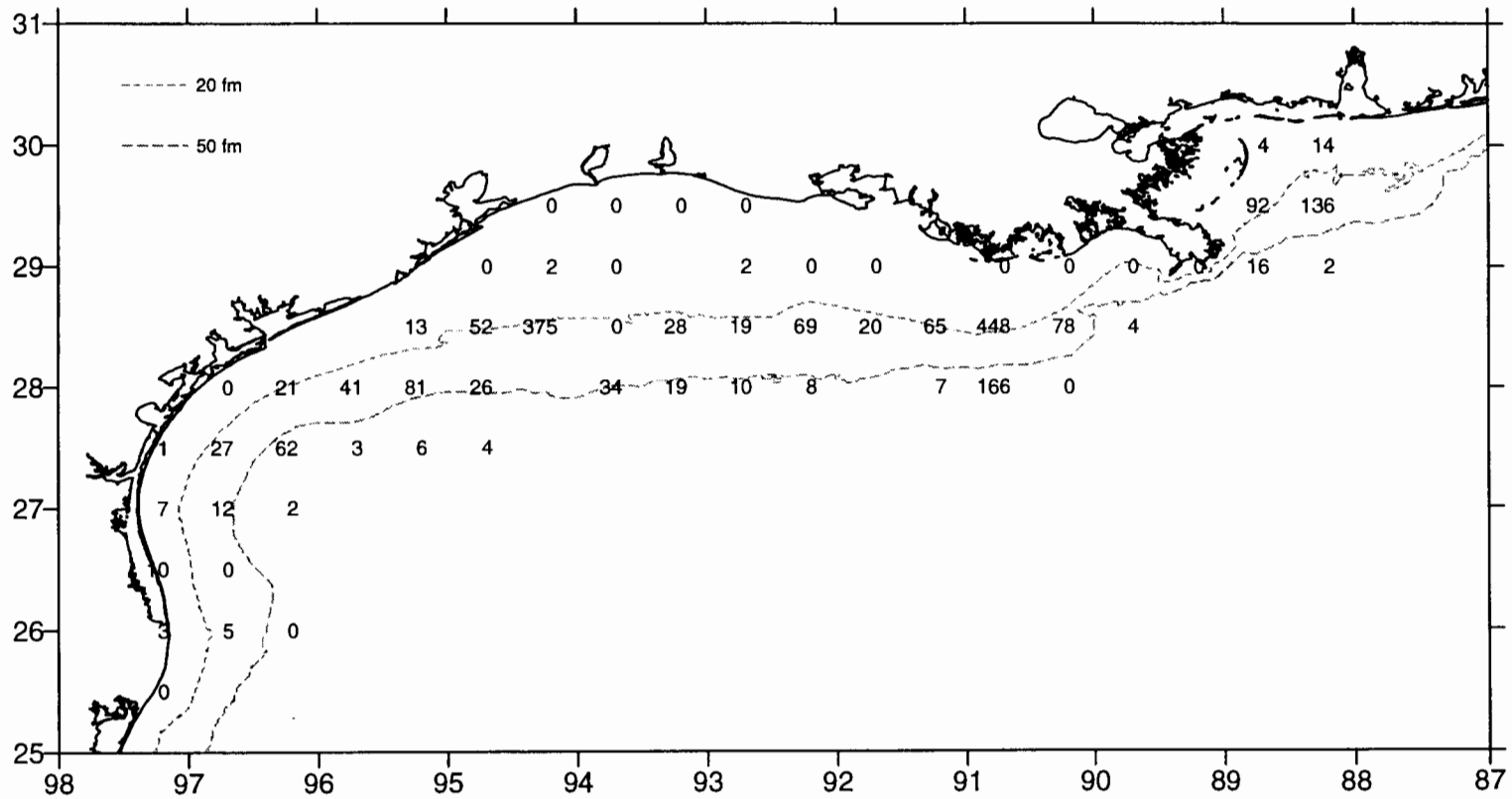


Figure 30. Largescale lizardfish, *Saurida brasiliensis*, number/hour for June-July 1998.

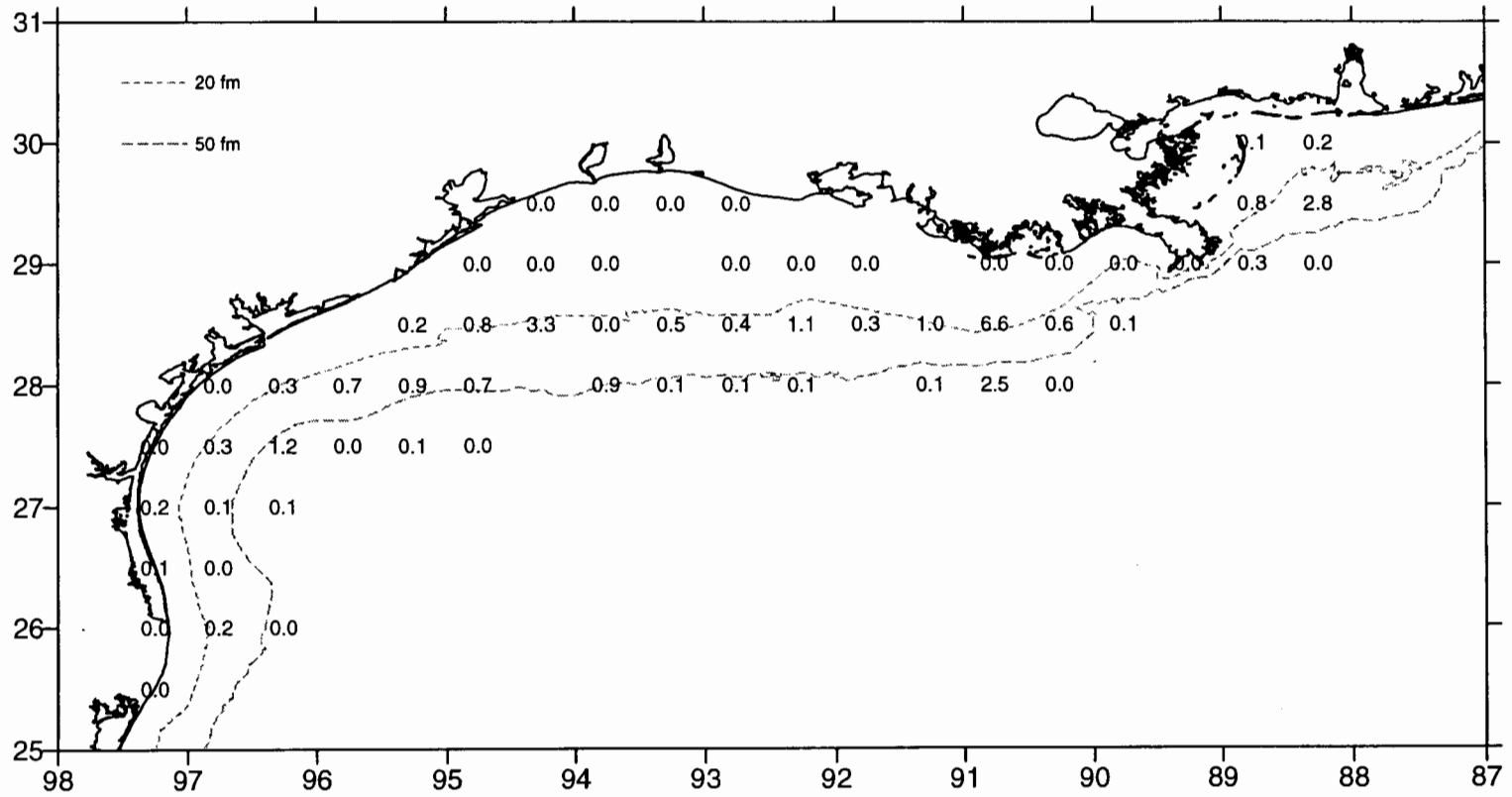


Figure 31. Largescale lizardfish, *Saurida brasiliensis*, lb/hour for June-July 1998.

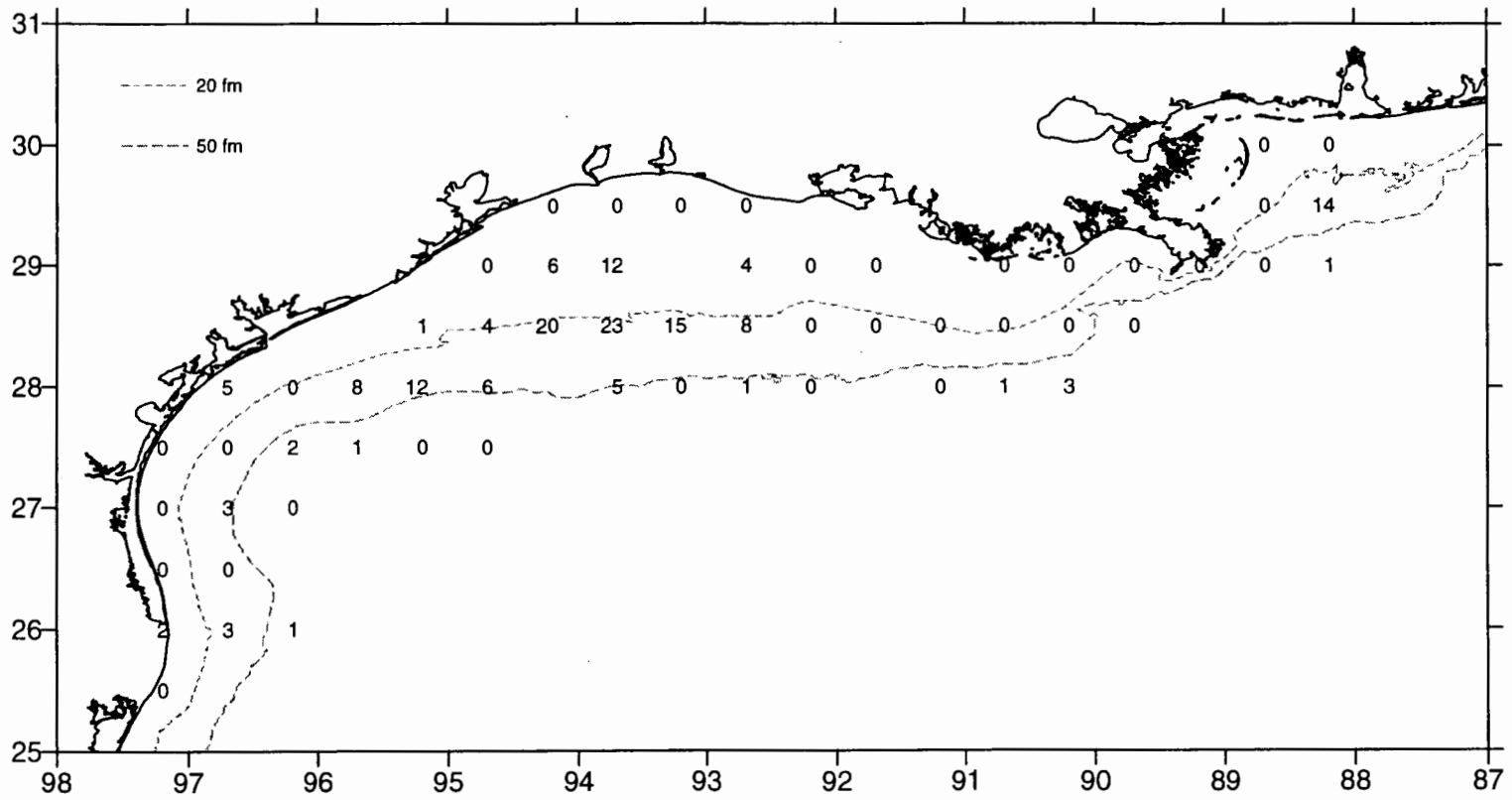


Figure 32. Red snapper, *Lutjanus campechanus*, number/hour for June-July 1998.

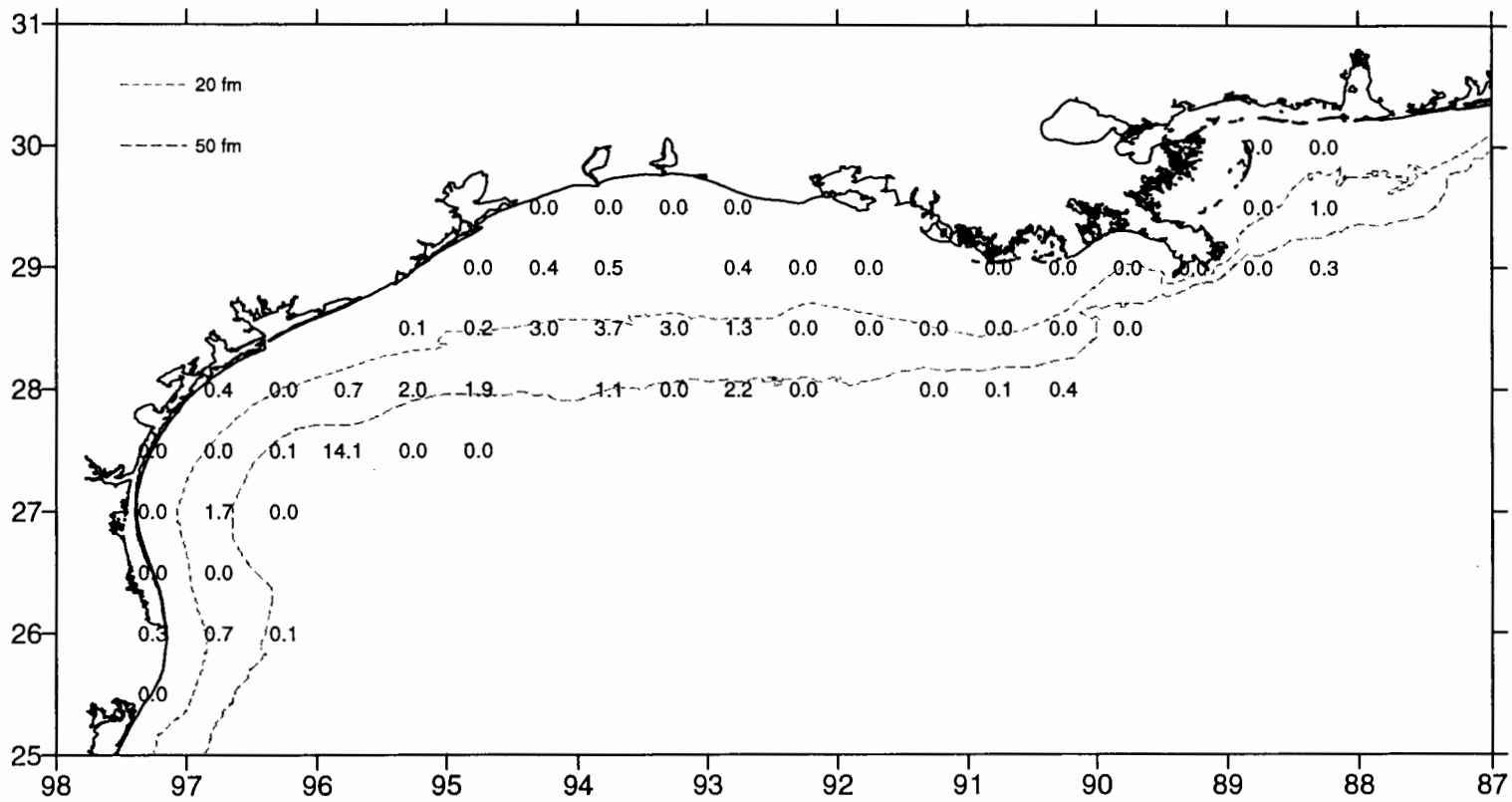


Figure 33. Red snapper, *Lutjanus campechanus*, lb/hour for June-July 1998.

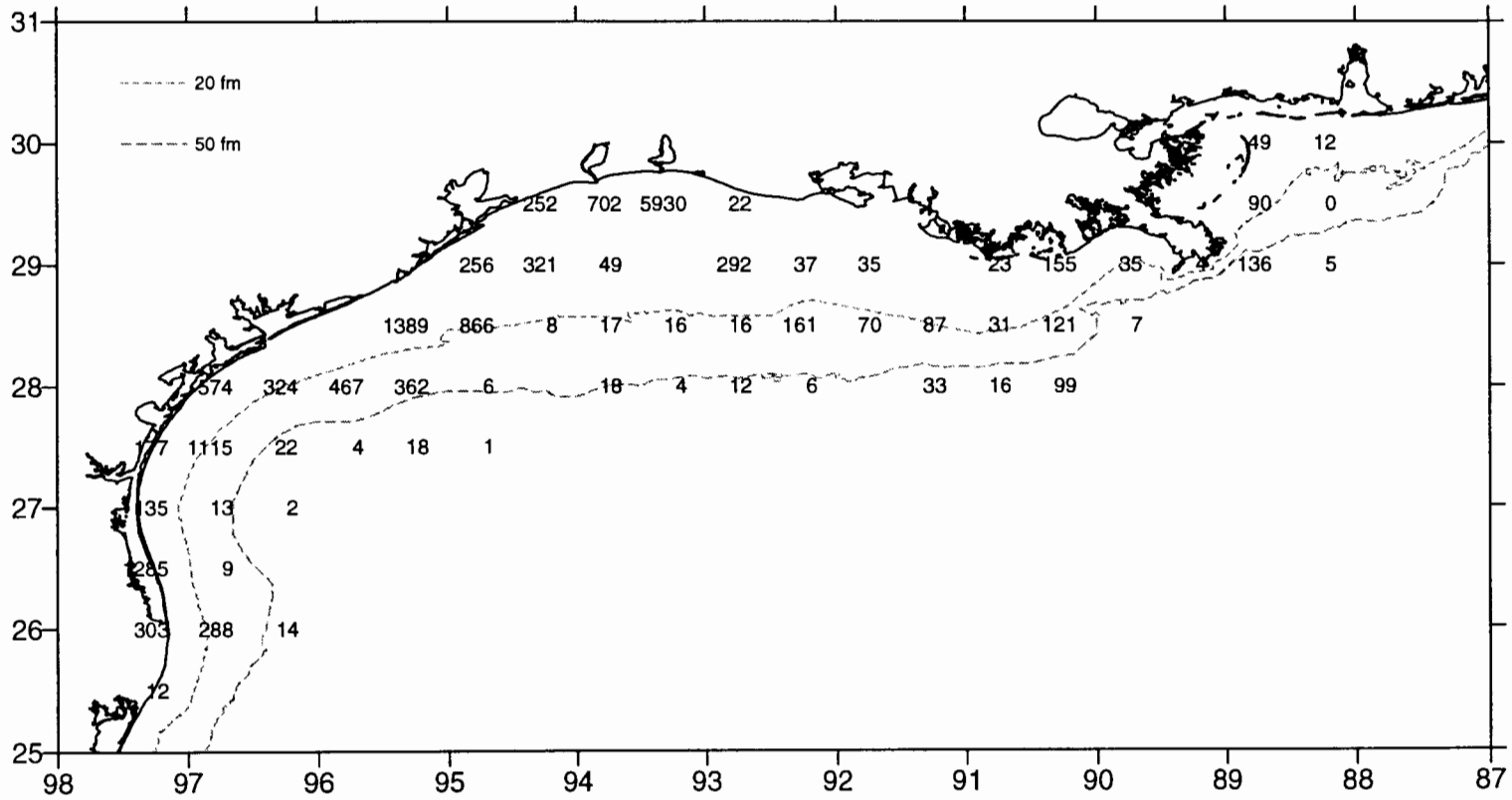


Figure 34. Brown shrimp, *Penaeus aztecus*, number/hour for June-July 1998.

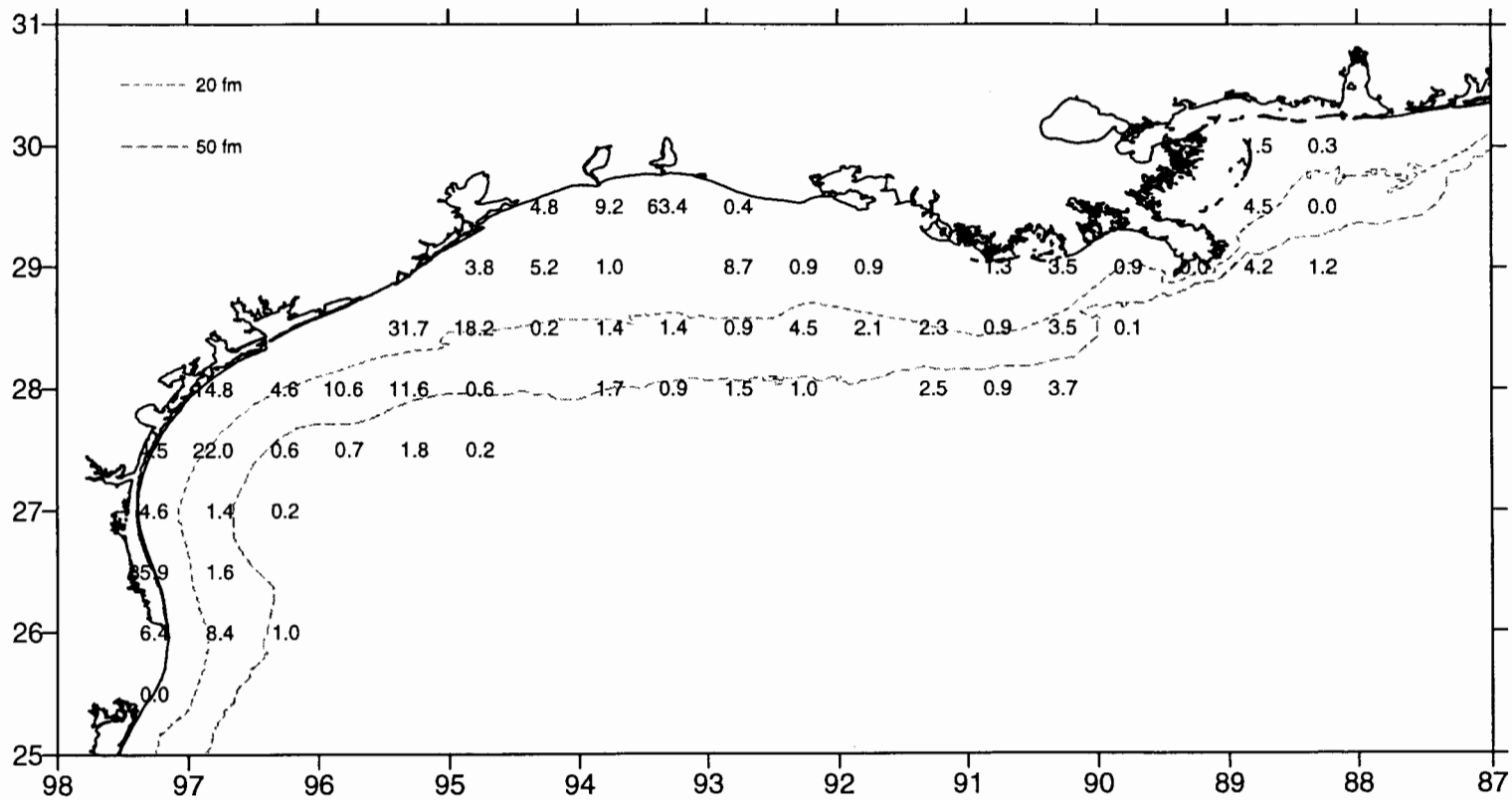


Figure 35. Brown shrimp, *Penaeus aztecus*, lb/hour for June-July 1998.

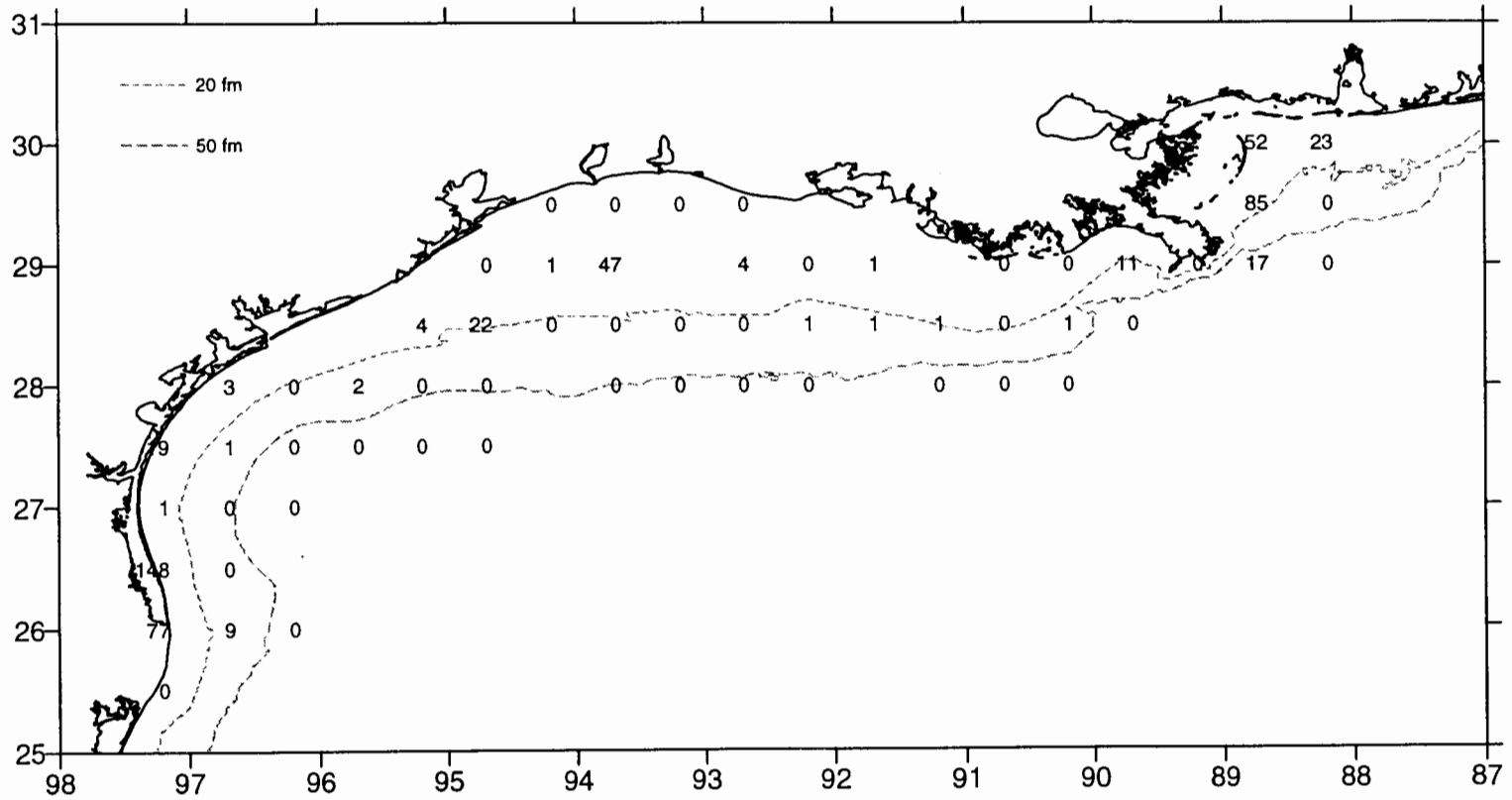


Figure 36. Pink shrimp, *Penaeus duorarum*, number/hour for June-July 1998.

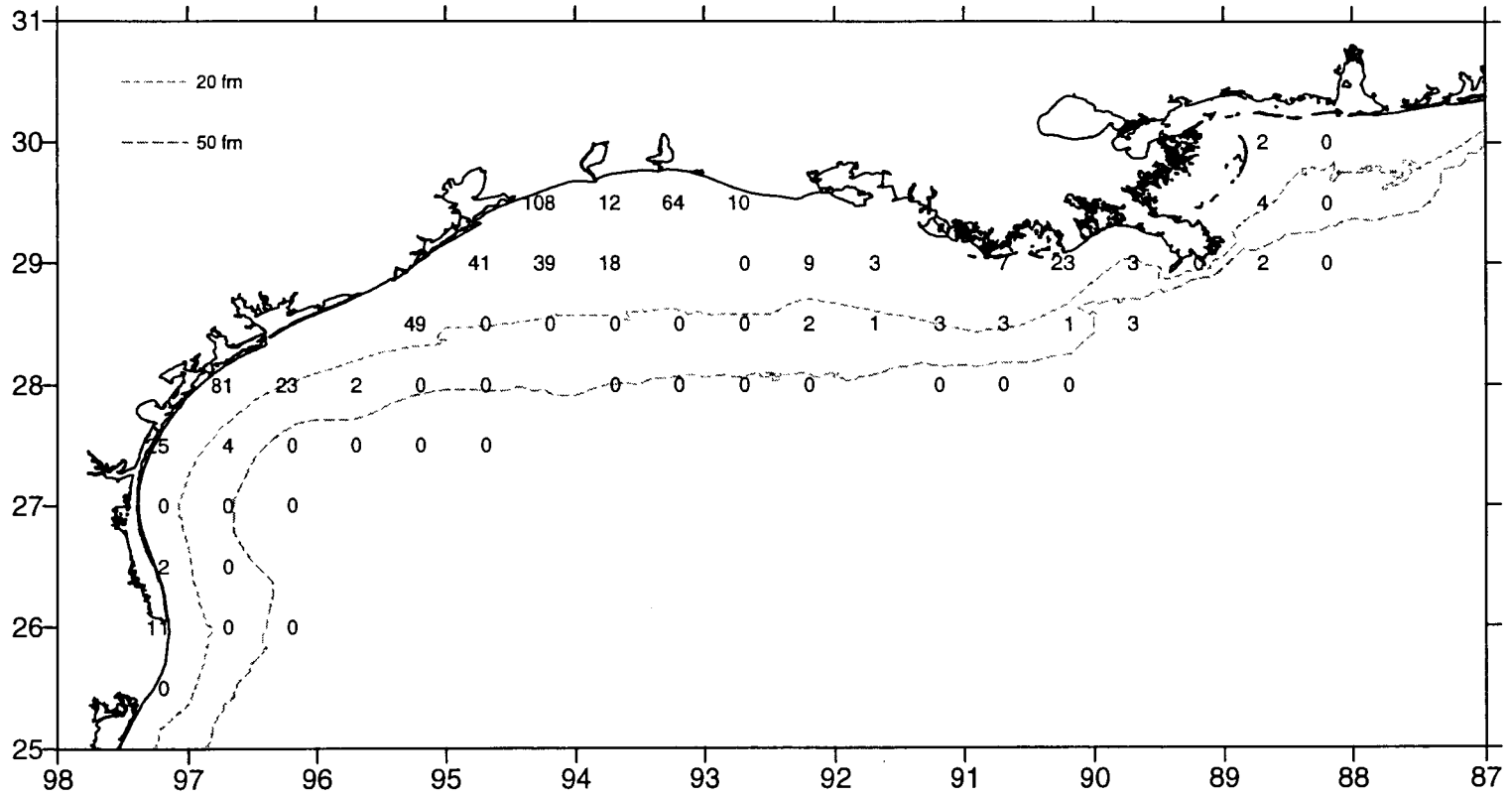


Figure 38. White shrimp, *Penaeus setiferus*, number/hour for June-July 1998.

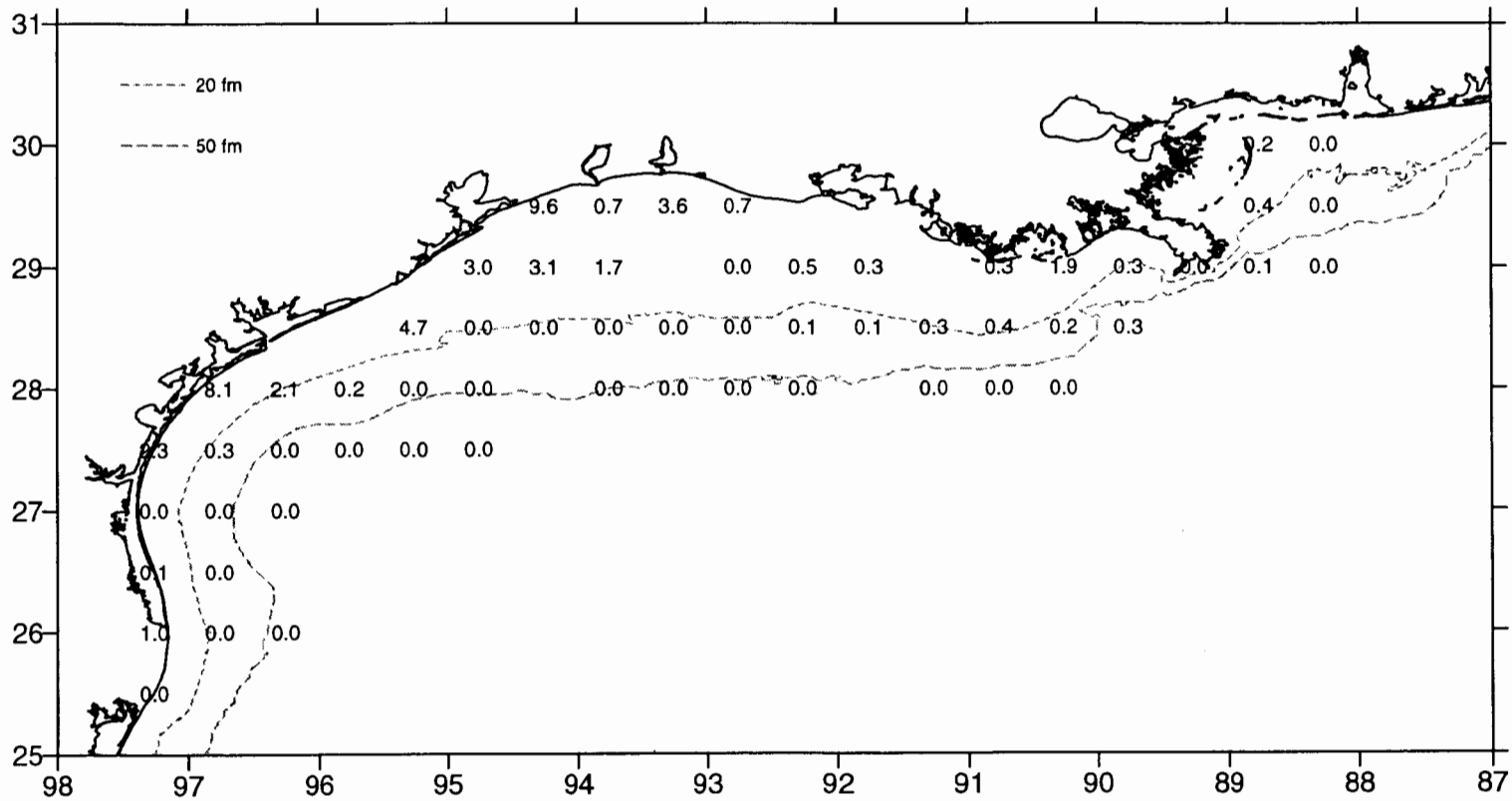


Figure 39. White shrimp, *Penaeus setiferus*, lb/hour for June-July 1998.

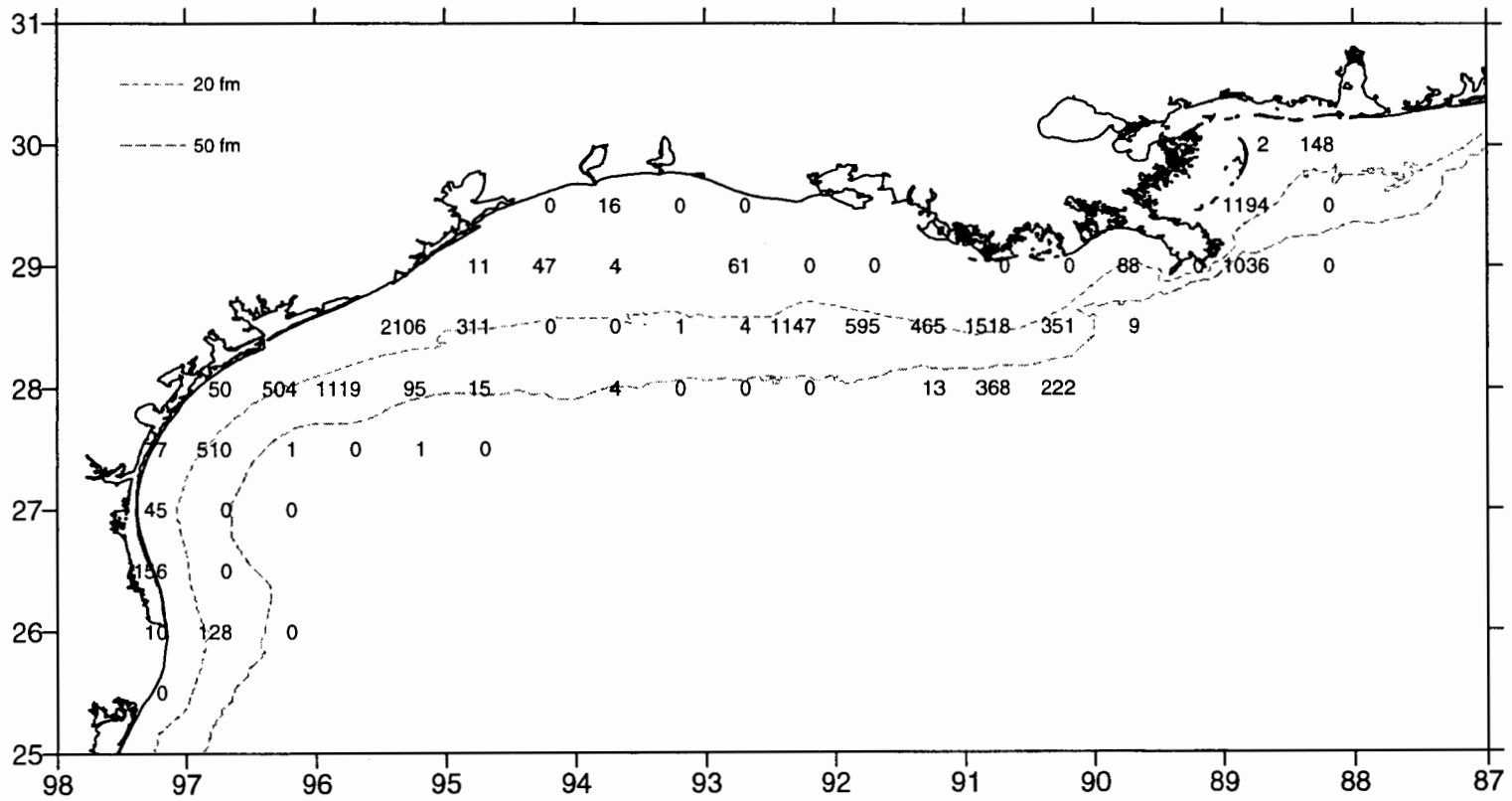


Figure 40. Roughback shrimp, *Trachypenaeus similis*, number/hour for June-July 1998.

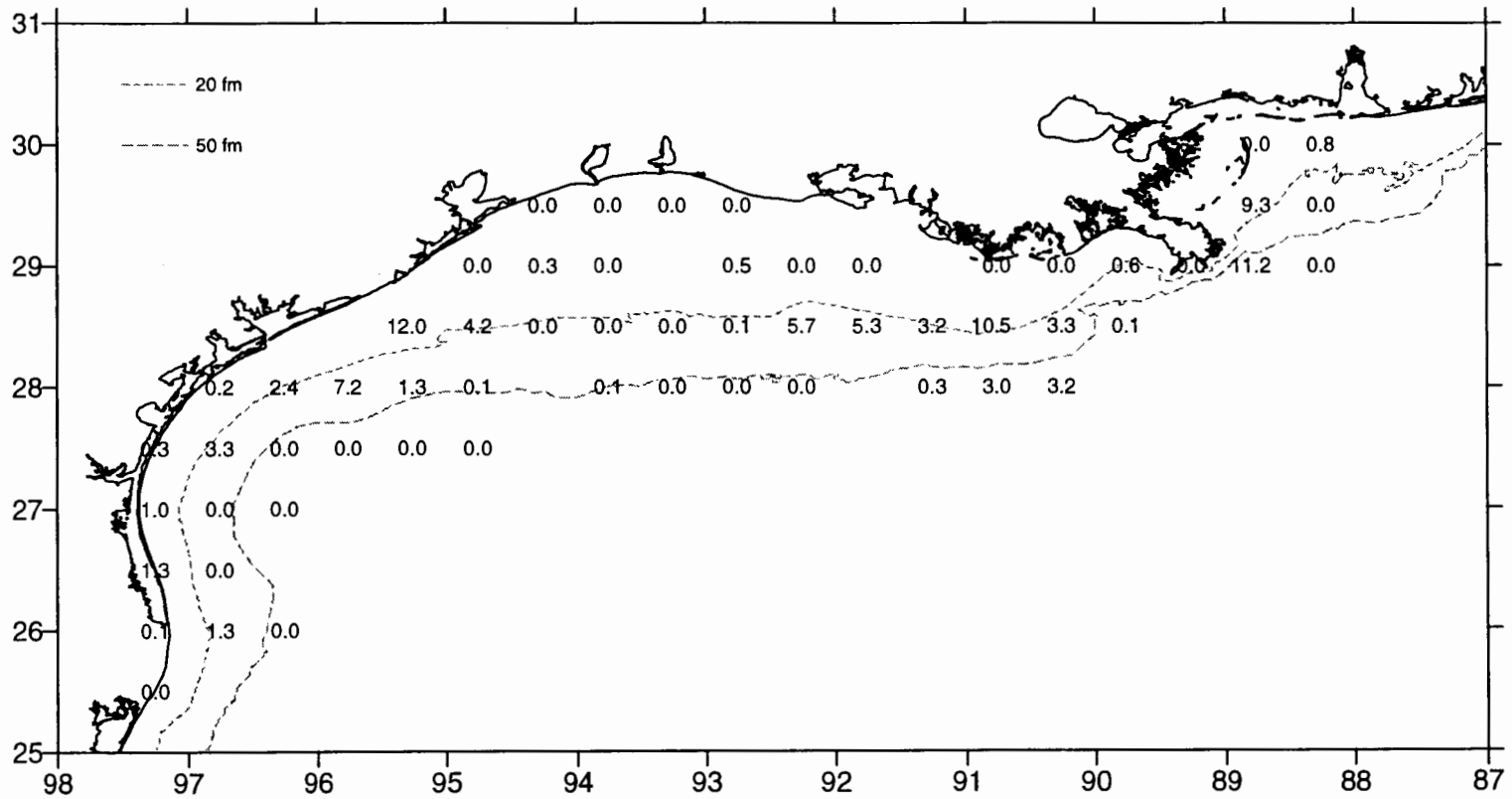


Figure 41. Roughback shrimp, *Trachypenaeus similis*, lb/hour for June-July 1998.

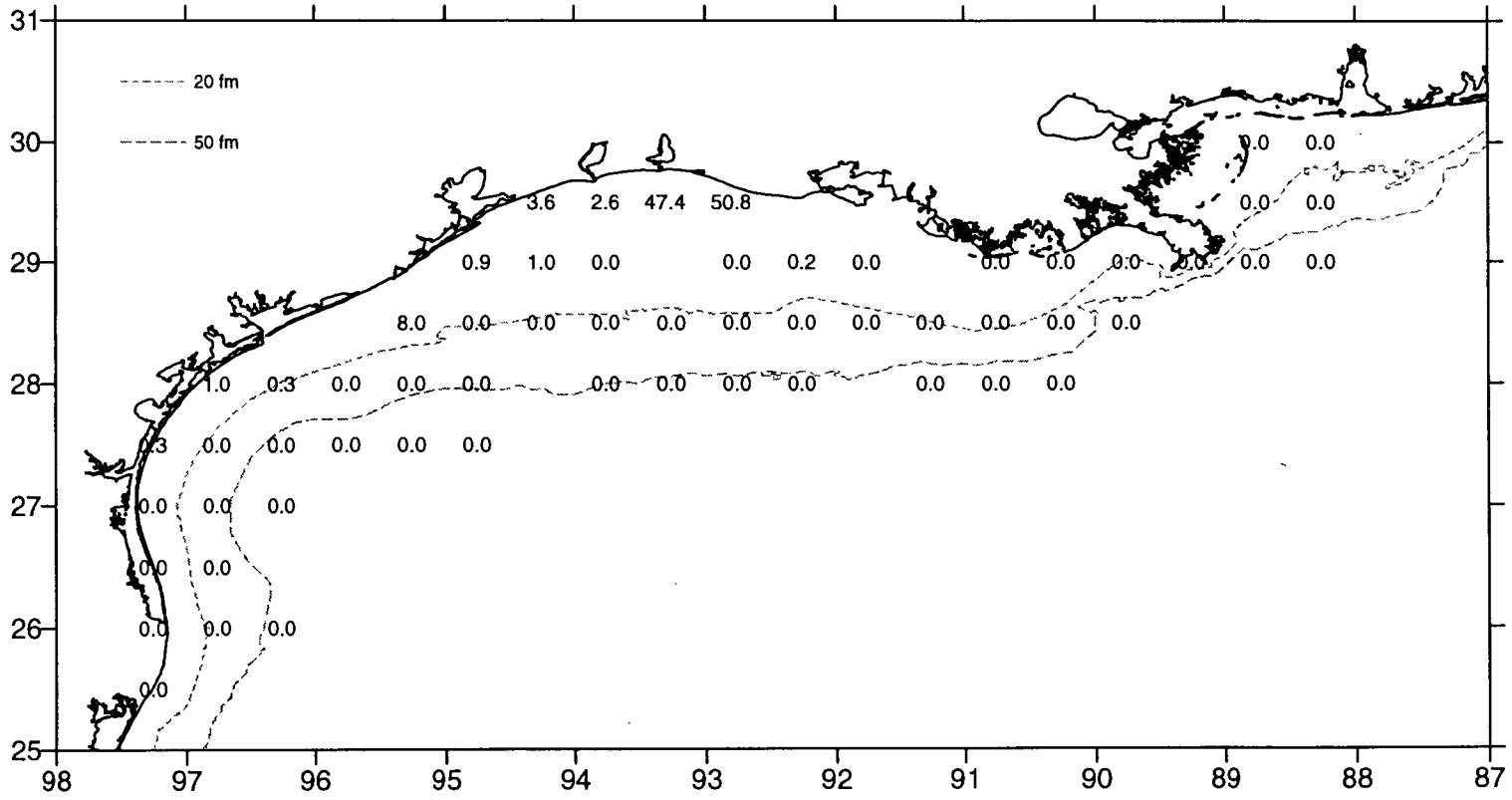


Figure 43. Seabob, *Xiphopenaeus kroyeri*, lb/hour for June-July 1998.

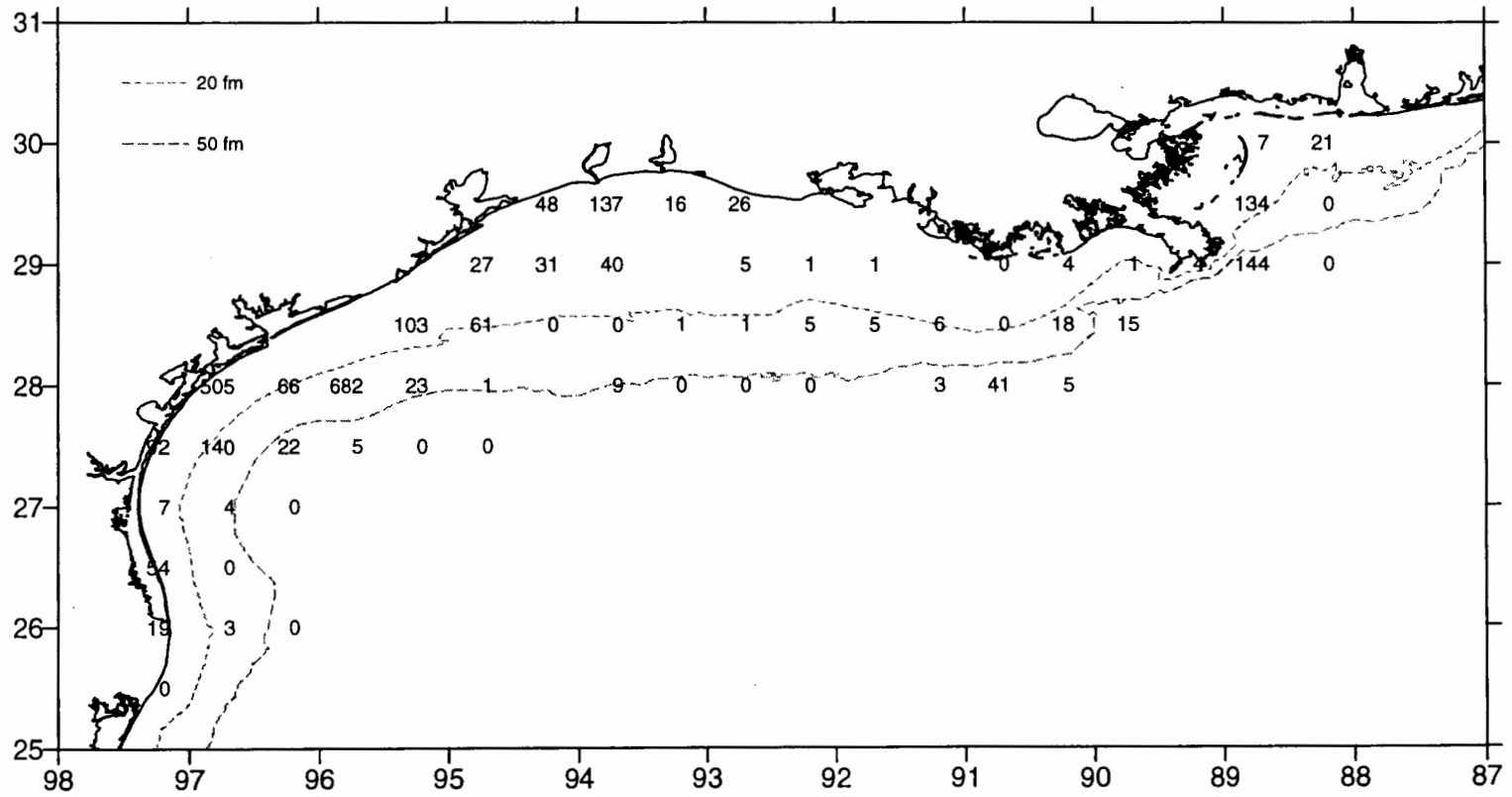


Figure 44. Lesser blue crab, *Callinectes similis*, number/hour for June-July 1998.

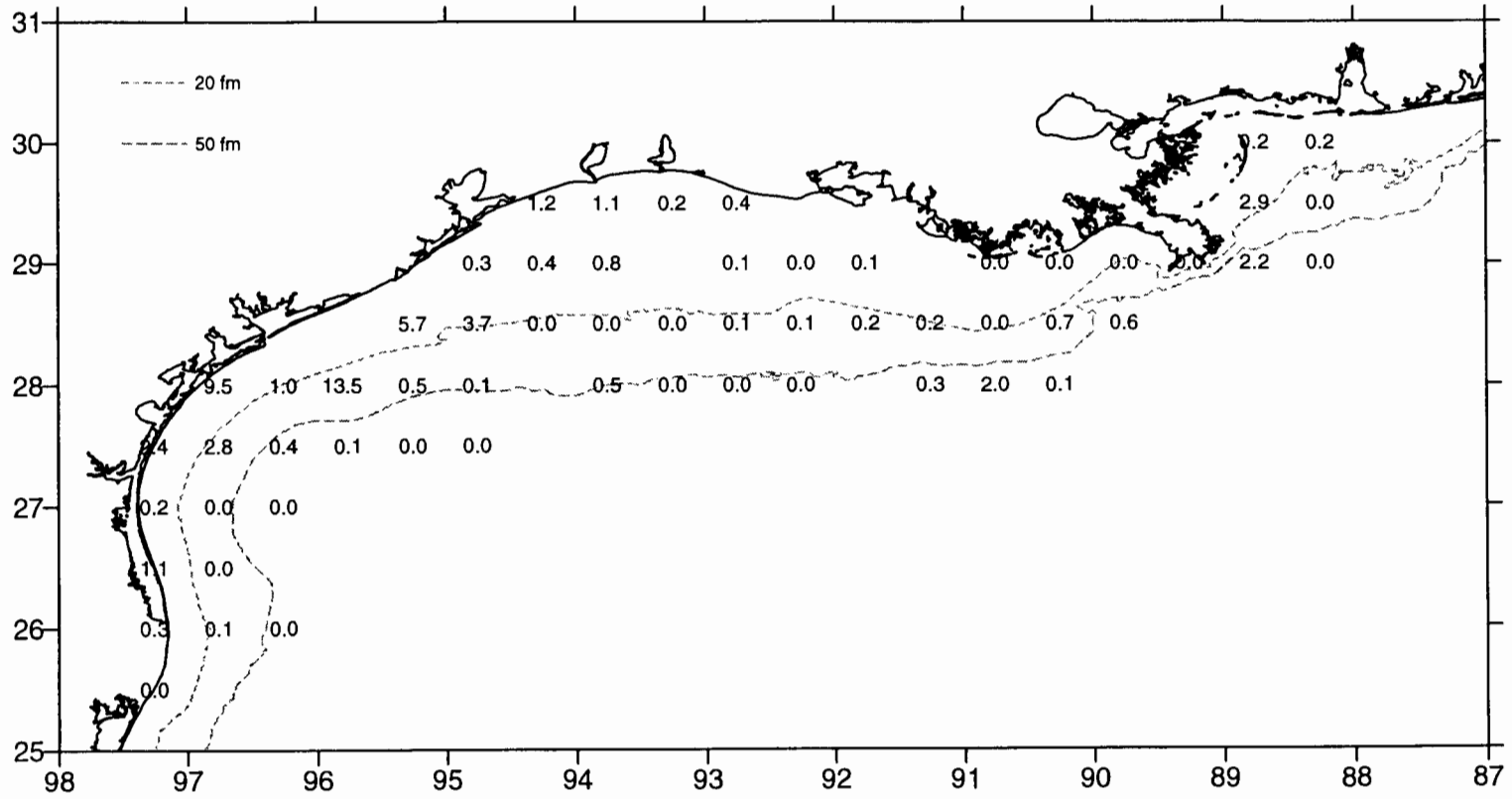


Figure 45. Lesser blue crab, *Callinectes similis*, lb/hour for June-July 1998.

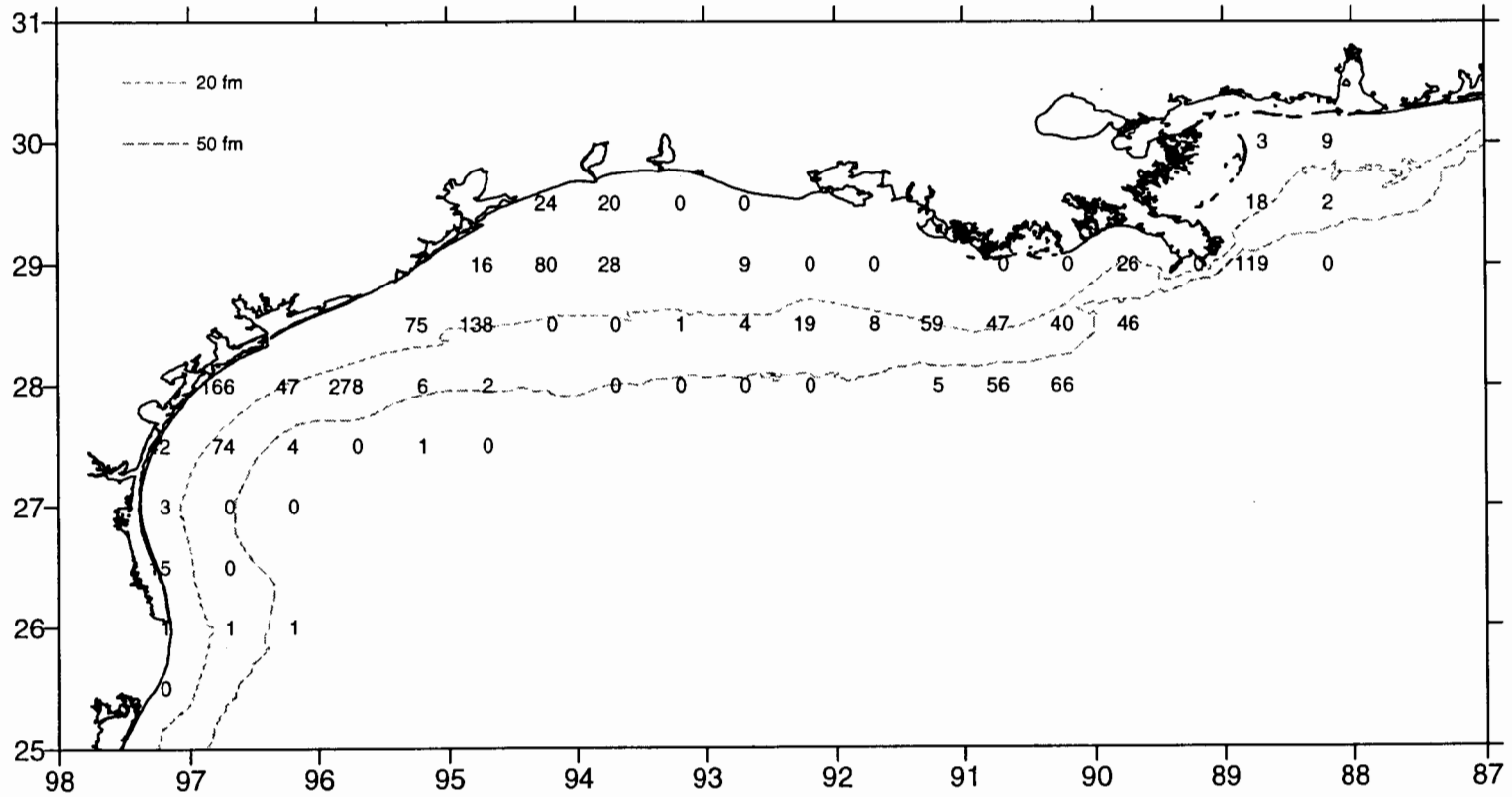


Figure 46. Mantis shrimp, *Squilla empusa*, number/hour for June-July 1998.

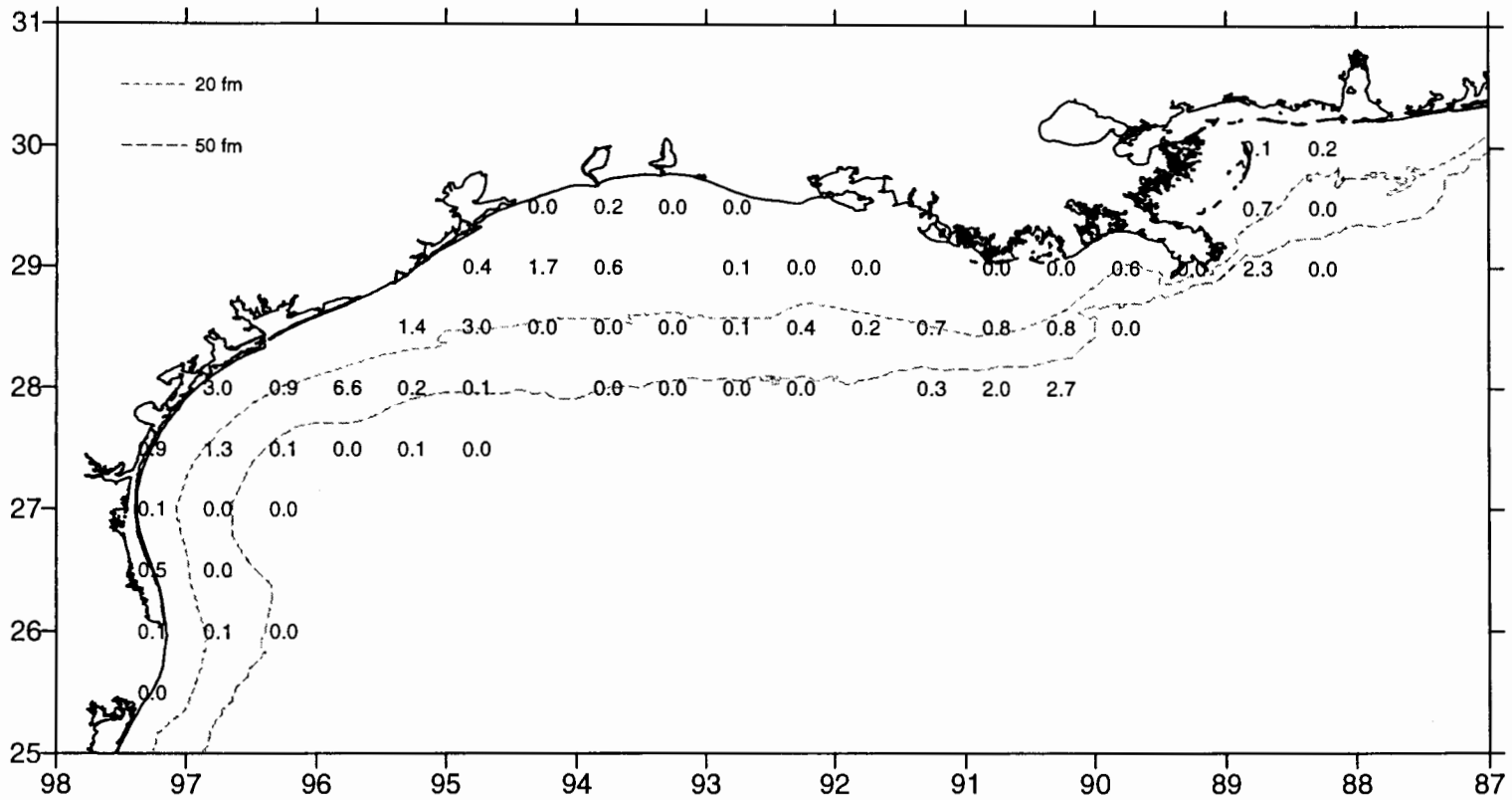


Figure 47. Mantis shrimp, *Squilla empusa*, lb/hour for June-July 1998.

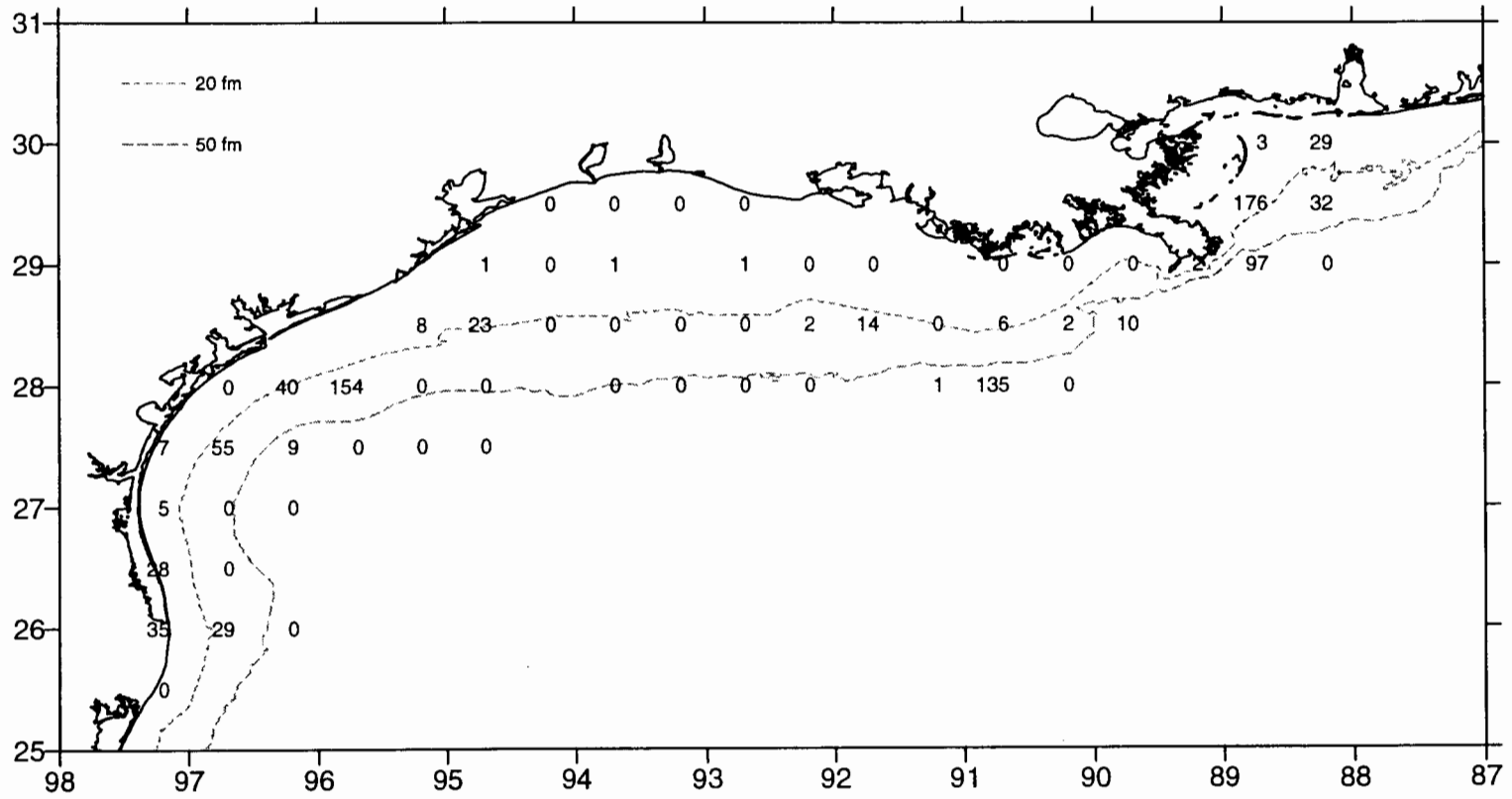


Figure 48. Lesser rock shrimp, *Sicyonia dorsalis*, number/hour for June-July 1998.

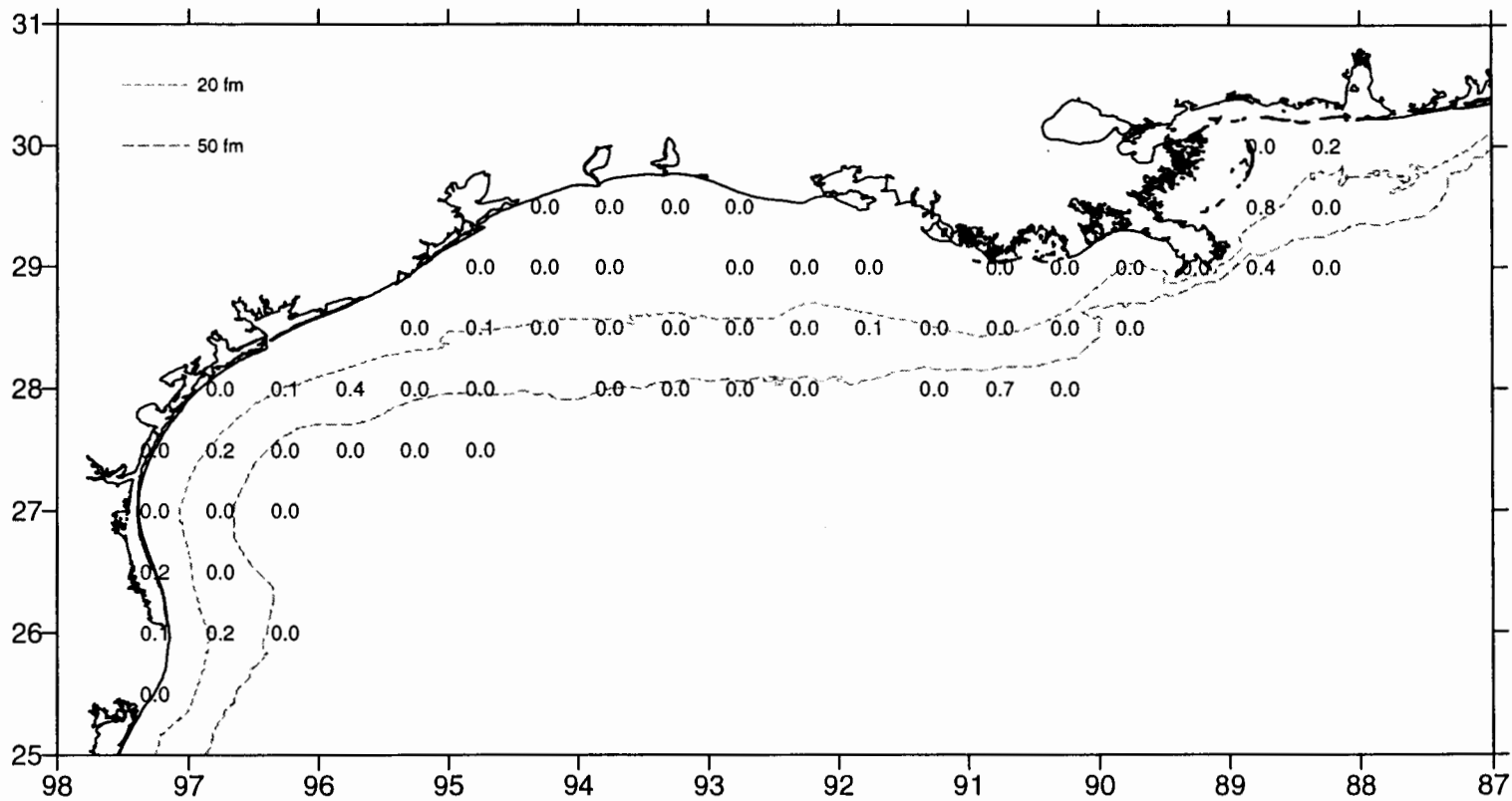


Figure 49. Lesser rock shrimp, *Sicyonia dorsalis*, lb/hour for June-July 1998.

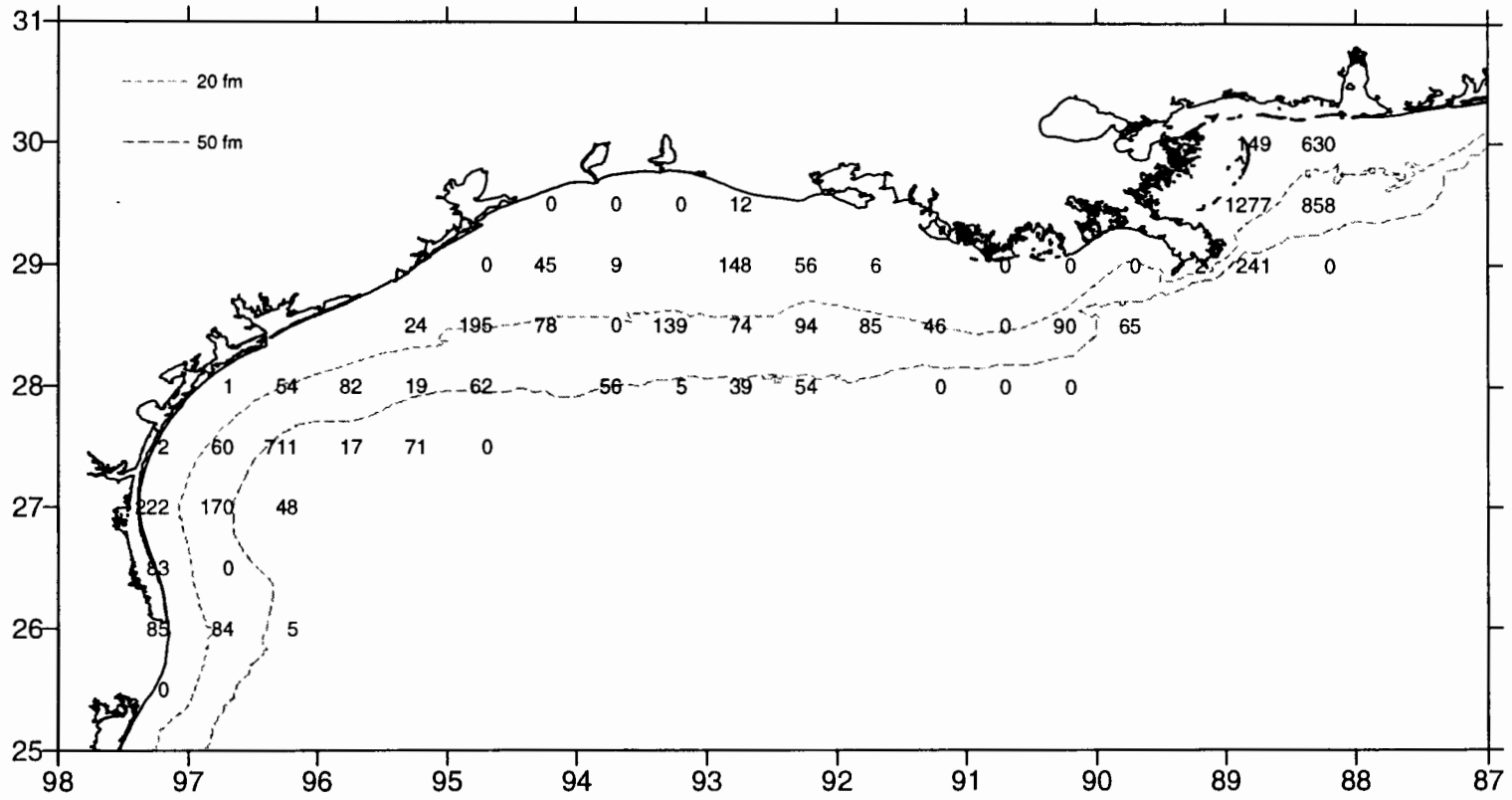


Figure 50. Arrow squid, *Loligo pleii*, number/hour for June-July 1998.

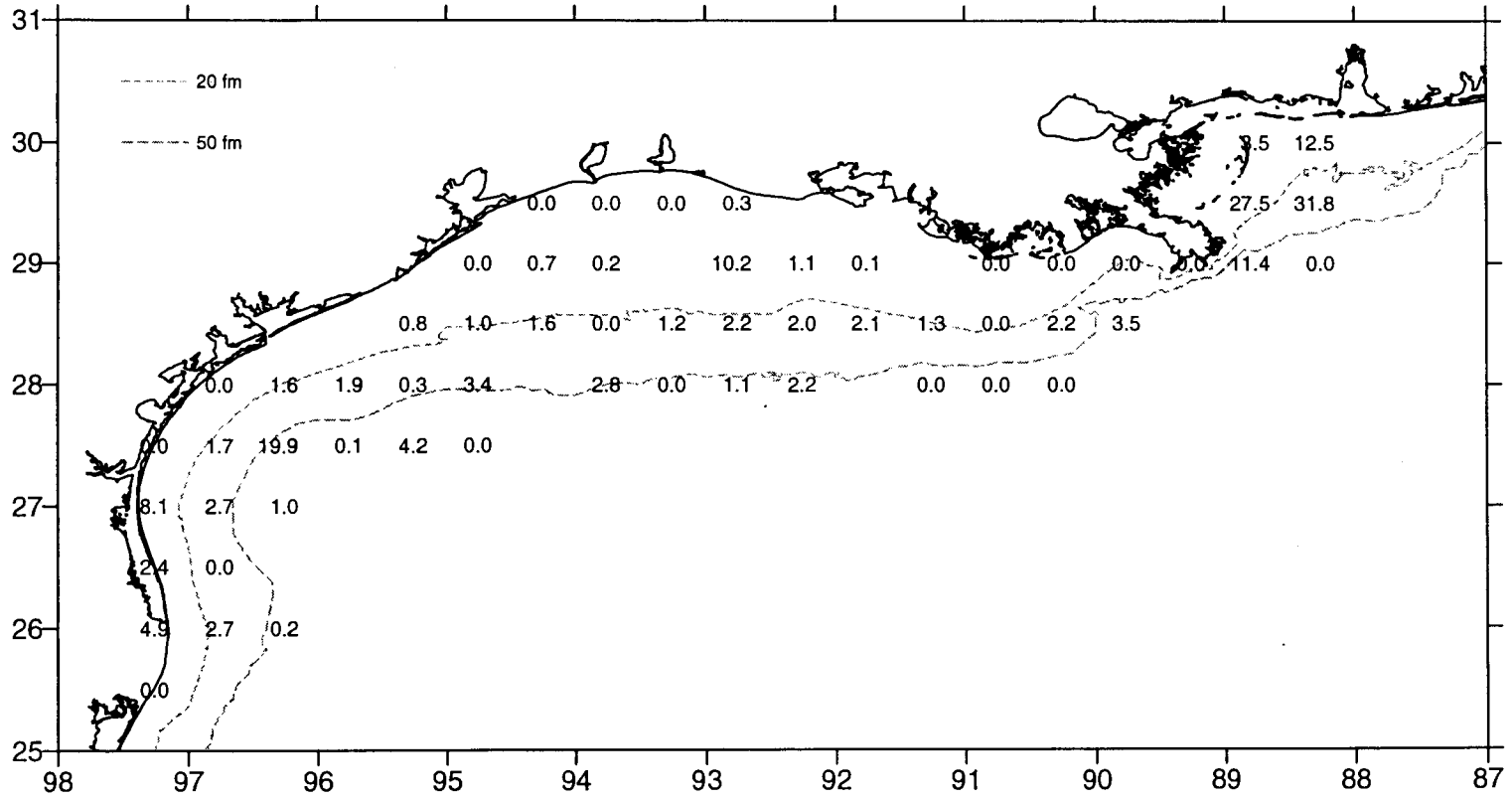


Figure 51. Arrow squid, *Loligo pleii*, lb/hour for June-July 1998.

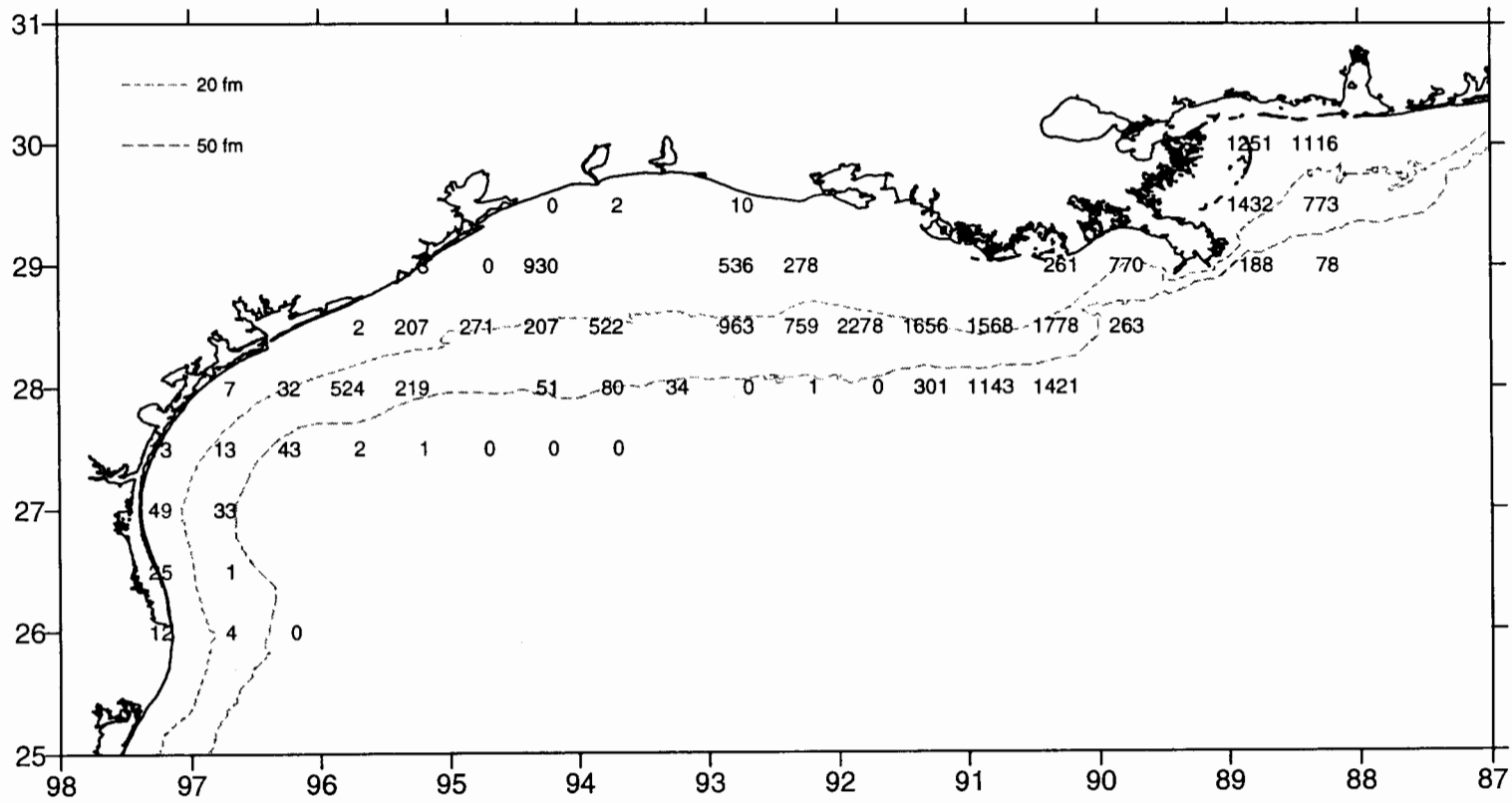


Figure 52. Atlantic croaker, *Micropogonias undulatus*, number/hour for October-December 1998.

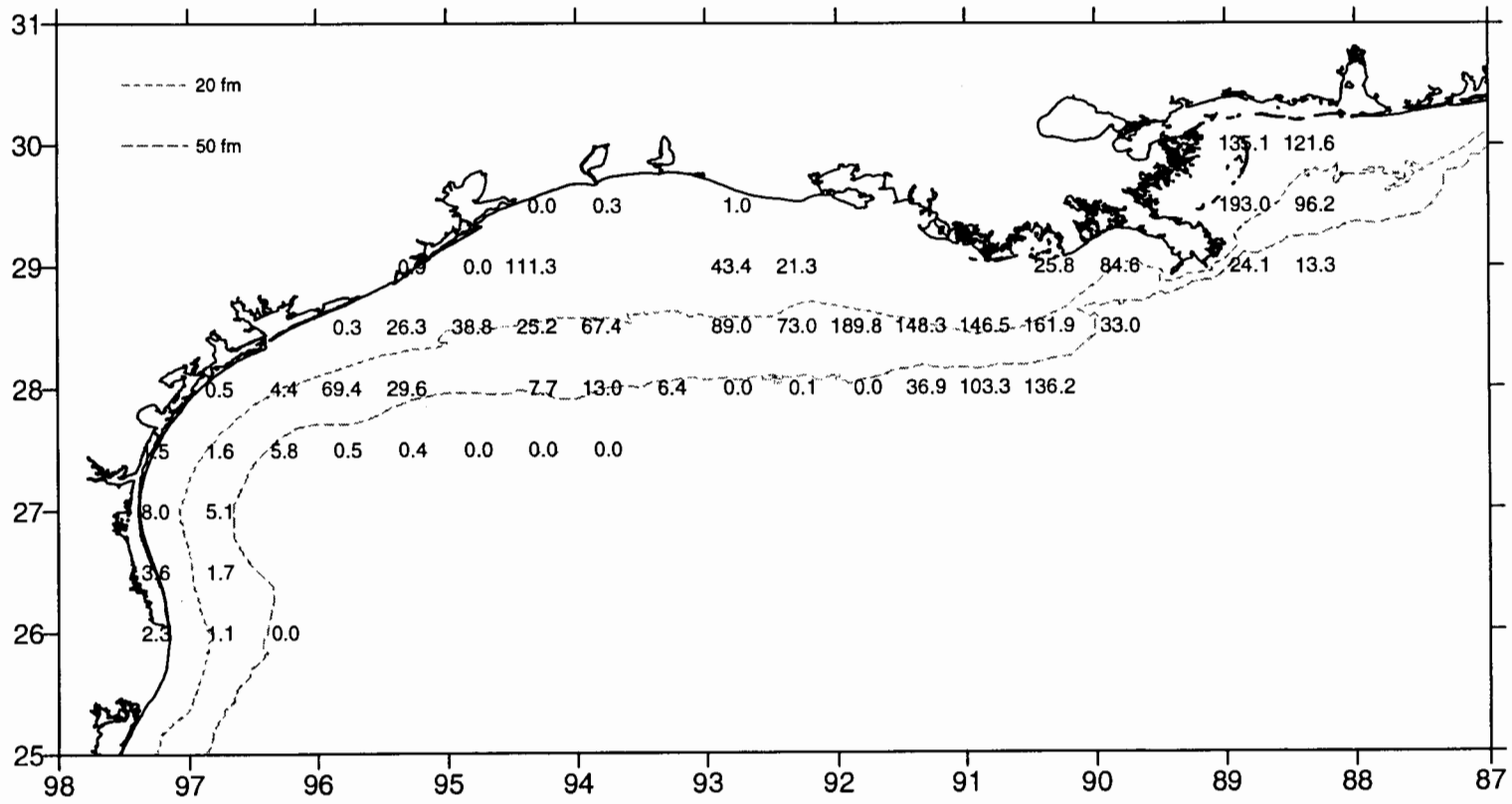


Figure 53. Atlantic croaker, *Micropogonias undulatus*, lb/hour for October-December 1998.

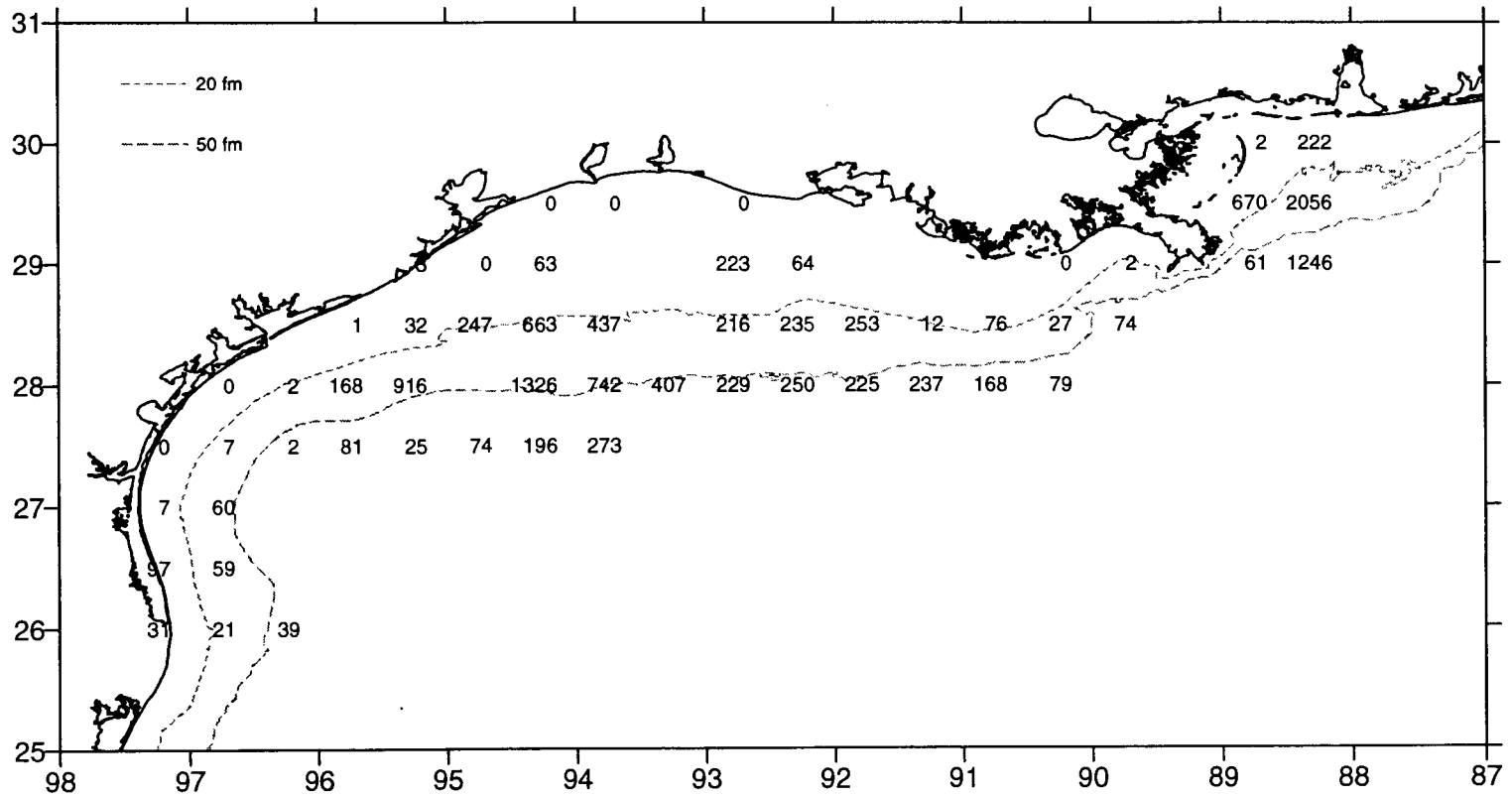


Figure 54. Longspine pogy, *Stenotomus caprinus*, number/hour for October-December 1998.

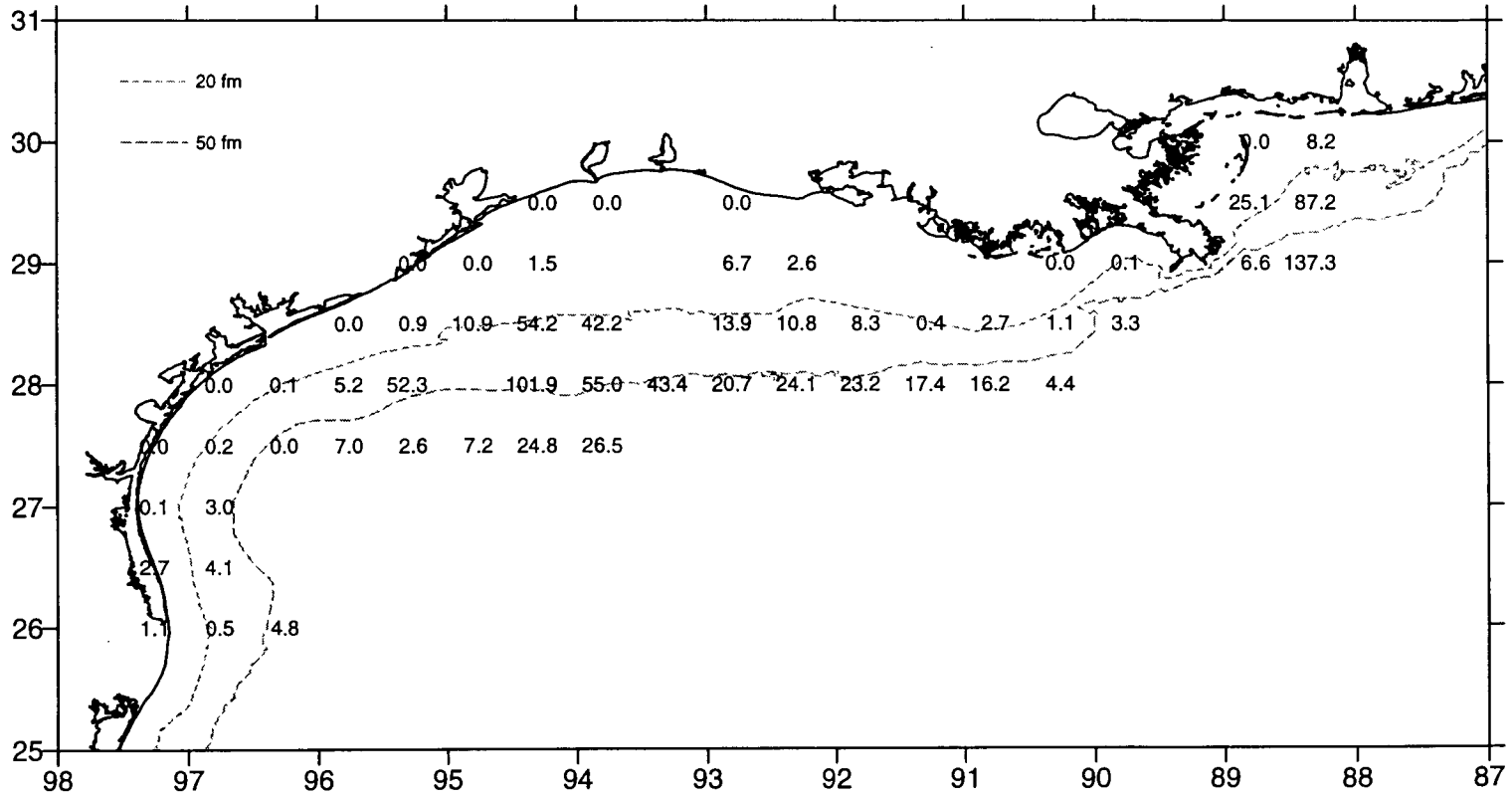


Figure 55. Longspine pogy, *Stenotomus caprinus*, lb/hour for October-December 1998.

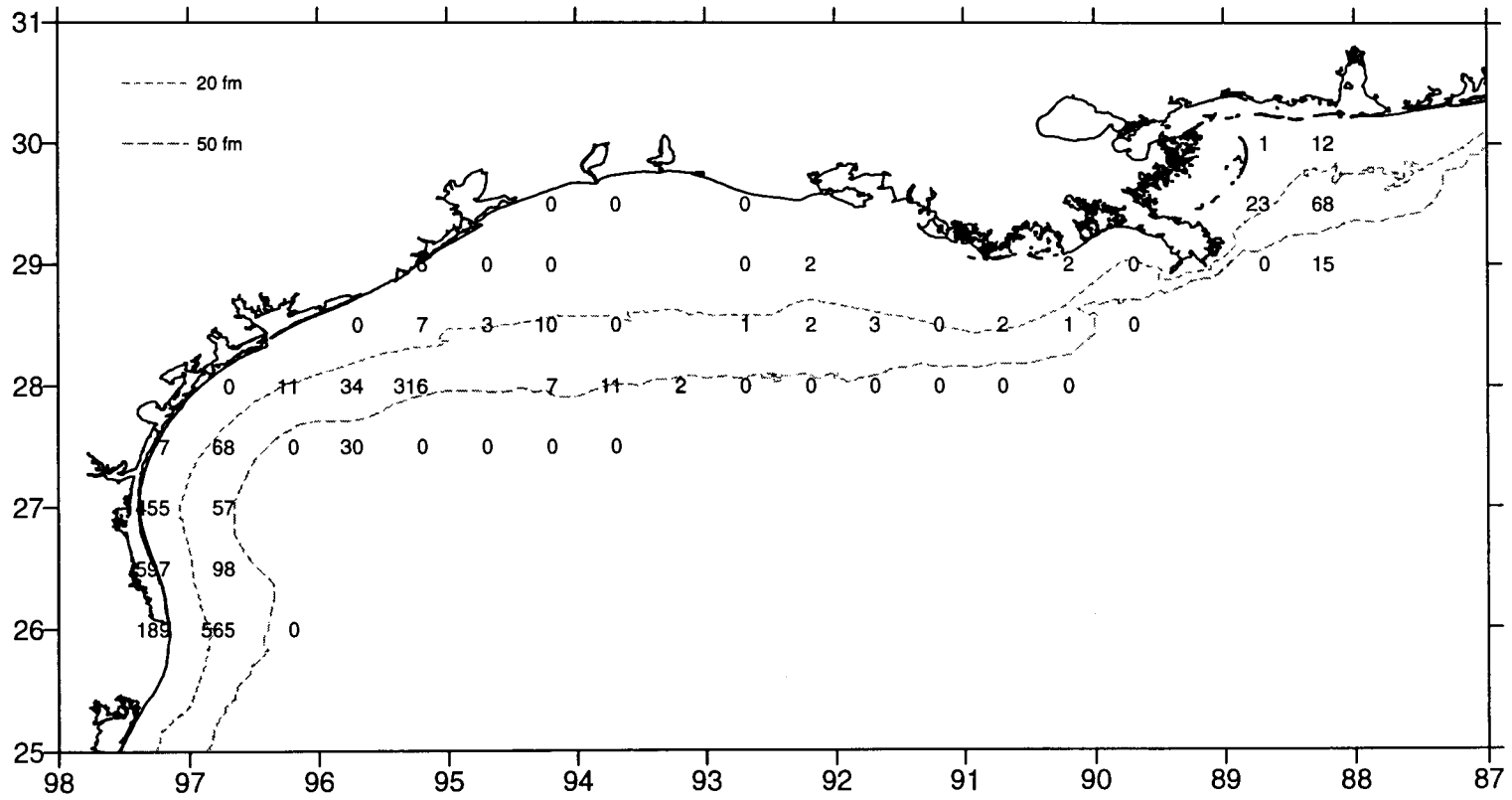


Figure 56. Atlantic bumper, *Chloroscombrus chrysurus*, number/hour for October-December 1998.

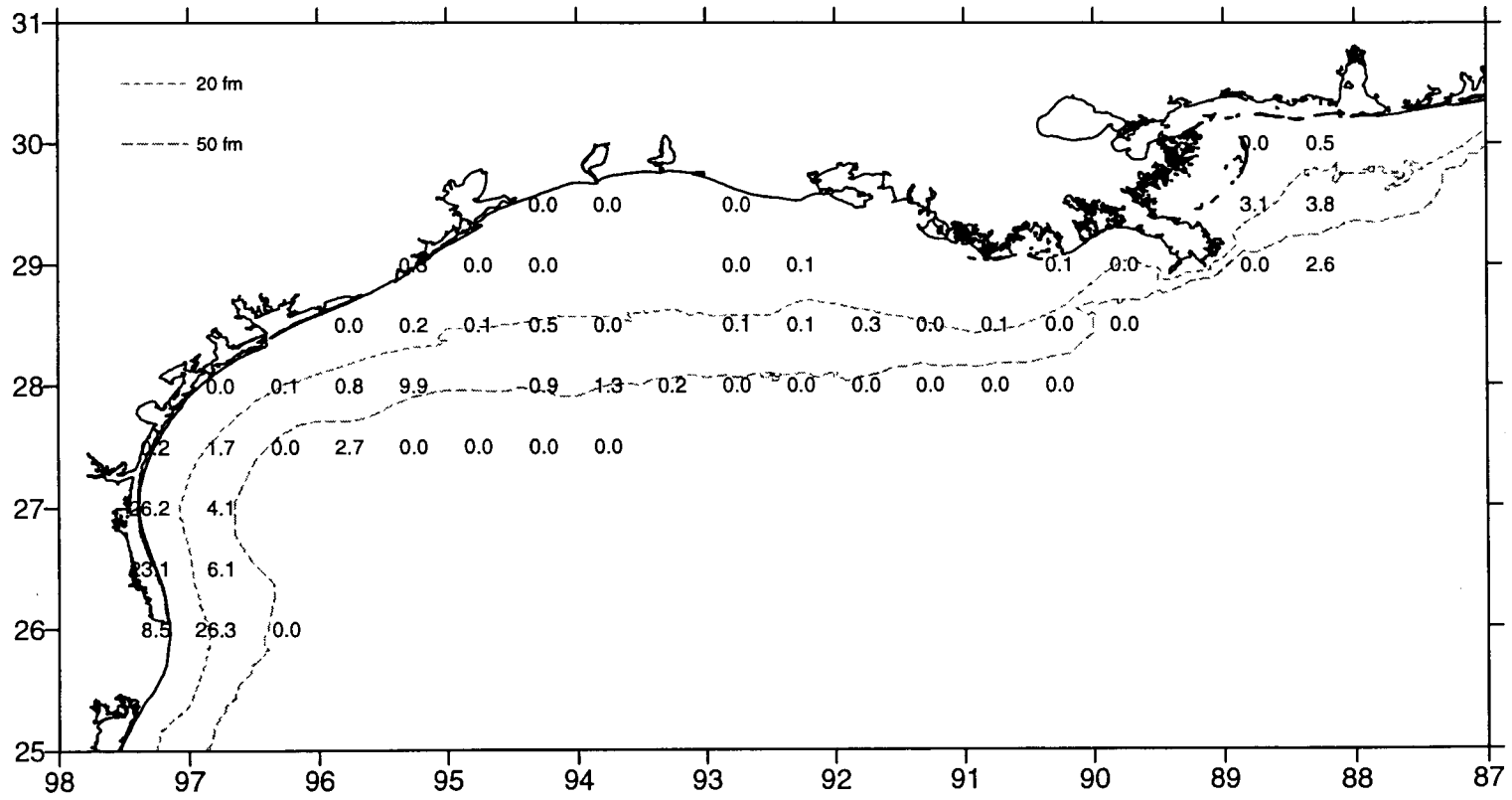


Figure 57. Atlantic bumper, *Chloroscombrus chrysurus*, lb/hour for October-December 1998.

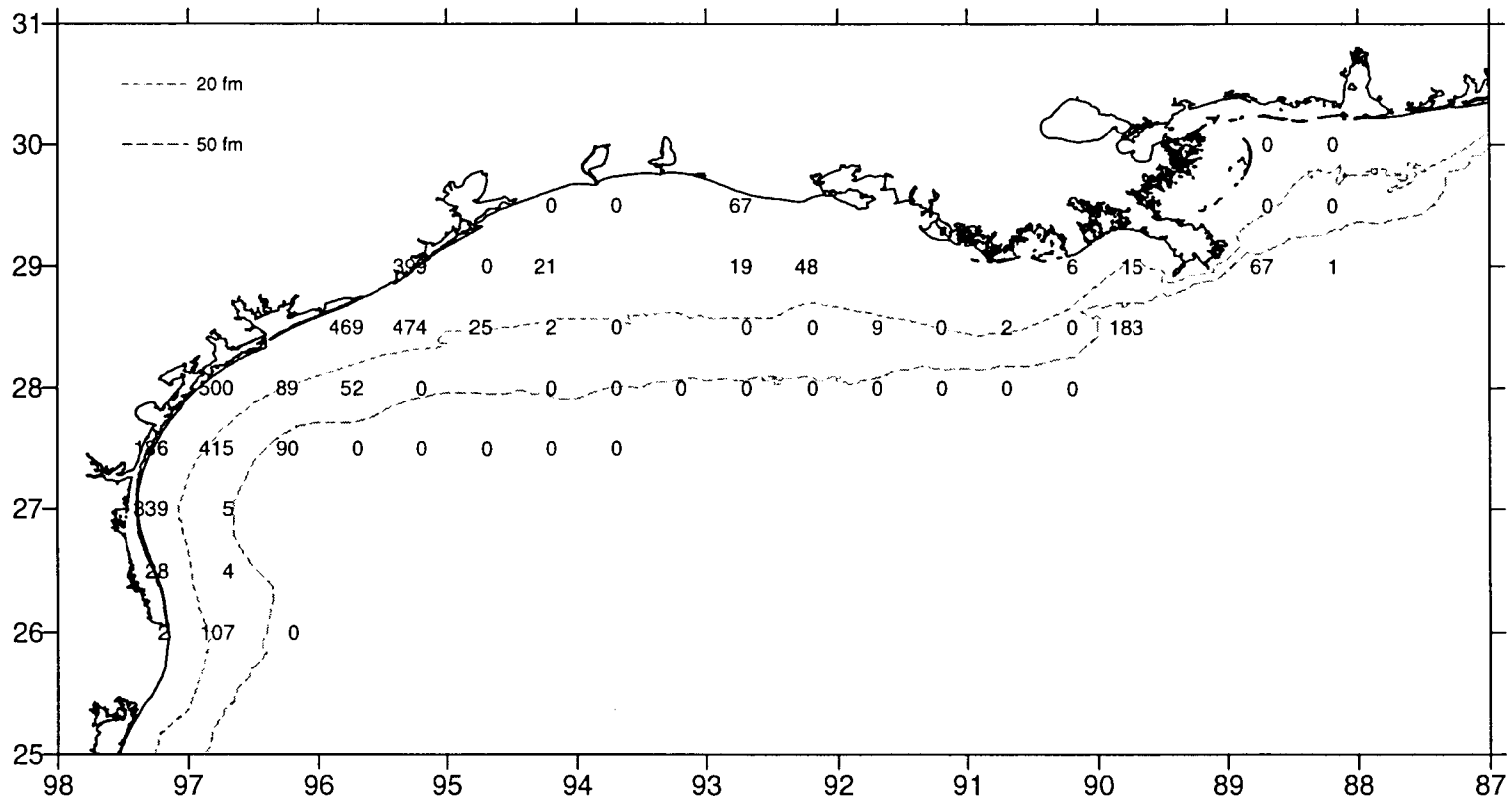


Figure 58. Searoutes, *Cynoscion* spp., number/hour for October-December 1998.

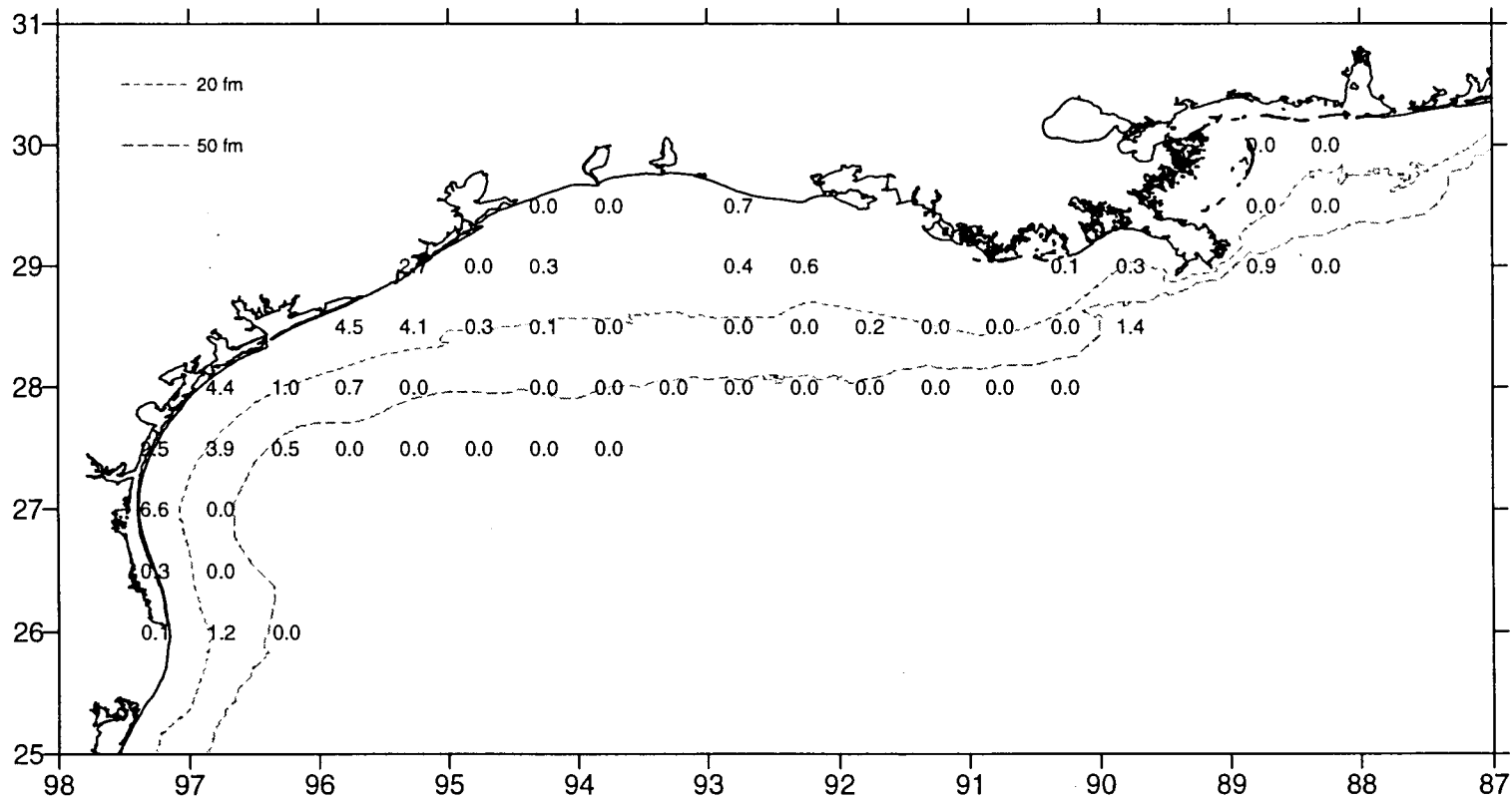


Figure 59. Seatrouts, *Cynoscion* spp., lb/hour for October-December 1998.

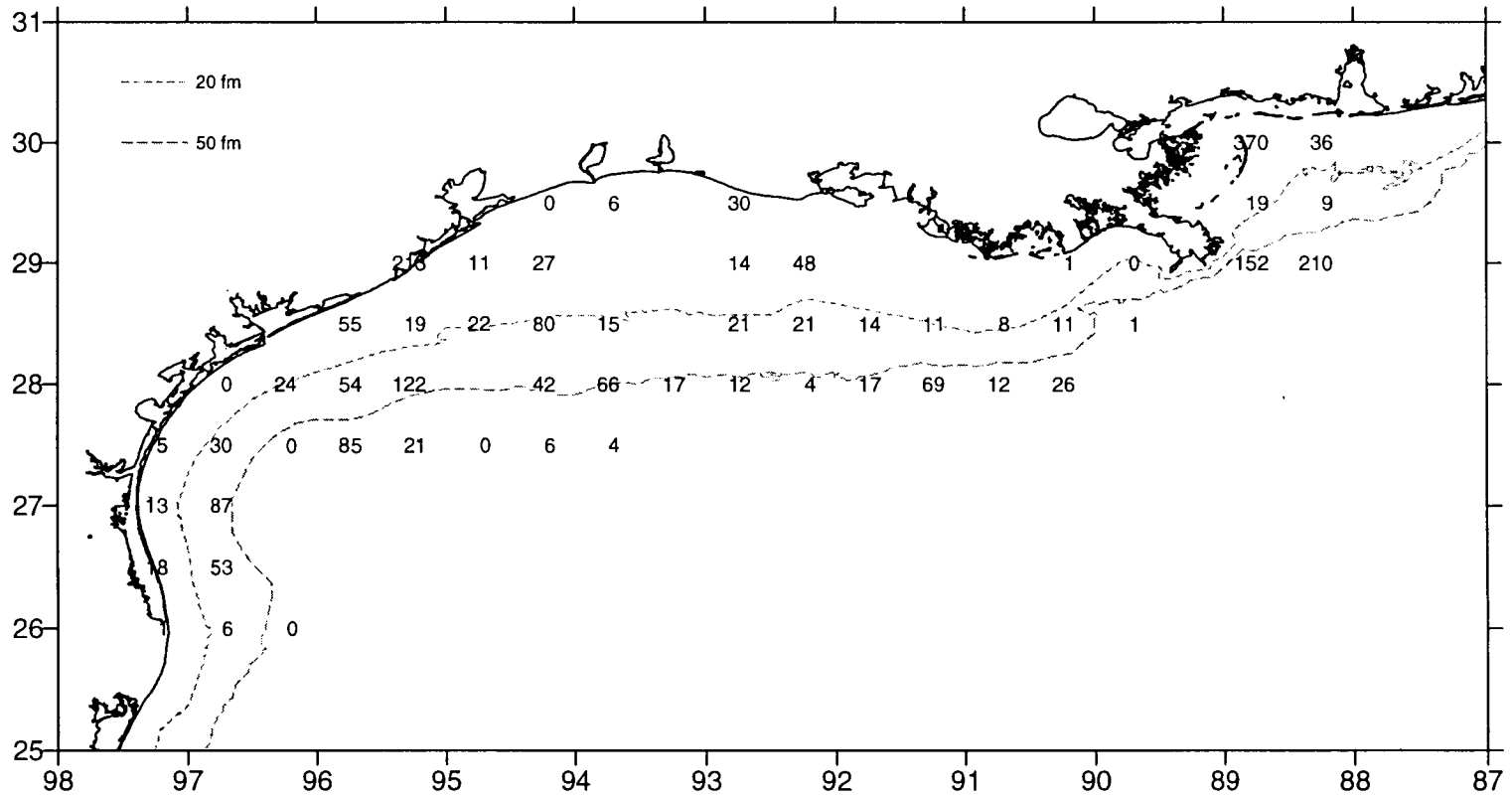


Figure 60. Gulf butterfish, *Peprilus burti*, number/hour for October-December 1998.

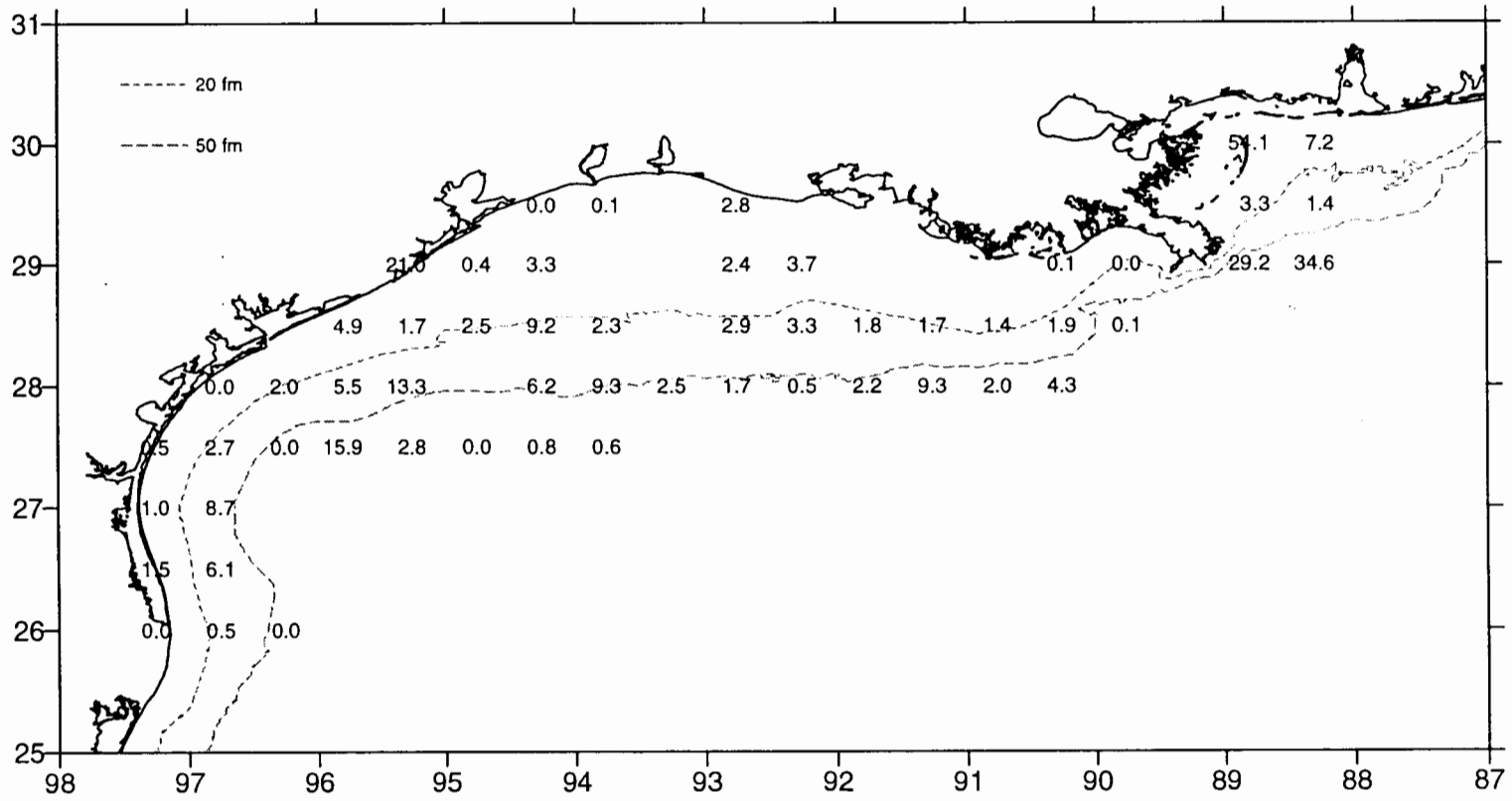


Figure 61. Gulf butterfish, *Peprilus burti*, lb/hour for October-December 1998.

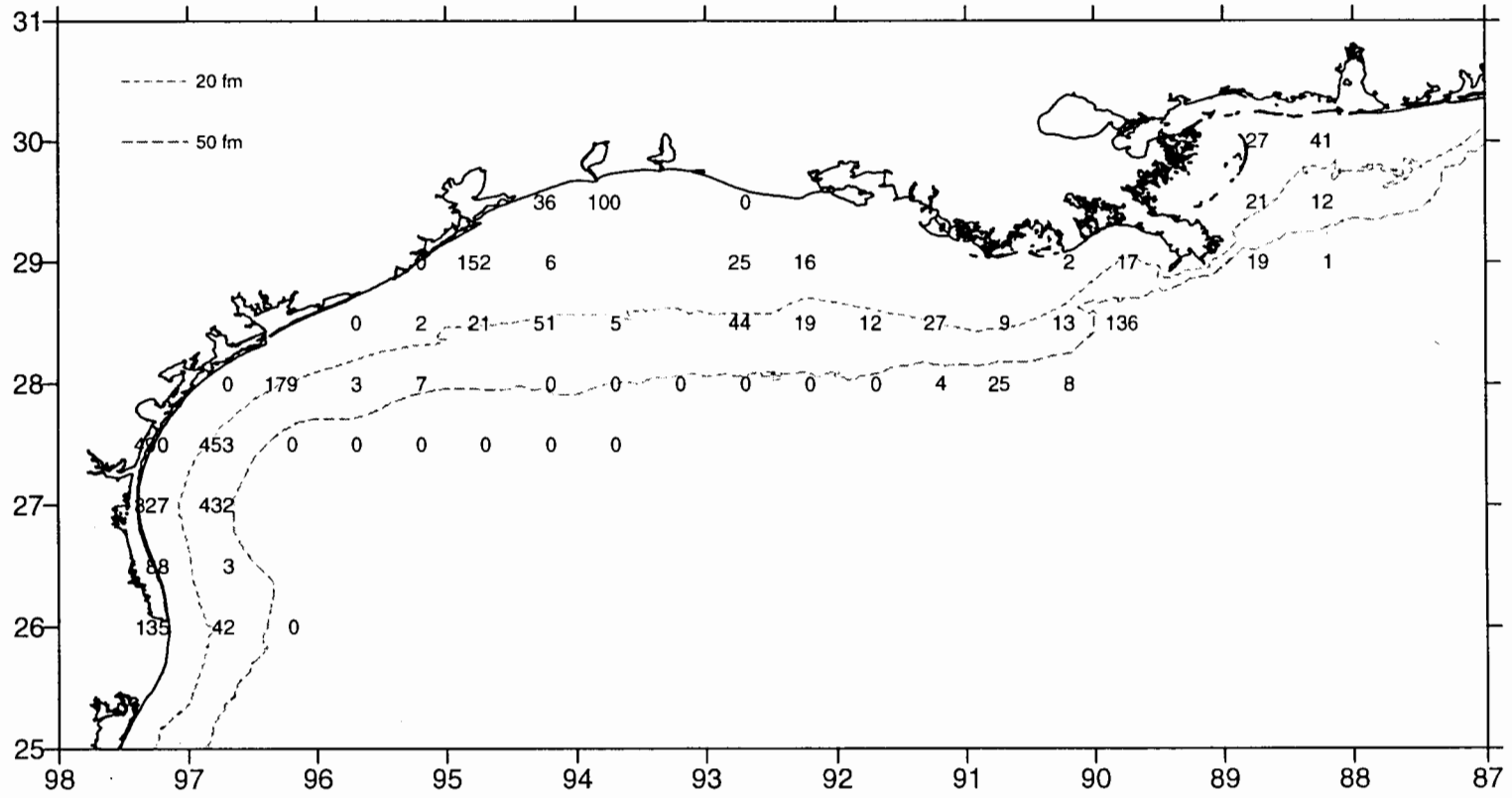


Figure 62. Silver seatrout, *Cynoscion nothus*, number/hour for October-December 1998.

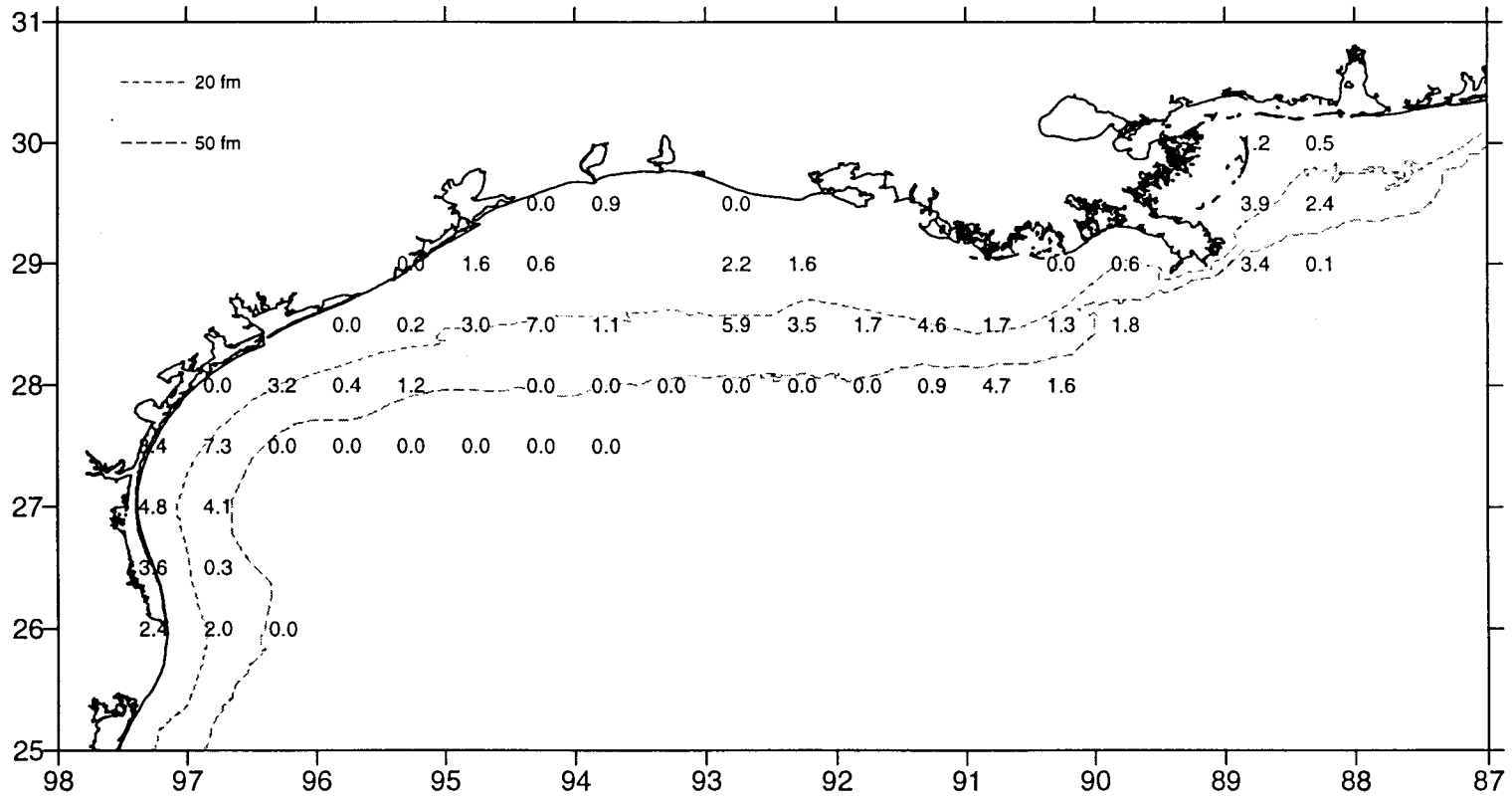


Figure 63. Silver seatrout, *Cynoscion nothus*, lb/hour for October-December 1998.

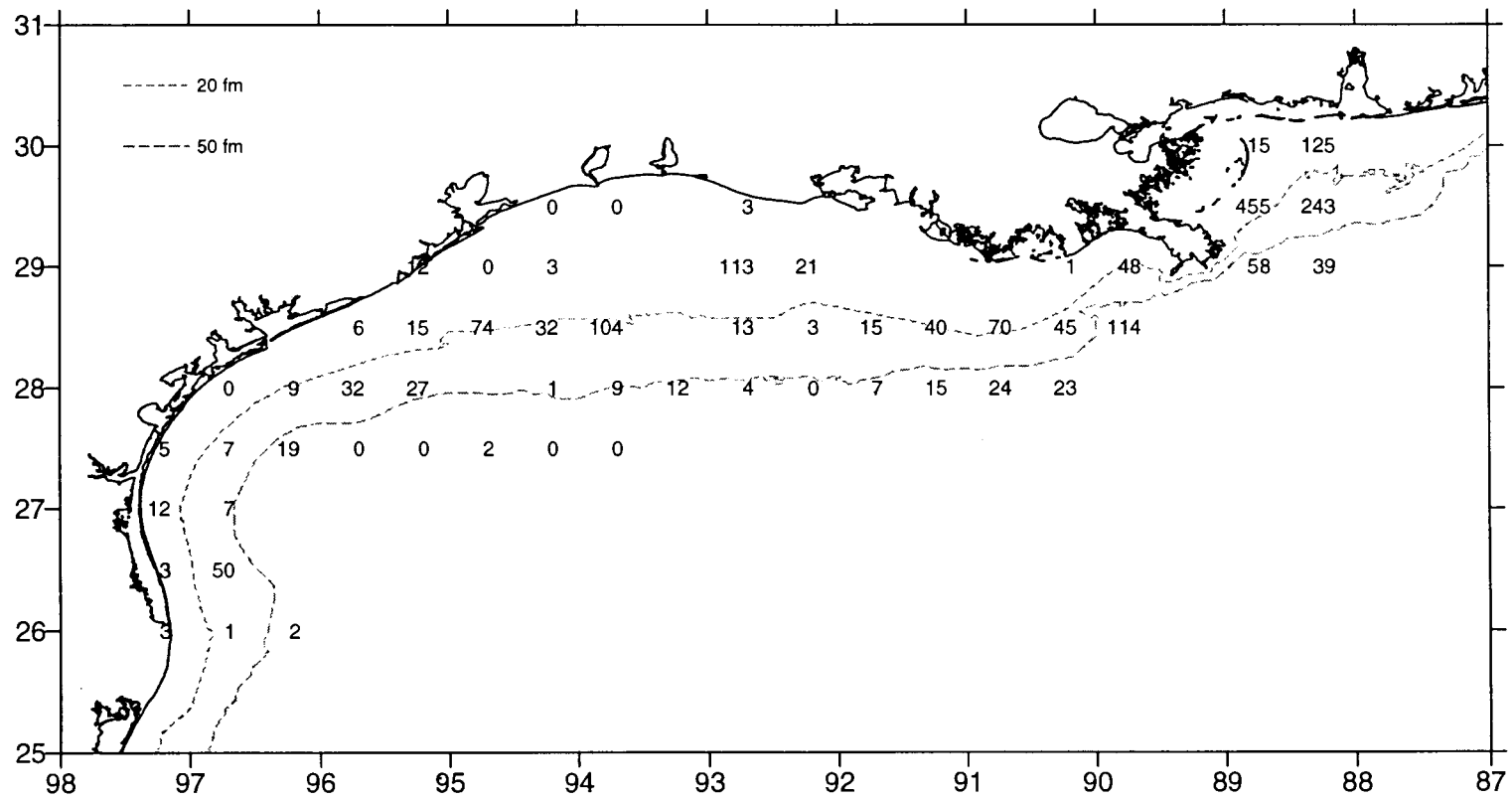


Figure 64. Bigeye searobin, *Prionotus longispinosus*, number/hour for October-December 1998.

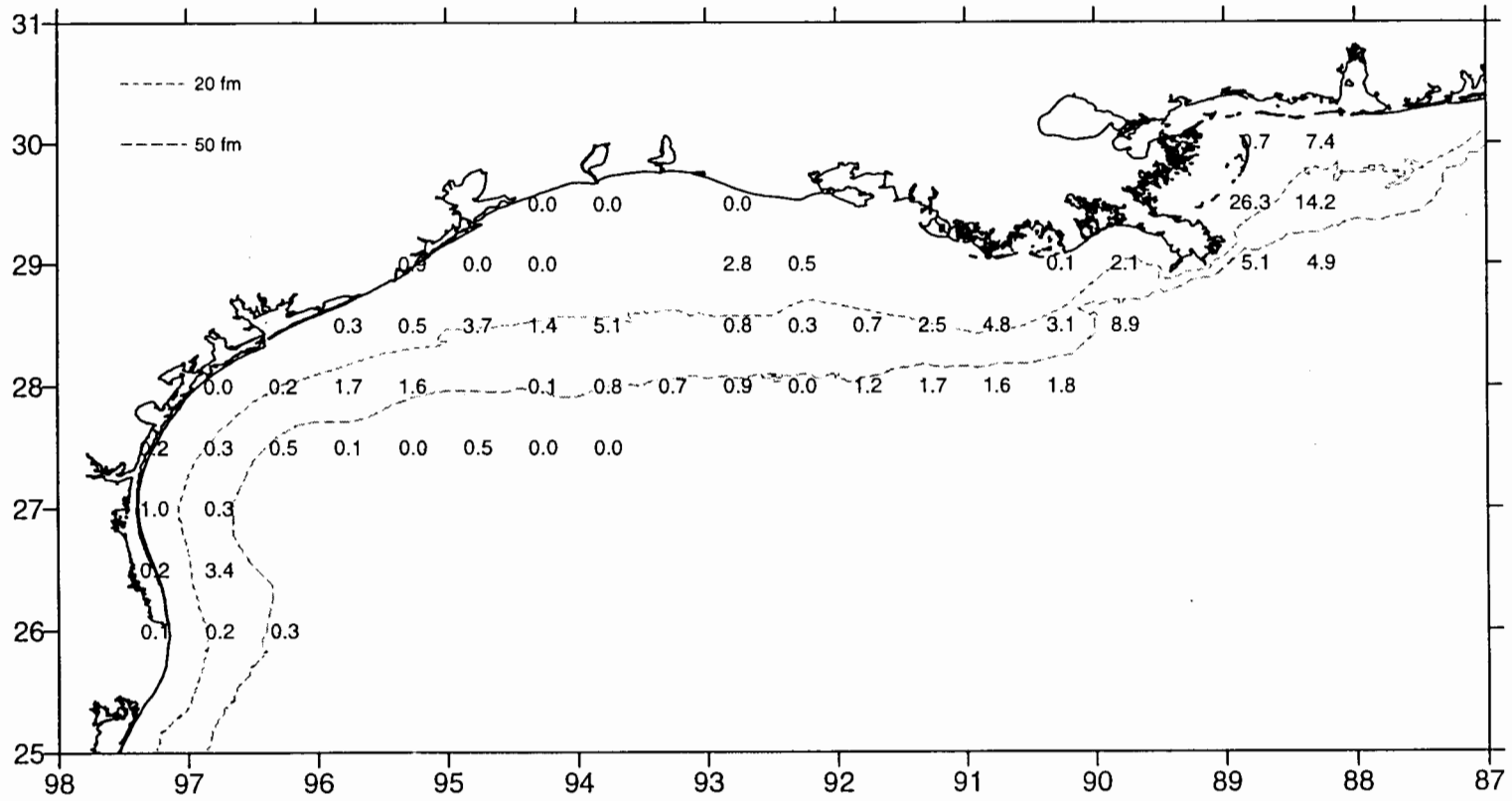
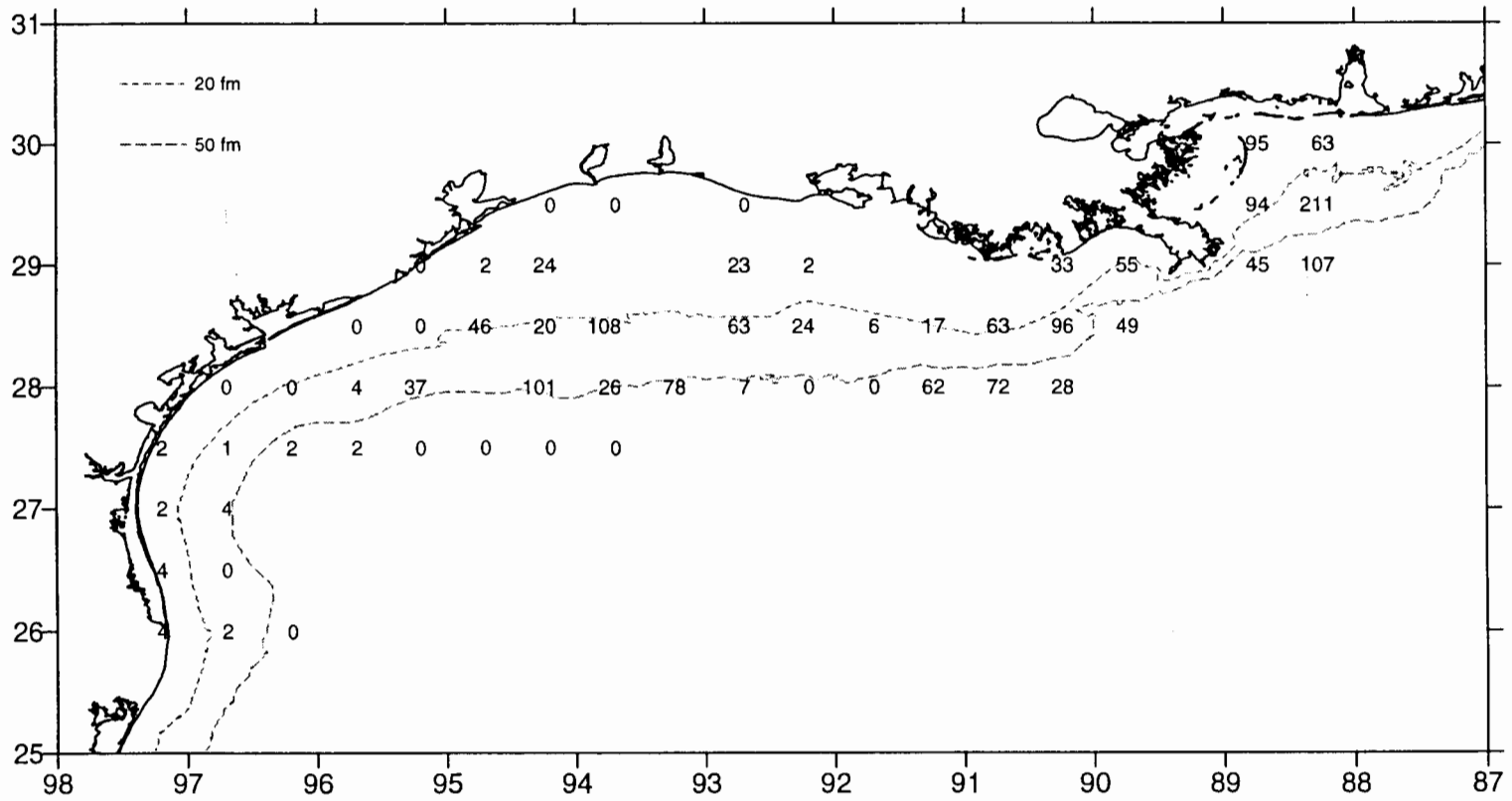


Figure 65. Bigeye searobin, *Prionotus longispinosus*, lb/hour for October-December 1998.



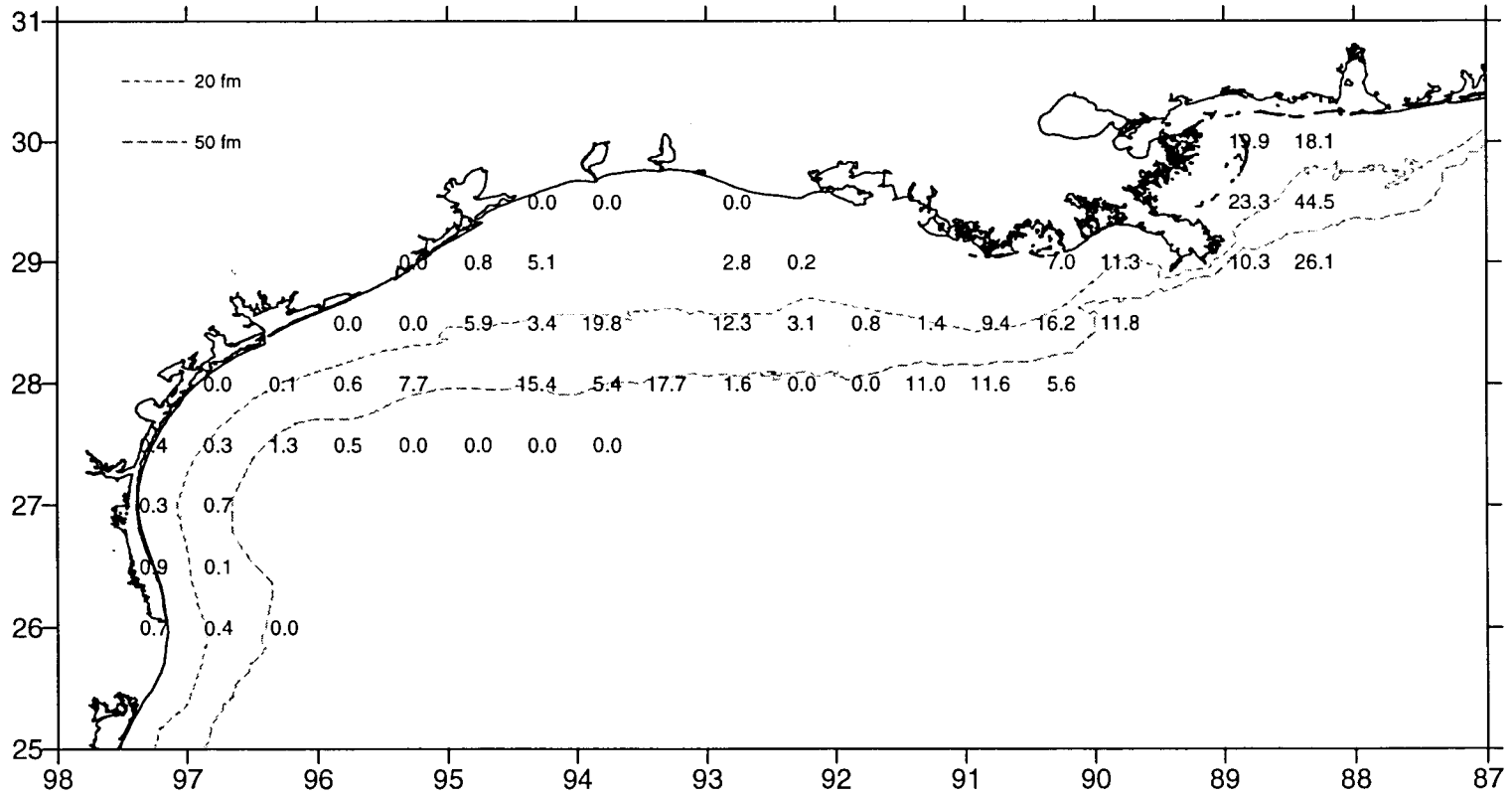


Figure 67. Spot, *Leiostomus xanthurus*, lb/hour for October-December 1998.

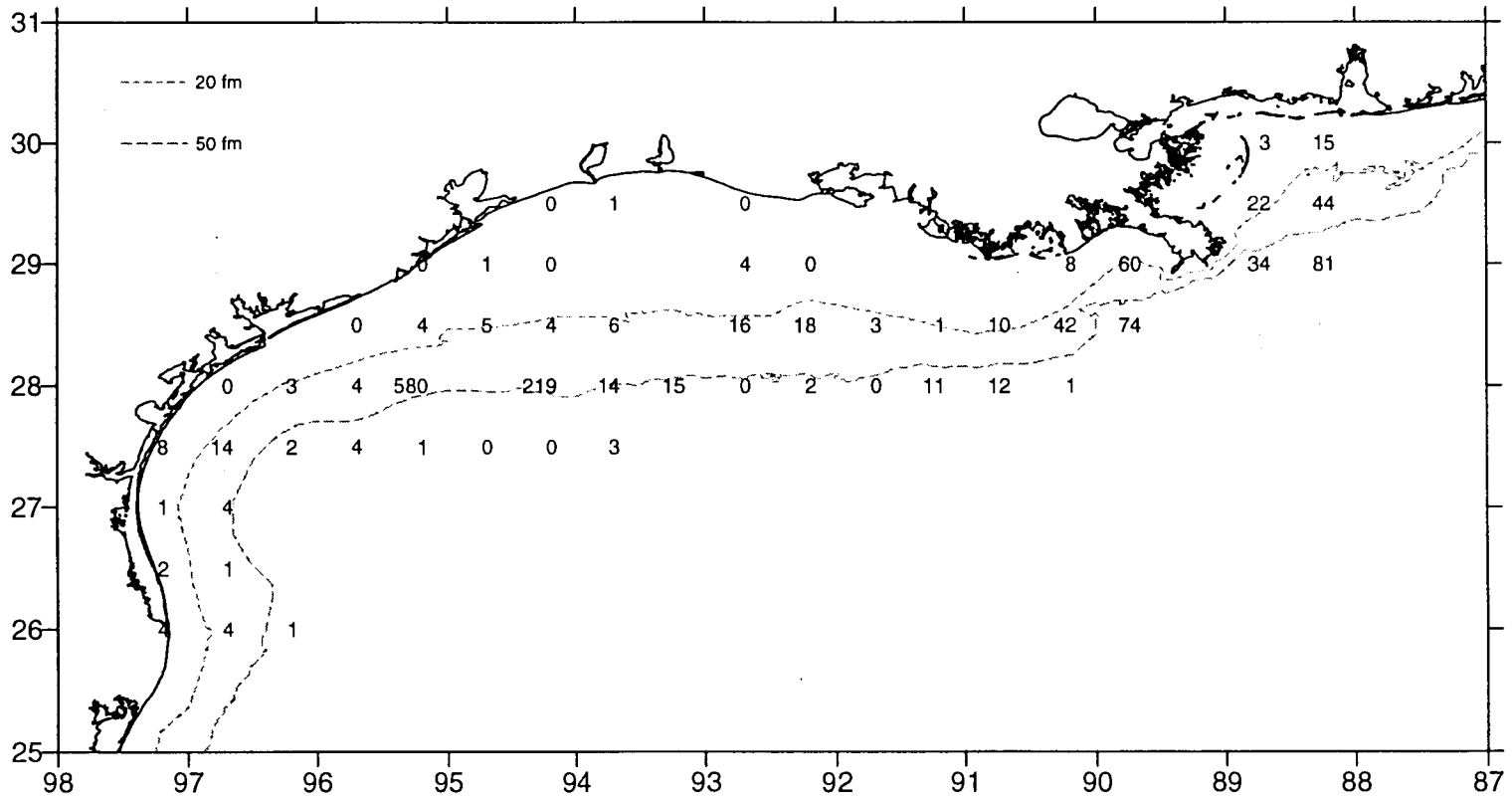


Figure 68. Pinfish, *Lagodon rhomboides*, number/hour for October-December 1998.

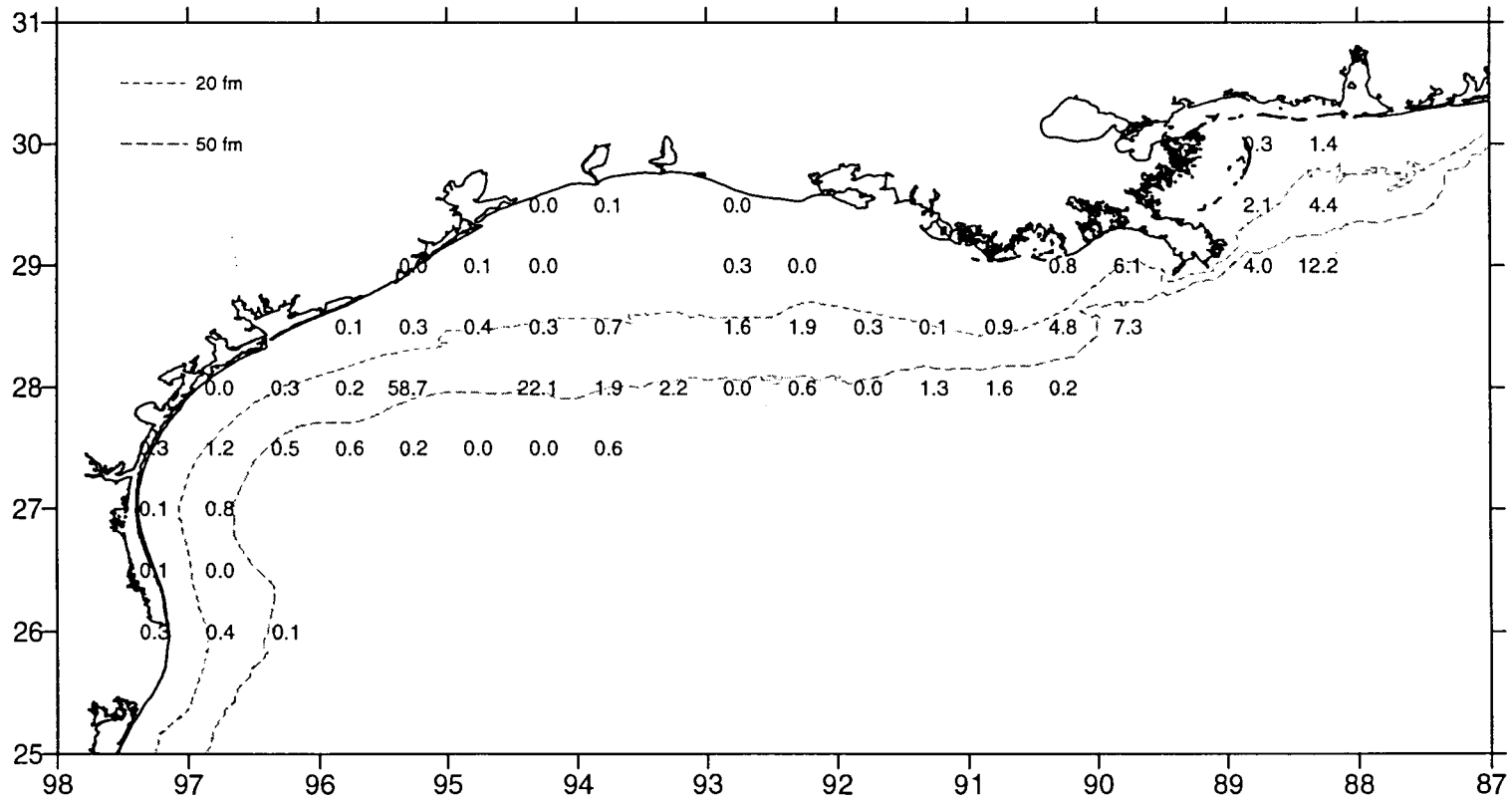


Figure 69. Pinfish, *Lagodon rhomboides*, lb/hour for October-December 1998.

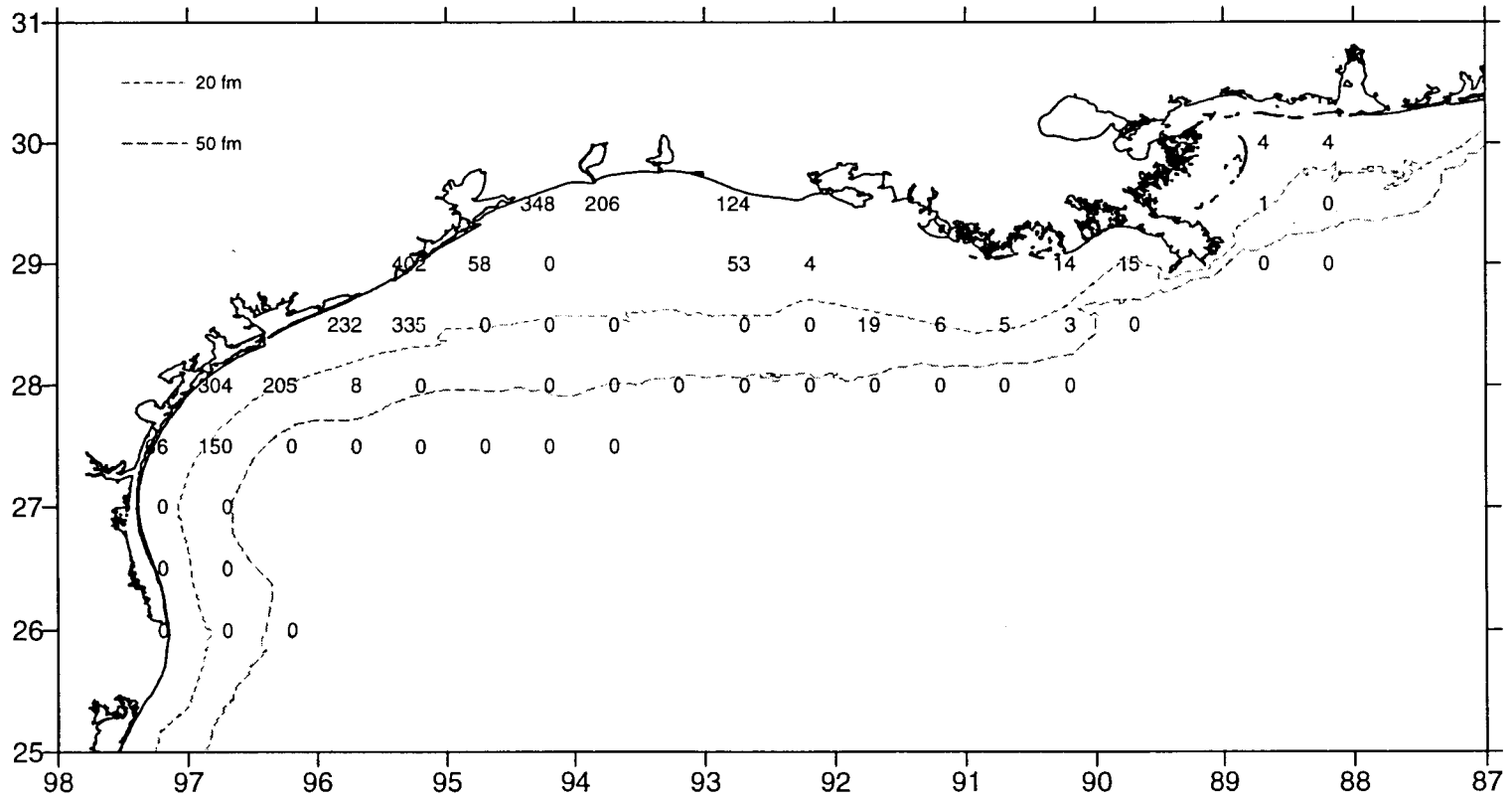


Figure 70. Star drum, *Stellifer lanceolatus*, number/hour for October-December 1998.

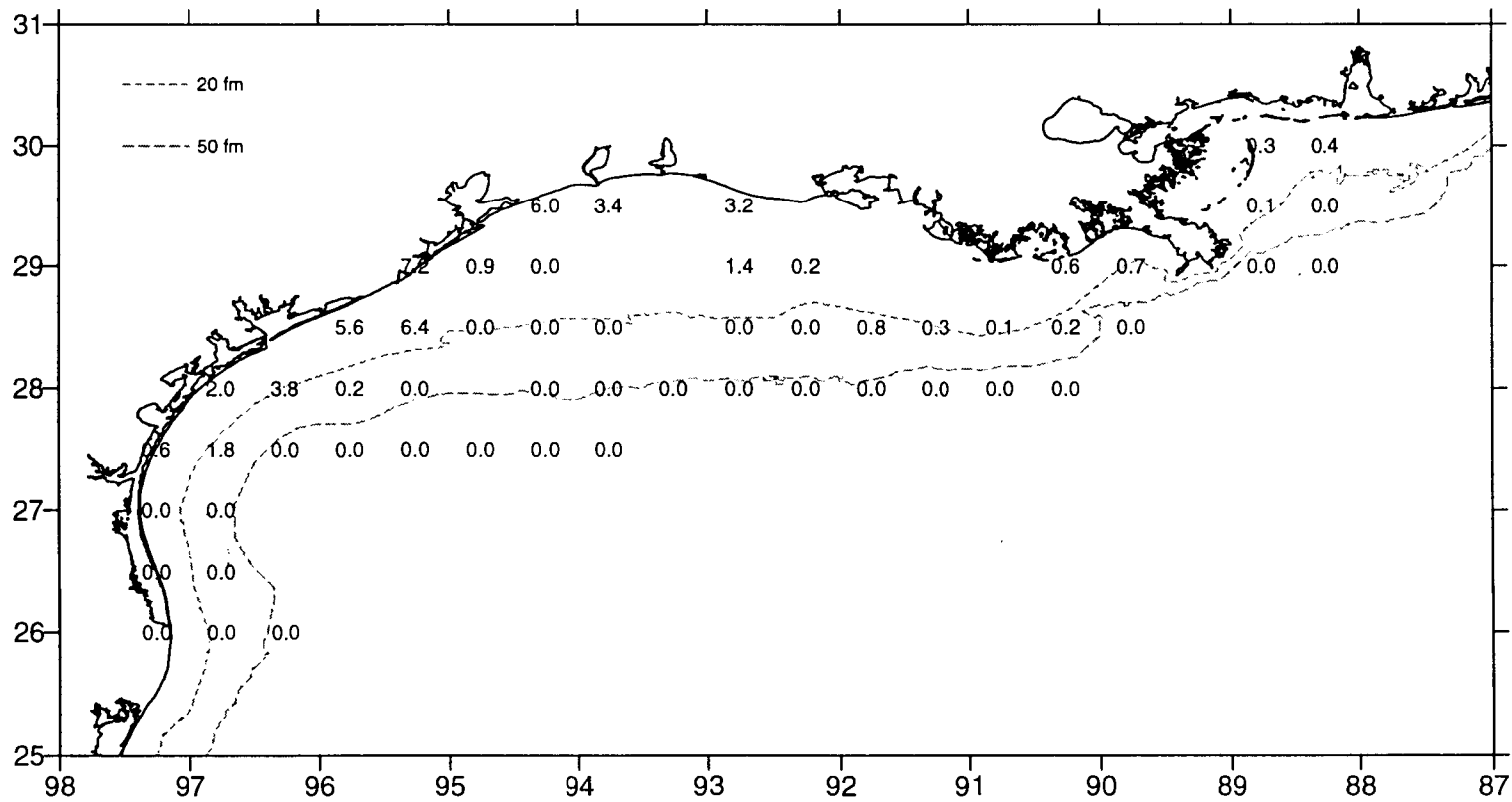


Figure 71. Star drum, *Stellifer lanceolatus*, lb/hour for October-December 1998.

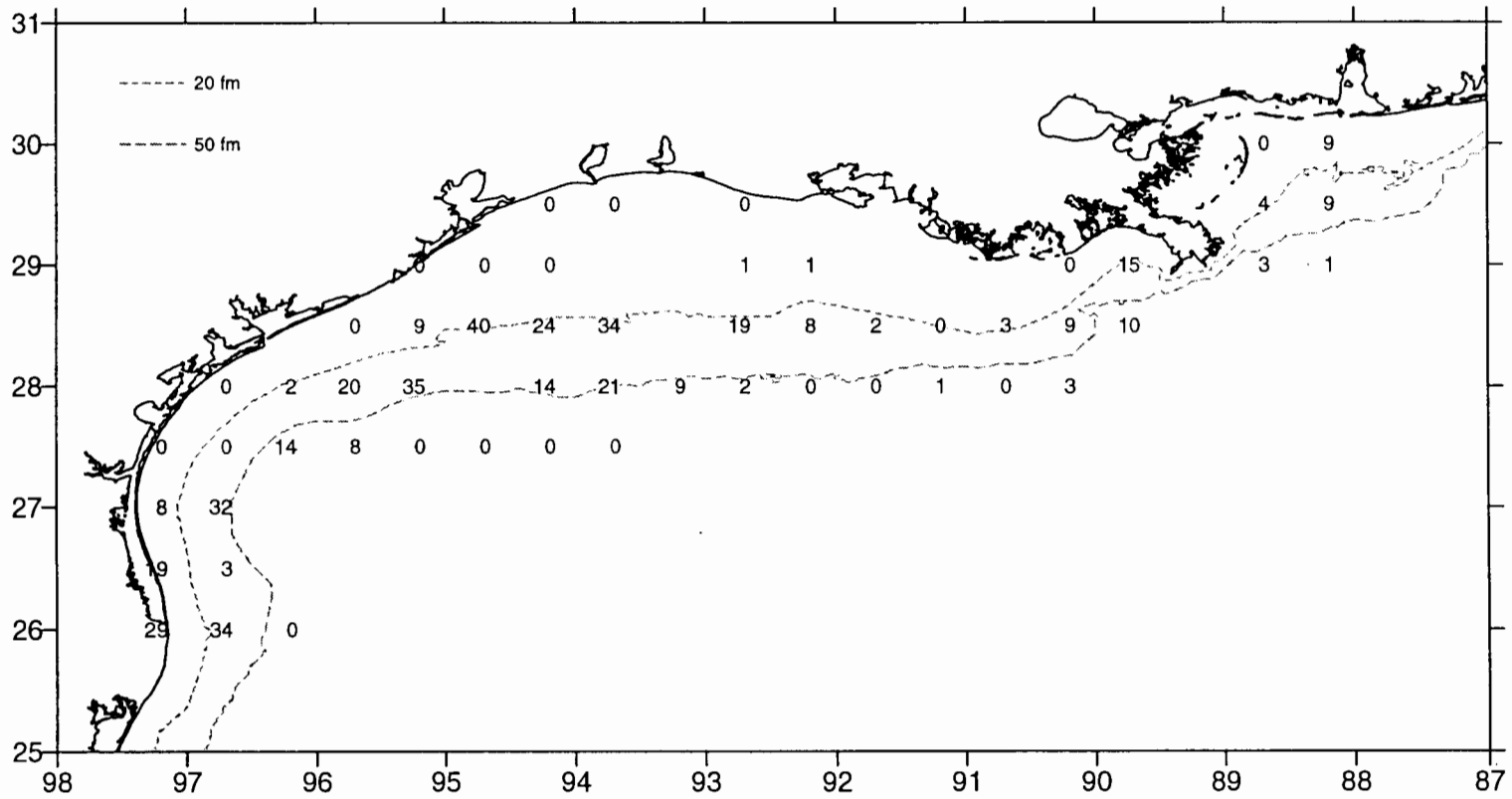


Figure 72. Red snapper, *Lutjanus campechanus*, number/hour for October-December 1998.

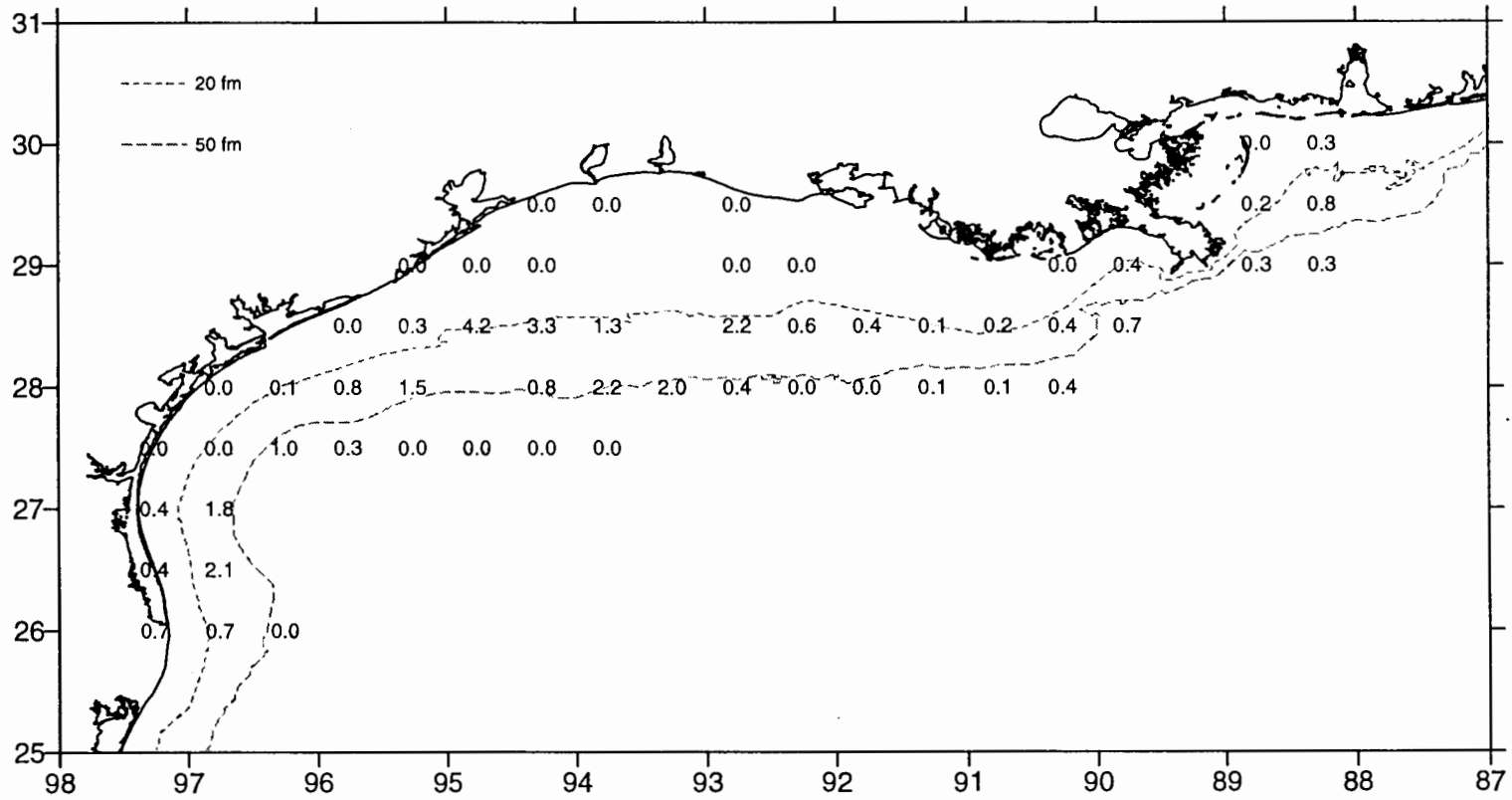


Figure 73. Red snapper, *Lutjanus campechanus*, lb/hour for October-December 1998.

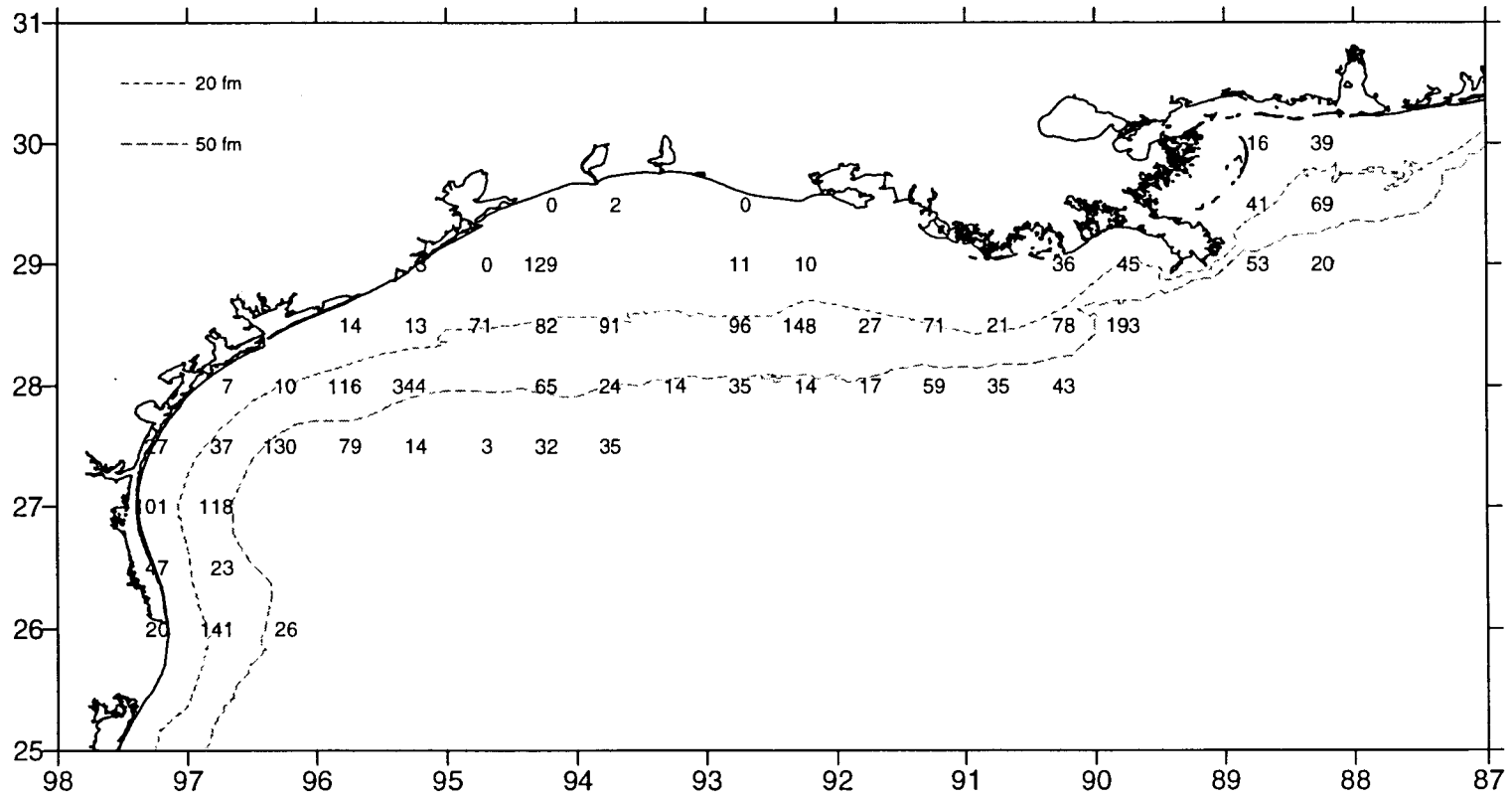


Figure 74. Brown shrimp, *Penaeus aztecus*, number/hour for October-December 1998.

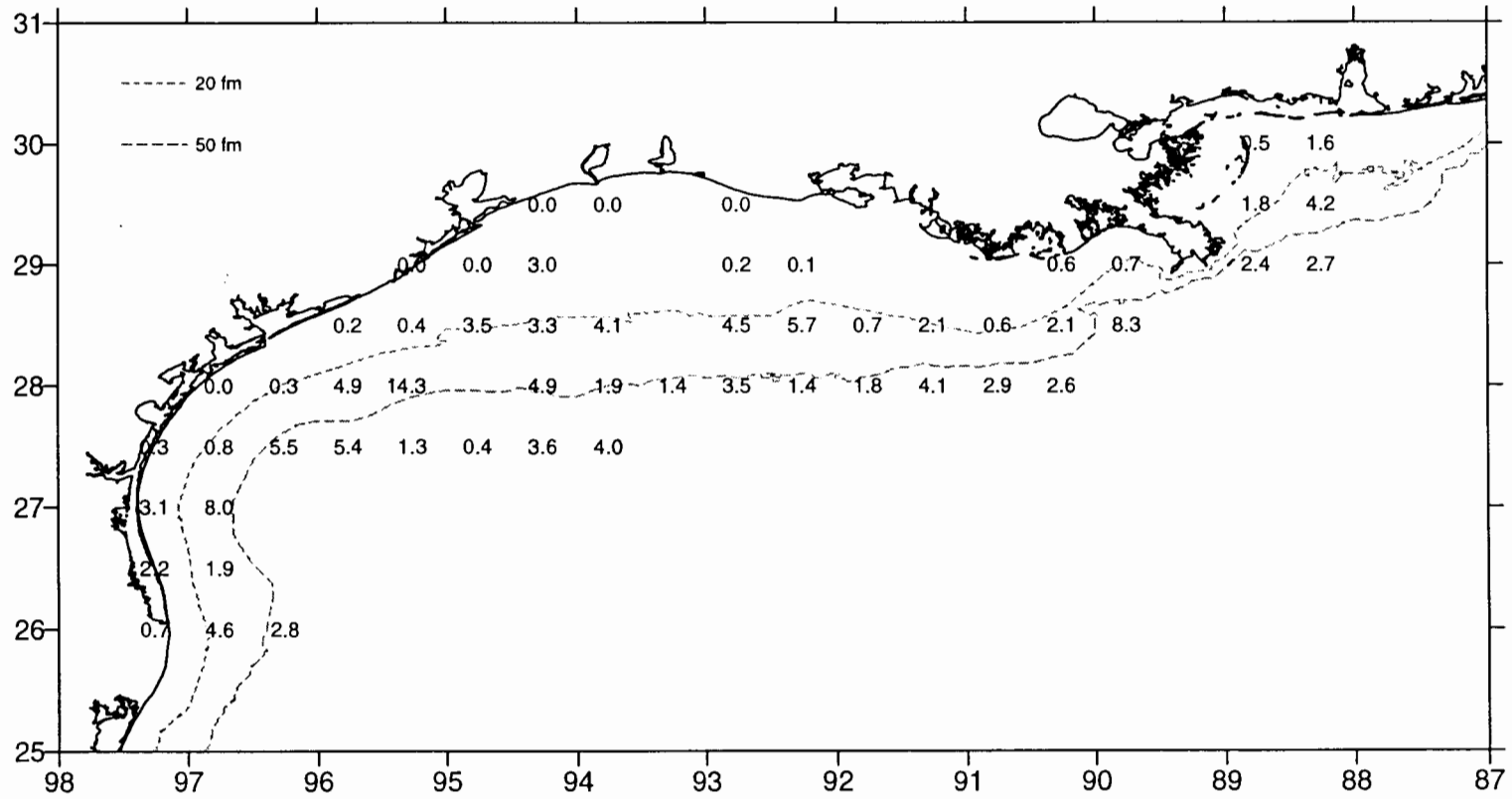


Figure 75. Brown shrimp, *Penaeus aztecus*, lb/hour for October-December 1998.

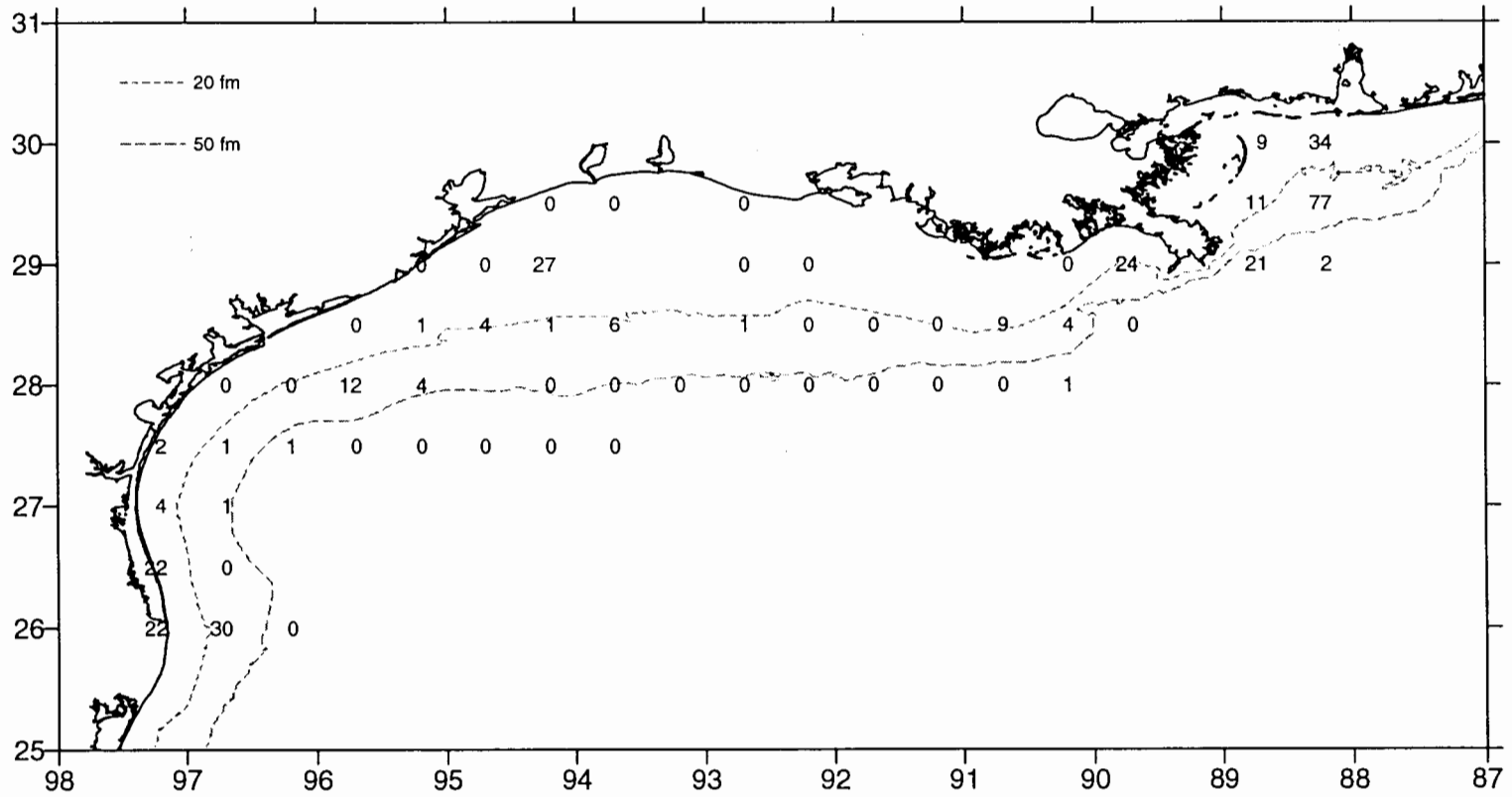


Figure 76. Pink shrimp, *Penaeus duorarum*, number/hour for October-December 1998.

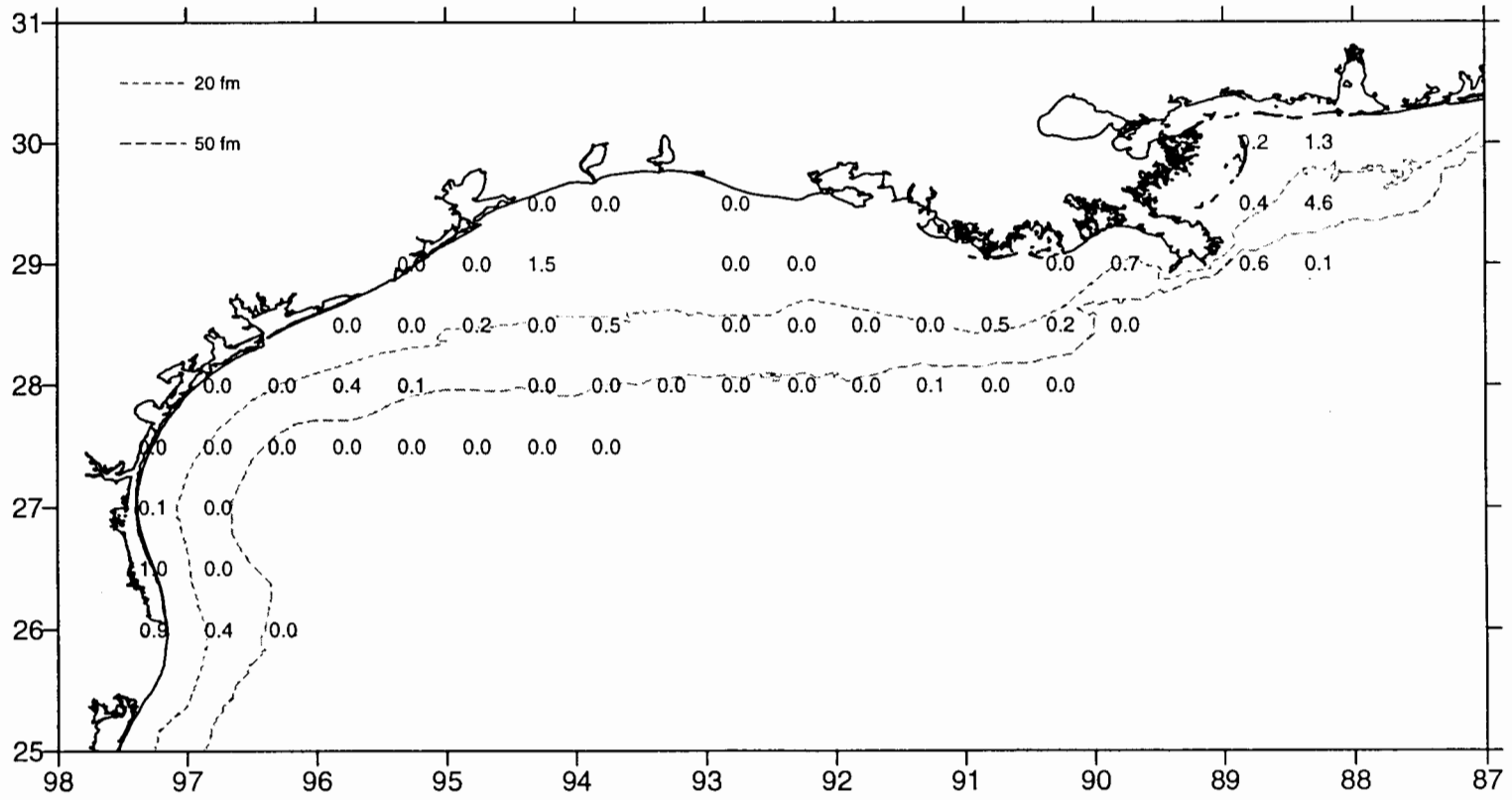


Figure 77. Pink shrimp, *Penaeus duorarum*, lb/hour for October-December 1998.

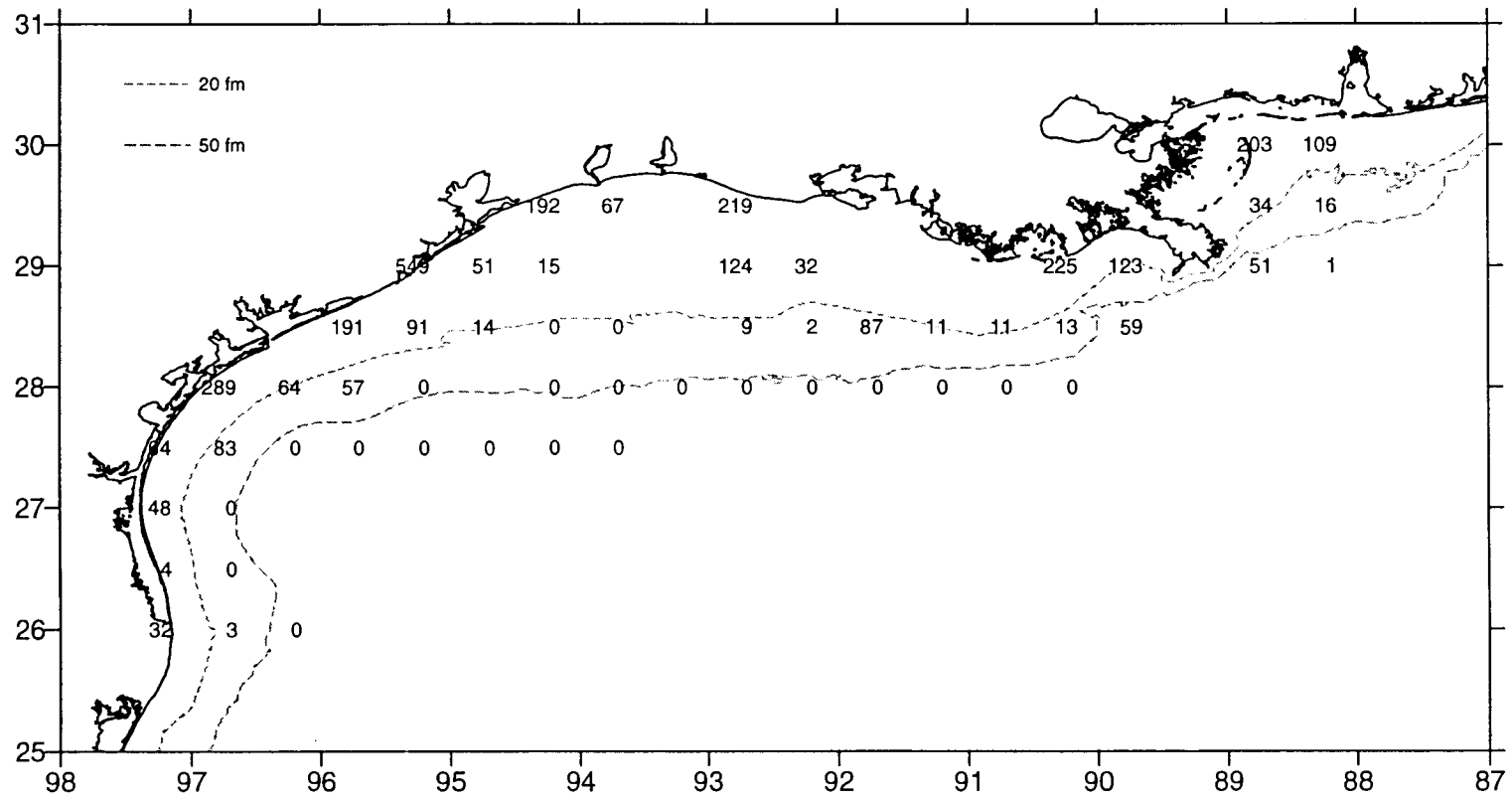


Figure 78. White shrimp, *Penaeus setiferus*, number/hour for October-December 1998.

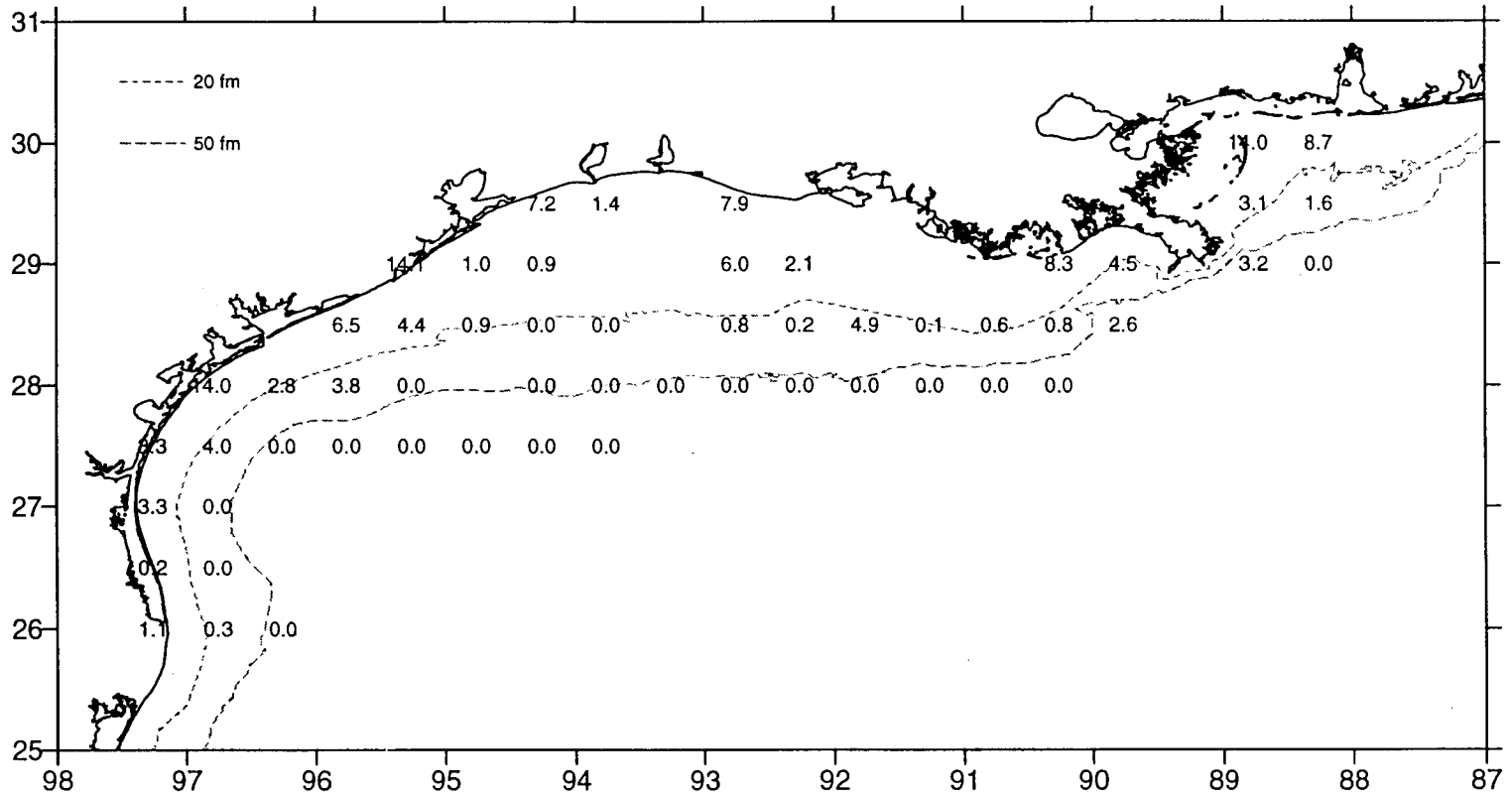


Figure 79. White shrimp, *Penaeus setiferus*, lb/hour for October-December 1998.

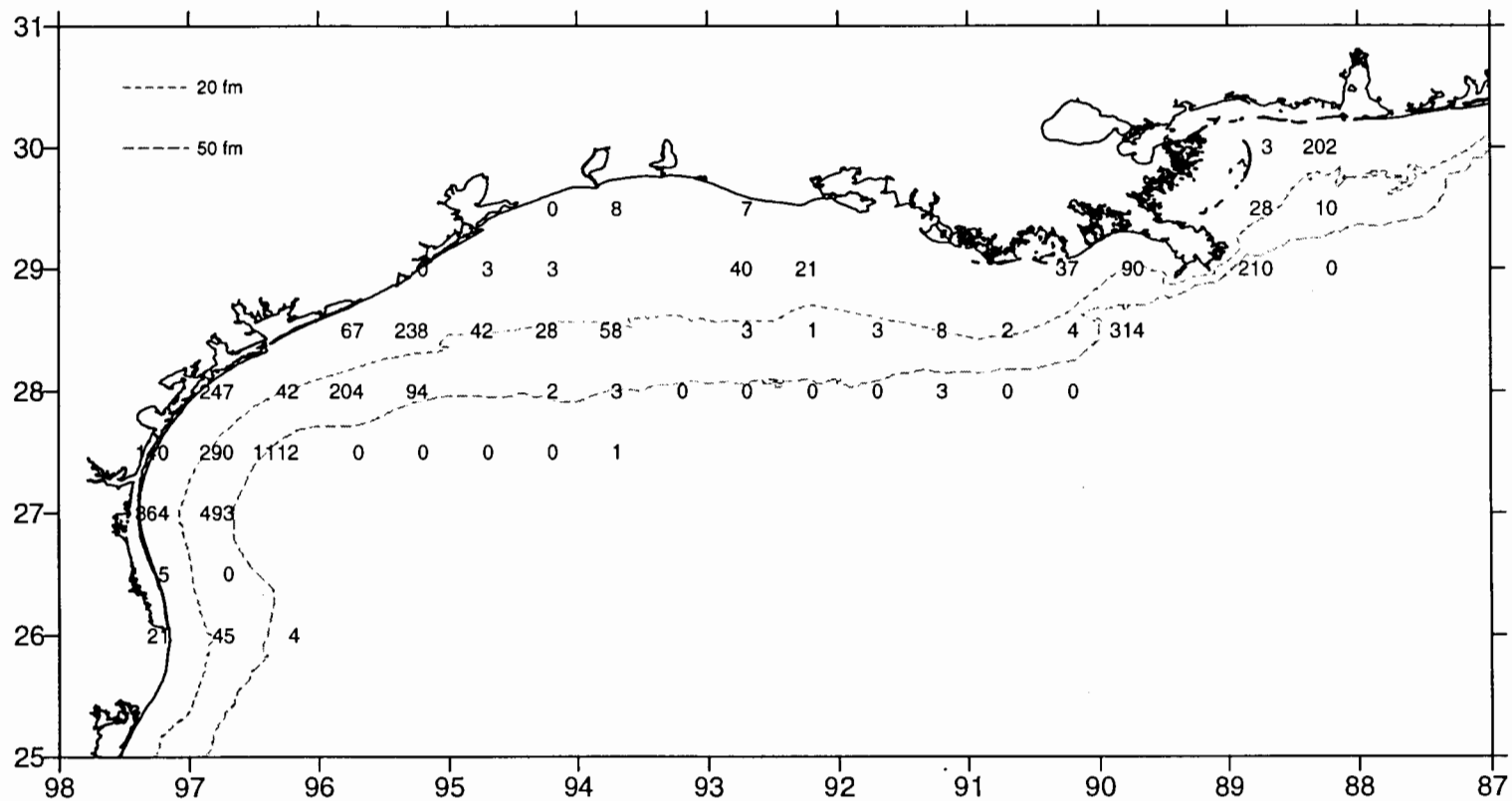


Figure 80. Roughback shrimp, *Trachypenaeus similis*, number/hour for October-December 1998.

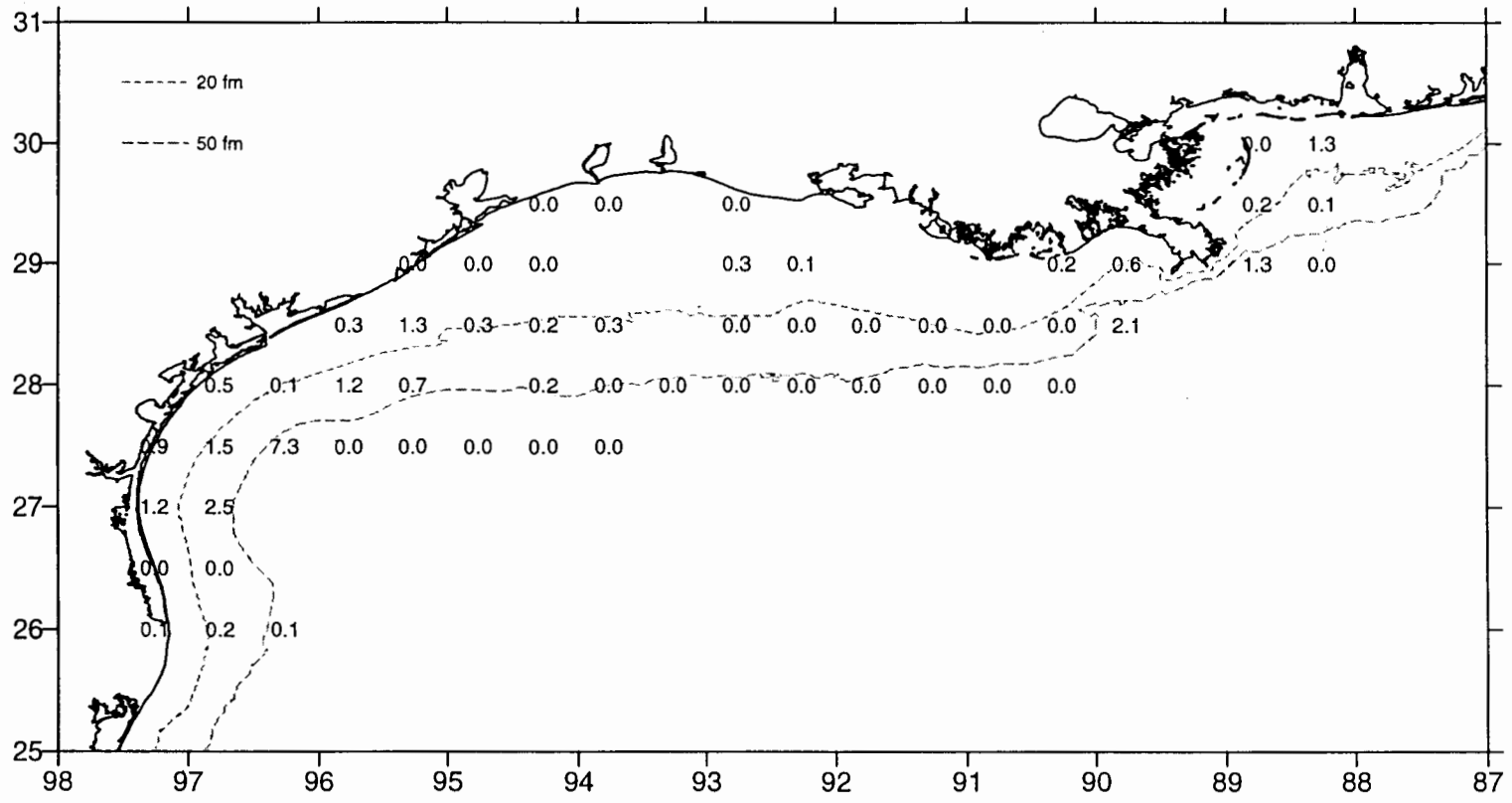


Figure 81. Roughback shrimp, *Trachypenaeus similis*, lb/hour for October-December 1998.

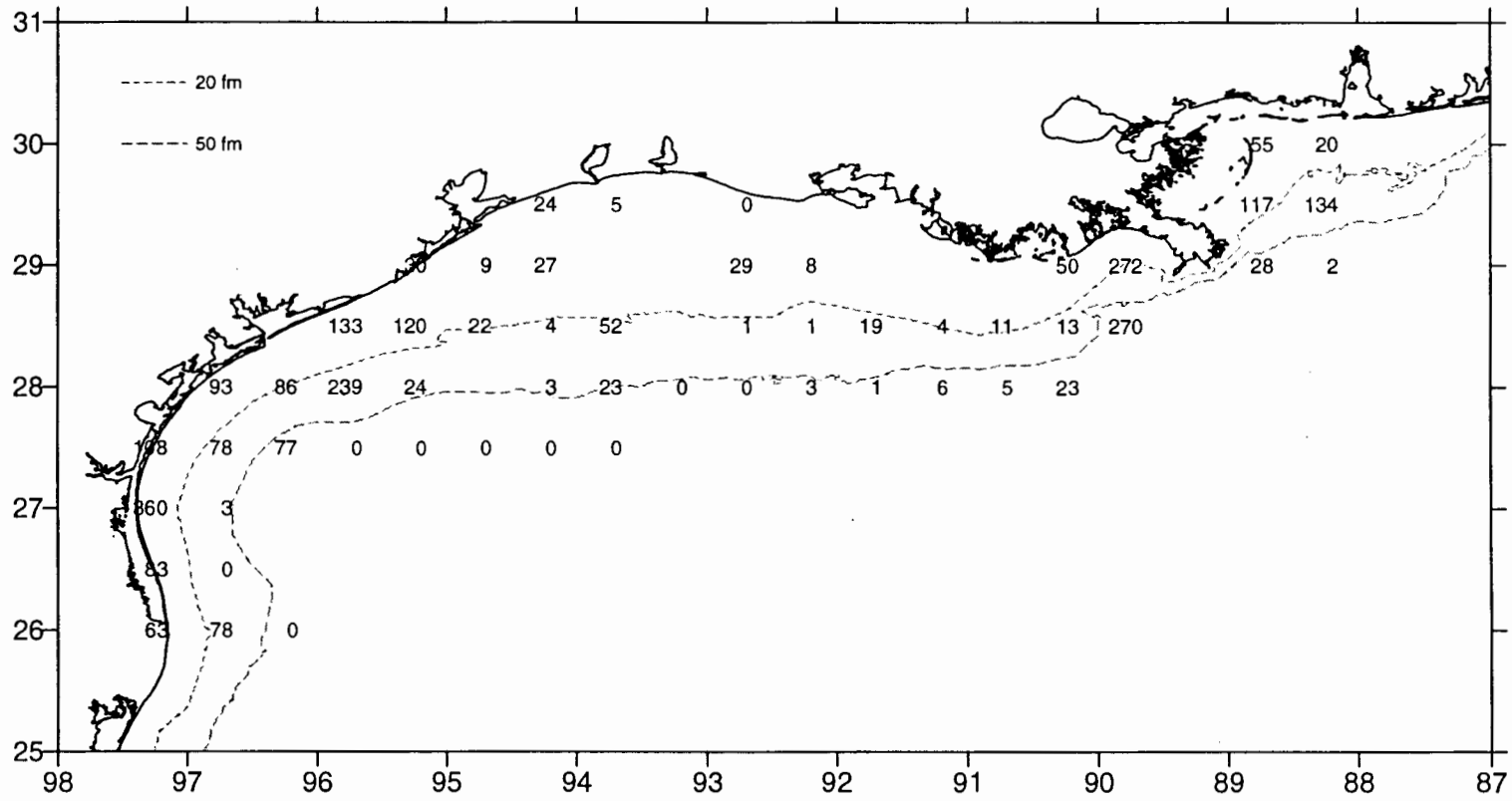


Figure 82. Iridescent swimming crab, *Portunus gibbesii*, number/hour for October-December 1998.

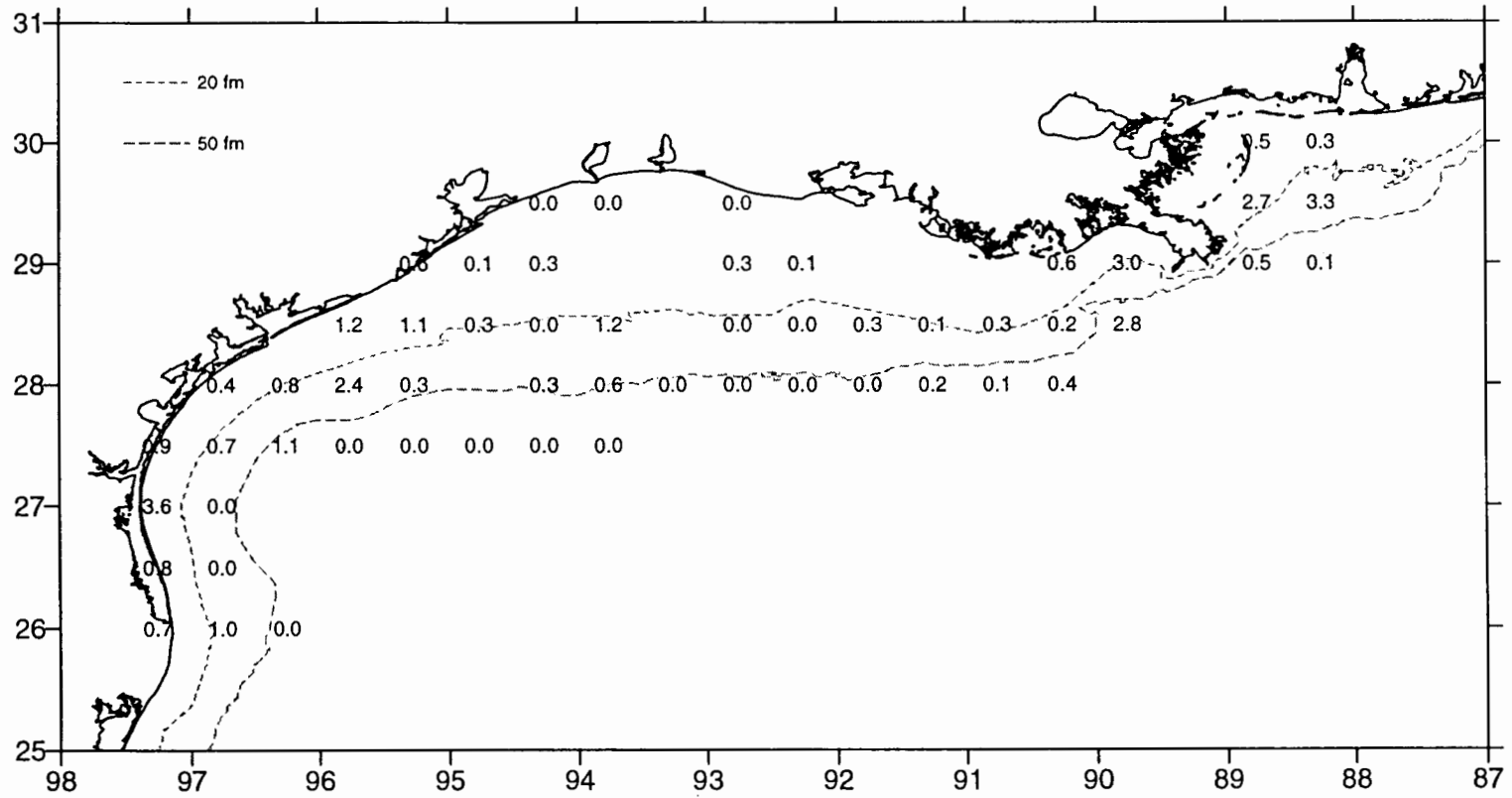


Figure 83. Iridescent swimming crab, *Portunus gibbesii*, lb/hour for October-December 1998.

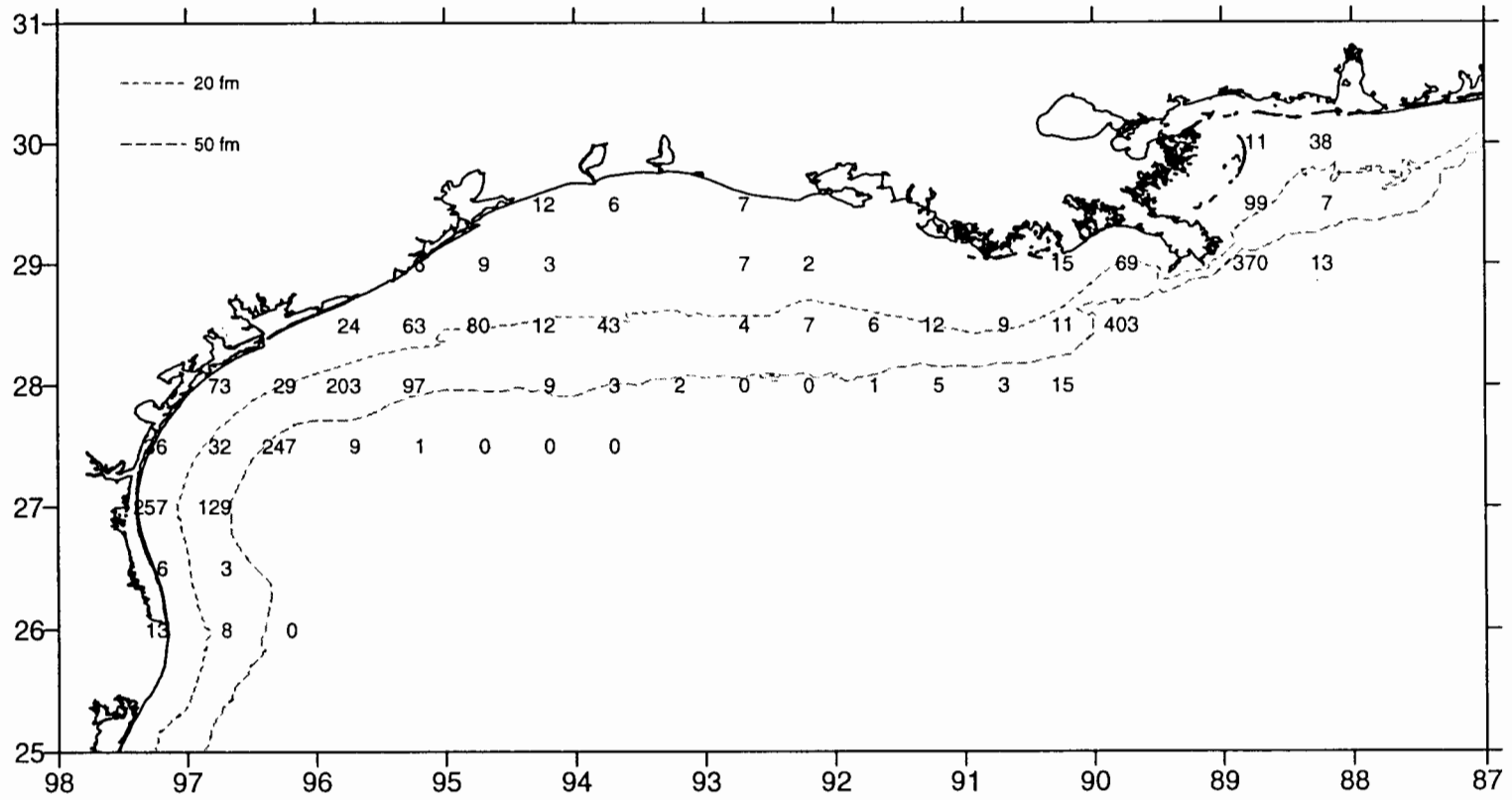


Figure 84. Lesser blue crab, *Callinectes similis*, number/hour for October-December 1998.

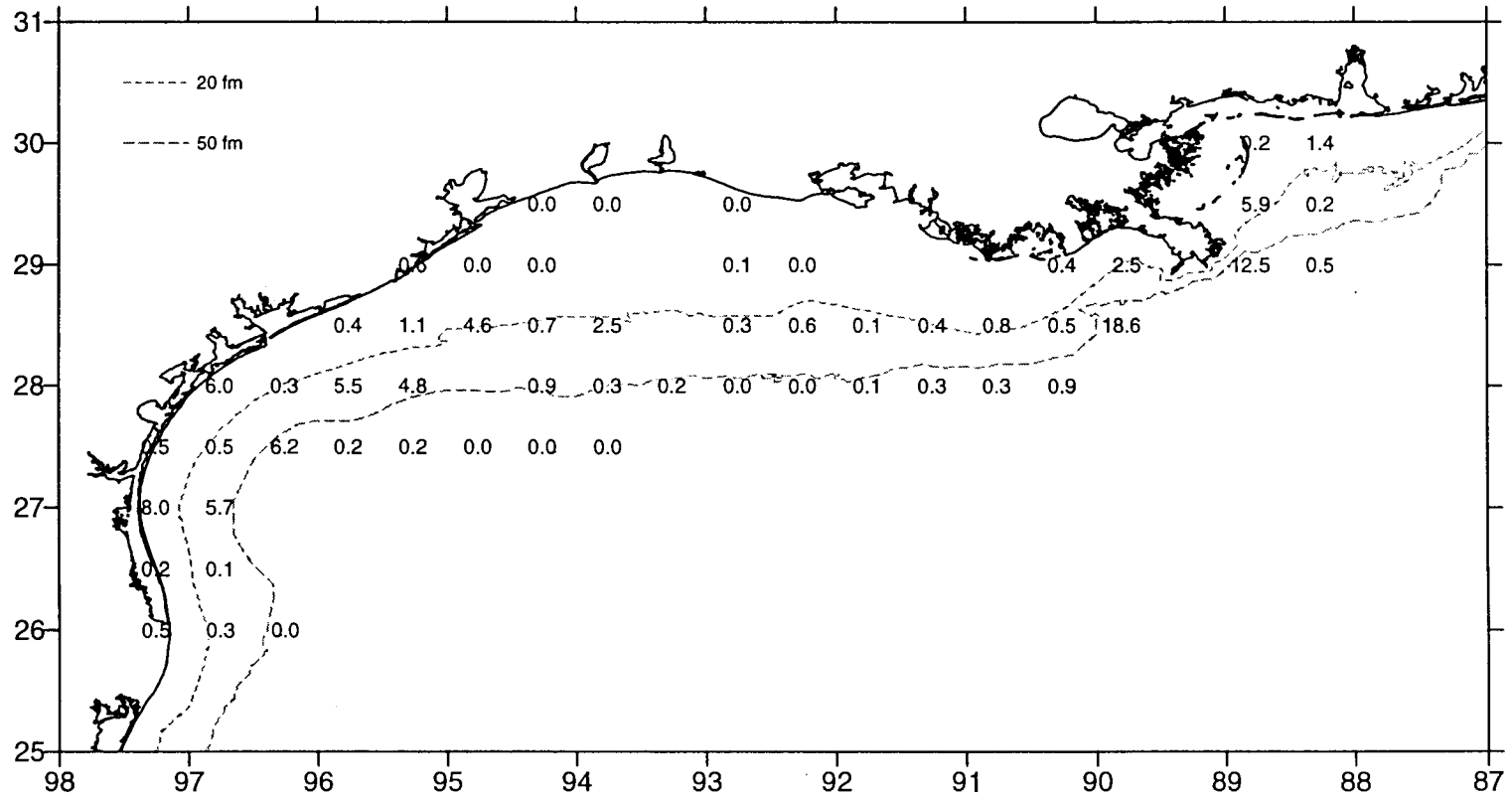


Figure 85. Lesser blue crab, *Callinectes similis*, lb/hour for October-December 1998.

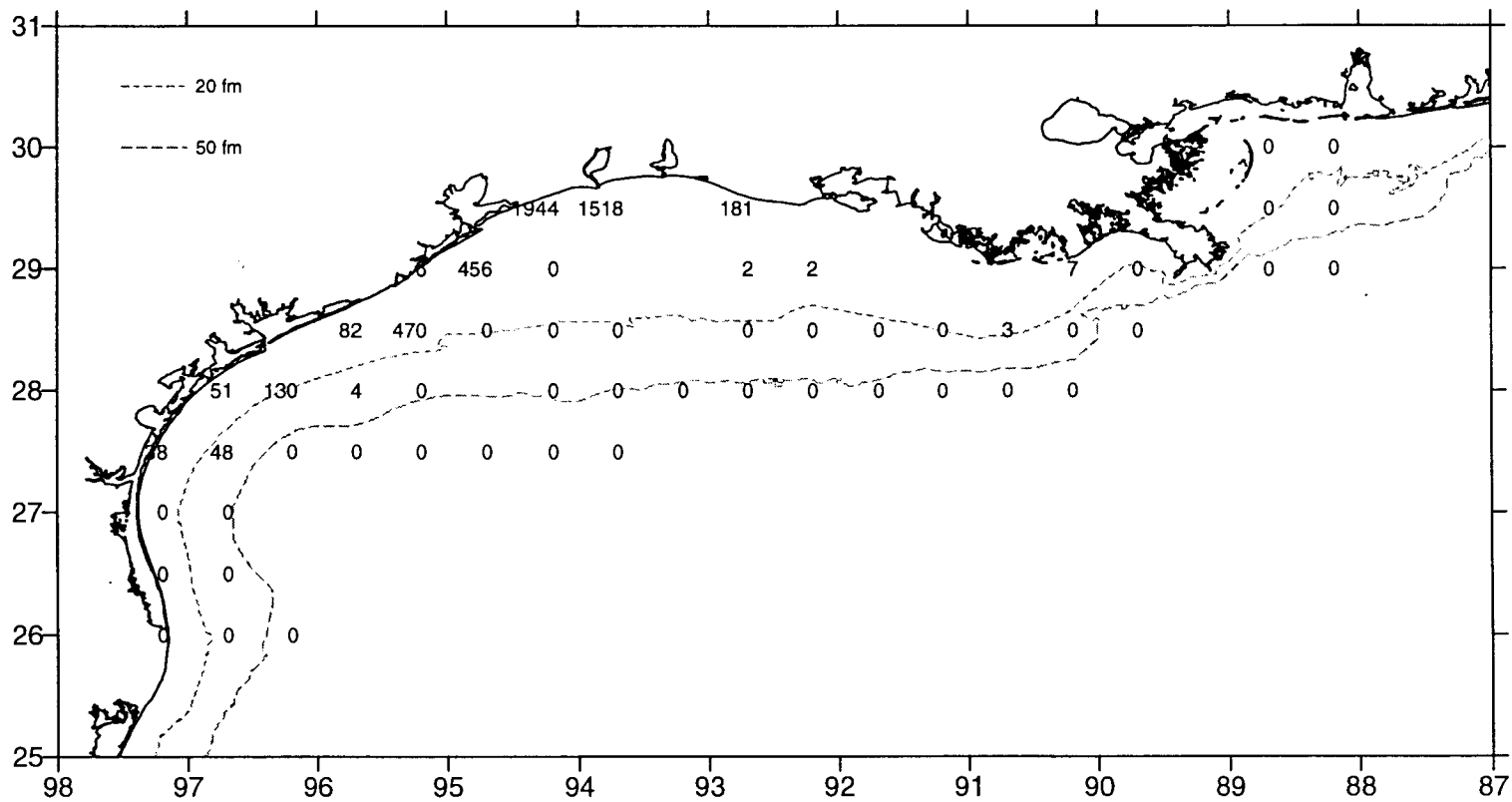


Figure 86. Seabob, *Xiphopenaeus kroyeri*, number/hour for October-December 1998.

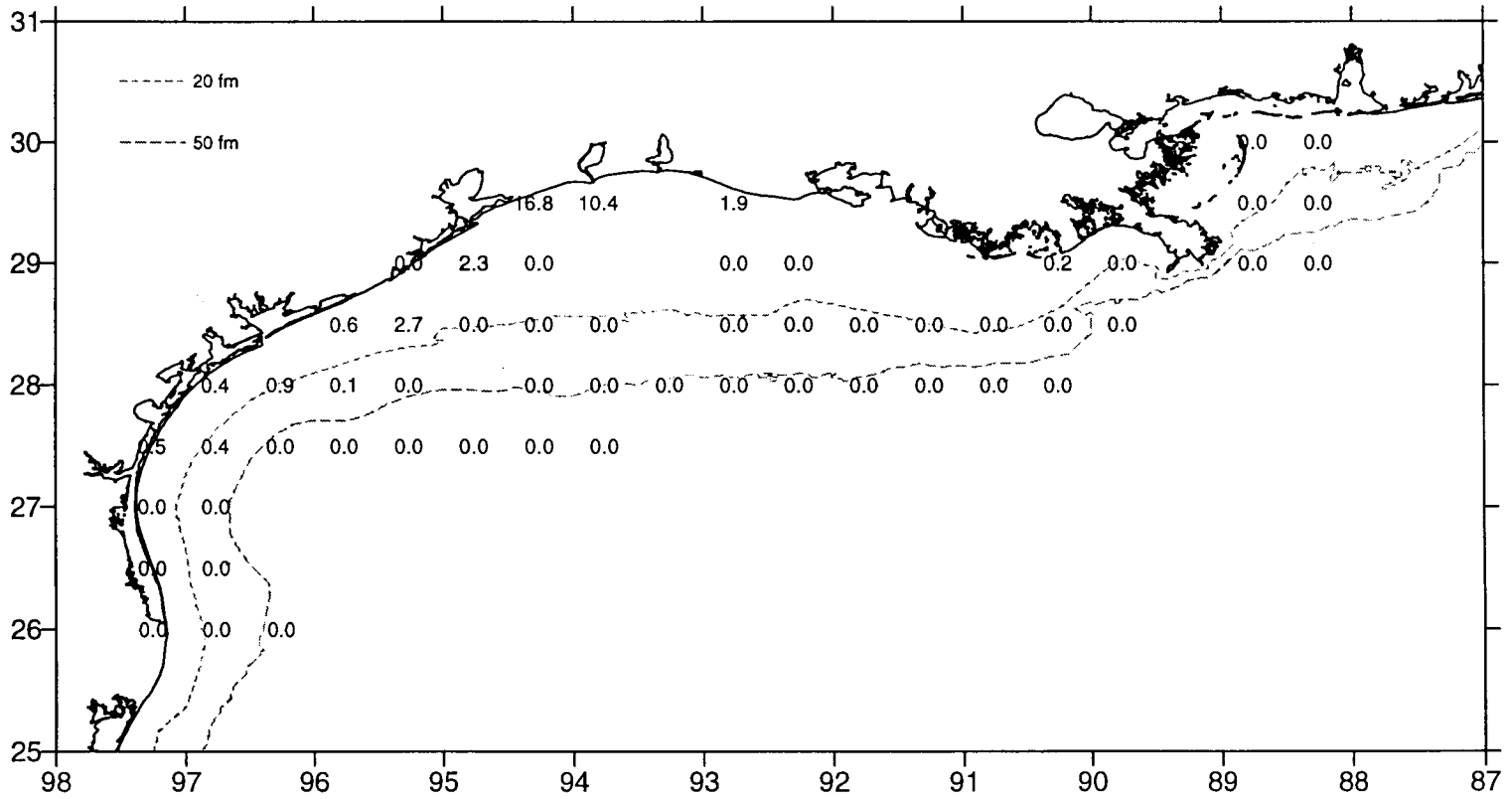


Figure 87. Seabob, *Xiphopenaeus kroyeri*, lb/hour for October-December 1998.

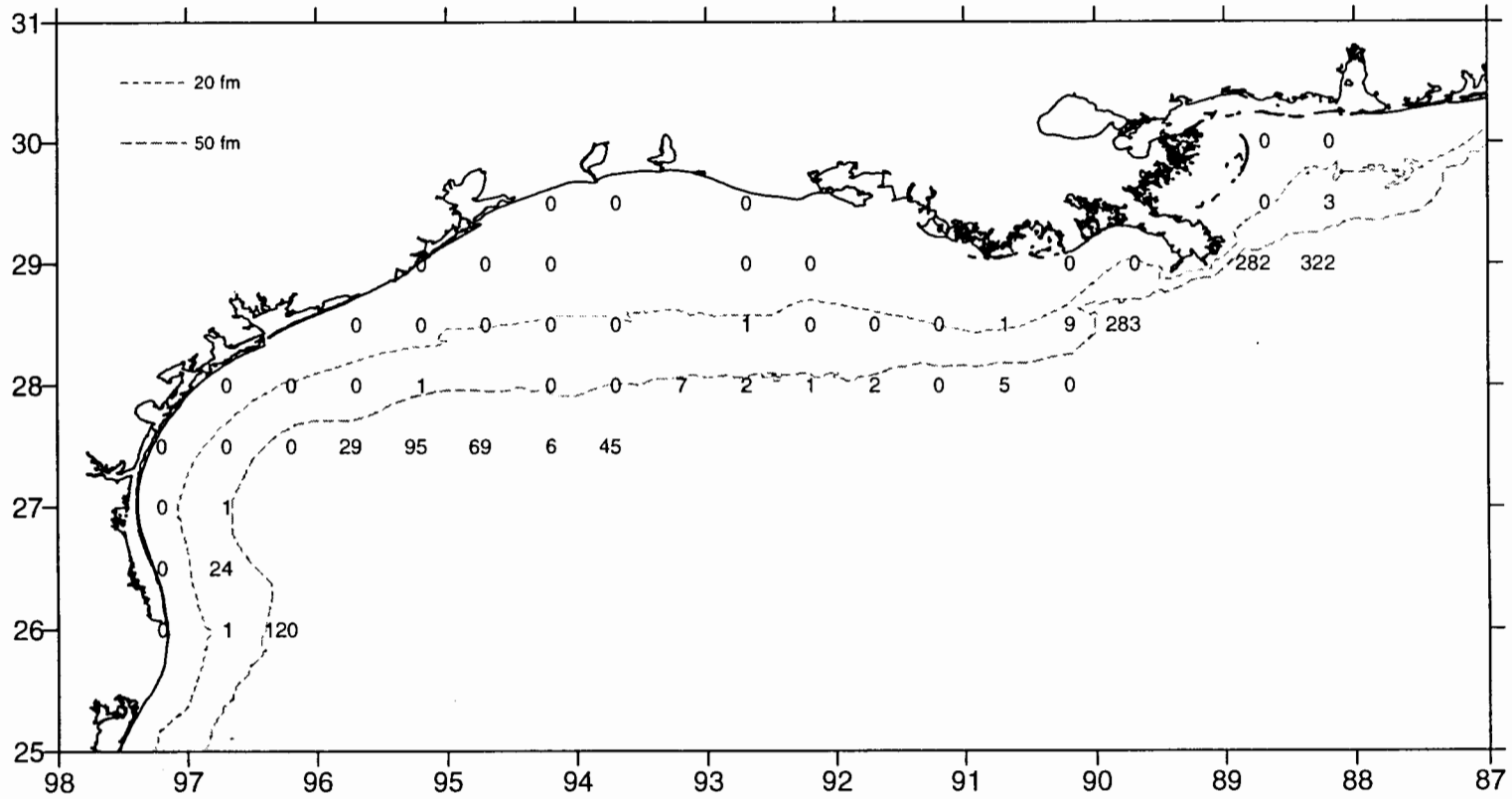


Figure 88. Longspine swimming crab, *Portunus spinicarpus*, number/hour for October-December 1998.

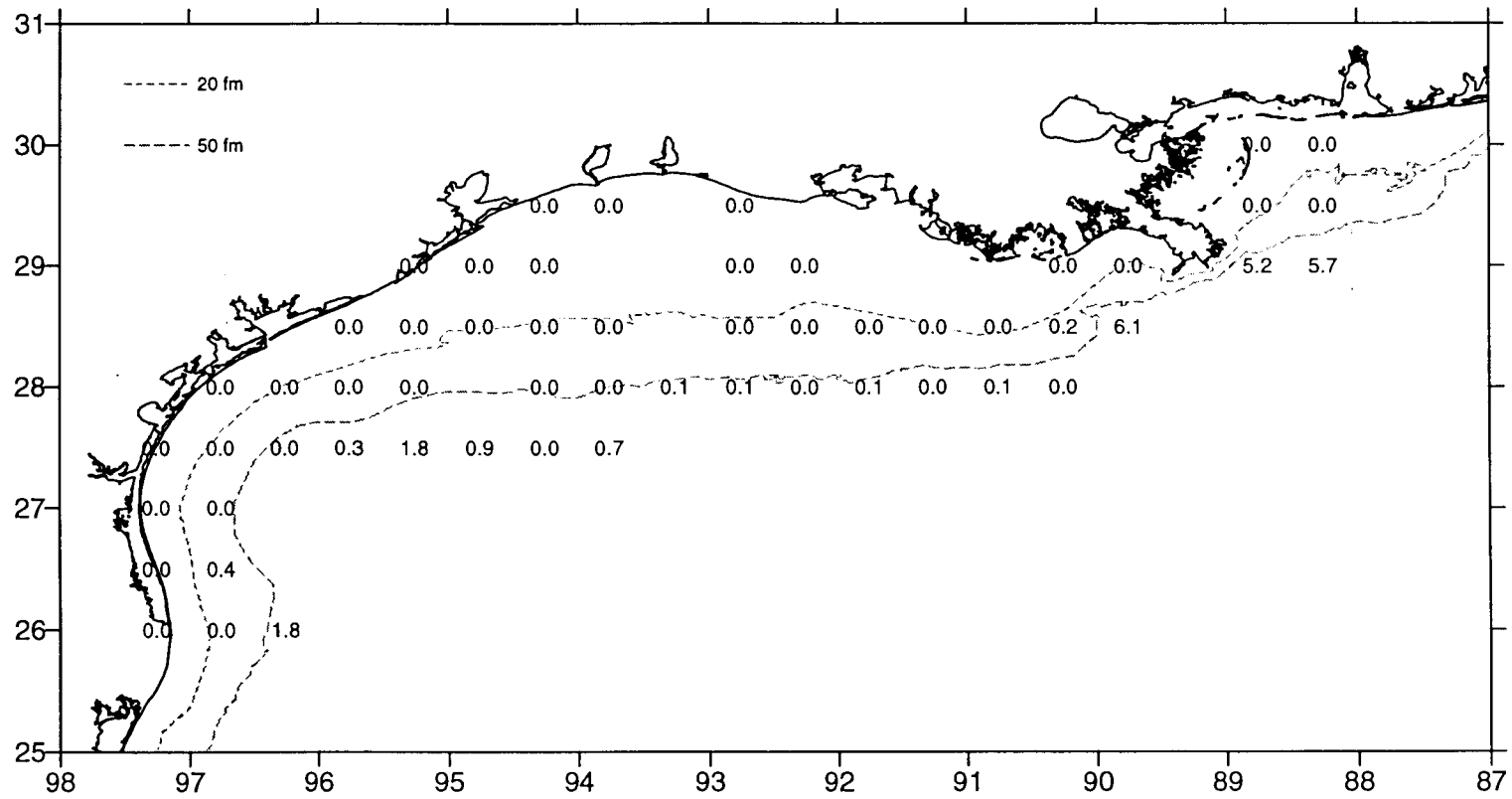


Figure 89. Longspine swimming crab, *Portunis spinicarpus*, lb/hour for October-December 1998.

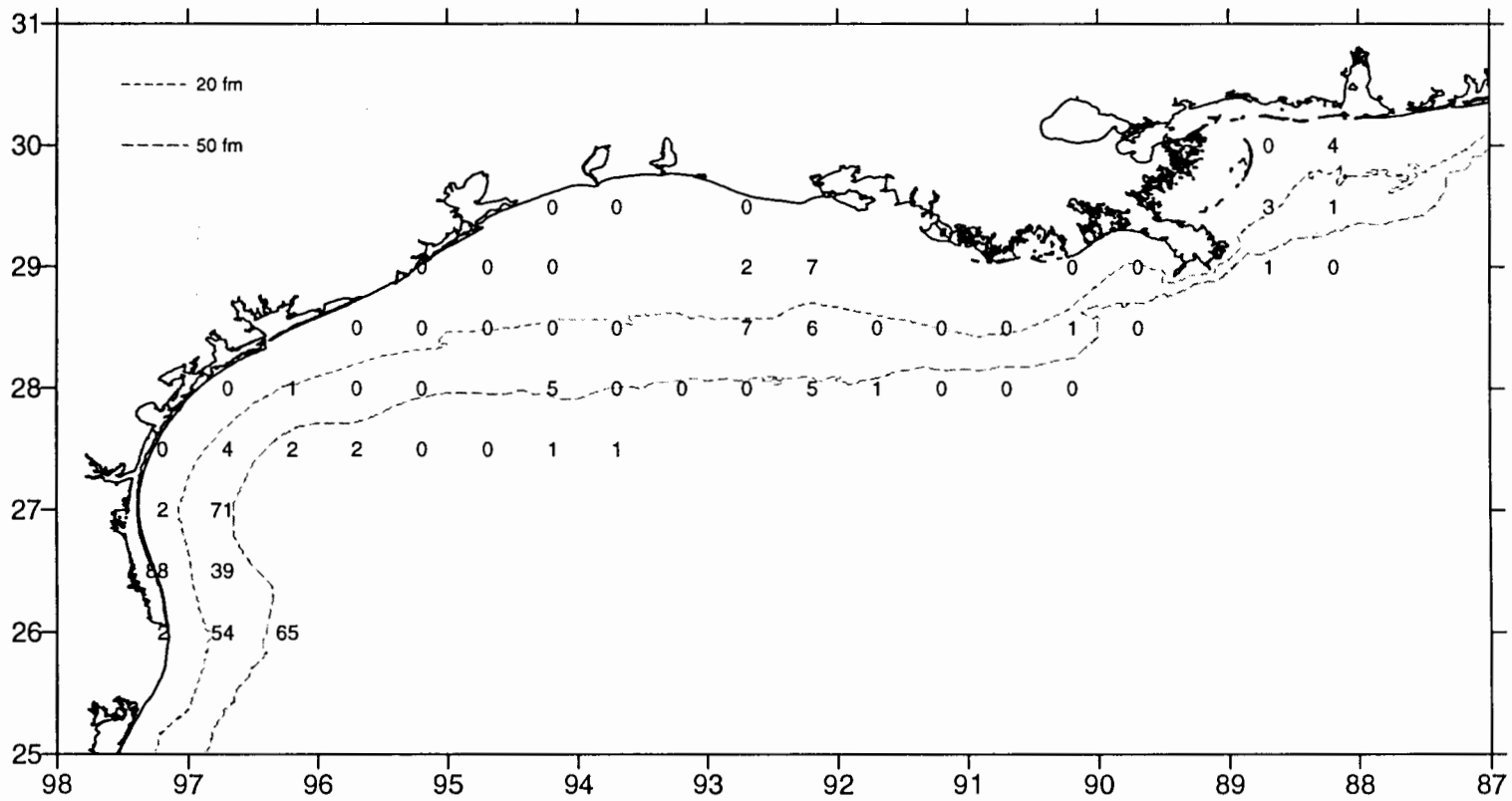


Figure 90. Arrow squid, *Loligo pleii*, number/hour for October-December 1998.

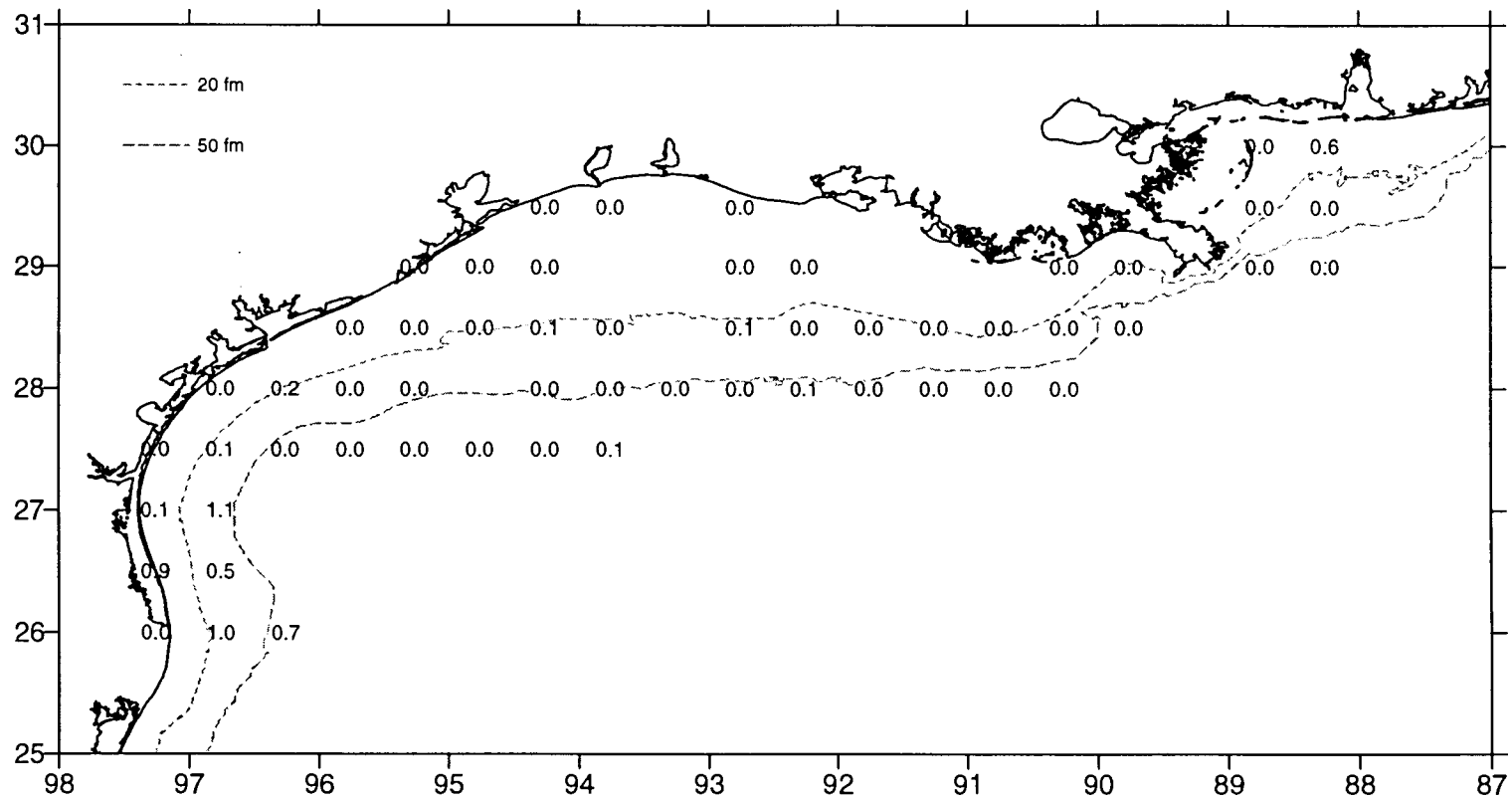


Figure 91. Arrow squid, *Loligo pleii*, lb/hour for October-December 1998.

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