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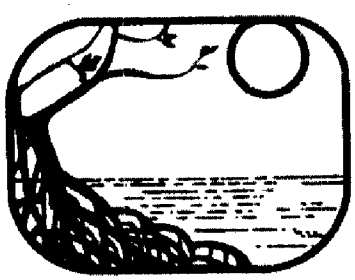

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Abstract

Data on survey methods and catches of fish eggs and larvae from 17 cruises during 1971-1974 to the Eastern Gulf of Mexico are summarized. A total of 867 plankton samples were collected. Data on station positions, surface temperatures, surface salinities, volume filtered by the net, depths of tow, zooplankton volumes, and detailed data on egg and larvae catches are included. Clupeid eggs and larvae were identified and data on their seasonal distribution and abundance are tabulated. In addition, charts showing the distribution and abundance of eggs and larvae of each clupeid species or genus are included. Spawning areas are delineated and briefly discussed. Standing stock estimates of clupeids in the Eastern Gulf and techniques used to obtain them are summarized in this report.

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Introduction

Fishery scientists believe that underexploited stocks of clupeid fishes in the Eastern Gulf of Mexico may have potential for development into major fisheries (Bullis and Carpenter, 1968; Bullis and Thompson, 1970; Fuss, Kelly and Prest, 1969; Klima, 1971). A NOAA Sea Grant to the University of Miami supported research to estimate the biomass of some clupeid stocks in the Eastern Gulf using seasonal surveys of their eggs and larvae as the means to determine adult abundance. Survey cruises began in 1971 and continued through 1974. In addition to estimating adult biomass other objectives included determination of: 1) fishery potential for the clupeid stocks; 2) the spawning areas and spawning seasons of the clupeid fishes; 3) abundance and distribution of clupeid egg and larval stages; 4) the relationship of spawning by clupeids to hydrographic factors in the Eastern Gulf.

The purpose of this report is to summarize data from 17 cruises to the Eastern Gulf. We have made no attempt to analyze data here, nor do we discuss the possible implications of these data on fishery development. Houde (in press) has summarized findings on clupeid stock abundance and he has also presented preliminary reports on this research (Houde, 1973 and 1974). Reports on individual species, including thorough data analyses, will be published in the future. A brief summary of standing stock estimates is presented in this report but details of the methods and estimating techniques are not included.

Species that were of major concern in the survey (Figure 1) are thread herring (Opisthonema oglinum), scaled sardine (Harengula jaguana), round herring (Etrumeus teres), Spanish sardines (Sardinella spp.),

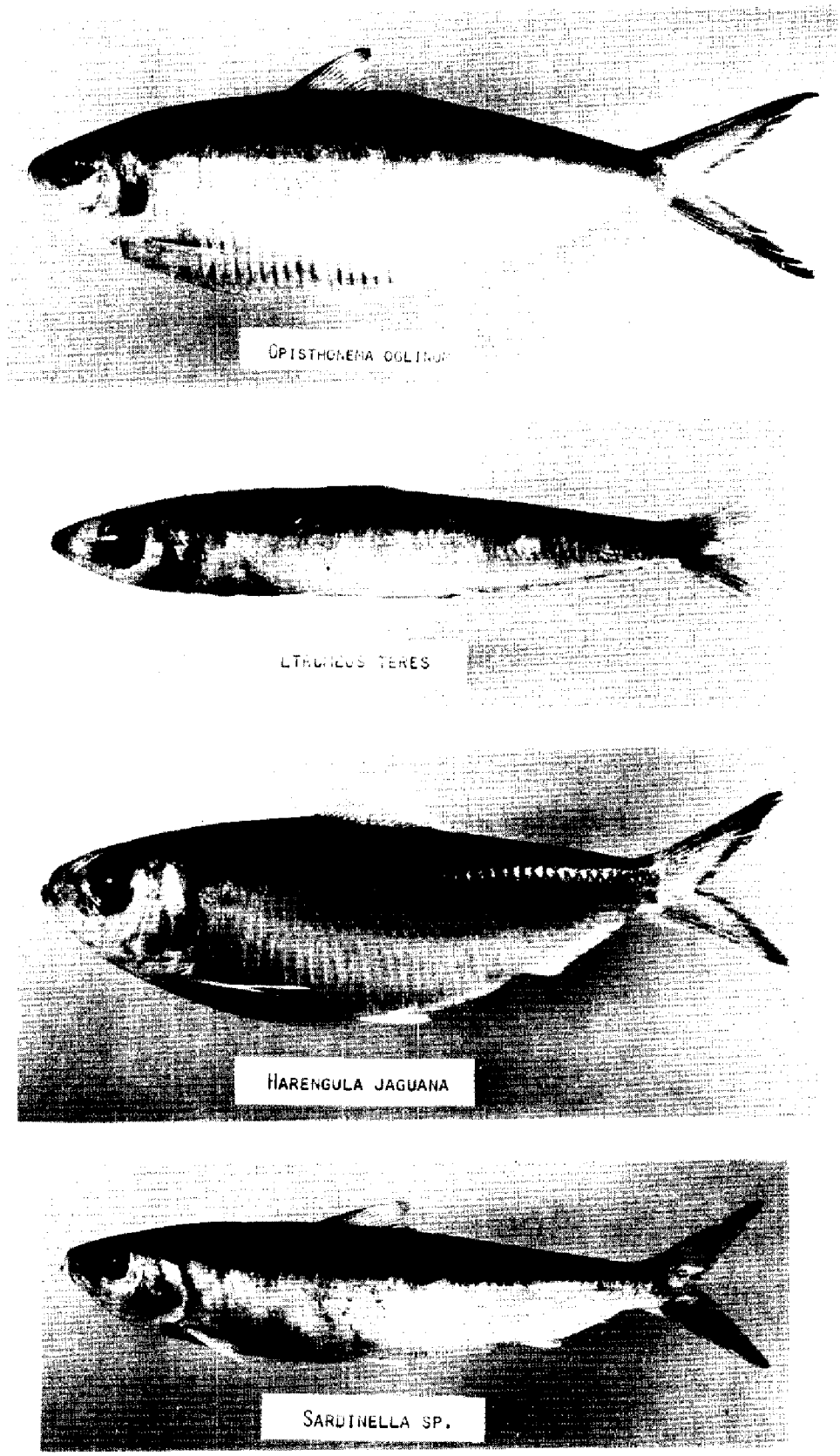

Figure 1. Four species of underexploited sardine-like fishes from the Eastern Gulf of Mexico.

and menhaden (Brevoortia spp.). We also examined the catches of anchovy eggs and larvae but were unable to identify them to species. Eggs and larvae of all other fishes were removed from our plankton samples, counted, and stored for possible future study.

The survey area (Figure 2) extended from latitude 24° 45' N (just north of the Dry Tortugas) to latitude 30° 15' N (just south of the Florida panhandle). Stations that were sampled for ichthyoplankton extended from the 10 m depth contour to the 185 m contour with a few stations located further offshore. Transects were spaced at 15 nautical mile (28 km) intervals; most stations were located at 15 mile (28 km) intervals on the transects except near the 185 m line, where station distances were increased to 30 miles (56 km). Not every station was sampled on each cruise. The possible stations, illustrated in Figure 2, were used on all cruises except GE 7101, the first of the survey cruises. Two cruises in 1974, designated CL 7405 and CL 7412, included stations in addition to those shown in Figure 2. Some of the additional stations on those cruises were located in water between the 4 and 10 m depth contours.

The 17 cruises from 1971 to 1974 are listed in Table 1. Some cruises in 1971 and 1972 were multiship operations, the cruises being part of the EGMEX and Western Florida Continental Shelf Programs. These cruises were part of a cooperative effort designed to examine many physical, chemical, and biological phenomena in the Eastern Gulf of Mexico (Rinkel, 1971 and 1974). The National Marine Fisheries Service also was a cooperator in the ichthyoplankton survey during 1971 as part of their MARMAP program, but did not continue work in this area during subsequent years.

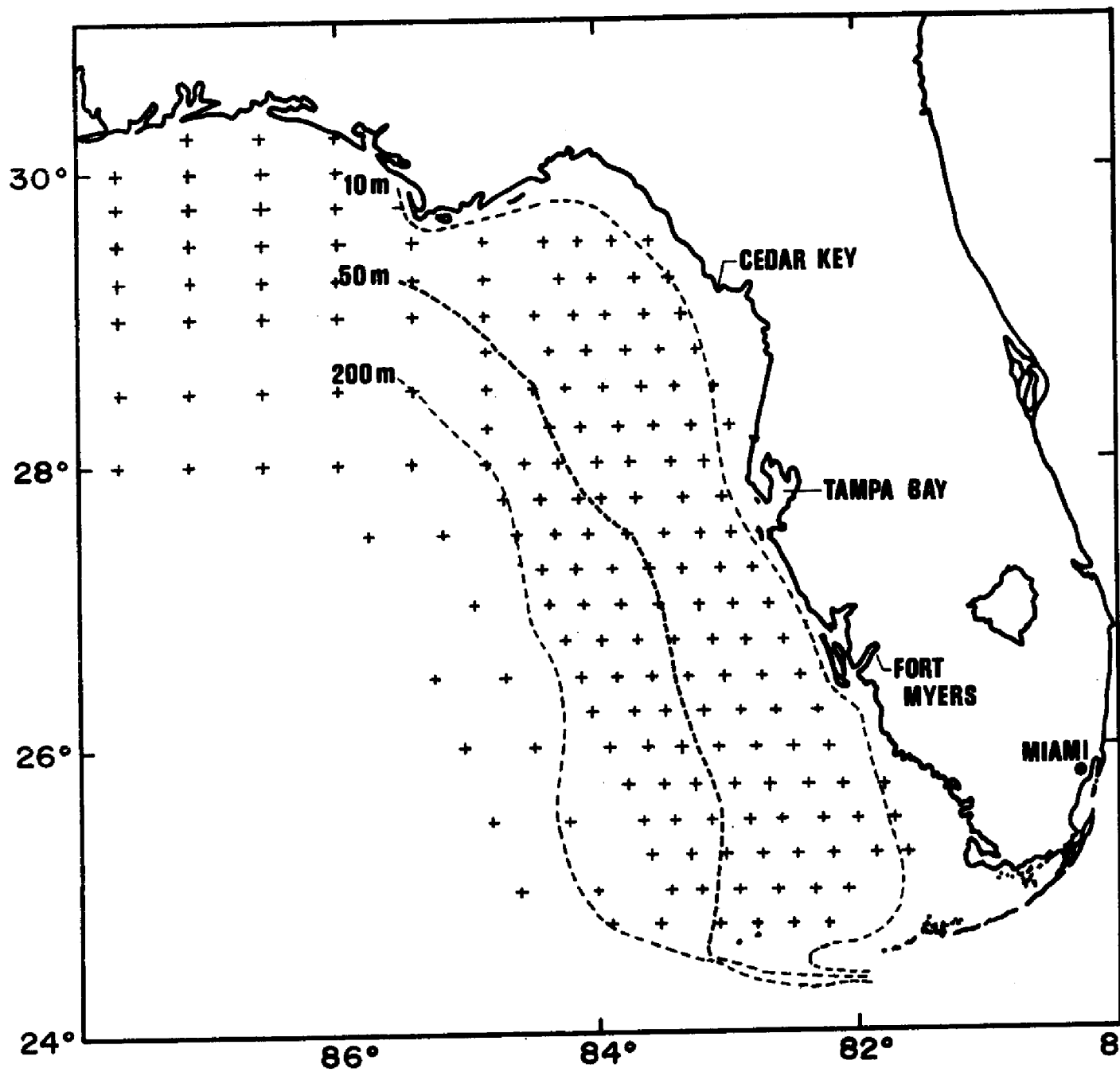

FIGURE 2.
CHART OF THE ICHTHYOPLANKTON SURVEY AREA, SHOWING SAMPLING STATIONS AND DEPTH CONTOURS.

Survey Methods

Five cruises were completed each year from 1971-1973 and two were completed in 1974. An attempt was made to schedule cruises so that spawning seasons of important clupeids could be delineated, but it was not always possible to schedule cruises at the desired times. We purposely tried to increase our sampling effort during spring and summer months because we thought that most clupeid spawning would occur during those seasons. Cruises, dates, and numbers of stations that were sampled are given in Table 1. Most cruises were of at least 9 days' duration. Numbers of stations ranged from 13 to 146 for a given cruise, the mean being 51 stations. A total of 867 ichthyoplankton samples was collected during the survey.

Stations that were sampled varied during 1971 and part of 1972, but a relatively stable sampling pattern was established beginning with cruise IS 7205 (Table 1). In this pattern alternate transects were sampled (Figure 2). The three nearshore stations (15 mile intervals) on each of those transects were sampled; additional samples were collected at alternate stations on the same transects (30 mile intervals). Thus, transects were spaced at 30 mile intervals and stations were located at either 15 or 30 mile intervals on the transects. Each station represented an area described by a polygon that was determined by the method of Sette and Ahlstrom (1948).

Ichthyoplankton was collected in the paired 61-cm mouth opening, Bongo net sampler (Posgay, Marak and Hennemuth, 1968) (Figure 3). Meshes on the samplers were 333 um and 505 um. The single exception

was cruise GE 7101, when an ICITA, 1-m plankton net with 505 um mesh was used. Ichthyoplankton was sorted from the 505 um mesh samples; plankton volumes were determined from the 333 um mesh samples for cruises from 1972-1974. A flowmeter was placed in the mouth of the 505 um mesh net to determine volume filtered during each net tow. A time-depth recorder was attached to the Bongo gear to record the characteristics of tows. Nets were towed at approximately 3.0 to 3.5 knots during 1971 but ship speed was reduced in subsequent years, and net speed averaged 2.3 knots during 1972-1974. Net tows were made during both day and night; a station was sampled at the time that the ship occupied it.

Double oblique net tows were made on all cruises. Tows were made to within 5 m of bottom or to 200 m depth at deep stations. For cruises GE 7101 through 8B 7201-GE 7202 (Table 1) the tow consisted of wire release at 50 m/min until the desired depth was reached, followed by wire retrieval at 20 m/min. For the remaining cruises two types of tow were used, the choice depending on water depth at the station. At stations less than 55 m deep a 5 min tow was designated, consisting of 1 min for wire release to desired depth and 4 min for wire retrieval. This "standard tow at shallow stations" filtered approximately 100 m^3 of water. At stations deeper than 55 m the tow consisted of wire release to desired depth at 50 m/min and wire retrieval at 20 m/min. Volumes filtered at those stations varied from 100 to 400 m^3, the volume increasing as station depth increased. Each tow was monitored with a stopwatch and the angle of stray of the towing wire was measured at the end of each minute of a tow. Nets were towed from the side of all vessels used, except for R/V CALANUS in cruises CL 7405 and

CL 7412, in which net tows were made from the vessel's stern.

A 2 m x 1 m rectangular frame neuston net with 947 um mesh was towed at 4 knots for 10 minutes at some stations on all cruises made during 1972 and 1973. Catches from these tows are being stored and data are on file at the National Marine Fisheries Service, Southeast Fisheries Center, Miami, Florida.

Plankton nets were washed down with seawater before the codends were removed at the end of a tow. Plankton was preserved in 10% seawater formalin and buffered with marble chips (Figure 4). Samples were brought to the laboratory for sorting, volume determination, and organism identification.

Hydrographic data were collected at each station.[1] These included data on distribution of temperature and salinity with depth. A mechanical BT provided a trace of the temperature structure at each station. This was followed by a hydrocast consisting of 1.7 liter Niskin bottles equipped with reversing thermometers. Salinity samples were brought to the laboratory for analysis. On cruises IS 7308 and IS 7320 an STD was used instead of the Niskin bottles. The STD was used at some stations on cruises IS 7311 and IS 7313.

Laboratory Procedures

After samples had been brought to the laboratory and stored for one month, the 10% seawater formalin was replaced with 5% formalin buffered with marble chips. The 333 um mesh Bongo net samples were stored for at least two months before zooplankton volumes were determined (Houde and Chitty, in press) using a displacement volume method like

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[1] Hydrographic data are on file with the National Oceanographic Data Center and can be retrieved from their MAFLA file.

Figure 3. Photograph of 61-cm Bongo net array about to be brought on board after completion of a plankton tow.

Figure 4. Photograph of a typical plankton sample with larval fishes from the Eastern Gulf of Mexico.

that described by Thrailkill (1969) and Kramer et al. (1972). All fish eggs and larvae were removed from the 505 um mesh samples with the aid of a binocular microscope at 12x. Clupeid and engraulid eggs and larvae were identified and counted. Clupeid larvae were measured with an ocular micrometer in a binocular microscope. Samples of clupeids and engraulids, and the remaining unidentified eggs and larvae, were accessioned into collections and are being stored in 5% formalin.

Data Processing and Reduction

Master station logs, ichthyoplankton sampling logs, and hydrographic station logs were completed for each station on cruises listed in Table 1. A cruise report was prepared describing results of each of the cruises. Computer printouts of Master Station Records for each cruise list the following information: ship, cruise number, station, latitude, longitude, date, station arrival time, time zone, surface temperature, gear code, types of observations, and times for operations.

Ichthyoplankton data from each cruise were reduced and summarized in a computer program "ELSUM". This program lists for each station the volume filtered (m^3) by the Bongo net, the depth of the tow (m), the area represented by the station ($m^2 \times 10^{-9}$), the plankton volume (ml per 1000 m^3), surface temperature, and surface salinity. Egg and larvae catches at each station are listed; the taxa are represented by a bionumeric code developed by the National Marine Fisheries Service, Pascagoula Laboratory. The total catch at each station for each taxon is listed, the estimated number under 10 m^2 of sea surface is calculated, and the total number estimated in the area represented by the station

is given. In addition, for larvae that were measured, the length-frequency distribution by 0.5 mm length-classes is presented along with the estimated number in each 0.5 mm length-class under 10 m^2 of sea surface, and the estimated total number in each length-class for the area represented by the station. A cruise summary lists the total catches of eggs and larvae in each taxon for the cruise as well as the estimated total number in the cruise area. A composite length-frequency distribution, based on all stations in the cruise, for larvae that were identified and measured is given by 0.5 mm length-classes, and the estimated total number of larvae within each length-class in the area represented by the cruise is calculated.

To calculate numbers of individuals under 10 m^2 of sea surface, the following formula was used:

$$n_j = \frac{c_j z_j}{v_j} .10 \qquad 1)$$

n_j = the number of individuals at station j under 10 m^2 of sea surface.

c_j = the catch of eggs or larvae at station j.

z_j = the depth of tow (m) at station j.

v_j = the volume filtered (m^3) at station j.

The estimated total numbers of eggs or larvae in the area represented by the station is:

$$P_j = \frac{c_j z_j}{v_j} .A_j \qquad 2)$$

p_j = estimated total number of eggs or larvae in area represented by station j.

A_j = the area (m^2) represented by station j. Areas were determined by the method of Sette and Ahlstrom (1948).

The cruise estimates for eggs or larvae are given by:

$$P_{i.} = \sum_{j=1}^{k} p_j \qquad 3)$$

$P_{i.}$ = cruise estimate (i.e. the total number of eggs or larvae estimated in the area represented by cruise i).

k = the total number of stations sampled during cruise i.

Data Summary

The survey consisted of 17 cruises in which a total of 867 ichthyoplankton stations was sampled from 1971-1974. The number of fish eggs sorted from samples totalled 304,620; number of larvae was 143,034 (Table 1).

The mean number of a particular taxon of eggs or larvae under 10 m^2 of sea surface for a cruise was calculated from:

$$\bar{n}_{i.} = 1/k \sum_{j=1}^{k} n_j \qquad 4)$$

$\bar{n}_{i.}$ = mean number under 10 m^2 of sea surface for cruise i.

k = number of stations sampled on cruise i.

n_j = number under 10 m^2 of sea surface estimated at station j.

Mean numbers of eggs under 10 m^2 of sea surface ranged from 163.1 for IS 7320 to 927.1 for CL 7412; mean numbers of larvae under 10 m^2 ranged from 55.3 for CL 7405 to 825.4 for IS 7205 (Table 1). Houde and Chitty (in press) have summarized data on seasonality, distribution,

and abundance of total fish eggs, fish larvae, and zooplankton volumes for cruises made during 1972-1974.

The total number of clupeid eggs from the 867 stations was 32,095, 10.54% of the total fish egg catch. Number of clupeid larvae totalled 29,087, 20.34% of the total larvae (Table 2). Engraulid eggs were relatively uncommon in our tows, perhaps due to extrusion through the 505 um meshes of the Bongo net. Only 890 engraulid eggs were sampled (0.29% of total eggs) but 2879 larvae were present (2.01% of total larvae) (Table 2). Clupeid egg and larvae abundance, represented by mean numbers under 10 m^2 of sea surface, varied seasonally, highest numbers occurring during spring and summer months (Table 2).

Data for each clupeid species or genus are summarized in Table 3. Menhaden (Brevoortia spp.) spawned in winter; a total of 3042 eggs and 87 larvae was sampled. Thread herring (Opisthonema oglinum) spawned during spring and summer; a total of 4236 eggs and 11,255 larvae were collected. Spanish sardines (Sardinella spp.) spawned throughout the year in the Eastern Gulf; 1446 eggs and 12,248 larvae were collected. The scaled sardine (Harengula jaguana) is a spring and summer spawner; 19,183 eggs and 3828 larvae were sampled. Round herring (Etrumeus teres) spawned from November through May; 4186 eggs and 938 larvae were collected. For each clupeid, Table 3 also gives the mean number of eggs or larvae estimated under 10 m^2 of sea surface during each cruise.

Summaries of station data for each of the cruises are presented (Tables 14, 16, 18, ..., 46). Tabulated data include station positions, surface temperature, surface salinity, volume filtered by the 505 um Bongo net, depth of the Bongo net tow, zooplankton volume,

and total catches of fish eggs and larvae. Each of those tables is followed by summarized data on catches of clupeid genera and species at each station in the cruise (Tables 15, 17, 19, ..., 47).

Species Summaries

Thread Herring (*Opisthonema oglinum*)

The numbers and percentages of stations at which thread herring eggs and larvae occurred are listed in Table 4. All cruises, except GE 7101, are listed in this table. Both larvae and eggs occurred at the highest percentage of stations in the spring and summer months. The estimated total number of eggs and larvae and the mean numbers under 10 m^2 of sea surface at stations where eggs or larvae occurred also reflected the seasonality of occurrence. Mean number of eggs at positive stations ranged as high as 999.5 under 10 m^2 for IS 7308 in May 1973. The highest mean larval abundance at positive stations was 229.4 under 10 m^2, recorded on IS 7311 in June-July, 1973. Abundance of thread herring eggs and larvae relative to the total catches of fish eggs or larvae for a cruise are listed in Table 5. Charts of the distribution and abundance of thread herring eggs and larvae (Figures 22 to 32) for each cruise illustrate the spawning areas and seasons. The areas where eggs and larvae were most abundant are in the same general locations where Kinnear and Fuss (1971) reported biggest concentrations of adult thread herring schools. Most thread herring spawning occurs in waters less than 50 m deep and between latitudes 26° 30' N and 28° 00' N. Catches and numbers estimated under 10 m^2 of sea surface at individual stations for each cruise are given in Tables 15, 17, 19, ..., 47.

Round Herring (Etrumeus teres)

The number and percentage of stations with round herring eggs and larvae are given in Table 6, along with the estimated total number of round herring eggs and larvae and the mean numbers under 10 m^2 of sea surface at positive stations. Mean numbers of eggs under 10 m^2 ranged as high as 604.8 for 8B 7201 - GE 7202 in February 1972. Mean larval catches of nearly 50 under 10 m^2 of sea surface occurred at positive stations during February 1972 and January 1973 (Table 6); the 175.1 under 10 m^2 observed during cruise CL 7412, May 1974, was based on a catch at a single station on that cruise. Catches of round herring eggs and larvae in relation to total fish eggs and larvae are presented in Table 7. Distribution and abundance charts for round herring eggs and larvae on each cruise (Figures 33 to 42) show that most round herring spawning occurs 60 to 120 miles (100 to 200 km) offshore, where water depths range from 50 to 200 m. The major spawning area is located between latitudes 27° 00' N and 28° 30'N. Tables 15, 17, 19, ..., 47 summarize catches of round herring eggs and larvae by station for each of the cruises.

Scaled Sardines (Harengula jaguana)

Numbers and percentages of stations with scaled sardine eggs and larvae are listed by cruise in Table 8. Also listed are the estimated total numbers of scaled sardine eggs and larvae in the survey area for each cruise, and the mean numbers under 10 m^2 at positive stations. Mean numbers of scaled sardine eggs per positive station ranged up to 747.1 under 10 m^2 in IS 7313, August 1973; mean larvae numbers were more than 50 per 10 m^2 at positive stations during 8C 7113 -

TI 7114, May 1971 and IS 7313, August 1973. The abundance of scaled sardine eggs and larvae relative to total catches of fish eggs and larvae is given in Table 9. There was an apparent increase in abundance of scaled sardine eggs and larvae from 1971 to 1973 that is reflected in the Table 8 and 9 summaries. Charts of the distribution and abundance of scaled sardine eggs (Figures 43 to 55) also show the increasing abundance. Most scaled sardine spawning occurs within 20 miles (33 km) of the coast in water 20 m or shallower. Cruise CL 7412 had several stations located in water shallower than 15 m. Spawning by scaled sardines at those stations was 1.85 times more intense than at regular stations farther offshore. Catches of scaled sardine eggs and larvae by station for each of the cruises are given in Tables 15, 17, 19, ..., 47.

Spanish Sardines (Sardinella spp.)

Eggs and larvae of Spanish sardines occurred at some stations at all seasons of the year. Occurrence, abundance, and mean numbers under 10 m^2 of sea surface at positive stations are recorded in Table 10. Mean numbers of eggs ranged up to 236.7 under 10 m^2 for positive stations during 8C 7120-TI 7121, August 1971; mean larvae numbers under 10 m^2 at positive stations ranged to 352.2 during IS 7205, September 1972. Eggs and larvae of Spanish sardines relative to total catches of fish eggs and larvae for each cruise are listed in Table 11. Charts of distribution and abundance of eggs and larvae (Figures 56 to 70) show that Spanish sardines spawn over a wider area in the Eastern Gulf than any of the other clupeid species. Most spawning occurs where water depths are less than 50 m, but some eggs and larvae were

collected out to the 185 m contour. Catches of Spanish sardine eggs and larvae at stations for each of the cruises are given in Tables 15, 17, 19, ..., 47.

Menhaden (Brevoortia spp.)

Menhaden eggs and larvae were not abundant in the Eastern Gulf during the years of our survey. Large catches of more than 500 eggs were made at a single station during cruises IS 7303 and CL 7405 (Tables 35 and 45), but few stations had any eggs or larvae during most of the cruises (Table 12). Mean numbers of eggs under 10 m^2 at positive stations were high for IS 7303 and CL 7405 because of the two extraordinary catches, but mean larvae abundance never exceeded 5.0 under 10 m^2 of sea surface at positive stations (Table 12). Abundance of menhaden eggs and larvae in relation to total fish egg and larvae catches has been tabulated for each cruise (Table 13). Menhaden eggs and larvae were most abundant in the northern half of the survey area, and spawning occurred at depths of less than 50 m (Figures 71 to 77). Menhaden egg and larvae catches at stations for each of the cruises are given in Tables 15, 17, 19, ..., 47.

Stock Estimate Summary

Adult biomass estimates were obtained for thread herring, round herring, and scaled sardines and have been reported by Houde (in press). The techniques that were used are similar to those that have been employed in resource assessment surveys of the California Current (Sette and Ahlstrom, 1948; Ahlstrom, 1954, 1966, and 1968; Smith, 1972). Stock estimates using techniques proposed by Simpson (1959)

and Saville (1956 and 1964) will be obtained in the future to compare with those obtained by the present method. The following procedure was used to estimate adult biomass:

$$P_a = \sum_{i=1}^{r} P_{i.} D_i / d_i \qquad 5)$$

where,

P_a = the annual or spawning season estimate of number of eggs spawned.

r = the number of cruises in a year or spawning season.

$P_{i.}$ = the estimated number of eggs present in the survey area on a day during cruise i.

D_i = the number of days represented by a cruise i.

d_i = the mean time to hatching (in days) for an egg spawned during cruise i.

The estimates of $P_{i.}$ were obtained from Equation 3 (page 16). The relative fecundity (ova per g of body weight) was estimated for each of the clupeids from gonad analyses of adult fish and the sex ratio was assumed to be 1:1. Then,

$$B = \frac{2 P_a}{F_r} \qquad 6)$$

where,

B = the estimate of adult biomass (in grams) present during a given year or spawning season.

F_r = the mean relative fecundity (ova per g) for the stock.

Variance estimates on P_a were obtained using methods based on Cushing (1957) and Taft (1960). These error estimates were not entirely satisfactory, but they were used to calculate preliminary estimates of error in biomass estimation. Biomass estimates within an order of magnitude

of true stock size were the objective of this research and we believe that this objective has been met.

Biomass estimates for thread herring were obtained in 1971 and 1973. Estimates were 109,244 metric tons (m.t.) in 1971 and 372,367 m.t. in 1973, the mean being 240,806 m.t. Round herring estimates were made for the 1971-72, 1972-73, and 1973-74 spawning seasons. They were 717,815 m.t., 131,136 m.t., and 286,811 m.t., the mean being 378,587 m.t. Estimates of scaled sardine biomass were 15,675 m.t. in 1971, 148,254 m.t. in 1972, and 388,618 m.t. in 1973; the mean estimate was 184,182 m.t. The aggregate biomass of the three species, based on the mean estimates, is 803,575 m.t. Because no estimates of Spanish sardine or menhaden biomass have been made, we feel that the aggregate total clupeid biomass must exceed 1 million m.t. in the Eastern Gulf of Mexico.

Acknowledgments

Successes in this survey can be attributed to help provided by many people and the agencies that they represent. Martin Roessler suggested and developed the idea that an ichthyoplankton survey of clupeids in the Eastern Gulf could provide information about fisheries potential. Murice Rinkel of the State University System of Florida, Institute of Oceanography, helped to coordinate cruises during the first two years of the survey as part of EGMEX and Western Florida Continental Shelf Programs. He also reduced and analyzed physical oceanographic data collected on the cruises discussed in this report. C.N.K. Mooers and James Price of RSMAS provided digitized temperature and salinity data from STD casts made on several cruises. Many people

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Literature Cited

Ahlstrom, E. H. 1954. Distribution and abundance of egg and larval populations of the Pacific sardine. U. S. Fish Wildl. Serv., Fish. Bull. 56: 83-140.

Ahlstrom, E. H. 1966. Distribution and abundance of sardine and anchovy larvae in the California Current region off California and Baja California, 1951-64: A summary. U. S. Fish Wildl. Serv., Spec. Sci. Rep. Fish. 534. 71 p.

Ahlstrom, E. H. 1968. An evaluation of the fishery resources available to California fishermen. Univ. Wash. Publ. Fish. n.s. 4: 65-80.

Bullis, H. R., Jr. and J. S. Carpenter. 1968. Latent fishery resources of the central West Atlantic region. Univ. Wash. Publ. Fish. n.s. 4: 61-64.

Bullis, H. R., Jr. and J. R. Thompson. 1970. Bureau of Commercial Fisheries Exploratory Fishing and Gear Research Base, Pascagoula, Mississippi--July 1, 1967 to June 30, 1969. U. S. Fish Wildl. Serv., Circular 351. 29 p.

Cushing, D. H. 1957. The number of pilchards in the Channel. Fish. Invest., London, Ser. 2, Vol. 21(5): 1-27.

Fuss, C. M., Jr., J. A. Kelly, Jr., and K. W. Prest, Jr. 1969. Gulf thread herring: aspects of the developing fishery and biological research. Proc. Gulf Carib. Fish. Inst. 21: 111-125.

Houde, E. D. 1973. Estimating abundance of sardine-like fishes from egg and larval surveys, Eastern Gulf of Mexico: preliminary report. Proc. Gulf Carib. Fish. Inst. 25: 68-78.

Houde, E. D. 1974. Research on eggs and larvae of fishes in the Eastern Gulf of Mexico. p. 187-204. In: Proceedings of marine environmental implications of offshore drilling Eastern Gulf of Mexico: 1974 (ed. R. E. Smith) St. Univ. System Fla., Inst. Oceanogr., St. Petersburg, Fla.

Houde, E. D. (in press). Abundance and potential for fisheries development of some sardine-like fishes in the Eastern Gulf of Mexico. Proc. Gulf Carib. Fish. Inst. 28.

Houde, E. D. and N. Chitty. (in press). Seasonal abundance and distribution of zooplankton, fish eggs and fish larvae in the Eastern Gulf of Mexico 1972-1974. NOAA Tech. Rep. NMFS SSRF.

Kinnear, B. S. and C. M. Fuss, Jr. 1971. Thread herring distribution off Florida's west coast. Commer. Fish. Rev. 33(7-8): 27-39.

Klima, E. F. 1971. Distribution of some coastal pelagic fishes in the Western Atlantic. Commer. Fish. Rev. 33(6): 21-34.

Kramer, D., M. J. Kalin, E. G. Stevens, J. R. Thrailkill and J. R. Zweifel. 1972. Collecting and processing data on fish eggs and larvae in the California Current region. NOAA Tech. Rep. NMFS Circ. 370, 38 p.

Posgay, J. A., R. R. Marak and R. C. Hennemuth. 1968. Development and tests of new zooplankton samplers. Int. Comm. NW Atlan. Fish. Res. Doc. 68/85. 7 p.

Rinkel, M. O. 1971. Results of cooperative investigations-- a pilot study of the Eastern Gulf of Mexico. Proc. Gulf Carib. Fish. Inst. 23: 91-108.

Rinkel, M. O. 1974. Western Florida continental shelf program. p. 97-127. In: Proceedings of marine environmental implications of offshore drilling Eastern Gulf of Mexico: 1974. (ed. R. E. Smith). St. Univ. System Fla., Inst. Oceanogr., St. Petersburg, Fla.

Saville, A. 1956. Eggs and larvae of haddock (Gadus aeglefinus L.) at Faroe. Mar. Res. (Scotland) 1956, No. 4. 27 p.

Saville, A. 1964. Estimation of the abundance of a fish stock from egg and larval surveys. Rapp. proces-verb. Cons. int. Explor. Mer 155: 164-170.

Sette, O. E. and E. H. Ahlstrom. 1948. Estimation of abundance of the eggs of the Pacific pilchard (Sardinops caerulea) off Southern California during 1940 and 1941. J. Mar. Res. 7: 511-542.

Simpson, A. C. 1959. The spawning of the plaice (Pleuronectes platessa) in the North Sea. Fish. Invest., London, Ser. 2, 22(7): 1-111.

Smith, P. E. 1972. The increase in spawning biomass of northern anchovy, Engraulis mordax. Fish. Bull., U. S. 70: 849-874.

Taft, B. A. 1960. A statistical study of the estimation of abundance of sardine (Sardinops caerulea) eggs. Limnol. Oceanogr., 5: 245-264.

Thrailkill, J. R. 1969. Zooplankton volumes off the Pacific coast, 1960. U. S. Fish Wildl. Serv., Spec. Sci. Rep.-Fish. 581. 50 p.

Table 1. Summary of fish egg and larvae catches from 17 ichthyoplankton survey cruises to the Eastern Gulf of Mexico, 1971-1974.

Cruise	Dates	Number of Stations	Eggs		Larvae	
			Total Number	Mean Number under 10 m^2	Total Number	Mean Number u 10 m^2
GE 7101[1]	1- 8 Feb 1971	20	47753	597.6	8615	209.2
8C 7113 TI 7114	7-18 May 1971	123	27385	651.5	19229	464.1
GE 7117	26 Jun - 4 Jul 1971	27	3594	578.8	2149	359.2
8C 7120 TI 7121	7-25 Aug 1971	146	21567	431.0	18037	370.8
TI 7131 8B 7132 GE 7127	7-16 Nov 1971	66	4225	230.1	3979	224.7
8B 7201 GE 7202	1-11 Feb 1971	30	5068	517.6	2290	226.6
GE 7208	1-10 May 1972	30	15627	577.7	7450	414.3
GE 7210	12-18 Jun 1972	13	6165	527.2	2239	341.5
IS 7205	9-17 Sept 1972	34	9245	578.8	10872	825.4
IS 7209	8-16 Nov 1972	50	7487	186.5	4511	295.5
IS 7303	19-27 Jan 1973	51	12378	374.9	4642	301.2
IS 7308	9-17 May 1973	49	26103	872.2	13652	613.5
IS 7311	27 Jun - 6 Jul 1973	51	14523	450.2	10881	551.5
IS 7313	3-13 Aug 1973	50	24798	725.1	10419	581.6
IS 7320	6-14 Nov 1973	51	5452	163.1	4999	346.0
CL 7405	28 Feb - 9 Mar 1974	36	16020	291.1	2216	55.3
CL 7412	1- 9 May 1974	44	57230	927.1	16854	519.2

[1] On Cruise GE 7101 an ICITA, one-meter plankton net was used. On all other cruises a 61 cm Bongo net sampler was used.

Ship Codes: GE = R/V GERDA; 8C = R/V DAN BRAMAN; TI = R/V TURSIOPS; 8B = R/V BELLOWS; IS = R/V COLUMBUS ISELIN; CL = R/V CALANUS

Table 2 . Summary of catches of clupeid and engraulid eggs and larvae from 17 cruises to the Eastern Gulf of Mexico. Numbers of stations in each cruise are given in Table 1.

	Clupeid Eggs		Clupeid Larvae		Engraulid Eggs		Engraulid Larvae	
Cruise	Number	Mean Number under 10 m^2	Number	Mean Number under 10 m^2	Number	Mean Number under 10 m^2	Number	Mean Number under 10 m^2
GE 7101	1407	41.8	1684	37.8	171	5.3	19	0.4
8C 7113 TI 7114	944	30.6	1596	29.0	0	.0	811	25.2
GE 7117	23	3.6	187	24.3	0	.0	46	9.0
8C 7120 TI 7121	803	16.8	1551	21.3	4	0.1	503	10.9
TI 7131 8B 7132 GE 7127	798	43.0	127	8.1	0	.0	72	3.5
8B 7201 GE 7202	1816	180.9	266	31.1	0	.0	8	0.7
GE 7208	703	14.1	843	24.8	5	0.5	220	10.7
GE 7210	649	36.5	1222	205.7	0	.0	12	1.9
IS 7205	31	0.6	3839	252.4	0	.0	28	2.1
IS 7209	10	0.8	23	2.4	2	0.1	10	0.4
IS 7303	2391	69.7	302	19.4	0	.0	27	1.1
IS 7308	3131	109.8	3568	93.2	67	1.2	205	4.2
IS 7311	2739	59.8	4202	106.9	6	0.3	203	11.3
IS 7313	8999	151.2	2313	58.4	405	29.4	322	22.5
IS 7320	68	4.4	41	2.0	0	.0	11	0.5
CL 7405	1098	8.7	151	2.3	171	2.0	211	4.1
CL 7412	6485	75.2	7172	178.3	59	0.5	170	3.6

Table. 3. Egg and larvae catches of Clupeid genera and species for each of the ichthyoplankton survey cruises.

CRUISE	*Brevoortia* sp.				*Opisthonema oglinum*				*Sardinella* sp.				*Harengula jaguana*				*Etrumeus teres*				Unidentified Clupeids			
	Eggs		Larvae		Eggs		Larvae		Eggs		Larvae		Eggs		Larvae		Eggs		Larvae		Eggs		Larvae	
	No.	Mean No. Under $10m^2$	No.	Mean No. Under $10m^2$	No.	Mean No. Under $10m^2$	No.	Mean No. Under $10m^2$	No.	Mean No. Under $10m^2$	No.	Mean No. Under $10m^2$	No.	Mean No. Under $10m^2$	No.	Mean No. Under $10m^2$	No.	Mean No. Under $10m^2$	No.	Mean No. Under $10m^2$	No.	Mean No. Under $10m^2$	No.	Mean No. Under $10m^2$
GE 7101	0	.00	0	.00	0	.00	0	.00	98	1.39	1353	29.95	106	1.07	0	.00	1203	39.37	302	7.34	0	.00	29	.53
8C 7113 TI 7114	0	.00	0	.00	888	29.28	1209	20.12	1	2.10	7	.24	48	1.05	243	4.82	7	.21	90	3.00	0	.00	47	.82
GE 7117	0	.00	0	.00	15	2.13	175	23.47	0	.00	0	.00	8	1.48	0	.00	0	.00	0	.00	0	.00	8	.79
8C 7120 TI 7121	0	.00	0	.00	41	1.00	1096	14.24	610	14.40	387	5.93	152	1.20	13	.24	0	.00	0	.00	0	.00	55	.87
TI 7131 8B 7132 GE 7127	0	.00	1	.04	0	.00	0	.00	8	.34	55	3.31	0	.00	0	.00	790	41.41	71	4.18	0	.00	0	.00
8B 7201 GE 7202	0	.00	1	.07	0	.00	0	.00	208	18.42	68	7.65	0	.00	0	.00	1608	151.20	73	20.29	0	.00	10	1.14
GE 7208	0	.00	0	.00	520	9.49	628	15.78	0	.00	116	5.69	157	2.38	93	1.45	26	1.38	4	.28	0	.00	2	.10
GE 7210	0	.00	0	.00	35	2.63	1011	175.66	0	.00	93	23.35	614	33.91	109	5.26	0	.00	0	.00	0	.00	9	1.39
IS 7205	0	.00	0	.00	0	.00	75	1.53	31	.61	3719	234.76	0	.00	5	.26	0	.00	0	.00	0	.00	40	1.84
IS 7209	0	.00	0	.00	0	.00	0	.00	1	.03	8	.71	0	.00	0	.00	9	.83	15	1.61	0	.00	0	.00
IS 7303	1939	46.06	12	.11	0	.00	0	.00	0	.00	2	.08	0	.00	1	.01	452	23.77	287	19.12	0	.00	0	.00
IS 7308	0	.00	1	.04	894	81.59	1429	43.32	9	1.40	795	34.71	2201	25.22	1275	10.90	27	2.48	25	2.29	0	.00	43	.87
IS 7311	0	.00	0	.00	1116	32.47	3670	85.45	0	.00	411	19.08	1623	27.32	60	.65	0	.00	0	.00	0	.00	61	1.67
IS 7313	0	.00	0	.00	0	.00	512	8.05	468	16.69	1125	37.02	8529	134.48	577	11.06	0	.00	0	.00	2	.03	99	2.25
IS 7320	0	.00	4	.04	0	.00	0	.00	11	.27	23	.88	0	.00	0	.00	57	4.11	14	1.11	0	.00	0	.00
CL 7405	1098	8.69	71	1.25	0	.00	32	0.38	0	.00	0	.00	0	.00	25	.51	0	.00	0	.00	0	.00	23	0.17
CL 7412	5	0.27	1	.01	727	17.98	1418	30.15	1	.02	4086	131.85	5745	57.26	1427	15.05	7	.49	57	3.98	0	.00	183	4.57

Table 4. OPISTHONEMA OGLINUM

Summary of Egg and Larvae Catches

CRUISE	DATES	NUMBER OF STATIONS	STATIONS WITH EGGS		STATIONS WITH LARVAE		ESTIMATED TOTAL NUMBER ($X10^{-10}$)		MEAN NUMBER UNDER 10 M^2 AT POSITIVE STATIONS	
			NUMBER	PERCENT	NUMBER	PERCENT	EGGS	LARVAE	EGGS[1]	LARVAE[2]
8C 7113 TI 7114	7-18 May 1971	123	13	10.6	47	38.2	34.25	33.34	276.82	52.63
GE 7117	26 June - 4 July 1971	27	4	14.8	13	48.2	0.86	17.67	14.39	51.87
8C 7120 TI 7121	7-25 Aug. 1971	146	3	2.1	25	17.1	1.37	20.87	49.46	79.91
GE 7127 TI 7131 8B 7132	6-16 Nov. 1971	66	0	0	0	0	0	0	-	-
8B 7201 GE 7202	1-11 Feb. 1972	30	0	0	0	0	0	0	-	-
GE 7208	1-10 May 1972	30	4	13.3	14	46.7	11.93	20.36	75.92	36.08
GE 7210	12-18 June 1972	13	2	15.4	10	76.9	1.02	83.43	17.09	228.36
IS 7205	9-17 Sept. 1972	34	0	0	4	11.8	0	1.09	-	13.78
IS 7209	8-16 Nov. 1972	50	0	0	0	0	0	0	-	-
IS 7303	19-27 Jan. 1973	51	0	0	0	0	0	0	-	-
IS 7308	9-17 May 1973	49	4	8.2	21	42.9	91.66	52.58	999.46	101.19
IS 7311	27 June - 6 July 1973	51	12	23.5	19	37.3	44.26	107.57	137.98	229.37
IS 7313	3-13 Aug. 1973	50	0	0	10	20.0	0	9.34	-	40.24
IS 7320	6-14 Nov. 1973	51	0	0	0	0	0	0	-	-
CL 7405	28 Feb. - 9 Mar. 1974	36	0	0	5	13.9	0	0.16	-	2.42
CL 7412	1-9 May 1974	44	10	22.7	22	50.0	12.77	28.13	75.53	57.56

[1] Positive station is one where Opisthonema oglinum eggs were collected

[2] Positive station is one where Opisthonema oglinum larvae were collected

Table 5.

OPISTHONEMA OGLINUM

Summary of egg and larvae data in relation to total catches of fish eggs and larvae

CRUISE	ESTIMATED NUMBER OF EGGS ($\times 10^{-10}$) OPISTHONEMA	TOTAL	PERCENT OF TOTAL EGGS OPISTHONEMA	ESTIMATED NUMBER OF LARVAE ($\times 10^{-10}$) OPISTHONEMA	TOTAL	PERCENT OF TOTAL LARVAE OPISTHONEMA
8C 7113 TI 7114	34.25	791.45	4.33	33.34	574.76	5.80
GE 7117	0.86	644.22	0.13	17.67	307.94	5.74
8C 7120 TI 7121	1.37	675.64	0.20	20.87	722.11	2.89
GE 7127 TI 7131 8B 7132	0	151.75	0	0	151.41	0
8B 7201 GE 7202	0	650.73	0	0	300.66	0
GE 7208	11.93	745.96	1.60	20.36	689.95	2.95
GE 7210	1.02	247.96	0.41	83.43	163.79	50.94
IS 7205	0	658.24	0	1.09	930.04	0.12
IS 7209	0	251.40	0	0	493.63	0
IS 7303	0	492.62	0	0	531.19	0
IS 7308	91.66	1232.41	7.44	52.58	949.35	5.54
IS 7311	44.26	677.01	6.54	107.57	948.19	11.34
IS 7313	0	934.35	0	9.34	973.00	0.96
IS 7320	0	230.46	0	0	597.01	0
CL 7405	0	192.09	0	0.16	30.60	0.53
CL 7412	12.77	917.54	1.39	28.13	528.16	5.33

Table 6. ETRUMEUS TERES

Summary of Egg and Larvae Catches

CRUISE	DATES	NUMBER OF STATIONS	STATIONS WITH EGGS		STATIONS WITH LARVAE		ESTIMATED TOTAL NUMBER ($X10^{-10}$)		MEAN NUMBER UNDER 10 M^2 AT POSITIVE STATIONS	
			NUMBER	PERCENT	NUMBER	PERCENT	EGGS	LARVAE	EGGS[1]	LARVAE[2]
8C 7113 TI 7114	7-18 May 1971	123	2	1.6	24	19.50	0.24	3.60	12.88	15.80
GE 7117	26 June - 4 July 1971	27	0	0	0	0	0	0	-	-
8C 7120 TI 7121	7-25 Aug. 1971	146	0	0	0	0	0	0	-	-
GE 7127 TI 7131 8B 7132	7-16 Nov. 1971	66	15	22.7	20	30.3	25.26	2.92	187.73	14.20
8B 7201 GE 7202	1-11 Feb. 1972	30	8	26.7	13	43.3	209.31	26.55	604.81	49.97
GE 7208	1-10 May 1972	30	2	6.7	2	6.7	1.51	0.47	22.11	4.44
GE 7210	12-18 June 1972	13	0	0	0	0	0	0	-	-
IS 7205	9-17 Sept. 1972	34	0	0	0	0	0	0	-	-
IS 7209	8-16 Nov. 1972	50	5	10.0	2	4.0	1.37	2.70	8.30	40.28
IS 7303	19-27 Jan. 1973	51	12	23.5	20	39.2	38.49	31.95	101.04	48.76
IS 7308	9-17 May 1973	49	2	4.1	3	6.1	4.04	3.99	60.72	37.41
IS 7311	27 June-6 July 1973	51	0	0	0	0	0	0	-	-
IS 7313	3-13 Aug. 1973	50	0	0	0	0	0	0	-	-
IS 7320	6-14 Nov. 1973	51	8	15.7	5	9.8	6.33	1.71	26.22	11.32
CL 7405	28 Feb. - 9 Mar. 1974	36	0	0	0	0	0	0	-	-
CL 7412	1-9 May 1974	44	1	2.0	1	2.0	0.62	5.09	21.50	175.07

[1] Positive station is a station where Etumeus teres eggs were collected

[2] Positive station is a station where Etrumeus teres larvae were collected

Table 7.

ETRUMEUS TERES

Summary of egg and larvae data in relation to total catches of fish eggs and larvae

Cruise	Estimated Number of eggs ($x10^{-10}$)		Percent of Total eggs	Estimated Number of larvae ($x10^{-10}$)		Percent of Total Larvae
	Etrumeus	total	Etrumeus	Etrumeus	total	Etrumeus
8C 7113 TL 7114	0.24	791.45	0.03	3.60	574.76	0.63
GE 7117	0	644.22	0	0	307.94	0
8C 7120 TI 7121	0	675.64	0	0	722.11	0
GE 7127 TI 7131 8B 7132	25.26	151.75	16.64	2.92	151.41	1.93
8B 7201 GE 7202	209.31	650.73	32.16	26.55	300.66	8.83
GE 7208	1.51	745.96	0.20	0.47	689.95	0.07
GE 7210	0	247.96	0	0	163.79	0
IS 7205	0	685.24	0	0	930.04	0
IS 7209	1.37	251.40	0.54	2.70	493.63	0.55
IS 7303	38.49	492.62	7.81	31.95	531.19	6.01
IS 7308	4.04	1232.41	0.33	3.99	949.35	0.42
IS 7311	0	677.01	0	0	948.19	0
IS 7313	0	934.35	0	0	973.00	0
IS 7320	6.33	230.46	2.75	1.71	597.01	0.29
CL 7405	0	192.09	0	0	30.60	0
CL 7412	0.62	917.54	0.07	5.09	528.16	0.96

Table 8. HARENGULA JAGUANA

Summary of Egg and Larvae Catches

CRUISE	DATES	NUMBER OF STATIONS	STATIONS WITH EGGS		STATIONS WITH LARVAE		ESTIMATED TOTAL NUMBER ($X10^{-10}$)		MEAN NUMBER UNDER 10 M^2 AT POSITIVE STATIONS	
			NUMBER	PERCENT	NUMBER	PERCENT	EGGS	LARVAE	EGGS[1]	LARVAE[2]
8C 7113 TI 7114	7-18 May 1971	123	2	1.6	12	9.8	0.94	8.11	64.66	51.52
GE 7117	26 June - 4 July 1971	27	2	7.4	0	0	1.69	0	19.95	-
8C 7120 TI 7121	7-25 Aug. 1971	146	8	5.5	8	5.5	1.57	0.39	28.09	4.37
GE 7127 TI 7131 8B 7132	6-16 Nov. 1971	66	0	0	0	0	0	0	-	-
8B 7201 GE 7202	1-11 Feb. 1972	30	0	0	0	0	0	0	-	-
GE 7208	1-10 May 1972	30	1	3.3	4	13.3	2.51	1.85	76.21	11.57
GE 7210	12-18 June 1972	13	3	23.1	3	23.1	17.10	2.89	146.94	22.78
IS 7205	9-17 Sept. 1972	34	0	0	2	5.9	0	0.17	-	4.70
IS 7209	8-16 Nov. 1972	50	0	0	0	0	0	0	-	-
IS 7303	19-27 Jan 1973	51	0	0	1	2.0	0	0.01	-	0.26
IS 7308	9-17 May 1973	49	8	16.3	14	26.3	21.77	14.02	154.16	38.34
IS 7311	27 June - 6 July	51	8	15.7	6	11.8	49.44	0.92	174.14	5.51
IS 7313	3-13 Aug. 1973	50	9	18.0	11	22.0	103.39	16.63	747.09	50.26
IS 7320	6-14 Nov. 1973	51	0	0	0	0	0	0	-	-
CL 7405	28 Feb. - 9 Mar. 1973	36	0	0	4	11.1	0	0.20	-	4.06
CL 7412	1-9 May 1974	44	20	45.0	23	52.0	45.93	13.19	125.82	28.79

[1] Positive station is one where Harengula jaguana eggs were collected

[2] Positive station is one where Harengula jaguana larvae were collected

Table 9.

HARENGULA JAGUANA

Summary of egg and larvae data in relation to total catches of fish eggs and larvae

Cruise	Estimated Number of eggs ($x10^{-10}$)		Percent of Total eggs	Estimated Number of larvae ($x10^{-10}$)		Percent of Total Larvae
	Harengula	Total	Harengula	Harengula	Total	Harengula
8C 7113 TI 7114	0.94	791.45	0.12	8.11	574.76	1.41
GE 7117	1.69	644.22	0.26	0	307.94	0
8C 7120 TI 7121	1.57	675.64	0.23	0.39	722.11	0.05
GE 7127 TI 7131 8B 7132	0	151.75	0	0	151.41	0
8B 7201 GE 7202	0	650.73	0	0	300.66	0
GE 7208	2.51	745.96	0.34	1.85	689.95	0.27
GE 7210	17.10	247.96	6.90	2.89	163.79	1.76
IS 7205	0	658.24	0	0.17	930.04	0.02
IS 7209	0	251.40	0	0	493.63	0
IS 7303	0	492.62	0	0.01	531.19	< .01
IS 7308	21.77	1232.41	1.77	14.02	949.35	1.48
IS 7311	49.44	677.01	7.30	0.92	948.19	0.10
IS 7313	103.39	934.35	11.06	16.63	973.00	1.71
IS 7320	0	230.46	0	0	597.01	0
CL 7405	0	192.09	0	0.20	30.60	0.67
CL 7412	45.93	917.54	5.01	13.19	528.16	2.50

Table 10. *SARDINELLA* SP.

Summary of Egg and Larvae Catches

CRUISE	DATES	NUMBER OF STATIONS	STATIONS WITH EGGS		STATIONS WITH LARVAE		ESTIMATED TOTAL NUMBER ($X10^{-10}$)		MEAN NUMBER UNDER 10 M^2 AT POSITIVE STATIONS	
			NUMBER	PERCENT	NUMBER	PERCENT	EGGS	LARVAE	EGGS[1]	LARVAE[2]
8C 7113 TI 7114	7-18 May 1971	123	1	0.8	6	4.9	0.02	0.44	2.10	4.93
GE 7117	26 June - 4 July 1971	27	0	0	0	0	0	0	-	-
8C 7120 TI 7121	7-25 Aug. 1971	146	9	6.2	28	19.2	17.13	7.91	236.71	33.89
GE 7127 TI 7131 8B 7132	6-16 Nov. 1971	66	1	1.5	14	21.2	0.40	2.91	22.90	16.09
8B 7201 GE 7202	1-11 Feb. 1972	30	1	3.3	2	6.7	0.19	6.89	3.90	121.25
GE 7208	1-10 May 1972	30	0	0	5	16.7	0	6.03	-	36.44
GE 7210	12-18 June 1972	13	0	0	1	7.7	0	9.78	-	303.50
IS 7205	9-17 Sept. 1972	34	2	5.9	24	70.6	0.50	223.93	10.90	352.15
IS 7209	8-16 Nov. 1972	50	1	2.0	1	2.0	0.07	1.32	1.61	35.30
IS 7303	19-27 Jan 1973	51	0	0	1	2.0	0	0.12	-	4.14
IS 7308	9-17 May 1973	49	2	4.1	14	28.6	0.78	42.36	13.80	124.42
IS 7311	27 June - 6 July 1973	51	0	0	12	23.5	0	31.91	-	81.08
IS 7313	3-13 August 1973	50	13	26.0	29	58.0	17.86	46.55	64.18	63.83
IS 7320	6-14 Nov. 1973	51	2	3.9	5	9.8	0.20	0.75	6.90	8.94
CL 7405	28 Feb.- 9 Mar. 1974	36	0	0	0	0	0	0	-	-
CL 7412	1-9 May 1974	44	1	2.3	24	54.5	0.01	131.08	0.70	230.74

[1] Positive station is one where *Sardinella* sp. eggs were collected

[2] Positive station is one where *Sardinella* sp. larvae were collected

Table 11.

SARDINELLA SP.

Summary of egg and larvae data in relation to total catches of fish eggs and larvae

Cruise	Estimated Number of eggs ($x10^{-10}$)		Percent of Total eggs	Estimated Number of larvae ($x10^{-10}$)		Percent of Total Larvae
	Sardinella	Total	Sardinella	Sardinella	Total	Sardinella
8C 7113 TI 7114	0.02	791.45	< .01	0.44	574.76	0.08
GE 7117	0	644.22	0	0	307.94	0
8C 7120 TI 7121	17.13	675.64	2.54	7.91	722.11	1.10
GE 7127 TI 7131 8B 7132	0.40	151.75	0.26	2.91	151.41	1.92
8B 7201 GE 7202	0.19	650.73	0.03	6.89	300.66	2.29
GE 7208	0	745.96	0	6.03	689.95	0.87
GE 7210	0	247.96	0	9.78	163.79	5.97
IS 7205	0.50	685.24	0.07	223.93	930.04	24.08
IS 7209	0.07	251.40	0.03	1.32	493.63	0.27
IS 7303	0	492.62	0	0.12	531.19	0.02
IS 7308	0.78	1232.41	0.06	42.36	949.35	4.46
IS 7311	0	677.01	0	31.91	948.19	3.37
IS 7313	17.86	934.35	1.91	46.55	973.00	4.78
IS 7320	0.20	230.46	0.09	0.75	597.01	0.13
CL 7405	0	192.09	0	0	30.60	0
CL 7412	0.01	917.54	< .01	131.08	528.16	24.82

Table 12. BREVOORTIA SP.

Summary of Egg and Larvae Catches

CRUISE	DATES	NUMBER OF STATIONS	STATIONS WITH EGGS		STATIONS WITH LARVAE		ESTIMATED TOTAL NUMBER ($X10^{-10}$)		MEAN NUMBER UNDER 10 M^2 AT POSITIVE STATIONS	
			NUMBER	PERCENT	NUMBER	PERCENT	EGGS	LARVAE	EGGS[1]	LARVAE[2]
8C 7113 TI 7114	7-18 May 1971	123	0	0	0	0	0	0	-	-
GE 7117	26 June - 11 July 1971	27	0	0	0	0	0	0	-	-
8C 7120 TI 7121	7-25 Aug. 1971	146	0	0	0	0	0	0	-	-
GE 7127 TI 7131 8B 7132	6-16 Nov. 1971	66	0	0	1	1.5	0	0.04	-	2.60
8B 7201 GE 7202	1-11 Feb. 1972	30	2	6.7	1	3.3	18.19	0.17	292.70	4.60
GE 7208	1-10 May 1972	30	0	0	0	0	0	0	-	-
GE 7210	12-18 June 1972	13	0	0	0	0	0	0	-	-
IS 7205	9-17 Sept. 1972	34	0	0	0	0	0	0	-	-
IS 7209	8-16 Nov. 1972	50	0	0	0	0	0	0	-	-
IS 7303	19-27 Jan. 1973	51	7	13.7	4	7.8	33.51	0.14	335.60	1.40
IS 7308	9-17 May 1973	49	0	0	1	2.0	0	0.05	-	2.00
IS 7311	27 June-6 July 1973	51	0	0	0	0	0	0	-	-
IS 7313	3-13 Aug. 1973	50	0	0	0	0	0	0	-	-
IS 7320	6-14 Nov. 1973	51	0	0	1	2.0	0	0.09	-	2.00
CL 7405	28 Feb. - 9 Mar. 1974	36	13	36.1	8	22.2	3.45	0.47	21.40	5.01
CL 7412	1-9 May 1974	44	1	2.3	1	2.3	0.40	0.01	11.30	0.60

[1] Positive station is one where Brevoortia sp eggs were collected

[2] Positive station is one where Brevoortia sp larvae were collected

Table 13.

BREVOORTIA SP.

Summary of egg and larvae data in relation to total catches of fish eggs and larvae

Cruise	Estimated Number of eggs ($x10^{-10}$)		Percent of Total eggs	Estimated Number of larvae ($x10^{-10}$)		Percent of Total Larvae
	Brevoortia	total	Brevoortia	Brevoortia	total	Brevoortia
8C 7113 TI 7114	0	791.45	0	0	574.76	0
GE 7117	0	644.22	0	0	307.94	0
8C 7120 TI 7121	0	675.64	0	0	722.11	0
GE 7127 TI 7131 8B 7132	0	151.75	0	0.04	151.41	0.03
8B 7201 GE 7202	18.19	650.73	2.80	0.17	300.66	0.06
GE 7208	0	745.96	0	0	689.95	0
GE 7210	0	247.96	0	0	163.79	0
IS 7205	0	685.24	0	0	930.04	0
IS 7209	0	251.40	0	0	493.63	0
IS 7303	33.51	492.62	6.80	0.14	531.19	0.03
IS 7308	0	1232.41	0	0.05	949.35	0.01
IS 7311	0	677.01	0	0	948.19	0
IS 7313	0	934.35	0	0	973.00	0
IS 7320	0	230.46	0	0.09	597.01	0.02
CL 7405	3.45	192.09	1.80	0.47	30.60	1.54
CL 7412	0.40	917.54	0.04	0.01	528.16	> .01

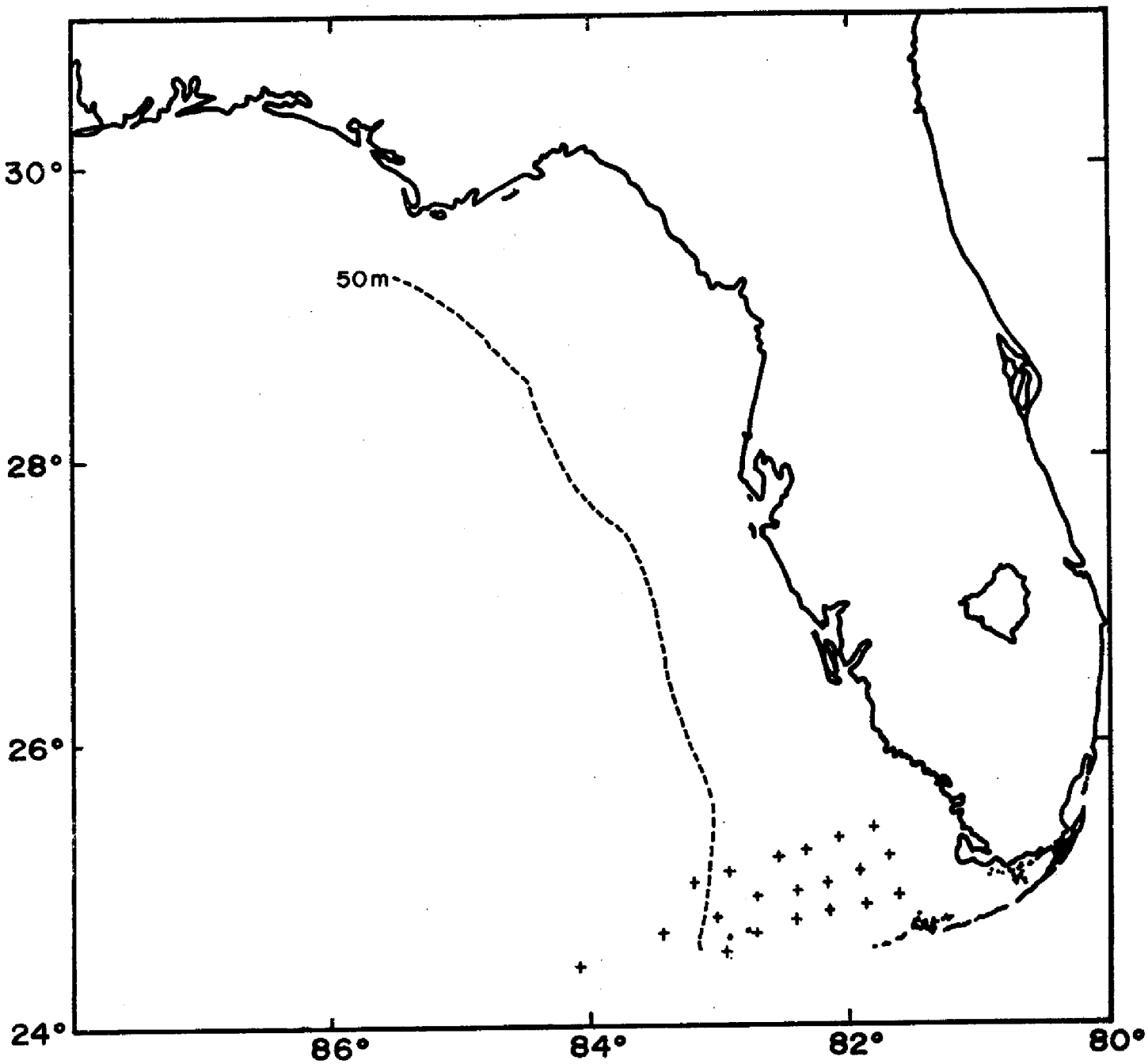


Figure 5. Chart of sampling stations for cruise GE 7101, February 1971.

Table 14. Summary of station data for cruise GE 7101.

Station	Station Position				Surface Temp. (°C)	Surface Salin. (°/oo)	Volume Filtered (m^3)	Depth of Tow (m)	Zooplankton Volume ($cc/1000m^3$)	Fish Eggs		Fish Larvae	
	Lat. (N)		Long. (W)							No.	No. Under $10m^2$	No.	No. Under $10m^2$
1	24	34	82	56	23.5	36.10	835.0	13.5	--	3799	614.2	414	66.9
2	24	47	83	01	23.8	36.10	566.0	37.0	--	1682	1099.5	489	319.7
3	25	03	83	10	23.5	36.10	640.0	42.0	--	334	219.2	410	269.1
4	25	07	82	53	23.5	36.10	635.0	39.0	--	708	434.8	844	518.4
5	25	12	82	32	22.2	36.10	604.0	25.5	--	1439	607.5	1191	502.8
6	25	16	82	20	20.7	36.10	671.0	19.5	--	5762	1674.5	456	132.5
7	25	21	82	04	20.0	36.10	709.0	14.0	--	933	184.2	356	70.3
8	25	25	81	47	19.0	35.30	756.0	6.9	--	3323	303.3	161	14.7
9	25	12	81	39	19.9	36.10	853.0	4.5	--	7753	409.0	163	8.6
10	25	07	81	54	20.6	36.10	749.0	11.0	--	995	146.1	208	30.5
11	25	03	82	09	21.5	36.10	446.0	20.0	--	854	383.0	126	56.5
12	24	58	82	22	23.8	36.10	503.0	24.5	--	1608	783.2	182	88.6
13	24	54	82	40	23.6	36.10	623.0	33.0	--	2680	1419.6	584	309.3
14	24	25	84	03	25.4	36.10	748.0	200.0	--	34	90.9	254	679.1
15	24	41	83	27	23.7	36.10	790.0	60.0	--	989	751.1	919	698.0
16	24	41	82	41	23.8	36.10	721.0	20.5	--	1316	374.2	742	211.0
17	24	45	82	23	24.1	36.10	688.0	19.0	--	3060	845.1	164	45.3
18	24	49	82	09	22.3	36.10	490.0	15.0	--	438	134.1	546	167.1
19	24	52	81	52	20.8	36.10	504.0	10.2	--	5857	1185.3	268	54.2
20	24	56	81	36	20.8	36.10	974.0	5.5	--	4189	236.5	138	7.79

Table 15. Summary of Station Data for Catches of Clupeid Eggs and Larvae for Cruise GE 7101.

Station	Clupeids				*Brevoortia* sp.				*Opisthonema oglinum*				*Sardinella* sp.				*Harengula jaguana*				*Etrumeus teres*				Unidentified Clupeids			
	Eggs		Larvae		Eggs		Larvae		Eggs		Larvae		Eggs		Larvae		Eggs		Larvae		Eggs		Larvae		Eggs		Larvae	
	No.	No. Under $10m^2$	No.	No. Under $10m^2$	No.	No. Under $10m^2$	No.	No. Under $10m^2$	No.	No. Under $10m^2$	No.	No. Under $10m^2$	No.	No. Under $10m^2$	No.	No. Under $10m^2$	No.	No. Under $10m^2$	No.	No. Under $10m^2$	No.	No. Under $10m^2$	No.	No. Under $10m^2$	No.	No. Under $10m^2$	No.	No. Under $10m^2$
1	0	0.0	136	22.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	127	20.5	0	0.0	9	1.5
2	616	402.7	123	80.4	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	77	50.3	0	0.0	0	0.0	616	402.7	46	30.1	0	0.0	0	0.0
3	0	0.0	12	7.9	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	11	7.2	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	1	0.7
4	42	25.8	243	149.3	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	194	119.2	0	0.0	0	0.0	42	25.8	43	26.4	0	0.0	6	3.7
5	0	0.0	157	66.2	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	154	65.0	0	0.0	0	0.0	0	0.0	2	0.8	0	0.0	1	0.4
6	0	0.0	2	0.6	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	2	0.6	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0
7	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0
8	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0
9	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0
10	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0
11	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0
12	0	0.0	61	29.7	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	61	29.7	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0
13	240	127.1	324	171.6	0	0.0	0	0.0	0	0.0	0	0.0	1	0.5	315	166.9	0	0.0	0	0.0	239	126.6	5	2.6	0	0.0	4	2.1
14	0	0.0	8	21.4	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	8	21.4	0	0.0	0	0.0
15	306	232.4	52	39.5	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	306	232.4	52	39.5	0	0.0	0	0.0
16	0	0.0	194	55.2	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	177	50.3	0	0.0	0	0.0	0	0.0	15	4.3	0	0.0	2	0.6
17	81	22.4	16	4.4	0	0.0	0	0.0	0	0.0	0	0.0	81	22.4	12	3.3	0	0.0	0	0.0	0	0.0	4	1.1	0	0.0	0	0.0
18	16	4.9	348	106.5	0	0.0	0	0.0	0	0.0	0	0.0	16	4.9	344	105.3	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	4	1.2
19	106	21.5	8	1.6	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	6	1.2	106	21.5	0	0.0	0	0.0	0	0.0	0	0.0	2	0.4
20	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0

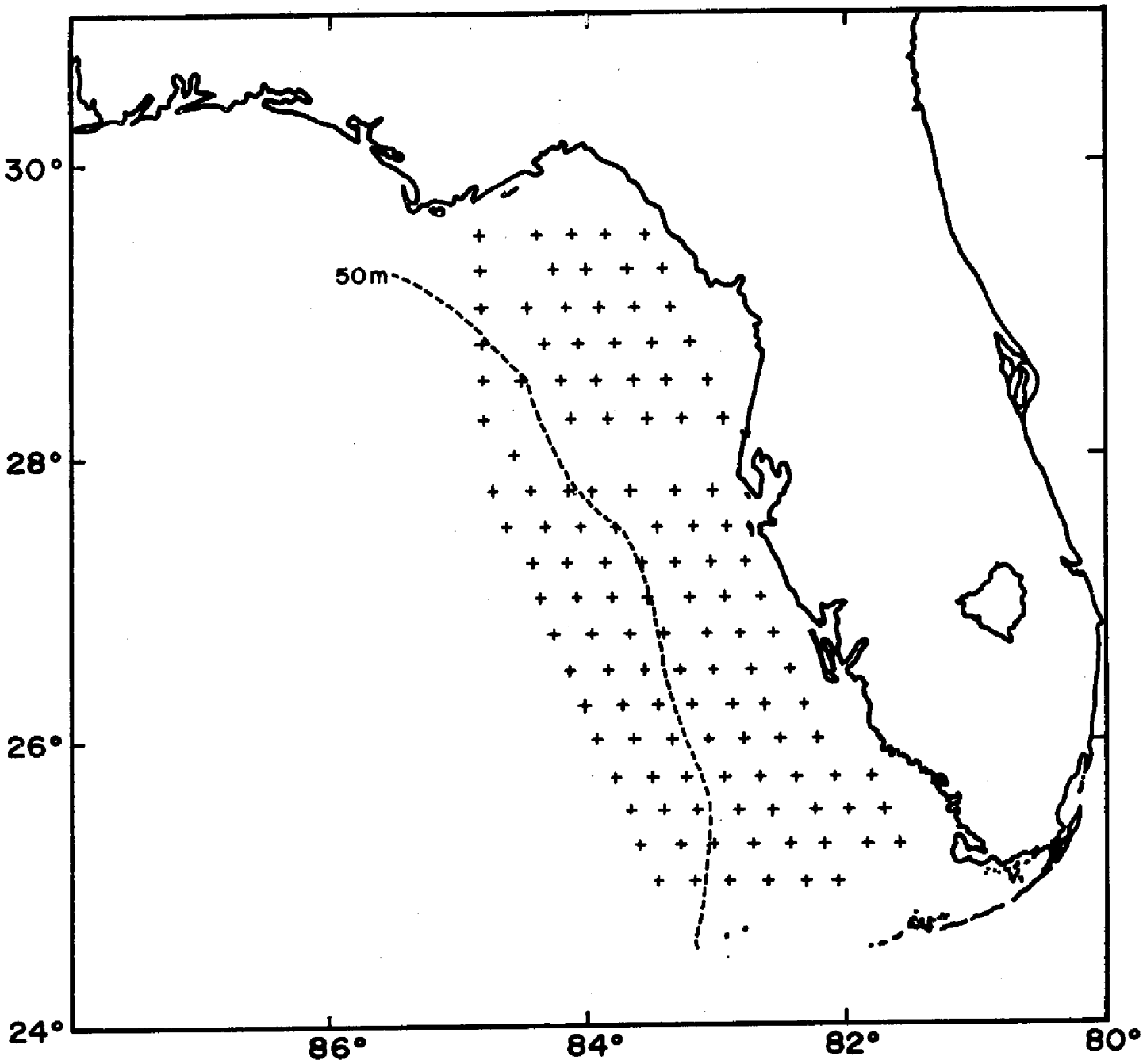


Figure 6. Chart of sampling stations for cruise 8C 7113 - TI 7114, May 1971.

Table 16. Summary of station data for cruise 8C 7113 & TI 7114.

Station	Station Position		Surface Temp. (°C)	Surface Salin. (°/oo)	Volume Filtered (m^3)	Depth of Tow (m)	Zooplankton Volume ($cc/1000m^3$)	Fish Eggs		Fish Larvae	
	Lat. (N)	Long. (W)						No.	No. Under $10m^2$	No.	No. Under $10m^2$
10	25 00	82 04	-	36.30	74.0	20.0	-	365	986.5	23	62.2
11	24 59	82 20	-	35.90	91.5	15.0	-	401	657.4	211	345.9
12	25 00	82 37	25.6	36.20	156.0	28.0	-	300	538.5	205	367.9
13	24 59	82 55	-	36.10	124.0	43.0	-	99	343.3	96	332.9
14	25 00	83 11	26.2	36.20	160.0	53.0	-	81	268.3	128	424.0
15	25 00	83 26	26.5	36.30	260.0	62.0	-	0	0.0	402	958.6
18	25 15	81 36	27.5	36.80	34.5	6.0	-	392	681.7	163	283.5
19	25 15	81 53	-	36.70	80.0	10.0	-	123	153.8	39	48.8
20	25 15	82 10	25.8	36.20	62.0	20.0	-	203	654.8	34	109.7
21	25 15	82 27	25.5	36.10	84.0	27.0	-	278	893.6	68	218.6
22	25 15	82 44	25.5	36.10	116.0	37.0	-	134	427.4	48	153.1
23	25 15	82 44	26.2	36.10	164.0	41.0	-	108	270.0	33	82.5
24	25 17	83 17	26.3	36.20	228.0	49.0	-	118	253.6	44	94.6
25	25 15	83 34	26.4	36.30	236.0	72.0	-	126	384.4	83	253.2
26	25 30	81 43	-	36.80	18.5	5.0	-	358	967.6	167	451.4
27	25 29	82 01	-	36.40	53.5	15.0	-	851	2386.0	274	768.2
28	25 30	82 16	25.7	35.90	83.5	26.0	-	602	1874.5	231	719.3
29	25 31	82 33	25.3	36.10	103.0	29.0	-	170	478.6	100	281.6
30	25 28	82 49	25.5	36.10	163.0	32.0	-	284	557.5	150	294.5
31	25 32	83 07	25.7	36.10	160.0	57.0	-	80	285.0	46	163.9
32	25 30	83 24	25.1	36.30	255.0	50.0	-	26	51.0	156	305.9
33	25 30	83 40	26.0	36.30	325.0	79.0	-	47	114.2	72	175.0
36	25 46	81 50	27.0	36.20	25.5	6.0	-	15	35.3	304	715.3
37	25 41	82 03	26.3	36.10	62.0	12.0	-	54	104.5	95	183.9
38	25 46	82 24	25.8	36.10	148.0	22.0	-	364	541.1	78	115.9
39	24 45	82 41	25.6	36.10	203.0	32.0	-	228	359.4	147	231.7
40	25 45	82 57	25.6	36.10	139.0	41.0	-	76	224.2	100	295.0
41	25 45	83 14	-	36.20	120.0	56.0	-	109	508.7	79	368.7
42	25 46	83 32	-	35.90	270.0	66.0	-	177	432.7	180	440.0
43	25 48	83 50	25.8	36.40	445.0	70.0	-	46	72.4	253	398.0
44	26 00	82 14	-	35.80	69.0	17.0	-	159	391.7	75	184.8
45	26 00	82 30	25.2	36.00	162.0	21.0	-	174	225.6	90	116.7
46	25 58	82 47	25.1	36.10	138.0	29.0	-	234	491.7	49	103.0
47	26 00	83 03	24.6	36.20	207.0	39.0	-	301	567.1	101	190.3
48	26 00	83 21	25.0	36.30	166.0	49.0	-	40	118.1	33	97.4
49	26 00	83 38	24.3	36.30	300.0	51.0	-	37	62.9	105	178.5
50	26 00	83 55	25.4	36.40	453.0	82.0	-	37	67.0	708	1281.6

Table 16. (continued)

Station	Station Position		Surface Temp. (°C)	Surface Salin. (°/oo)	Volume Filtered (m^3)	Depth of Tow (m)	Zooplankton Volume ($cc/1000m^3$)	Fish Eggs		Fish Larvae	
	Lat. (N)	Long. (W)						No.	No. Under $10m^2$	No.	No. Under $10m^2$
53	26 15	82 20	25.0	35.50	31.5	13.0	-	159	656.2	207	854.3
54	26 15	82 37	24.5	35.80	156.0	30.0	-	220	423.1	76	146.2
55	26 15	82 54	25.2	36.20	121.0	34.0	-	1102	3096.5	73	205.1
56	26 19	83 10	24.3	36.20	272.0	44.0	-	109	176.3	187	302.5
57	26 14	83 27	24.8	36.10	206.0	57.0	-	196	542.3	96	265.6
58	26 14	83 43	25.1	36.40	195.0	48.0	-	155	381.5	241	593.2
59	26 15	84 02	24.6	36.80	418.0	102.0	-	105	256.2	257	627.1
60	26 30	82 27	24.2	35.80	82.0	14.0	-	756	1290.7	124	211.7
61	26 30	82 45	25.2	35.70	57.5	14.0	-	142	345.7	297	723.1
62	26 30	83 00	25.6	36.00	112.0	30.0	-	413	1106.3	198	530.4
63	26 30	83 18	25.3	36.10	137.0	46.0	-	120	402.9	173	580.9
64	26 30	83 34	25.9	35.80	148.0	51.0	-	28	96.5	141	485.9
65	26 29	83 51	25.9	36.30	270.0	82.0	-	277	841.3	0	0.0
66	26 30	84 08	24.9	36.70	480.0	145.0	-	75	226.6	60	181.3
69	26 45	82 34	24.3	35.80	95.0	16.0	-	471	793.3	63	106.1
70	26 45	82 51	24.6	35.70	72.0	27.0	-	467	1751.3	343	1286.3
71	26 45	83 07	24.2	36.00	157.0	26.0	-	274	453.8	479	793.2
72	26 45	83 24	23.9	36.00	175.0	36.0	-	152	312.7	193	397.0
73	26 46	83 40	24.4	35.70	171.0	47.0	-	194	533.2	122	335.3
74	26 45	83 58	-	36.00	264.0	73.0	-	52	143.8	153	423.1
75	26 45	84 15	24.6	36.40	400.0	114.0	-	117	333.5	182	518.7
76	27 00	82 41	24.6	35.60	44.5	12.0	-	468	1262.0	79	213.0
77	27 00	82 58	-	35.80	60.5	25.0	-	181	747.9	170	702.5
78	27 00	83 14	-	36.00	175.0	39.0	-	439	978.3	198	441.3
79	26 53	83 32	24.8	35.50	140.0	52.0	-	114	423.4	117	434.6
80	27 01	83 48	24.2	35.80	332.0	59.0	-	296	526.0	103	183.0
81	27 00	84 05	24.0	36.10	308.0	80.0	-	154	400.0	158	410.4
82	27 01	84 23	24.4	36.40	222.0	128.0	-	122	703.4	351	2023.8
85	27 15	82 48	-	35.50	28.0	13.0	-	268	1244.3	189	877.5
86	27 16	83 02	24.3	35.60	53.0	23.0	-	201	872.3	337	1462.5
87	27 14	83 21	24.3	35.90	120.0	37.0	-	396	1221.0	142	437.8
88	27 15	83 38	25.1	35.90	127.0	41.0	-	179	577.9	82	264.7
89	27 15	83 53	24.7	35.90	167.0	60.0	-	96	344.9	122	438.3
90	27 15	84 05	24.8	36.00	209.0	64.0	-	73	223.5	302	924.8

Table 16. (continued)

Station	Station Position		Surface Temp. (°C)	Surface Salin. (°/oo)	Volume Filtered (m^3)	Depth of Tow (m)	Zooplankton Volume ($cc/1000m^3$)	Fish Eggs		Fish Larvae	
	Lat. (N)	Long. (W)						No.	No. Under $10m^2$	No.	No. Under $10m^2$
91	27 15	84 30	25.3	36.40	396.0	129.0	-	136	443.0	309	1006.6
92	27 31	82 56	22.5	35.30	21.0	13.0	-	541	3349.0	67	414.8
93	27 31	83 12	23.5	35.80	60.5	33.0	-	138	752.7	432	2356.4
94	27 31	83 29	23.7	35.80	134.0	32.0	-	246	587.5	179	427.5
95	27 31	83 46	23.7	35.50	114.0	53.0	-	126	585.8	211	981.0
96	27 31	84 03	24.7	36.50	171.0	62.0	-	133	482.2	188	681.6
97	27 30	84 21	24.7	36.20	191.0	87.0	-	47	214.1	215	979.3
98	27 31	84 37	25.1	36.30	400.0	135.0	-	107	361.1	140	472.5
101	27 46	83 20	-	35.60	25.5	8.0	-	392	1229.8	68	213.3
102	27 46	83 20	23.7	35.80	53.5	22.0	-	419	1723.0	157	645.6
103	27 46	83 43	23.3	36.10	93.5	26.0	-	219	609.0	107	297.5
104	27 46	83 59	23.2	35.60	124.0	44.0	-	196	695.5	79	280.3
105	27 46	84 10	23.5	35.80	114.0	38.0	-	53	176.7	306	1020.0
106	27 46	84 27	22.3	36.10	164.0	80.0	-	64	312.2	283	1380.5
107	27 46	84 44	23.8	35.80	346.0	195.0	-	157	884.8	70	394.5
114	28 00	84 36	23.7	34.20	157.0	97.0	-	65	401.6	97	599.3
121	28 15	82 57	-	34.10	14.0	4.0	-	272	777.1	41	117.1
122	28 15	83 15	-	33.80	26.0	15.0	-	0	0.0	0	0.0
123	28 15	83 34	-	34.90	66.0	23.0	-	83	289.2	68	237.0
124	28 15	83 49	-	35.30	115.0	29.0	-	309	779.2	43	108.4
125	28 15	84 09	-	35.20	51.5	31.0	-	92	553.8	48	288.9
126	28 15	84 25	24.6	34.70	91.5	55.0	-	56	336.6	238	1,430.6
127	28 15	84 50	23.7	34.80	104.0	91.0	-	57	498.8	255	2,231.3
128	28 30	83 04	23.0	33.70	21.0	5.0	-	362	861.9	224	533.3
129	28 30	83 22	-	33.80	69.5	15.0	-	900	1,942.4	182	392.8
130	28 30	83 41	-	35.20	75.0	23.0	-	204	625.6	68	208.5
131	28 30	83 57	-	35.10	65.0	30.0	-	108	498.5	56	258.5
132	28 30	84 16	26.1	34.80	78.0	41.0	-	477	2,507.3	61	320.6
133	28 30	84 32	26.1	34.50	115.0	55.0	-	173	827.4	188	899.1
134	28 30	84 50	-	34.60	132.0	26.0	-	101	198.9	116	228.5
140	28 45	83 12	-	33.80	16.0	8.0	-	321	1,605.0	34	170.0
141	28 45	83 29	-	34.20	35.5	16.0	-	186	838.3	13	58.6

Table 16. (continued)

Station	Station Position				Surface Temp. (°C)	Surface Salin. (°/oo)	Volume Filtered (m^3)	Depth of Tow (m)	Zooplankton Volume ($cc/1000m^3$)	Fish Eggs		Fish Larvae	
	Lat. (N)		Long. (W)							No.	No. Under $10m^2$	No.	No. Under $10m^2$
142	28	45	83	48	-	34.90	78.0	20.0	-	140	359.0	105	269.2
143	28	45	84	05	-	35.30	82.5	31.0	-	379	1,424.1	122	458.4
144	28	45	84	23	-	35.00	92.5	36.0	-	208	809.5	78	303.6
145	28	45	84	50	23.9	34.50	109.0	55.0	-	151	761.9	88	444.0
146	29.	00	83	19	-	33.40	21.5	6.0	-	208	580.5	234	653.0
147	29	00	83	35	-	33.80	38.0	10.0	-	235	618.4	44	115.8
148	29	00	83	55	-	34.30	55.0	23.0	-	71	296.9	43	179.8
149	29	00	84	12	-	35.10	59.0	23.0	-	94	366.4	161	627.6
150	29	00	84	30	-	35.10	113.0	30.0	-	274	727.4	160	424.8
151	29	00	84	50	-	34.00	69.0	30.0	-	429	1,865.2	19	82.6
157	29	15	83	27	-	33.20	26.0	8.0	-	407	1,252.3	116	356.9
158	29	15	83	43	-	33.90	58.0	15.0	-	178	460.3	79	204.3
159	29	15	84	02	-	34.20	54.5	17.0	-	95	296.3	60	187.2
160	29	15	84	20	-	34.70	92.0	23.0	-	143	357.5	198	495.0
161	29	15	84	50	-	34.00	68.0	24.0	-	1	3.5	0	0.0
167	29	30	83	34	-	33.00	102.0	10.0	-	250	245.1	1,142	1,119.6
168	29	30	83	49	-	33.60	94.5	12.0	-	296	375.9	335	425.4
169	29	30	84	09	-	34.50	89.0	18.0	-	303	612.8	115	232.6
170	29	30	84	28	-	34.90	111.0	19.0	-	937	1,603.9	402	688.1
171	29	30	84	50	21.7	34.80	192.0	11.0	-	78	44.7	0	0.0

Table 17. Summary of Station Data for Catches of Clupeid Eggs and Larvae for Cruise 8C 7113 & TI 7114.

Station	Clupeids				*Brevoortia* sp.				*Opisthonema oglinum*				*Sardinella* sp.				*Harengula jaguana*				*Etrumeus teres*				Unidentified Clupeids			
	Eggs		Larvae		Eggs		Larvae		Eggs		Larvae		Eggs		Larvae		Eggs		Larvae		Eggs		Larvae		Eggs		Larvae	
	No.	No. Under 10m²	No.	No. Under 10m²	No.	No. Under 10m²	No.	No. Under 10m²	No.	No. Under 10m²	No.	No. Under 10m²	No.	No. Under 10m²	No.	No. Under 10m²	No.	No. Under 10m²	No.	No. Under 10m²	No.	No. Under 10m²	No.	No. Under 10m²	No.	No. Under 10m²	No.	No. Under 10m²
10	53	143.2	13	35.1	0	0.0	0	0.0	53	143.2	13	35.1	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0
11	0	0.0	35	57.3	0	0.0	0	0.0	0	0.0	34	55.7	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	1	1.6
12	0	0.0	1	1.8	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	1	1.8	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0
13	1	3.5	1	3.5	0	0.0	0	0.0	1	3.5	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	1	3.5	0	0.0	0	0.0
14	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0
15	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0
18	7	12.2	42	73.1	0	0.0	0	0.0	0	0.0	38	66.1	0	0.0	0	0.0	7	12.2	4	7.0	0	0.0	0	0.0	0	0.0	0	0.0
19	0	0.0	1	1.3	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	1	1.3
20	2	6.5	0	0.0	0	0.0	0	0.0	2	6.5	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0
21	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0
22	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0
23	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0
24	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0
25	0	0.0	1	3.1	0	0.0	0	0.0	0	0.0	1	3.1	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0
26	10	27.0	14	37.8	0	0.0	0	0.0	10	27.0	6	16.2	0	0.0	0	0.0	0	0.0	7	18.9	0	0.0	0	0.0	0	0.0	1	2.7
27	420	1,177.6	2	5.6	0	0.0	0	0.0	420	1,177.6	2	5.6	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0
28	0	0.0	5	15.6	0	0.0	0	0.0	0	0.0	5	15.6	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0
29	0	0.0	6	16.9	0	0.0	0	0.0	0	0.0	6	16.9	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0
30	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0
31	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0
32	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0
33	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0

Table 17. Continued.

Station	Clupeids				*Brevoortia* sp.				*Opisthonema oglinum*				*Sardinella* sp.				*Harengula jaguana*				*Etrumeus teres*				Unidentified Clupeids			
	Eggs		Larvae		Eggs		Larvae		Eggs		Larvae		Eggs		Larvae		Eggs		Larvae		Eggs		Larvae		Eggs		Larvae	
	No.	No. Under $10m^2$	No.	No. Under $10m^2$	No.	No. Under $10m^2$	No.	No. Under $10m^2$	No.	No. Under $10m^2$	No.	No. Under $10m^2$	No.	No. Under $10m^2$	No.	No. Under $10m^2$	No.	No. Under $10m^2$	No.	No. Under $10m^2$	No.	No. Under $10m^2$	No.	No. Under $10m^2$	No.	No. Under $10m^2$	No.	No. Under $10m^2$
36	0	0.0	85	200.0	0	0.0	0	0.0	0	0.0	84	197.6	0	0.0	0	0.0	0	0.0	1	2.4	0	0.0	0	0.0	0	0.0	0	0.0
37	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0
38	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0
39	0	0.0	2	3.2	0	0.0	0	0.0	0	0.0	2	3.2	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0
40	0	0.0	1	3.0	0	0.0	0	0.0	0	0.0	1	3.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0
41	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0
42	0	0.0	2	4.9	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	2	4.9	0	0.0	0	0.0
43	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0
44	0	0.0	18	44.4	0	0.0	0	0.0	0	0.0	17	41.9	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	1	2.5
45	0	0.0	1	1.3	0	0.0	0	0.0	0	0.0	1	1.3	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0
46	1	2.1	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	1	2.1	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0
47	0	0.0	1	1.9	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	1	1.9	0	0.0	0	0.0
48	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0
49	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0
50	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0
53	0	0.0	101	416.8	0	0.0	0	0.0	0	0.0	100	412.7	0	0.0	0	0.0	0	0.0	1	4.1	0	0.0	0	0.0	0	0.0	0	0.0
54	0	0.0	10	19.2	0	0.0	0	0.0	0	0.0	8	15.4	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	2	3.8
55	39	109.6	3	8.4	0	0.0	0	0.0	39	109.6	3	8.4	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0
56	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0
57	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0
58	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0
59	0	0.0	1	2.4	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	1	2.4	0	0.0	0	0.0

Table 17. Continued.

Station	Clupeids				*Brevoortia* sp.				*Opisthonema oglinum*				*Sardinella* sp.				*Harengula jaguana*				*Etrumeus teres*				Unidentified Clupeids			
	Eggs		Larvae		Eggs		Larvae		Eggs		Larvae		Eggs		Larvae		Eggs		Larvae		Eggs		Larvae		Eggs		Larvae	
	No.	No. Under $10m^2$	No.	No. Under $10m^2$	No.	No. Under $10m^2$	No.	No. Under $10m^2$	No.	No. Under $10m^2$	No.	No. Under $10m^2$	No.	No. Under $10m^2$	No.	No. Under $10m^2$	No.	No. Under $10m^2$	No.	No. Under $10m^2$	No.	No. Under $10m^2$	No.	No. Under $10m^2$	No.	No. Under $10m^2$	No.	No. Under $10m^2$
60	0	0.0	26	44.4	0	0.0	0	0.0	0	0.0	26	44.4	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0
61	0	0.0	20	48.7	0	0.0	0	0.0	0	0.0	19	46.3	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	1	2.4
62	0	0.0	14	37.5	0	0.0	0	0.0	0	0.0	12	32.1	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	2	5.4
63	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0
64	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0
65	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0
66	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0
69	0	0.0	4	6.8	0	0.0	0	0.0	0	0.0	3	5.1	0	0.0	0	0.0	0	0.0	1	1.7	0	0.0	0	0.0	0	0.0	0	0.0
70	0	0.0	9	33.8	0	0.0	0	0.0	0	0.0	9	33.8	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0
71	0	0.0	23	38.1	0	0.0	0	0.0	0	0.0	23	38.1	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0
72	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0
73	0	0.0	1	2.7	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	1	2.7	0	0.0	0	0.0
74	0	0.0	12	33.2	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	12	33.2	0	0.0	0	0.0
75	4	11.4	3	8.6	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	4	11.4	3	8.6	0	0.0	0	0.0
76	1	2.7	16	43.1	0	0.0	0	0.0	1	2.7	16	43.1	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0
77	0	0.0	7	28.9	0	0.0	0	0.0	0	0.0	7	28.9	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0
78	0	0.0	3	6.7	0	0.0	0	0.0	0	0.0	3	6.7	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0
79	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0
80	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0
81	0	0.0	3	7.8	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	3	7.8	0	0.0	0	0.0
82	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0

Table 17. Continued.

Station	Clupeids				*Brevoortia* sp.				*Opisthonema oglinum*				*Sardinella* sp.				*Harengula jaguana*				*Etrumeus teres*				Unidentified Clupeids			
	Eggs		Larvae		Eggs		Larvae		Eggs		Larvae		Eggs		Larvae		Eggs		Larvae		Eggs		Larvae		Eggs		Larvae	
	No.	No. Under $10m^2$	No.	No. Under $10m^2$	No.	No. Under $10m^2$	No.	No. Under $10m^2$	No.	No. Under $10m^2$	No.	No. Under $10m^2$	No.	No. Under $10m^2$	No.	No. Under $10m^2$	No.	No. Under $10m^2$	No.	No. Under $10m^2$	No.	No. Under $10m^2$	No.	No. Under $10m^2$	No.	No. Under $10m^2$	No.	No. Under $10m^2$
85	29	134.6	40	185.7	0	0.0	0	0.0	29	134.6	35	162.5	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	5	23.2	0	0.0	0	0.0
86	0	0.0	15	65.1	0	0.0	0	0.0	0	0.0	14	60.8	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	1	4.3
87	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0
88	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0
89	0	0.0	3	10.8	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	3	10.8	0	0.0	0	0.0
90	0	0.0	1	3.1	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	1	3.1	0	0.0	0	0.0	0	0.0	0	0.0
91	0	0.0	2	6.6	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	1	3.3	0	0.0	0	0.0	0	0.0	1	3.3	0	0.0	0	0.0
92	284	1,758.1	8	49.5	0	0.0	0	0.0	284	1,758.1	8	49.5	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0
93	0	0.0	17	92.7	0	0.0	0	0.0	0	0.0	17	92.7	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0
94	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0
95	0	0.0	1	4.6	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	1	4.6	0	0.0	0	0.0
96	0	0.0	1	3.6	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	1	3.6	0	0.0	0	0.0
97	0	0.0	25	113.9	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	25	113.9	0	0.0	0	0.0
98	0	0.0	1	3.4	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	1	3.4	0	0.0	0	0.0
101	0	0.0	5	15.7	0	0.0	0	0.0	0	0.0	5	15.7	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0
102	0	0.0	33	135.7	0	0.0	0	0.0	0	0.0	30	123.4	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	3	12.3
103	0	0.0	11	30.6	0	0.0	0	0.0	0	0.0	10	27.8	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	1	2.8	0	0.0	0	0.0
104	2	7.1	2	7.1	0	0.0	0	0.0	2	7.1	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	2	7.1	0	0.0	0	0.0
105	0	0.0	5	16.6	0	0.0	0	0.0	0	0.0	1	3.3	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	4	13.3	0	0.0	0	0.0
106	0	0.0	4	19.5	0	0.0	0	0.0	0	0.0	1	4.9	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	3	14.6	0	0.0	0	0.0
107	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0

Table 17. Continued.

Station	Clupeids				*Brevoortia* sp.				*Opisthonema oglinum*				*Sardinella* sp.				*Harengula jaguana*				*Etrumeus teres*				Unidentified Clupeids			
	Eggs		Larvae		Eggs		Larvae		Eggs		Larvae		Eggs		Larvae		Eggs		Larvae		Eggs		Larvae		Eggs		Larvae	
	No.	No. Under $10m^2$	No.	No. Under $10m^2$	No.	No. Under $10m^2$	No.	No. Under $10m^2$	No.	No. Under $10m^2$	No.	No. Under $10m^2$	No.	No. Under $10m^2$	No.	No. Under $10m^2$	No.	No. Under $10m^2$	No.	No. Under $10m^2$	No.	No. Under $10m^2$	No.	No. Under $10m^2$	No.	No. Under $10m^2$	No.	No. Under $10m^2$
114	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0
121	41	117.1	22	62.9	0	0.0	0	0.0	0	0.0	1	2.9	0	0.0	1	2.9	41	117.1	18	51.4	0	0.0	0	0.0	0	0.0	2	5.7
122	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0
123	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0
124	0	0.0	2	5.0	0	0.0	0	0.0	0	0.0	2	5.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0
125	0	0.0	1	6.0	0	0.0	0	0.0	0	0.0	1	6.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0
126	0	0.0	7	42.0	0	0.0	0	0.0	0	0.0	3	18.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	4	24.0	0	0.0	0	0.0
127	0	0.0	8	70.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	2	17.5	0	0.0	0	0.0	0	0.0	6	52.5	0	0.0	0	0.0
128	0	0.0	104	257.6	0	0.0	0	0.0	0	0.0	6	14.3	0	0.0	0	0.0	0	0.0	95	226.2	0	0.0	0	0.0	0	0.0	3	17.1
129	0	0.0	3	6.5	0	0.0	0	0.0	0	0.0	3	6.5	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0
130	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0
131	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0
132	1	5.3	0	0.0	0	0.0	0	0.0	1	5.3	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0
133	3	14.3	3	14.3	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	3	14.3	3	14.3	0	0.0	0	0.0
134	0	0.0	5	9.8	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	5	9.8	0	0.0	0	0.0
140	44	220.0	3	15.0	0	0.0	0	0.0	44	220.0	1	5.0	0	0.0	0	0.0	0	0.0	2	10.0	0	0.0	0	0.0	0	0.0	0	0.0
141	0	0.0	1	4.5	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	1	4.5
142	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0
143	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0
144	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0
145	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0

Table 17. Continued.

Station	Clupeids				*Brevoortia* sp.				*Opisthonema oglinum*				*Sardinella* sp.				*Harengula jaguana*				*Etrumeus teres*				Unidentified Clupeids			
	Eggs		Larvae		Eggs		Larvae		Eggs		Larvae		Eggs		Larvae		Eggs		Larvae		Eggs		Larvae		Eggs		Larvae	
	No.	No. Under $10m^2$	No.	No. Under $10m^2$	No.	No. Under $10m^2$	No.	No. Under $10m^2$	No.	No. Under $10m^2$	No.	No. Under $10m^2$	No.	No. Under $10m^2$	No.	No. Under $10m^2$	No.	No. Under $10m^2$	No.	No. Under $10m^2$	No.	No. Under $10m^2$	No.	No. Under $10m^2$	No.	No. Under $10m^2$	No.	No. Under $10m^2$
146	0	0.0	101	291.9	0	0.0	0	0.0	0	0.0	13	36.3	0	0.0	0	0.0	0	0.0	83	231.6	0	0.0	0	0.0	0	0.0	5	14.0
147	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0
148	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0
149	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0
150	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0
151	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0
157	2	6.2	34	104.6	0	0.0	0	0.0	2	6.2	24	73.8	0	0.0	1	3.1	0	0.0	4	12.3	0	0.0	0	0.0	0	0.0	5	15.4
158	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0
159	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0
160	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0
161	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0
167	0	0.0	624	611.7	0	0.0	0	0.0	0	0.0	579	567.6	0	0.0	1	1.0	0	0.0	26	25.5	0	0.0	0	0.0	0	0.0	18	17.6
168	0	0.0	14	17.8	0	0.0	0	0.0	0	0.0	14	17.8	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0
169	0	0.0	1	2.0	0	0.0	0	0.0	0	0.0	1	2.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0
170	0	0.0	2	3.4	0	0.0	0	0.0	0	0.0	1	1.7	0	0.0	0	0.0	0	0.0	1	1.7	0	0.0	0	0.0	0	0.0	0	0.0
171	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0

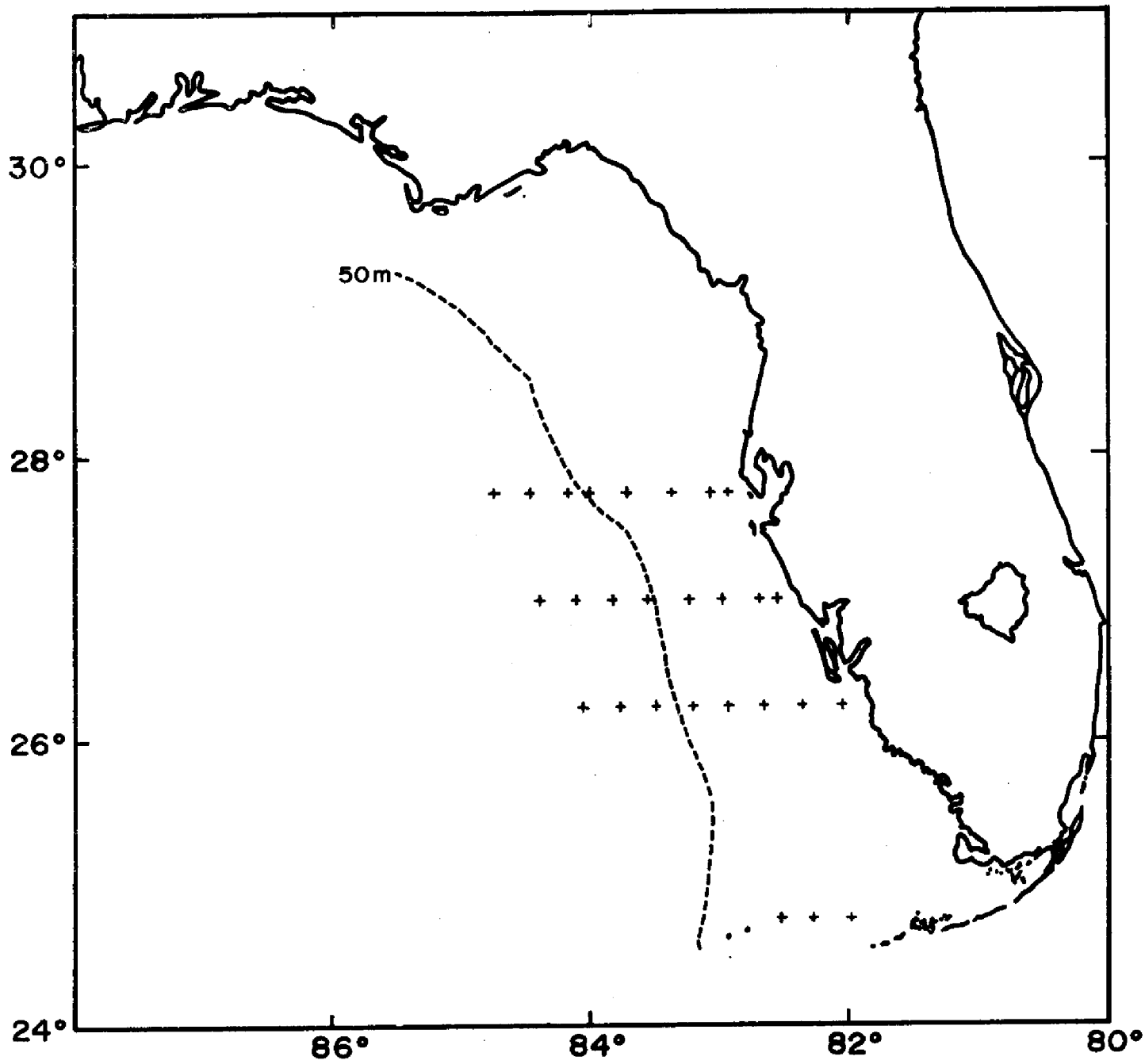


Figure 7. Chart of sampling stations for cruise GE 7117, June-July 1971.

Table 18. Summary of station data for cruise GE 7117

Station	Station Position				Surface Temp. (°C)	Surface Salin. (°/oo)	Volume Filtered (m^3)	Depth of Tow (m)	Zooplankton Volume ($cc/1000m^3$)	Fish Eggs		Fish Larvae	
	Lat. (N)		Long. (W)							No.	No. Under $10m^2$	No.	No. Under $10m^2$
04	24	45	82	14	27.9	36.60	28.6	15.0	-	83	435.3	6	31.5
04 A	24	45	81	57	27.6	36.22	24.2	11.7	-	74	357.8	8	38.7
05	24	45	82	30	28.4	36.29	45.3	19.0	-	21	88.1	6	25.2
53	26	15	82	20	28.1	36.14	46.9	13.0	-	100	277.2	88	243.9
53 A	26	15	82	03	28.3	35.98	40.0	7.0	-	57	99.8	193	337.8
54	26	15	82	37	27.8	36.03	39.0	22.0	-	85	479.5	52	293.3
55	26	15	82	54	27.8	36.04	76.9	28.5	-	166	615.2	31	114.9
56	26	15	83	11	27.7	35.99	101.0	39.0	-	125	482.7	16	61.8
57	26	15	83	28	27.8	35.62	90.8	48.0	-	31	163.9	80	422.9
58	26	15	83	44	27.8	35.54	87.2	56.5	-	51	330.4	62	401.7
59	26	15	84	02	27.8	35.12	109.0	91.0	-	331	2763.4	73	609.5
76	27	00	82	41	28.0	-	38.9	7.5	-	39	75.2	61	117.6
77	27	00	82	58	27.7	35.45	58.0	29.5	-	96	488.3	57	289.9
78	27	00	83	14	27.9	35.54	114.0	32.0	-	71	199.3	65	182.5
79	27	00	83	31	27.9	35.32	84.0	50.0	-	57	339.3	83	494.0
80	27	00	83	48	27.9	35.62	86.6	64.0	-	45	332.6	60	443.4
81	27	00	84	05	27.9	34.37	175.0	82.0	-	27	126.5	232	1087.1
82	27	00	84	22	28.0	35.84	336.5	123.0	-	69	252.2	100	365.5
101	27	46	83	03	28.1	34.50	31.8	13.0	-	354	1447.2	51	208.5
101 A	27	46	82	55	28.3	35.32	23.9	7.0	-	76	222.6	76	222.6
102	27	46	83	20	28.2	35.65	39.5	27.0	-	142	970.6	39	266.6
103	27	46	83	43	28.0	35.56	56.5	36.0	-	208	1325.3	73	465.1
104	27	46	83	59	28.4	35.13	112.5	47.0	-	215	898.2	109	455.4
105	27	46	84	10	28.1	35.17	74.3	44.0	-	105	621.8	222	1314.7
106	27	46	84	27	28.1	35.85	211.0	89.5	-	163	691.4	221	937.4
107	27	46	84	44	28.0	33.84	440.0	145.0	-	73	240.6	77	253.8

Table 19. Summary of Station Data for Catches of Clupeid Eggs and Larvae for Cruise GE 7117.

Station	Clupeids				*Brevoortia* sp.				*Opisthonema oglinum*				*Sardinella* sp.				*Harengula jaguana*				*Etrumeus teres*				Unidentified Clupeids			
	Eggs		Larvae		Eggs		Larvae		Eggs		Larvae		Eggs		Larvae		Eggs		Larvae		Eggs		Larvae		Eggs		Larvae	
	No.	No. Under $10m^2$	No.	No. Under $10m^2$	No.	No. Under $10m^2$	No.	No. Under $10m^2$	No.	No. Under $10m^2$	No.	No. Under $10m^2$	No.	No. Under $10m^2$	No.	No. Under $10m^2$	No.	No. Under $10m^2$	No.	No. Under $10m^2$	No.	No. Under $10m^2$	No.	No. Under $10m^2$	No.	No. Under $10m^2$	No.	No. Under $10m^2$
04	3	15.7	1	5.2	0	0.0	0	0.0	0	0.0	1	5.2	0	0.0	0	0.0	3	15.7	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0
04 A	5	24.2	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	5	24.2	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0
05	0	0.0	3	12.6	0	0.0	0	0.0	0	0.0	3	12.6	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0
53	0	0.0	78	216.2	0	0.0	0	0.0	0	0.0	78	216.2	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0
53 A	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0
54	0	0.0	11	62.1	0	0.0	0	0.0	0	0.0	11	62.1	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0
55	0	0.0	1	3.7	0	0.0	0	0.0	0	0.0	1	3.7	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0
56	2	7.7	0	0.0	0	0.0	0	0.0	2	7.7	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0
57	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0
58	0	0.0	3	19.4	0	0.0	0	0.0	0	0.0	3	19.4	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0
59	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0
76	1	1.9	34	65.5	0	0.0	0	0.0	1	1.9	29	55.9	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	5	9.6
77	0	0.0	8	40.7	0	0.0	0	0.0	0	0.0	8	40.7	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0
78	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0
79	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0
80	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0
81	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0
82	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0
101	11	45.0	9	36.8	0	0.0	0	0.0	11	45.0	9	36.8	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0
101 A	1	2.9	12	35.1	0	0.0	0	0.0	1	2.9	11	32.2	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	1	2.9
102	0	0.0	18	123.0	0	0.0	0	0.0	0	0.0	17	116.2	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	1	6.8
103	0	0.0	4	25.5	0	0.0	0	0.0	0	0.0	4	25.5	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0

Table 19. Continued.

Station	Clupeids				*Brevoortia* sp.				*Opisthonema oglinum*				*Sardinella* sp.				*Harengula jaguana*				*Etrumeus teres*				Unidentified Clupeids			
	Eggs		Larvae		Eggs		Larvae		Eggs		Larvae		Eggs		Larvae		Eggs		Larvae		Eggs		Larvae		Eggs		Larvae	
	No.	No. Under $10m^2$	No.	No. Under $10m^2$	No.	No. Under $10m^2$	No.	No. Under $10m^2$	No.	No. Under $10m^2$	No.	No. Under $10m^2$	No.	No. Under $10m^2$	No.	No. Under $10m^2$	No.	No. Under $10m^2$	No.	No. Under $10m^2$	No.	No. Under $10m^2$	No.	No. Under $10m^2$	No.	No. Under $10m^2$	No.	No. Under $10m^2$
104	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0
105	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0
106	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0
107	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0

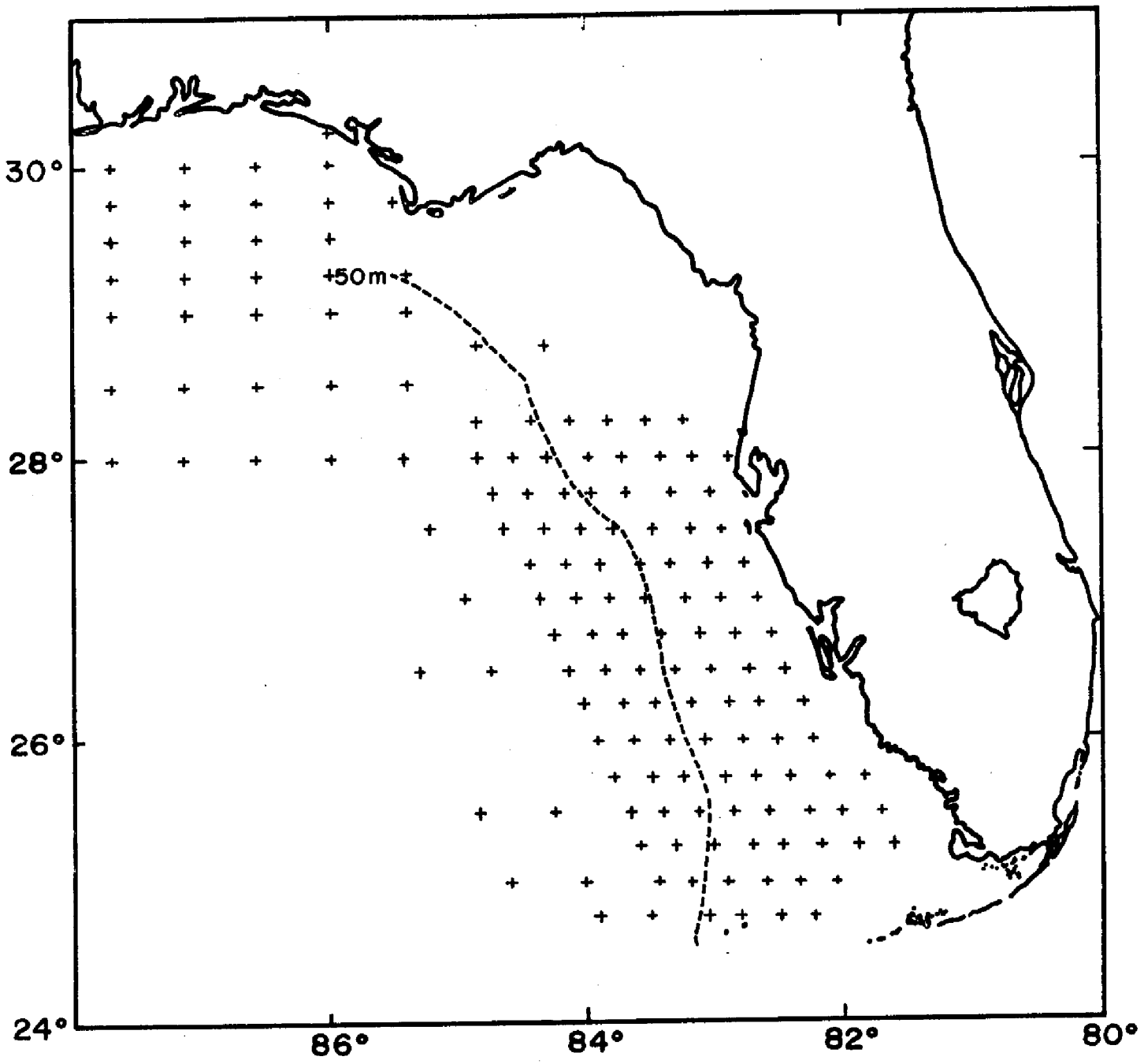


Figure 8. Chart of sampling stations for cruise 8C 7120 - TI 7121, August 1971.

Table 20. Summary of station data for cruise 8C 7120 & TI 7121

Station	Station Position				Surface Temp. (°C)	Surface Salin. (°/oo)	Volume Filtered (m^3)	Depth of Tow (m)	Zooplankton Volume ($cc/1000m^3$)	Fish Eggs		Fish Larvae	
	Lat. (N)		Long. (W)							No.	No. Under $10m^2$	No.	No. Under $10m^2$
04	24	42	82	07	29.6	36.54	117.0	19.0	-	183	297.2	104	168.9
05	24	43	82	34	29.7	36.51	183.0	19.0	-	270	280.3	496	521.2
06	24	45	82	47	29.6	36.40	92.0	27.0	-	251	736.6	169	496.0
07	24	45	83	03	29.6	36.27	109.0	38.0	-	390	1359.6	153	533.4
08	24	50	83	19	29.7	36.16	140.0	51.0	-	49	178.5	207	754.1
09	24	45	83	54	29.8	36.14	362.0	181.0	-	26	130.0	40	200.0
10	25	00	82	04	29.5	36.43	46.0	17.0	-	970	3584.8	45	166.3
11	25	00	82	21	29.5	36.45	46.0	27.0	-	8	47.0	20	1 7.4
12	24	59	83	37	29.3	36.34	130.0	34.0	-	81	211.8	30	78.5
13	25	00	82	53	0.0	36.10	112.0	39.0	-	142	494.5	154	536.3
14	25	00	83	11	0.0	35.91	175.0	50.0	-	41	117.1	188	537.1
15	25	00	83	27	29.1	35.99	123.0	59.0	-	62	297.4	65	311.8
16	24	59	84	05	29.8	35.89	232.0	112.0	-	22	106.2	43	207.6
17	25	00	84	34	29.2	35.67	413.0	176.0	-	7	29.8	65	277.0
18	25	15	81	37	29.1	37.45	28.0	7.0	-	80	200.0	17	42.5
19	25	15	81	54	29.4	36.51	142.0	9.0	-	368	233.2	55	34.9
20	25	15	82	11	0.0	36.42	177.0	18.0	-	481	489.2	373	379.3
21	25	15	82	28	28.7	36.46	224.0	28.0	-	334	417.5	420	525.0
23	25	15	83	01	29.0	35.82	162.0	25.0	-	272	419.8	167	257.7
24	25	15	83	16	28.9	35.78	158.0	39.0	-	117	288.8	161	397.4
25	25	15	83	34	29.0	35.97	263.0	48.0	-	219	399.7	182	332.2
26	25	31	81	47	28.9	36.84	43.0	7.0	-	342	556.7	101	164.4
27	25	30	82	01	29.2	36.50	50.0	16.0	-	52	166.4	15	48.0
28	25	29	82	16	29.0	36.43	75.0	15.0	-	239	478.0	121	242.0
29	25	30	82	35	28.9	36.05	69.0	28.0	-	204	827.8	87	353.0
30	25	30	82	50	29.1	35.99	68.0	36.0	-	64	338.8	35	185.3
31	25	30	83	07	29.2	35.60	100.0	45.0	-	65	292.5	116	522.0
32	25	29	83	24	0.0	35.60	249.0	53.0	-	83	176.7	64	136.2
33	25	30	83	40	28.6	35.80	162.0	71.0	-	102	447.0	118	517.2
34	25	28	84	14	29.0	35.57	916.0	152.0	-	39	64.7	186	308.6
35	25	29	84	48	29.1	35.83	410.0	200.0	-	52	253.7	99	482.9
36	25	54	81	54	28.7	36.44	76.0	4.0	-	590	310.5	66	34.7
37	25	45	82	07	29.0	36.16	54.0	8.0	-	45	66.7	13	19.3
38	25	45	82	24	29.0	36.12	133.0	16.0	-	413	496.8	435	523.3
39	25	45	82	41	29.0	35.96	42.0	20.0	-	239	1138.1	56	266.7
40	25	46	82	57	28.9	35.91	141.0	28.0	-	148	293.9	230	456.7

Table 20. (continued)

Station	Station Position				Surface Temp. (°C)	Surface Salin. (°/oo)	Volume Filtered (m^3)	Depth of Tow (m)	Zooplankton Volume ($cc/1000m^3$)	Fish Eggs		Fish Larvae	
	Lat. (N)		Long. (W)							No.	No. Under $10m^2$	No.	No. Under $10m^2$
41	25	45	83	15	28.8	35.75	165.0	38.0	-	201	462.9	458	1054.8
42	25	43	83	30	28.7	35.03	170.0	41.0	-	400	964.7	318	766.9
43	25	30	83	48	28.7	35.61	322.0	60.0	-	96	178.9	505	941.0
44	26	00	82	14	29.4	36.41	67.0	6.0	-	32	28.7	4	3.6
45	26	00	82	30	29.4	36.51	99.0	13.0	-	50	65.7	22	28.9
46	26	00	82	47	28.8	36.02	74.0	14.0	-	32	60.5	266	503.2
47	26	00	83	04	28.8	35.98	106.0	31.0	-	130	380.2	176	514.7
48	26	00	83	21	28.9	36.21	143.0	33.0	-	239	551.5	253	583.8
49	26	00	83	37	28.6	35.56	171.0	38.0	-	359	797.8	252	560.0
50	26	00	83	54	28.3	36.02	241.0	82.0	-	54	183.7	102	347.1
53	26	15	82	20	29.5	35.97	44.0	8.0	-	972	1767.3	196	356.4
54	26	15	82	37	29.7	36.33	53.0	18.0	-	54	183.4	97	329.4
55	26	15	82	54	29.7	35.70	86.0	23.0	-	208	556.3	76	203.3
56	26	15	83	10	29.8	35.45	67.0	31.0	-	144	666.3	85	393.3
57	26	15	83	26	29.3	36.36	208.0	42.0	-	104	210.0	135	272.6
58	26	15	83	44	28.8	35.21	200.0	48.0	-	366	878.4	117	280.8
59	26	15	84	00	28.5	35.48	324.0	66.0	-	62	126.3	103	209.8
60	26	30	82	26	29.3	36.02	28.0	9.0	-	163	523.9	240	771.4
61	26	30	82	44	29.7	36.06	69.0	9.0	-	136	177.4	62	80.9
62	26	29	83	01	28.9	35.70	96.0	29.0	-	207	625.3	52	157.1
63	26	30	83	17	29.2	35.35	116.0	31.0	-	300	801.7	65	173.7
64	26	30	83	34	29.0	35.42	159.0	41.0	-	233	600.8	109	281.1
65	26	30	83	50	29.0	35.40	234.0	64.0	-	76	207.9	135	369.2
66	26	30	84	08	29.3	35.64	366.0	119.0	-	119	386.9	106	344.6
67	26	30	84	43	0.0	36.68	419.0	175.0	-	55	229.7	85	355.0
68	26	30	85	16	29.1	36.09	348.0	142.0	-	188	767.1	0	0.0
69	26	45	82	35	29.3	36.07	58.4	13.0	-	235	523.1	233	518.7
70	26	45	82	51	28.9	35.96	35.0	19.0	-	1026	5569.7	10	54.3
71	26	45	83	07	29.0	35.70	117.0	31.0	-	205	543.2	70	185.5
72	26	45	83	24	29.1	35.32	123.0	33.0	-	135	362.2	127	340.7
73	26	45	83	40	29.2	35.21	124.0	44.0	-	74	262.6	243	862.3
74	26	45	83	58	29.2	35.16	220.0	58.0	-	210	553.6	93	245.2
75	26	45	84	15	29.6	35.05	508.0	123.0	-	51	123.5	51	123.5
76	27	00	82	42	29.3	36.08	33.0	8.0	-	48	116.4	91	220.6
77	27	00	82	57	28.9	36.06	60.0	26.0	-	401	1737.7	32	138.7
78	27	00	83	14	29.0	35.46	108.0	34.0	-	79	248.7	23	72.4

Table 20. (continued)

Station	Station Position		Surface Temp. (°C)	Surface Salin. (°/oo)	Volume Filtered (m^3)	Depth of Tow (m)	Zooplankton Volume ($cc/1000m^3$)	Fish Eggs		Fish Larvae	
	Lat. (N)	Long. (W)						No.	No. Under $10m^2$	No.	No. Under $10m^2$
79	27 00	83 31	29.5	36.09	134.0	34.0	-	238	603.9	78	197.9
80	27 00	83 48	29.3	35.09	180.0	45.0	-	360	900.0	119	297.5
81	27 00	84 04	29.2	35.06	220.0	67.0	-	82	249.7	123	374.6
82	27 00	84 21	29.0	35.14	358.0	132.0	-	49	180.7	205	755.9
83	27 00	84 57	0.0	35.67	412.0	147.0	-	6	21.4	76	271.2
85	27 15	82 49	30.7	36.01	42.0	6.0	-	30	42.9	64	91.4
86	27 15	83 04	29.6	35.79	83.0	21.0	-	37	93.6	270	683.1
87	27 15	83 21	29.1	35.63	89.0	35.0	-	56	220.2	3	11.8
88	27 15	83 38	29.1	35.27	111.0	35.0	-	200	630.6	37	116.7
89	27 15	83 53	28.8	35.14	163.0	52.0	-	185	590.2	186	593.4
90	27 15	84 11	28.9	35.10	174.0	75.0	-	53	228.4	173	745.7
91	27 15	84 29	29.0	35.31	265.0	121.0	-	41	187.2	127	579.9
92	27 32	82 56	29.9	35.38	40 0	3.0	-	102	76.5	12	9.0
93	27 32	85 13	30.1	35.90	28.0	8.0	-	15	42.9	2	5.7
94	27 32	83 29	29.9	35.01	94.0	33.0	-	145	509.0	22	77.2
95	27 32	83 48	29.9	35.12	93.0	35.0	-	206	775.3	164	617.2
96	27 32	84 03	29.4	34.95	108.0	52.0	-	82	394.8	69	332.2
97	27 32	84 20	29.3	34.99	176.0	83.0	-	26	122.6	210	990.3
98	27 32	84 37	29.0	35.38	324.0	139.0	-	80	346.30	279	1196.9
99	27 30	85 11	29.6	35.40	374.0	180.0	-	14	67.4	169	813.4
101	27 47	83 03	30.4	35.36	46.0	10.0	-	71	154.3	198	430.4
102	27 47	83 19	30.9	35.35	49.0	22.0	-	34	152.7	51	229.0
103	27 47	83 36	29.7	35.22	66.0	30.0	-	107	486.4	16	72.7
104	27 47	83 53	29.6	34.99	85.0	39.0	-	162	743.3	78	357.9
105	27 47	84 10	29.4	35.20	94.0	42.0	-	225	1005.3	50	223.4
106	27 47	84 21	29.1	35.21	203.0	86.0	-	106	449.1	116	491.4
107	27 47	84 44	29.3	35.26	420.0	178.0	-	53	224.6	236	1000.2
108	28 00	82 53	30.4	34.70	20.2	4.0	-	9	17.8	7	13.9
109	28 00	83 10	30.7	35.60	36.0	15.0	-	39	162.5	26	108.3
110	28 01	83 26	30.1	36.00	70.5	30.0	-	108	459.6	10	42.6
111	28 00	83 43	30.1	36.00	81.3	36.0	-	66	292.3	11	48.7
112	28 00	84 00	30.0	35.30	140.0	33.0	-	83	195.6	24	56.6
113	28 00	84 17	29.5	35.00	147.6	50.0	-	125	423.4	208	704.6
114	28 00	84 33	29.5	34.80	116.9	74.0	-	12	76.0	10	63.3
115	28 00	84 50	29.7	35.30	454.0	165.0	-	27	98.1	17	61.8
116	27 59	85 25	29.8	35.10	518.3	212.0	-	5	20.5	65	265.9

Table 20. (continued)

Station	Station Position		Surface Temp. (°C)	Surface Salin. (°/oo)	Volume Filtered (m^3)	Depth of Tow (m)	Zooplankton Volume ($cc/1000m^3$)	Fish Eggs		Fish Larvae	
	Lat. (N)	Long. (W)						No.	No. Under $10m^2$	No.	No. Under $10m^2$
117	28 00	86 00	29.6	35.20	439.7	188.0	-	19	81.2	59	252.3
118	28 01	86 34	29.5	33.60	391.6	200.0	-	22	112.4	138	704.8
119	28 00	87 09	30.1	33.60	575.5	212.0	-	15	55.3	22	81.0
120	28 00	87 42	29.5	-	348.1	256.0	-	4	29.4	104	764.8
123	28 15	83 33	29.7	35.60	49.1	18.0	-	7	25.7	19	69.7
124	28 15	83 49	29.8	35.70	85.5	36.0	-	5	21.1	15	63.2
125	28 15	84 07	29.7	35.20	123.5	31.0	-	196	492.0	155	389.1
126	28 15	84 23	29.6	34.70	99.4	53.0	-	170	906.4	118	629.2
127	28 16	84 50	29.6	34.40	254.2	80.0	-	33	103.9	33	103.9
135	28 30	85 25	29.3	34.40	296.9	181.0	-	43	262.1	83	506.0
136	28 30	86 00	29.7	34.60	384.8	218.0	-	27	153.0	65	368.2
137	28 30	86 34	29.2	35.20	749.1	215.0	-	12	34.4	23	66.0
138	28 30	87 08	29.5	34.40	494.9	168.0	-	21	71.3	55	186.7
139	28 30	87 43	29.8	29.80	422.9	212.0	-	0	0.0	125	626.6
144	28 45	84 20	29.4	34.70	102.0	19.0	-	295	549.5	410	763.7
145	28 45	84 50	29.4	34.60	149.0	34.0	-	125	285.2	122	278.4
152	29 00	85 26	29.1	34.10	130.6	50.0	-	135	516.8	267	1022.2
153	29 00	86 00	29.3	33.60	422.2	212.0	-	47	236.0	103	517.2
154	29 03	86 35	29.3	31.00	520.0	250.0	-	40	192.3	43	206.7
155	29 00	87 09	29.1	33.50	509.0	206.0	-	53	214.5	138	558.5
156	29 00	87 42	29.9	32.20	704.9	251.0	-	151	537.7	54	192.3
162	29 17	85 26	28.9	33.90	120.0	32.0	-	230	613.3	84	224.0
163	29 15	86 00	29.1	33.30	368.2	139.2	-	28	105.7	266	1004.2
164	29 15	86 35	29.7	31.80	416.0	210.0	-	48	242.3	75	378.6
165	29 15	87 09	29.6	-	339.5	221.0	-	11	71.6	104	677.0
166	29 16	87 43	30.0	31.00	463.2	209.0	-	13	58.7	42	189.5
173	29 30	86 00	29.0	33.80	101.8	55.0	-	297	1604.6	90	486.2
174	29 30	86 34	29.7	31.80	523.1	196.0	-	49	183.6	338	1266.5
175	29 31	87 08	29.4	-	361.8	200.0	-	35	193.5	93	514.1
176	29 30	87 43	30.1	30.80	120.5	46.0	-	239	912.4	94	358.8
177	29 45	85 30	29.0	33.20	55.0	16.0	-	74	215.3	53	154.2
178	29 45	86 00	29.2	33.80	96.2	38.0	-	123	485.9	115	454.3
179	29 45	86 34	29.3	31.60	450.0	134.0	-	12	35.7	390	1161.3
180	29 45	87 08	30.1	32.50	666.4	218.0	-	8	26.2	294	961.8
182	29 59	86 00	29.2	33.80	80.2	21.0	-	344	900.7	44	115.2
183	30 00	86 34	29.0	33.40	179.1	50.0	-	607	1694.6	213	594.6
184	30 00	87 09	29.4	33.40	119.8	28.0	-	183	427.7	80	187.0
186	30 14	86 00	28.9	34.20	42.4	14.0	-	114	376.4	106	350.0

Table 21. Summary of Station Data for Catches of Clupeid Eggs and Larvae for Cruise 8C 7120 & TI 7121.

Station	Clupeids				*Brevoortia* sp.				*Opisthonema oglinum*				*Sardinella* sp.				*Harengula jaguana*				*Etrumeus teres*				Unidentified Clupeids			
	Eggs		Larvae		Eggs		Larvae		Eggs		Larvae		Eggs		Larvae		Eggs		Larvae		Eggs		Larvae		Eggs		Larvae	
	No.	No. Under $10m^2$	No.	No. Under $10m^2$	No.	No. Under $10m^2$	No.	No. Under $10m^2$	No.	No. Under $10m^2$	No.	No. Under $10m^2$	No.	No. Under $10m^2$	No.	No. Under $10m^2$	No.	No. Under $10m^2$	No.	No. Under $10m^2$	No.	No. Under $10m^2$	No.	No. Under $10m^2$	No.	No. Under $10m^2$	No.	No. Under $10m^2$
04	29	47.1	35	56.8	0	0.0	0	0.0	0	0.0	34	55.2	6	9.7	0	0.0	23	37.4	1	1.6	0	0.0	0	0.0	0	0.0	0	0.0
05	54	56.1	387	401.8	0	0.0	0	0.0	0	0.0	385	399.7	17	17.7	0	0.0	37	38.4	2	2.1	0	0.0	0	0.0	0	0.0	0	0.0
06	1	2.9	18	52.8	0	0.0	0	0.0	0	0.0	0	0.0	1	2.9	18	52.8	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0
07	0	0.0	29	101.1	0	0.0	0	0.0	0	0.0	29	101.1	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0
08	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0
09	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0
10	523	1,932.8	15	55.5	0	0.0	0	0.0	0	0.0	0	0.0	522	1,929.1	11	40.7	1	3.7	3	11.1	0	0.0	0	0.0	0	0.0	1	3.7
11	0	0.0	2	11.7	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	2	11.7	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0
12	0	0.0	1	2.6	0	0.0	0	0.0	0	0.0	1	2.6	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0
13	0	0.0	3	10.4	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	3	10.4	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0
14	0	0.0	1	2.9	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	1	2.9	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0
15	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0
16	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0
17	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0
18	0	0.0	4	10.0	0	0.0	0	0.0	0	0.0	4	10.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0
19	9	5.7	3	1.9	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	3	1.9	9	5.7	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0
20	0	0.0	120	122.0	0	0.0	0	0.0	0	0.0	119	121.0	0	0.0	0	0.0	0	0.0	1	1.0	0	0.0	0	0.0	0	0.0	0	0.0
21	0	0.0	6	7.5	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	6	7.5	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0
23	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0
24	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0
25	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0

Table 21. Continued.

Station	Clupeids				*Brevoortia* sp.				*Opisthonema oglinum*				*Sardinella* sp.				*Harengula jaguana*				*Etrumeus teres*				Unidentified Clupeids			
	Eggs		Larvae		Eggs		Larvae		Eggs		Larvae		Eggs		Larvae		Eggs		Larvae		Eggs		Larvae		Eggs		Larvae	
	No.	No. Under $10m^2$	No.	No. Under $10m^2$	No.	No. Under $10m^2$	No.	No. Under $10m^2$	No.	No. Under $10m^2$	No.	No. Under $10m^2$	No.	No. Under $10m^2$	No.	No. Under $10m^2$	No.	No. Under $10m^2$	No.	No. Under $10m^2$	No.	No. Under $10m^2$	No.	No. Under $10m^2$	No.	No. Under $10m^2$	No.	No. Under $10m^2$
26	0	0.0	44	71.6	0	0.0	0	0.0	0	0.0	43	70.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	1	1.6
27	0	0.0	4	12.8	0	0.0	0	0.0	0	0.0	4	12.8	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0
28	0	0.0	2	4.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	2	4.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0
29	0	0.0	5	20.3	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	5	20.3	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0
30	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0
31	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0
32	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0
33	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0
34	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0
35	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0
36	0	0.0	5	2.6	0	0.0	0	0.0	0	0.0	5	2.6	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0
37	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0
38	0	0.0	13	15.6	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	13	15.6	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0
39	0	0.0	4	19.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	4	19.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0
40	0	0.0	37	73.5	0	0.0	0	0.0	0	0.0	8	15.9	0	0.0	27	53.6	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	2	4.0
41	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0
42	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0
43	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0
44	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0
45	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0
46	0	0.0	2	3.8	0	0.0	0	0.0	0	0.0	2	3.8	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0

Table 21. Continued.

Station	Clupeids				*Brevoortia* sp.				*Opisthonema oglinum*				*Sardinella* sp.				*Harengula jaguana*				*Etrumeus teres*				Unidentified Clupeids			
	Eggs		Larvae		Eggs		Larvae		Eggs		Larvae		Eggs		Larvae		Eggs		Larvae		Eggs		Larvae		Eggs		Larvae	
	No.	No. Under $10m^2$	No.	No. Under $10m^2$	No.	No. Under $10m^2$	No.	No. Under $10m^2$	No.	No. Under $10m^2$	No.	No. Under $10m^2$	No.	No. Under $10m^2$	No.	No. Under $10m^2$	No.	No. Under $10m^2$	No.	No. Under $10m^2$	No.	No. Under $10m^2$	No.	No. Under $10m^2$	No.	No. Under $10m^2$	No.	No. Under $10m^2$
47	6	17.5	1	2.9	0	0.0	0	0.0	0	0.0	1	2.9	6	17.5	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0
48	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0
49	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0
50	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0
53	0	0.0	74	134.6	0	0.0	0	0.0	0	0.0	71	129.1	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	3	5.5
54	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0
55	0	0.0	2	5.3	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	2	5.3	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0
56	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0
57	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0
58	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0
59	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0
60	4	12.9	32	102.9	0	0.0	0	0.0	4	12.9	28	90.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	4	12.9
61	0	0.0	34	44.3	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	34	44.3	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0
62	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0
63	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0
64	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0
65	0	0.0	1	2.7	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	1	2.7	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0
66	0	0.0	1	3.3	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	1	3.3	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0
67	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0
68	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0
69	48	106.8	37	82.4	0	0.0	0	0.0	0	0.0	22	49.0	48	106.8	14	31.2	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	1	2.2

Table 21. Continued.

Station	Clupeids				*Brevoortia* sp.				*Opisthonema oglinum*				*Sardinella* sp.				*Harengula jaguana*				*Etrumeus teres*				Unidentified Clupeids			
	Eggs		Larvae		Eggs		Larvae		Eggs		Larvae		Eggs		Larvae		Eggs		Larvae		Eggs		Larvae		Eggs		Larvae	
	No.	No. Under $10m^2$	No.	No. Under $10m^2$	No.	No. Under $10m^2$	No.	No. Under $10m^2$	No.	No. Under $10m^2$	No.	No. Under $10m^2$	No.	No. Under $10m^2$	No.	No. Under $10m^2$	No.	No. Under $10m^2$	No.	No. Under $10m^2$	No.	No. Under $10m^2$	No.	No. Under $10m^2$	No.	No. Under $10m^2$	No.	No. Under $10m^2$
70	7	38.0	9	48.8	0	0.0	0	0.0	0	0.0	0	0.0	7	38.0	8	43.4	0	0.0	1	5.4	0	0.0	0	0.0	0	0.0	0	0.0
71	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0
72	0	0.0	3	8.0	0	0.0	0	0.0	0	0.0	3	8.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0
73	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0
74	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0
75	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0
76	21	50.9	20	48.5	0	0.0	0	0.0	13	31.5	20	48.5	0	0.0	0	0.0	8	19.4	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0
77	24	104.0	2	8.7	0	0.0	0	0.0	24	104.0	0	0.0	0	0.0	2	8.7	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0
78	0	0.0	1	3.1	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	1	3.1	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0
79	0	0.0	2	5.1	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	2	5.1	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0
80	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0
81	1	3.0	3	9.1	0	0.0	0	0.0	0	0.0	2	6.1	1	3.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	1	3.0
82	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0
83	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0
85	2	2.9	15	21.4	0	0.0	0	0.0	0	0.0	14	20.0	0	0.0	0	0.0	2	2.9	0	0.0	0	0.0	0	0.0	0	0.0	1	1.4
86	9	22.8	173	437.7	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	169	427.6	9	22.8	0	0.0	0	0.0	0	0.0	0	0.0	4	10.1
87	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0
88	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0
89	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0
90	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0
91	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0

Table 21. Continued.

Station	Clupeids				Brevoortia sp.				Opisthonema oglinum				Sardinella sp.				Harengula jaguana				Etrumeus teres				Unidentified Clupeids			
	Eggs		Larvae		Eggs		Larvae		Eggs		Larvae		Eggs		Larvae		Eggs		Larvae		Eggs		Larvae		Eggs		Larvae	
	No.	No. Under $10m^2$	No.	No. Under $10m^2$	No.	No. Under $10m^2$	No.	No. Under $10m^2$	No.	No. Under $10m^2$	No.	No. Under $10m^2$	No.	No. Under $10m^2$	No.	No. Under $10m^2$	No.	No. Under $10m^2$	No.	No. Under $10m^2$	No.	No. Under $10m^2$	No.	No. Under $10m^2$	No.	No. Under $10m^2$	No.	No. Under $10m^2$
92	63	47.3	6	4.5	0	0.0	0	0.0	0	0.0	6	4.5	0	0.0	0	0.0	63	47.3	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0
93	2	5.7	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	2	5.7	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0
94	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0
95	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0
96	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0
97	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0
98	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0
99	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0
101	0	0.0	165	358.7	0	0.0	0	0.0	0	0.0	165	358.7	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0
102	0	0.0	36	161.6	0	0.0	0	0.0	0	0.0	31	139.2	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	5	22.4
103	0	0.0	7	31.8	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	7	31.8	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0
104	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0
105	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0
106	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0
108	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0
109	0	0.0	21	87.5	0	0.0	0	0.0	0	0.0	21	87.5	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0
110	0	0.0	2	8.5	0	0.0	0	0.0	0	0.0	2	8.5	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0
111	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0
112	0	0.0	1	2.4	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	1	2.4	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0
113	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0
114	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0

Table 21. Continued.

Station	Clupeids				Brevoortia sp.				Opisthonema oglinum				Sardinella sp.				Harengula jaguana				Etrumeus teres				Unidentified Clupeids			
	Eggs		Larvae		Eggs		Larvae		Eggs		Larvae		Eggs		Larvae		Eggs		Larvae		Eggs		Larvae		Eggs		Larvae	
	No.	No. Under $10m^2$	No.	No. Under $10m^2$	No.	No. Under $10m^2$	No.	No. Under $10m^2$	No.	No. Under $10m^2$	No.	No. Under $10m^2$	No.	No. Under $10m^2$	No.	No. Under $10m^2$	No.	No. Under $10m^2$	No.	No. Under $10m^2$	No.	No. Under $10m^2$	No.	No. Under $10m^2$	No.	No. Under $10m^2$	No.	No. Under $10m^2$
115	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0
116	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0
117	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0
118	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0
119	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0
120	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0
123	0	0.0	2	7.3	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	2	7.3	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0
124	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0
125	0	0.0	2	5.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	2	5.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0
126	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0
127	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0
135	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0
136	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0
137	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0
138	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0
139	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0
144	0	0.0	74	137.9	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	44	82.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	30	55.9
145	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0
152	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0
153	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0
154	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0

Table 21. Continued.

Station	Clupeids				*Brevoortia* sp.				*Opisthonema oglinum*				*Sardinella* sp.				*Harengula jaguana*				*Etrumeus teres*				Unidentified Clupeids			
	Eggs		Larvae		Eggs		Larvae		Eggs		Larvae		Eggs		Larvae		Eggs		Larvae		Eggs		Larvae		Eggs		Larvae	
	No.	No. Under $10m^2$	No.	No. Under $10m^2$	No.	No. Under $10m^2$	No.	No. Under $10m^2$	No.	No. Under $10m^2$	No.	No. Under $10m^2$	No.	No. Under $10m^2$	No.	No. Under $10m^2$	No.	No. Under $10m^2$	No.	No. Under $10m^2$	No.	No. Under $10m^2$	No.	No. Under $10m^2$	No.	No. Under $10m^2$	No.	No. Under $10m^2$
155	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0
156	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0
162	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0
163	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0
164	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0
165	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0
166	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0
173	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0
174	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0
175	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0
176	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0
177	0	0.0	1	2.9	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	1	2.9	0	0.0	0	0.0	0	0.0	0	0.0
178	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0
179	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0
180	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0
182	0	0.0	4	10.4	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	2	5.2	0	0.0	2	5.2	0	0.0	0	0.0	0	0.0	0	0.0
183	0	0.0	2	5.6	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	2	5.6	0	0.0	0	0.0	0	0.0	0	0.0
184	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0
186	0	0.0	78	257.5	0	0.0	0	0.0	0	0.0	76	250.9	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	2	6.6

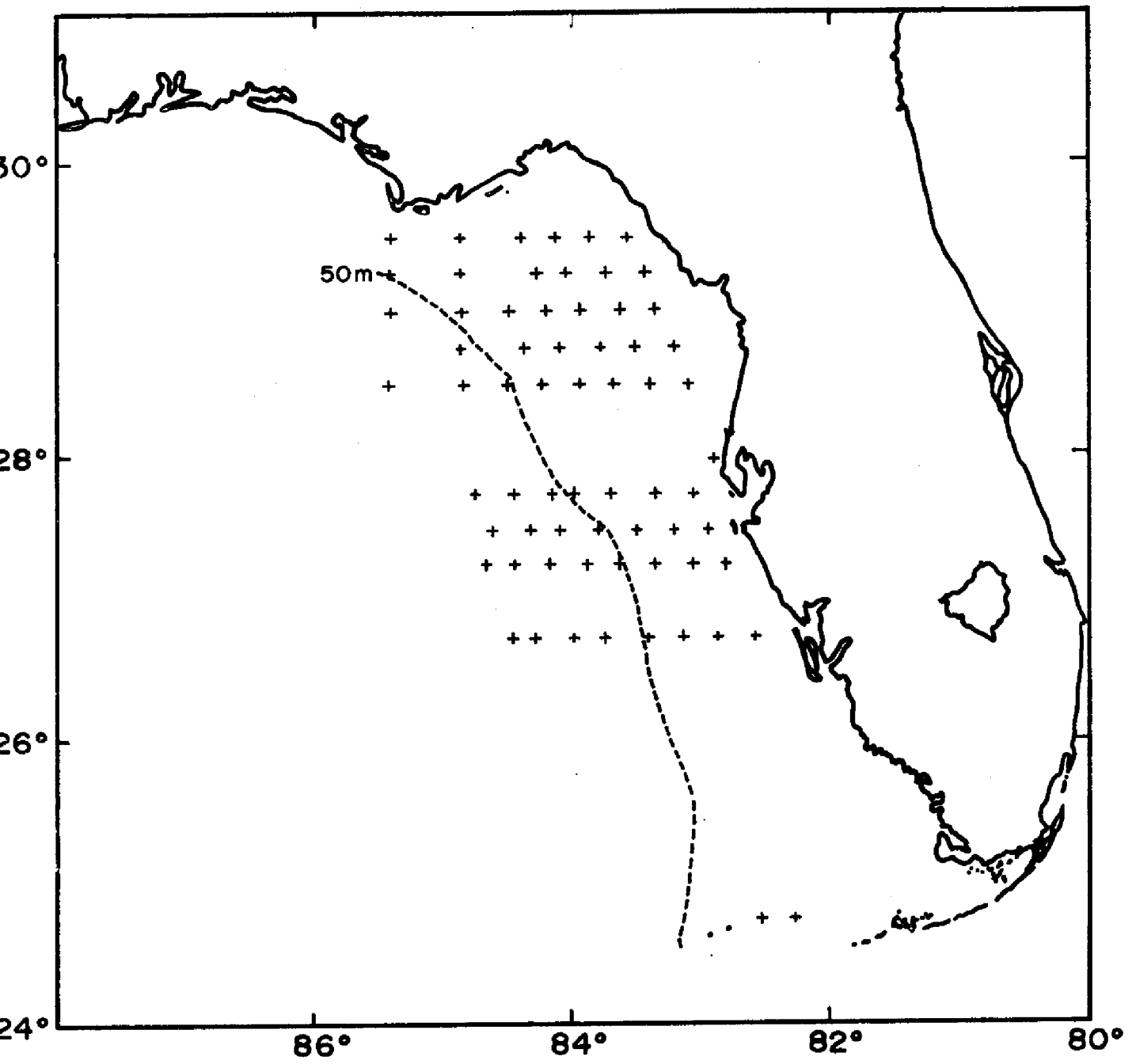


Figure 9. Chart of sampling stations for cruise GE 7127 - TI 7131 - 8B 7132, November, 1971.

Table 22. Summary of station data for cruise TI 7131 & 8B 7132.

Station	Station Position		Surface Temp. (°C)	Surface Salin. (°/oo)	Volume Filtered (m^3)	Depth of Tow (m)	Zooplankton Volume ($cc/1000m^3$)	Fish Eggs		Fish Larvae	
	Lat. (N)	Long. (W)						No.	No. Under $10m^2$	No.	No. Under $10m^2$
69	26 45	82 34	25.7	35.30	35.5	18.0	-	22	111.5	56	283.9
70	26 46	82 49	26.0	35.60	73.1	23.0	-	4	12.6	16	50.3
71	26 49	83 06	26.0	35.70	100.2	40.0	-	80	319.4	18	71.9
72	26 46	83 25	25.3	35.60	227.1	58.0	-	52	132.8	223	569.5
73	26 45	83 42	25.7	35.60	192.3	74.0	-	68	261.7	344	1,323.8
74	26 44	83 58	26.6	36.00	195.1	95.0	-	28	136.3	201	978.7
75	26 42	84 15	26.6	36.20	363.3	151.0	-	37	153.8	91	378.2
75 A	26 44	84 26	26.2	36.20	521.5	180.0	-	46	158.8	69	238.2
85	27 15	82 49	23.7	34.80	36.7	17.0	-	6	27.8	114	528.1
86	27 14	83 04	24.6	35.50	70.1	28.0	-	33	131.8	13	51.9
87	27 15	83 23	25.2	35.80	133.1	41.0	-	44	135.5	111	341.9
88	27 14	83 37	25.1	35.90	152.3	52.0	-	69	235.6	44	150.2
89	27 15	83 54	24.8	36.00	211.1	63.0	-	88	262.6	147	438.7
90	27 16	84 11	25.7	36.20	243.6	84.0	-	86	296.6	115	396.6
91	27 15	84 28	25.6	36.30	448.1	126.0	-	73	205.3	130	365.5
91 A	27 15	84 40	25.4	36.30	607.8	176.0	-	10	29.0	123	356.2
92	27 30	82 56	23.6	34.50	58.0	15.0	-	28	72.4	31	80.2
93	27 31	83 12	24.8	35.40	127.4	27.0	-	13	27.6	23	48.7
94	27 30	83 30	25.2	35.80	139.0	40.0	-	111	319.4	52	149.6
95	27 30	83 46	-	35.90	228.1	46.0	-	178	359.0	92	185.5
96	27 30	84 03	24.5	35.80	220.0	63.0	-	243	695.9	257	736.0
97	27 31	84 20	25.5	36.20	289.1	92.0	-	61	194.1	194	617.4
98	27 31	84 37	25.6	36.30	612.0	151.0	-	62	153.0	190	468.8
101	27 45	83 03	21.5	33.00	61.6	16.0	-	53	137.7	74	192.2
102	27 45	83 20	24.3	35.60	93.1	29.0	-	31	96.6	29	90.3
103	27 46	83 43	24.8	35.70	70.6	42.0	-	244	1,451.6	76	452.1
104	27 46	83 58	24.5	35.60	165.5	54.0	-	652	2,127.4	117	381.8
105	27 45	84 10	24.8	35.90	95.5	51.0	-	36	192.3	48	256.3
106	27 45	84 27	25.3	36.40	115.2	100.0	-	18	156.3	79	685.8
107	27 45	84 43	25.6	36.50	526.9	173.0	-	48	157.6	56	183.9
108	27 59	82 54	22.0	33.60	30.0	7.0	-	357	833.0	8	18.7

Table 22. (continued)

Station	Station Position		Surface Temp. (°C)	Surface Salin. (°/oo)	Volume Filtered (m^3)	Depth of Tow (m)	Zooplankton Volume ($cc/1000m^3$)	Fish Eggs		Fish Larvae	
	Lat. (N)	Long. (W)						No.	No. Under $10m^2$	No.	No. Under $10m^2$
128	28 31	83 06	22.2	34.00	16.6	5.0	-	18	54.2	9	27.1
129	28 30	83 23	22.9	34.90	43.8	15.0	-	42	143.8	69	236.3
130	28 30	83 40	23.9	35.40	60.9	22.0	-	23	83.1	48	173.4
131	28 30	83 56	24.0	35.50	45.2	26.0	-	2	11.5	15	86.3
132	28 30	84 14	23.6	35.60	72.5	25.0	-	41	141.4	69	237.9
133	28 30	84 30	23.4	35.50	67.4	40.0	-	40	237.4	67	397.6
134	28 30	84 50	24.3	35.90	92.3	45.0	-	10	48.8	43	209.6
135	28 29	85 26	24.6	36.50	251.1	185.0	-	22	162.1	64	471.5
140	28 45	83 14	21.5	33.90	16.1	7.0	-	82	356.5	14	60.9
141	28 45	83 31	22.6	34.70	38.8	16.0	-	43	177.3	16	66.0
142	28 44	83 47	23.1	35.00	44.3	20.0	-	31	140.0	10	45.1
143	28 45	84 04	23.6	35.40	67.8	24.0	-	49	173.5	5	17.7
144	28 45	84 21	23.7	35.60	69.7	25.0	-	43	154.2	8	28.7
145	28 45	84 51	23.3	35.60	86.3	40.0	-	34	157.6	49	227.1
146	29 01	83 21	20.6	33.60	31.4	9.0	-	34	97.5	19	54.5
147	29 00	83 37	22.1	34.60	30.2	10.0	-	77	255.0	8	26.5
148	29 01	83 53	23.6	35.10	40.2	17.0	-	24	101.5	12	50.7
149	28 59	84 11	23.6	35.50	58.2	22.0	-	9	34.0	5	18.9
150	28 59	84 29	23.6	35.40	60.9	25.0	-	9	36.9	4	16.4
151	29 01	84 50	23.2	35.50	91.4	35.0	-	117	448.0	22	84.2
152	29 00	85 26	22.4	35.60	116.3	54.0	-	36	167.2	45	208.9
157	29 15	83 26	20.6	33.80	42.9	7.0	-	8	13.1	14	22.8
158	29 15	83 44	22.1	34.60	32.8	12.0	-	3	11.0	3	11.0
159	29 15	84 01	22.8	35.00	38.3	16.0	-	7	29.2	1	4.2
160	29 15	84 17	23.6	35.20	40.8	15.0	-	12	44.1	0	0.0
161	29 15	84 51	22.8	35.00	46.2	20.0	-	85	368.0	2	8.7
162	29 17	85 25	22.4	35.40	90.7	42.0	-	359	1662.4	191	884.5
167	29 32	83 32	19.7	33.80	22.0	4.0	-	5	9.1	1	1.8
168	29 31	83 50	22.1	34.80	40.0	11.0	-	7	19.3	6	16.5
169	29 31	84 08	22.4	35.10	30.6	7.0	-	9	20.6	8	18.3
170	29 30	84 25	23.0	35.10	44.8	18.0	-	4	16.1	2	8.0
171	29 31	84 50	22.6	34.80	24.2	13.0	-	23	123.6	1	5.4
172	29 30	85 26	22.8	34.80	34.0	10.0	-	34	100.0	3	8.8

Table 23. Summary of Station Data for Catches of Clupeid Eggs and Larvae for Cruise TI 7131 & 8B 7132.

Station	Clupeids				*Brevoortia* sp.				*Opisthonema oglinum*				*Sardinella* sp.				*Harengula jaguana*				*Etrumeus teres*				Unidentified Clupeids			
	Eggs		Larvae		Eggs		Larvae		Eggs		Larvae		Eggs		Larvae		Eggs		Larvae		Eggs		Larvae		Eggs		Larvae	
	No.	No. Under $10m^2$	No.	No. Under $10m^2$	No.	No. Under $10m^2$	No.	No. Under $10m^2$	No.	No. Under $10m^2$	No.	No. Under $10m^2$	No.	No. Under $10m^2$	No.	No. Under $10m^2$	No.	No. Under $10m^2$	No.	No. Under $10m^2$	No.	No. Under $10m^2$	No.	No. Under $10m^2$	No.	No. Under $10m^2$	No.	No. Under $10m^2$
69	0	0.0	13	65.9	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	13	65.9	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0
70	0	0.0	2	6.3	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	2	6.3	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0
71	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0
72	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0
73	0	0.0	2	7.7	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	2	7.7	0	0.0	0	0.0
74	0	0.0	1	4.9	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	1	4.9	0	0.0	0	0.0
75	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0
75 A	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0
85	0	0.0	4	18.5	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	4	18.5	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0
86	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0
87	6	18.5	2	6.2	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	1	3.1	0	0.0	0	0.0	6	18.5	1	3.1	0	0.0	0	0.0
88	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0
89	0	0.0	1	3.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	1	3.0	0	0.0	0	0.0
90	23	79.3	8	27.6	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	23	79.3	8	27.6	0	0.0	0	0.0
91	0	0.0	1	2.8	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	1	2.8	0	0.0	0	0.0
91 A	0	0.0	1	2.9	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	1	2.9	0	0.0	0	0.0
92	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0
93	0	0.0	1	2.1	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	1	2.1	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0
94	8	23.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	8	23.0	0	0.0	0	0.0	0	0.0
95	39	78.7	1	2.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	39	78.7	1	2.0	0	0.0	0	0.0
96	1	2.9	4	11.5	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	1	2.9	4	11.5	0	0.0	0	0.0

Table 23. Continued.

Station	Clupeids				*Brevoortia* sp.				*Opisthonema oglinum*				*Sardinella* sp.				*Harengula jaguana*				*Etrumeus teres*				Unidentified Clupeids			
	Eggs		Larvae		Eggs		Larvae		Eggs		Larvae		Eggs		Larvae		Eggs		Larvae		Eggs		Larvae		Eggs		Larvae	
	No.	No. Under $10m^2$	No.	No. Under $10m^2$	No.	No. Under $10m^2$	No.	No. Under $10m^2$	No.	No. Under $10m^2$	No.	No. Under $10m^2$	No.	No. Under $10m^2$	No.	No. Under $10m^2$	No.	No. Under $10m^2$	No.	No. Under $10m^2$	No.	No. Under $10m^2$	No.	No. Under $10m^2$	No.	No. Under $10m^2$	No.	No. Under $10m^2$
97	8	25.5	8	25.5	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	8	25.5	8	25.5	0	0.0	0	0.0
98	0	0.0	1	2.5	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	1	2.5	0	0.0	0	0.0
101	0	0.0	1	2.6	0	0.0	1	2.6	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0
102	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0
103	38	226.1	4	23.8	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	38	226.1	4	23.8	0	0.0	0	0.0
104	507	1,654.3	14	45.7	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	507	1,654.3	14	45.7	0	0.0	0	0.0
105	3	16.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	3	16.0	0	0.0	0	0.0	0	0.0
106	1	8.7	3	26.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	1	8.7	3	26.0	0	0.0	0	0.0
107	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0
108	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0
128	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0
129	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0
130	0	0.0	1	3.6	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	1	3.6	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0
131	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0
132	6	20.7	16	55.2	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	14	48.3	0	0.0	0	0.0	6	20.7	2	6.9	0	0.0	0	0.0
133	28	166.2	3	17.8	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	1	5.9	0	0.0	0	0.0	28	166.2	2	11.9	0	0.0	0	0.0
134	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0
135	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0
140	0	0.0	8	34.8	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	8	34.8	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0
141	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0
142	0	0.0	1	4.5	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	1	4.5	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0

Table 23. Continued.

Station	Clupeids				*Brevoortia* sp.				*Opisthonema oglinum*				*Sardinella* sp.				*Harengula jaguana*				*Etrumeus teres*				Unidentified Clupeids			
	Eggs		Larvae		Eggs		Larvae		Eggs		Larvae		Eggs		Larvae		Eggs		Larvae		Eggs		Larvae		Eggs		Larvae	
	No.	No. Under $10m^2$	No.	No. Under $10m^2$	No.	No. Under $10m^2$	No.	No. Under $10m^2$	No.	No. Under $10m^2$	No.	No. Under $10m^2$	No.	No. Under $10m^2$	No.	No. Under $10m^2$	No.	No. Under $10m^2$	No.	No. Under $10m^2$	No.	No. Under $10m^2$	No.	No. Under $10m^2$	No.	No. Under $10m^2$	No.	No. Under $10m^2$
143	0	0.0	1	3.5	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	1	3.5	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0
144	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0
145	14	64.9	7	32.4	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	3	13.9	0	0.0	0	0.0	14	64.9	4	18.5	0	0.0	0	0.0
146	8	22.9	4	11.5	0	0.0	0	0.0	0	0.0	0	0.0	8	22.9	4	11.5	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0
147	0	0.0	1	3.3	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	1	3.3	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0
148	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0
149	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0
150	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0
151	86	329.3	3	11.5	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	86	329.3	3	11.5	0	0.0	0	0.0
152	22	102.2	4	18.6	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	22	102.2	4	18.6	0	0.0	0	0.0
157	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0
158	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0
159	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0
160	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0
161	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0
162	0	0.0	6	27.8	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	6	27.8	0	0.0	0	0.0
167	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0
168	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0
169	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0
170	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0
171	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0
172	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0

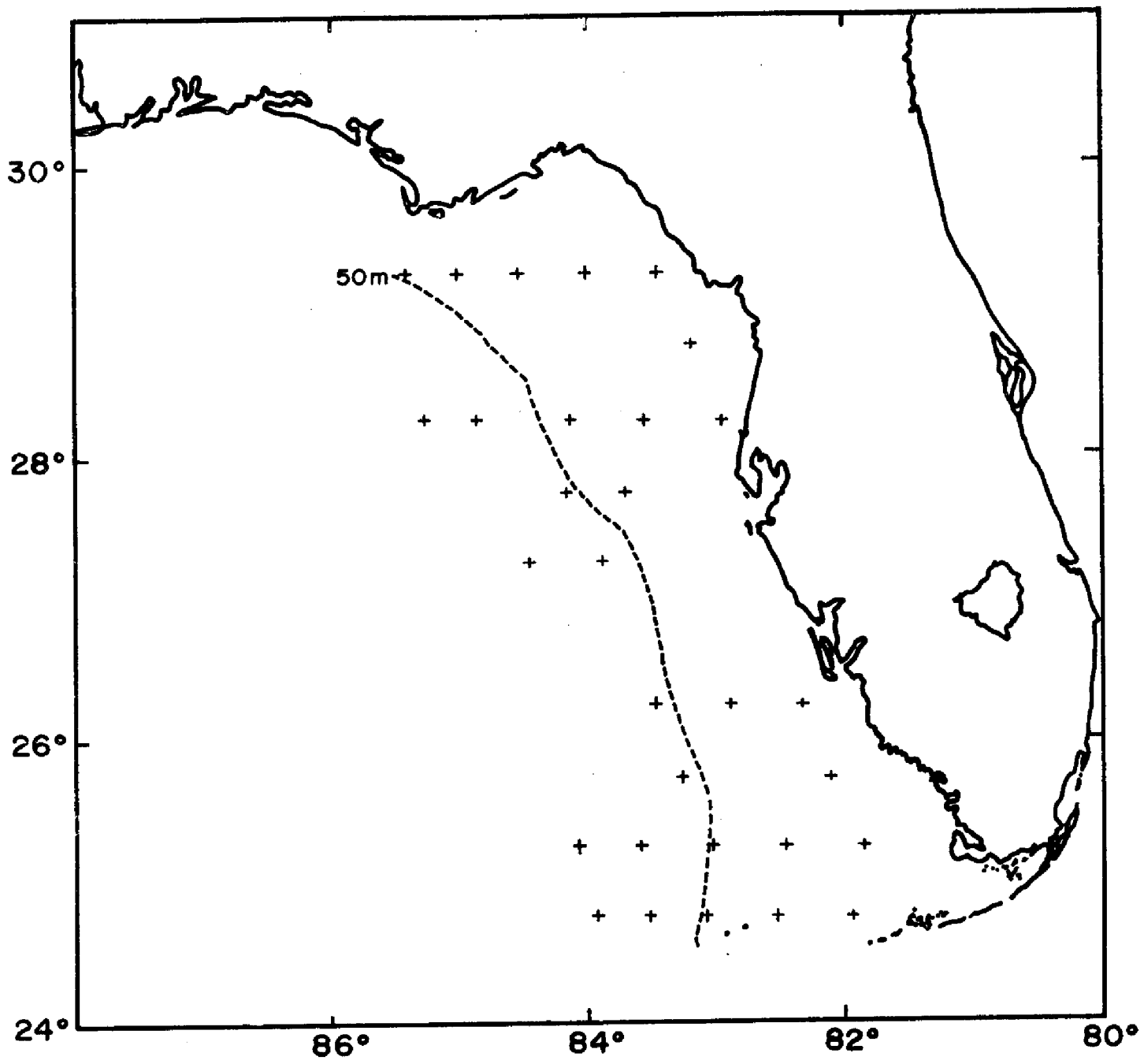


Figure 10. Chart of sampling stations for cruise 8B 7201 - GE 7202, February 1972.

Table 24. Summary of station data for cruise GE 7202 & 8B 7201

Station	Station Position				Surface Temp. (°C)	Surface Salin. (°/oo)	Volume Filtered (m^3)	Depth of Tow (m)	Zooplankton Volume ($cc/1000m^3$)	Fish Eggs		Fish Larvae	
	Lat. (N)		Long. (W)							No.	No. Under $10m^2$	No.	No. Under $10m^2$
4 A	24	45	81	59	23.4	35.74	58.4	12.0	51.4	78	160.3	3	6.2
5	24	45	82	30	24.6	36.02	56.0	21.0	17.9	49	183.8	116	435.0
7	24	45	83	03	24.5	36.03	148.0	37.0	69.0	154	385.0	322	805.0
8	24	45	83	31	24.4	35.32	217.0	62.0	50.7	172	491.4	63	180.0
9	24	45	83	54	24.0	35.91	432.0	128.0	41.7	36	106.7	58	171.9
19	25	15	81	53	21.7	35.52	90.9	8.5	37.6	72	67.3	11	10.3
21	25	15	82	27	22.6	36.16	128.0	33.0	62.5	36	92.8	44	113.4
23	25	15	83	01	24.1	35.76	170.0	51.0	70.6	10	30.0	94	282.0
25	25	15	83	34	24.4	36.08	298.0	50.0	40.3	39	65.4	126	211.4
25 A	25	15	84	04	24.2	35.90	467.0	135.0	38.5	8	23.1	115	332.4
37	25	45	82	07	21.5	35.86	62.0	10.5	177.4	24	40.6	39	66.0
41	25	45	83	14	22.9	36.18	152.1	50.0	151.2	364	1196.6	344	1130.8
53	26	15	82	20	20.4	35.46	77.0	11.0	39.0	10	14.3	30	42.9
55	26	18	82	57	21.6	36.24	97.0	28.0	61.9	63	181.9	66	190.5
57	26	15	83	28	22.6	36.13	205.0	57.0	78.0	104	289.2	172	478.2
89	27	15	83	54	-	36.29	247.0	59.0	-	1088	2598.9	76	181.5
91	27	17	84	27	21.2	36.28	295.3	83.0	40.6	73	205.2	15	42.2
103	27	46	83	37	20.5	36.16	100.3	37.0	49.9	1144	4220.1	57	210.3
105	27	46	84	10	21.3	36.41	84.3	41.0	142.3	306	1488.3	104	505.8
121	28	15	82	59	19.2	32.60	30.5	3.0	163.9	84	82.6	19	18.7
123	28	15	83	32	18.8	36.09	59.7	22.0	16.8	40	147.4	18	66.3
125	28	15	84	08	20.2	36.21	63.8	29.0	156.7	92	418.2	90	409.1
127	28	15	84	41	20.7	36.33	183.2	65.0	81.9	381	1351.8	106	376.1
127 A	28	15	85	15	20.9	36.37	541.8	157.0	29.5	43	124.6	51	147.8
140	28	45	83	13	18.3	34.10	35.8	8.0	-	73	163.1	16	35.8
157	29	15	83	27	17.0	33.20	30.5	7.0	-	33	75.7	16	36.7
159	29	15	84	01	18.2	35.46	77.9	17.0	12.8	31	67.7	40	87.3
161	29	15	84	31	18.8	35.64	78.8	13.0	12.7	128	211.2	29	47.8
161 A	29	15	85	00	17.3	35.39	78.4	22.0	102.0	240	673.5	20	56.1
162	29	15	85	25	18.4	35.78	93.0	37.0		93	370.0	30	119.4

Table 25. Summary of Station Data for Catches of Clupeid Eggs and Larvae for Cruise GE 7202 & 8B 7201.

Station	Clupeids				*Brevoortia* sp.				*Opisthonema oglinum*				*Sardinella* sp.				*Harengula jaguana*				*Etrumeus teres*				Unidentified Clupeids			
	Eggs		Larvae		Eggs		Larvae		Eggs		Larvae		Eggs		Larvae		Eggs		Larvae		Eggs		Larvae		Eggs		Larvae	
	No.	No. Under $10m^2$	No.	No. Under $10m^2$	No.	No. Under $10m^2$	No.	No. Under $10m^2$	No.	No. Under $10m^2$	No.	No. Under $10m^2$	No.	No. Under $10m^2$	No.	No. Under $10m^2$	No.	No. Under $10m^2$	No.	No. Under $10m^2$	No.	No. Under $10m^2$	No.	No. Under $10m^2$	No.	No. Under $10m^2$	No.	No. Under $10m^2$
4 A	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0
5	0	0.0	69	258.8	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	60	225.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	9	33.8
7	25	62.5	30	75.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	7	17.5	0	0.0	0	0.0	25	62.5	23	57.5	0	0.0	0	0.0
8	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0
9	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0
19	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0
21	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0
23	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0
25	0	0.0	1	1.7	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	1	1.7	0	0.0	0	0.0
25 A	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0
37	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0
41	59	194.0	16	52.6	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	59	194.0	16	52.6	0	0.0	0	0.0
53	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0
55	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0
57	3	8.3	33	91.8	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	3	8.3	33	91.8	0	0.0	0	0.0
89	779	1860.8	20	47.8	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	779	1860.8	20	47.8	0	0.0	0	0.0
91	5	14.1	1	2.8	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	5	14.1	0	0.0	0	0.0	1	2.8
103	553	2040.0	28	103.3	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	553	2040.0	28	103.3	0	0.0	0	0.0
105	0	0.0	42	204.3	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	42	204.3	0	0.0	0	0.0
121	4	3.9	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	4	3.9	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0
123	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0

Table 25. Continued.

Station	Clupeids				*Brevoortia* sp.				*Opisthonema oglinum*				*Sardinella* sp.				*Harengula jaguana*				*Etrumeus teres*				Unidentified Clupeids			
	Eggs		Larvae		Eggs		Larvae		Eggs		Larvae		Eggs		Larvae		Eggs		Larvae		Eggs		Larvae		Eggs		Larvae	
	No.	No. Under $10m^2$	No.	No. Under $10m^2$	No.	No. Under $10m^2$	No.	No. Under $10m^2$	No.	No. Under $10m^2$	No.	No. Under $10m^2$	No.	No. Under $10m^2$	No.	No. Under $10m^2$	No.	No. Under $10m^2$	No.	No. Under $10m^2$	No.	No. Under $10m^2$	No.	No. Under $10m^2$	No.	No. Under $10m^2$	No.	No. Under $10m^2$
125	0	0.0	7	31.8	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	7	31.8	0	0.0	0	0.0
127	170	603.2	10	35.5	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	170	603.2	10	35.5	0	0.0	0	0.0
127 A	0	0.0	1	2.9	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	1	2.9	0	0.0	0	0.0
140	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0
157	0	0.0	2	4.6	0	0.0	2	4.6	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0
159	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0
161	0	0.0	1	1.7	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	1	1.7	0	0.0	0	0.0
161 A	193	541.6	1	2.8	193	541.6	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	1	2.8	0	0.0	0	0.0
162	25	99.5	4	15.9	11	43.8	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	14	55.7	4	15.9	0	0.0	0	0.0

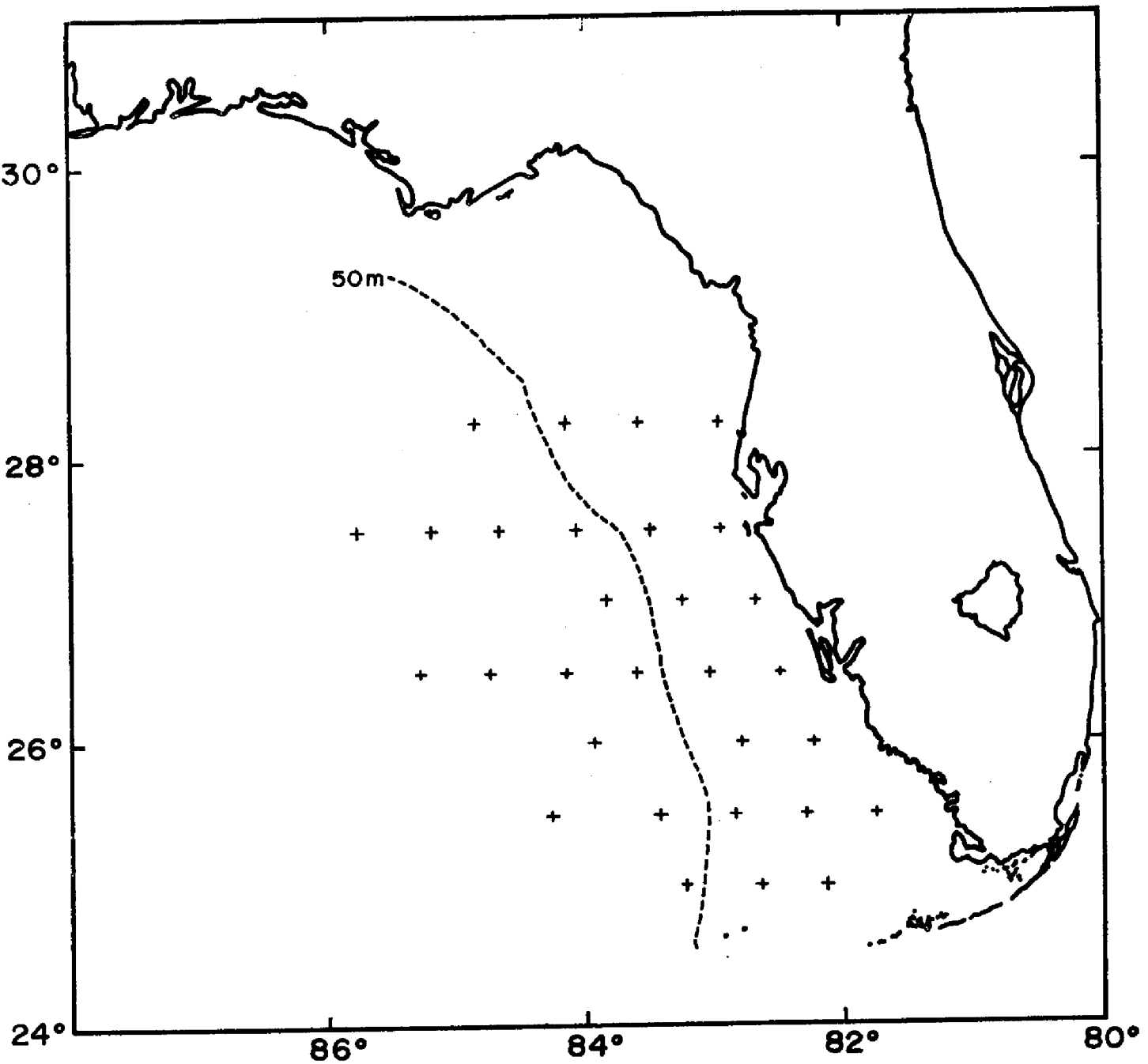


Figure 11. Chart of sampling stations for cruise GE 7208, May 1972.

Table 26. Summary of station data for cruise GE 7208

Station	Station Position				Surface Temp. (°C)	Surface Salin. (°/oo)	Volume Filtered (m^3)	Depth of Tow (m)	Zooplankton Volume ($cc/1000m^3$)	Fish Eggs		Fish Larvae	
	Lat. (N)		Long. (W)							No.	No. Under $10m^2$	No.	No. Under $10m^2$
10	25	00	82	04	24.7	35.85	192.0	17.0	67.7	524	464.0	170	150.5
12	25	00	82	37	23.8	35.28	173.0	27.0	80.9	314	490.1	119	185.7
14	25	00	83	11	24.6	36.12	201.0	46.0	124.4	212	485.2	238	544.7
26	25	30	81	43	25.4	34.75	166.0	2.0	84.3	624	75.2	202	24.3
28	25	30	82	16	-	35.29	142.0	22.0	84.5	398	616.6	120	185.9
30	25	30	82	50	24.6	35.94	160.0	23.0	181.3	150	215.6	625	898.4
32	25	30	83	24	26.7	36.03	185.0	53.0	59.5	195	558.6	114	326.6
34	25	30	84	14	27.2	35.92	543.0	109.0	-	94	188.7	408	819.0
44	26	00	82	14	23.7	35.44	110.0	8.0	190.9	1683	1224.0	251	182.5
46	26	00	82	47	23.6	35.95	141.0	21.0	163.1	1979	2947.4	476	708.9
50	26	00	83	54	26.8	36.15	398.0	89.0	40.2	147	328.7	156	348.8
60	26	30	82	27	24.0	35.28	152.0	9.0	-	3947	2337.0	544	322.1
62	26	30	83	01	22.8	35.83	154.0	24.0	422.1	216	336.6	396	617.1
64	26	30	83	34	26.0	36.17	231.0	62.0	39.0	98	263.0	98	263.0
66	26	30	84	08	24.4	36.26	378.0	144.0	63.5	101	384.8	169	643.8
67	26	30	84	43	25.8	36.06	703.0	206.0	41.3	23	67.4	298	873.2
68	26	30	85	17	25.8	35.94	662.0	220.0	13.6	1	3.3	58	192.7
76	27	00	82	41	23.3	35.49	94.0	16.0	74.5	192	326.8	73	124.3
78	27	00	83	14	23.2	35.76	191.0	24.0	183.2	280	351.8	557	699.9
80	27	00	83	48	23.4	36.14	202.0	44.0	49.5	318	692.7	115	250.5
92	27	30	82	56	23.4	34.72	97.0	8.0	247.4	409	337.3	311	256.5
94	27	30	83	29	23.2	35.90	210.0	29.0	195.2	520	718.1	200	276.2
96	27	30	84	03	23.1	36.05	254.0	66.0	59.1	264	686.0	154	400.2
98	27	30	84	37	25.6	36.14	546.0	144.0	27.5	51	134.5	149	393.0
99	27	30	85	11	24.7	36.20	609.0	94.0	29.6	13	20.1	172	265.5
100	27	30	85	45	25.5	36.19	654.0	183.0	21.4	20	56.0	193	540.0
121	28	15	85	59	23.9	33.97	103.0	5.0	126.2	2064	1001.9	345	167.5
123	28	15	83	33	22.9	35.73	133.0	22.0	165.4	176	291.1	299	494.6
125	28	15	84	08	22.6	35.44	122.0	34.0	106.6	498	1387.9	103	287.0
127	28	15	84	51	24.4	36.27	311.0	91.0	57.9	116	339.4	337	986.1

Table 27. Summary of Station Data for Catches of Clupeid Eggs and Larvae for Cruise GE 7208.

Station	Clupeids				*Brevoortia* sp.				*Opisthonema oglinum*				*Sardinella* sp.				*Harengula jaguana*				*Etrumeus teres*				Unidentified Clupeids			
	Eggs		Larvae		Eggs		Larvae		Eggs		Larvae		Eggs		Larvae		Eggs		Larvae		Eggs		Larvae		Eggs		Larvae	
	No.	No. Under $10m^2$	No.	No. Under $10m^2$	No.	No. Under $10m^2$	No.	No. Under $10m^2$	No.	No. Under $10m^2$	No.	No. Under $10m^2$	No.	No. Under $10m^2$	No.	No. Under $10m^2$	No.	No. Under $10m^2$	No.	No. Under $10m^2$	No.	No. Under $10m^2$	No.	No. Under $10m^2$	No.	No. Under $10m^2$	No.	No. Under $10m^2$
10	0	0.0	50	44.3	0	0.0	0	0.0	0	0.0	41	36.3	0	0.0	0	0.0	0	0.0	9	8.0	0	0.0	0	0.0	0	0.0	0	0.0
12	21	32.8	62	96.7	0	0.0	0	0.0	0	0.0	60	93.6	0	0.0	0	0.0	0	0.0	0	0.0	21	32.8	0	0.0	0	0.0	2	3.1
14	5	11.4	15	34.4	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	12	27.5	0	0.0	0	0.0	5	11.4	3	6.9	0	0.0	0	0.0
26	0	0.0	14	1.7	0	0.0	0	0.0	0	0.0	3	0.4	0	0.0	0	0.0	0	0.0	11	1.3	0	0.0	0	0.0	0	0.0	0	0.0
28	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0
30	0	0.0	97	139.5	0	0.0	0	0.0	0	0.0	2	2.9	0	0.0	95	136.6	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0
32	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0
34	0	0.0	4	8.0	0	0.0	0	0.0	0	0.0	2	4.0	0	0.0	0	0.0	0	0.0	1	2.0	0	0.0	1	2.0	0	0.0	0	0.0
44	0	0.0	2	1.5	0	0.0	0	0.0	0	0.0	2	1.5	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0
46	6	8.9	37	55.1	0	0.0	0	0.0	6	8.9	37	55.1	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0
50	0	0.0	4	8.9	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	4	8.9	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0
60	367	217.3	437	258.8	0	0.0	0	0.0	367	217.3	437	258.8	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0
62	0	0.0	3	4.7	0	0.0	0	0.0	0	0.0	3	4.7	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0
64	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0
66	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0
67	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0
68	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0
76	5	8.5	6	10.2	0	0.0	0	0.0	5	8.5	6	10.2	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0
78	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0
80	0	0.0	4	8.7	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	4	8.7	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0
92	0	0.0	17	14.0	0	0.0	0	0.0	0	0.0	17	14.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0
94	0	0.0	14	19.3	0	0.0	0	0.0	0	0.0	14	19.3	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0
96	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0

Table 27. Continued.

Station	Clupeids				*Brevoortia* sp.				*Opisthonema oglinum*				*Sardinella* sp.				*Harengula jaguana*				*Etrumeus teres*				Unidentified Clupeids			
	Eggs		Larvae		Eggs		Larvae		Eggs		Larvae		Eggs		Larvae		Eggs		Larvae		Eggs		Larvae		Eggs		Larvae	
	No.	No. Under $10m^2$	No.	No. Under $10m^2$	No.	No. Under $10m^2$	No.	No. Under $10m^2$	No.	No. Under $10m^2$	No.	No. Under $10m^2$	No.	No. Under $10m^2$	No.	No. Under $10m^2$	No.	No. Under $10m^2$	No.	No. Under $10m^2$	No.	No. Under $10m^2$	No.	No. Under $10m^2$	No.	No. Under $10m^2$	No.	No. Under $10m^2$
98	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0
99	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0
100	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0
121	299	145.1	75	36.5	0	0.0	0	0.0	142	68.9	2	1.0	0	0.0	1	0.5	157	76.2	72	35.0	0	0.0	0	0.0	0	0.0	0	0.0
123	0	0.0	2	3.3	0	0.0	0	0.0	0	0.0	2	3.3	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0
125	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0
127	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0

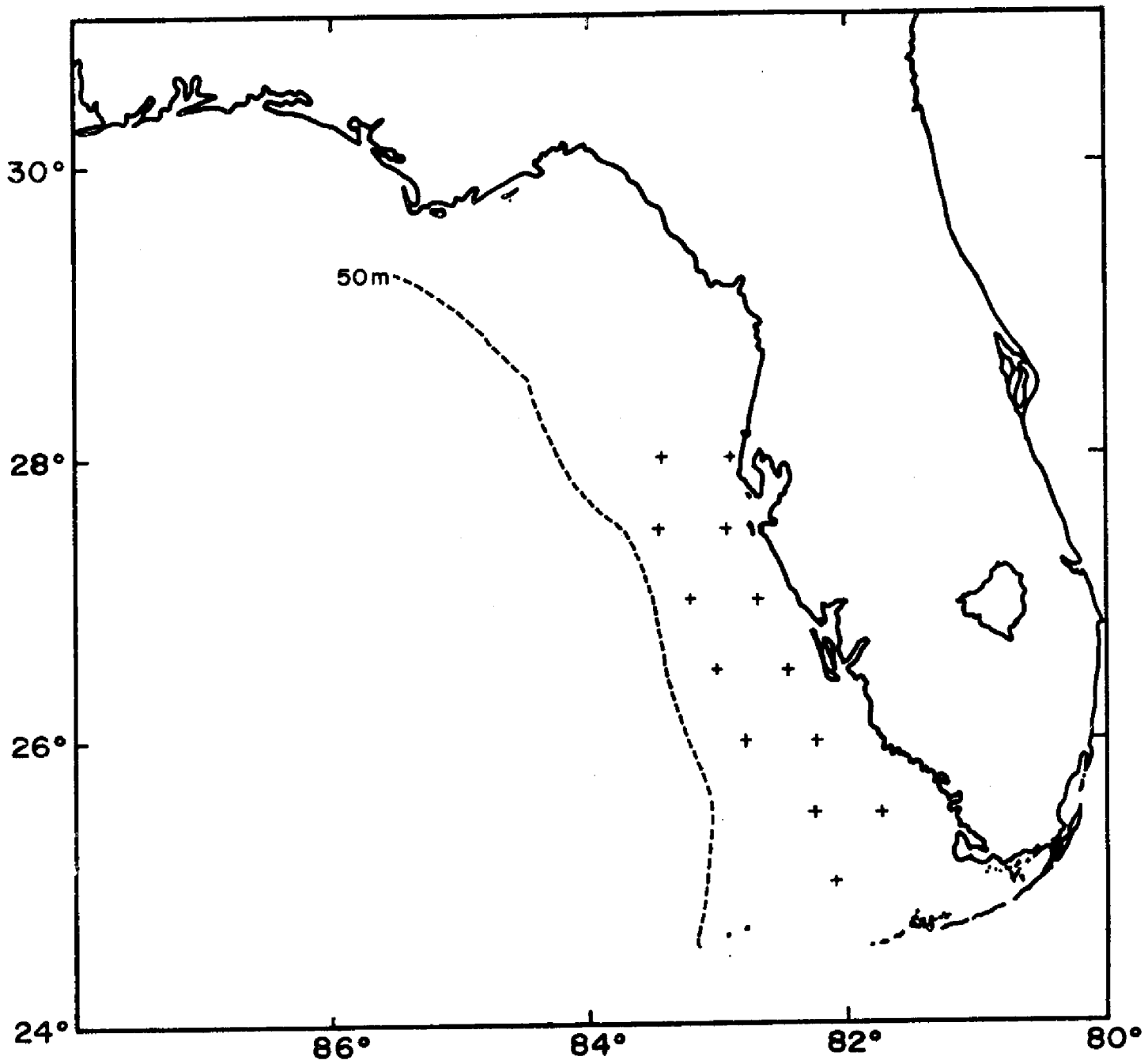


Figure 12. Chart of sampling stations for cruise GE 7210, June 1972.

Table 28. Summary of station data for cruise GE 7210

Station	Station Position				Surface Temp. (°C)	Surface Salin. (°/oo)	Volume Filtered (m^3)	Depth of Tow (m)	Zooplankton Volume ($cc/1000m^3$)	Fish Eggs		Fish Larvae	
	Lat. (N)		Long. (W)							No.	No. Under $10m^2$	No.	No. Under $10m^2$
10	25	00	82	04	25.8	36.28	74.7	8.1	93.7	420	455.4	125	135.5
26	25	30	81	43	28.4	35.82	84.3	7.5	261.0	478	425.3	141	125.4
28	25	30	82	16	26.7	36.05	68.6	14.4	306.1	170	356.9	70	146.9
44	26	00	82	14	26.4	35.83	70.6	9.4	155.8	354	471.3	197	262.3
46	26	00	82	47	-	36.01	100.0	28.0	2060.0	216	604.8	640	1792.0
60	26	30	82	27	26.5	36.25	109.0	12.5	45.9	806	924.3	121	138.8
62	26	30	83	01	26.3	35.88	94.2	31.0	84.9	125	411.4	40	131.6
76	27	00	82	41	26.4	35.74	93.0	9.4	75.3	295	298.2	41	41.4
78	27	00	83	14	26.3	35.86	77.9	24.0	89.9	91	280.4	99	305.0
92	27	30	82	56	26.1	35.62	103.0	10.0	116.5	1113	1080.6	85	82.5
94	27	30	83	29	26.0	36.09	76.6	25.0	169.7	165	538.5	169	551.6
108	28	00	82	52	27.0	35.38	57.9	3.0	51.8	1928	999.0	182	94.3
110	28	00	83	26	26.2	35.87	104.0	20.0	230.8	4	7.7	329	632.7

Table 29. Summary of Station Data for Catches of Clupeid Eggs and Larvae for Cruise GE 7210.

Station	Clupeids				*Brevoortia* sp.				*Opisthonema oglinum*				*Sardinella* sp.				*Harengula jaguana*				*Etrumeus teres*				Unidentified Clupeids			
	Eggs		Larvae		Eggs		Larvae		Eggs		Larvae		Eggs		Larvae		Eggs		Larvae		Eggs		Larvae		Eggs		Larvae	
	No.	No. Under $10m^2$	No.	No. Under $10m^2$	No.	No. Under $10m^2$	No.	No. Under $10m^2$	No.	No. Under $10m^2$	No.	No. Under $10m^2$	No.	No. Under $10m^2$	No.	No. Under $10m^2$	No.	No. Under $10m^2$	No.	No. Under $10m^2$	No.	No. Under $10m^2$	No.	No. Under $10m^2$	No.	No. Under $10m^2$	No.	No. Under $10m^2$
10	0	0.0	28	30.4	0	0.0	0	0.0	0	0.0	28	30.4	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0
26	251	223.3	79	70.3	0	0.0	0	0.0	0	0.0	54	48.0	0	0.0	0	0.0	251	223.3	21	18.7	0	0.0	0	0.0	0	0.0	4	3.6
28	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0
44	0	0.0	69	91.9	0	0.0	0	0.0	0	0.0	64	85.2	0	0.0	0	0.0	0	0.0	5	6.7	0	0.0	0	0.0	0	0.0	0	0.0
46	0	0.0	543	1520.4	0	0.0	0	0.0	0	0.0	540	1512.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	3	8.4
60	0	0.0	67	76.8	0	0.0	0	0.0	0	0.0	67	76.8	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0
62	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0
76	5	5.1	2	2.0	0	0.0	0	0.0	5	5.1	2	2.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0
78	0	0.0	49	151.0	0	0.0	0	0.0	0	0.0	47	144.8	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	2	6.2
92	95	92.2	17	16.5	0	0.0	0	0.0	30	29.1	17	16.5	0	0.0	0	0.0	65	63.1	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0
94	0	0.0	93	303.5	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	93	303.5	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0
108	298	154.4	84	43.5	0	0.0	0	0.0	0	0.0	1	0.5	0	0.0	0	0.0	298	154.4	83	43.0	0	0.0	0	0.0	0	0.0	0	0.0
110	0	0.0	191	367.3	0	0.0	0	0.0	0	0.0	191	367.3	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0

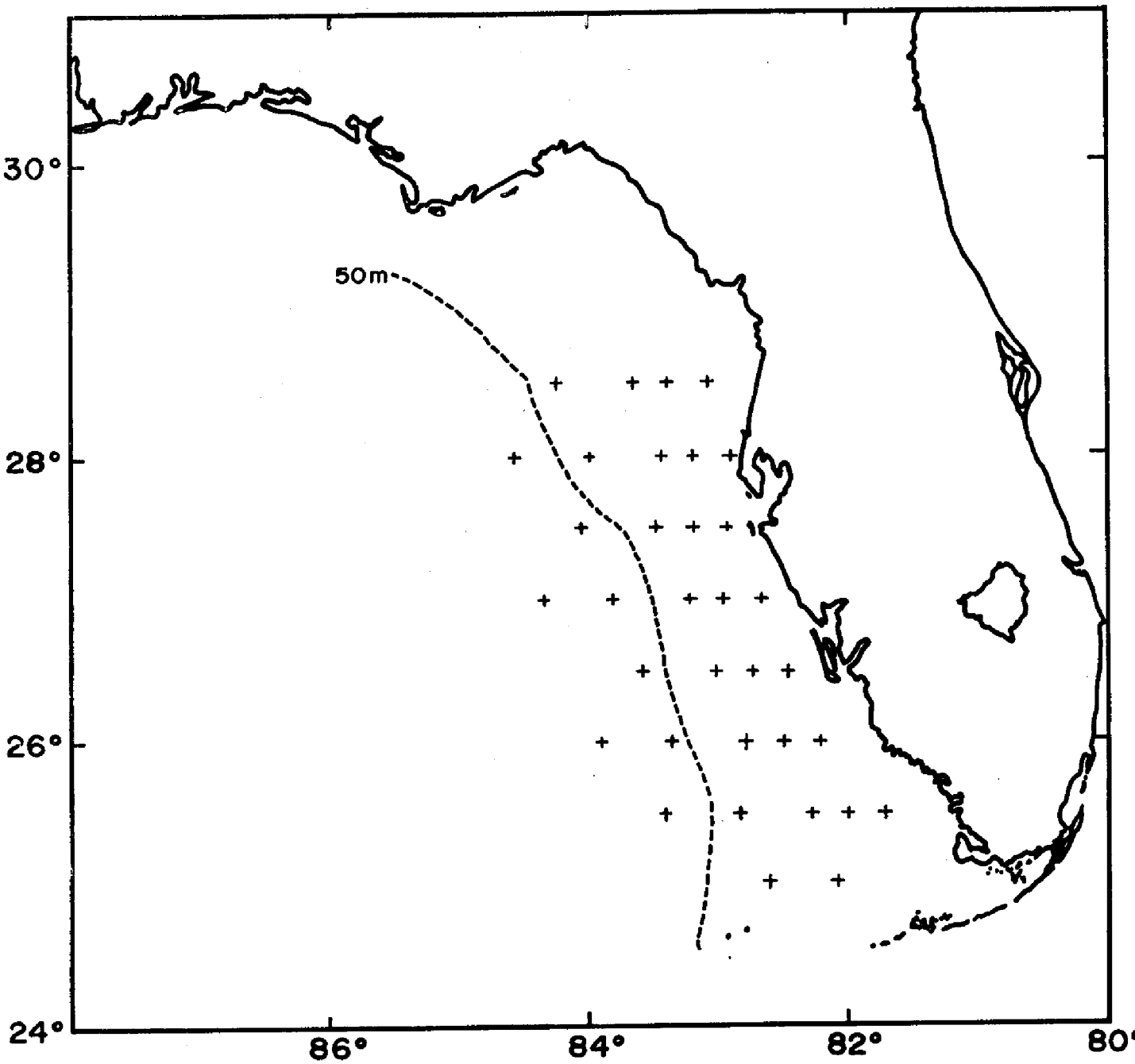


Figure 13. Chart of sampling stations for cruise IS 7205, September 1972.

Table 30. Summary of station data for cruise IS 7205

Station	Station Position				Surface Temp. (°C)	Surface Salin. (°/oo)	Volume Filtered (m^3)	Depth of Tow (m)	Zooplankton Volume ($cc/1000m^3$)	Fish Eggs		Fish Larvae	
	Lat. (N)		Long. (W)							No.	No. Under $10m^2$	No.	No. Under $10m^2$
10	25	00	82	05	28.0	36.13	105.6	10.0	170.5	154	145.8	144	136.4
12	25	00	82	37	29.2	35.89	95.9	33.0	198.2	303	1042.6	295	1015.1
26	25	30	81	43	29.2	35.32	95.0	5.0	168.4	135	71.1	288	151.6
27	25	30	82	00	28.4	36.02	88.0	11.0	136.4	303	378.8	171	213.8
28	25	30	82	16	28.8	35.69	103.4	20.0	135.4	262	506.8	326	630.6
30	25	29	82	50	29.6	35.70	120.4	39.0	141.2	134	434.1	414	1341.0
32	25	30	83	24	29.1	35.91	120.4	59.0	108.0	43	210.7	226	1107.5
44	26	00	82	14	29.0	35.97	72.9	13.0	219.5	512	913.0	207	369.1
45	26	00	82	30	28.7	35.70	107.5	22.0	93.0	237	485.0	132	270.1
46	26	00	82	48	28.8	35.56	107.0	35.0	93.5	66	215.9	97	317.3
48	26	00	83	21	29.0	35.43	110.5	54.0	126.7	67	327.4	129	630.4
50	26	00	83	54	28.6	36.10	216.4	100.0	231.1	189	873.4	178	822.6
60	26	30	82	27	29.9	35.89	99.5	12.0	321.6	264	318.4	356	429.3
61	26	30	82	44	29.2	35.55	94.3	22.0	222.7	85	198.3	71	165.6
62	26	30	83	00	28.7	35.48	103.5	40.0	173.9	118	456.0	614	2372.9
64	26	30	83	34	28.9	35.81	130.8	60.0	99.4	76	348.6	312	1431.2
76	27	00	82	41	28.3	35.50	100.2	13.0	189.6	288	373.7	111	144.0
77	27	00	82	58	28.4	35.47	117.2	24.0	145.1	186	380.9	532	1089.4
78	27	00	83	14	28.5	35.47	95.4	40.0	157.2	235	985.3	675	2830.2
80	27	00	83	48	29.3	35.76	108.8	63.0	128.7	145	839.6	311	1800.8
82	27	00	84	22	29.4	36.18	269.1	140.0	59.5	46	239.3	165	858.4
92	27	30	82	56	28.1	35.60	96.8	6.0	764.5	1027	636.6	485	300.6
93	27	30	83	12	28.1	35.63	98.9	25.0	151.7	97	245.2	299	755.8
94	27	30	83	28	28.8	35.48	111.1	33.0	135.0	474	1407.9	122	362.4
96	27	30	84	03	28.8	35.54	153.7	43.0	143.1	615	1720.6	444	1242.2
108	28	00	82	54	29.2	35.27	117.8	2.0	59.4	430	73.0	56	9.5
109	28	00	83	09	29.1	35.78	85.4	13.0	339.6	336	511.5	399	607.4
110	28	00	83	25	28.5	35.60	79.5	24.0	150.9	438	1322.3	233	703.4
112	28	00	83	59	28.9	35.61	95.1	44.0	294.4	106	490.4	193	893.0
114	28	00	84	34	28.6	35.97	173.1	81.0	69.3	120	561.5	183	856.3
128	28	30	83	05	28.8	35.17	100.0	5.0	170.0	515	257.5	931	465.5
129	28	30	83	23	28.7	35.71	85.0	11.0	211.8	640	828.2	890	1151.8
130	28	30	83	39	28.4	35.85	109.2	19.0	137.4	233	405.4	423	736.0
132	28	30	84	14	28.6	35.50	81.9	33.0	207.6	366	1474.7	460	1853.5

Table 31. Summary of Station Data for Catches of Clupeid Eggs and Larvae for Cruise IS 7205.

Station	Clupeids				*Brevoortia* sp.				*Opisthonema oglinum*				*Sardinella* sp.				*Harengula jaguana*				*Etrumeus teres*				Unidentified Clupeids			
	Eggs		Larvae		Eggs		Larvae		Eggs		Larvae		Eggs		Larvae		Eggs		Larvae		Eggs		Larvae		Eggs		Larvae	
	No.	No. Under $10m^2$	No.	No. Under $10m^2$	No.	No. Under $10m^2$	No.	No. Under $10m^2$	No.	No. Under $10m^2$	No.	No. Under $10m^2$	No.	No. Under $10m^2$	No.	No. Under $10m^2$	No.	No. Under $10m^2$	No.	No. Under $10m^2$	No.	No. Under $10m^2$	No.	No. Under $10m^2$	No.	No. Under $10m^2$	No.	No. Under $10m^2$
10	0	0.0	12	11.4	0	0.0	0	0.0	0	0.0	2	1.9	0	0.0	10	9.5	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0
12	0	0.0	127	437.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	127	437.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0
26	0	0.0	92	48.4	0	0.0	0	0.0	0	0.0	1	0.5	0	0.0	91	47.9	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0
27	0	0.0	1	1.3	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	1	1.3	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0
28	0	0.0	63	121.9	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	63	121.9	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0
30	1	3.2	290	939.4	0	0.0	0	0.0	0	0.0	0	0.0	1	3.2	290	939.4	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0
32	0	0.0	4	19.6	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	4	19.6	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0
44	0	0.0	41	73.1	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	41	73.1	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0
45	0	0.0	11	22.5	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	11	22.5	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0
46	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0
48	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0
50	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0
60	0	0.0	18	21.7	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	17	20.5	0	0.0	1	1.2	0	0.0	0	0.0	0	0.0	0	0.0
61	0	0.0	3	7.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	3	7.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0
62	0	0.0	413	1596.1	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	410	1584.5	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0
64	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0
76	0	0.0	14	18.2	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	14	18.2	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0
77	0	0.0	426	872.4	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	422	864.2	0	0.0	4	8.2	0	0.0	0	0.0	0	0.0	0	0.0
78	0	0.0	525	2201.3	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	521	2184.5	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	4	16.8
80	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0
82	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0
92	30	18.6	259	160.5	0	0.0	0	0.0	0	0.0	0	0.0	30	18.6	259	160.5	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0
93	0	0.0	28	70.8	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	28	70.8	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0

Table 31. Continued.

Station	Clupeids				Brevoortia sp.				Opisthonema oglinum				Sardinella sp.				Harengula jaguana				Etrumeus teres				Unidentified Clupeids			
	Eggs		Larvae		Eggs		Larvae		Eggs		Larvae		Eggs		Larvae		Eggs		Larvae		Eggs		Larvae		Eggs		Larvae	
	No.	No. Under $10m^2$	No.	No. Under $10m^2$	No.	No. Under $10m^2$	No.	No. Under $10m^2$	No.	No. Under $10m^2$	No.	No. Under $10m^2$	No.	No. Under $10m^2$	No.	No. Under $10m^2$	No.	No. Under $10m^2$	No.	No. Under $10m^2$	No.	No. Under $10m^2$	No.	No. Under $10m^2$	No.	No. Under $10m^2$	No.	No. Under $10m^2$
94	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0
96	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0
108	0	0.0	12	2.1	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	11	1.9	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	1	0.2
109	0	0.0	80	121.8	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	80	121.8	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0
110	0	0.0	42	126.8	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	42	126.8	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0
112	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0
114	0	0.0	2	9.4	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	2	9.4
128	0	0.0	795	397.5	0	0.0	0	0.0	0	0.0	51	25.5	0	0.0	720	360.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	24	12.0
129	0	0.0	281	363.7	0	0.0	0	0.0	0	0.0	21	27.2	0	0.0	258	333.9	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	2	2.6
130	0	0.0	118	205.3	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	117	203.6	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	1	1.7
132	0	0.0	182	733.3	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	179	721.2	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	3	12.1

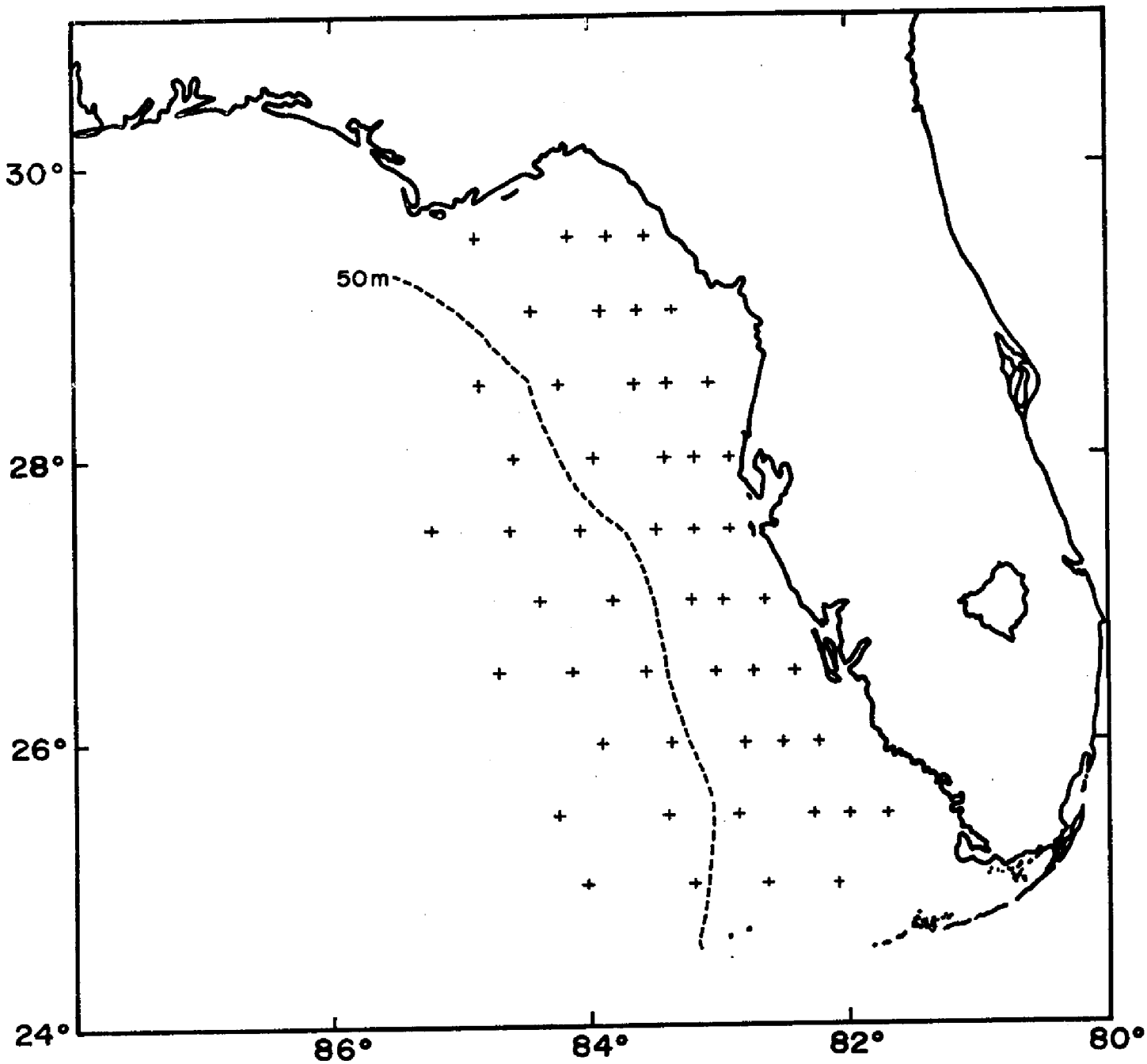


Figure 14. Chart of sampling stations for cruise IS 7209, November 1972.

Table 32. Summary of station data for cruise IS 7209

Station	Station Position		Surface Temp. (°C)	Surface Salin. (°/oo)	Volume Filtered (m^3)	Depth of Tow (m)	Zooplankton Volume ($cc/1000m^3$)	Fish Eggs		Fish Larvae	
	Lat. (N)	Long. (W)						No.	No. Under $10m^2$	No.	No. Under $10m^2$
10	25 00	82 04	26.2	36.33	81.0	13.0	123.5	113	181.3	5	8.0
12	25 00	82 37	27.0	36.15	124.9	21.0	56.0	102	171.5	133	223.6
14	25 00	83 11	27.0	35.92	97.3	46.0	41.1	17	80.4	160	756.4
16	25 00	83 44	27.3	36.10	172.2	76.0	75.5	75	331.0	141	622.3
26	25 30	81 43	27.1	36.34	121.9	6.0	114.8	407	200.3	9	4.4
27	25 30	82 00	26.3	36.33	100.0	8.0	12.4	386	308.8	27	21.6
28	25 30	82 16	26.0	36.17	113.6	20.0	264.1	48	84.5	143	251.8
30	25 30	82 50	26.5	36.01	89.9	41.0	89.0	86	392.2	133	606.6
32	25 30	83 24	26.8	36.08	121.3	62.0	90.7	44	224.9	58	296.5
34	25 30	84 14	27.2	36.12	286.9	146.0	34.9	12	61.1	63	320.6
44	26 00	82 14	25.4	36.31	115.3	8.0	52.0	60	41.6	90	62.4
45	26 00	82 30	25.7	36.12	134.7	17.0	252.4	102	128.7	76	95.9
46	26 00	82 47	26.1	36.01	120.9	37.0	148.9	91	278.5	91	278.5
48	26 00	83 21	26.8	36.30	107.7	57.0	157.8	59	312.3	280	1,481.9
50	26 00	83 54	27.1	36.03	196.8	105.0	76.2	20	106.7	168	896.3
60	26 30	82 27	25.2	36.20	103.7	13.0	221.8	197	247.0	74	92.8
61	26 30	82 44	25.9	35.96	104.5	18.0	134.0	329	566.7	78	134.4
62	26 30	83 01	27.0	36.26	116.5	30.0	85.8	100	257.5	56	144.2
64	26 30	83 34	26.6	36.16	111.0	61.0	81.1	28	153.9	84	461.6
66	26 30	84 08	26.9	36.15	265.0	137.0	64.2	22	113.7	42	217.1
67	26 30	84 43	27.1	36.25	351.4	163.0	34.1	14	64.9	75	347.9
76	27 00	82 41	24.9	36.06	112.1	12.0	178.4	569	609.1	209	223.7
77	27 00	82 58	25.8	35.93	111.3	19.0	161.7	79	134.9	159	271.4
78	27 00	83 14	26.0	36.03	105.6	29.0	132.6	37	101.6	129	354.3
80	27 00	83 48	26.8	36.27	113.5	58.0	79.3	3	15.3	115	587.7
82	27 00	84 22	26.9	36.23	245.8	137.0	44.8	15	83.6	191	1,064.6
92	27 30	82 56	24.9	35.94	92.2	8.0	271.1	325	282.0	185	160.5
93	27 30	83 12	25.4	36.05	104.3	24.0	115.1	111	255.4	77	177.2
94	27 30	83 29	25.4	35.99	131.0	30.0	129.8	37	84.7	166	380.2
96	27 30	84 03	26.1	36.17	138.2	62.0	86.8	45	201.9	153	686.4
98	27 30	84 37	26.7	36.30	276.7	145.0	36.1	13	68.1	71	372.1
99	27 30	85 11	27.1	36.25	394.6	214.0	30.4	10	54.2	97	526.1
108	27 59	82 54	24.6	35.02	102.5	5.0	58.5	1,510	736.6	1	0.5
109	28 00	83 09	24.9	35.77	111.3	13.0	224.6	78	91.1	20	23.4

Table 32. (continued)

Station	Station Position				Surface Temp. (°C)	Surface Salin. (°/oo)	Volume Filtered (m^3)	Depth of Tow (m)	Zooplankton Volume ($cc/1000m^3$)	Fish Eggs		Fish Larvae	
	Lat. (N)		Long. (W)							No.	No. Under $10m^2$	No.	No. Under $10m^2$
110	28	00	83	26	24.8	35.85	109.8	19.0	227.7	41	70.9	83	143
112	28	00	83	59	25.6	36.16	116.1	38.0	68.9	44	144.0	50	163.7
114	28	00	84	34	26.2	36.18	180.7	87.0	44.3	97	467.0	211	1,015.9
128	28	30	83	05	24.6	35.24	107.2	4.0	74.6	62	23.1	2	0.7
129	28	30	83	23	25.0	35.84	92.4	13.0	140.7	49	68.9	21	29.5
130	28	30	83	39	24.9	35.81	95.0	21.0	84.2	46	101.7	66	145.9
132	28	30	84	14	25.4	36.15	104.4	16.0	67.1	96	147.1	75	114.9
134	28	30	84	51	25.6	36.30	134.4	56.0	96.7	57	237.5	133	554.2
146	29	00	83	20	23.6	34.34	98.7	6.0	202.6	369	224.3	1	7.3
147	29	00	83	37	24.0	35.58	105.9	8.0	-	285	215.3	65	49.1
148	29	00	83	54	24.3	35.75	98.6	8.0	233.3	41	33.3	32	26.0
150	29	00	84	28	23.9	35.97	104.4	28.0	143.7	48	128.7	80	214.6
167	29	30	83	34	22.2	33.81	107.1	5.0	177.4	183	85.4	10	4.7
168	29	30	83	51	23.3	35.59	95.1	11.0	210.3	30	34.7	42	48.6
169	29	30	84	08	23.2	35.62	93.3	14.0	160.8	42	63.0	62	93.0
171	29	30	84	51	22.8	35.18	97.3	13.0	154.2	127	169.7	8	10.7

Table 33. Summary of Station Data for Catches of Clupeid Eggs and Larvae for Cruise IS 7209.

Station	Clupeids				*Brevoortia* sp.				*Opisthonema oglinum*				*Sardinella* sp.				*Harengula jaguana*				*Etrumeus teres*				Unidentified Clupeids			
	Eggs		Larvae		Eggs		Larvae		Eggs		Larvae		Eggs		Larvae		Eggs		Larvae		Eggs		Larvae		Eggs		Larvae	
	No.	No. Under $10m^2$	No.	No. Under $10m^2$	No.	No. Under $10m^2$	No.	No. Under $10m^2$	No.	No. Under $10m^2$	No.	No. Under $10m^2$	No.	No. Under $10m^2$	No.	No. Under $10m^2$	No.	No. Under $10m^2$	No.	No. Under $10m^2$	No.	No. Under $10m^2$	No.	No. Under $10m^2$	No.	No. Under $10m^2$	No.	No. Under $10m^2$
10	1	1.6	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	1	1.6	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0
12	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0
14	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0
16	0	0.0	8	35.3	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	8	35.3	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0
26	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0
27	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0
28	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0
30	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0
32	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0
34	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0
44	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0
45	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0
46	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0
48	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0
50	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0
60	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0
61	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0
62	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0
64	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0
66	1	5.2	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	1	5.2	0	0.0	0	0.0	0	0.0
67	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0

Table 33. Continued.

Station	Clupeids				*Brevoortia* sp.				*Opisthonema oglinum*				*Sardinella* sp.				*Harengula jaguana*				*Etrumeus teres*				Unidentified Clupeids			
	Eggs		Larvae		Eggs		Larvae		Eggs		Larvae		Eggs		Larvae		Eggs		Larvae		Eggs		Larvae		Eggs		Larvae	
	No.	No. Under $10m^2$	No.	No. Under $10m^2$	No.	No. Under $10m^2$	No.	No. Under $10m^2$	No.	No. Under $10m^2$	No.	No. Under $10m^2$	No.	No. Under $10m^2$	No.	No. Under $10m^2$	No.	No. Under $10m^2$	No.	No. Under $10m^2$	No.	No. Under $10m^2$	No.	No. Under $10m^2$	No.	No. Under $10m^2$	No.	No. Under $10m^2$
76	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0
77	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0
78	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0
80	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0
82	3	16.7	11	61.3	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0
92	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	3	16.7	11	61.3	0	0.0	0	0.0
93	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0
94	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0
96	3	13.5	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0
98	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	3	13.5	0	0.0	0	0.0	0	0.0
99	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0
108	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0
109	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0
110	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0
112	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0
114	1	4.8	4	19.3	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	1	4.8	4	19.3	0	0.0	0	0.0
128	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0
129	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0
130	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0
132	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0
134	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0

Table 33. Continued.

Station	Clupeids				Brevoortia sp.				Opisthonema oglinum				Sardinella sp.				Harengula jaguana				Etrumeus teres				Unidentified Clupeids			
	Eggs		Larvae		Eggs		Larvae		Eggs		Larvae		Eggs		Larvae		Eggs		Larvae		Eggs		Larvae		Eggs		Larvae	
	No.	No. Under $10m^2$	No.	No. Under $10m^2$	No.	No. Under $10m^2$	No.	No. Under $10m^2$	No.	No. Under $10m^2$	No.	No. Under $10m^2$	No.	No. Under $10m^2$	No.	No. Under $10m^2$	No.	No. Under $10m^2$	No.	No. Under $10m^2$	No.	No. Under $10m^2$	No.	No. Under $10m^2$	No.	No. Under $10m^2$	No.	No. Under $10m^2$
146	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0
147	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0
148	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0
150	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0
167	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0
168	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0
169	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0
171	1	1.3	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	1	1.3	0	0.0	0	0.0	0	0.0

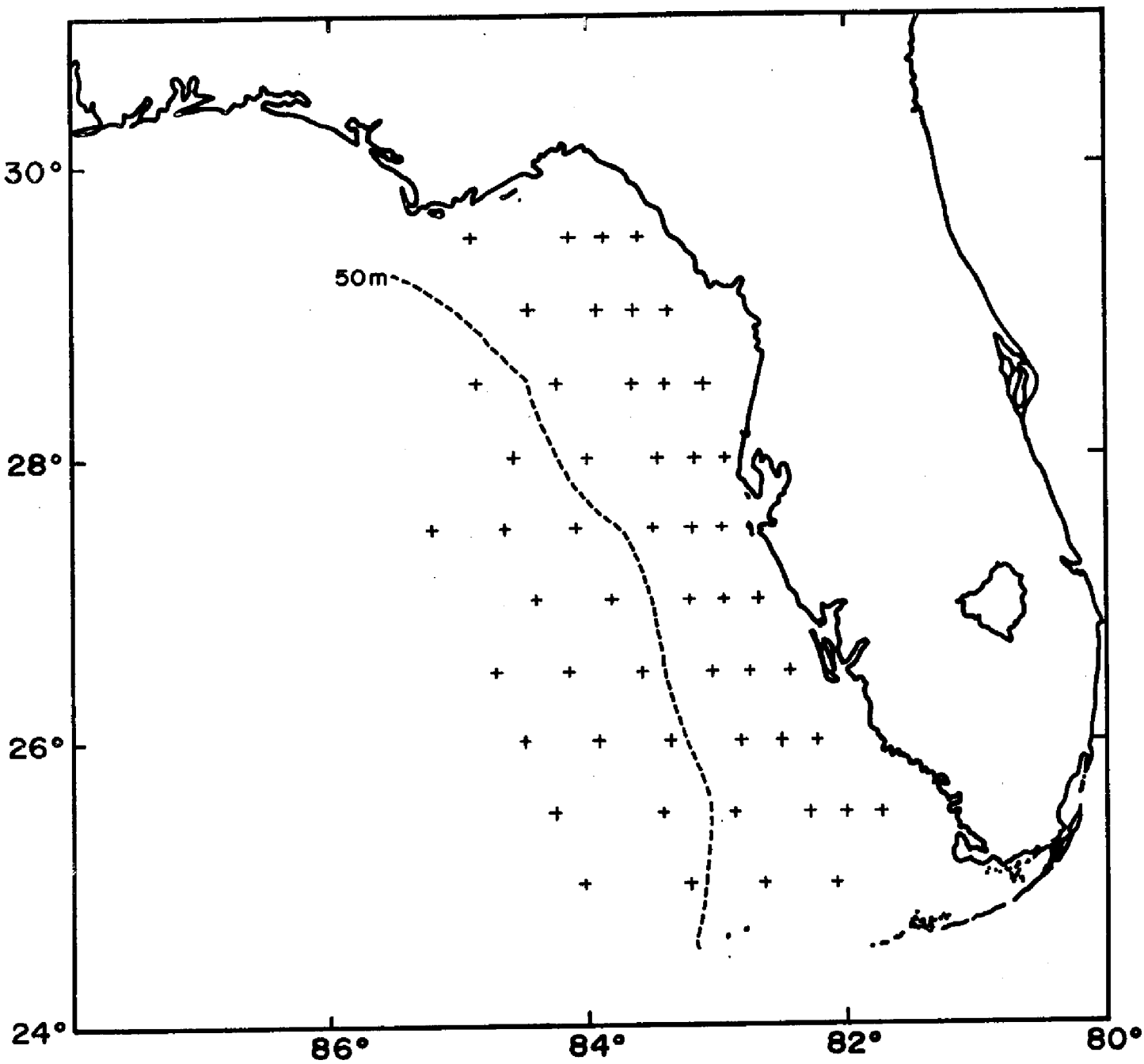


Figure 15. Chart of sampling stations for cruise IS 7303, January 1973.

Table 34. Summary of Station Data for Cruise IS 7303.

Station	Station Position				Surface Temp. (°C)	Surface Salin. (°/oo)	Volume Filtered (m^3)	Depth of Tow (m)	Zooplankton Volume ($cc/1000m^3$)	Fish Eggs		Fish Larvae	
	Lat. (N)		Long. (W)							No.	No. Under $10m^2$	No.	No. Under $10m^2$
10	25	00	82	04	20.5	36.14	97.9	12.0	224.7	85	104.2	84	103.0
12	25	00	82	37	22.0	36.35	106.3	22.0	141.1	641	1326.6	471	974.8
14	25	00	83	11	22.3	36.34	118.4	50.0	304.1	118	498.3	114	481.4
16	25	00	83	44	24.4	36.30	172.0	80.0	58.1	47	218.6	138	641.9
26	25	30	81	43	18.8	35.91	115.8	3.0	146.8	390	101.0	57	14.8
27	25	30	82	00	19.8	35.97	104.8	10.0	124.0	177	168.9	6	5.7
28	25	30	82	16	20.4	36.08	92.1	26.0	152.0	78	220.2	51	144.0
30	25	30	82	50	21.5	36.22	118.5	29.0	219.4	150	367.1	147	359.7
32	25	30	83	24	22.6	36.39	133.2	61.0	135.1	140	641.1	170	778.5
34	25	30	84	14	24.9	36.16	331.0	108.0	33.2	61	199.0	133	434.0
44	26	00	82	14	19.3	35.88	91.6	17.0	229.3	33	61.2	43	79.8
45	26	00	82	30	19.7	34.36	108.5	21.0	202.8	206	398.7	109	211.0
46	26	00	82	47	20.7	36.15	105.6	33.0	303.0	85	265.5	64	200.0
48	26	00	83	21	21.7	36.26	111.9	53.0	134.0	52	246.3	80	378.9
50	26	00	83	53	22.8	36.29	191.0	96.0	31.4	22	110.6	86	432.3
51	26	00	84	30	23.9	36.17	407.1	174.0	22.1	74	316.3	99	423.1
60	26	30	82	27	18.2	35.56	89.6	13.0	223.2	104	150.9	26	37.7
61	26	30	82	44	18.6	35.78	89.6	22.0	145.1	159	390.4	85	208.7
62	26	30	83	03	21.6	36.35	87.7	33.0	114.0	101	380.0	54	203.2
64	26	30	83	34	22.3	36.25	130.3	64.0	122.8	34	167.0	134	658.2
66	26	30	84	08	22.9	36.40	265.1	142.0	71.7	66	353.5	103	551.7
67	26	30	84	43	22.9	36.32	400.1	220.0	35.0	50	274.9	233	1281.2
76	27	00	82	41	18.1	35.34	87.3	13.0	171.8	62	92.3	11	16.4
77	27	00	82	58	19.8	36.37	105.4	20.0	94.9	120	227.7	57	108.2
78	27	00	83	14	20.2	36.27	102.5	37.0	126.8	73	263.5	26	93.9
80	27	00	83	48	21.2	36.34	127.3	53.0	227.8	123	512.1	90	374.7
82	27	00	84	22	22.3	36.33	343.1	137.0	70.0	58	231.6	228	910.4
92	27	30	82	56	17.0	35.13	101.0	7.0	158.4	499	345.8	20	13.9
93	27	30	83	12	18.3	35.96	96.9	25.0	402.5	189	487.6	45	116.1
94	27	30	83	29	20.5	36.45	110.4	34.0	126.8	60	184.8	80	246.4
96	27	30	84	03	21.3	36.47	140.4	46.0	249.3	336	1100.9	338	1107.4
98	27	30	84	37	22.3	36.36	298.2	145.0	36.9	23	111.8	149	724.5
99	27	30	85	11	22.1	36.40	363.8	240.0	52.2	20	131.9	102	672.9
108	28	00	82	56	16.6	34.40	96.3	5.0	20.8	736	382.1	12	6.2

Table 34. (continued)

Station	Station Position				Surface Temp. (°C)	Surface Salin. (°/oo)	Volume Filtered (m^3)	Depth of Tow (m)	Zooplankton Volume ($cc/1000m^3$)	Fish Eggs		Fish Larvae	
	Lat. (N)		Long. (W)							No.	No. Under $10m^2$	No.	No. Under $10m^2$
109	28	00	83	09	16.8	35.50	114.3	13.0	166.2	88	100.1	36	40.9
110	28	00	83	25	18.3	36.11	131.3	15.0	152.3	469	535.8	88	100.5
112	28	00	83	59	21.2	36.34	119.9	32.0	283.6	133	355.0	189	504.4
114	28	00	84	34	22.0	36.39	158.4	82.0	75.8	83	429.7	105	543.6
128	28	30	83	05	15.7	34.61	105.4	5.0	142.3	1650	782.7	29	13.8
129	28	30	83	23	16.1	35.50	99.2	13.0	100.8	892	1169.0	17	22.3
130	28	30	83	40	17.2	35.81	117.3	17.0	110.8	524	759.4	73	105.8
132	28	30	84	14	19.5	36.24	120.0	21.0	208.3	30	52.5	80	140.0
134	28	30	84	51	21.4	36.34	118.2	51.0	160.7	71	306.3	121	526.4
146	29	00	83	20	15.1	34.52	100.2	4.0	708.6	129	51.5	8	3.2
147	29	00	83	37	16.1	35.79	96.5	12.0	82.9	2059	2560.4	8	9.9
148	28	59	83	54	16.6	35.85	112.8	17.0	186.2	224	337.6	27	40.7
150	29	00	84	28	18.9	36.15	126.7	25.0	481.5	15	29.6	128	252.6
167	29	30	83	34	14.8	33.18	102.0	4.0	78.4	0	0.0	1	0.4
168	29	30	83	51	16.1	35.51	115.0	8.0	200.0	451	313.7	22	15.3
169	29	30	84	08	16.3	35.37	115.2	11.0	164.9	164	156.6	50	47.7
171	29	30	84	51	16.7	34.66	107.3	7.0	139.8	224	146.1	14	9.1

Table 35. Summary of Station Data for Catches of Clupeid Eggs and Larvae for Cruise IS 7303.

Station	Clupeids				*Brevoortia* sp.				*Opisthonema oglinum*				*Sardinella* sp.				*Harengula jaguana*				*Etrumeus teres*				Unidentified Clupeids			
	Eggs		Larvae		Eggs		Larvae		Eggs		Larvae		Eggs		Larvae		Eggs		Larvae		Eggs		Larvae		Eggs		Larvae	
	No.	No. Under $10m^2$	No.	No. Under $10m^2$	No.	No. Under $10m^2$	No.	No. Under $10m^2$	No.	No. Under $10m^2$	No.	No. Under $10m^2$	No.	No. Under $10m^2$	No.	No. Under $10m^2$	No.	No. Under $10m^2$	No.	No. Under $10m^2$	No.	No. Under $10m^2$	No.	No. Under $10m^2$	No.	No. Under $10m^2$	No.	No. Under $10m^2$
10	16	19.6	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	16	19.6	0	0.0	0	0.0	0	0.0
12	216	447.0	7	14.4	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	2	4.1	0	0.0	0	0.0	216	447.0	5	10.3	0	0.0	0	0.0
14	0	0.0	7	29.6	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	7	29.6	0	0.0	0	0.0
16	0	0.0	3	14.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	3	14.0	0	0.0	0	0.0
26	24	6.2	6	1.6	24	6.2	5	1.3	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	1	0.3	0	0.0	0	0.0	0	0.0	0	0.0
27	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0
28	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0
30	2	4.9	10	24.5	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	2	4.9	10	24.5	0	0.0	0	0.0
32	1	4.6	3	13.7	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	1	4.6	3	13.7	0	0.0	0	0.0
34	0	0.0	3	9.8	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	3	9.8	0	0.0	0	0.0
44	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0
45	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0
46	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0
48	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0
50	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0
51	0	0.0	2	8.5	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	2	8.5	0	0.0	0	0.0
60	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0
61	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0
62	1	3.8	5	18.8	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	1	3.8	5	18.8	0	0.0	0	0.0
64	0	0.0	2	9.8	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	2	9.8	0	0.0	0	0.0
66	0	0.0	7	37.5	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	7	37.5	0	0.0	0	0.0
67	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0
76	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0

Table 35. Continued.

Station	Clupeids				*Brevoortia* sp.				*Opisthonema oglinum*				*Sardinella* sp.				*Harengula jaguana*				*Jenkinsia stolifera*				Unidentified Clupeids			
	Eggs		Larvae		Eggs		Larvae		Eggs		Larvae		Eggs		Larvae		Eggs		Larvae		Eggs		Larvae		Eggs		Larvae	
	No.	No. Under $10m^2$	No.	No. Under $10m^2$	No.	No. Under $10m^2$	No.	No. Under $10m^2$	No.	No. Under $10m^2$	No.	No. Under $10m^2$	No.	No. Under $10m^2$	No.	No. Under $10m^2$	No.	No. Under $10m^2$	No.	No. Under $10m^2$	No.	No. Under $10m^2$	No.	No. Under $10m^2$	No.	No. Under $10m^2$	No.	No. Under $10m^2$
77	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0
78	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0
80	13	54.1	17	70.8	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	13	54.1	17	70.8	0	0.0	0	0.0
82	0	0.0	4	16.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	4	16.0	0	0.0	0	0.0
92	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0
93	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0
94	0	0.0	21	64.7	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	21	64.7	0	0.0	0	0.0
96	122	399.7	99	324.4	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	122	399.7	99	324.4	0	0.0	0	0.0
98	1	4.9	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	1	4.9	0	0.0	0	0.0	0	0.0
99	1	6.6	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	1	6.6	0	0.0	0	0.0	0	0.0
108	36	18.7	5	2.6	36	18.7	5	2.6	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0
109	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0
110	0	0.0	1	1.1	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	1	1.1	0	0.0	0	0.0
112	52	138.8	23	61.4	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	52	138.8	23	61.4	0	0.0	0	0.0
114	14	72.5	14	72.5	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	14	72.5	14	72.5	0	0.0	0	0.0
128	5	2.4	0	0.0	5	2.4	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0
129	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0
130	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0
132	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0
134	13	56.1	29	125.1	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	13	56.1	29	125.1	0	0.0	0	0.0
146	4	1.6	0	0.0	4	1.6	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0
147	1861	2314.2	0	0.0	1861	2314.2	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0

Table 35. Continued.

Station	Clupeids				*Brevoortia* sp.				*Opisthonema oglinum*				*Sardinella* sp.				*Harengula jaguana*				*Etrumeus teres*				Unidentified Clupeids			
	Eggs		Larvae		Eggs		Larvae		Eggs		Larvae		Eggs		Larvae		Eggs		Larvae		Eggs		Larvae		Eggs		Larvae	
	No.	No. Under $10m^2$	No.	No. Under $10m^2$	No.	No. Under $10m^2$	No.	No. Under $10m^2$	No.	No. Under $10m^2$	No.	No. Under $10m^2$	No.	No. Under $10m^2$	No.	No. Under $10m^2$	No.	No. Under $10m^2$	No.	No. Under $10m^2$	No.	No. Under $10m^2$	No.	No. Under $10m^2$	No.	No. Under $10m^2$	No.	No. Under $10m^2$
148	0	0.0	1	1.5	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	1	1.5	0	0.0	0	0.0
150	0	0.0	31	61.2	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	31	61.2	0	0.0	0	0.0
167	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0
168	4	2.8	0	0.0	4	2.8	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0
169	0	0.0	1	1.0	0	0.0	1	1.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0
171	5	3.3	1	0.7	5	3.3	1	0.7	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0

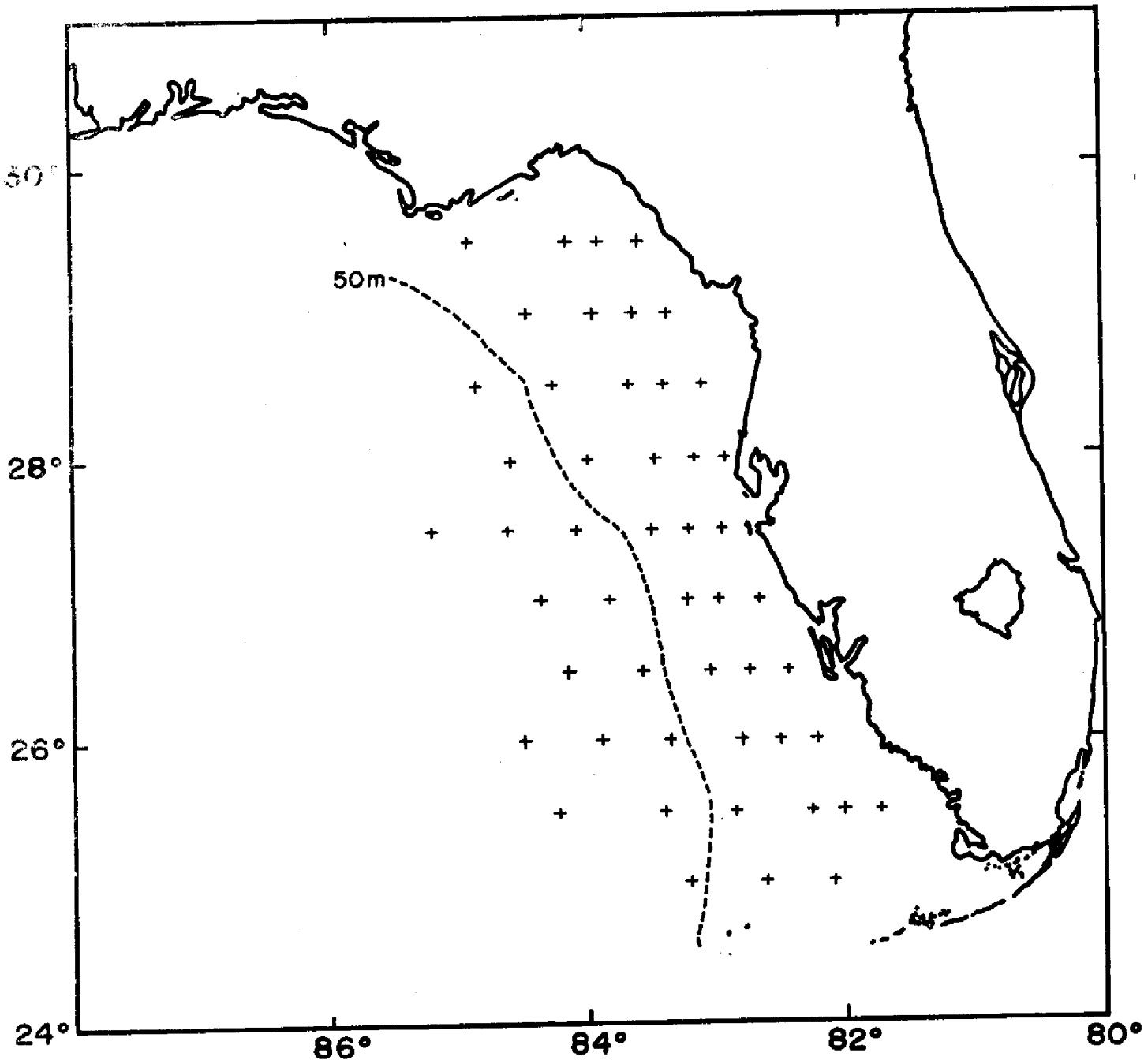


Figure 16. Chart of sampling stations for cruise IS 7308, May 1973.

Table 36. Summary of Station Data for Cruise IS 7308

Station	Station Position				Surface Temp. (°C)	Surface Salin. (°/oo)	Volume Filtered (m^3)	Depth of Tow (m)	Zooplankton Volume ($cc/1000m^3$)	Fish Eggs		Fish Larvae	
	Lat. (N)		Long. (W)							No.	No. Under $10m^2$	No.	No. Under $10m^2$
10	25	00	82	04	25.2	36.65	84.2	14.0	190.0	353	586.9	259	430.6
12	25	00	82	37	25.6	36.37	88.7	26.5	78.9	358	1069.6	324	968.0
14	25	00	83	11	25.8	36.48	108.3	52.0	73.9	51	244.9	185	888.3
26	25	30	81	43	25.6	35.66	77.8	5.0	102.8	1218	782.8	80	51.4
27	25	30	82	00	25.6	36.11	84.5	11.5	118.3	1058	1439.9	125	170.1
28	25	30	82	16	25.6	36.37	89.3	22.5	89.6	203	511.5	151	380.5
30	25	30	82	50	25.8	36.57	100.0	33.5	50.0	95	318.3	210	703.5
32	25	30	83	24	25.5	36.46	143.0	49.5	97.9	138	477.7	66	228.5
34	25	30	84	14	25.1	36.22	334.0	152.5	47.9	243	1109.5	185	844.7
44	26	00	82	14	25.4	36.42	89.8	11.0	22.3	214	262.1	350	428.7
45	26	00	82	30	25.4	36.45	100.0	18.0	120.0	187	336.6	600	1080.0
46	26	00	82	47	25.7	36.43	110.6	25.5	1012.7	483	1113.6	102	235.2
48	26	00	83	21	25.8	36.42	111.7	47.5	53.7	83	353.0	113	480.5
50	26	00	83	53	26.3	36.22	219.2	105.5	214.4	80	385.0	219	1054.0
51	26	00	84	29	25.2	36.54	375.2	202.5	98.6	119	642.3	342	1845.8
60	26	31	82	28	24.9	35.94	97.2	10.5	226.3	1136	1227.2	989	1068.4
61	26	30	82	44	25.1	36.37	105.8	18.0	359.2	329	559.7	463	787.7
62	26	30	83	03	25.3	36.37	102.9	34.5	116.6	345	1156.7	279	935.4
64	26	30	83	34	25.3	36.25	119.6	51.5	342.8	132	568.4	144	620.1
66	26	30	84	08	23.9	36.14	315.4	128.0	133.2	326	1323.0	44	178.6
76	27	00	82	41	24.3	35.96	93.9	7.0	628.3	1408	1049.6	640	477.1
77	27	00	82	59	24.6	36.34	93.5	28.0	128.3	1063	3183.3	485	1452.4
78	27	00	83	14	25.2	36.31	101.7	43.0	226.2	339	1433.3	477	2016.8
80	27	00	83	48	24.7	36.39	140.9	41.5	113.6	224	659.8	278	818.8
82	27	00	84	23	23.7	35.27	310.1	153.0	64.5	336	1657.8	94	463.8
92	27	30	82	56	25.2	35.56	104.6	5.0	248.6	1663	794.9	212	101.3
93	27	30	83	12	24.8	36.37	95.4	25.0	408.8	219	573.9	236	618.4
94	27	30	83	29	23.7	36.46	74.9	34.0	293.7	1312	5955.7	96	435.8
96	27	30	84	03	24.9	36.37	135.7	61.0	169.5	143	642.8	241	1083.3
98	27	30	84	37	24.6	36.31	280.2	147.5	32.1	106	558.0	173	910.7
99	27	30	85	11	24.8	36.29	400.4	209.5	67.4	4	20.9	154	805.8
108	28	00	82	54	24.4	34.45	94.6	2.0	401.7	3415	722.0	788	166.6

Table 36. (continued)

Station	Station Position				Surface Temp. (°C)	Surface Salin. (°/oo)	Volume Filtered (m^3)	Depth of Tow (m)	Zooplankton Volume ($cc/1000m^3$)	Fish Eggs		Fish Larvae	
	Lat. (N)		Long. (W)							No.	No. Under $10m^2$	No.	No. Under $10m^2$
109	27	58	83	09	23.8	35.56	97.7	10.5	163.8	388	417.0	169	181.6
110	28	00	83	26	23.5	36.25	104.8	17.5	181.3	809	1350.9	252	420.8
112	28	00	83	59	24.6	36.23	119.0	40.5	260.5	144	490.1	276	939.3
114	28	00	84	34	24.3	35.70	159.9	72.0	193.9	105	472.8	154	693.4
128	28	30	83	05	23.4	34.83	99.1	2.5	211.9	1153	290.9	98	24.7
129	28	30	83	23	23.2	35.62	97.4	9.5	30.8	739	720.8	156	152.2
130	28	30	83	39	22.9	36.03	89.1	20.5	471.4	493	1134.3	403	927.2
132	28	30	84	14	23.1	36.26	111.6	21.0	71.7	253	476.1	152	286.0
134	28	30	84	51	23.3	36.25	117.7	49.5	229.4	272	1143.9	140	588.8
146	29	00	83	20	24.8	36.00	101.6	6.0	295.3	588	347.2	871	514.4
147	29	00	83	37	23.2	35.34	103.4	9.0	193.4	549	477.9	270	235.0
148	29	00	83	54	22.9	35.56	90.5	18.5	442.0	192	392.5	316	646.0
150	29	00	84	28	22.8	35.97	102.8	29.5	136.2	410	1176.6	291	835.1
167	29	30	83	34	25.3	30.86	98.4	4.0	223.6	787	319.9	309	125.6
168	29	30	83	51	24.8	30.75	99.3	9.5	241.7	478	457.3	271	259.3
169	29	30	84	08	23.8	31.73	84.4	14.5	248.8	178	305.8	158	271.4
171	29	30	84	51	24.0	32.11	96.3	8.5	83.1	1182	1043.3	262	231.3

Table 37. Summary of Station Data for Catches of Clupeid Eggs and Larvae for Cruise IS 7308.

Station	Clupeids				*Brevoortia* sp.				*Opisthonema oglinum*				*Sardinella* sp.				*Harengula jaguana*				*Etrumeus teres*				Unidentified Clupeids			
	Eggs		Larvae		Eggs		Larvae		Eggs		Larvae		Eggs		Larvae		Eggs		Larvae		Eggs		Larvae		Eggs		Larvae	
	No.	No. Under $10m^2$	No.	No. Under $10m^2$	No.	No. Under $10m^2$	No.	No. Under $10m^2$	No.	No. Under $10m^2$	No.	No. Under $10m^2$	No.	No. Under $10m^2$	No.	No. Under $10m^2$	No.	No. Under $10m^2$	No.	No. Under $10m^2$	No.	No. Under $10m^2$	No.	No. Under $10m^2$	No.	No. Under $10m^2$	No.	No. Under $10m^2$
10	29	48.2	109	181.2	0	0.0	0	0.0	10	16.6	101	167.9	0	0.0	0	0.0	19	31.6	2	3.3	0	0.0	0	0.0	0	0.0	6	10.0
12	7	20.9	97	289.7	0	0.0	0	0.0	0	0.0	13	38.8	7	20.9	84	251.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0
14	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0
26	299	192.2	37	23.8	0	0.0	0	0.0	0	0.0	28	18.0	0	0.0	0	0.0	299	192.2	7	4.5	0	0.0	0	0.0	0	0.0	2	1.3
27	515	700.9	22	30.0	0	0.0	0	0.0	0	0.0	14	19.1	0	0.0	0	0.0	515	700.9	8	10.9	0	0.0	0	0.0	0	0.0	0	0.0
28	0	0.0	26	65.5	0	0.0	0	0.0	0	0.0	21	52.9	0	0.0	5	12.6	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0
30	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0
32	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0
34	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0
44	0	0.0	118	144.5	0	0.0	0	0.0	0	0.0	118	144.5	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0
45	0	0.0	15	27.0	0	0.0	0	0.0	0	0.0	15	27.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0
46	0	0.0	6	13.8	0	0.0	0	0.0	0	0.0	5	11.5	0	0.0	1	2.3	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0
48	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0
50	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0
51	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0
60	1	1.1	436	471.0	0	0.0	0	0.0	0	0.0	408	440.7	0	0.0	0	0.0	1	1.1	26	28.1	0	0.0	0	0.0	0	0.0	2	2.2
61	0	0.0	175	297.7	0	0.0	0	0.0	0	0.0	173	294.3	0	0.0	0	0.0	0	0.0	2	3.4	0	0.0	0	0.0	0	0.0	0	0.0
62	2	6.7	46	154.3	0	0.0	0	0.0	0	0.0	43	144.2	2	6.7	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	3	10.1
64	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0
66	0	0.0	1	4.1	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	1	4.1	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0
76	0	0.0	374	278.8	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	358	266.9	0	0.0	11	8.2	0	0.0	0	0.0	0	0.0	5	3.7
77	13	38.9	205	613.9	0	0.0	0	0.0	13	38.9	202	604.9	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	3	9.0
78	0	0.0	231	976.7	0	0.0	0	0.0	0	0.0	2	8.5	0	0.0	228	964.0	0	0.0	1	4.2	0	0.0	0	0.0	0	0.0	0	0.0

Table 37. Continued.

Station	Clupeids				*Brevoortia* sp.				*Opisthonema oglinum*				*Sardinella* sp.				*Harengula jaguana*				*Etrumeus teres*				Unidentified Clupeids			
	Eggs		Larvae		Eggs		Larvae		Eggs		Larvae		Eggs		Larvae		Eggs		Larvae		Eggs		Larvae		Eggs		Larvae	
	No.	No. Under $10m^2$	No.	No. Under $10m^2$	No.	No. Under $10m^2$	No.	No. Under $10m^2$	No.	No. Under $10m^2$	No.	No. Under $10m^2$	No.	No. Under $10m^2$	No.	No. Under $10m^2$	No.	No. Under $10m^2$	No.	No. Under $10m^2$	No.	No. Under $10m^2$	No.	No. Under $10m^2$	No.	No. Under $10m^2$	No.	No. Under $10m^2$
80	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0
82	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0
92	0	0.0	15	7.2	0	0.0	0	0.0	0	0.0	5	2.4	0	0.0	0	0.0	0	0.0	9	4.3	0	0.0	0	0.0	0	0.0	1	0.5
93	6	15.7	73	191.3	0	0.0	0	0.0	6	15.7	3	7.9	0	0.0	70	183.4	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0
94	865	3926.6	1	4.5	0	0.0	0	0.0	865	3926.6	0	0.0	0	0.0	1	4.5	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0
96	19	85.4	8	36.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	19	85.4	8	36.0	0	0.0	0	0.0
98	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0
99	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0
108	1281	270.8	699	147.8	0	0.0	0	0.0	0	0.0	29	6.1	0	0.0	14	3.0	1281	270.8	638	134.9	0	0.0	0	0.0	0	0.0	18	3.8
109	0	0.0	1	1.1	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	1	1.1	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0
110	0	0.0	24	40.1	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	24	40.1	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0
112	0	0.0	1	3.4	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	1	3.4	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0
114	8	36.0	16	72.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	8	36.0	16	72.0	0	0.0	0	0.0
128	0	0.0	10	2.5	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	10	2.5	0	0.0	0	0.0	0	0.0	0	0.0
129	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0
130	0	0.0	1	2.3	0	0.0	0	0.0	0	0.0	1	2.3	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0
132	0	0.0	1	1.9	0	0.0	0	0.0	0	0.0	1	1.9	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0
134	0	0.0	1	4.2	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	1	4.2	0	0.0	0	0.0
146	0	0.0	633	373.8	0	0.0	0	0.0	0	0.0	147	86.8	0	0.0	6	3.5	0	0.0	479	282.9	0	0.0	0	0.0	0	0.0	1	0.6
147	0	0.0	32	27.8	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	30	26.1	0	0.0	0	0.0	0	0.0	2	1.7
148	0	0.0	2	4.0	0	0.0	1	2.0	0	0.0	0	0.0	0	0.0	1	2.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0
150	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0
167	84	34.1	144	58.5	0	0.0	0	0.0	0	0.0	96	39.0	0	0.0	0	0.0	84	34.1	48	19.5	0	0.0	0	0.0	0	0.0	0	0.0

Table 37. Continued.

Station	Clupeids				*Brevoortia* sp.				*Opisthonema oglinum*				*Sardinella* sp.				*Harengula jaguana*				*Etrumeus teres*				Unidentified Clupeids			
	Eggs		Larvae		Eggs		Larvae		Eggs		Larvae		Eggs		Larvae		Eggs		Larvae		Eggs		Larvae		Eggs		Larvae	
	No.	No. Under $10m^2$	No.	No. Under $10m^2$	No.	No. Under $10m^2$	No.	No. Under $10m^2$	No.	No. Under $10m^2$	No.	No. Under $10m^2$	No.	No. Under $10m^2$	No.	No. Under $10m^2$	No.	No. Under $10m^2$	No.	No. Under $10m^2$	No.	No. Under $10m^2$	No.	No. Under $10m^2$	No.	No. Under $10m^2$	No.	No. Under $10m^2$
168	0	0.0	8	7.6	0	0.0	0	0.0	0	0.0	4	3.8	0	0.0	0	0.0	0	0.0	4	3.8	0	0.0	0	0.0	0	0.0	0	0.0
169	1	1.7	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	1	1.7	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0
171	1	0.9	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	1	0.9	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0

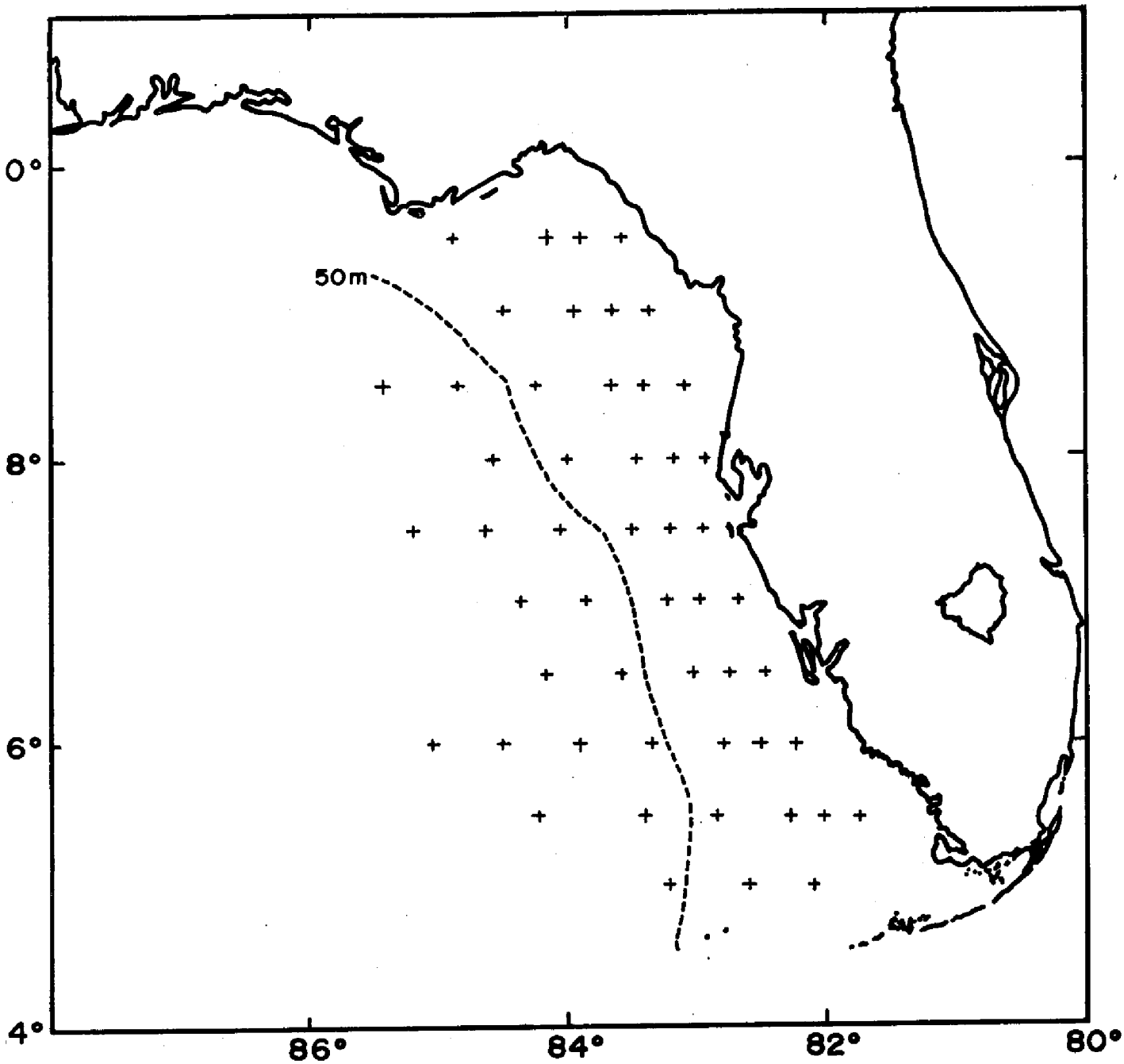


Figure 17. Chart of sampling stations for cruise IS 7311, June-July 1973.

Table 38. Summary of Station Data for Cruise IS 7311

Station	Station Position				Surface Temp. (°C)	Surface Salin. (°/oo)	Volume Filtered (m^3)	Depth of Tow (m)	Zooplankton Volume ($cc/1000m^3$)	Fish Eggs		Fish Larvae	
	Lat. (N)		Long. (W)							No.	No. Under $10m^2$	No.	No. Under $10m^2$
10	25	00	82	04	29.1	-	92.6	11.5	172.8	887	1101.6	375	465.7
12	25	00	82	37	28.7	-	104.2	23.0	134.4	238	525.3	82	181.0
14	25	01	83	11	29.9	36.60	78.4	55.0	102.0	41	287.6	62	434.9
26	25	31	81	43	30.3	-	97.5	6.0	61.5	639	393.2	491	302.2
27	25	29	82	00	29.6	-	96.3	7.0	51.9	307	223.2	122	88.7
28	25	30	82	16	29.2	-	90.9	14.5	187.0	170	271.2	582	928.4
30	25	30	82	50	29.3	36.31	104.3	39.0	354.7	89	332.8	123	459.9
32	25	30	83	24	28.9	34.28	117.0	55.0	213.7	134	629.9	97	456.0
34	25	30	84	14	29.3	33.99	219.4	104.0	54.7	66	312.9	130	616.2
44	26	00	82	14	29.3	-	91.6	6.0	316.6	114	74.7	1754	1148.9
45	26	00	82	30	29.1	-	96.6	20.0	207.0	169	349.9	283	585.9
46	26	00	82	47	29.1	-	108.6	26.0	202.6	73	174.8	265	634.4
48	26	00	83	21	28.9	36.54	121.8	49.0	139.6	122	490.8	79	317.8
50	26	00	83	54	29.3	31.61	201.9	109.0	64.4	84	453.5	172	928.6
51	26	00	84	29	30.0	34.22	364.9	213.0	38.4	73	426.1	97	566.2
52	26	00	85	03	29.7	33.18	377.6	200.0	60.9	13	68.9	123	651.5
60	26	30	82	27	29.2	36.32	105.7	8.5	75.7	1205	969.0	160	128.7
61	26	30	82	44	30.6	36.55	104.2	19.0	124.8	212	386.6	806	1469.7
62	26	31	83	01	29.1	36.51	122.0	26.0	98.4	107	228.0	124	264.3
64	26	30	83	34	29.3	34.04	103.3	53.0	183.9	66	338.6	137	702.9
66	26	30	84	08	29.0	32.32	327.4	145.5	64.1	59	262.2	246	1093.3
76	27	00	82	41	29.1	36.37	106.8	16.0	56.2	1475	2209.7	46	68.9
77	27	00	82	58	28.9	36.41	101.9	28.0	157.0	268	736.4	212	582.5
78	27	00	83	14	28.8	36.37	110.9	28.0	90.2	149	376.2	82	207.0
80	27	01	83	47	29.4	32.50	131.6	53.0	83.6	123	495.4	233	938.4
82	27	00	84	21	29.4	31.99	289.5	140.5	127.8	82	398.0	461	2237.3
92	27	30	82	56	29.1	36.36	94.8	8.0	42.2	389	328.3	76	64.1
93	27	30	83	11	28.7	36.43	100.6	27.0	19.9	462	1240.0	222	595.8
94	27	30	83	29	28.3	36.45	106.0	32.0	84.9	71	214.3	81	244.5
96	27	30	84	04	29.9	31.39	159.5	52.0	106.6	148	482.5	215	700.9
98	27	29	84	37	29.3	30.60	230.2	141.0	86.9	107	655.4	295	1806.9
99	27	30	85	11	29.7	30.46	361.7	228.0	35.9	17	107.2	79	498.0

Table 38. (continued)

Station	Station Position				Surface Temp. (°C)	Surface Salin. (°/oo)	Volume Filtered (m^3)	Depth of Tow (m)	Zooplankton Volume ($cc/1000m^3$)	Fish Eggs		Fish Larvae	
	Lat. (N)		Long. (W)							No.	No. Under $10m^2$	No.	No. Under $10m^2$
108	27	59	82	54	29.3	36.62	87.9	2.5	147.9	1176	334.5	123	35.0
109	28	00	83	09	29.3	36.13	91.1	11.5	54.9	314	396.4	80	101.0
110	28	00	83	26	28.3	36.42	106.1	16.5	141.4	417	648.5	255	396.6
112	28	00	83	59	28.6	35.74	102.8	40.0	116.7	181	704.3	172	669.3
114	28	00	84	34	29.8	31.34	131.5	76.0	273.8	93	537.5	372	2150.0
128	28	30	83	05	29.3	34.40	95.7	5.0	41.8	800	418.0	41	21.4
129	28	30	83	23	28.7	33.00	106.0	6.5	37.7	50	30.7	0	0.0
130	28	30	83	37	28.6	35.78	109.4	16.0	9.1	248	362.7	7	10.2
132	28	30	84	14	31.8	34.35	110.8	21.0	18.1	535	1014.0	197	373.4
134	28	30	84	51	29.9	31.45	99.5	55.0	371.9	67	370.4	292	1614.1
135	28	30	85	25	29.6	31.03	399.2	132.0	102.7	58	191.8	74	1236.7
146	29	00	83	20	29.1	32.94	107.1	4.0	93.4	361	134.8	1	0.4
147	29	00	83	37	29.3	32.51	86.8	9.0	115.2	206	213.6	0	0.0
148	29	00	83	54	29.1	33.43	89.5	16.0	44.7	194	346.8	6	10.7
150	29	00	84	28	29.0	33.72	102.4	26.5	185.5	99	256.2	349	903.2
167	29	30	83	35	29.7	31.01	98.7	4.0	202.6	410	166.2	166	67.3
168	29	30	83	51	28.9	33.55	103.3	10.0	67.8	582	563.4	9	8.7
169	29	30	84	08	29.1	33.35	109.1	14.0	55.0	325	417.0	70	89.8
171	29	30	84	51	28.8	32.39	84.9	10.5	247.3	248	306.7	55	68.0

Table 39. Summary of Station Data for Catches of Clupeid Eggs and Larvae for Cruise IS 7311.

Station	Clupeids				*Brevoortia* sp.				*Opisthonema oglinum*				*Sardinella* sp.				*Harengula jaguana*				*Etrumeus teres*				Unidentified Clupeids			
	Eggs		Larvae		Eggs		Larvae		Eggs		Larvae		Eggs		Larvae		Eggs		Larvae		Eggs		Larvae		Eggs		Larvae	
	No.	No. Under $10m^2$	No.	No. Under $10m^2$	No.	No. Under $10m^2$	No.	No. Under $10m^2$	No.	No. Under $10m^2$	No.	No. Under $10m^2$	No.	No. Under $10m^2$	No.	No. Under $10m^2$	No.	No. Under $10m^2$	No.	No. Under $10m^2$	No.	No. Under $10m^2$	No.	No. Under $10m^2$	No.	No. Under $10m^2$	No.	No. Under $10m^2$
10	659	828.4	240	298.1	0	0.0	0	0.0	28	34.8	215	267.0	0	0.0	18	22.4	631	783.6	4	5.0	0	0.0	0	0.0	0	0.0	3	3.7
12	4	8.8	0	0.0	0	0.0	0	0.0	4	8.8	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0
14	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0
26	444	273.2	351	215.9	0	0.0	0	0.0	3	1.8	315	193.8	0	0.0	0	0.0	441	271.4	28	17.2	0	0.0	0	0.0	0	0.0	8	4.9
27	55	40.0	38	27.6	0	0.0	0	0.0	0	0.0	38	27.6	0	0.0	0	0.0	55	40.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0
28	0	0.0	369	588.6	0	0.0	0	0.0	0	0.0	362	577.4	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	7	11.2
30	0	0.0	1	3.7	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	1	3.7	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0
32	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0
34	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0
44	0	0.0	1617	1059.2	0	0.0	0	0.0	0	0.0	1599	1047.4	0	0.0	3	2.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	15	9.8
45	0	0.0	31	64.2	0	0.0	0	0.0	0	0.0	11	22.8	0	0.0	12	24.8	0	0.0	1	2.1	0	0.0	0	0.0	0	0.0	7	14.5
46	0	0.0	173	414.2	0	0.0	0	0.0	0	0.0	168	402.2	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	5	12.0
48	0	0.0	1	4.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	1	4.0
50	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0
51	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0
52	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0
60	42	33.8	55	44.2	0	0.0	0	0.0	41	33.0	53	42.6	0	0.0	0	0.0	1	0.8	1	0.8	0	0.0	0	0.0	0	0.0	1	0.8
61	0	0.0	656	1196.1	0	0.0	0	0.0	0	0.0	654	1192.5	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	2	3.6
62	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0
64	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0
66	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0
76	1006	1507.1	7	10.5	0	0.0	0	0.0	965	1445.7	5	7.5	0	0.0	0	0.0	41	61.4	0	0.0	0	0.0	0	0.0	0	0.0	2	3.0

Table 39. Continued.

Station	Clupeids				Brevoortia sp.				Opisthonema oglinum				Sardinella sp.				Harengula jaguana				Etrumeus teres				Unidentified Clupeids			
	Eggs		Larvae		Eggs		Larvae		Eggs		Larvae		Eggs		Larvae		Eggs		Larvae		Eggs		Larvae		Eggs		Larvae	
	No.	No. Under $10m^2$	No.	No. Under $10m^2$	No.	No. Under $10m^2$	No.	No. Under $10m^2$	No.	No. Under $10m^2$	No.	No. Under $10m^2$	No.	No. Under $10m^2$	No.	No. Under $10m^2$	No.	No. Under $10m^2$	No.	No. Under $10m^2$	No.	No. Under $10m^2$	No.	No. Under $10m^2$	No.	No. Under $10m^2$	No.	No. Under $10m^2$
77	13	35.7	141	387.4	0	0.0	0	0.0	13	35.7	141	387.4	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0
78	5	12.6	14	35.4	0	0.0	0	0.0	5	12.6	11	27.8	0	0.0	3	7.6	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0
80	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0
82	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0
92	0	0.0	20	16.9	0	0.0	0	0.0	0	0.0	18	15.2	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	2	1.7
93	0	0.0	70	187.9	0	0.0	0	0.0	0	0.0	48	128.8	0	0.0	19	51.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	3	8.1
94	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0
96	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0
98	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0
99	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0
108	5	1.4	27	7.7	0	0.0	0	0.0	0	0.0	6	1.7	0	0.0	0	0.0	5	1.4	21	6.0	0	0.0	0	0.0	0	0.0	0	0.0
109	3	3.8	2	2.5	0	0.0	0	0.0	3	3.8	2	2.5	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0
110	41	63.8	124	192.8	0	0.0	0	0.0	41	63.8	0	0.0	0	0.0	124	192.8	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0
112	0	0.0	70	272.4	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	69	268.5	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	1	3.9
114	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0
128	453	236.7	22	11.5	0	0.0	0	0.0	5	2.6	19	9.9	0	0.0	0	0.0	448	234.1	0	0.0	0	0.0	0	0.0	0	0.0	3	1.6
129	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0
130	0	0.0	2	2.9	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	2	2.9	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0
132	0	0.0	21	39.8	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	21	39.8	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0
134	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0
135	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0
146	1	0.4	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	1	0.4	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0
147	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0

Table 39. Continued.

Station	Clupeids				*Brevoortia* sp.				*Opisthonema oglinum*				*Sardinella* sp.				*Harengula jaguana*				*Etrumeus teres*				Unidentified Clupeids			
	Eggs		Larvae		Eggs		Larvae		Eggs		Larvae		Eggs		Larvae		Eggs		Larvae		Eggs		Larvae		Eggs		Larvae	
	No.	No. Under $10m^2$	No.	No. Under $10m^2$	No.	No. Under $10m^2$	No.	No. Under $10m^2$	No.	No. Under $10m^2$	No.	No. Under $10m^2$	No.	No. Under $10m^2$	No.	No. Under $10m^2$	No.	No. Under $10m^2$	No.	No. Under $10m^2$	No.	No. Under $10m^2$	No.	No. Under $10m^2$	No.	No. Under $10m^2$	No.	No. Under $10m^2$
148	6	10.7	0	0.0	0	0.0	0	0.0	6	10.7	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0
150	0	0.0	139	359.7	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	138	357.1	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	1	2.6
167	0	0.0	9	3.6	0	0.0	0	0.0	0	0.0	3	1.2	0	0.0	1	0.4	0	0.0	5	2.0	0	0.0	0	0.0	0	0.0	0	0.0
168	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0
169	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0
171	2	2.5	2	2.5	0	0.0	0	0.0	2	2.5	2	2.5	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0

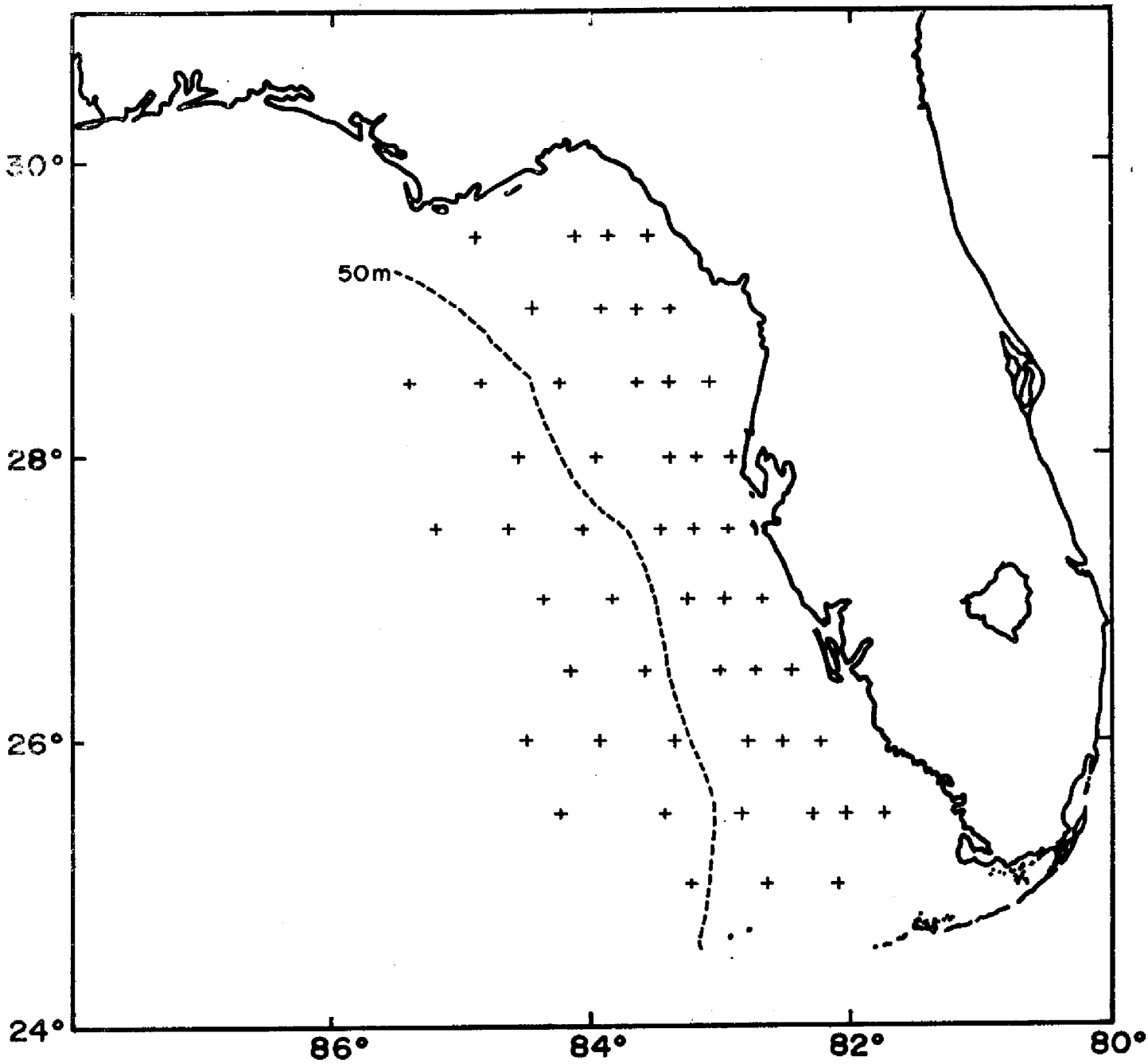


Figure 18. Chart of sampling stations for cruise IS 7313, August 1973.

Table 40. Summary of Station Data for Cruise IS 7313

Station	Station Position		Surface Temp. (°C)	Surface Salin. (°/oo)	Volume Filtered (m^3)	Depth of Tow (m)	Zooplankton Volume ($cc/1000m^3$)	Fish Eggs		Fish Larvae	
	Lat. (N)	Long. (W)						No.	No. Under $10m^2$	No.	No. Under $10m^2$
10	25 00	82 05	29.5	35.77	109.1	15.0	55.0	821	1,128.8	111	152.6
12	25 00	82 36	30.0	36.07	96.0	28.0	41.7	220	641.7	170	495.8
14	25 00	83 11	30.4	34.49	108.2	46.5	268.0	161	691.7	39	167.6
26	25 30	81 45	30.5	-	103.0	7.0	97.1	272	184.9	511	347.3
27	25 30	82 00	30.2	-	101.0	13.0	59.4	191	245.8	35	45.1
28	25 30	82 16	29.5	-	100.0	14.0	140.0	181	253.4	449	628.6
30	25 30	82 50	29.8	-	94.5	34.0	179.9	86	309.4	192	690.8
32	25 31	83 24	30.0	32.42	124.5	49.5	88.4	105	417.5	105	417.5
34	25 30	84 14	29.6	-	268.5	157.0	44.7	45	263.1	120	701.7
44	26 00	82 14	30.1	36.37	93.0	12.0	86.0	35	45.2	35	45.2
45	26 03	82 31	29.7	-	93.0	18.0	53.8	216	418.1	335	648.4
46	26 00	82 47	29.7	-	90.0	33.5	122.2	250	930.6	330	1,228.3
48	26 00	83 21	30.1	34.25	100.5	36.5	99.5	72	261.5	95	345.0
50	26 00	83 54	-	-	263.0	102.5	106.5	80	311.8	102	397.5
51	26 00	84 28	29.5	23.09	331.5	214.0	72.4	10	64.6	59	380.9
60	26 30	82 27	30.2	36.47	98.4	8.0	965.4	610	495.9	79	64.2
61	26 30	82 44	29.9	36.55	92.3	24.0	75.8	866	2,251.8	144	374.4
62	26 30	83 01	30.0	36.51	98.8	32.0	111.3	138	447.0	184	596.0
64	26 30	83 33	29.9	-	97.0	63.0	154.6	47	305.3	269	1,747.1
66	26 30	84 08	30.3	26.75	264.5	140.5	87.0	141	749.0	108	573.7
76	27 00	82 41	30.4	36.51	98.2	11.5	203.7	491	575.0	132	154.6
77	27 00	82 58	30.9	36.52	101.0	20.0	89.1	134	265.3	149	295.1
78	27 00	83 14	30.3	35.12	96.6	30.5	134.6	73	230.5	122	385.2
80	27 00	83 48	29.3	32.74	106.6	44.5	131.3	149	622.0	389	1,623.9
82	27 00	84 22	29.0	25.42	244.6	140.0	69.5	40	228.9	179	1,024.5
92	27 30	82 56	29.9	36.30	97.9	9.5	102.1	740	718.1	306	296.9
93	27 30	83 11	30.0	35.40	98.8	21.5	50.6	858	1,867.1	102	222.0
94	27 30	83 29	30.2	34.30	95.9	34.0	208.6	113	400.6	172	609.8
96	27 30	84 03	29.4	32.38	130.2	48.0	184.3	118	435.0	260	958.5
98	27 30	84 37	29.5	27.71	241.9	145.5	49.6	99	595.5	100	601.5
99	27 30	85 11	29.2	26.04	340.7	221.5	61.6	33	214.5	106	689.1
108	28 00	82 54	29.5	35.56	86.6	6.5	819.9	8,601	6,455.7	345	258.9
109	28 00	83 09	29.7	35.90	92.7	15.5	129.4	342	571.8	315	526.7
110	28 00	83 26	29.6	35.74	96.3	16.0	519.2	729	1,211.2	132	219.3

Table 40. (continued)

Station	Station Position		Surface Temp. (°C)	Surface Salin. (°/oo)	Volume Filtered (m^3)	Depth of Tow (m)	Zooplankton Volume ($cc/1000m^3$)	Fish Eggs		Fish Larvae	
	Lat. (N)	Long. (W)						No.	No. Under $10m^2$	No.	No. Under $10m^2$
112	28 00	83 59	29.7	33.76	108.9	39.5	45.9	529	1,918.8	103	373.6
114	28 00	84 34	29.1	32.68	149.9	73.0	66.7	34	165.6	151	735.4
128	28 30	83 05	30.2	34.98	101.4	6.5	226.8	468	300.0	115	73.7
129	28 30	83 23	29.9	36.11	95.0	11.5	1,000.0	448	542.3	122	147.7
130	28 30	83 39	29.7	35.80	100.7	15.5	119.2	253	389.4	117	180.1
132	28 30	84 14	30.3	33.19	106.7	21.5	243.7	150	302.2	229	461.4
134	28 30	84 51	29.9	32.58	104.1	48.5	269.0	86	400.7	493	2,296.9
135	28 30	85 25	29.7	32.42	295.3	183.0	84.7	27	167.3	657	4,071.5
146	29 00	83 20	29.8	32.43	86.4	10.0	162.0	1,842	2,131.9	438	506.9
147	29 00	83 38	29.9	34.78	99.2	13.0	20.2	1,192	1,562.1	296	387.9
148	29 00	83 54	29.8	34.43	97.5	16.5	317.9	248	419.7	97	164.2
150	29 00	84 28	29.3	33.00	110.0	19.5	154.5	190	336.8	178	315.5
167	29 30	83 34	30.2	27.27	89.3	6.0	201.6	651	437.4	491	329.9
168	29 30	83 51	29.6	33.55	100.3	9.5	229.3	421	398.8	205	194.2
169	29 30	84 08	29.4	33.56	96.8	22.0	309.9	364	827.3	341	775.0
171	29 30	84 28	29.6	33.65	94.8	10.5	632.9	828	917.1	105	116.3

Table 41. Summary of Station Data for Catches of Clupeid Eggs and Larvae for Cruise IS 7313.

Station	Clupeids				*Brevoortia* sp.				*Opisthonema oglinum*				*Sardinella* sp.				*Harengula jaguana*				*Etrumeus teres*				Unidentified Clupeids			
	Eggs		Larvae		Eggs		Larvae		Eggs		Larvae		Eggs		Larvae		Eggs		Larvae		Eggs		Larvae		Eggs		Larvae	
	No.	No. Under $10m^2$	No.	No. Under $10m^2$	No.	No. Under $10m^2$	No.	No. Under $10m^2$	No.	No. Under $10m^2$	No.	No. Under $10m^2$	No.	No. Under $10m^2$	No.	No. Under $10m^2$	No.	No. Under $10m^2$	No.	No. Under $10m^2$	No.	No. Under $10m^2$	No.	No. Under $10m^2$	No.	No. Under $10m^2$	No.	No. Under $10m^2$
10	45	61.8	36	49.6	0	0.0	0	0.0	0	0.0	0	0.0	27	37.1	25	34.4	18	24.7	9	12.4	0	0.0	0	0.0	0	0.0	2	2.8
12	2	5.8	5	14.6	0	0.0	0	0.0	0	0.0	0	0.0	2	5.8	5	14.6	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0
14	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0
26	0	0.0	243	165.2	0	0.0	0	0.0	0	0.0	235	139.7	0	0.0	0	0.0	0	0.0	1	0.7	0	0.0	0	0.0	0	0.0	7	4.8
27	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0
28	0	0.0	243	340.2	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	236	330.4	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	7	9.8
30	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0
32	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0
34	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0
44	0	0.0	1	1.3	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	1	1.3	0	0.0	0	0.0	0	0.0	0	0.0
45	0	0.0	67	129.7	0	0.0	0	0.0	0	0.0	13	25.2	0	0.0	54	104.5	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0
46	0	0.0	31	115.4	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	31	115.4	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0
48	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0
50	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0
51	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0
60	0	0.0	1	0.8	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	1	0.8	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0
61	14	36.4	27	70.2	0	0.0	0	0.0	0	0.0	0	0.0	14	36.4	26	67.6	0	0.0	1	2.6	0	0.0	0	0.0	0	0.0	0	0.0
62	0	0.0	12	38.9	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	12	38.9	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0
64	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0
66	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0
76	1	1.2	38	44.5	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	38	44.5	1	1.2	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0

Table 41. Continued.

Station	Clupeids				*Brevoortia* sp.				*Opisthonema oglinum*				*Sardinella* sp.				*Harengula jaguana*				*Etrumeus teres*				Unidentified Clupeids			
	Eggs		Larvae		Eggs		Larvae		Eggs		Larvae		Eggs		Larvae		Eggs		Larvae		Eggs		Larvae		Eggs		Larvae	
	No.	No. Under $10m^2$	No.	No. Under $10m^2$	No.	No. Under $10m^2$	No.	No. Under $10m^2$	No.	No. Under $10m^2$	No.	No. Under $10m^2$	No.	No. Under $10m^2$	No.	No. Under $10m^2$	No.	No. Under $10m^2$	No.	No. Under $10m^2$	No.	No. Under $10m^2$	No.	No. Under $10m^2$	No.	No. Under $10m^2$	No.	No. Under $10m^2$
77	0	0.0	12	18.9	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	12	18.9	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0
78	8	27.8	2	7.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	8	27.8	2	7.0	0	0.0	0	0.0
80	0	0.0	6	25.3	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	6	25.3	0	0.0	0	0.0
82	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0
92	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0
93	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0
94	7	17.7	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	7	17.7	0	0.0	0	0.0	0	0.0
96	27	109.4	3	12.2	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	27	109.4	3	12.2	0	0.0	0	0.0
98	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0
99	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0
108	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0
109	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0
110	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0
112	4	15.2	2	7.6	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	4	15.2	2	7.6	0	0.0	0	0.0
114	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0
128	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0
129	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0
130	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0
132	3	8.2	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	3	8.2	0	0.0	0	0.0	0	0.0
134	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0
135	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0

Table 41. Continued.

Station	Clupeids				*Brevoortia* sp.				*Opisthonema oglinum*				*Sardinella* sp.				*Harengula jaguana*				*Etrumeus teres*				Unidentified Clupeids			
	Eggs		Larvae		Eggs		Larvae		Eggs		Larvae		Eggs		Larvae		Eggs		Larvae		Eggs		Larvae		Eggs		Larvae	
	No.	No. Under $10m^2$	No.	No. Under $10m^2$	No.	No. Under $10m^2$	No.	No. Under $10m^2$	No.	No. Under $10m^2$	No.	No. Under $10m^2$	No.	No. Under $10m^2$	No.	No. Under $10m^2$	No.	No. Under $10m^2$	No.	No. Under $10m^2$	No.	No. Under $10m^2$	No.	No. Under $10m^2$	No.	No. Under $10m^2$	No.	No. Under $10m^2$
146	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0
147	9	8.8	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	9	8.8	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0
148	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0
150	3	8.7	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	3	8.7	0	0.0	0	0.0	0	0.0
167	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0
168	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0
169	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0
171	0	0.0	5	2.5	0	0.0	4	2.0	0	0.0	0	0.0	0	0.0	1	0.5	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0

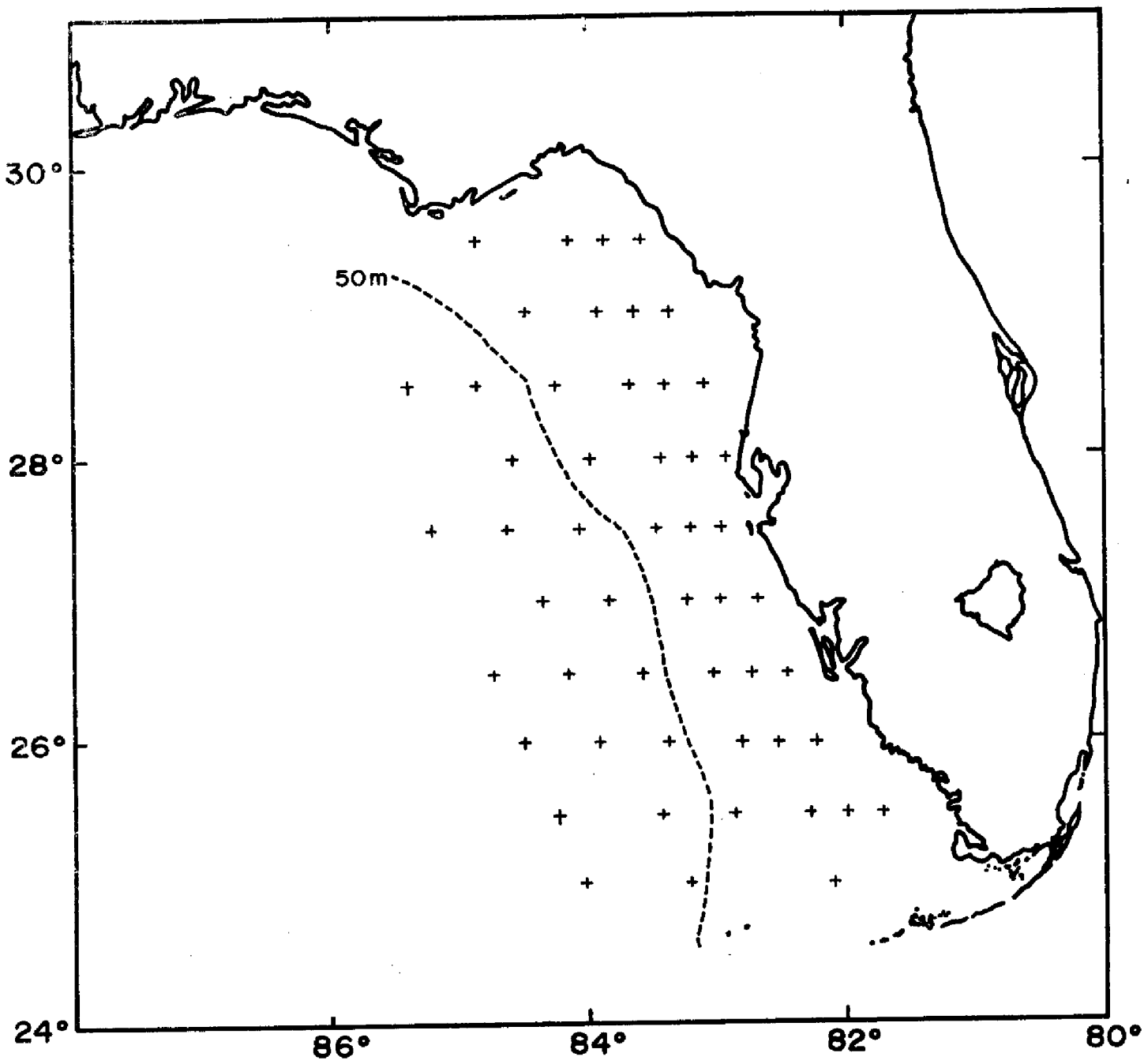


Figure 19. Chart of sampling stations for cruise IS 7320, November 1973.

Table 42. Summary of Station Data for Cruise IS 7320

Station	Station Position				Surface Temp. (°C)	Surface Salin. (°/oo)	Volume Filtered (m^3)	Depth of Tow (m)	Zooplankton Volume ($cc/1000m^3$)	Fish Eggs		Fish Larvae	
	Lat. (N)		Long. (W)							No.	No. Under $10m^2$	No.	No. Under $10m^2$
10	25	00	82	04	25.2	34.73	110.2	12.0	154.3	14	15.2	13	14.2
14	25	00	83	10	26.3	35.87	116.6	40.5	111.5	15	52.1	111	385.5
16	25	00	84	02	26.6	36.04	260.6	119.0	42.2	20	91.3	77	351.6
26	25	30	81	42	24.5	34.33	113.2	6.0	150.2	572	303.2	100	53.0
27	25	30	82	00	25.2	34.85	108.9	7.5	137.7	71	48.9	23	15.8
28	25	30	82	16	25.5	35.04	113.2	14.5	106.0	4	5.1	2	2.6
30	25	30	82	50	26.3	35.48	114.6	30.5	122.2	38	101.1	176	468.4
32	25	30	83	24	26.3	35.85	121.6	56.0	115.1	25	115.1	122	561.8
34	25	30	84	14	26.7	36.07	299.5	138.5	53.4	17	78.6	127	587.3
44	26	00	82	14	24.9	34.96	102.5	8.0	48.8	87	67.9	18	14.0
45	26	00	82	30	25.3	35.25	113.8	18.0	123.0	72	113.9	19	30.1
46	26	00	82	47	25.8	35.35	103.6	31.0	115.8	72	215.4	69	206.5
48	25	59	83	21	25.6	35.19	106.0	48.0	217.0	55	249.1	129	584.2
50	26	00	83	44	25.8	35.42	170.7	91.0	88.2	34	181.3	85	453.1
51	26	00	84	22	26.3	35.87	407.0	170.0	36.9	23	96.1	138	576.4
60	26	30	82	27	25.1	34.95	107.2	11.0	18.7	220	225.7	8	8.2
61	26	30	82	44	25.6	34.93	103.6	26.0	173.7	250	627.4	16	40.2
62	26	30	83	01	25.3	34.85	95.8	39.0	240.1	42	171.0	90	366.4
64	26	30	83	34	25.7	34.95	107.2	48.5	177.2	35	158.3	252	1140.1
66	26	30	84	08	25.8	35.35	260.7	101.0	42.2	53	205.3	152	588.9
67	26	30	84	43	26.2	35.98	408.4	219.0	22.0	8	42.9	139	745.4
76	27	00	82	41	24.6	35.22	94.4	14.5	53.0	172	264.2	29	44.5
77	27	00	82	58	25.1	34.93	114.1	18.0	306.7	94	148.3	138	217.7
78	27	00	83	14	25.0	35.02	110.7	38.5	216.8	187	650.4	158	549.5
80	27	00	83	48	25.8	34.93	123.2	52.0	138.0	41	173.1	406	1713.6
82	27	00	84	22	25.8	35.15	264.1	148.0	60.6	32	179.3	133	745.3
92	27	30	82	56	24.1	34.98	109.5	10.0	56.3	21	19.2	2	1.8
93	27	30	83	12	25.0	35.10	116.4	18.0	154.6	162	250.5	128	197.9
94	27	30	83	28	25.0	34.88	99.1	25.0	171.5	47	118.6	74	186.7
96	27	30	84	04	25.2	35.01	129.6	52.5	154.3	60	243.1	172	696.8
98	27	30	84	37	25.5	35.33	268.5	148.0	63.3	40	220.5	223	1229.2
99	27	30	85	11	26.7	36.01	357.1	220.5	22.4	2	12.3	50	308.7
108	28	00	82	55	23.1	34.56	91.0	3.0	208.8	239	78.8	46	15.2
109	28	00	83	09	24.1	35.21	132.8	8.0	45.2	110	66.3	13	7.8

Table 42. (continued)

Station	Station Position				Surface Temp. (°C)	Surface Salin. (°/oo)	Volume Filtered (m^3)	Depth of Tow (m)	Zooplankton Volume ($cc/1000m^3$)	Fish Eggs		Fish Larvae	
	Lat. (N)		Long. (W)							No.	No. Under $10m^2$	No.	No. Under $10m^2$
110	28	00	83	26	24.5	35.08	99.7	22.0	110.3	177	390.6	50	110.3
112	28	00	83	59	24.6	34.84	106.5	40.5	291.1	66	251.0	212	806.2
114	28	00	84	34	25.4	35.59	162.0	75.5	55.6	17	79.2	298	1388.8
128	28	30	83	05	22.8	34.70	91.7	7.0	261.7	115	87.8	47	35.9
129	28	30	83	23	23.3	34.90	92.1	8.0	162.9	65	56.5	47	40.8
130	28	30	83	39	23.8	34.88	122.0	11.0	163.9	49	44.2	103	92.9
132	28	30	84	14	24.5	34.96	107.3	29.5	177.1	106	291.4	137	376.7
134	28	30	84	51	24.8	35.04	107.1	47.5	177.4	50	221.8	146	647.5
135	28	30	85	25	25.6	35.70	341.9	163.5	55.6	16	76.5	124	593.0
146	29	00	83	21	22.9	34.76	88.2	5.0	79.4	525	297.6	22	12.5
147	29	00	83	38	23.7	34.28	102.2	10.0	127.2	164	160.5	3	2.9
148	29	00	83	54	24.0	34.59	105.8	14.5	207.9	92	126.1	82	112.4
150	29	00	84	28	24.2	34.75	103.6	30.0	202.7	59	170.8	78	225.9
167	29	30	83	34	22.3	34.70	104.4	4.0	172.4	678	259.8	23	8.8
168	29	30	83	51	23.2	34.08	105.8	7.0	94.5	148	97.9	47	31.10
169	29	30	84	08	23.7	34.55	105.2	11.5	142.6	80	87.5	92	100.6
171	29	30	84	51	22.9	33.85	100.7	5.0	268.1	111	55.1	50	24.8

Table 43. Summary of Station Data for Catches of Clupeid Eggs and Larvae for Cruise IS 7320.

Station	Clupeids				*Brevoortia* sp.				*Opisthonema oglinum*				*Sardinella* sp.				*Harengula jaguana*				*Etrumeus teres*				Unidentified Clupeids			
	Eggs		Larvae		Eggs		Larvae		Eggs		Larvae		Eggs		Larvae		Eggs		Larvae		Eggs		Larvae		Eggs		Larvae	
	No.	No. Under $10m^2$	No.	No. Under $10m^2$	No.	No. Under $10m^2$	No.	No. Under $10m^2$	No.	No. Under $10m^2$	No.	No. Under $10m^2$	No.	No. Under $10m^2$	No.	No. Under $10m^2$	No.	No. Under $10m^2$	No.	No. Under $10m^2$	No.	No. Under $10m^2$	No.	No. Under $10m^2$	No.	No. Under $10m^2$	No.	No. Under $10m^2$
10	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0
14	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0
26	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0
27	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0
28	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0
30	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0
32	1	4.6	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	1	4.6	0	0.0	0	0.0	0	0.0
34	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0
44	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0
45	0	0.0	3	4.7	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	3	4.7	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0
46	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0
48	4	18.1	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	4	18.1	0	0.0	0	0.0	0	0.0
50	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0
51	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0
60	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0
61	2	5.0	5	12.5	0	0.0	0	0.0	0	0.0	0	0.0	2	5.0	5	12.5	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0
62	0	0.0	2	8.1	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	2	8.1	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0
64	0	0.0	1	4.5	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	1	4.5	0	0.0	0	0.0
66	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0
67	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0
76	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0

Table 43. Continued.

Station	Clupeids				*Brevoortia* sp.				*Opisthonema oglinum*				*Sardinella* sp.				*Harengula jaguana*				*Etrumeus teres*				Unidentified Clupeids			
	Eggs		Larvae		Eggs		Larvae		Eggs		Larvae		Eggs		Larvae		Eggs		Larvae		Eggs		Larvae		Eggs		Larvae	
	No.	No. Under $10m^2$	No.	No. Under $10m^2$	No.	No. Under $10m^2$	No.	No. Under $10m^2$	No.	No. Under $10m^2$	No.	No. Under $10m^2$	No.	No. Under $10m^2$	No.	No. Under $10m^2$	No.	No. Under $10m^2$	No.	No. Under $10m^2$	No.	No. Under $10m^2$	No.	No. Under $10m^2$	No.	No. Under $10m^2$	No.	No. Under $10m^2$
77	0	0.0	84	166.3	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	84	166.3	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0
78	0	0.0	15	47.4	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	15	47.4	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0
80	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0
82	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0
92	69	67.0	105	101.9	0	0.0	0	0.0	0	0.0	4	3.9	69	67.0	101	98.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0
93	195	424.4	14	30.5	0	0.0	0	0.0	0	0.0	0	0.0	194	422.2	14	30.5	1	2.2	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0
94	0	0.0	5	17.7	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	4	14.2	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	1	3.5
96	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0
98	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0
99	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0
108	7,451	5,592.6	168	126.1	0	0.0	0	0.0	0	0.0	109	81.8	0	0.0	14	10.5	7,451	5,592.6	37	27.8	0	0.0	0	0.0	0	0.0	8	6.0
109	36	60.2	54	90.4	0	0.0	0	0.0	0	0.0	1	1.7	2	3.3	44	73.6	34	56.9	2	3.3	0	0.0	0	0.0	0	0.0	7	11.7
110	111	184.4	40	66.5	0	0.0	0	0.0	0	0.0	0	0.0	111	184.4	35	58.2	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	5	8.3
112	4	14.5	4	14.5	0	0.0	0	0.0	0	0.0	0	0.0	4	14.5	4	14.5	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0
114	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0
128	271	173.7	23	14.8	0	0.0	0	0.0	0	0.0	2	1.3	0	0.0	0	0.0	269	172.4	21	13.5	0	0.0	0	0.0	2	1.3	0	0.0
129	0	0.0	2	2.4	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	2	2.4	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0
130	11	16.9	21	32.3	0	0.0	0	0.0	0	0.0	0	0.0	11	16.9	21	32.3	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0
132	0	0.0	4	8.1	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	4	8.1	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0
134	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0
135	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0

Table 43. Continued.

Station	Clupeids				*Brevoortia* sp.				*Opisthonema oglinum*				*Sardinella* sp.				*Harengula jaguana*				*Etrumeus teres*				Unidentified Clupeids			
	Eggs		Larvae		Eggs		Larvae		Eggs		Larvae		Eggs		Larvae		Eggs		Larvae		Eggs		Larvae		Eggs		Larvae	
	No.	No. Under $10m^2$	No.	No. Under $10m^2$	No.	No. Under $10m^2$	No.	No. Under $10m^2$	No.	No. Under $10m^2$	No.	No. Under $10m^2$	No.	No. Under $10m^2$	No.	No. Under $10m^2$	No.	No. Under $10m^2$	No.	No. Under $10m^2$	No.	No. Under $10m^2$	No.	No. Under $10m^2$	No.	No. Under $10m^2$	No.	No. Under $10m^2$
146	753	871.6	369	427.2	0	0.0	0	0.0	0	0.0	22	25.5	1	1.2	7	8.1	752	870.4	306	354.2	0	0.0	0	0.0	0	0.0	34	39.4
147	1	1.3	116	152.0	0	0.0	0	0.0	0	0.0	29	38.0	0	0.0	81	106.1	1	1.3	0	0.0	0	0.0	0	0.0	0	0.0	6	7.9
148	0	0.0	23	38.9	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	23	38.9	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0
150	0	0.0	1	1.8	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	1	1.8	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0
167	0	0.0	337	226.4	0	0.0	0	0.0	0	0.0	96	64.5	0	0.0	27	18.1	0	0.0	196	131.7	0	0.0	0	0.0	0	0.0	18	12.1
168	2	1.9	54	51.1	0	0.0	0	0.0	0	0.0	1	0.9	2	1.9	50	47.4	0	0.0	1	0.9	0	0.0	0	0.0	0	0.0	2	1.9
169	8	18.2	124	281.7	0	0.0	0	0.0	0	0.0	0	0.0	8	18.2	120	272.7	0	0.0	2	4.5	0	0.0	0	0.0	0	0.0	2	4.5
171	25	27.7	46	50.9	0	0.0	0	0.0	0	0.0	0	0.0	23	25.5	46	50.9	2	2.2	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0

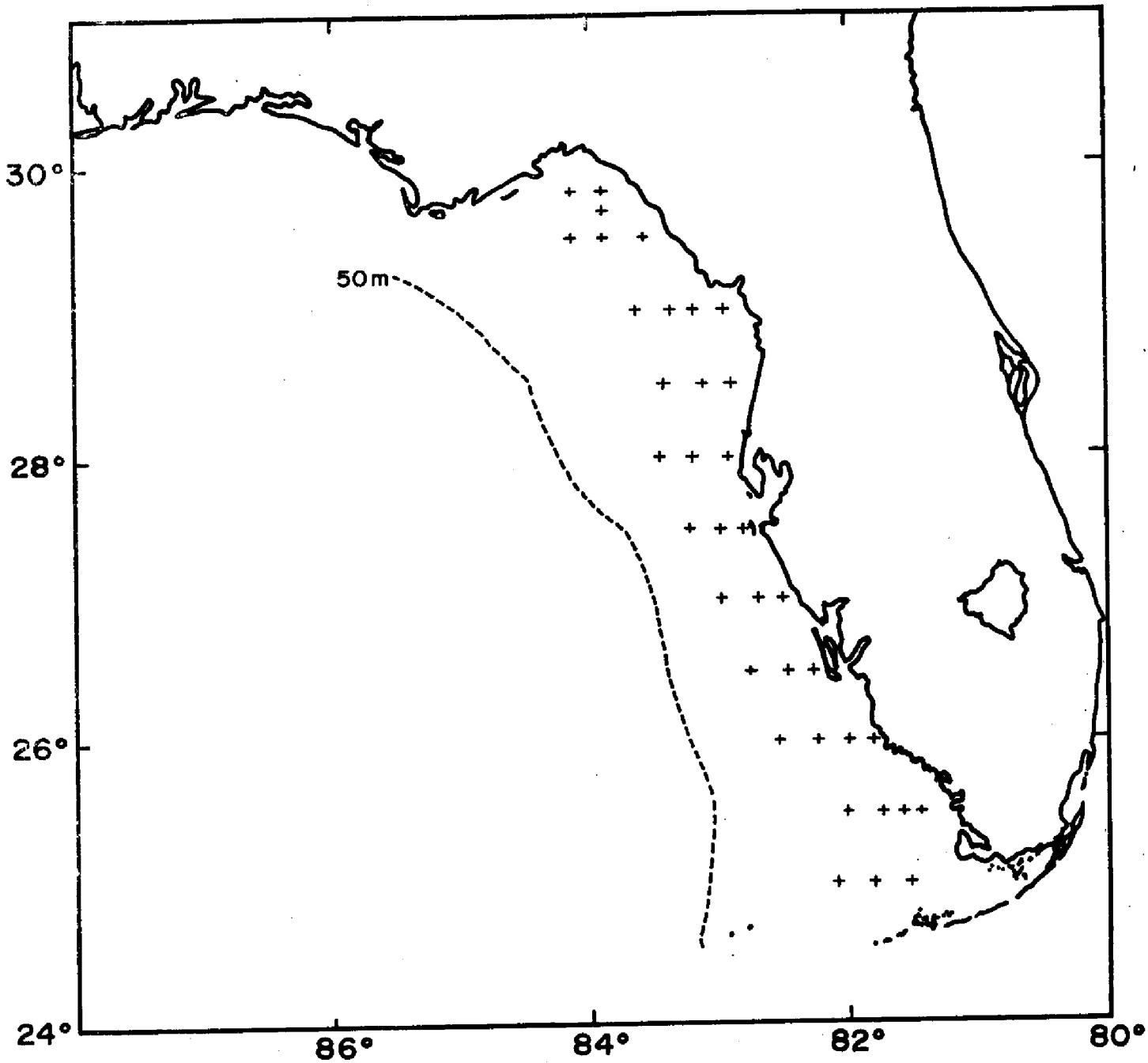


Figure 20. Chart of sampling stations for cruise CL 7405, February-March 1974.

Table 44. Summary of Station Data for Cruise CL 7405.

Station	Station Position		Surface Temp. (°C)	Surface Salin. (°/oo)	Volume Filtered (m^3)	Depth of Tow (m)	Zooplankton Volume ($cc/1000m^3$)	Fish Eggs		Fish Larvae	
	Lat. (N)	Long. (W)						No.	No. Under $10m^2$	No.	No. Under $10m^2$
10	25 00	82 04	20.4	35.66	116.5	11.0	266.1	161	152.0	15	14.2
1001	25 00	81 47	19.5	-	127.6	9.0	47.0	1036	730.7	16	11.3
1002	25 00	81 31	19.9	35.86	157.3	5.0	50.9	1441	458.0	20	6.4
1003	25 30	81 26	18.5	35.03	152.3	3.0	131.3	809	159.4	142	28.0
1004	25 30	81 35	19.0	35.35	113.4	5.0	308.6	833	367.3	94	41.4
26	25 30	81 43	19.4	35.74	97.5	6.0	10.3	625	384.6	17	10.5
27	25 30	82 00	21.0	35.71	90.3	7.0	166.1	193	149.6	45	34.9
1005	26 00	81 49	17.9	35.51	113.6	4.0	149.6	1028	362.0	82	28.9
1006	26 00	81 57	18.4	35.61	96.2	8.0	114.3	491	408.3	221	183.8
44	26 00	82 14	19.8	35.69	95.0	16.0	63.2	519	874.1	89	149.9
45	26 00	82 30	22.1	35.57	104.0	17.0	96.0	384	627.7	107	174.9
1007	26 30	82 16	18.7	35.37	112.5	6.0	35.6	199	106.1	82	43.7
60	26 30	82 27	20.2	35.44	121.8	9.5	65.7	291	227.0	28	21.8
61	26 31	82 43	21.2	35.21	100.5	18.0	129.4	181	324.2	74	132.5
1008	27 00	82 30	18.2	34.85	101.0	6.0	19.8	435	258.4	11	6.5
76	27 00	82 41	19.2	35.26	89.1	10.0	11.2	263	295.2	4	4.5
77	27 00	82 58	20.5	35.58	98.9	22.5	60.7	440	1001.0	37	84.2
1009	27 30	82 48	18.3	34.84	98.2	6.0	30.5	243	148.5	0	0.0
92	27 30	82 56	18.8	34.90	99.3	9.0	10.2	295	267.4	3	2.7
93	27 30	83 12	19.3	35.32	88.6	19.0	180.6	267	572.6	5	10.7
108	28 00	82 52	17.3	33.74	96.6	4.0	51.8	1077	446.0	3	1.2
109	28 00	83 09	18.0	34.75	101.3	6.5	9.9	366	234.8	1	0.6
110	28 00	83 26	19.6	35.73	101.3	19.0	59.2	1132	2123.2	102	191.3
1010	28 30	82 54	17.6	33.88	94.6	2.0	10.6	450	95.1	2	0.4
128	28 30	83 05	17.4	34.54	97.6	6.0	41.0	461	283.4	3	1.8
129	28 30	83 23	18.6	35.17	108.4	12.0	92.3	468	518.1	69	76.4
1011	29 00	82 57	17.6	30.46	94.7	2.0	42.2	544	114.9	27	5.7
1012	29 00	83 09	17.0	31.88	93.7	2.0	192.1	188	40.1	11	2.3
146	29 00	83 20	17.0	33.96	97.2	9.0	30.9	117	108.3	232	214.8
147	29 00	83 37	19.4	35.04	102.5	13.0	126.8	73	92.6	167	211.8
167	29 30	83 34	16.4	32.09	102.8	4.0	155.6	107	41.6	19	7.4
168	29 30	83 51	17.2	34.49	102.2	11.0	185.9	363	390.7	180	193.7
169	29 30	84 08	17.9	35.04	91.9	8.0	119.7	235	204.6	197	171.5
1013	29 40	83 51	16.6	32.57	91.9	6.0	108.8	166	108.4	92	60.1

Table 44. (continued)

Station	Station Position		Surface Temp. (°C)	Surface Salin. (°/oo)	Volume Filtered (m^3)	Depth of Tow (m)	Zooplankton Volume ($cc/1000m^3$)	Fish Eggs		Fish Larvae	
	Lat. (N)	Long. (W)						No.	No. Under $10m^2$	No.	No. Under $10m^2$
1014	29 50	83 51	16.2	30.05	92.2	3.0	54.2	21	6.8	10	3.3
1015	29 50	84 08	16.8	32.03	89.2	4.0	89.7	118	52.9	9	4.0

Table 45. Summary of Station Data for Catches of Clupeid Eggs and Larvae for Cruise CL 7405.

Station	Clupeids				*Brevoortia* sp.				*Opisthonema oglinum*				*Sardinella* sp.				*Harengula jaguana*				*Etrumeus teres*				Unidentified Clupeids			
	Eggs		Larvae		Eggs		Larvae		Eggs		Larvae		Eggs		Larvae		Eggs		Larvae		Eggs		Larvae		Eggs		Larvae	
	No.	No. Under $10m^2$	No.	No. Under $10m^2$	No.	No. Under $10m^2$	No.	No. Under $10m^2$	No.	No. Under $10m^2$	No.	No. Under $10m^2$	No.	No. Under $10m^2$	No.	No. Under $10m^2$	No.	No. Under $10m^2$	No.	No. Under $10m^2$	No.	No. Under $10m^2$	No.	No. Under $10m^2$	No.	No. Under $10m^2$	No.	No. Under $10m^2$
10	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0
1001	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0
1002	0	0.0	15	4.8	0	0.0	0	0.0	0	0.0	9	2.9	0	0.0	0	0.0	0	0.0	6	1.9	0	0.0	0	0.0	0	0.0	0	0.0
1003	8	1.6	36	7.1	8	1.6	5	1.0	0	0.0	9	1.8	0	0.0	0	0.0	0	0.0	2	0.4	0	0.0	0	0.0	0	0.0	20	3.9
1004	0	0.0	12	5.3	0	0.0	2	0.9	0	0.0	10	4.4	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0
26	0	0.0	2	1.2	0	0.0	0	0.0	0	0.0	1	0.6	0	0.0	0	0.0	0	0.0	1	0.6	0	0.0	0	0.0	0	0.0	0	0.0
27	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0
1005	82	28.9	22	7.7	82	28.9	20	7.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	2	0.7
1006	1	0.8	46	38.2	1	0.8	26	21.6	0	0.0	3	2.5	0	0.0	0	0.0	0	0.0	16	13.3	0	0.0	0	0.0	0	0.0	1	0.8
44	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0
45	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0
1007	6	3.2	0	0.0	6	3.2	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0
60	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0
61	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0
1008	33	19.6	0	0.0	33	19.6	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0
76	2	2.2	0	0.0	2	2.2	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0
77	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0
1009	32	19.6	0	0.0	32	19.6	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0
92	1	0.9	0	0.0	1	0.9	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0
93	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0
108	18	7.5	0	0.0	18	7.5	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0

Table 45. Continued.

Station	Clupeids				*Brevoortia* sp.				*Opisthonema oglinum*				*Sardinella* sp.				*Harengula jaguana*				*Etrumeus teres*				Unidentified Clupeids			
	Eggs		Larvae		Eggs		Larvae		Eggs		Larvae		Eggs		Larvae		Eggs		Larvae		Eggs		Larvae		Eggs		Larvae	
	No.	No. Under $10m^2$	No.	No. Under $10m^2$	No.	No. Under $10m^2$	No.	No. Under $10m^2$	No.	No. Under $10m^2$	No.	No. Under $10m^2$	No.	No. Under $10m^2$	No.	No. Under $10m^2$	No.	No. Under $10m^2$	No.	No. Under $10m^2$	No.	No. Under $10m^2$	No.	No. Under $10m^2$	No.	No. Under $10m^2$	No.	No. Under $10m^2$
109	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0
110	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0
1010	313	66.2	0	0.0	313	66.2	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0
128	1	0.6	0	0.0	1	0.6	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0
129	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0
1011	529	111.7	8	1.7	529	111.7	8	1.7	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0
1012	72	15.4	1	0.2	72	15.4	1	0.2	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0
146	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0
147	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0
167	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0
168	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0
169	0	0.0	8	7.0	0	0.0	8	7.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0
1013	0	0.0	1	0.7	0	0.0	1	0.7	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0
1014	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0
1015	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0

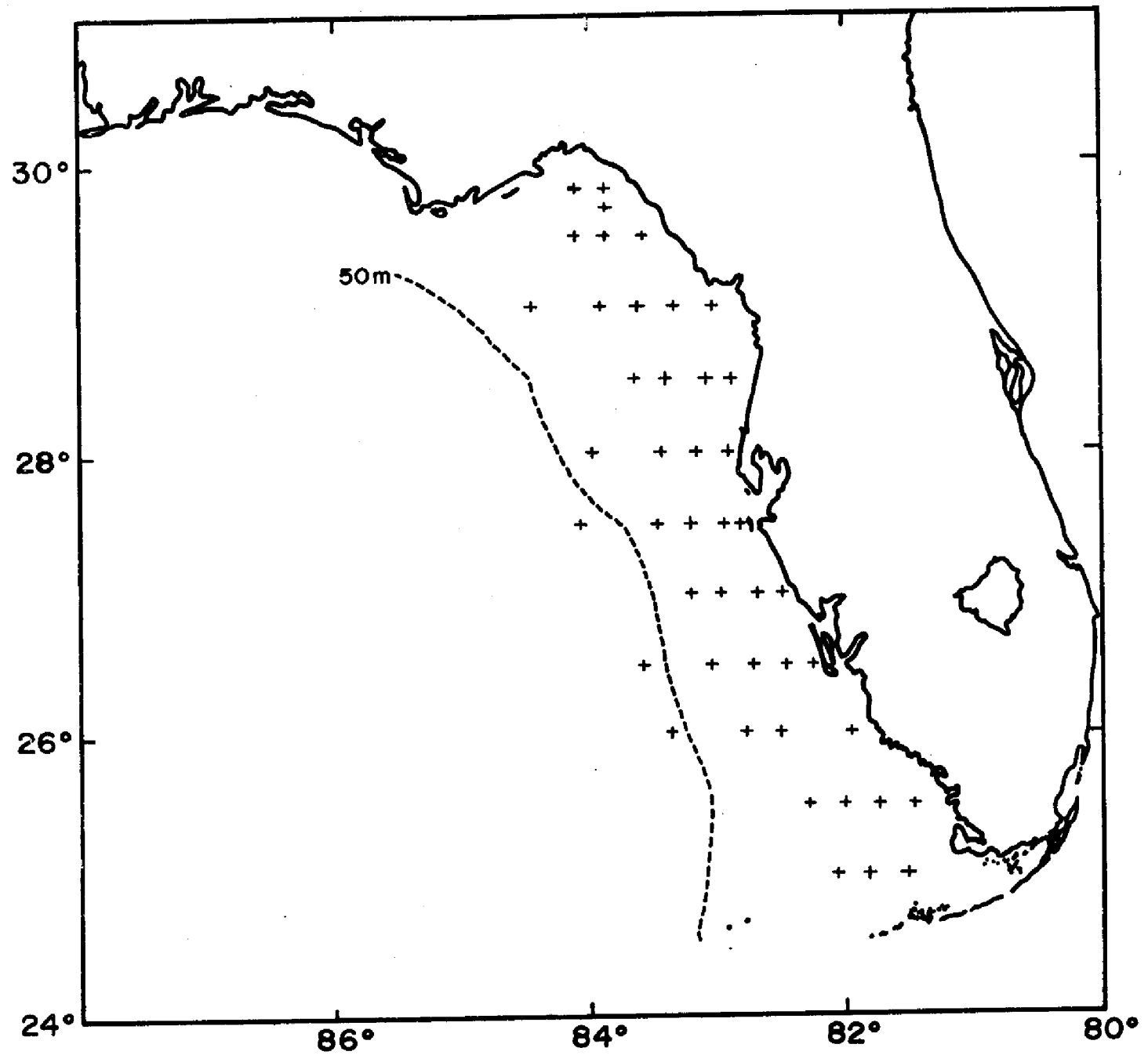


Figure 21. Chart of sampling stations for cruise CL 7412, May 1974.

Table 46. Summary of Station Data for Cruise CL 7412

Station	Station Position		Surface Temp. (°C)	Surface Salin. (°/oo)	Volume Filtered (m^3)	Depth of Tow (m)	Zooplankton Volume ($cc/1000m^3$)	Fish Eggs		Fish Larvae	
	Lat. (N)	Long. (W)						No.	No. Under $10m^2$	No.	No. Under $10m^2$
10	25 00	82 04	24.6	36.15	104.3	13.5	47.9	518	670.5	602	779.2
2001	25 00	81 47	24.8	36.33	103.9	8.0	2435.0	1824	1404.4	259	199.4
2002	25 00	81 31	24.9	36.88	102.4	5.0	97.7	934	456.1	383	187.0
2003	25 30	81 26	25.2	36.77	117.5	3.0	51.1	630	160.9	26	6.6
26	25 30	81 43	25.2	36.65	112.1	6.0	169.5	1695	907.2	694	371.5
27	25 30	82 00	25.3	36.14	114.7	8.0	104.6	876	611.0	269	187.6
28	25 30	82 16	24.5	35.97	107.6	23.5	334.6	435	950.0	335	731.6
2004	26 00	81 57	24.5	35.98	121.2	5.5	41.3	5819	2640.6	398	180.6
45	26 00	82 30	24.3	36.12	129.0	16.5	403.1	1073	1372.4	2522	3225.8
46	26 00	82 47	24.3	36.06	120.5	34.5	365.1	81	231.9	322	921.9
48	26 00	83 21	24.2	35.34	113.4	53.0	317.5	124	579.5	136	635.6
2005	26 30	82 16	23.9	35.85	106.9	5.0	252.6	2057	962.1	422	197.4
60	26 30	82 27	23.6	35.83	117.1	10.5	187.9	797	714.6	142	127.3
61	26 30	82 44	23.3	35.97	110.7	20.0	72.3	266	480.6	278	502.3
62	26 30	83 01	23.7	36.03	118.6	35.0	143.3	680	2006.7	141	416.1
64	26 30	83 34	24.0	35.73	162.7	43.0	86.0	65	171.8	148	391.1
2006	27 00	82 30	24.1	35.75	110.3	6.0	45.3	2349	1277.8	71	38.6
76	27 00	82 41	23.7	35.87	126.0	10.5	127.0	329	274.2	239	199.2
77	27 00	82 58	23.4	35.98	110.5	19.5	171.9	234	412.9	193	340.6
78	27 00	83 14	23.0	35.34	118.1	33.0	271.6	271	757.2	400	1117.7
2007	27 30	82 48	24.4	35.12	108.2	6.0	46.2	974	540.1	25	13.9
92	27 30	82 56	24.1	35.29	103.0	7.5	116.5	4100	2985.4	411	299.3
93	27 30	83 12	23.4	35.74	92.2	20.0	227.8	354	767.9	392	850.3
94	27 30	83 29	23.2	35.28	113.4	32.0	141.1	249	702.6	274	773.2
96	27 30	84 03	24.5	36.20	151.4	46.5	171.7	102	313.3	305	936.8
108	28 00	82 52	24.5	34.98	93.7	3.0	53.4	1194	382.3	20	6.4
109	28 00	83 09	23.2	35.50	120.7	9.5	8.3	414	325.8	46	36.2
110	28 00	83 26	23.1	35.92	124.7	17.0	160.4	316	430.8	499	680.3
112	28 00	83 59	23.7	35.40	125.7	29.0	183.0	260	599.8	367	846.7
2008	28 30	82 54	24.4	34.35	108.9	2.0	119.4	5551	1019.5	220	40.4
128	28 30	83 05	23.2	34.46	96.5	7.0	165.8	1112	806.6	87	63.1
129	28 30	83 23	23.1	35.67	101.0	9.5	99.0	516	485.3	228	214.5
130	28 30	83 39	23.1	35.99	99.9	22.5	100.1	1261	2840.1	538	1211.7
2009	29 00	83 03	23.9	31.19	102.0	2.0	166.7	1175	230.4	52	10.2

Table 46. (continued)

Station	Station Position		Surface Temp. (°C)	Surface Salin. (°/oo)	Volume Filtered (m^3)	Depth of Tow (m)	Zooplankton Volume ($cc/1000m^3$)	Fish Eggs		Fish Larvae	
	Lat. (N)	Long. (W)						No.	No. Under $10m^2$	No.	No. Under $10m^2$
146	29 00	83 20	24.2	33.67	77.0	6.0	844.2	1876	1461.8	156	121.6
147	29 00	83 37	24.0	34.73	117.1	13.0	42.7	2575	2858.7	29	32.2
148	29 00	83 54	23.1	35.85	101.2	15.0	276.7	1346	1995.1	815	1208.0
150	29 00	84 28	23.1	35.33	109.4	21.5	365.6	805	1582.0	358	703.6
167	29 30	83 34	24.0	31.85	104.8	4.0	152.7	2655	1013.4	564	215.3
168	29 30	83 51	23.5	32.95	101.8	11.0	98.2	751	811.5	874	944.4
169	29 30	84 08	23.4	33.17	106.6	12.5	28.1	195	228.7	869	1019.0
2010	29 40	83 51	23.1	33.35	119.9	10.0	150.1	1328	1107.6	1383	1153.5
2011	29 50	83 51	23.7	29.92	100.7	2.0	158.9	3832	761.1	279	55.4
2012	29 50	84 08	22.9	33.53	102.4	4.0	127.0	3232	1262.5	83	32.4

Table 47. Summary of Station Data for Catches of Clupeid Eggs and Larvae for Cruise CL 7412.

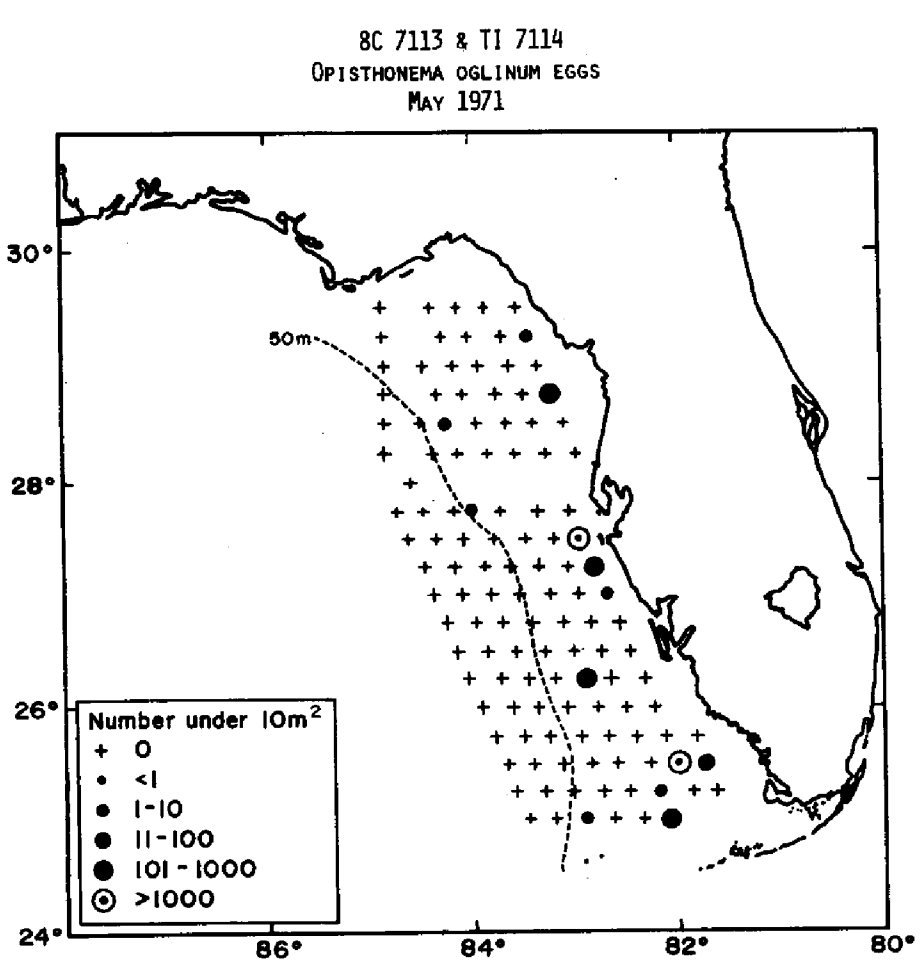
Station	Clupeids				*Brevoortia* sp.				*Opisthonema oglinum*				*Sardinella* sp.				*Harengula jaguana*				*Etrumeus teres*				Unidentified Clupeids			
	Eggs		Larvae		Eggs		Larvae		Eggs		Larvae		Eggs		Larvae		Eggs		Larvae		Eggs		Larvae		Eggs		Larvae	
	No.	No. Under $10m^2$	No.	No. Under $10m^2$	No.	No. Under $10m^2$	No.	No. Under $10m^2$	No.	No. Under $10m^2$	No.	No. Under $10m^2$	No.	No. Under $10m^2$	No.	No. Under $10m^2$	No.	No. Under $10m^2$	No.	No. Under $10m^2$	No.	No. Under $10m^2$	No.	No. Under $10m^2$	No.	No. Under $10m^2$	No.	No. Under $10m^2$
10	2	2.6	339	438.8	0	0.0	0	0.0	0	0.0	327	423.3	0	0.0	0	0.0	2	2.6	12	15.5	0	0.0	0	0.0	0	0.0	0	0.0
2001	903	695.3	114	87.7	0	0.0	0	0.0	0	0.0	106	81.6	0	0.0	0	0.0	903	695.3	6	4.6	0	0.0	0	0.0	0	0.0	2	1.5
2002	138	67.4	91	44.4	0	0.0	0	0.0	0	0.0	60	29.3	0	0.0	0	0.0	138	67.4	31	15.1	0	0.0	0	0.0	0	0.0	0	0.0
2003	146	37.3	7	1.9	0	0.0	0	0.0	0	0.0	3	0.8	0	0.0	0	0.0	146	37.3	3	0.8	0	0.0	0	0.0	0	0.0	1	0.3
26	210	112.4	410	219.5	0	0.0	0	0.0	0	0.0	309	165.4	0	0.0	0	0.0	210	112.4	85	45.5	0	0.0	0	0.0	0	0.0	16	8.6
27	1	0.7	3	2.1	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	1	0.7	3	2.1	0	0.0	0	0.0	0	0.0	0	0.0
28	1	2.2	53	115.8	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	14	30.6	1	2.2	0	0.0	0	0.0	0	0.0	0	0.0	39	85.2
2004	464	210.6	293	133.0	0	0.0	0	0.0	0	0.0	58	26.3	0	0.0	0	0.0	464	210.6	221	100.3	0	0.0	0	0.0	0	0.0	14	6.4
45	0	0.0	2,116	2,706.5	0	0.0	0	0.0	0	0.0	316	404.2	0	0.0	1,758	2,248.6	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	42	53.7
46	0	0.0	20	57.3	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	19	54.4	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	1	2.9
48	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0
2005	156	72.9	215	100.5	0	0.0	0	0.0	76	35.5	71	33.2	0	0.0	0	0.0	80	37.4	132	61.7	0	0.0	0	0.0	0	0.0	12	5.6
60	73	65.5	32	28.7	0	0.0	0	0.0	71	63.7	0	0.0	0	0.0	21	18.8	2	1.8	0	0.0	0	0.0	0	0.0	0	0.0	11	9.9
61	76	137.3	33	59.6	0	0.0	0	0.0	76	137.3	0	0.0	0	0.0	33	59.6	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0
62	0	0.0	12	35.4	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	12	35.4	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0
64	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0
2006	50	27.2	11	5.9	0	0.0	0	0.0	3	1.6	10	5.4	0	0.0	0	0.0	47	25.6	1	0.5	0	0.0	0	0.0	0	0.0	0	0.0
76	5	4.2	33	27.5	0	0.0	0	0.0	0	0.0	24	20.0	0	0.0	0	0.0	5	4.2	9	7.5	0	0.0	0	0.0	0	0.0	0	0.0
77	0	0.0	15	26.5	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	15	26.5	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0
78	0	0.0	80	223.5	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	80	223.5	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0
2007	14	7.8	8	4.5	0	0.0	1	0.6	0	0.0	0	0.0	0	0.0	0	0.0	14	7.8	5	2.8	0	0.0	0	0.0	0	0.0	2	1.1

Table 47. Continued.

Station	Clupeids				*Brevoortia* sp.				*Opisthonema oglinum*				*Sardinella* sp.				*Harengula jaguana*				*Etrumeus teres*				Unidentified Clupeids			
	Eggs		Larvae		Eggs		Larvae		Eggs		Larvae		Eggs		Larvae		Eggs		Larvae		Eggs		Larvae		Eggs		Larvae	
	No.	No. Under $10m^2$	No.	No. Under $10m^2$	No.	No. Under $10m^2$	No.	No. Under $10m^2$	No.	No. Under $10m^2$	No.	No. Under $10m^2$	No.	No. Under $10m^2$	No.	No. Under $10m^2$	No.	No. Under $10m^2$	No.	No. Under $10m^2$	No.	No. Under $10m^2$	No.	No. Under $10m^2$	No.	No. Under $10m^2$	No.	No. Under $10m^2$
92	790	575.3	286	208.3	0	0.0	0	0.0	77	56.1	43	31.3	0	0.0	6	4.4	713	519.2	237	172.6	0	0.0	0	0.0	0	0.0	0	0.0
93	0	0.0	19	41.2	0	0.0	0	0.0	0	0.0	2	4.3	0	0.0	17	36.9	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0
94	0	0.0	84	237.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	84	237.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0
96	9	27.6	61	187.4	0	0.0	0	0.0	2	6.1	0	0.0	0	0.0	4	12.3	0	0.0	0	0.0	7	21.5	57	175.1	0	0.0	0	0.0
108	22	7.0	9	2.8	0	0.0	0	0.0	0	0.0	2	0.6	0	0.0	0	0.0	22	7.0	7	2.2	0	0.0	0	0.0	0	0.0	0	0.0
109	0	0.0	6	4.7	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	5	3.9	0	0.0	1	0.8	0	0.0	0	0.0	0	0.0	0	0.0
110	0	0.0	128	174.5	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	128	174.5	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0
112	0	0.0	127	293.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	124	286.1	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	3	6.9
2008	104	19.1	168	30.9	0	0.0	0	0.0	0	0.0	25	4.6	0	0.0	1	0.2	104	19.1	137	25.2	0	0.0	0	0.0	0	0.0	5	0.9
128	34	24.6	2	1.5	0	0.0	0	0.0	33	23.9	0	0.0	1	0.7	0	0.0	0	0.0	2	1.5	0	0.0	0	0.0	0	0.0	0	0.0
129	0	0.0	11	10.4	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	7	6.6	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	4	3.8
130	5	11.3	344	777.8	5	11.3	0	0.0	0	0.0	0	0.0	0	0.0	343	772.5	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	1	2.3
2009	84	16.5	4	0.8	0	0.0	0	0.0	0	0.0	2	0.4	0	0.0	0	0.0	84	16.5	2	0.4	0	0.0	0	0.0	0	0.0	0	0.0
146	2	1.6	36	28.0	0	0.0	0	0.0	2	1.6	23	17.9	0	0.0	0	0.0	0	0.0	13	10.1	0	0.0	0	0.0	0	0.0	0	0.0
147	386	428.5	6	6.6	0	0.0	0	0.0	386	428.5	3	3.3	0	0.0	1	1.1	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	2	2.2
148	0	0.0	272	403.2	0	0.0	0	0.0	0	0.0	1	1.5	0	0.0	271	401.7	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0
150	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0
167	317	121.0	513	195.8	0	0.0	0	0.0	0	0.0	29	11.1	0	0.0	0	0.0	317	121.0	462	176.3	0	0.0	0	0.0	0	0.0	22	8.4
168	0	0.0	37	40.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	35	37.8	0	0.0	2	2.2	0	0.0	0	0.0	0	0.0	0	0.0
169	0	0.0	3	3.5	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	3	3.5	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0

Table 47. Continued.

Station	Clupeids				*Brevoortia* sp.				*Opisthonema oglinum*				*Sardinella* sp.				*Harengula jaguana*				*Etrumeus teres*				Unidentified Clupeids			
	Eggs		Larvae		Eggs		Larvae		Eggs		Larvae		Eggs		Larvae		Eggs		Larvae		Eggs		Larvae		Eggs		Larvae	
	No.	No. Under $10m^2$	No.	No. Under $10m^2$	No.	No. Under $10m^2$	No.	No. Under $10m^2$	No.	No. Under $10m^2$	No.	No. Under $10m^2$	No.	No. Under $10m^2$	No.	No. Under $10m^2$	No.	No. Under $10m^2$	No.	No. Under $10m^2$	No.	No. Under $10m^2$	No.	No. Under $10m^2$	No.	No. Under $10m^2$	No.	No. Under $10m^2$
2010	1	0.8	1,015	846.5	0	0.0	0	0.0	1	0.8	1	0.8	0	0.0	1,011	843.2	0	0.0	3	2.5	0	0.0	0	0.0	0	0.0	0	0.0
2011	1,782	353.9	141	28.0	0	0.0	0	0.0	0	0.0	1	0.2	0	0.0	94	18.7	1,782	353.9	46	9.1	0	0.0	0	0.0	0	0.0	0	0.0
2012	710	277.3	15	5.8	0	0.0	0	0.0	0	0.0	2	0.8	0	0.0	0	0.0	710	277.3	7	2.7	0	0.0	0	0.0	0	0.0	6	2.3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26°
24°
86°
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80°
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11-100
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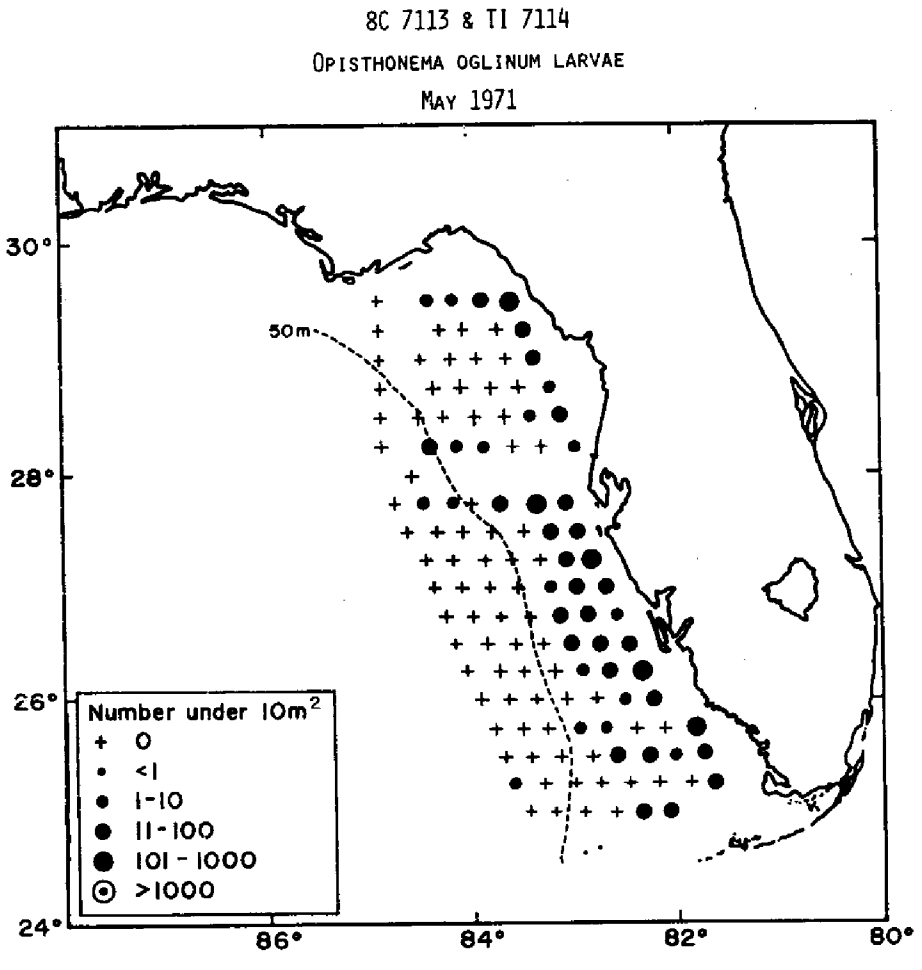
8C 7113 & TI 7114
OPISTHONEMA OGLINUM LARVAE
MAY 1971
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80°
50m
Number under 10m²
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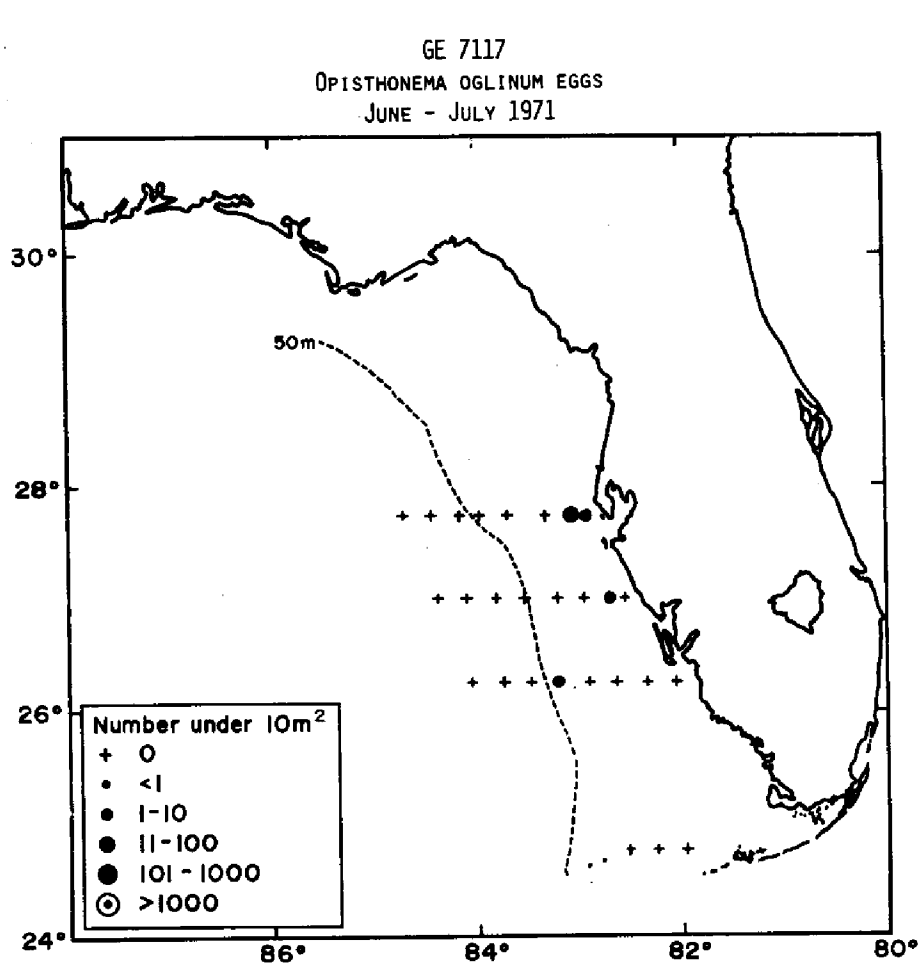
1-10
11-100
101-1000
>1000

Figure 22


GE 7117
OPISTHONEMA OGLINUM EGGS
JUNE - JULY 1971
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28°
26°
24°
50m
86°
84°
82°
80°
Number under 10m²
+ 0
• <1
● 1-10
● 11-100
● 101-1000
⊙ >1000

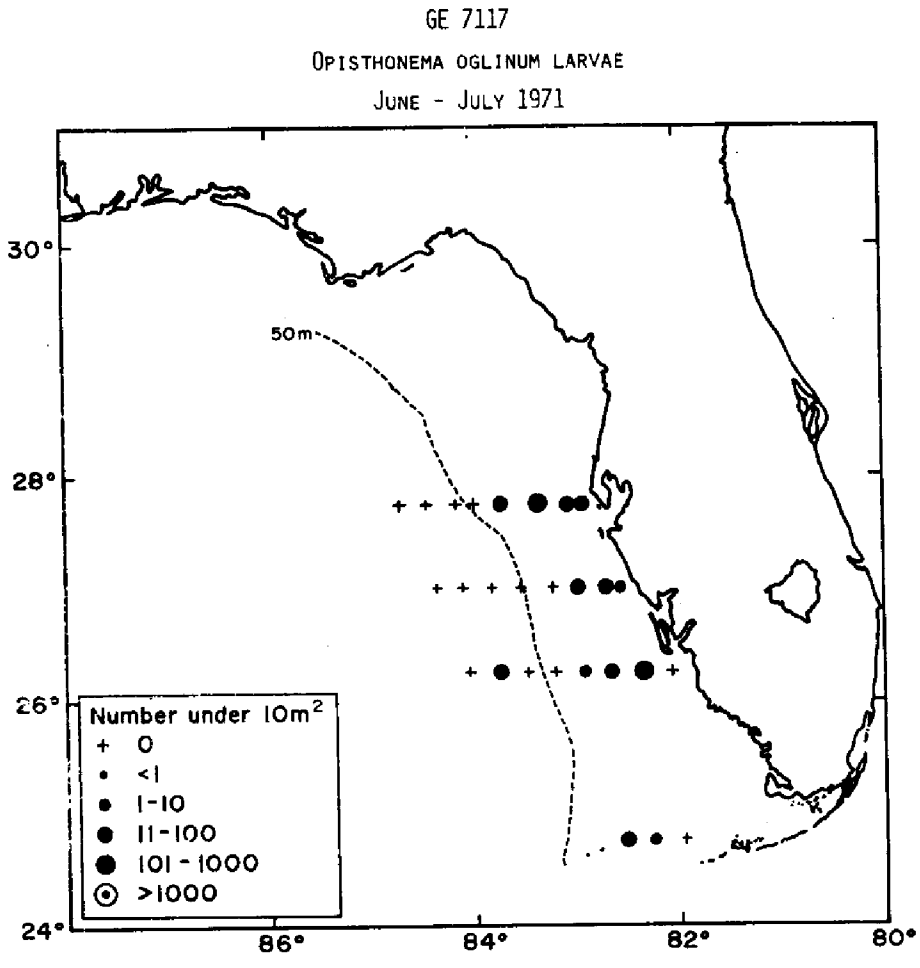
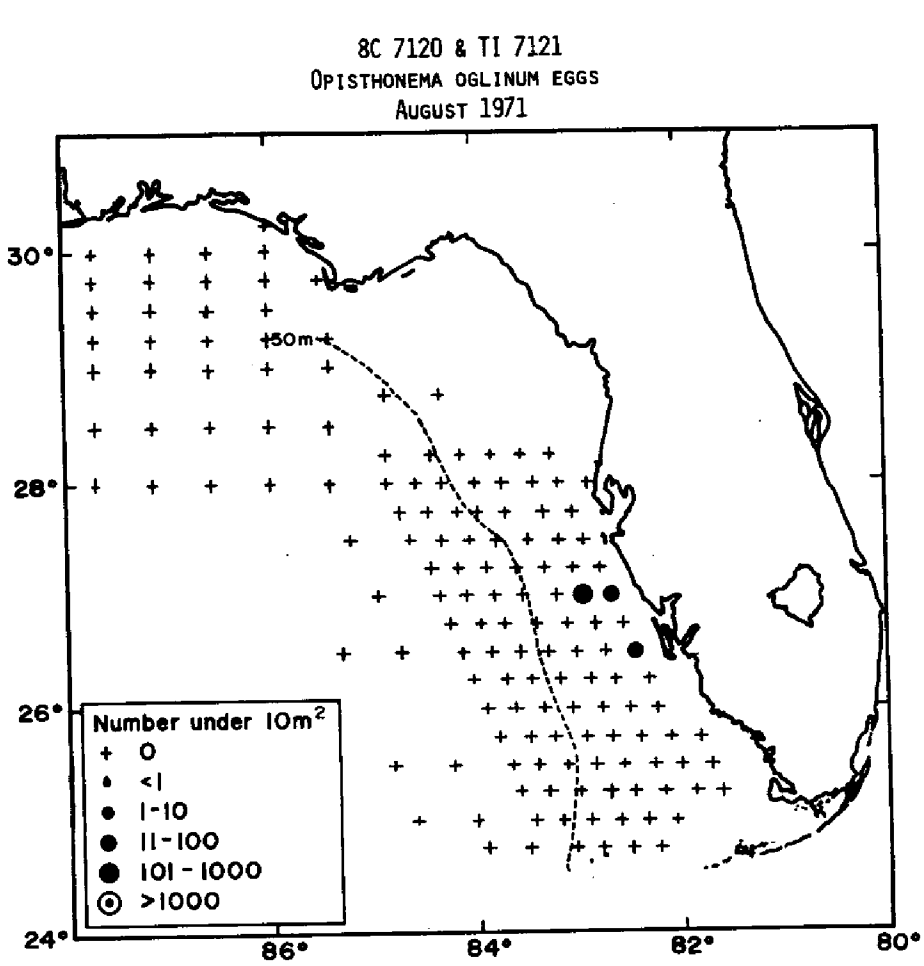

GE 7117
OPISTHONEMA OGLINUM LARVAE
JUNE - JULY 1971
30°
28°
26°
24°
50m
86°
84°
82°
80°
Number under 10m²
+ 0
• <1
● 1-10
● 11-100
● 101-1000
⊙ >1000

Figure 23


8C 7120 & TI 7121
OPISTHONEMA OGLINUM EGGS
AUGUST 1971
50m
Number under 10m²
0
<1
1-10
11-100
101-1000
>1000
30°
28°
26°
24°
86°
84°
82°
80°

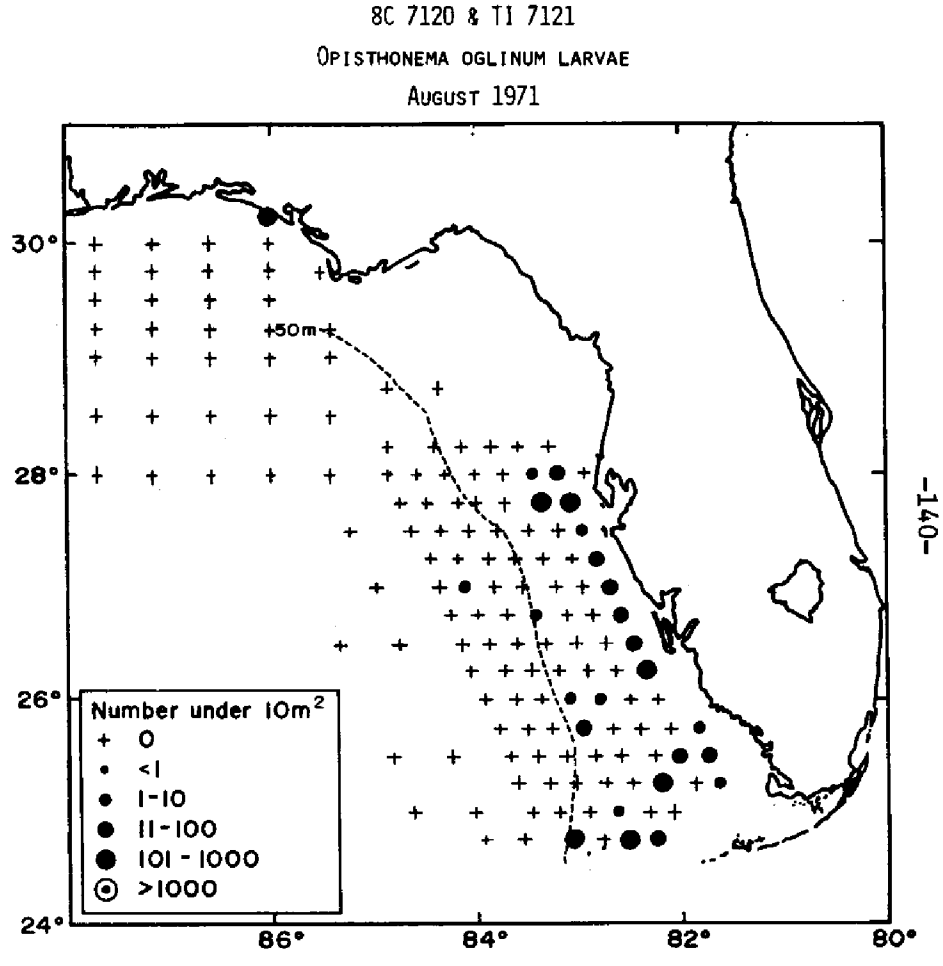
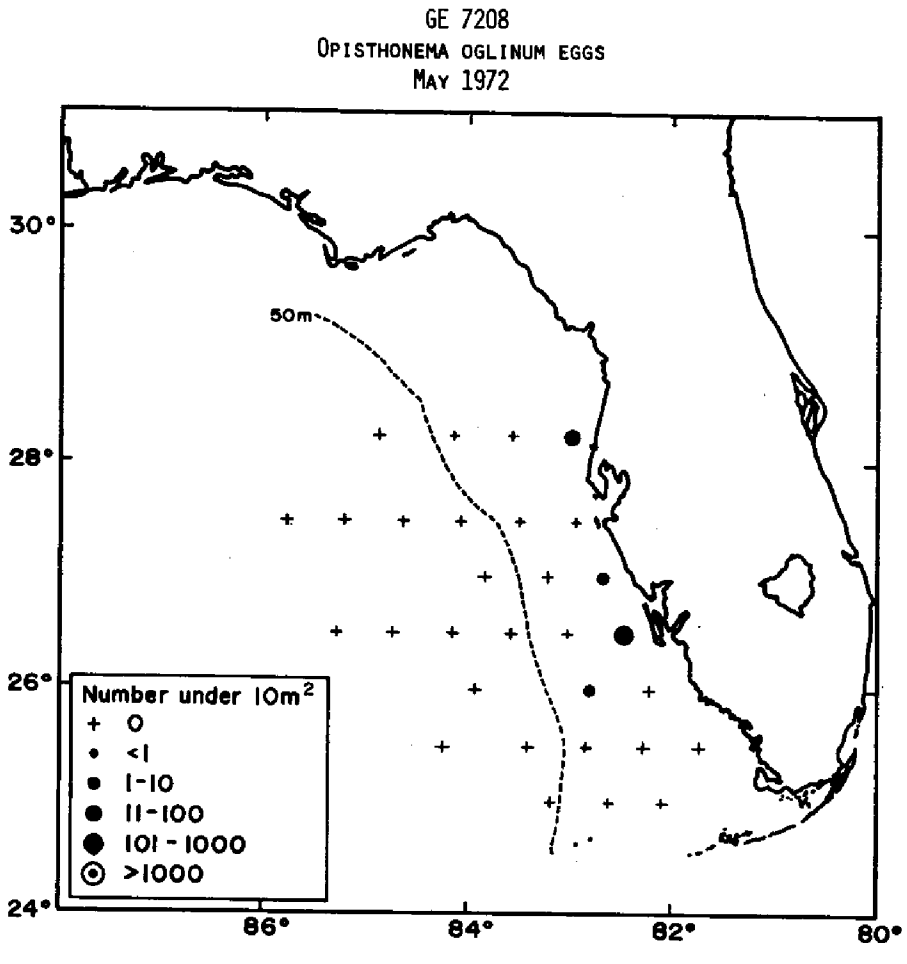

8C 7120 & TI 7121
OPISTHONEMA OGLINUM LARVAE
AUGUST 1971
50m
Number under 10m²
0
<1
1-10
11-100
101-1000
>1000
30°
28°
26°
24°
86°
84°
82°
80°

Figure 24


GE 7208
OPISTHONEMA OGLINUM EGGS
MAY 1972
30°
28°
26°
24°
50m
86°
84°
82°
80°
Number under 10m²
+ 0
• <1
● 1-10
● 11-100
● 101-1000
⊙ >1000

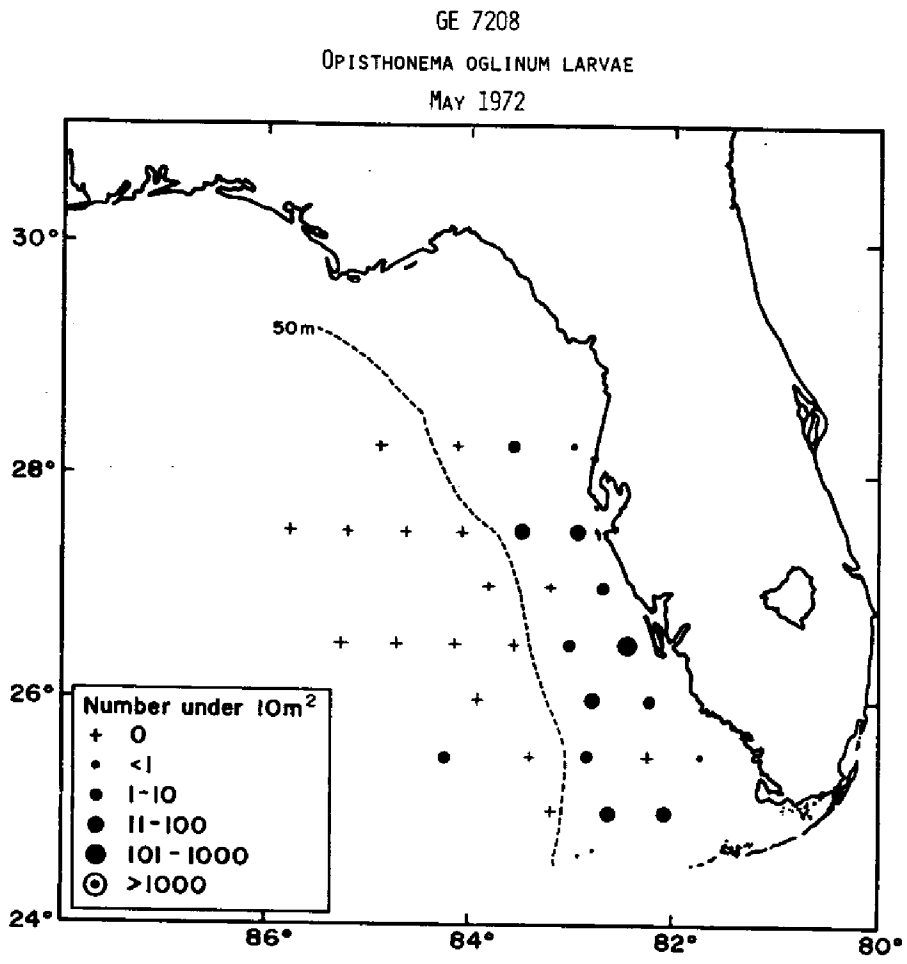

GE 7208
OPISTHONEMA OGLINUM LARVAE
MAY 1972
30°
28°
26°
24°
50m
86°
84°
82°
80°
Number under 10m²
+ 0
• <1
● 1-10
● 11-100
● 101-1000
⊙ >1000

Figure 25

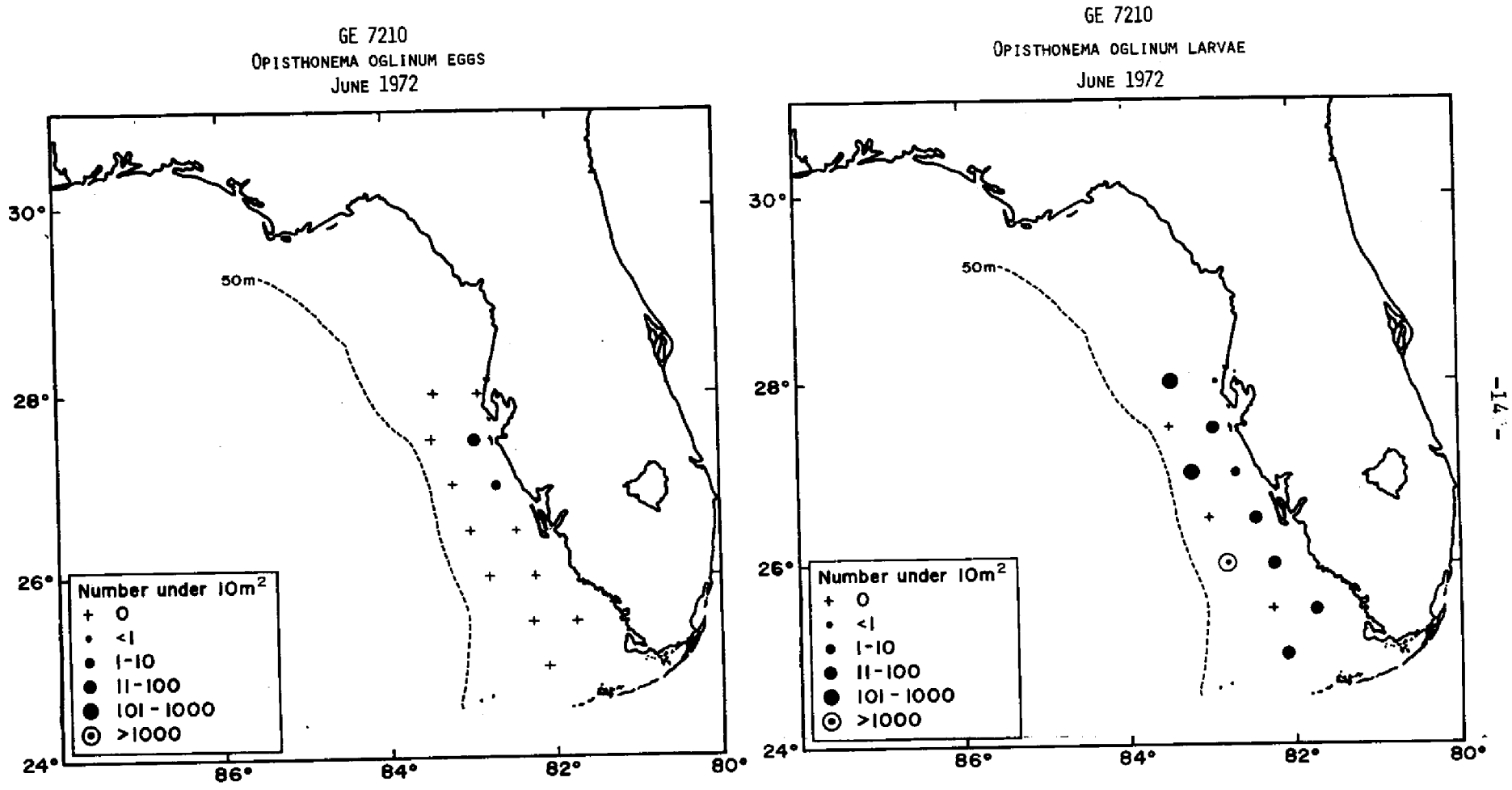

GE 7210
OPISTHONEMA OGLINUM EGGS
JUNE 1972
30°
28°
26°
24°
86°
84°
82°
80°
50m
Number under 10m²
+ 0
• <1
● 1-10
● 11-100
● 101-1000
⊙ >1000
GE 7210
OPISTHONEMA OGLINUM LARVAE
JUNE 1972
30°
28°
26°
24°
86°
84°
82°
80°
50m
Number under 10m²
+ 0
• <1
● 1-10
● 11-100
● 101-1000
⊙ >1000

Figure 26

No Opisthonema oglinum eggs present

IS 7205

OPISTHONEMA OGLINUM LARVAE

SEPTEMBER 1972

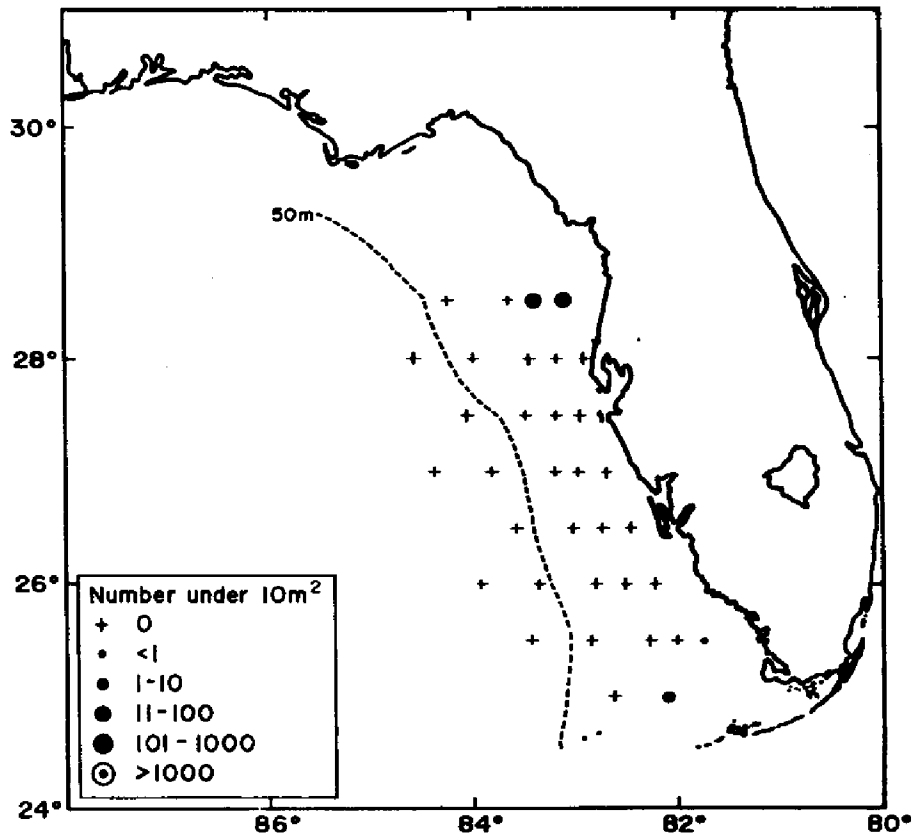
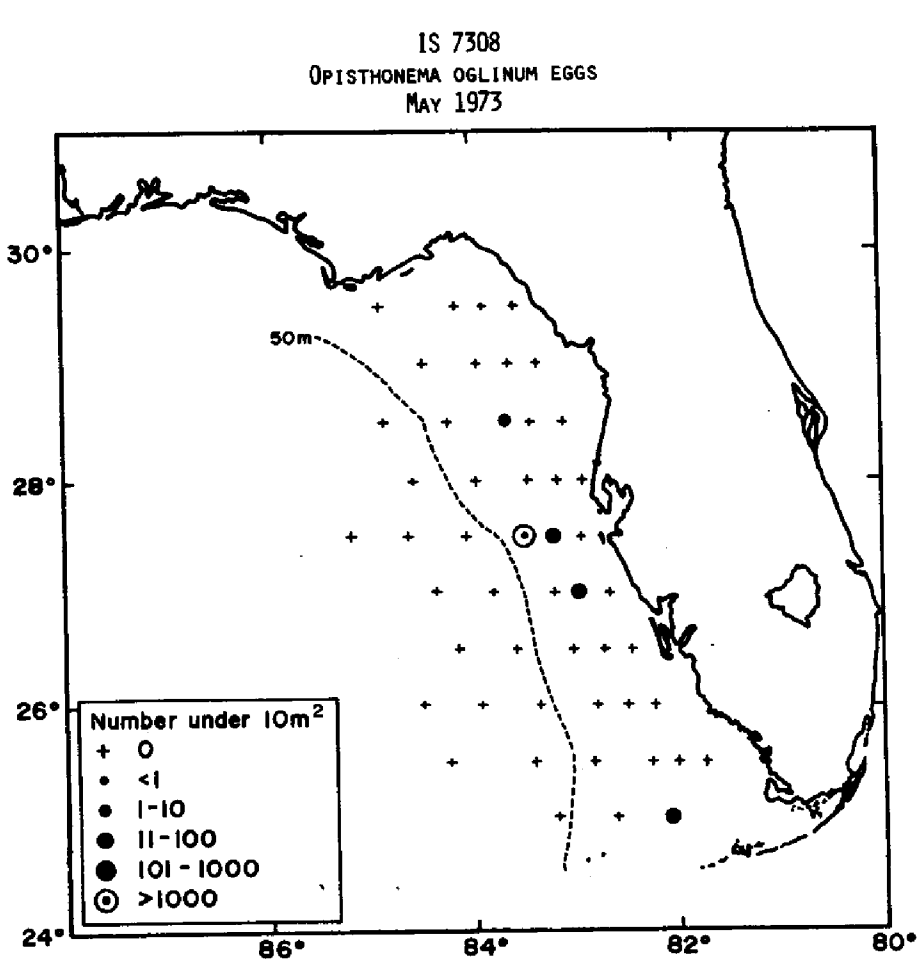


Figure 27


IS 7308
OPISTHONEMA OGLINUM EGGS
MAY 1973
30°
28°
26°
24°
86°
84°
82°
80°
50m
Number under 10m²
+ 0
• <1
• 1-10
● 11-100
● 101-1000
⊙ >1000

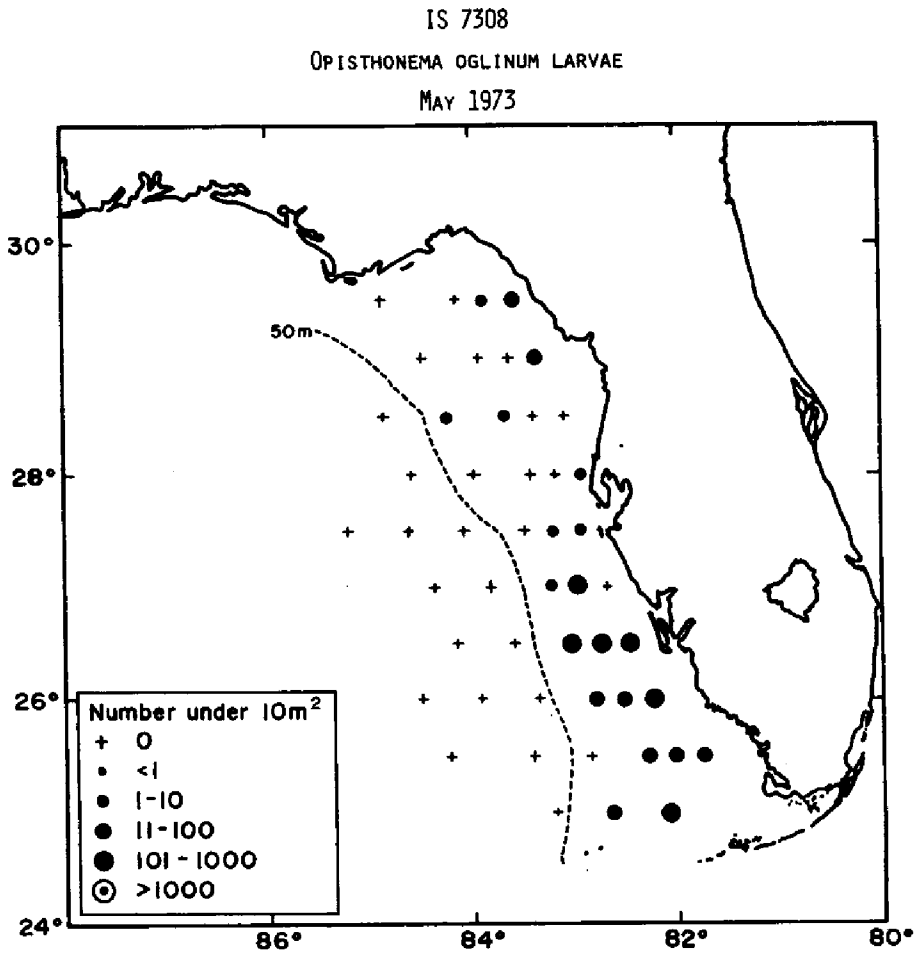
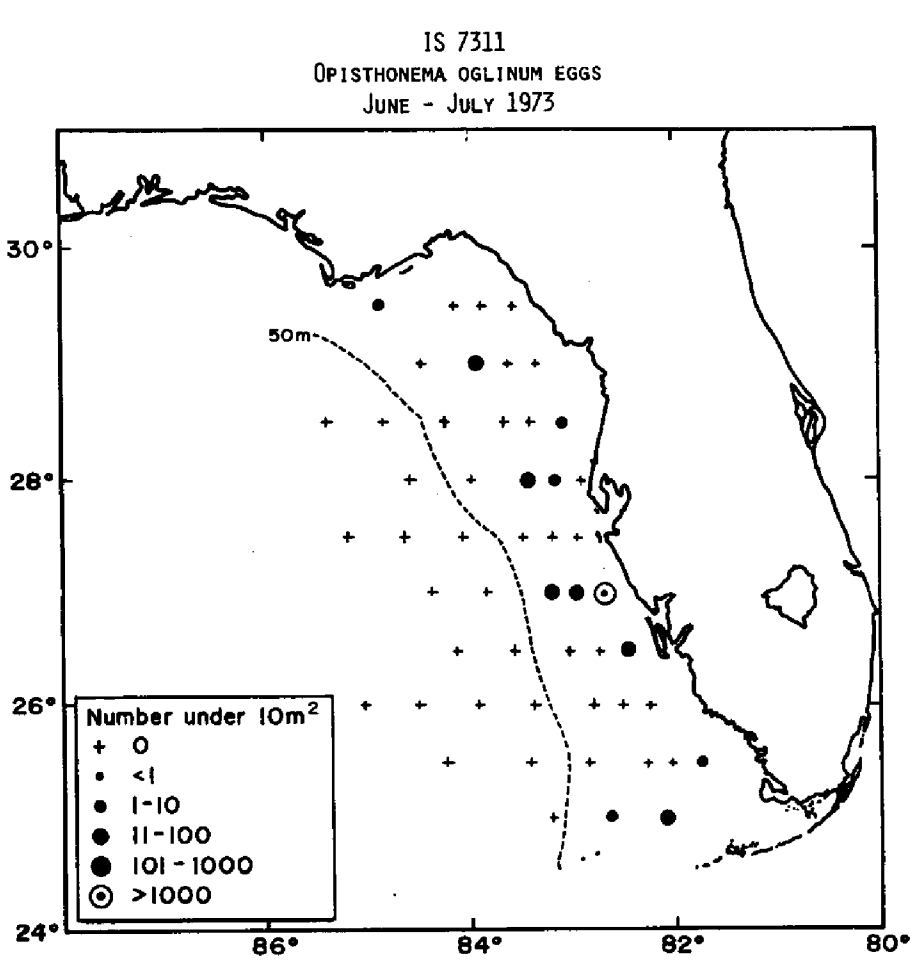

IS 7308
OPISTHONEMA OGLINUM LARVAE
MAY 1973
30°
28°
26°
24°
86°
84°
82°
80°
50m
Number under 10m²
+ 0
• <1
• 1-10
● 11-100
● 101-1000
⊙ >1000

Figure 28


IS 7311
OPISTHONEMA OGLINUM EGGS
JUNE - JULY 1973
30°
28°
26°
24°
86°
84°
82°
80°
50m
Number under 10m²
+ 0
• <1
● 1-10
● 11-100
● 101-1000
⊙ >1000

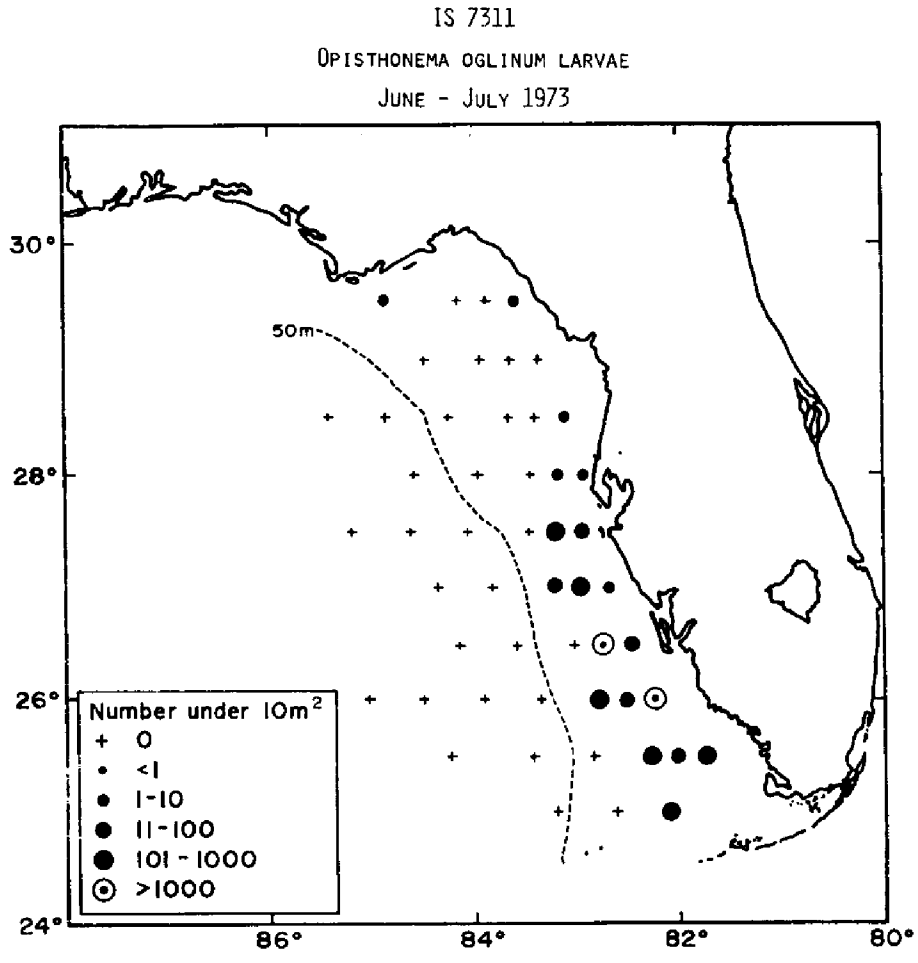

IS 7311
OPISTHONEMA OGLINUM LARVAE
JUNE - JULY 1973
30°
28°
26°
24°
86°
84°
82°
80°
50m
Number under 10m²
+ 0
• <1
● 1-10
● 11-100
● 101-1000
⊙ >1000

Figure 29

No Cpisthonema oglinum eggs present

IS 7313

OPISTHONEMA OGLINUM LARVAE

AUGUST 1973

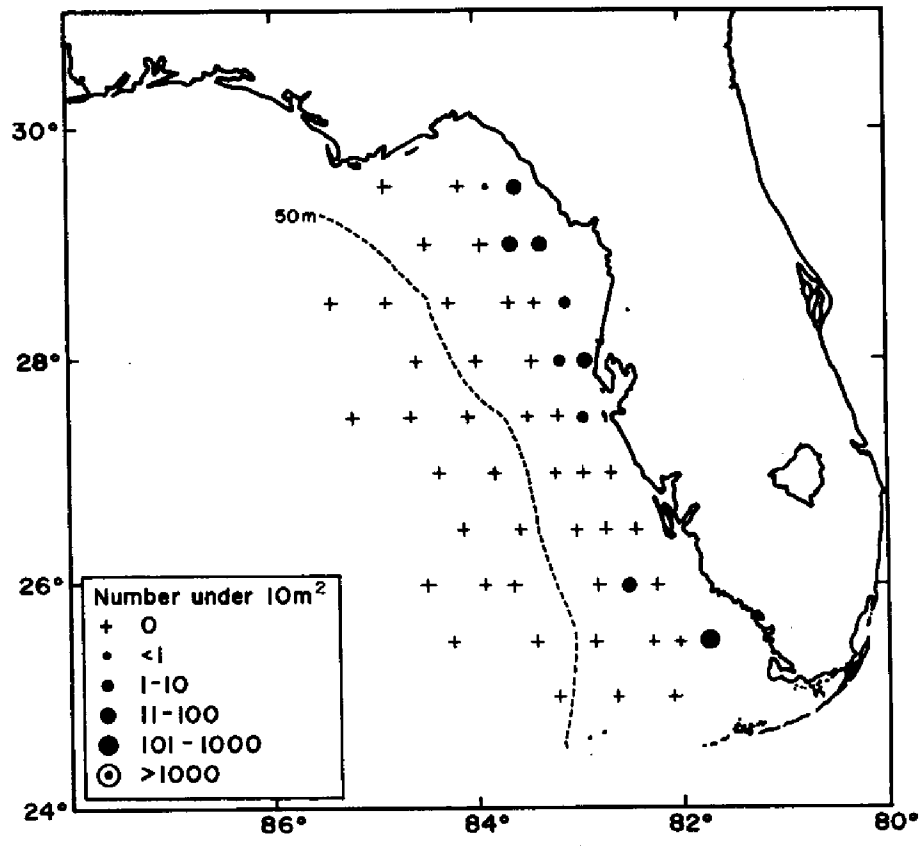


Figure 30

No Opisthonema oglinum eggs present

CL 7405

OPISTHONEMA OGLINUM LARVAE

FEBRUARY - MARCH 1974

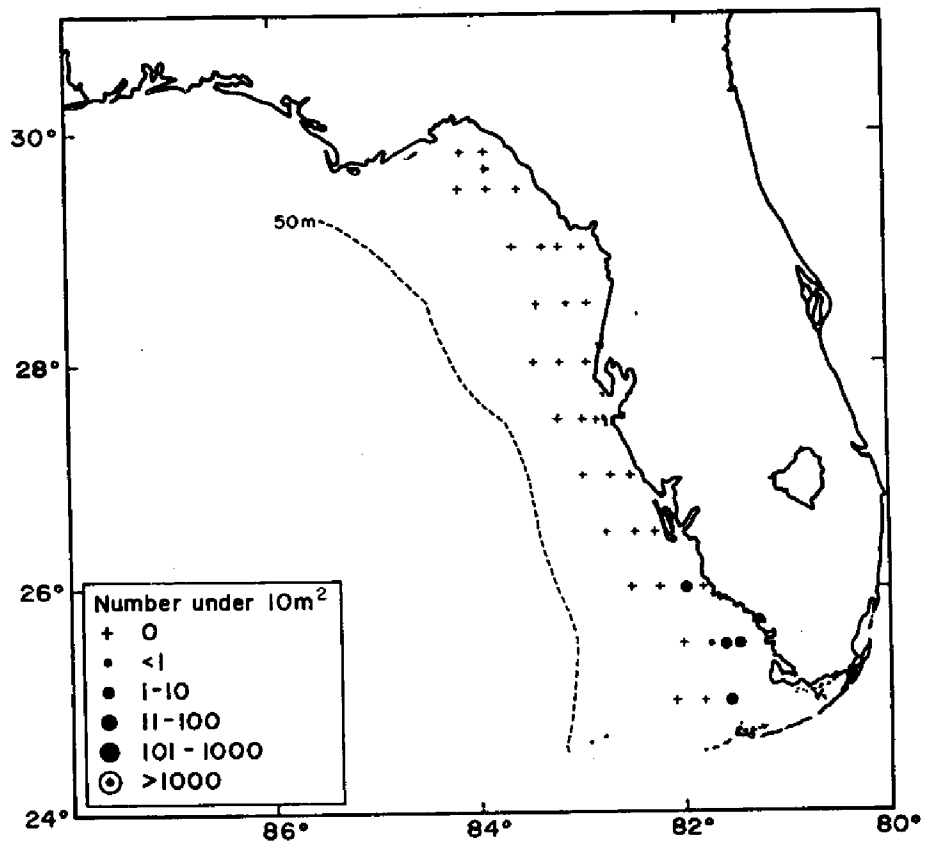
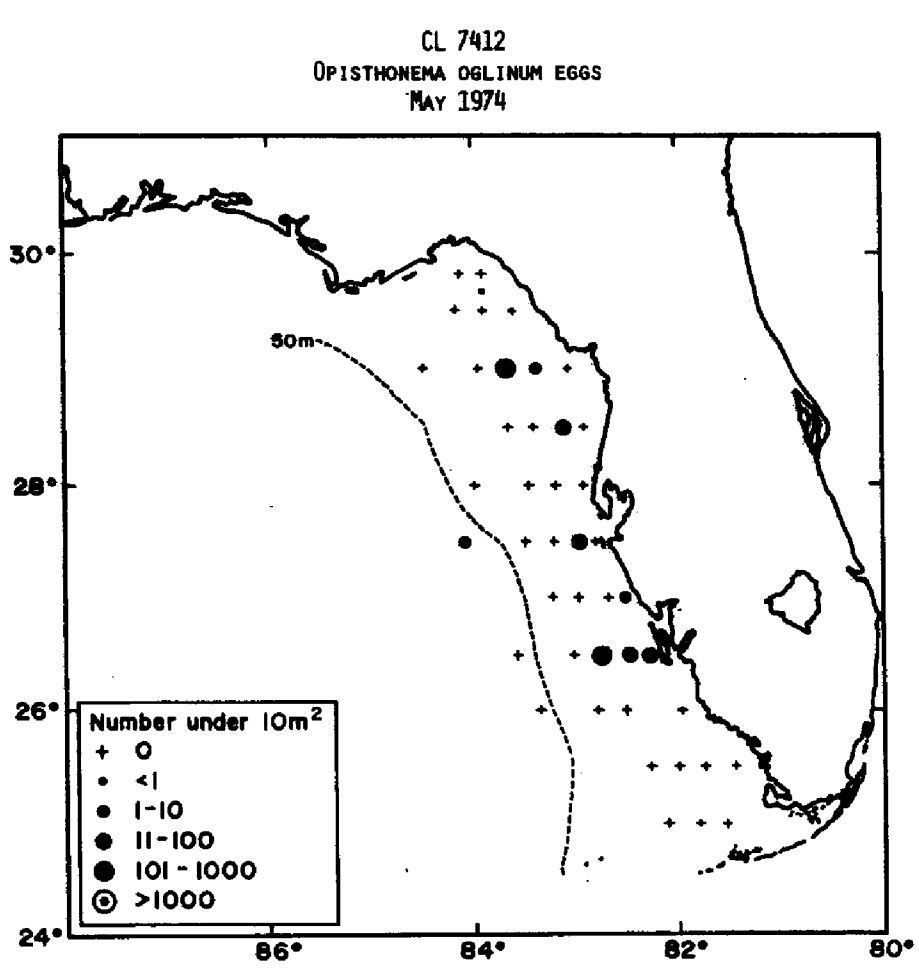


Figure 31


CL 7412
OPISTHONEMA OGLINUM EGGS
MAY 1974
50m
Number under 10m²
0
<1
1-10
11-100
101-1000
>1000
30°
28°
26°
24°
86°
84°
82°
80°

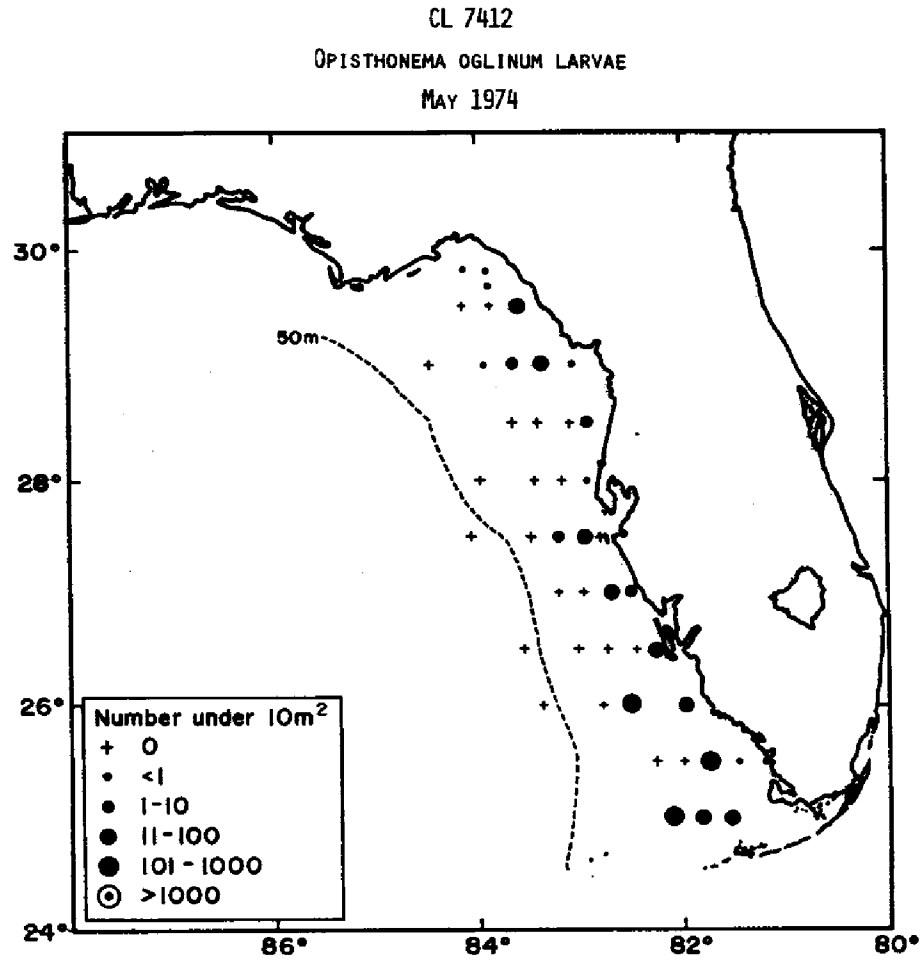
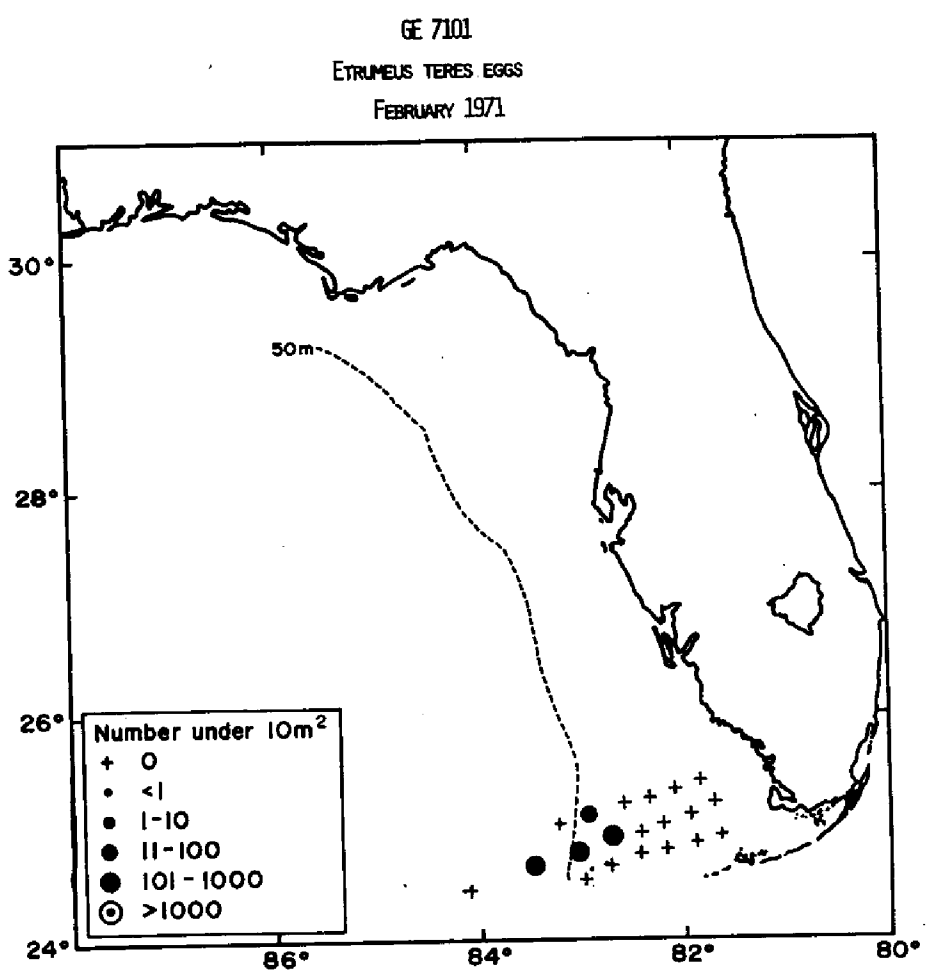

CL 7412
OPISTHONEMA OGLINUM LARVAE
MAY 1974
50m
Number under 10m²
0
<1
1-10
11-100
101-1000
>1000
30°
28°
26°
24°
86°
84°
82°
80°

Figure 32


GE 7101
ETRUMEUS TERES EGGS
FEBRUARY 1971
50m
Number under 10m²
0
<1
1-10
11-100
101-1000
>1000
30°
28°
26°
24°
86°
84°
82°
80°

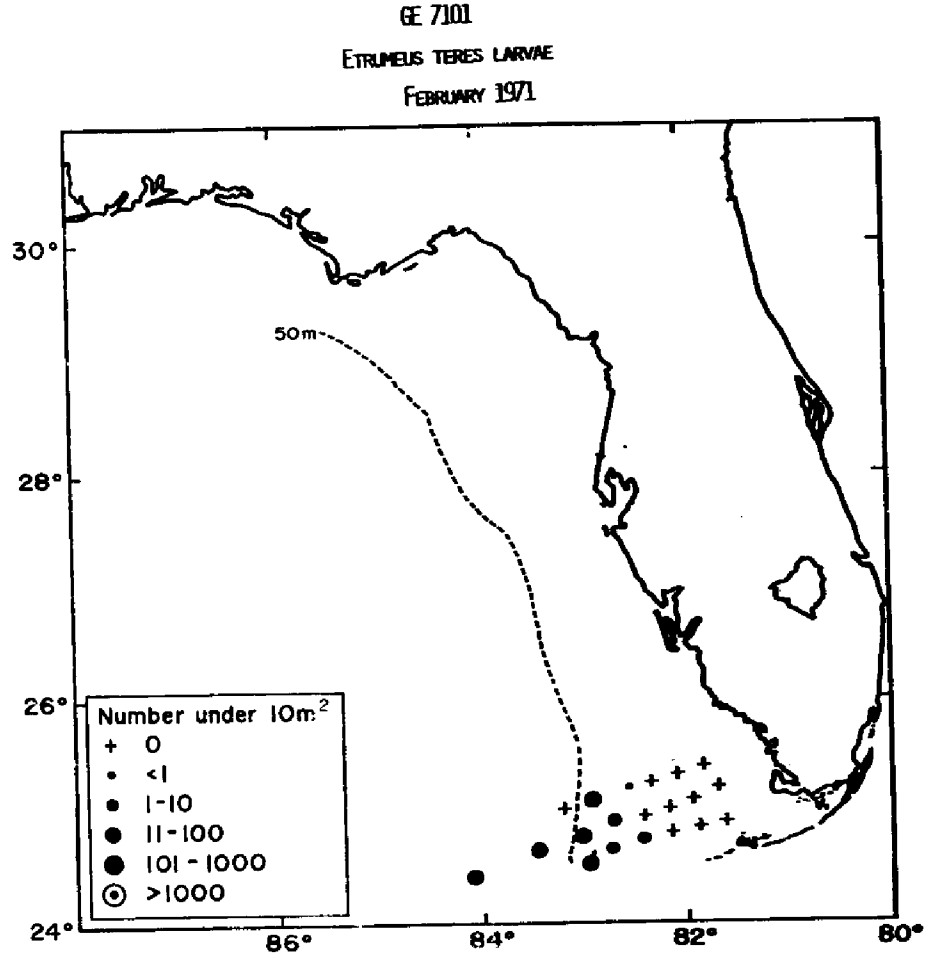
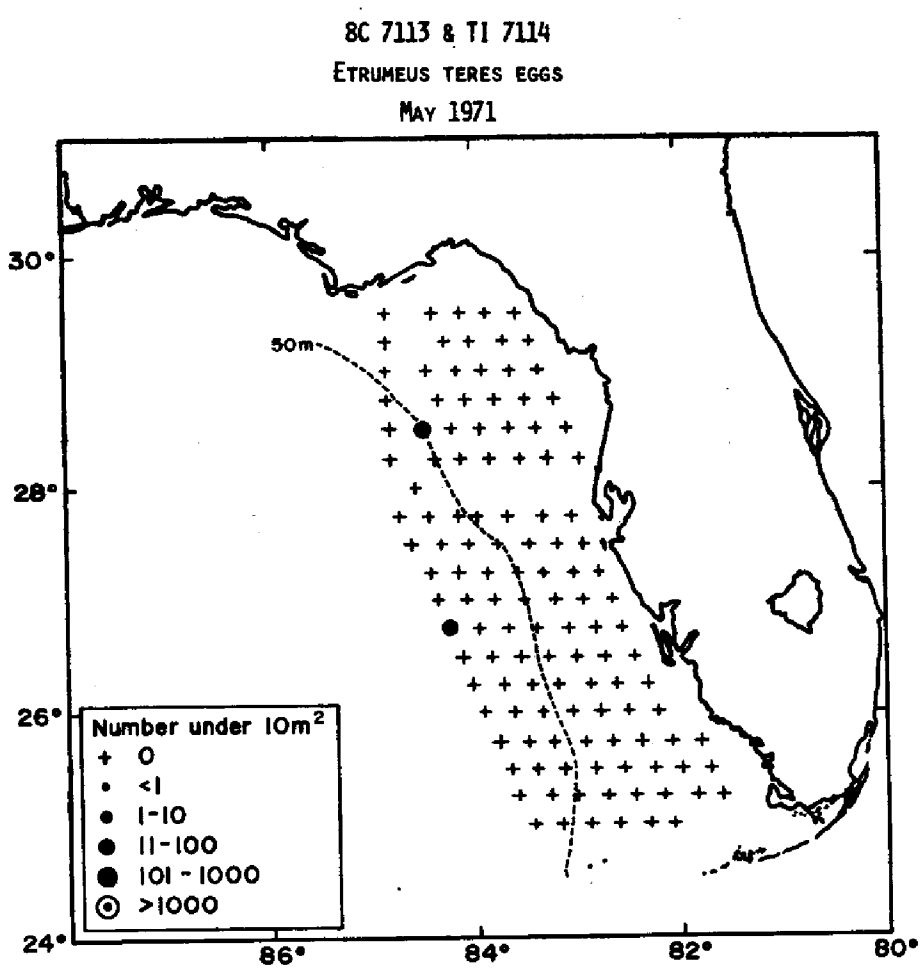

GE 7101
ETRUMEUS TERES LARVAE
FEBRUARY 1971
50m
Number under 10m²
0
<1
1-10
11-100
101-1000
>1000
30°
28°
26°
24°
86°
84°
82°
80°

Figure 33


8C 7113 & TI 7114
ETRUMEUS TERES EGGS
MAY 1971
30°
28°
26°
24°
86°
84°
82°
80°
50m
Number under 10m²
+ 0
• <1
● 1-10
● 11-100
● 101-1000
⊙ >1000

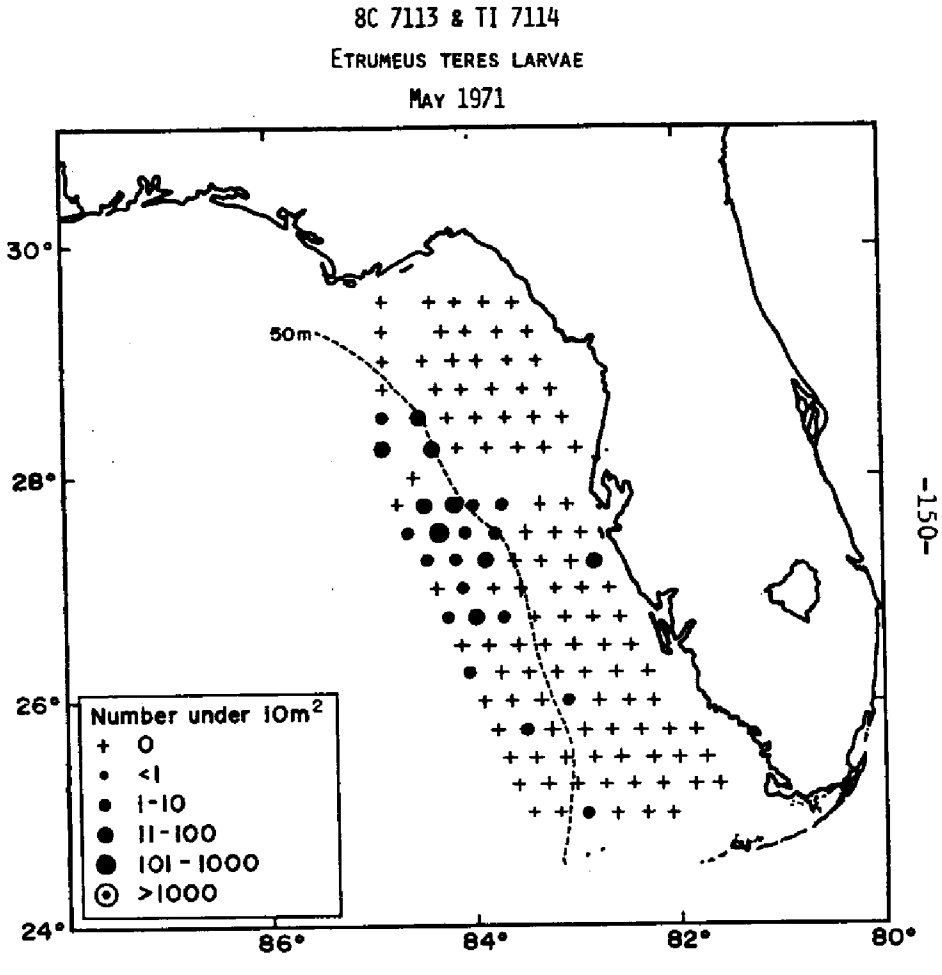
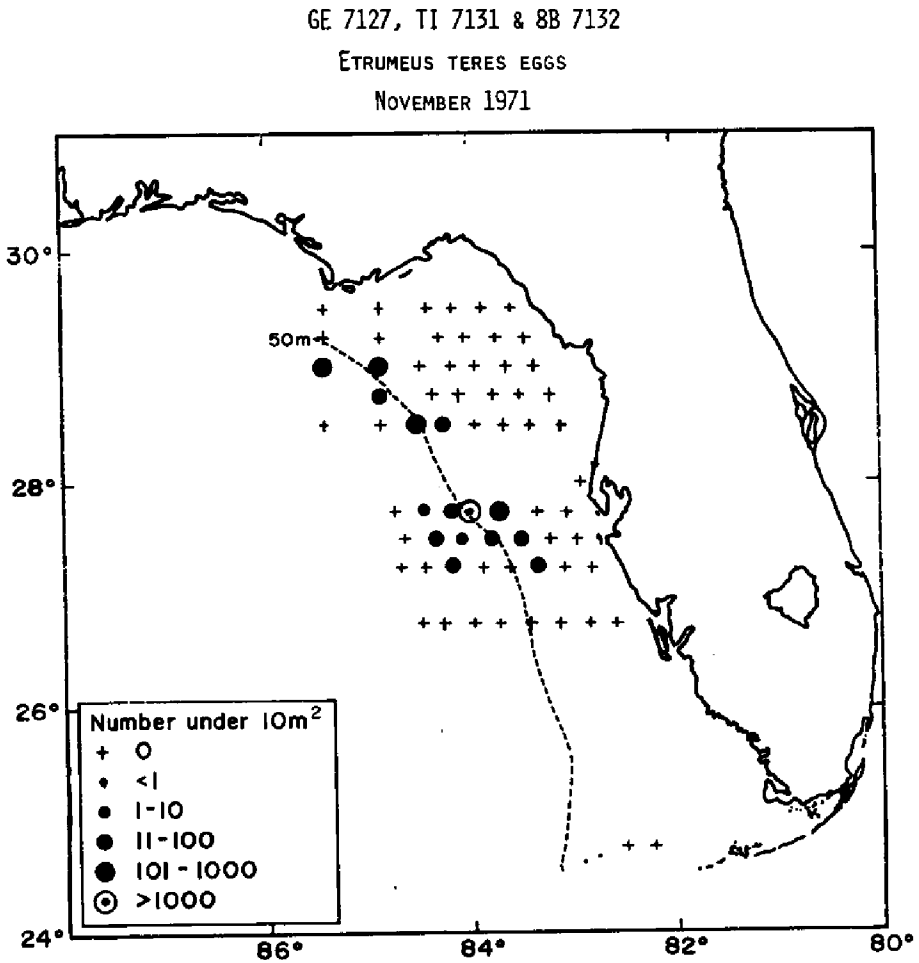

8C 7113 & TI 7114
ETRUMEUS TERES LARVAE
MAY 1971
30°
28°
26°
24°
86°
84°
82°
80°
50m
Number under 10m²
+ 0
• <1
● 1-10
● 11-100
● 101-1000
⊙ >1000

Figure 34


GE 7127, TI 7131 & 8B 7132
ETRUMEUS TERES EGGS
NOVEMBER 1971
50m
30°
28°
26°
24°
86°
84°
82°
80°
Number under 10m²
+ 0
• <1
● 1-10
● 11-100
● 101-1000
⊙ >1000

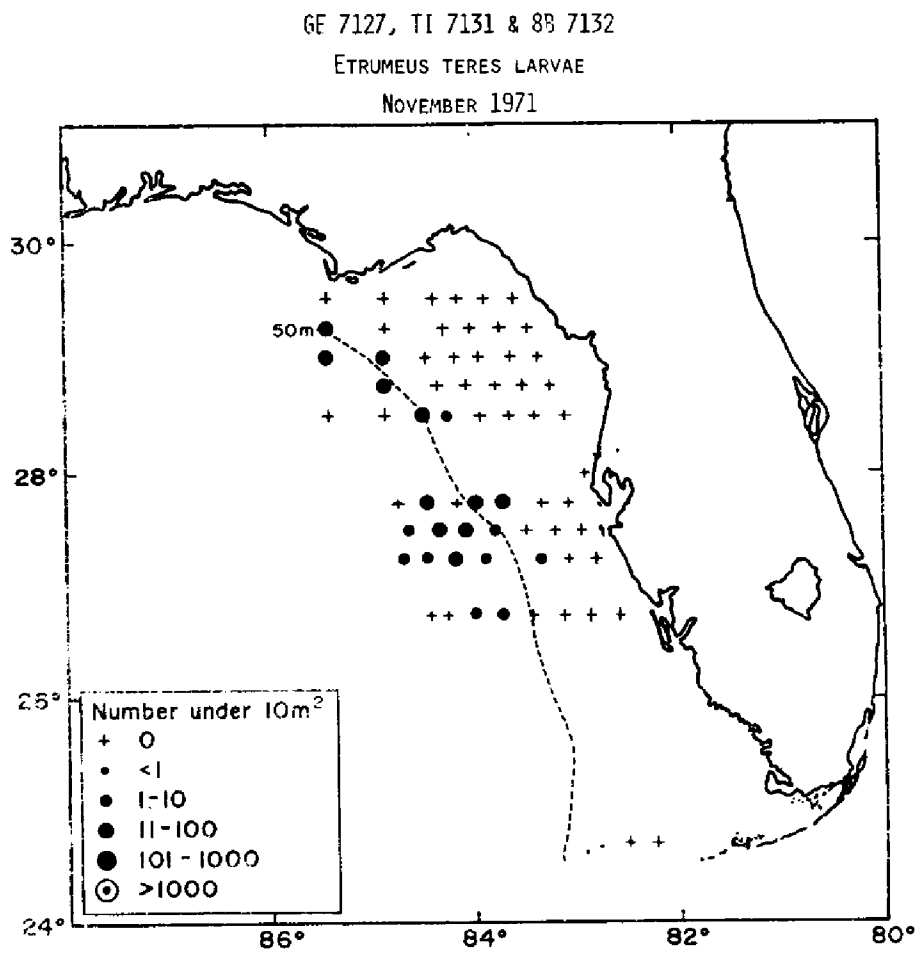
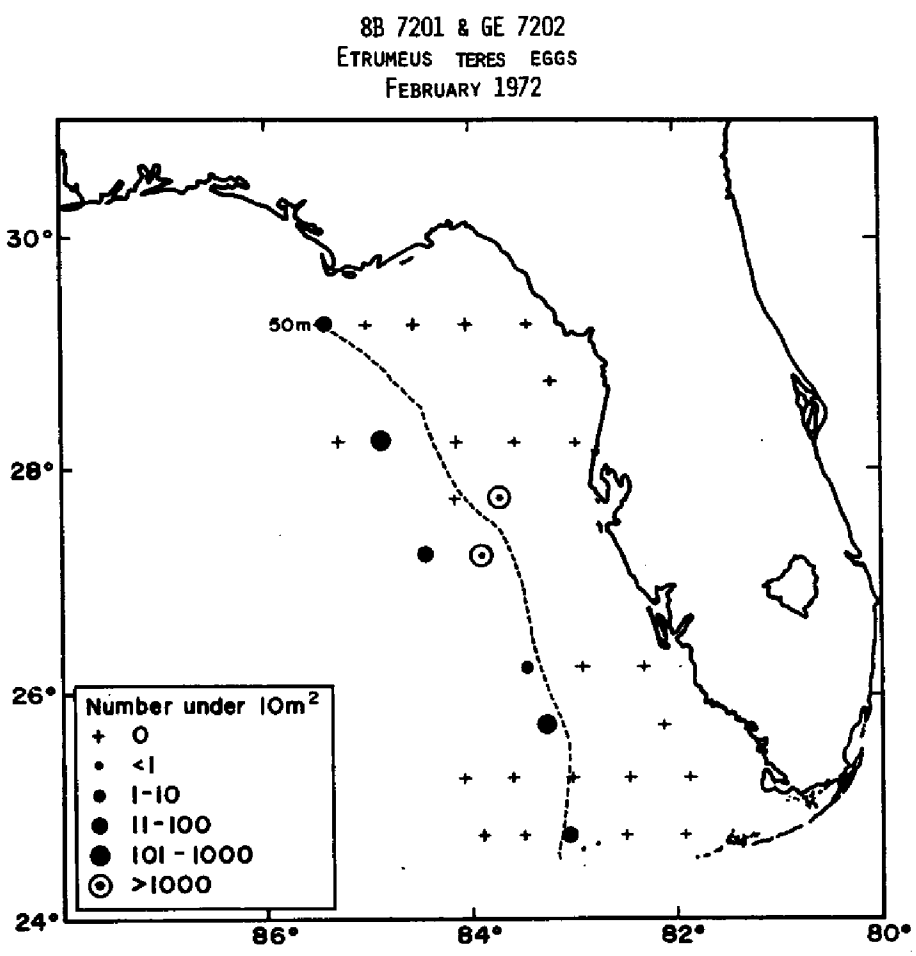

GE 7127, TI 7131 & 8B 7132
ETRUMEUS TERES LARVAE
NOVEMBER 1971
50m
30°
28°
25°
24°
86°
84°
82°
80°
Number under 10m²
+ 0
• <1
● 1-10
● 11-100
● 101-1000
⊙ >1000

Figure 35


8B 7201 & GE 7202
ETRUMEUS TERES EGGS
FEBRUARY 1972
50m
Number under 10m²
+ 0
• <1
● 1-10
● 11-100
● 101-1000
◎ >1000
30°
28°
26°
24°
86°
84°
82°
80°

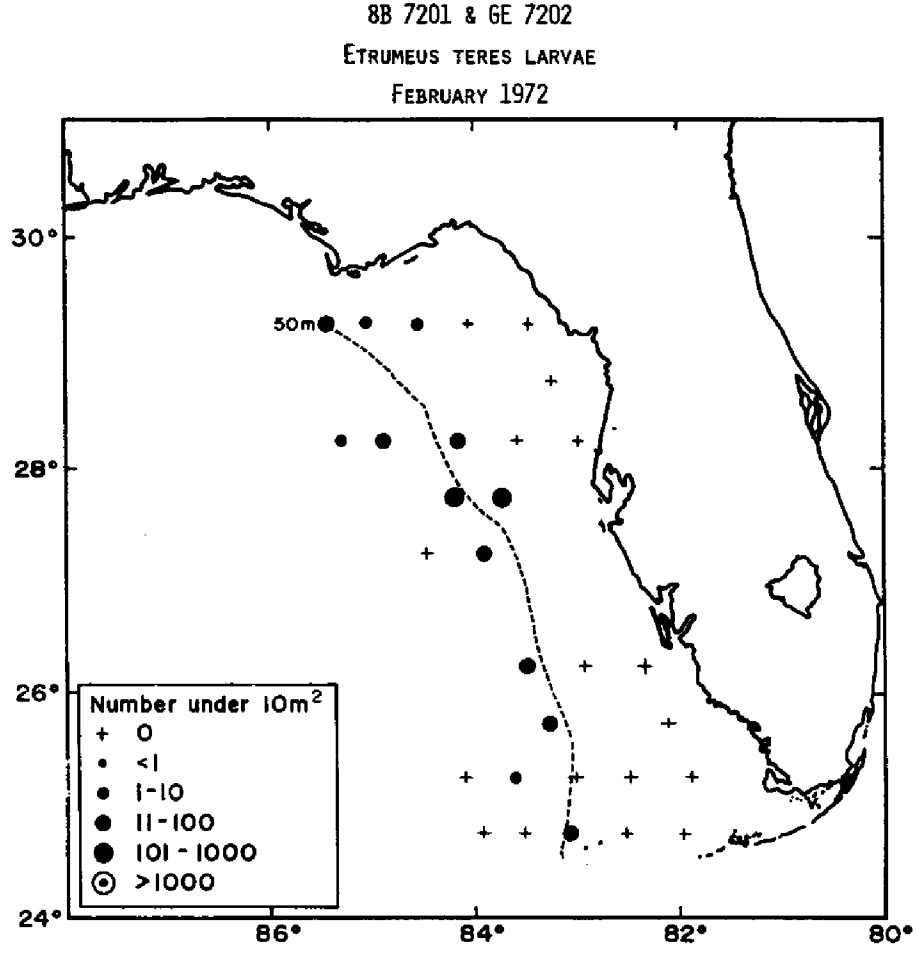
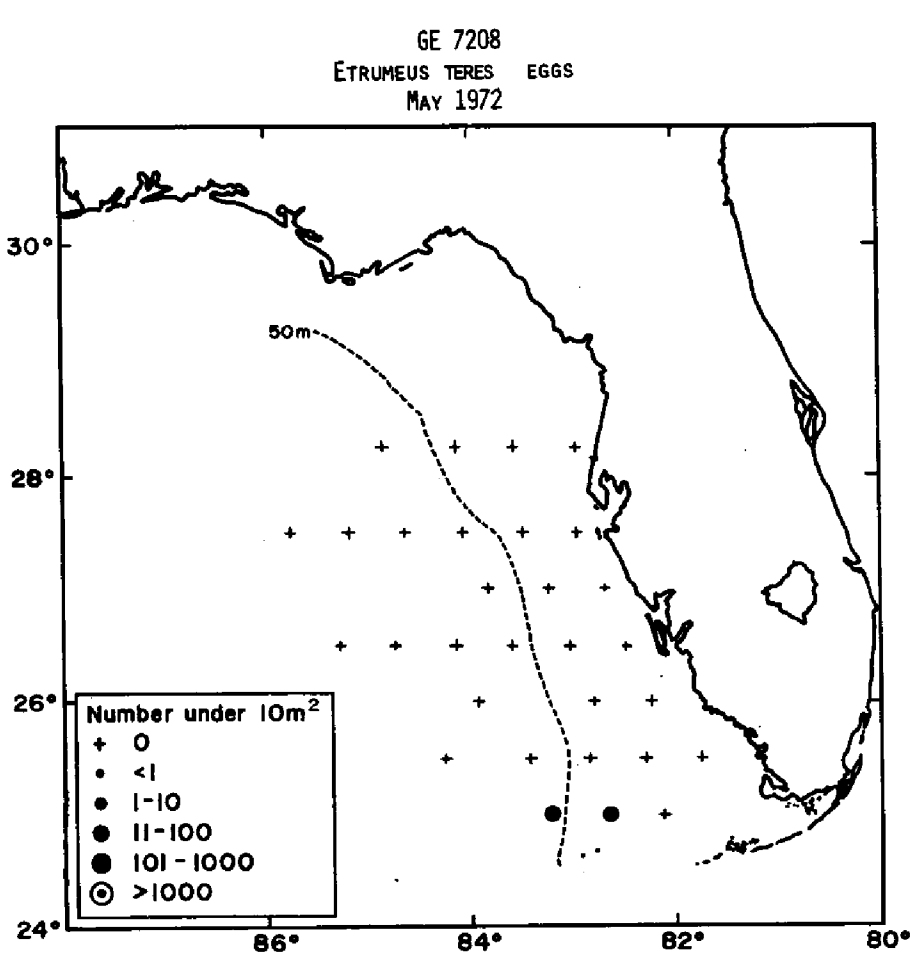

8B 7201 & GE 7202
ETRUMEUS TERES LARVAE
FEBRUARY 1972
50m
Number under 10m²
+ 0
• <1
● 1-10
● 11-100
● 101-1000
◎ >1000
30°
28°
26°
24°
86°
84°
82°
80°

Figure 36


GE 7208
ETRUMEUS TERES EGGS
MAY 1972
30°
28°
26°
24°
86°
84°
82°
80°
50m
Number under 10m²
0
<1
1-10
11-100
101-1000
>1000

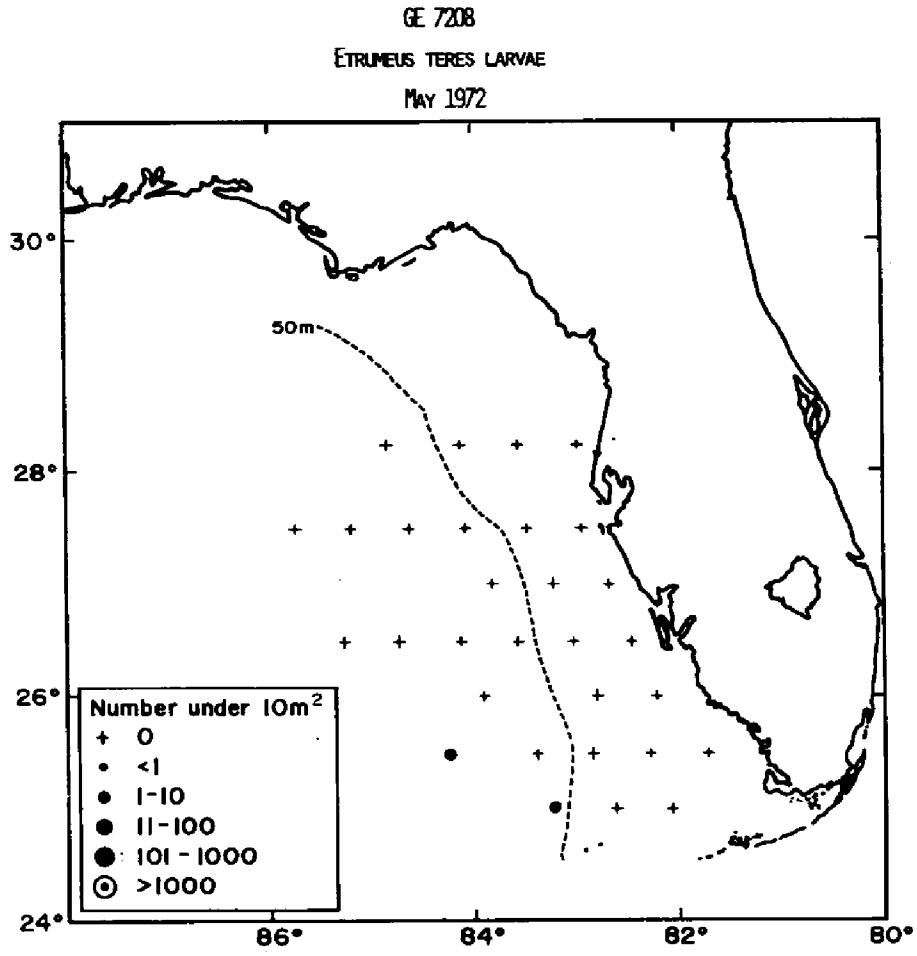
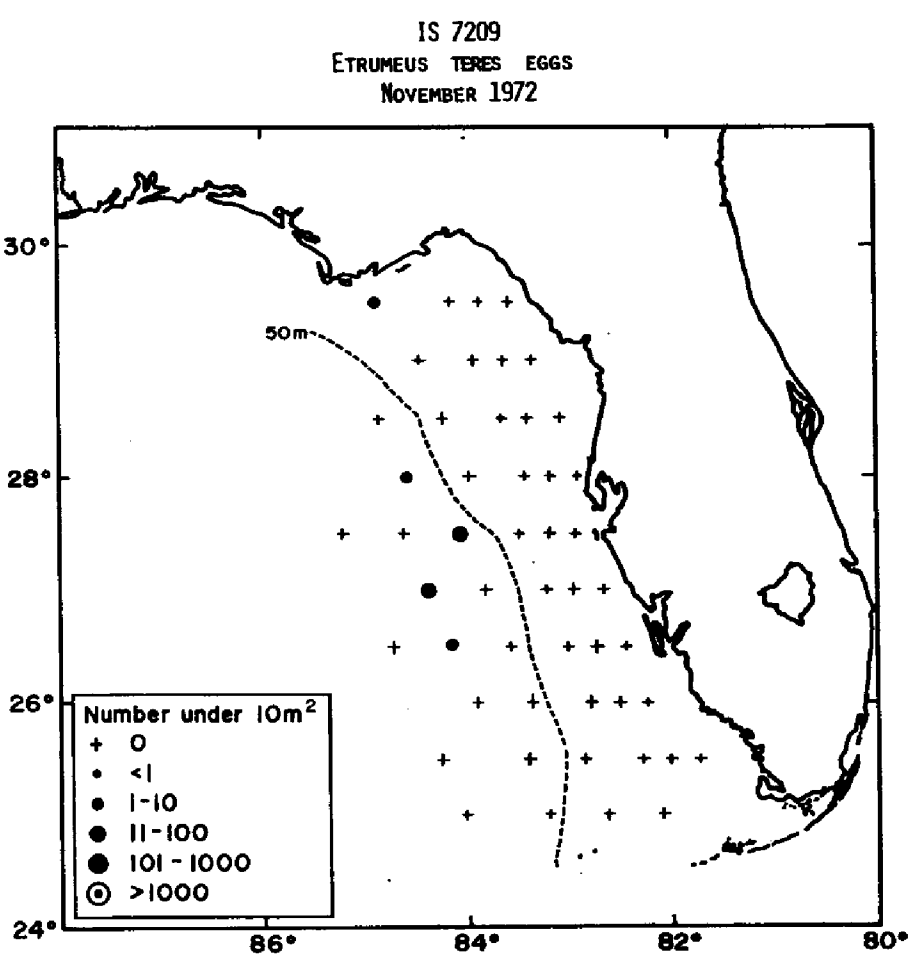

GE 7208
ETRUMEUS TERES LARVAE
MAY 1972
30°
28°
26°
24°
86°
84°
82°
80°
50m
Number under 10m²
0
<1
1-10
11-100
101-1000
>1000

Figure 37


IS 7209
ETRUMEUS TERES EGGS
NOVEMBER 1972
30°
28°
26°
24°
50m
Number under 10m²
0
<1
1-10
11-100
101-1000
>1000
86°
84°
82°
80°

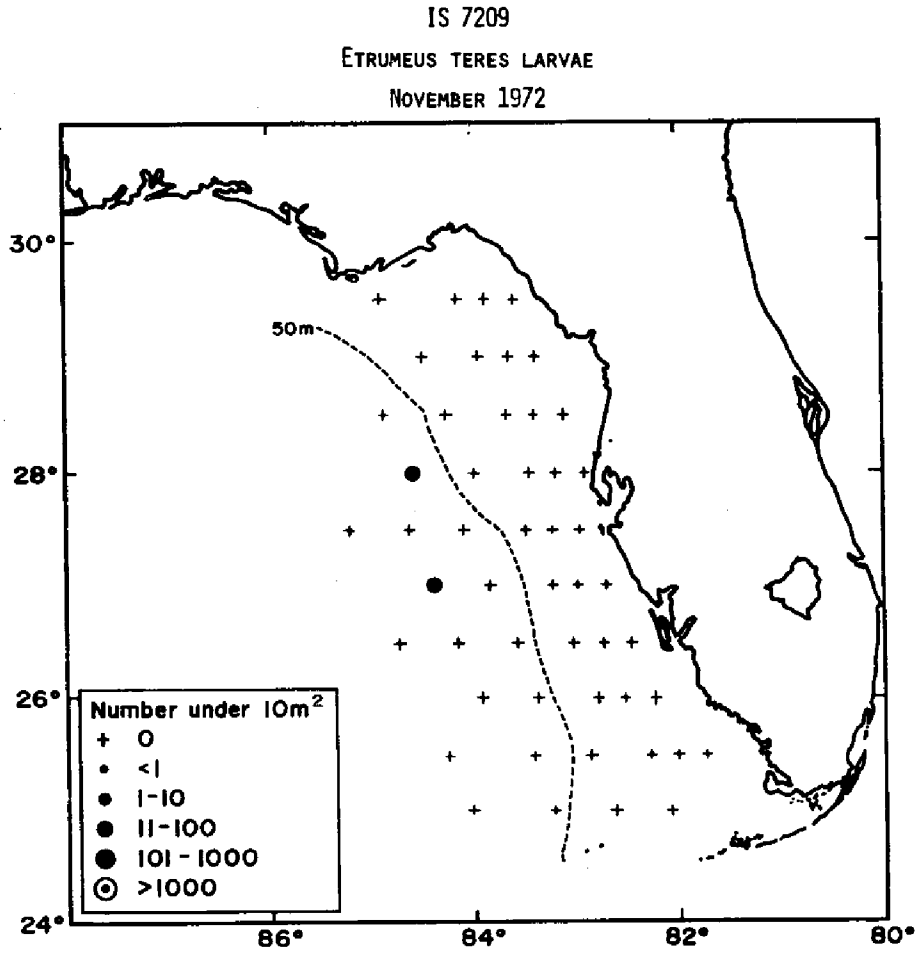
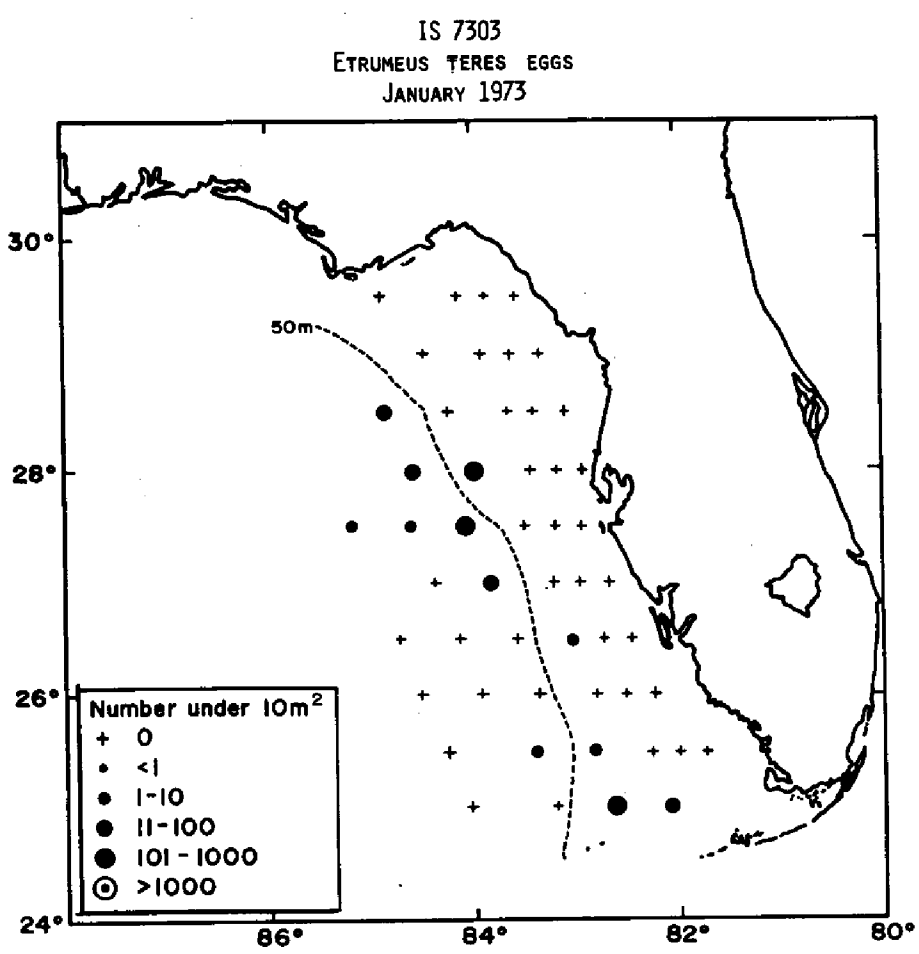

IS 7209
ETRUMEUS TERES LARVAE
NOVEMBER 1972
30°
28°
26°
24°
50m
Number under 10m²
0
<1
1-10
11-100
101-1000
>1000
86°
84°
82°
80°

Figure 38


IS 7303
ETRUMEUS TERES EGGS
JANUARY 1973
30°
28°
26°
24°
86°
84°
82°
80°
50m
Number under 10m²
+ 0
• <1
● 1-10
● 11-100
● 101-1000
⊙ >1000

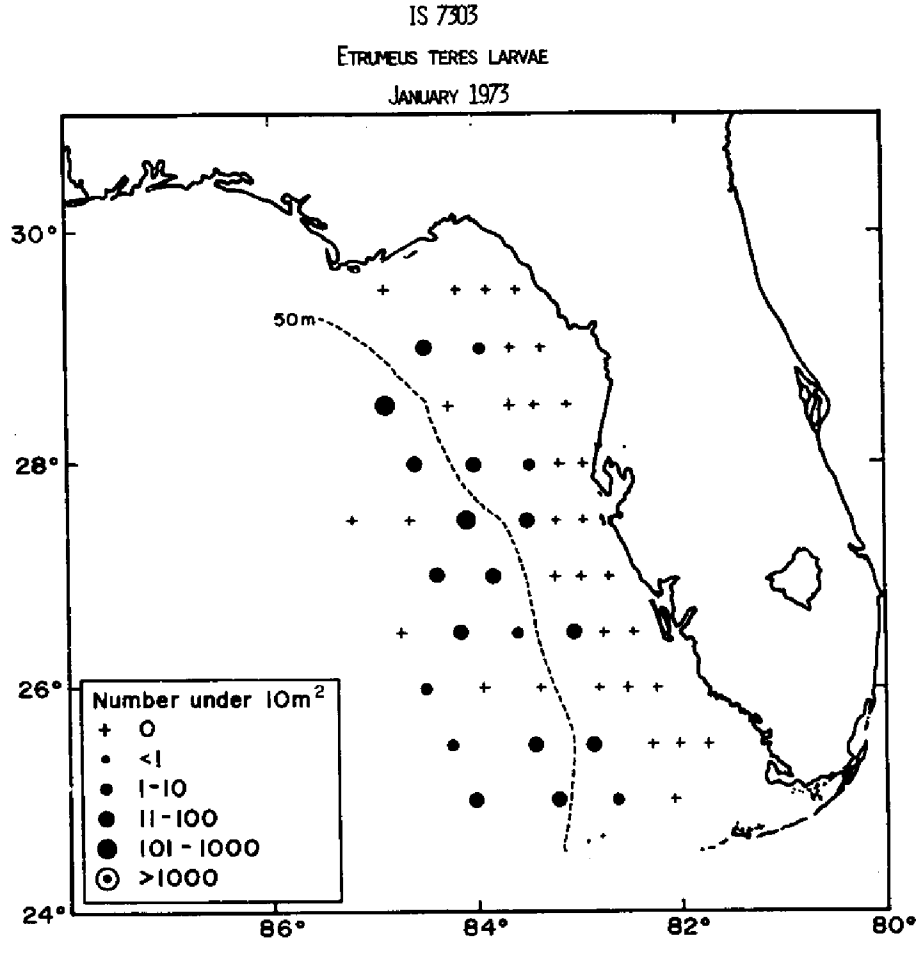
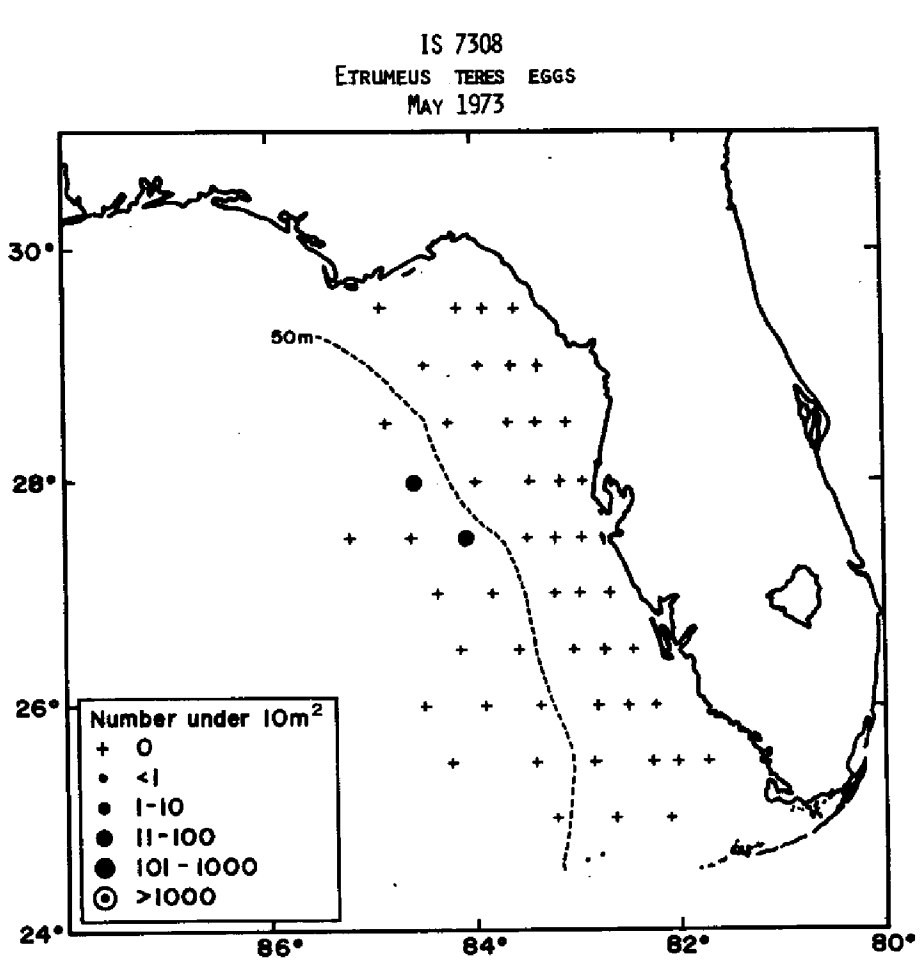

IS 7303
ETRUMEUS TERES LARVAE
JANUARY 1973
30°
28°
26°
24°
86°
84°
82°
80°
50m
Number under 10m²
+ 0
• <1
● 1-10
● 11-100
● 101-1000
⊙ >1000

Figure 39


IS 7308
ETRUMEUS TERES EGGS
MAY 1973
50m
Number under 10m²
+ 0
• <1
● 1-10
● 11-100
● 101-1000
⊙ >1000
30°
28°
26°
24°
86°
84°
82°
80°

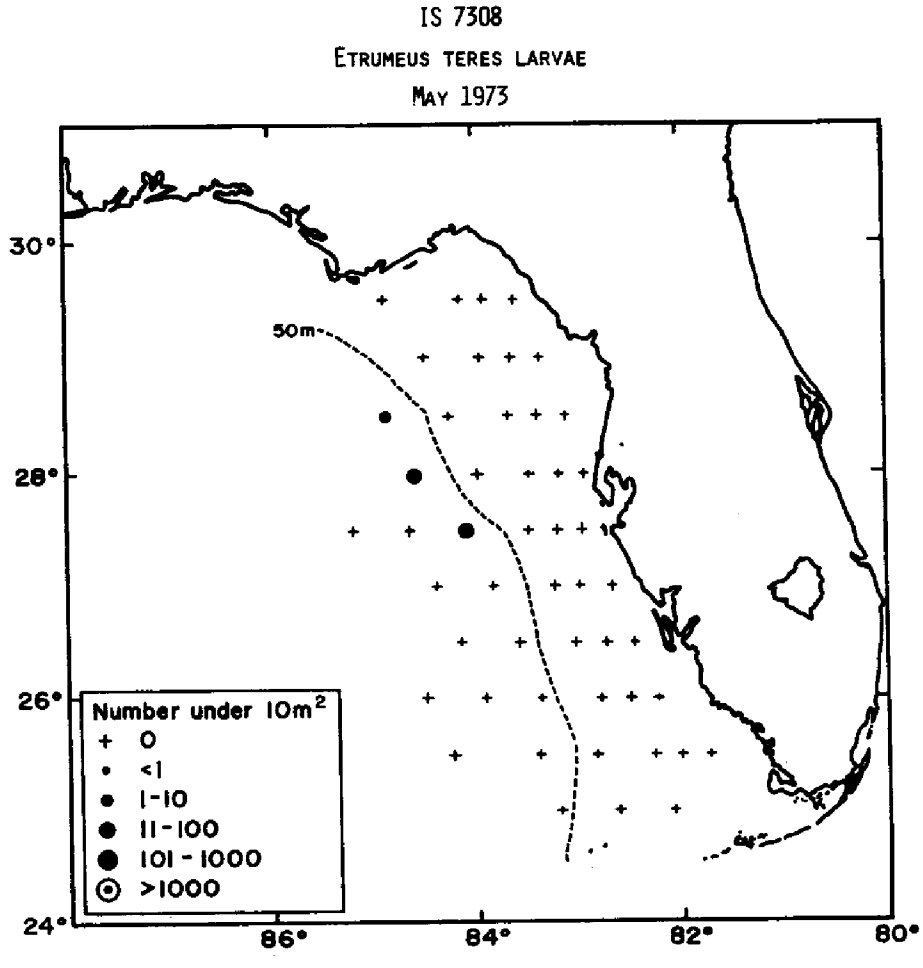
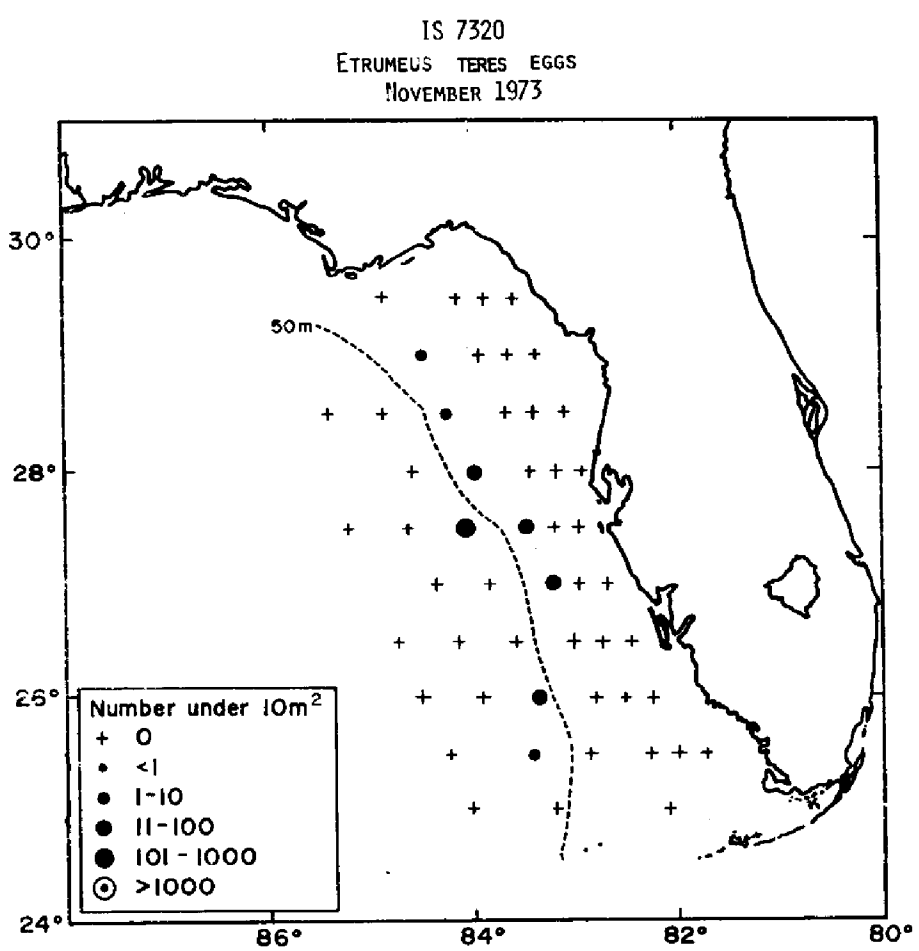

IS 7308
ETRUMEUS TERES LARVAE
MAY 1973
50m
Number under 10m²
+ 0
• <1
● 1-10
● 11-100
● 101-1000
⊙ >1000
30°
28°
26°
24°
86°
84°
82°
80°

Figure 40


IS 7320
ETRUMEUS TERES EGGS
NOVEMBER 1973
30°
28°
26°
24°
50m
86°
84°
82°
80°
Number under 10m²
0
<1
1-10
11-100
101-1000
>1000

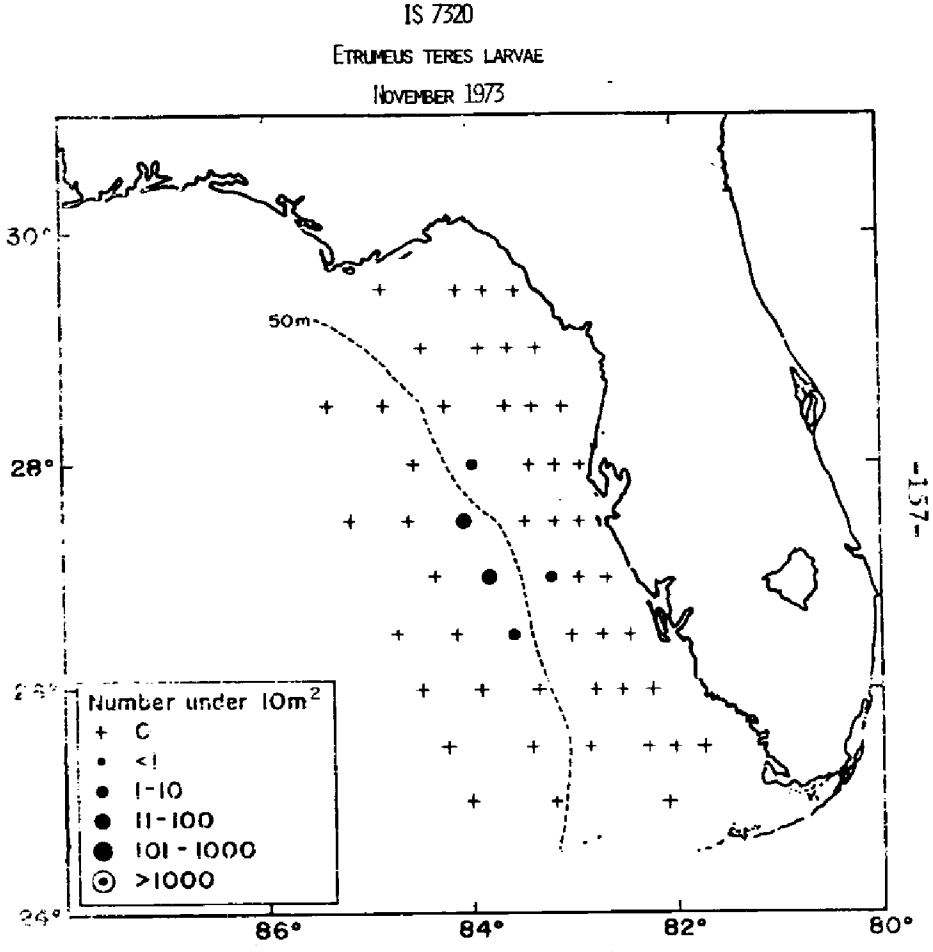
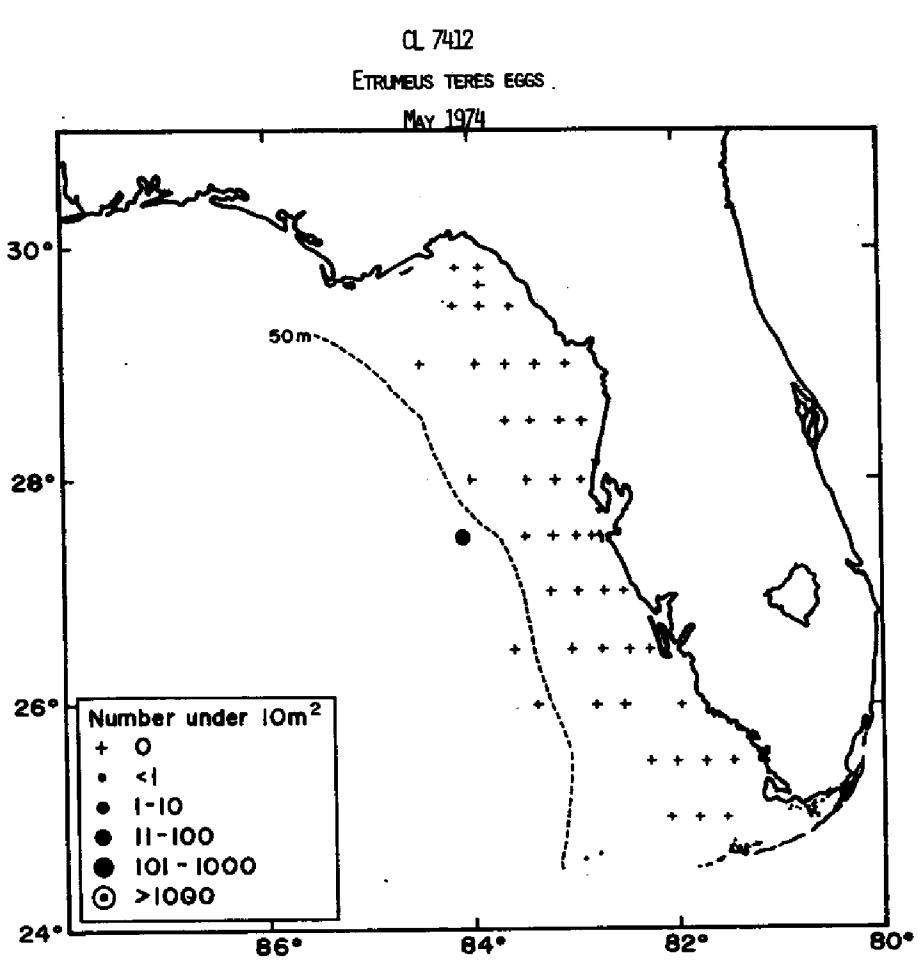

IS 7320
ETRUMEUS TERES LARVAE
NOVEMBER 1973
30°
28°
26°
24°
50m
86°
84°
82°
80°
Number under 10m²
0
<1
1-10
11-100
101-1000
>1000

Figure 41


CL 7412
ETRUMEUS TERES EGGS
MAY 1974
50m
Number under 10m²
0
<1
1-10
11-100
101-1000
>1000
30°
28°
26°
24°
86°
84°
82°
80°

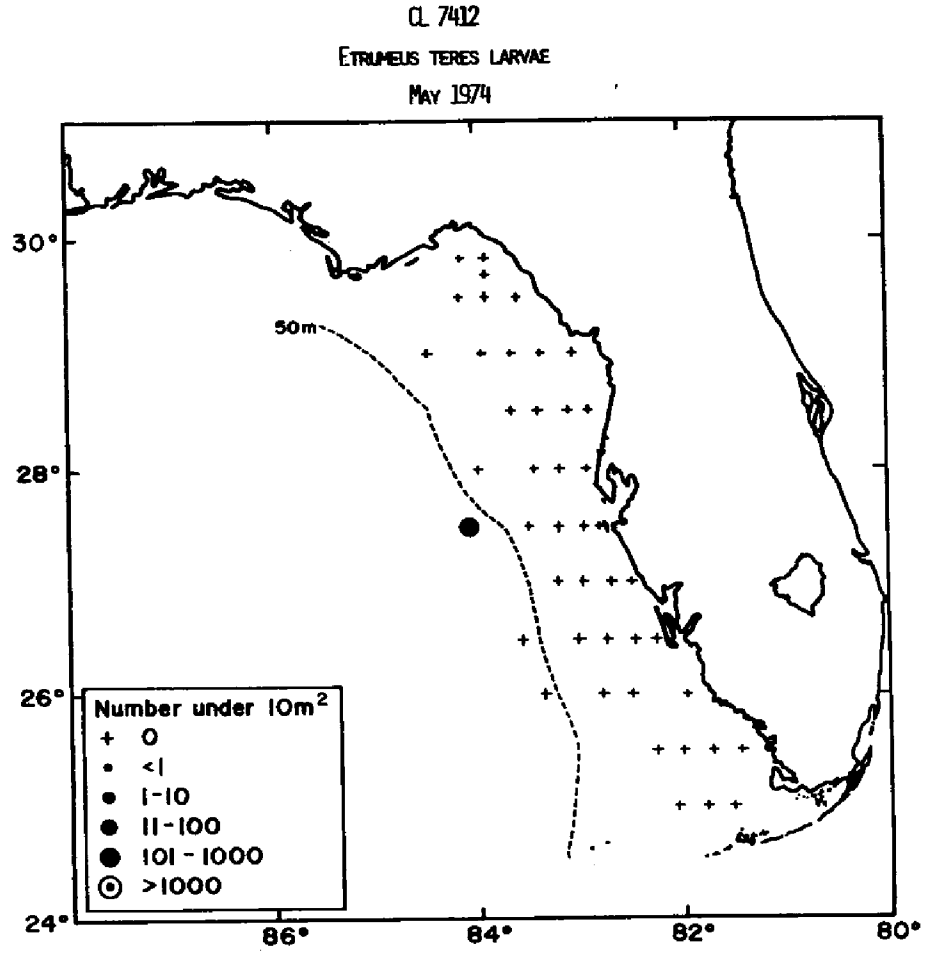
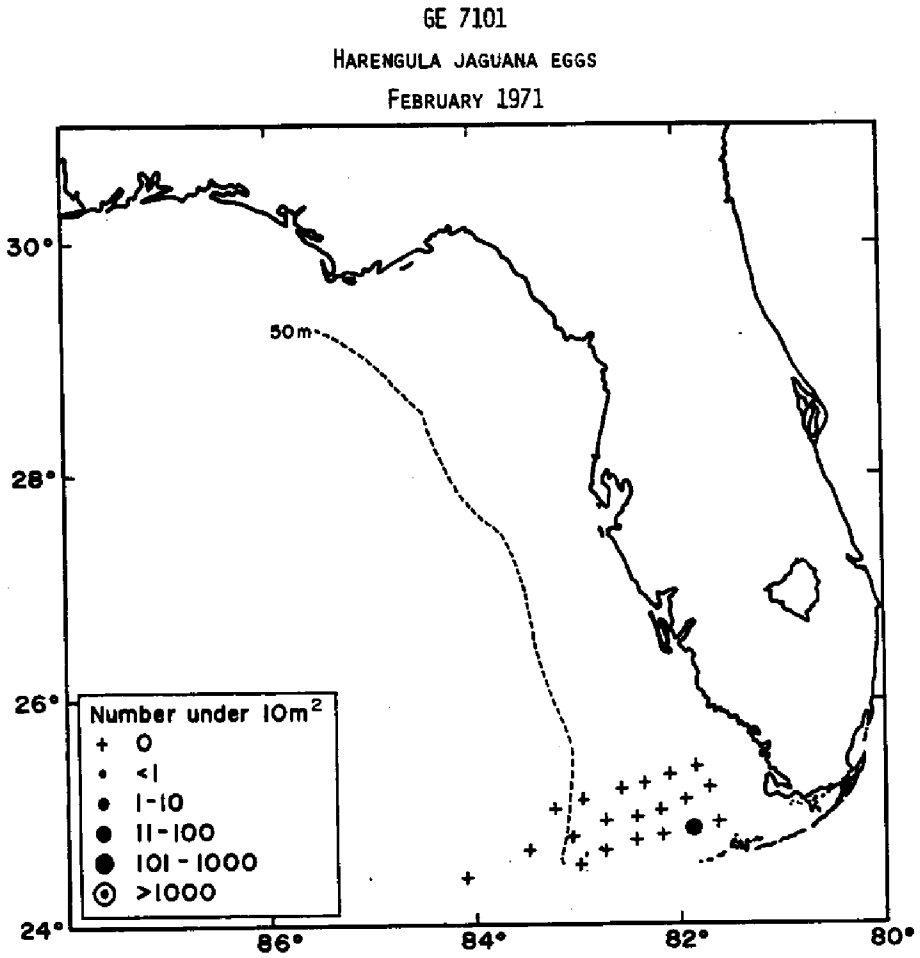
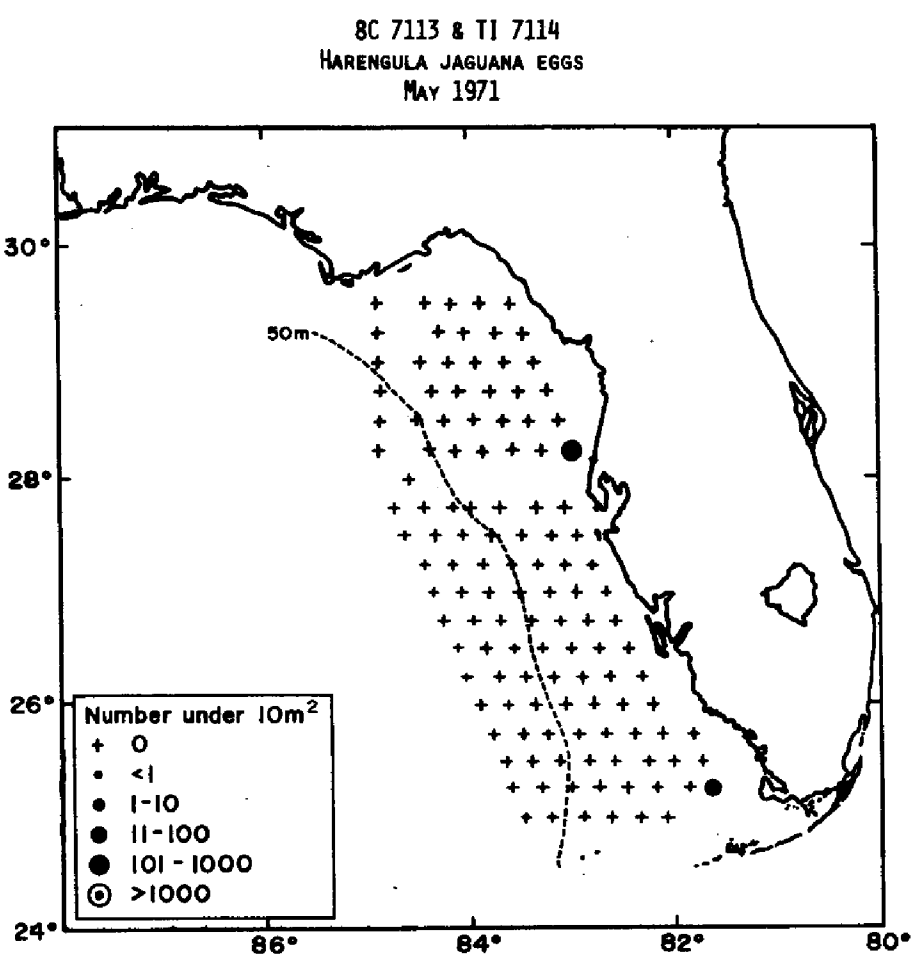

CL 7412
ETRUMEUS TERES LARVAE
MAY 1974
50m
Number under 10m²
0
<1
1-10
11-100
101-1000
>1000
30°
28°
26°
24°
86°
84°
82°
80°

Figure 42



No Harengula jaguana larvae present

Figure 43


8C 7113 & TI 7114
HARENGULA JAGUANA EGGS
MAY 1971
50m
Number under 10m²
0
<1
1-10
11-100
101-1000
>1000
30°
28°
26°
24°
86°
84°
82°
80°

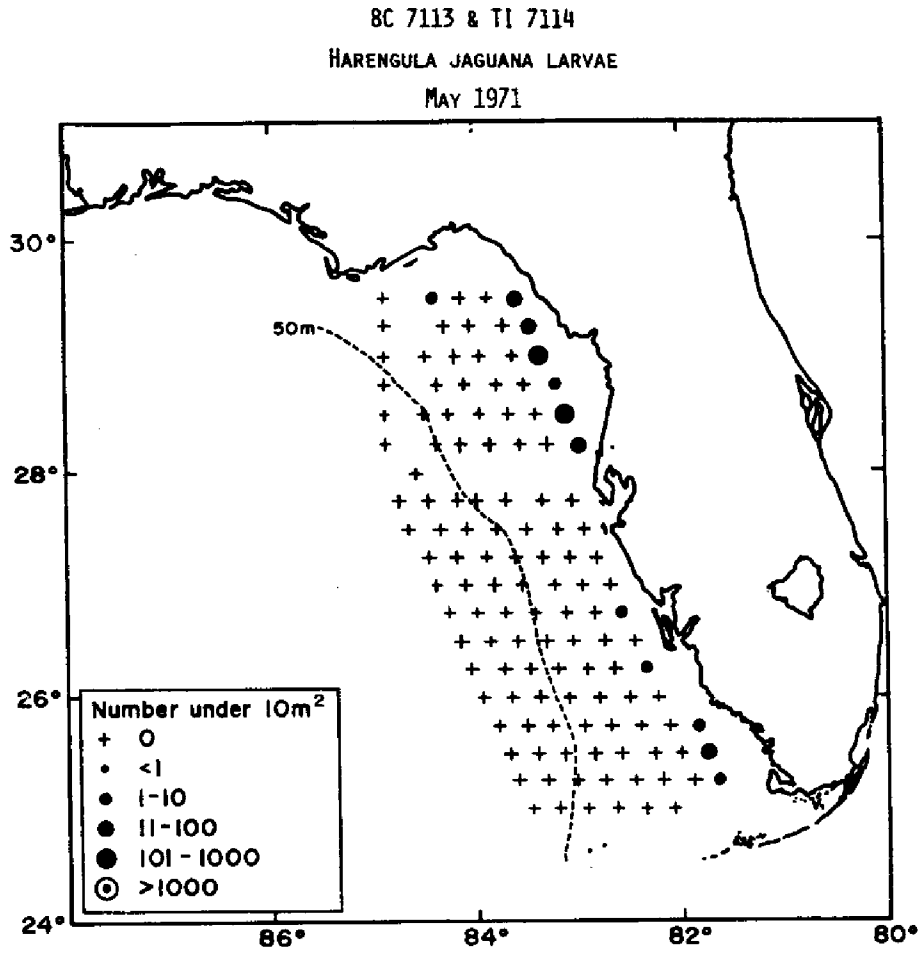
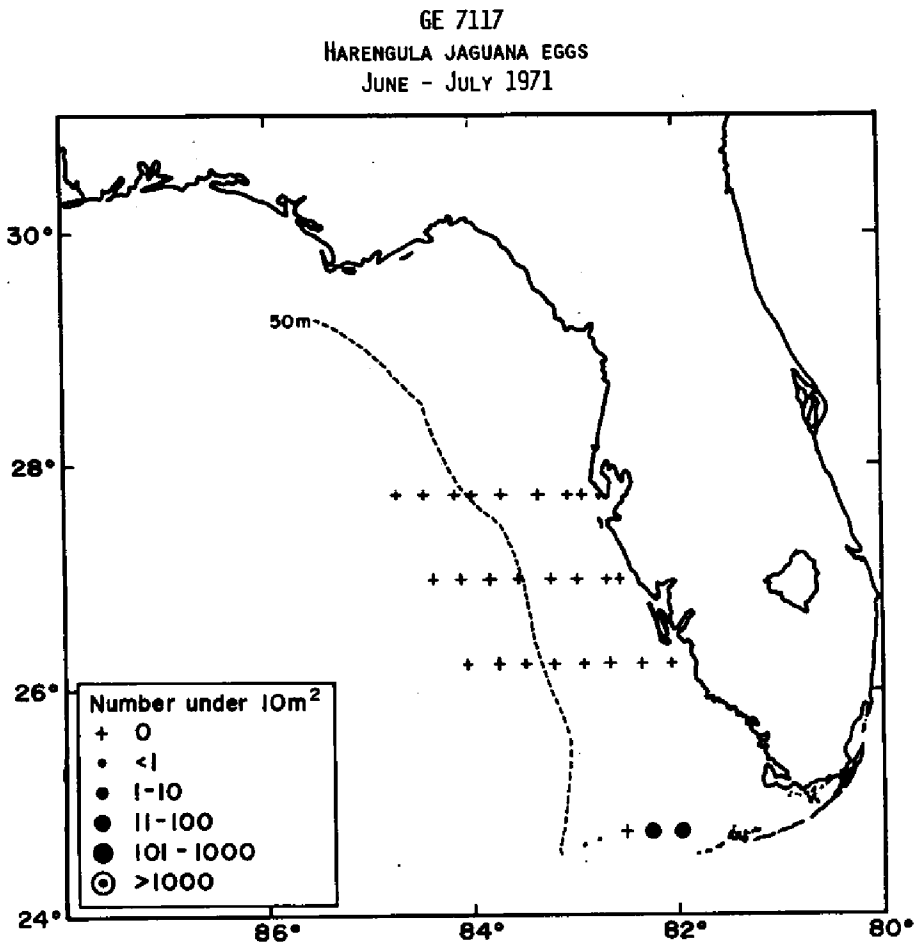
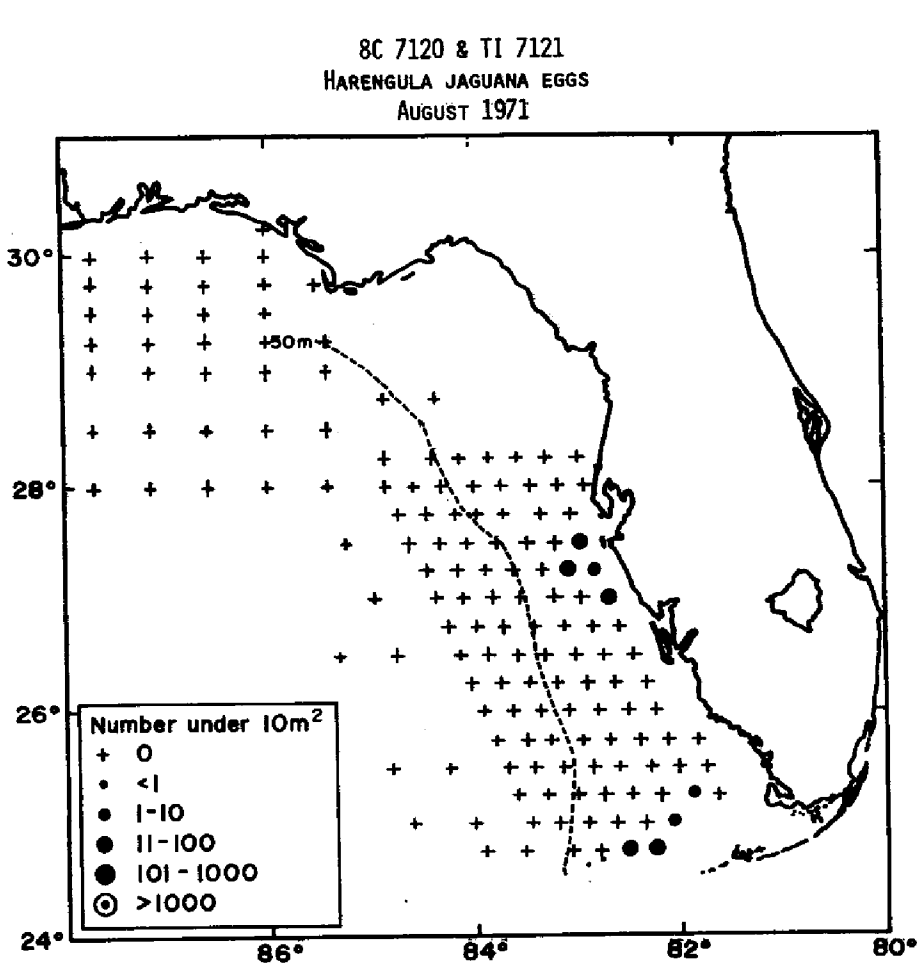

8C 7113 & TI 7114
HARENGULA JAGUANA LARVAE
MAY 1971
50m
Number under 10m²
0
<1
1-10
11-100
101-1000
>1000
30°
28°
26°
24°
86°
84°
82°
80°

Figure 44



No Harengula jaguana larvae present

Figure 45


8C 7120 & TI 7121
HARENGULA JAGUANA EGGS
AUGUST 1971
30°
28°
26°
24°
+50m+
Number under 10m²
+ 0
• <1
● 1-10
● 11-100
● 101-1000
⊙ >1000
86°
84°
82°
80°

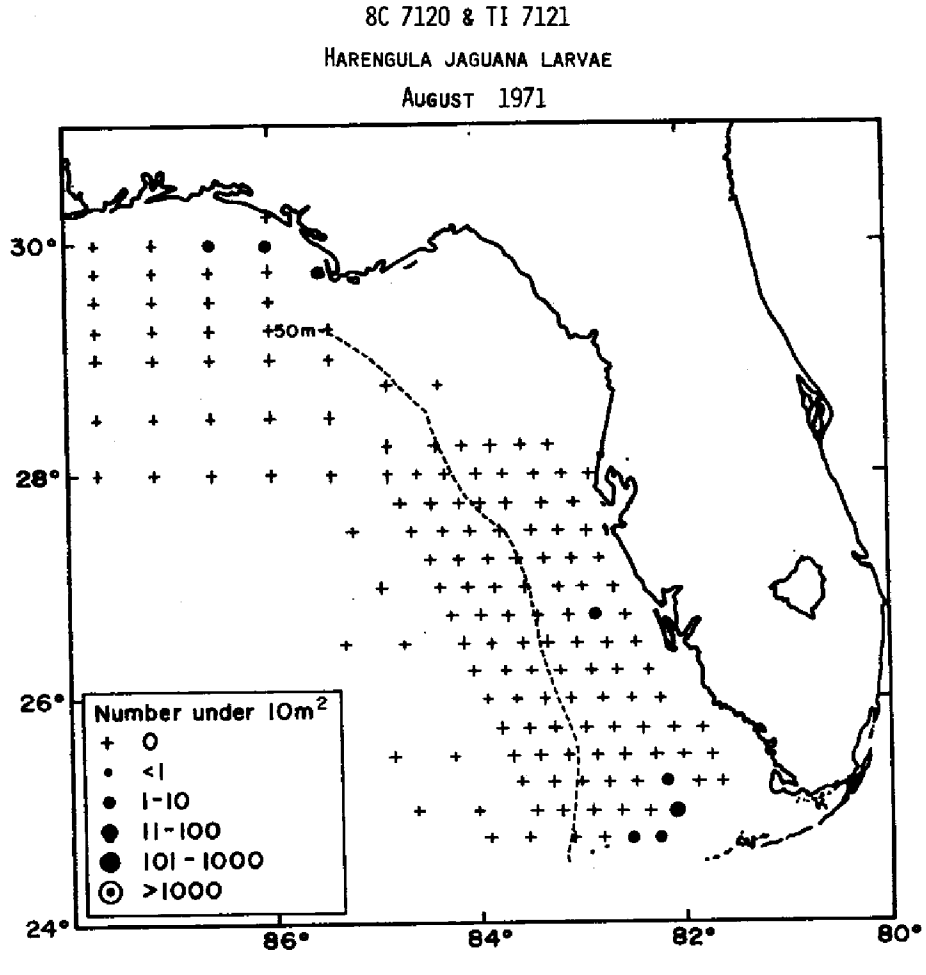
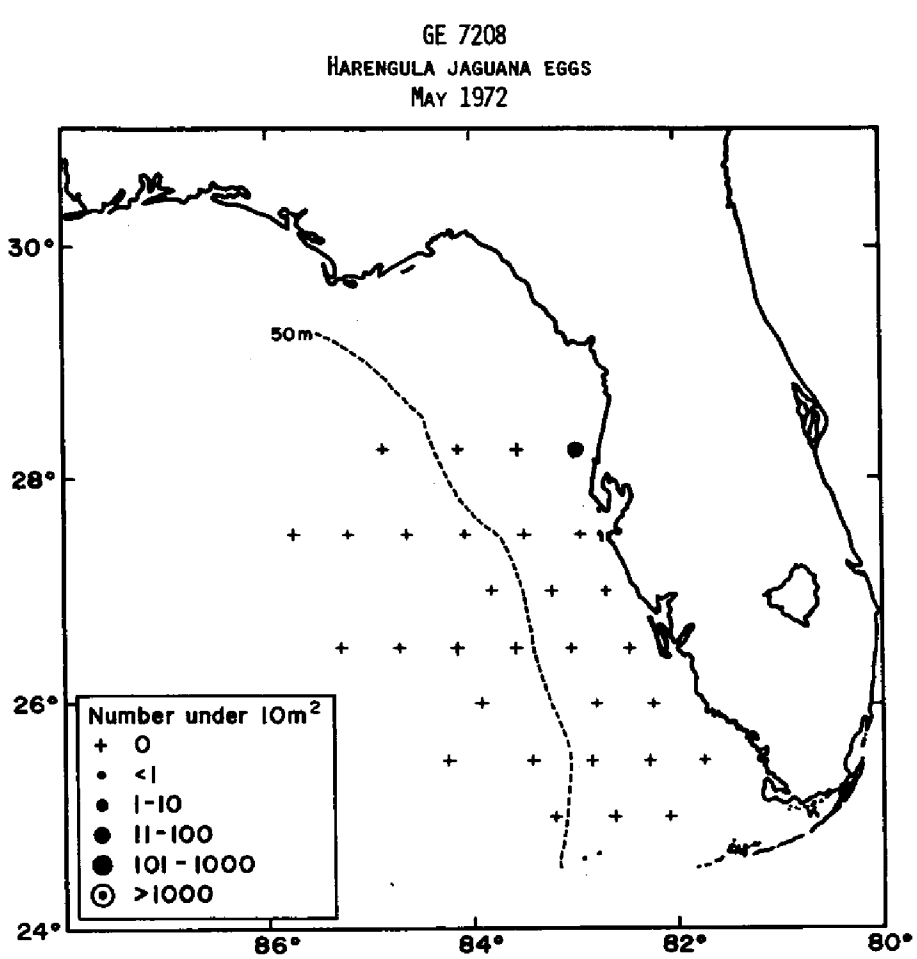

8C 7120 & TI 7121
HARENGULA JAGUANA LARVAE
AUGUST 1971
30°
28°
26°
24°
+50m+
Number under 10m²
+ 0
• <1
● 1-10
● 11-100
● 101-1000
⊙ >1000
86°
84°
82°
80°

Figure 46


GE 7208
HARENGULA JAGUANA EGGS
MAY 1972
30°
28°
26°
24°
86°
84°
82°
80°
50m
Number under 10m²
+ 0
• <1
● 1-10
● 11-100
● 101-1000
⊙ >1000

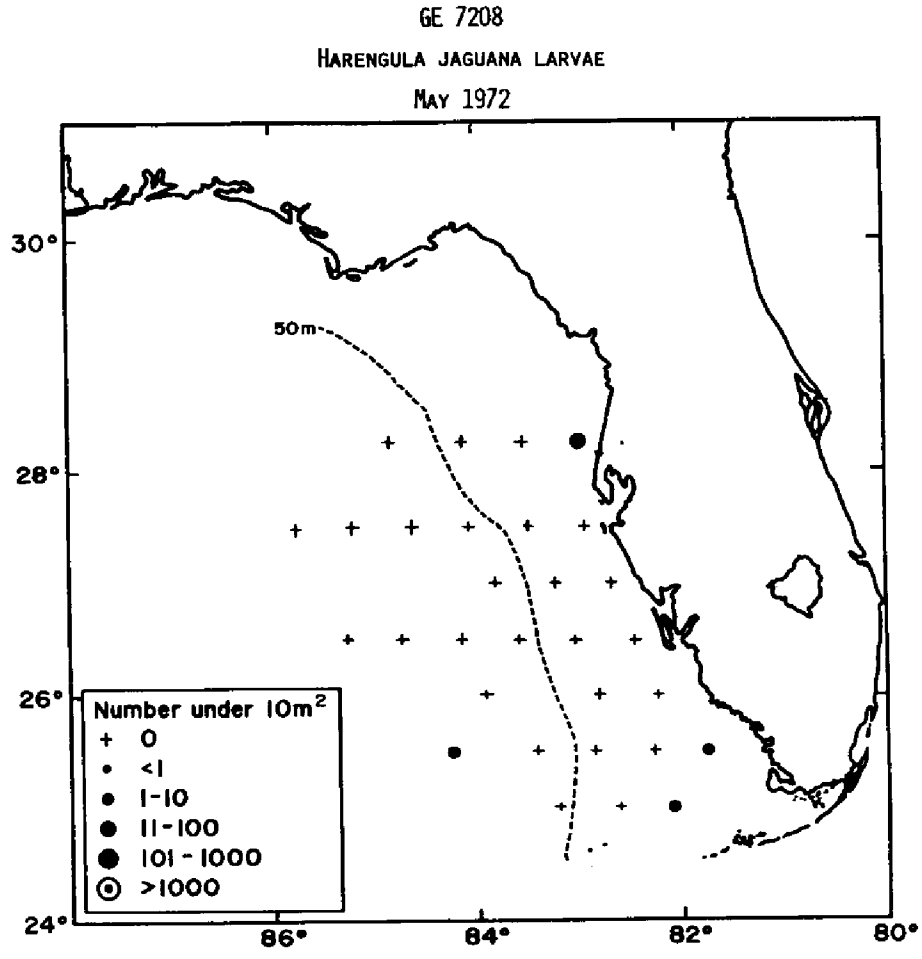
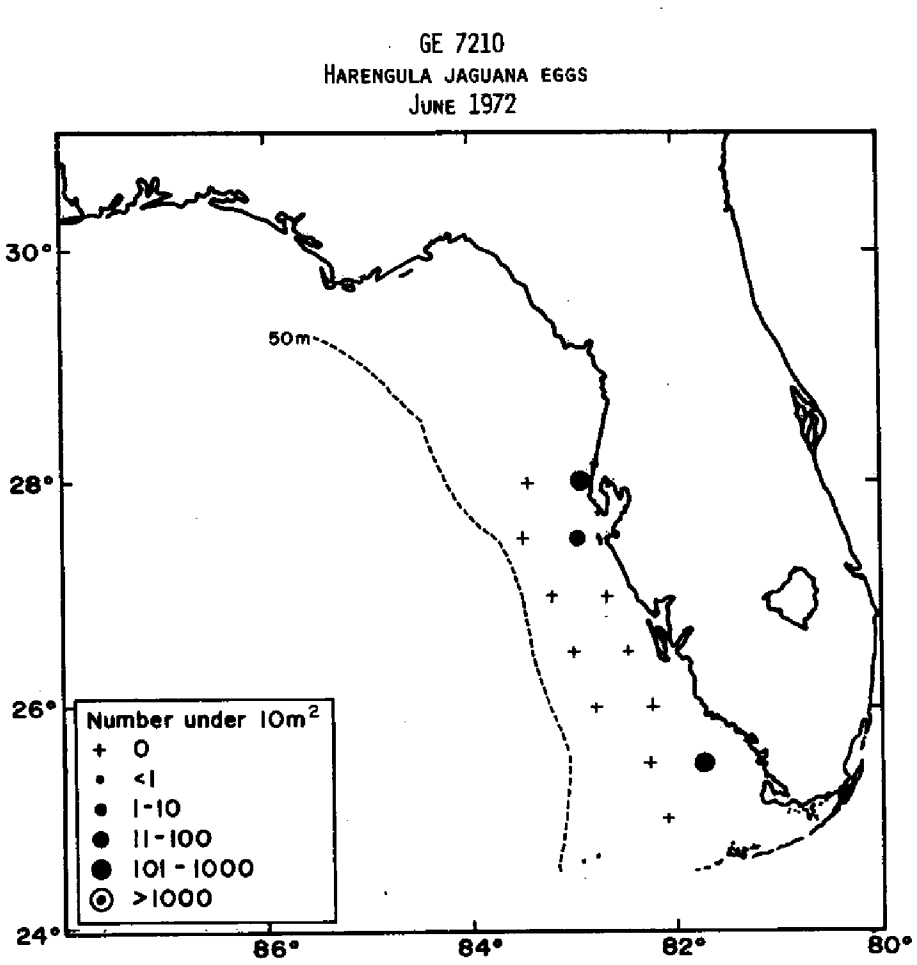

GE 7208
HARENGULA JAGUANA LARVAE
MAY 1972
30°
28°
26°
24°
86°
84°
82°
80°
50m
Number under 10m²
+ 0
• <1
● 1-10
● 11-100
● 101-1000
⊙ >1000

Figure 47


GE 7210
HARENGULA JAGUANA EGGS
JUNE 1972
30°
28°
26°
24°
86°
84°
82°
80°
50m
Number under 10m²
+ 0
• <1
● 1-10
● 11-100
● 101-1000
⊙ >1000

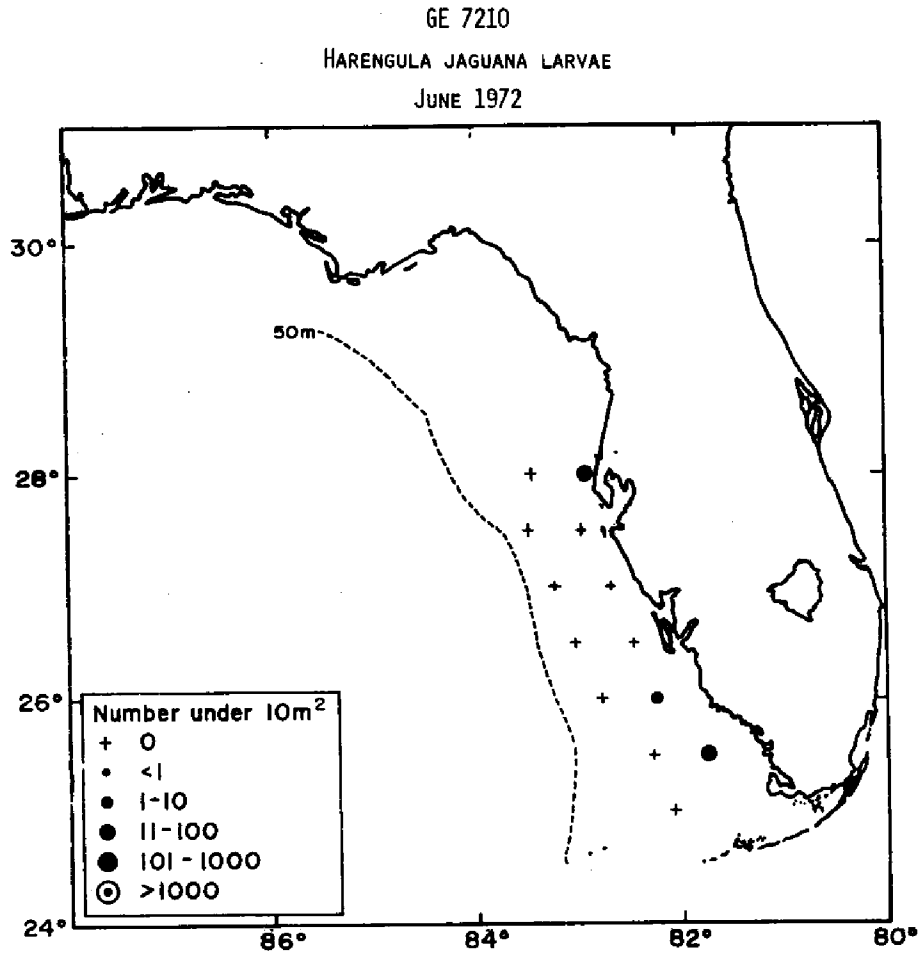

GE 7210
HARENGULA JAGUANA LARVAE
JUNE 1972
30°
28°
26°
24°
86°
84°
82°
80°
50m
Number under 10m²
+ 0
• <1
● 1-10
● 11-100
● 101-1000
⊙ >1000

Figure 48

No Harengula jaguana eggs present

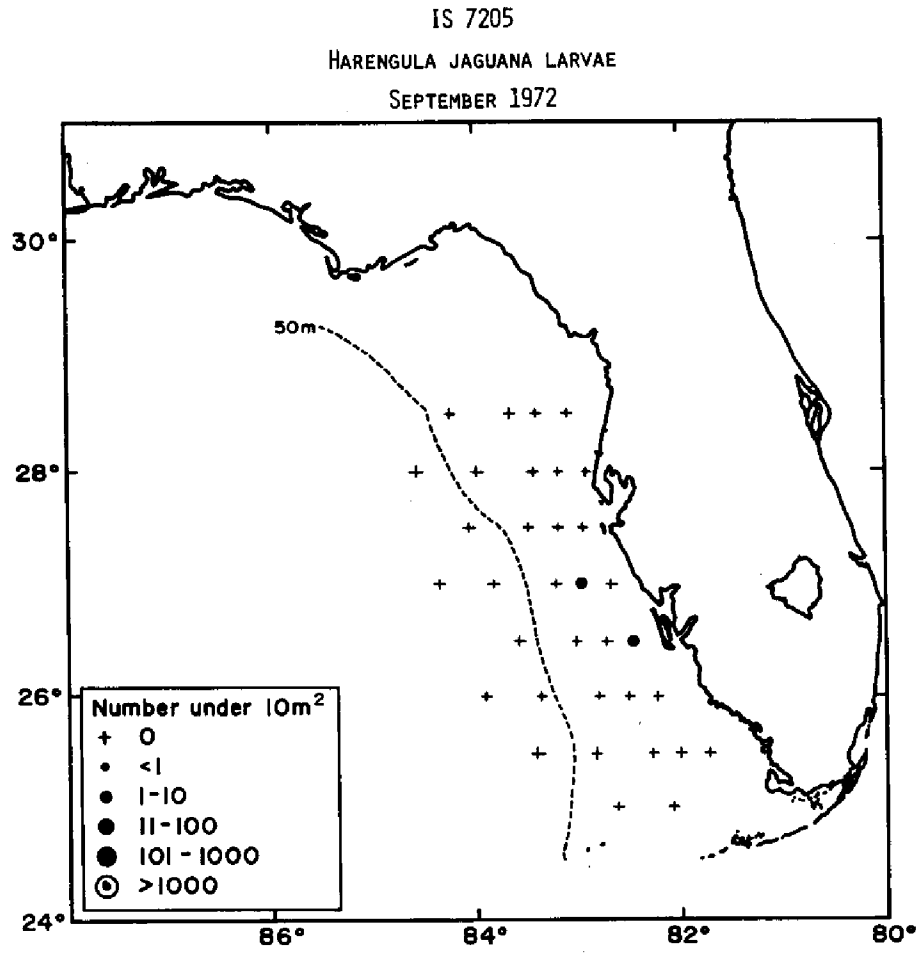


Figure 49

No Harengula jaguana eggs present

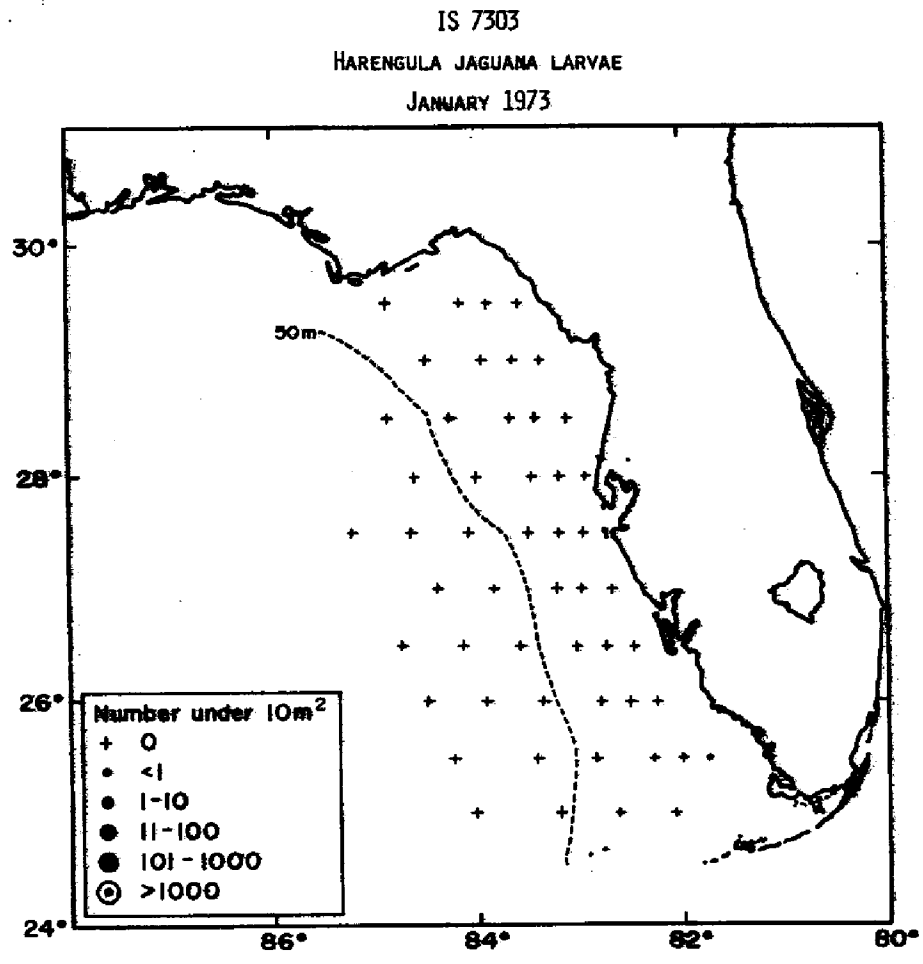
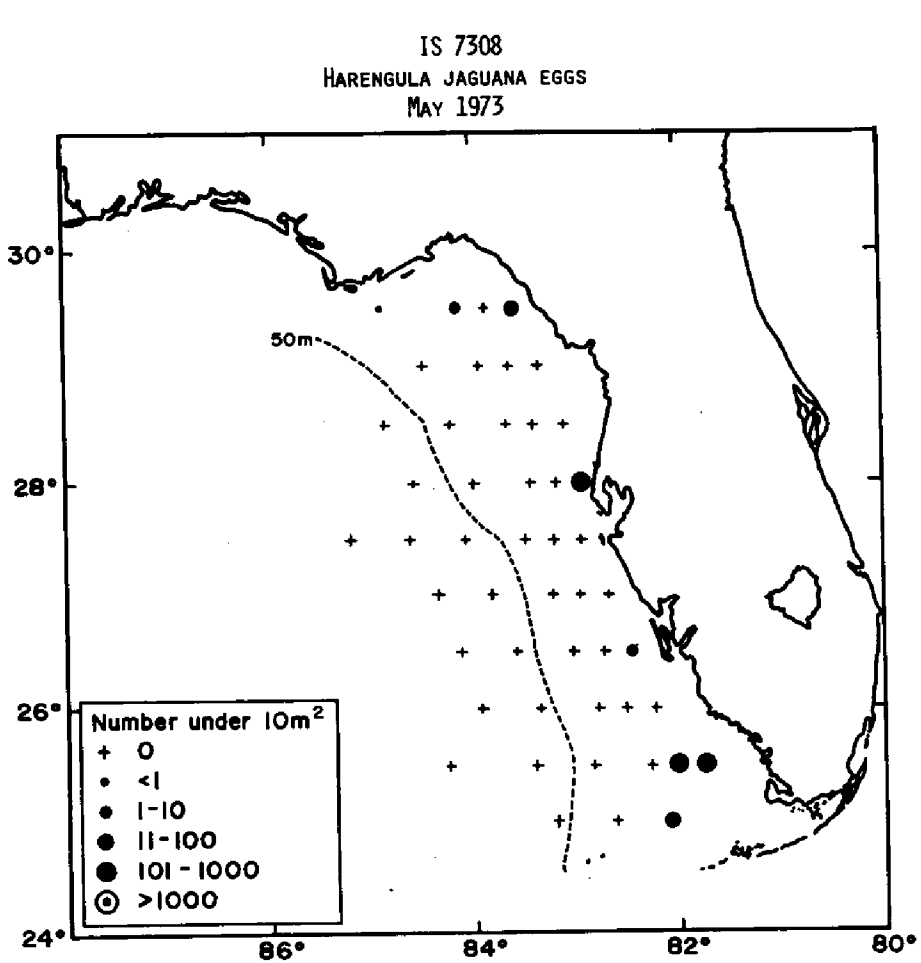


Figure 50


IS 7308
HARENGULA JAGUANA EGGS
MAY 1973
30°
28°
26°
24°
86°
84°
82°
80°
50m
Number under 10m²
+ 0
• <1
● 1-10
● 11-100
● 101-1000
⊙ >1000

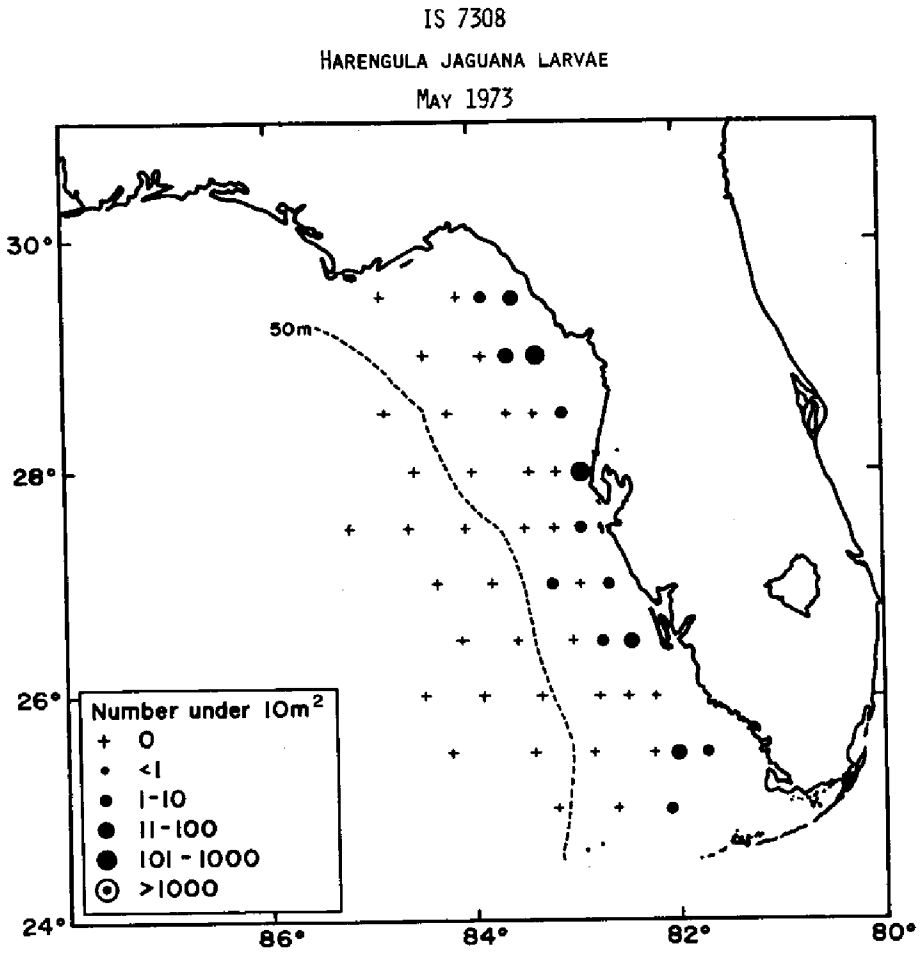
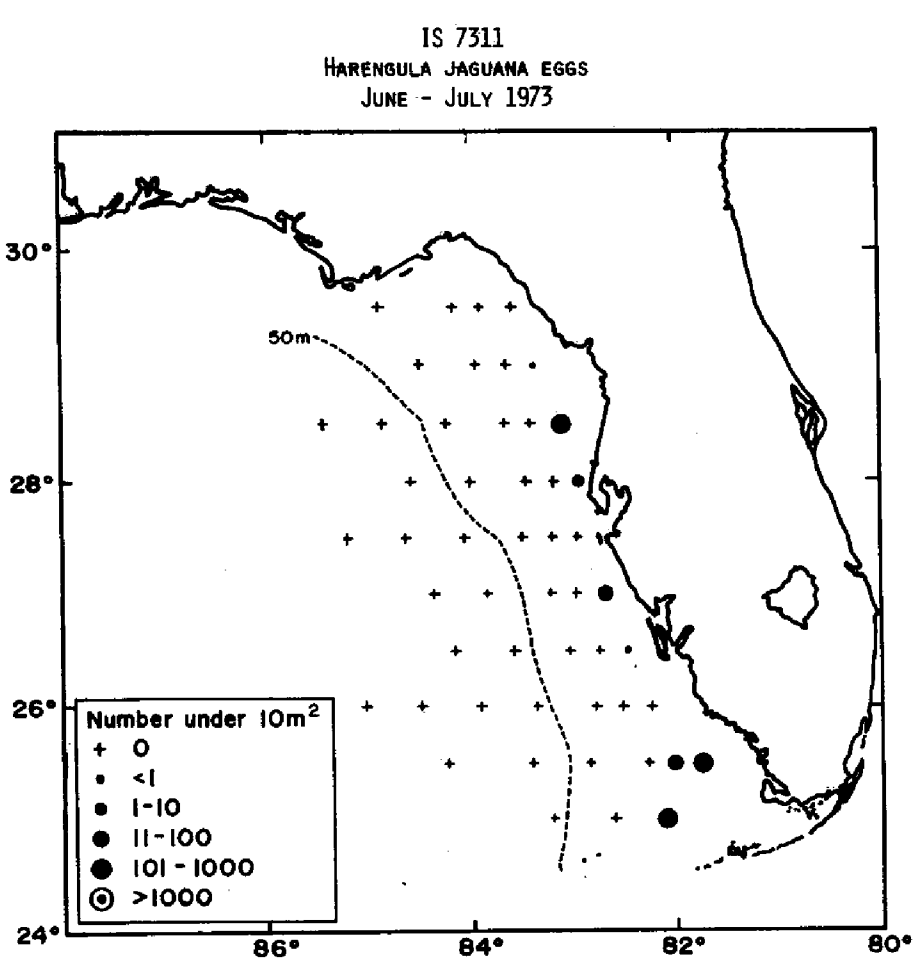

IS 7308
HARENGULA JAGUANA LARVAE
MAY 1973
30°
28°
26°
24°
86°
84°
82°
80°
50m
Number under 10m²
+ 0
• <1
● 1-10
● 11-100
● 101-1000
⊙ >1000

Figure 51


IS 7311
HARENGULA JAGUANA EGGS
JUNE - JULY 1973
30°
28°
26°
24°
86°
84°
82°
80°
50m
Number under 10m²
+ 0
• <1
• 1-10
● 11-100
● 101-1000
⊙ >1000

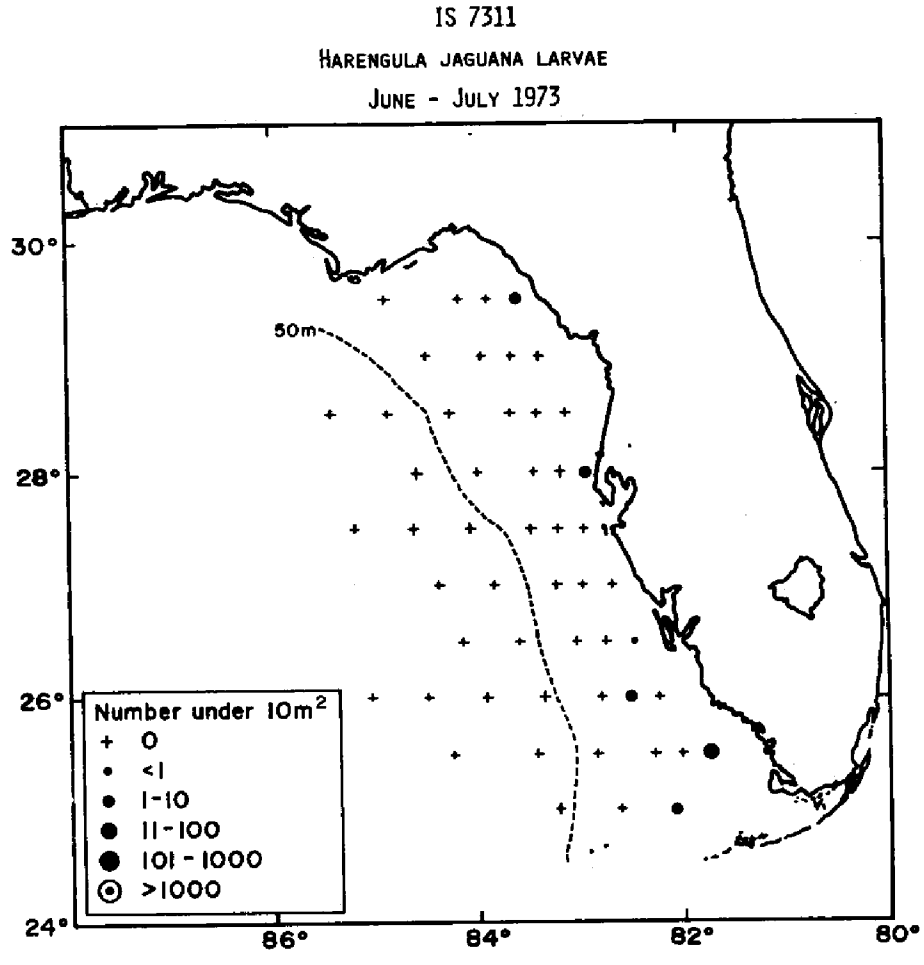

IS 7311
HARENGULA JAGUANA LARVAE
JUNE - JULY 1973
30°
28°
26°
24°
86°
84°
82°
80°
50m
Number under 10m²
+ 0
• <1
• 1-10
● 11-100
● 101-1000
⊙ >1000

Figure 52

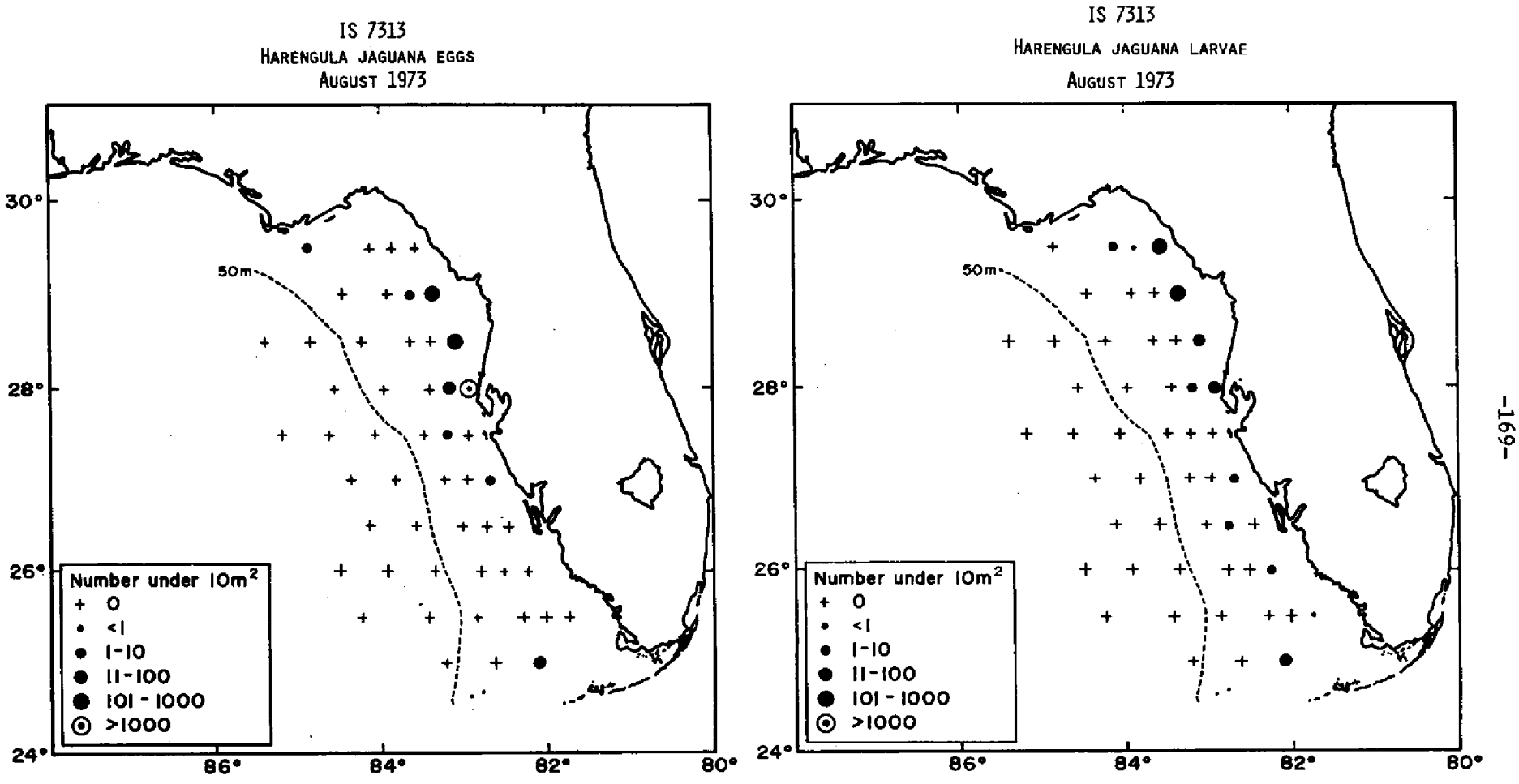

IS 7313
HARENGULA JAGUANA EGGS
AUGUST 1973
IS 7313
HARENGULA JAGUANA LARVAE
AUGUST 1973
50m
Number under 10m²
0
<1
1-10
11-100
101-1000
>1000
30°
28°
26°
24°
86°
84°
82°
80°

Figure 53

No Harengula jaguana eggs present

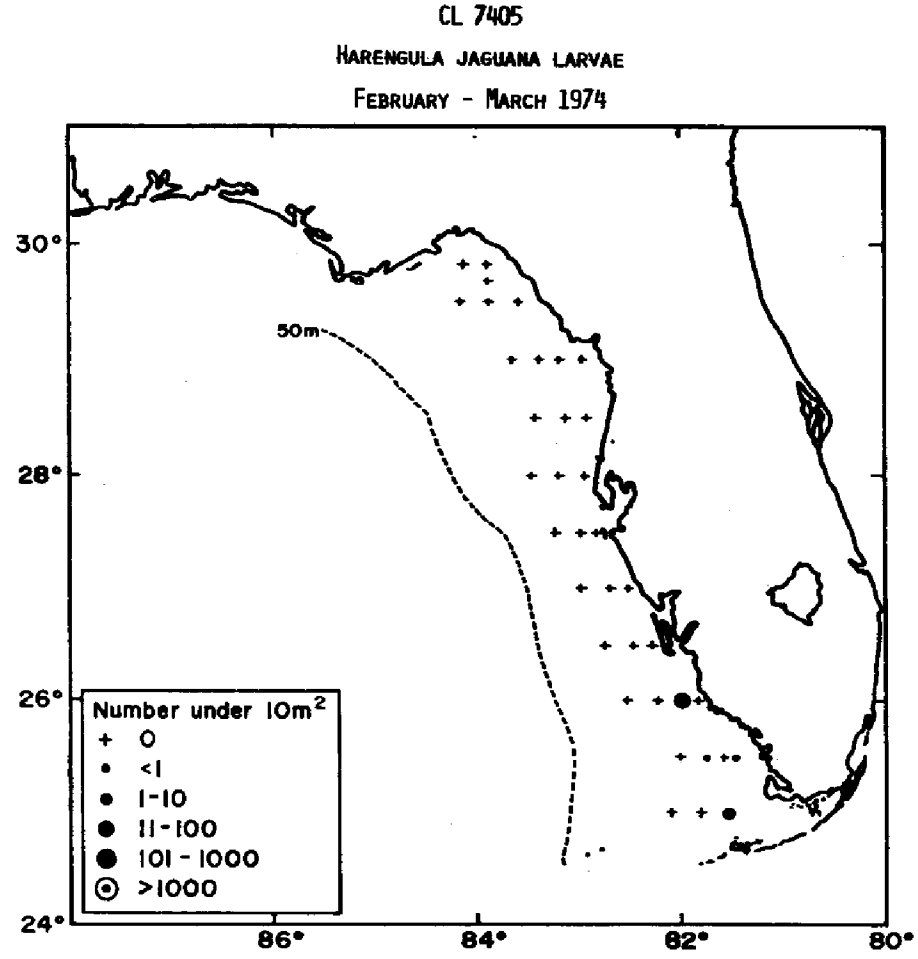
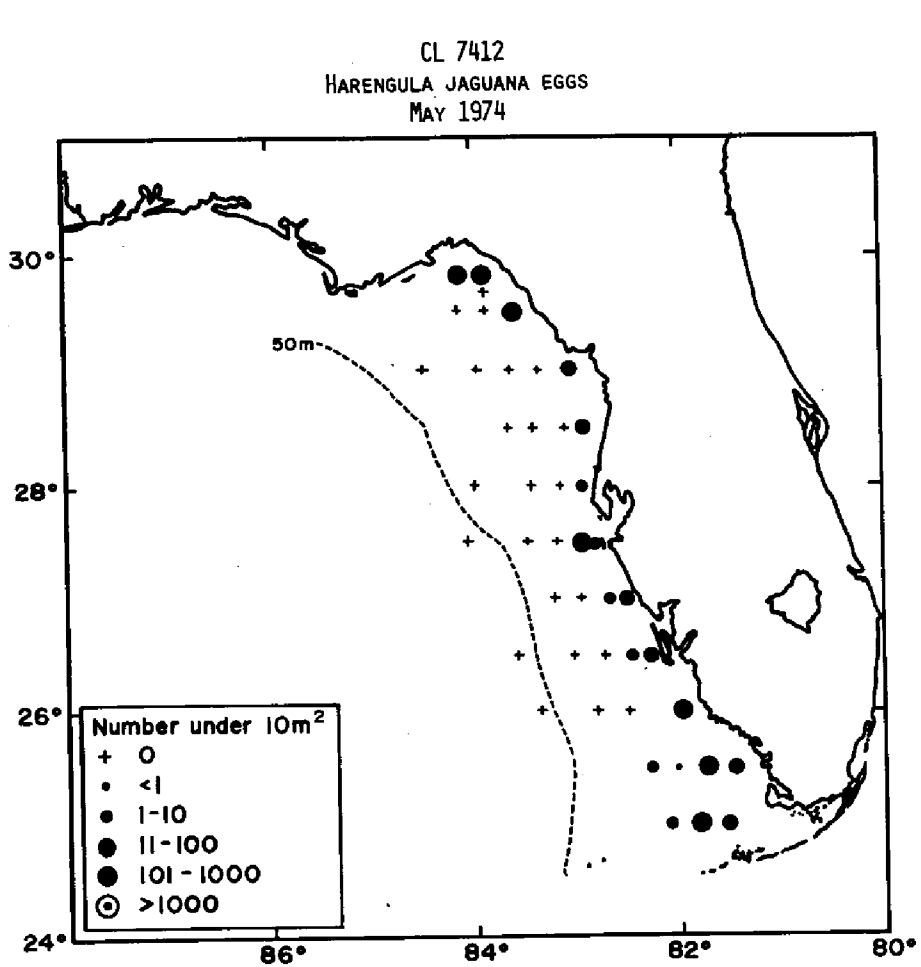


Figure 54


CL 7412
HARENGULA JAGUANA EGGS
MAY 1974
50m
Number under 10m²
+ 0
• <1
● 1-10
● 11-100
● 101-1000
⊙ >1000
30°
28°
26°
24°
86°
84°
82°
80°

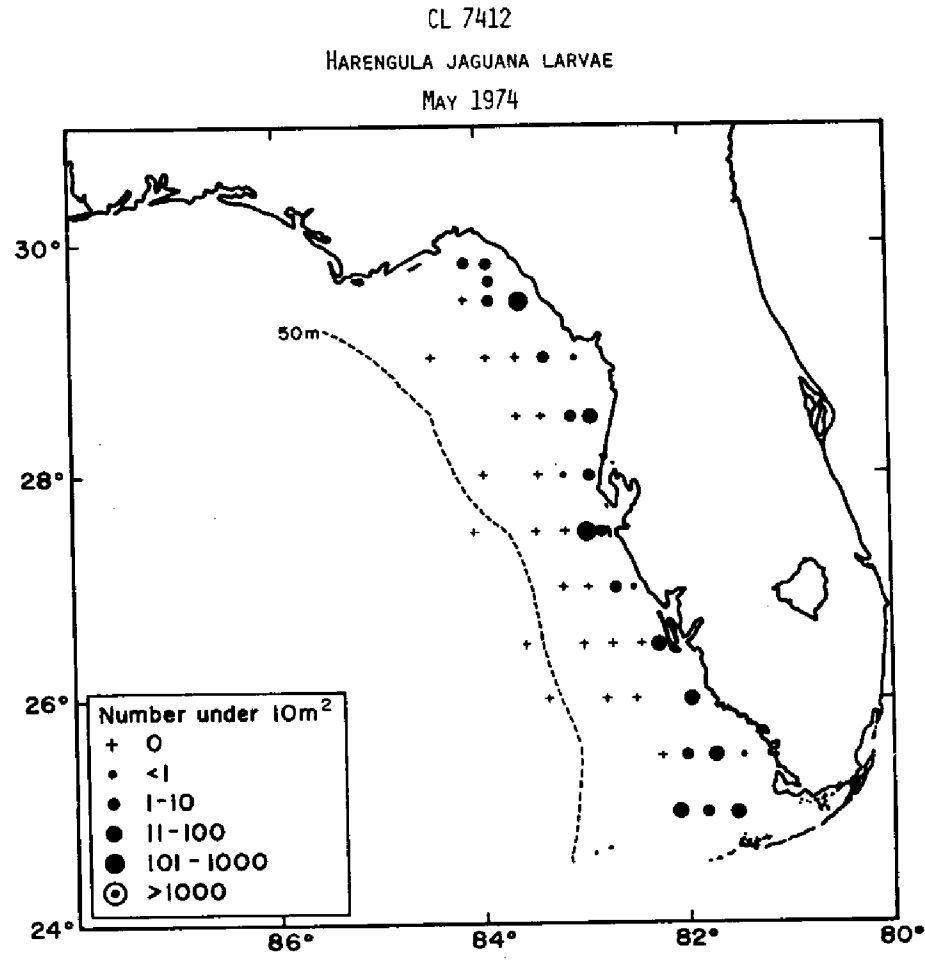

CL 7412
HARENGULA JAGUANA LARVAE
MAY 1974
50m
Number under 10m²
+ 0
• <1
● 1-10
● 11-100
● 101-1000
⊙ >1000
30°
28°
26°
24°
86°
84°
82°
80°

Figure 55

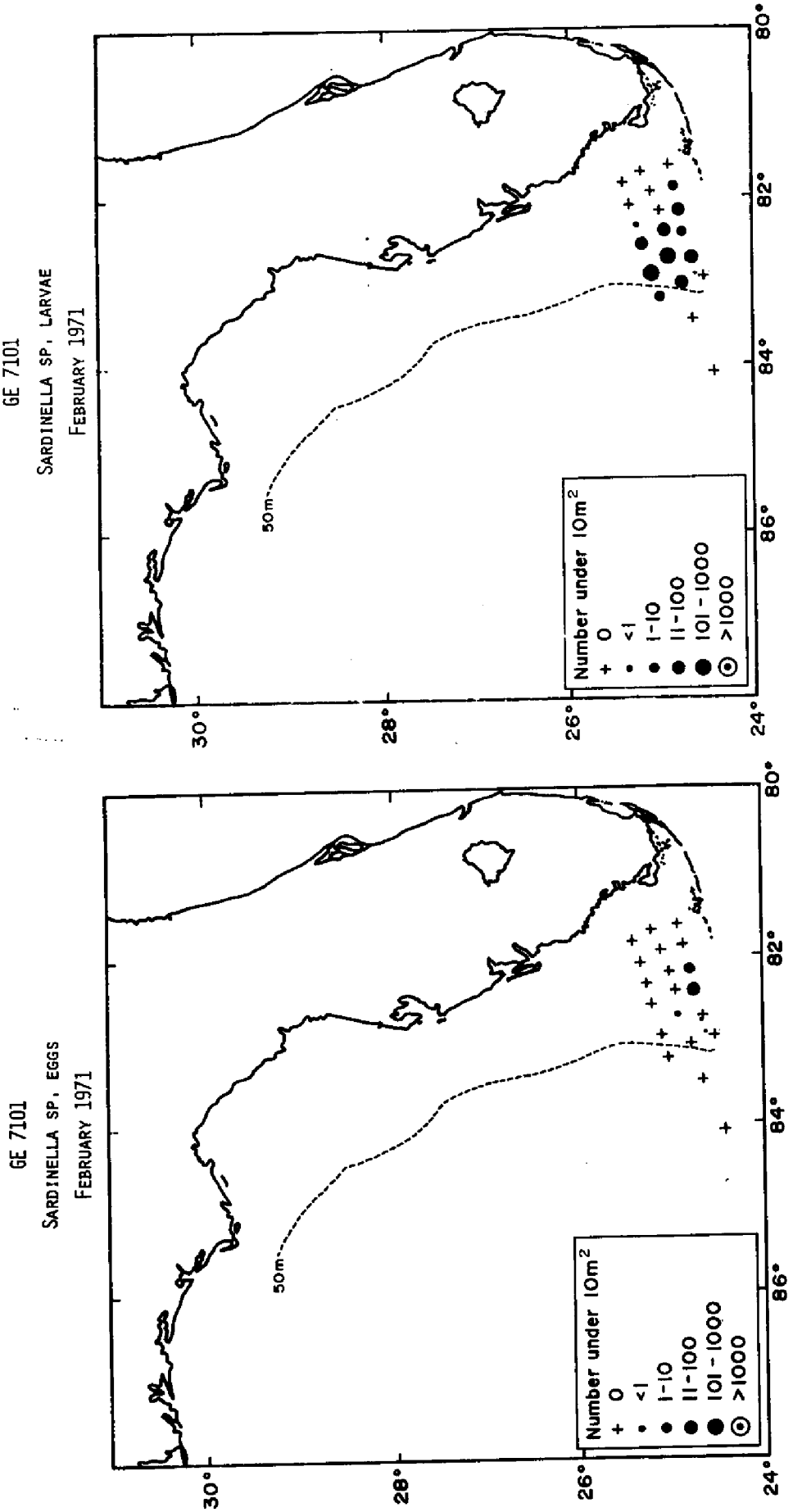
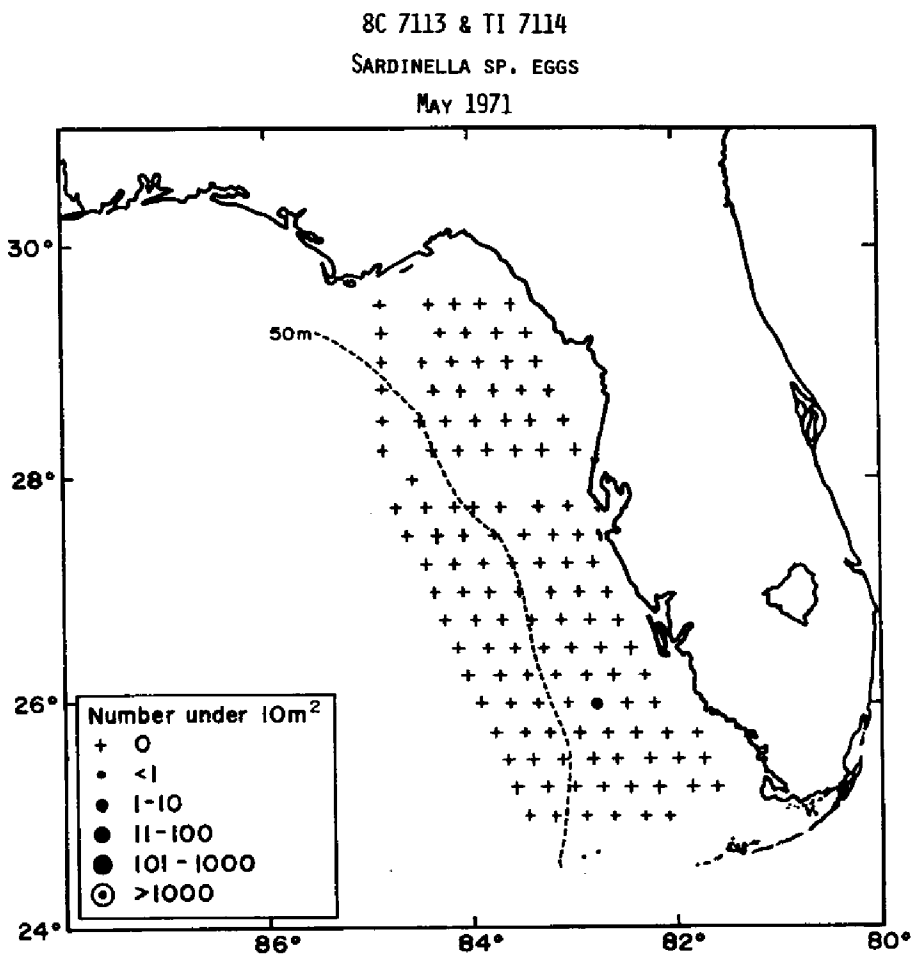

GE 7101
SARDINELLA SP. EGGS
FEBRUARY 1971
50m
Number under 10m²
0
<1
1-10
11-100
101-1000
>1000
30°
28°
26°
24°
80°
82°
84°
86°
GE 7101
SARDINELLA SP. LARVAE
FEBRUARY 1971
50m
Number under 10m²
0
<1
1-10
11-100
101-1000
>1000
30°
28°
26°
24°
80°
82°
84°
86°

Figure 56


8C 7113 & TI 7114
SARDINELLA SP. EGGS
MAY 1971
50m
Number under 10m²
+ 0
• <1
● 1-10
● 11-100
● 101-1000
⊙ >1000
30°
28°
26°
24°
86°
84°
82°
80°

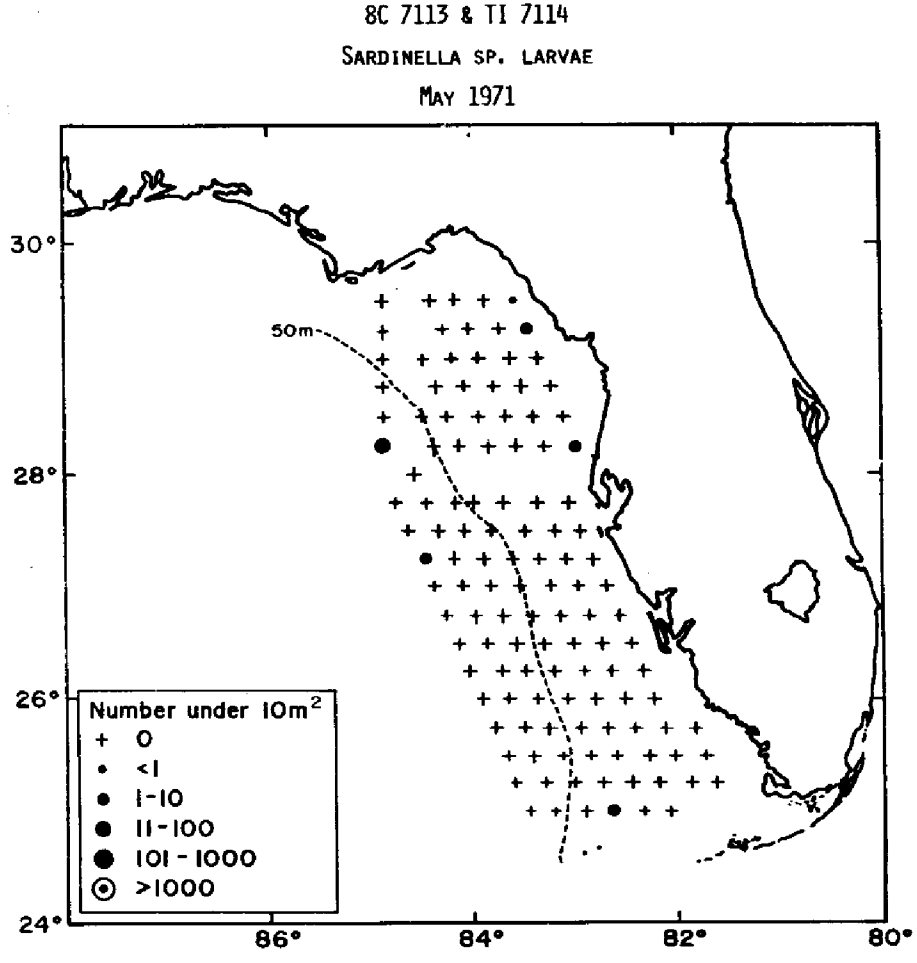
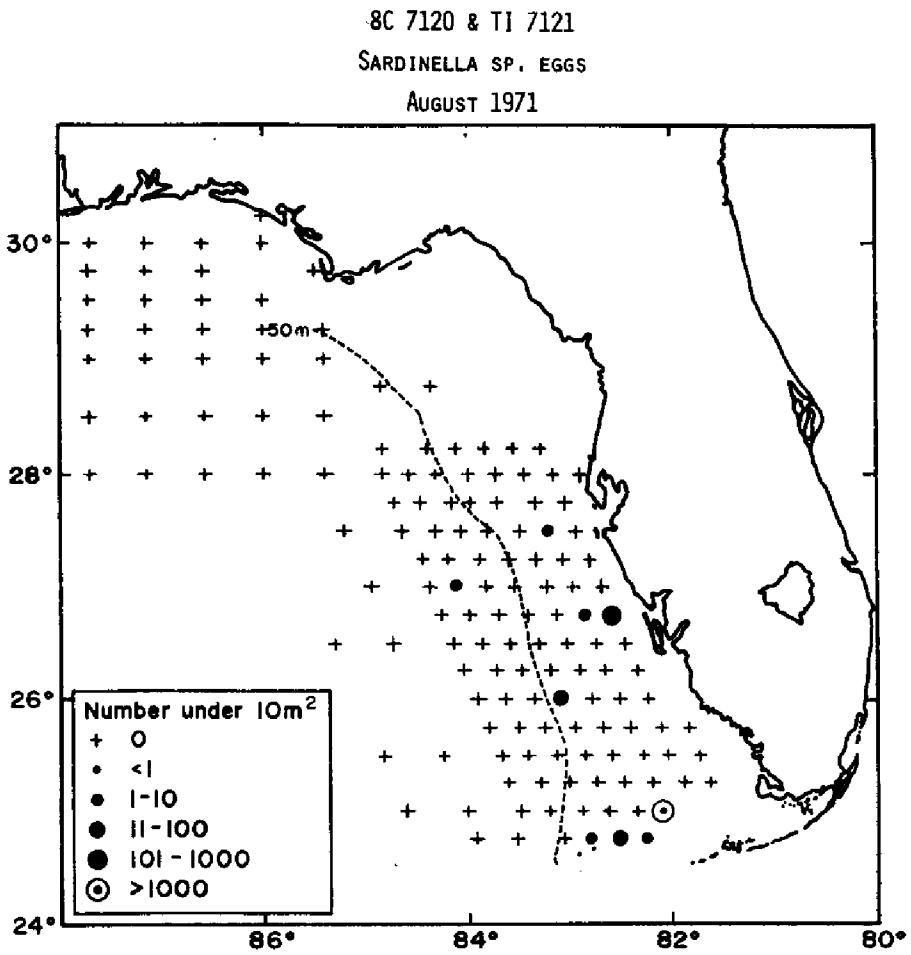

8C 7113 & TI 7114
SARDINELLA SP. LARVAE
MAY 1971
50m
Number under 10m²
+ 0
• <1
● 1-10
● 11-100
● 101-1000
⊙ >1000
30°
28°
26°
24°
86°
84°
82°
80°

Figure 57


8C 7120 & TI 7121
SARDINELLA SP. EGGS
AUGUST 1971
30°
28°
26°
24°
50m
86°
84°
82°
80°
Number under 10m²
0
<1
1-10
11-100
101-1000
>1000

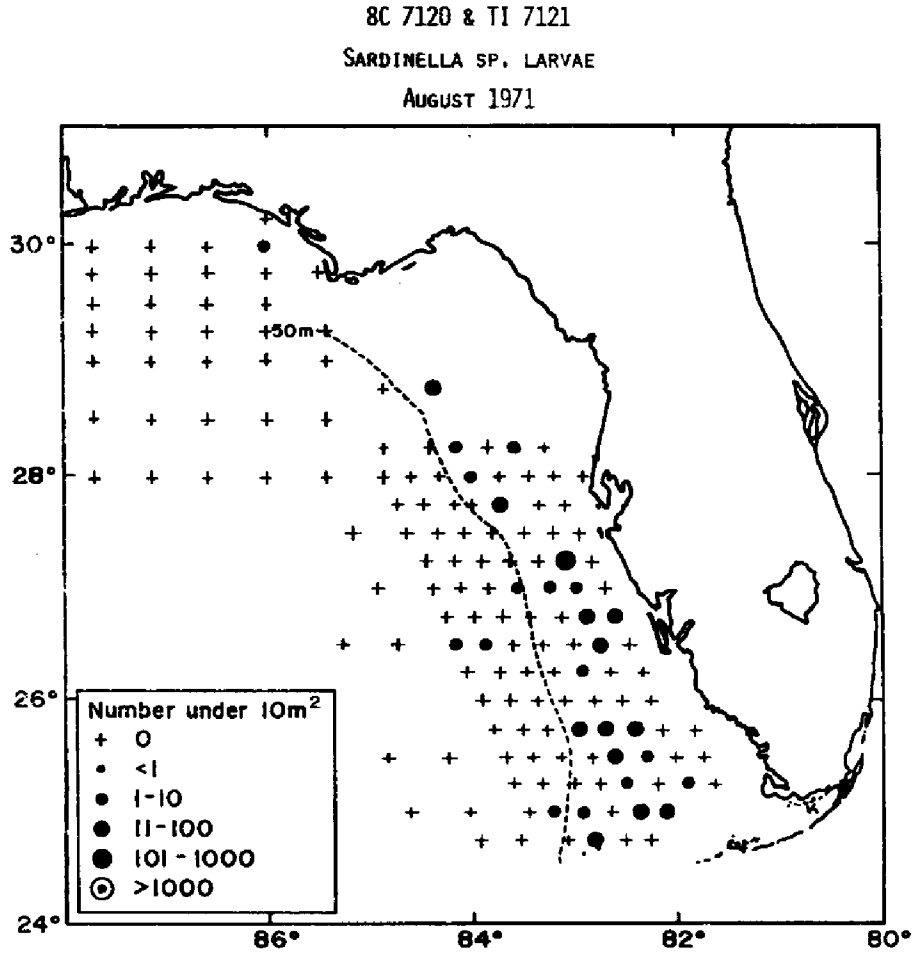
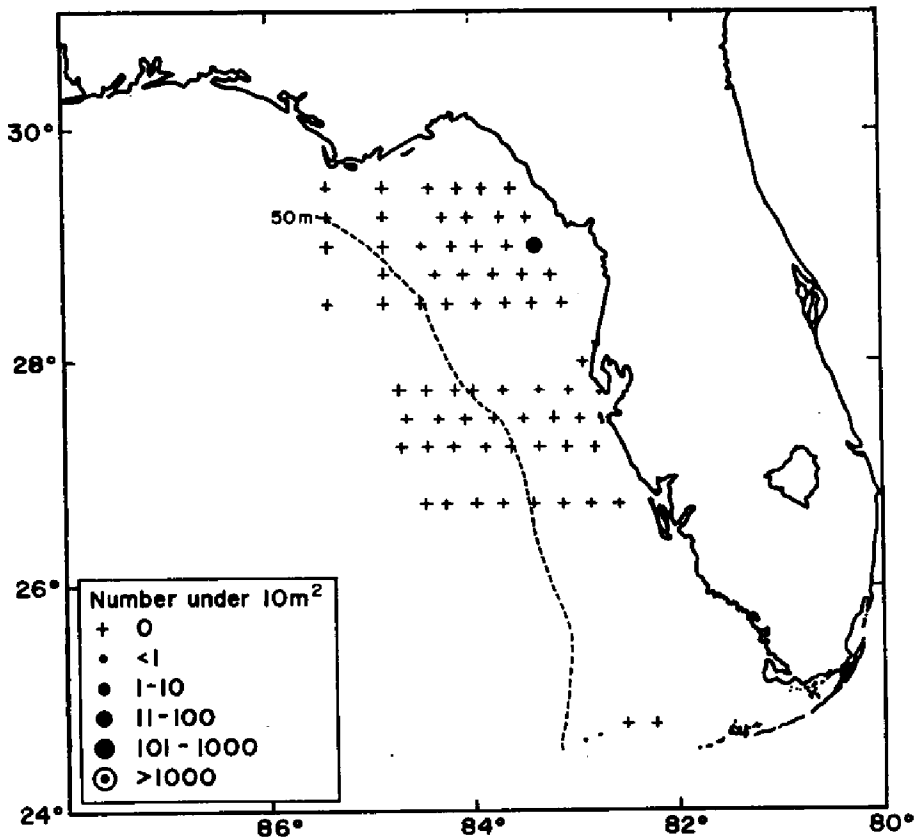

8C 7120 & TI 7121
SARDINELLA SP. LARVAE
AUGUST 1971
30°
28°
26°
24°
50m
86°
84°
82°
80°
Number under 10m²
0
<1
1-10
11-100
101-1000
>1000

Figure 58

GE 7127, TI 7131 & 8B 7132

SARDINELLA SP. EGGS

NOVEMBER 1971



GE 7127, TI 7131 & 8B 7132

SARDINELLA SP. LARVAE

NOVEMBER 1971

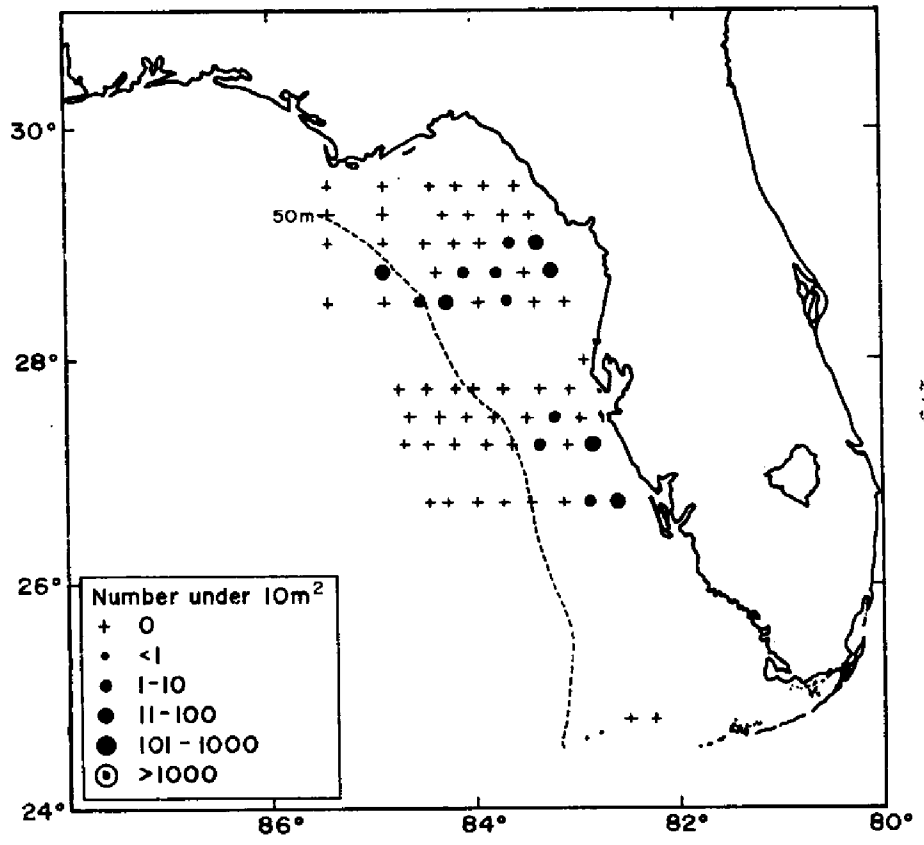
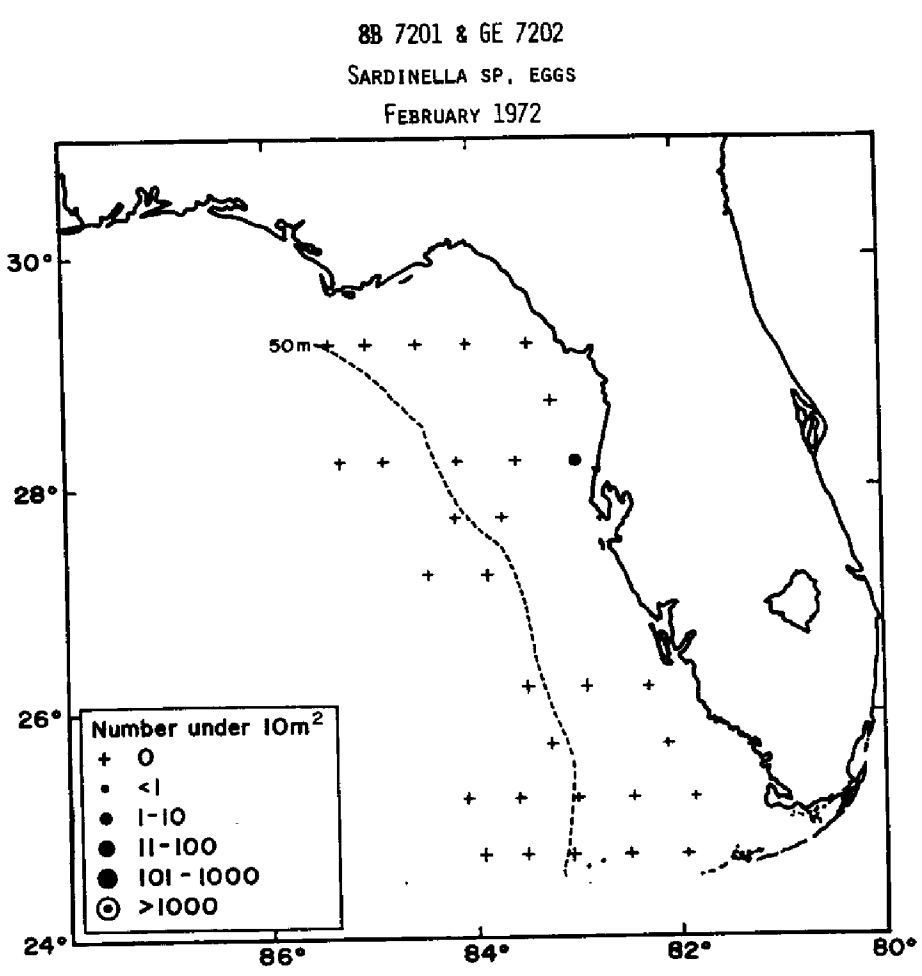


Figure 59


8B 7201 & GE 7202
SARDINELLA SP. EGGS
FEBRUARY 1972
30°
28°
26°
24°
86°
84°
82°
80°
50m
Number under 10m²
+ 0
• <1
● 1-10
● 11-100
● 101-1000
⊙ >1000

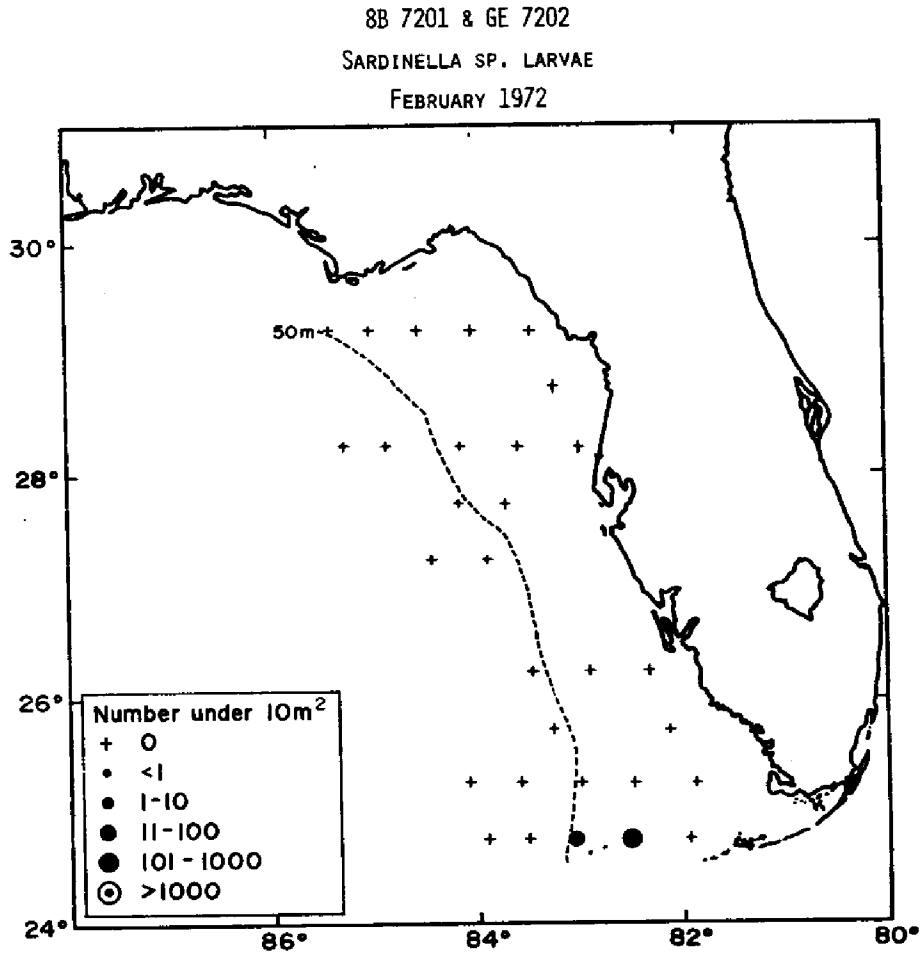

8B 7201 & GE 7202
SARDINELLA SP. LARVAE
FEBRUARY 1972
30°
28°
26°
24°
86°
84°
82°
80°
50m
Number under 10m²
+ 0
• <1
● 1-10
● 11-100
● 101-1000
⊙ >1000

Figure 60

No Sardinella sp. eggs present

GE 7208

SARDINELLA SP. LARVAE

MAY 1972

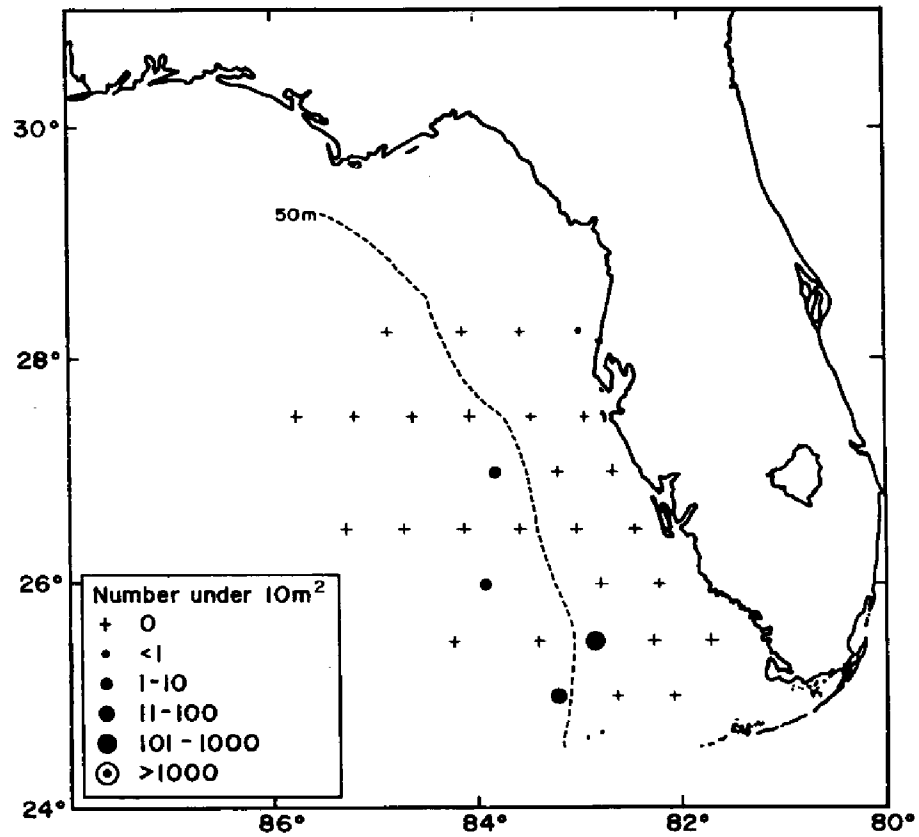


Figure 61

No Sardinella sp. eggs present

GE 7210

SARDINELLA SP. LARVAE

JUNE 1972

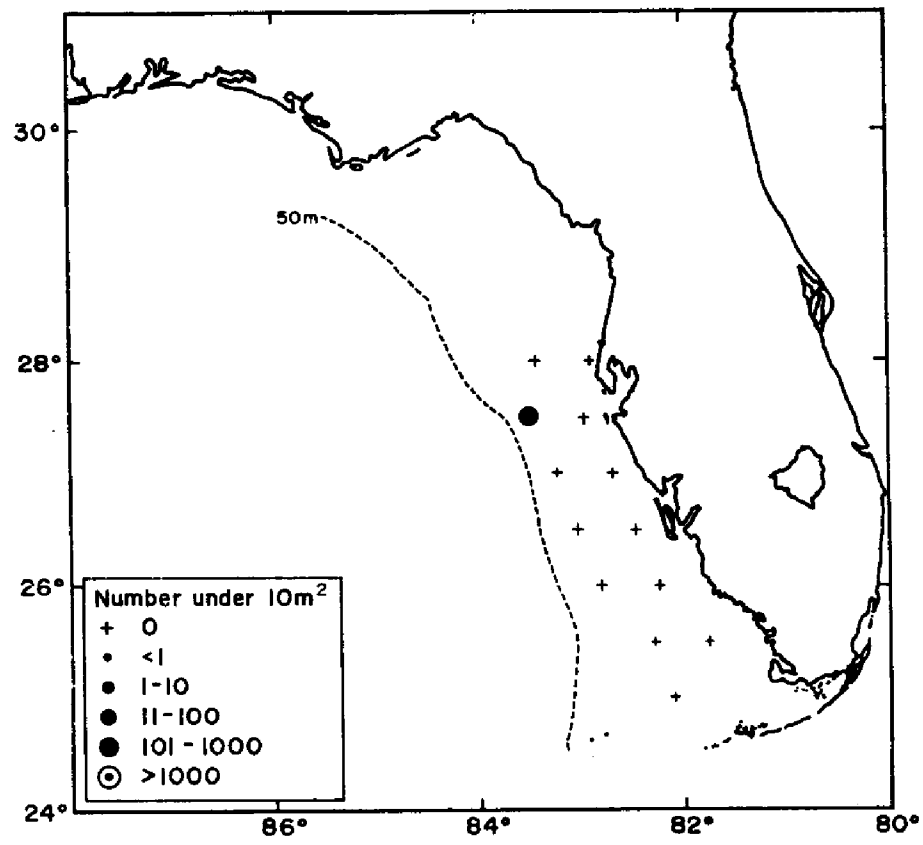


Figure 62

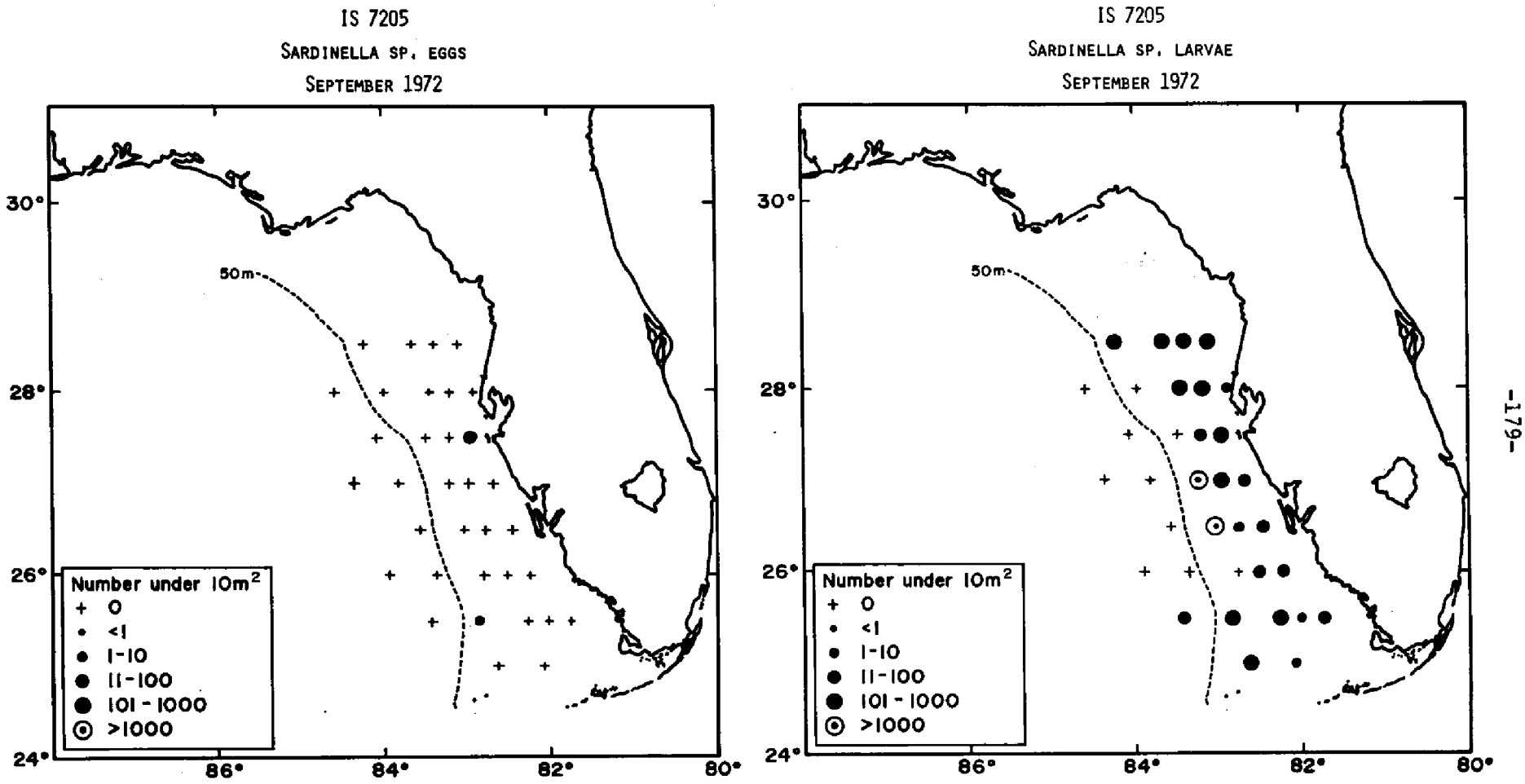
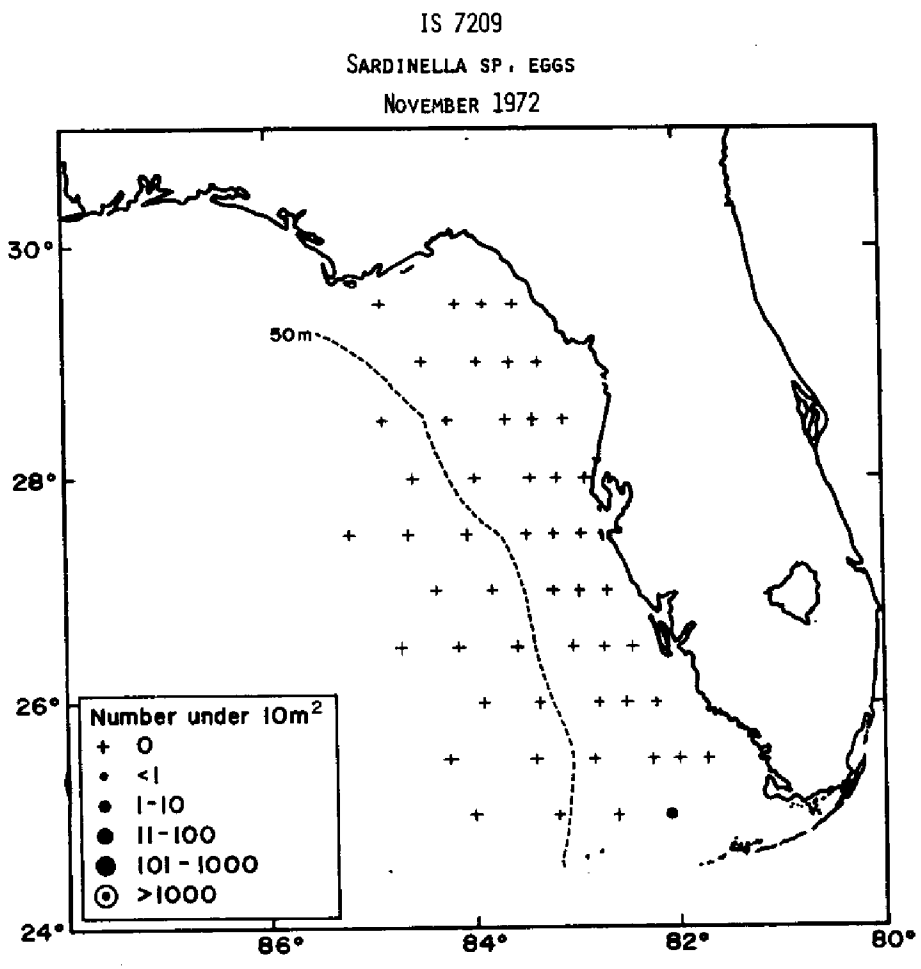

IS 7205
SARDINELLA SP. EGGS
SEPTEMBER 1972
30°
28°
26°
24°
86°
84°
82°
80°
50m
Number under 10m²
+ 0
• <1
● 1-10
● 11-100
● 101-1000
⊙ >1000
IS 7205
SARDINELLA SP. LARVAE
SEPTEMBER 1972
30°
28°
26°
24°
86°
84°
82°
80°
50m
Number under 10m²
+ 0
• <1
● 1-10
● 11-100
● 101-1000
⊙ >1000

Figure 63


IS 7209
SARDINELLA SP. EGGS
NOVEMBER 1972
30°
28°
26°
24°
86°
84°
82°
80°
50m
Number under 10m²
0
<1
1-10
11-100
101-1000
>1000

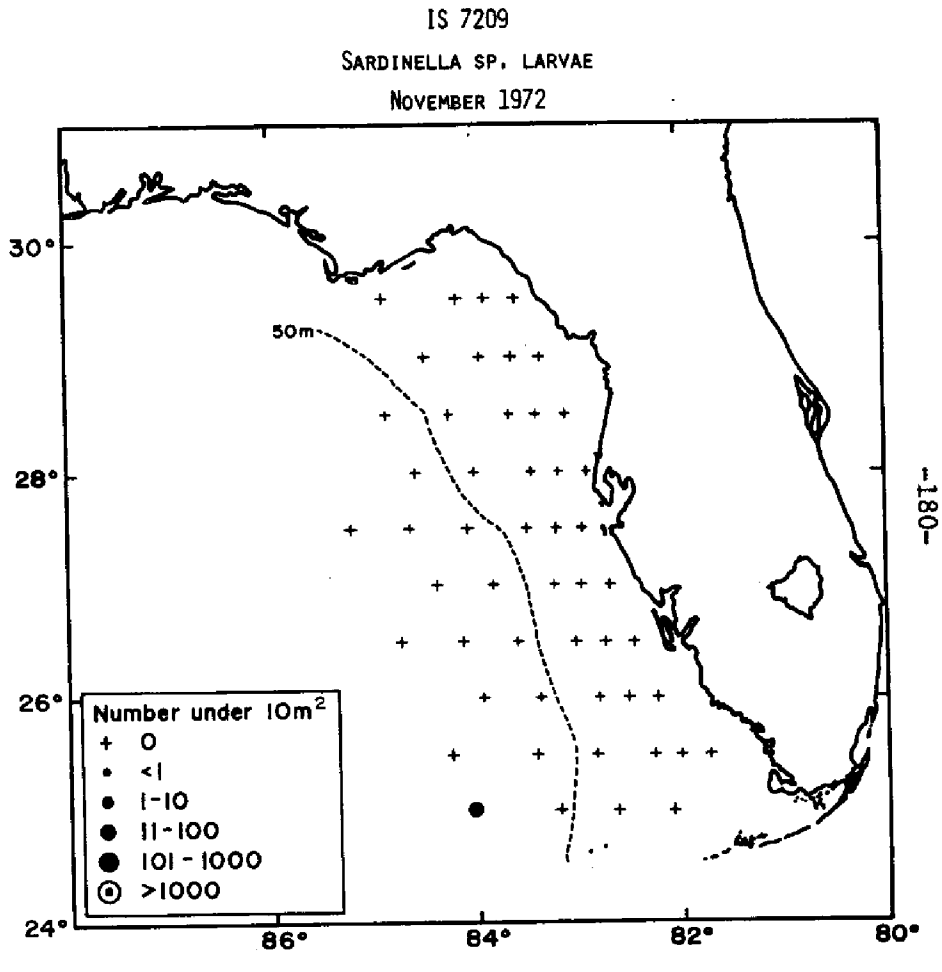

IS 7209
SARDINELLA SP. LARVAE
NOVEMBER 1972
30°
28°
26°
24°
86°
84°
82°
80°
50m
Number under 10m²
0
<1
1-10
11-100
101-1000
>1000

Figure 64

No Sardinella sp. eggs present

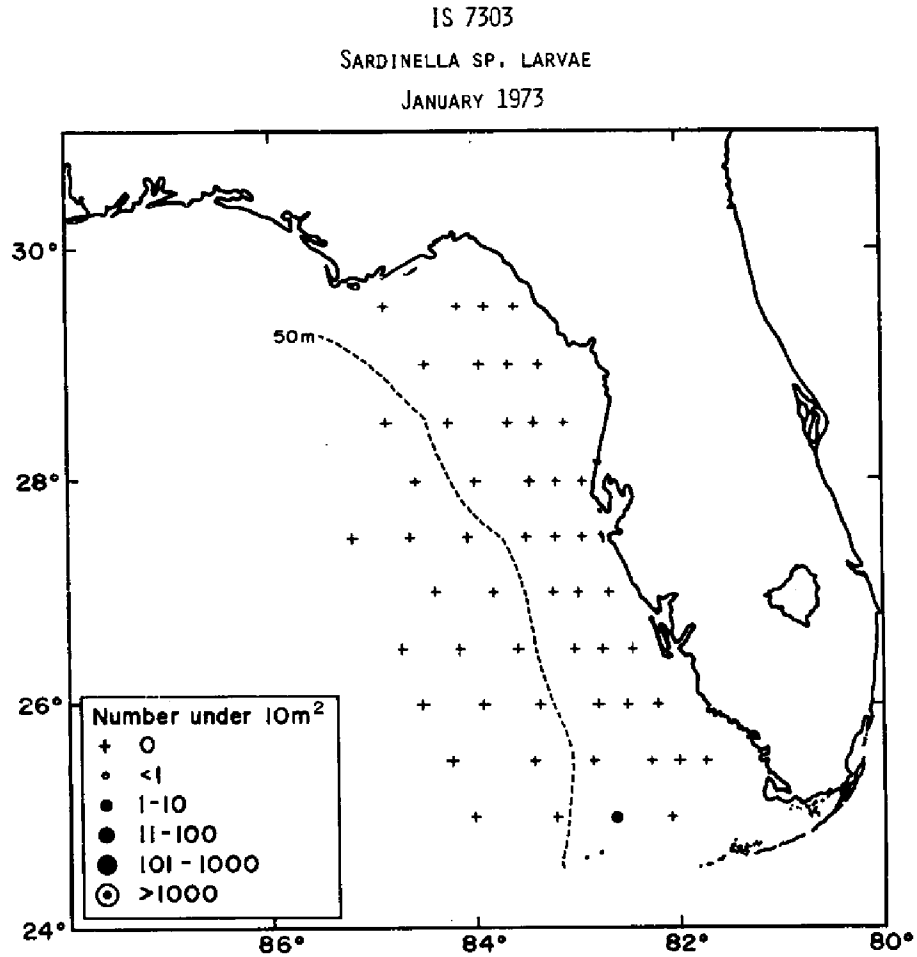


Figure 65

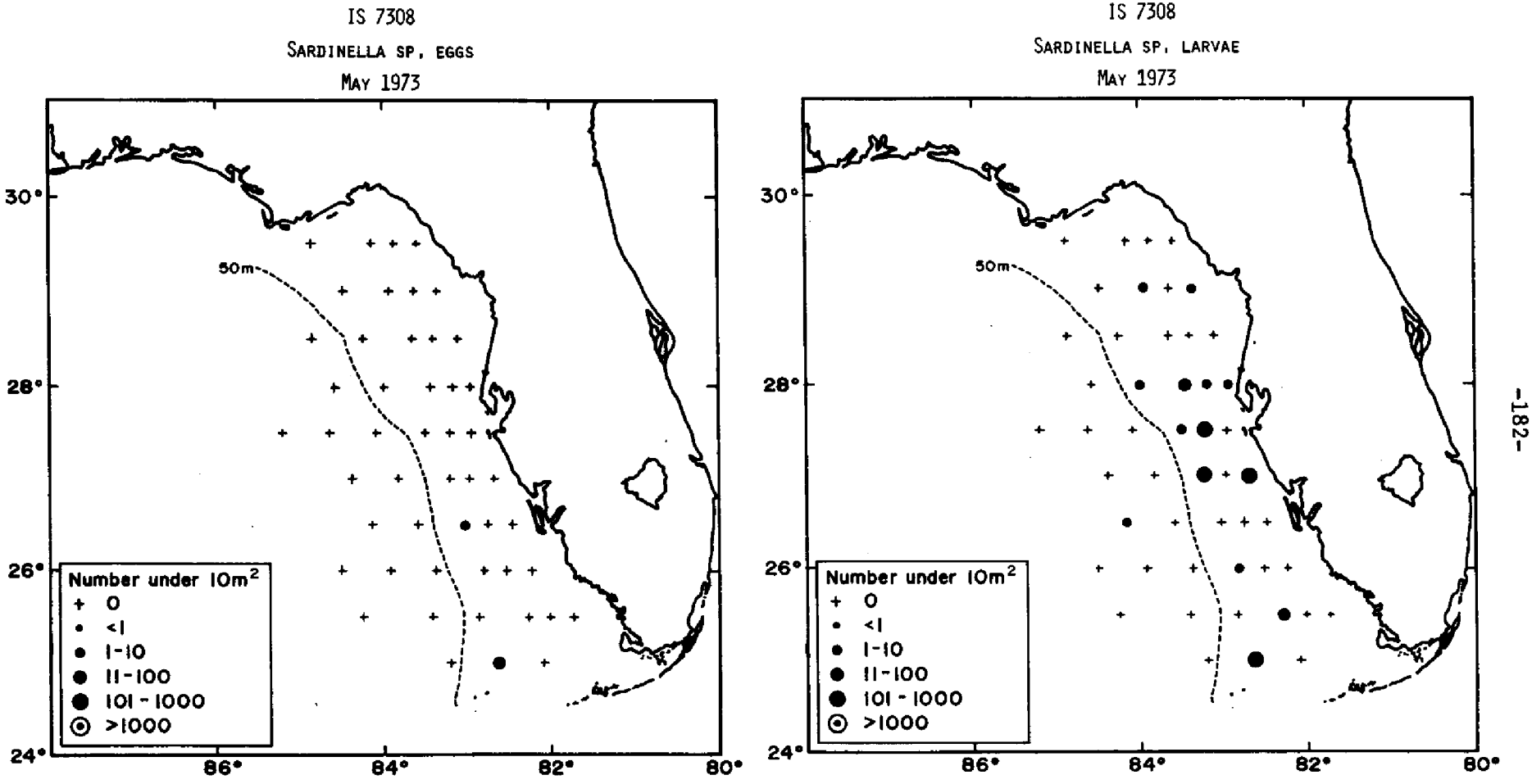

IS 7308
SARDINELLA SP. EGGS
MAY 1973
50m
Number under 10m²
0
<1
1-10
11-100
101-1000
>1000
30°
28°
26°
24°
86°
84°
82°
80°
IS 7308
SARDINELLA SP. LARVAE
MAY 1973
50m
Number under 10m²
0
<1
1-10
11-100
101-1000
>1000
30°
28°
26°
24°
86°
84°
82°
80°

Figure 66

No Sardinella sp. eggs present

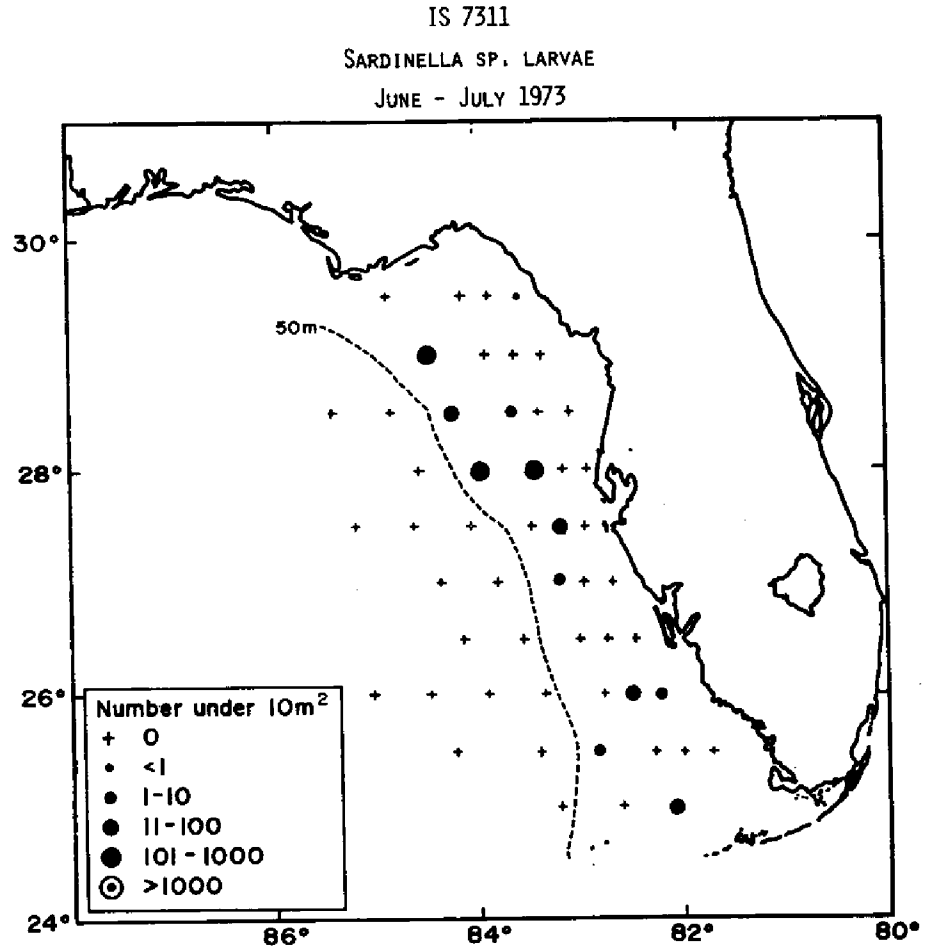
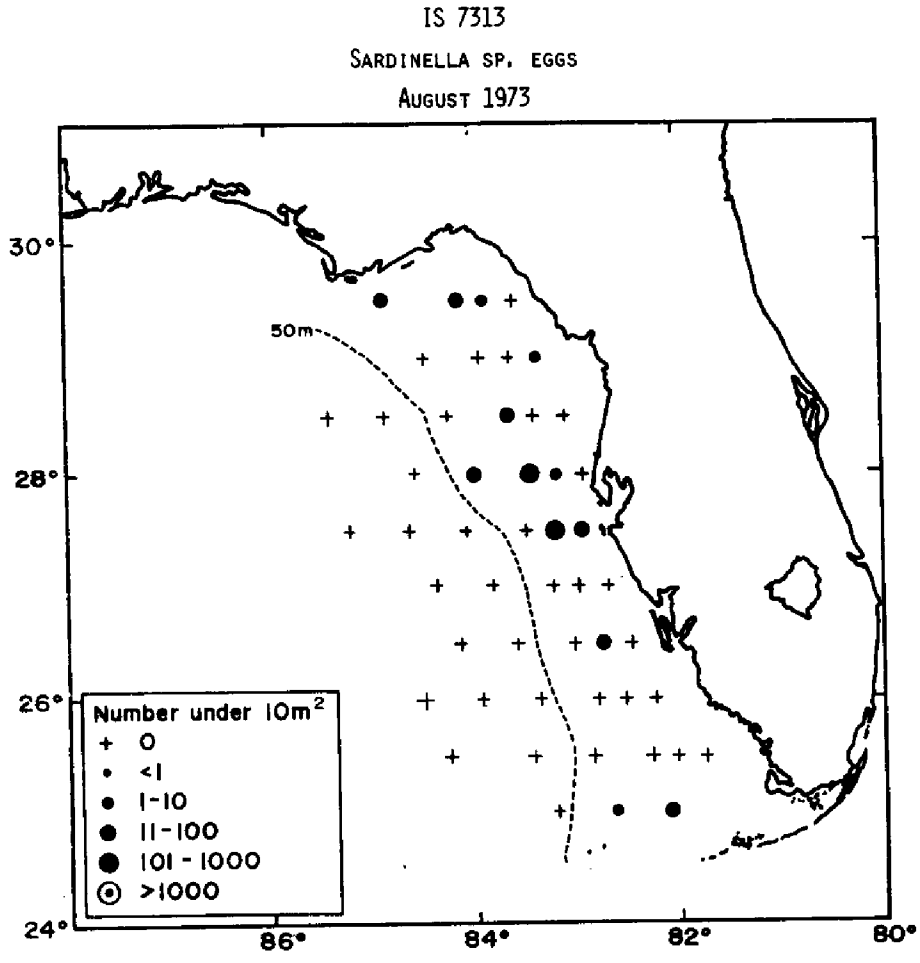


Figure 67


IS 7313
SARDINELLA SP. EGGS
AUGUST 1973
30°
28°
26°
24°
86°
84°
82°
80°
50m
Number under 10m²
+ 0
• <1
● 1-10
● 11-100
● 101-1000
⊙ >1000

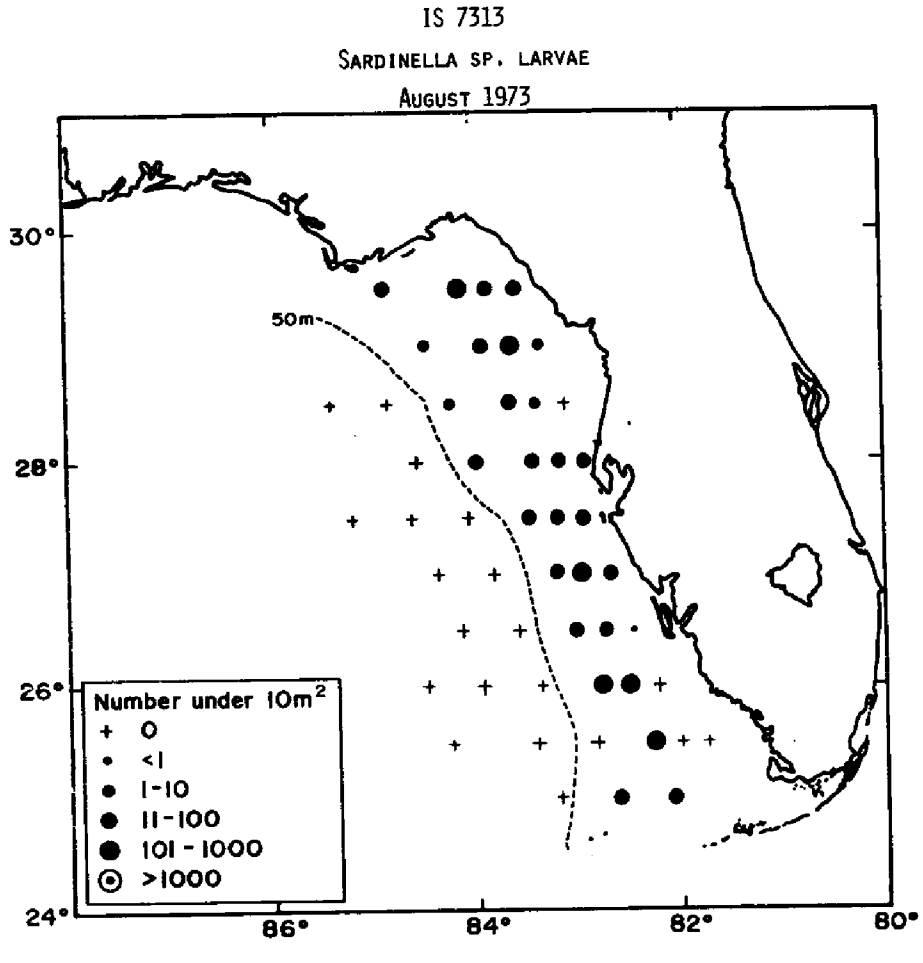
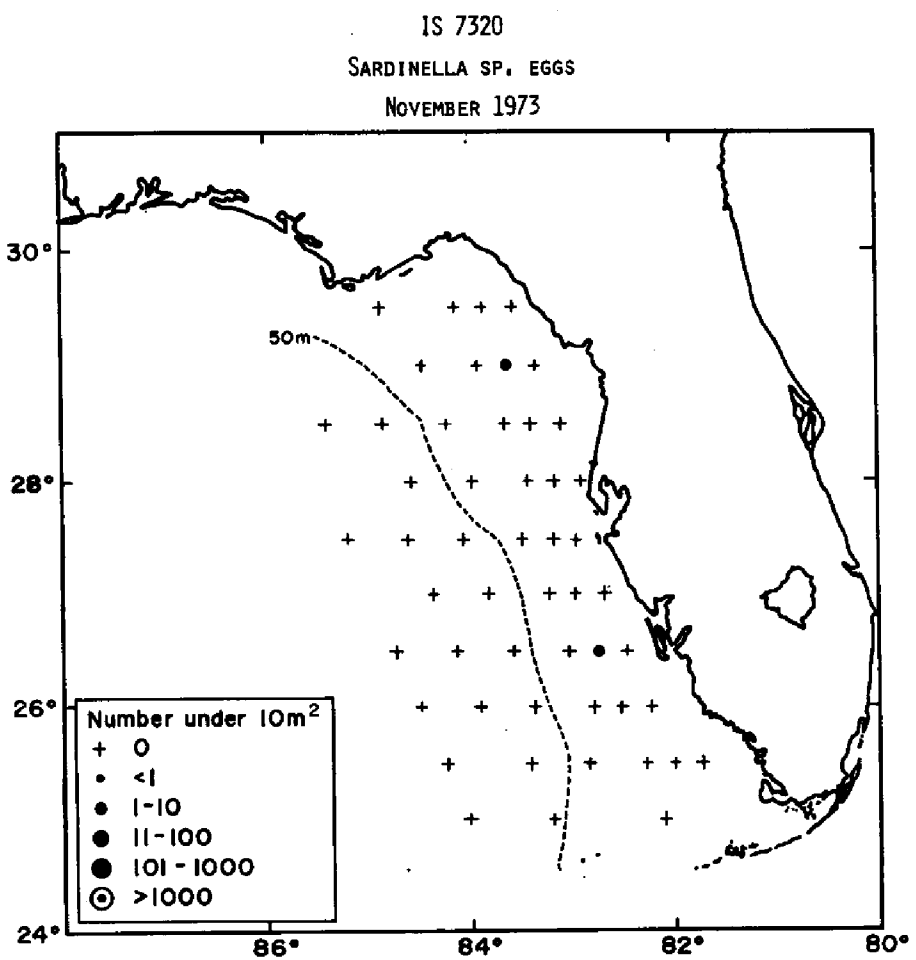

IS 7313
SARDINELLA SP. LARVAE
AUGUST 1973
30°
28°
26°
24°
86°
84°
82°
80°
50m
Number under 10m²
+ 0
• <1
● 1-10
● 11-100
● 101-1000
⊙ >1000

Figure 68


IS 7320
SARDINELLA SP. EGGS
NOVEMBER 1973
30°
28°
26°
24°
50m
86°
84°
82°
80°
Number under 10m²
0
<1
1-10
11-100
101-1000
>1000

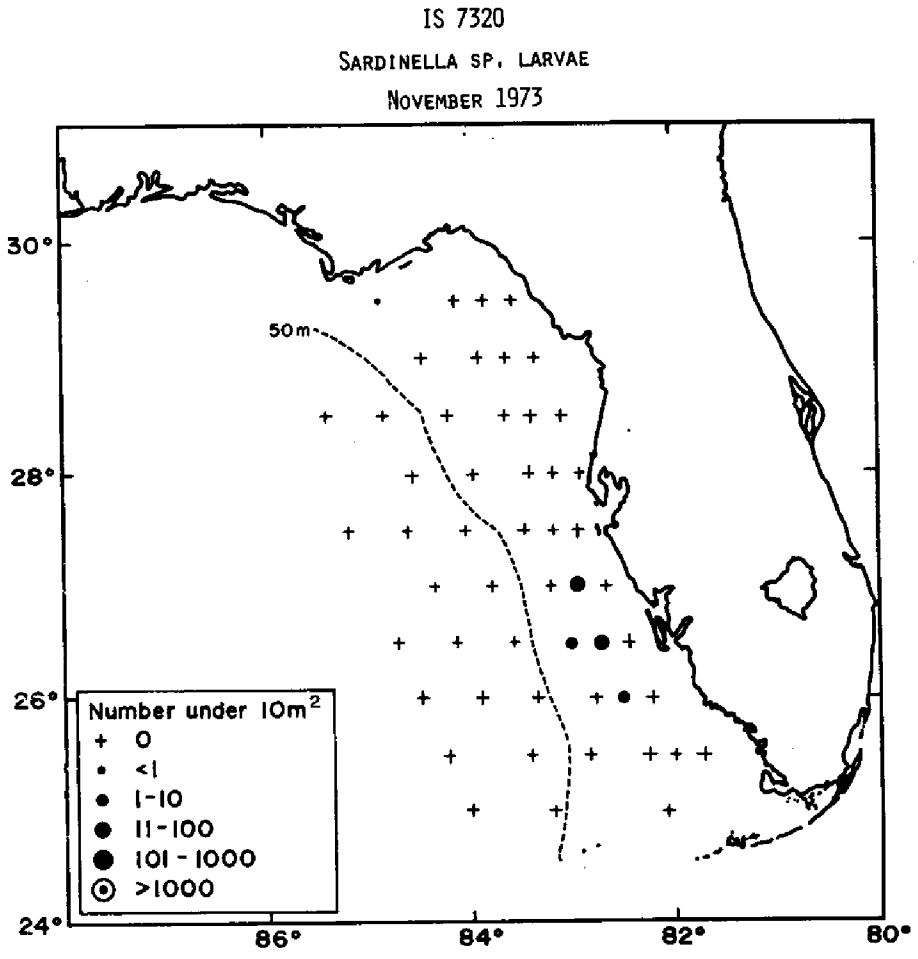
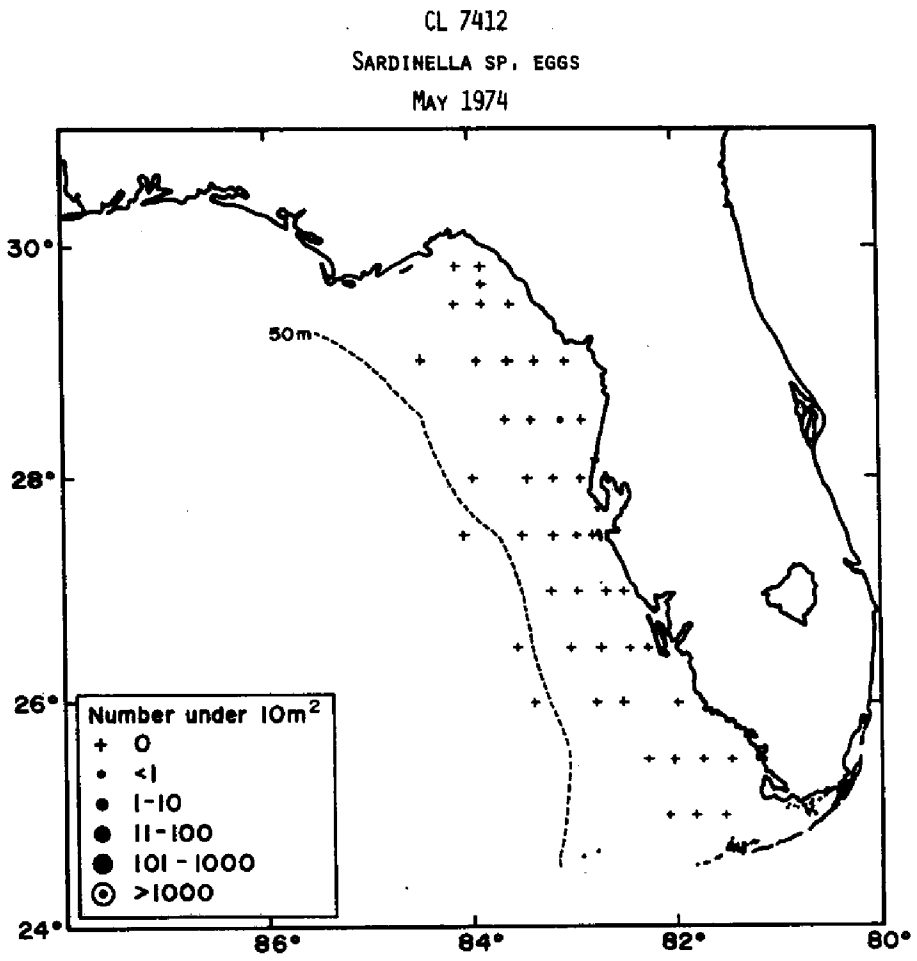

IS 7320
SARDINELLA SP. LARVAE
NOVEMBER 1973
30°
28°
26°
24°
50m
86°
84°
82°
80°
Number under 10m²
0
<1
1-10
11-100
101-1000
>1000

Figure 69


CL 7412
SARDINELLA SP. EGGS
MAY 1974
50m
30°
28°
26°
24°
86°
84°
82°
80°
Number under 10m²
+ 0
• <1
● 1-10
● 11-100
● 101-1000
⊙ >1000

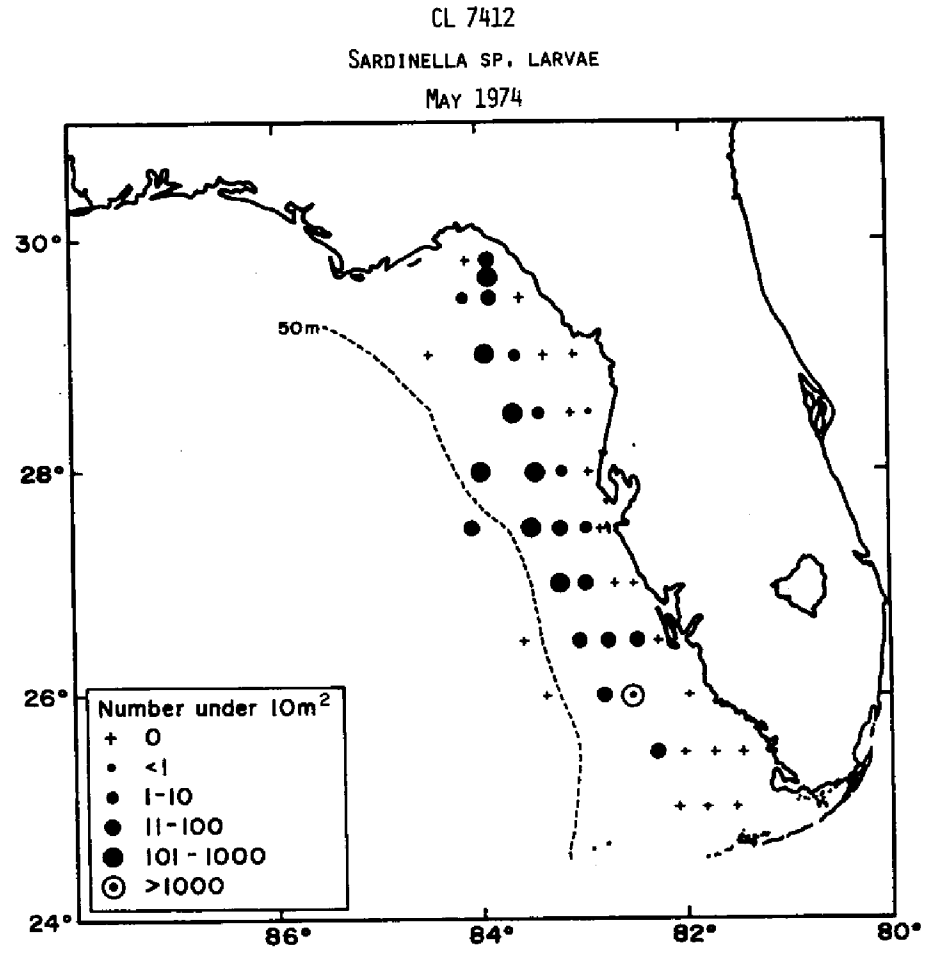

CL 7412
SARDINELLA SP. LARVAE
MAY 1974
50m
30°
28°
26°
24°
86°
84°
82°
80°
Number under 10m²
+ 0
• <1
● 1-10
● 11-100
● 101-1000
⊙ >1000

Figure 70

No Brevoortia sp. eggs present

GE 7127, TI 7131, & 8B 7132

BREVOORTIA SP. LARVAE

NOVEMBER 1971

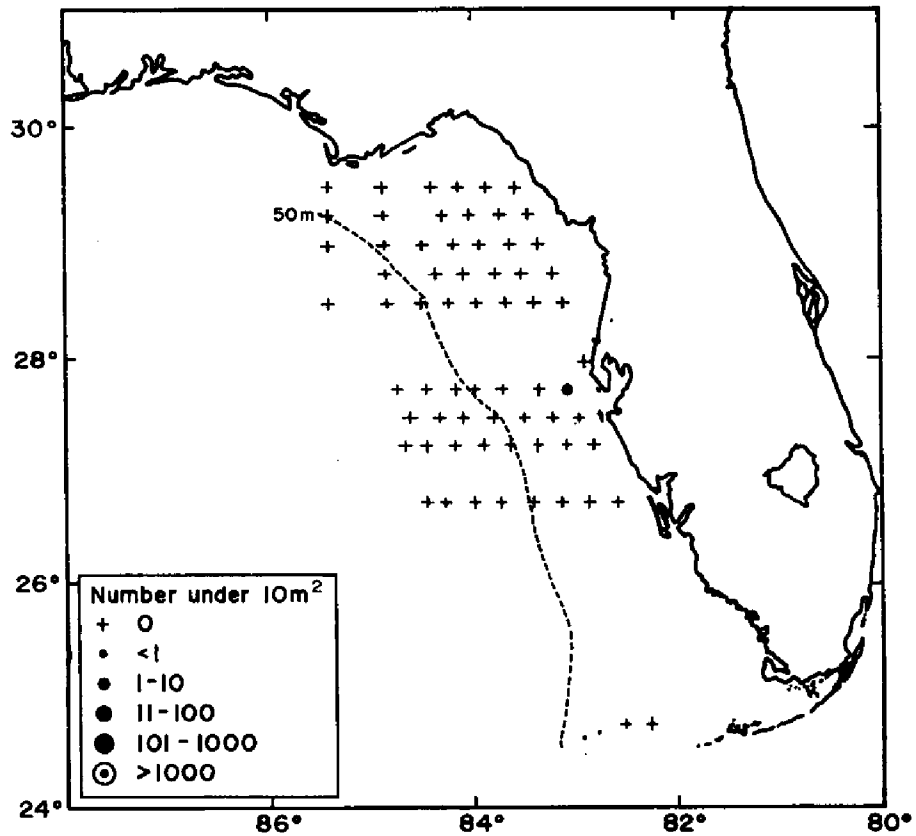
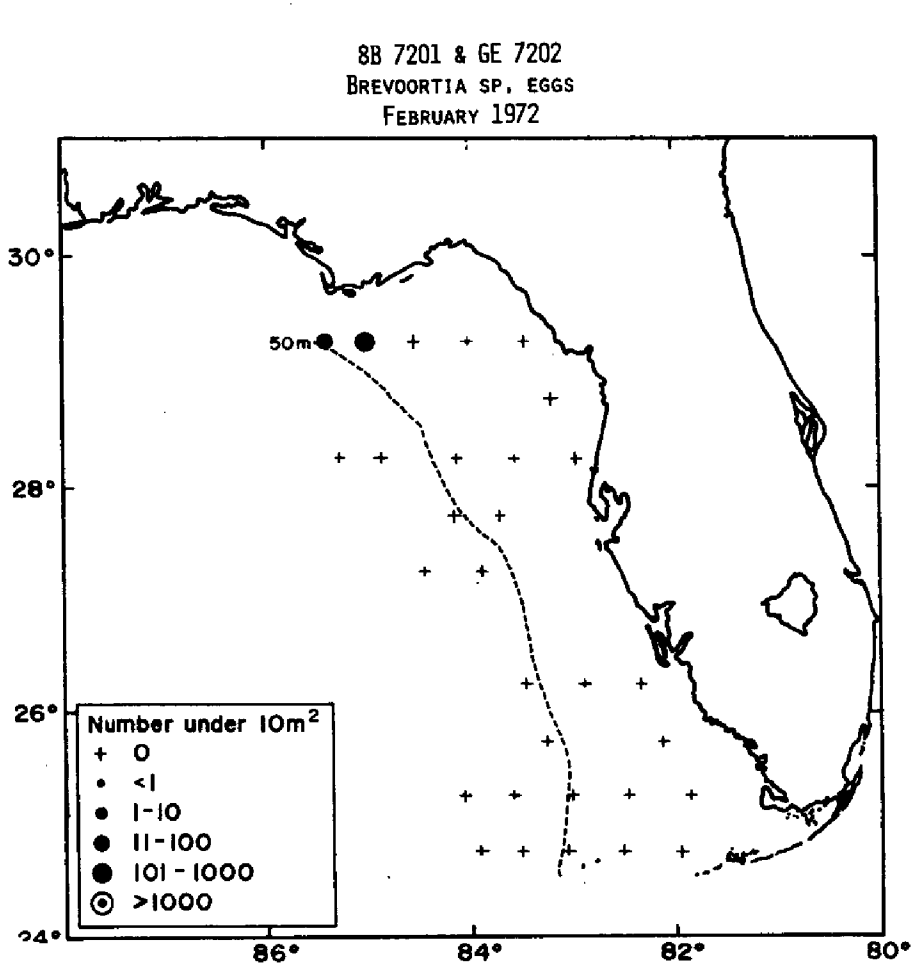


Figure 71


8B 7201 & GE 7202
BREVOORTIA SP. EGGS
FEBRUARY 1972
50m
30°
28°
26°
24°
86°
84°
82°
80°
Number under 10m²
+ 0
• <1
● 1-10
● 11-100
● 101-1000
⊙ >1000

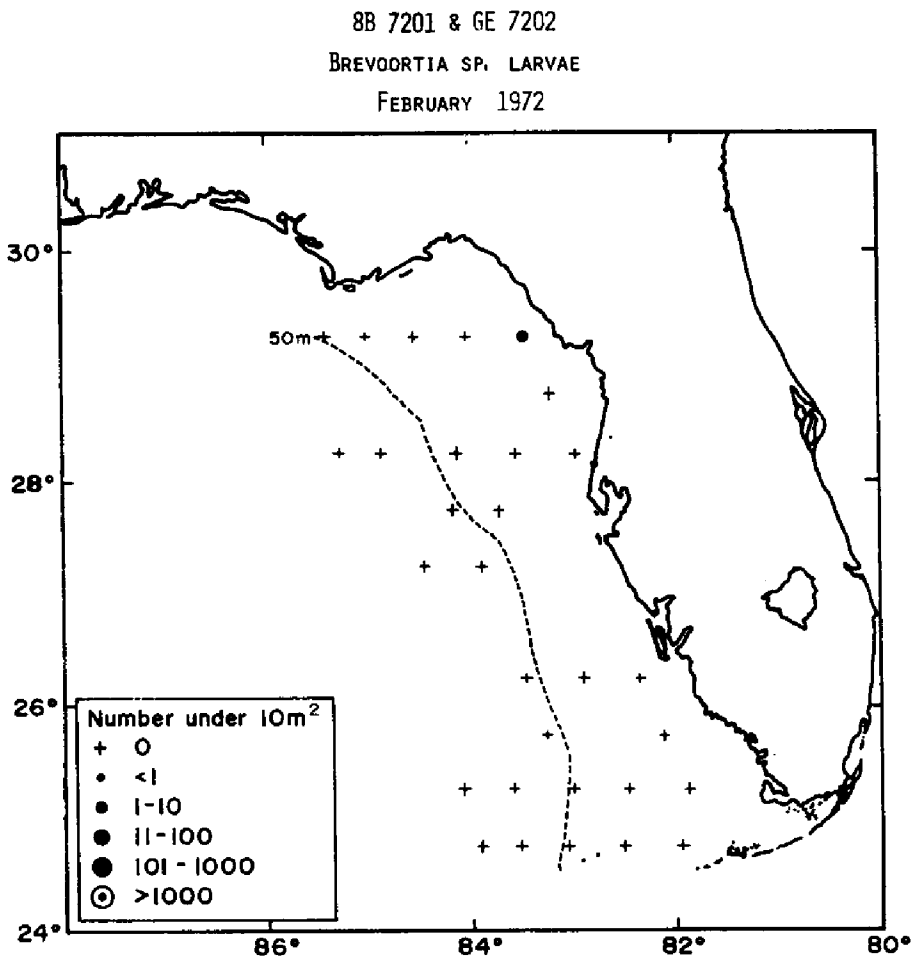
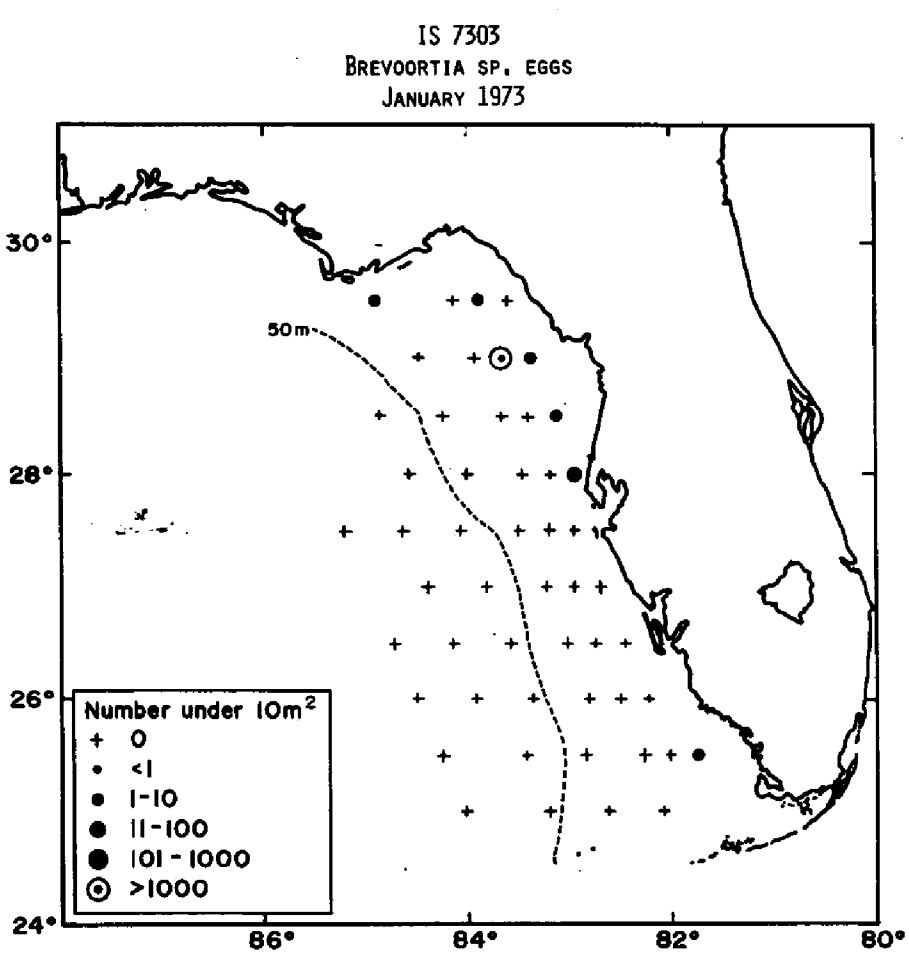

8B 7201 & GE 7202
BREVOORTIA SP. LARVAE
FEBRUARY 1972
50m
30°
28°
26°
24°
86°
84°
82°
80°
Number under 10m²
+ 0
• <1
● 1-10
● 11-100
● 101-1000
⊙ >1000

Figure 72


IS 7303
BREVOORTIA SP. EGGS
JANUARY 1973
30°
28°
26°
24°
86°
84°
82°
80°
50m
Number under 10m²
0
<1
1-10
11-100
101-1000
>1000

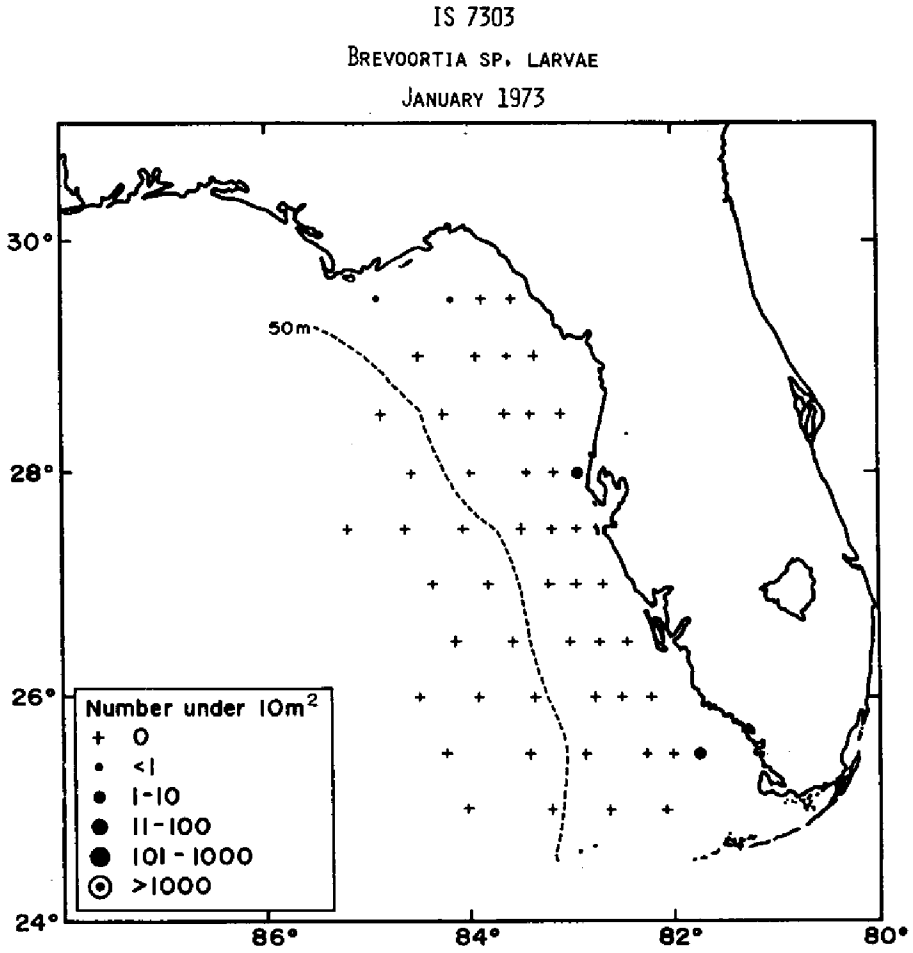

IS 7303
BREVOORTIA SP. LARVAE
JANUARY 1973
30°
28°
26°
24°
86°
84°
82°
80°
50m
Number under 10m²
0
<1
1-10
11-100
101-1000
>1000

Figure 73

No Brevoortia sp. eggs present

IS 7308

BREVOORTIA SP. LARVAE

MAY 1973

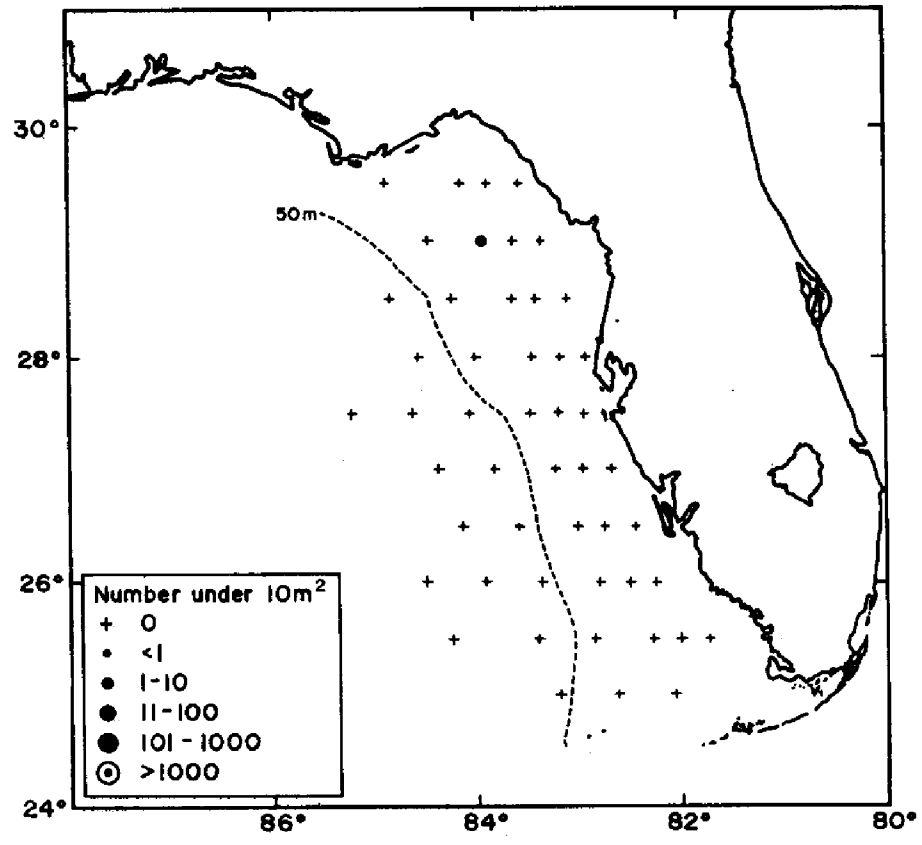


Figure 74

No Brevoortia sp. eggs present

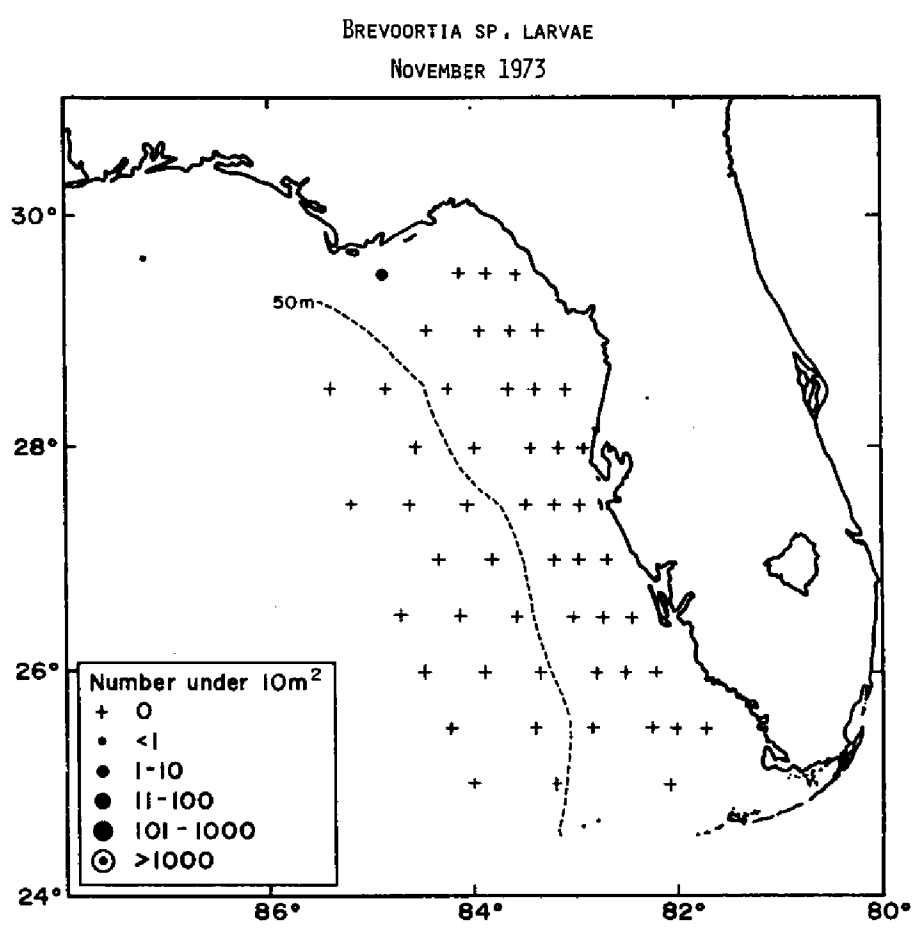


Figure 75

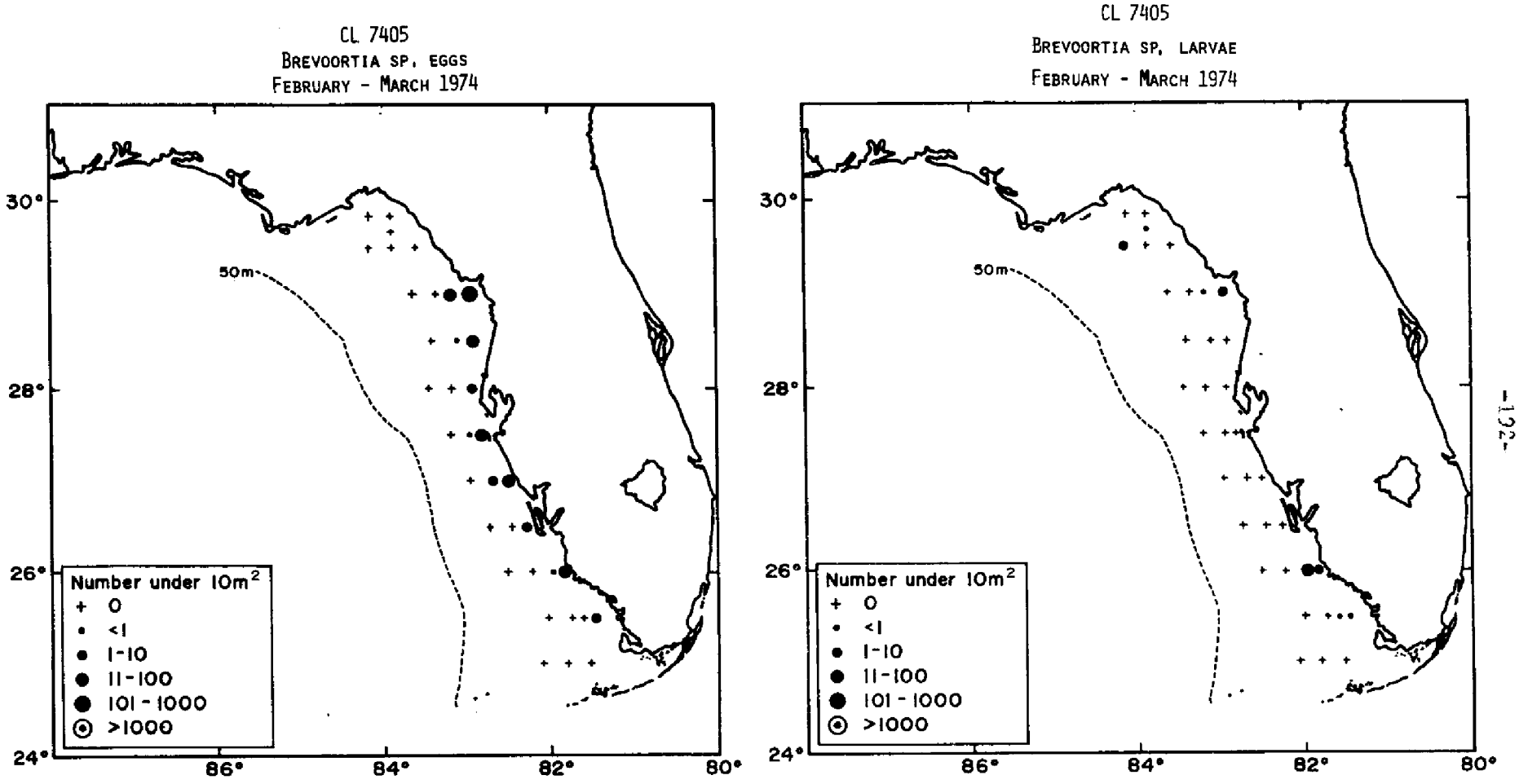
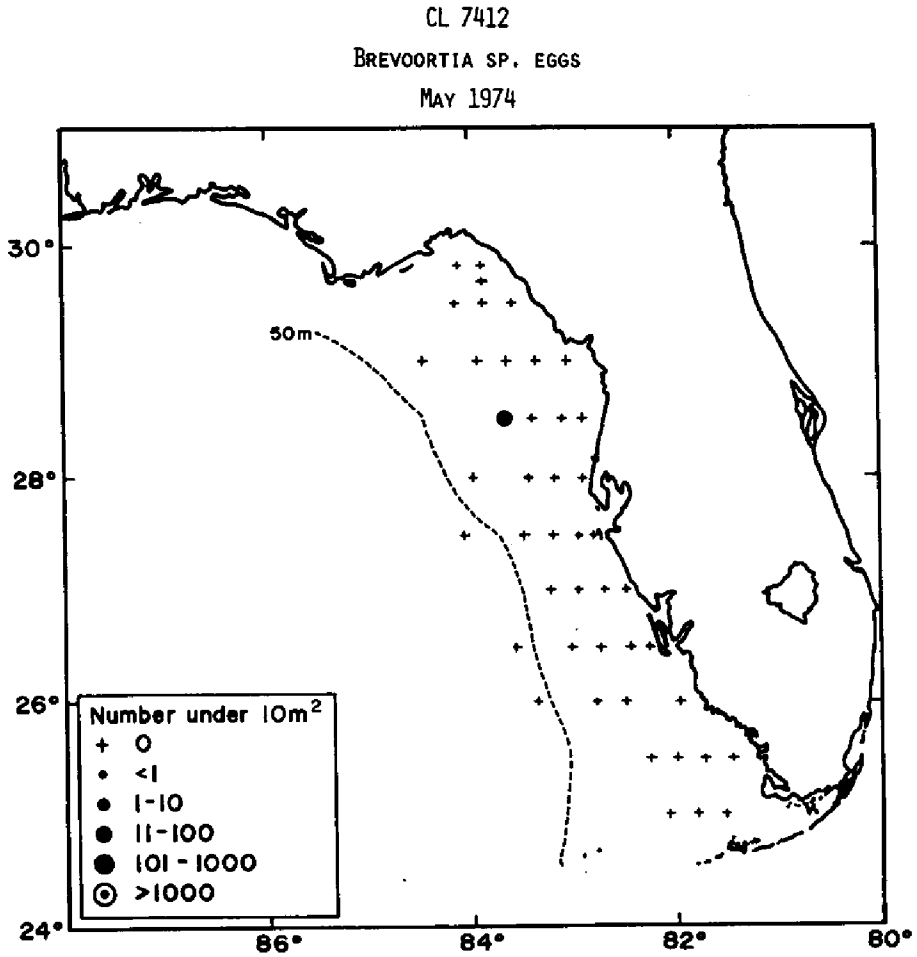

CL 7405
BREVOORTIA SP. EGGS
FEBRUARY - MARCH 1974
50m
30°
28°
26°
24°
86°
84°
82°
80°
Number under 10m²
+ 0
• <1
● 1-10
● 11-100
● 101-1000
⊙ >1000
CL 7405
BREVOORTIA SP. LARVAE
FEBRUARY - MARCH 1974
50m
30°
28°
26°
24°
86°
84°
82°
80°
Number under 10m²
+ 0
• <1
● 1-10
● 11-100
● 101-1000
⊙ >1000

Figure 76


CL 7412
BREVOORTIA SP. EGGS
MAY 1974
30°
28°
26°
24°
86°
84°
82°
80°
50m
Number under 10m²
+ 0
• <1
● 1-10
● 11-100
● 101-1000
⊙ >1000

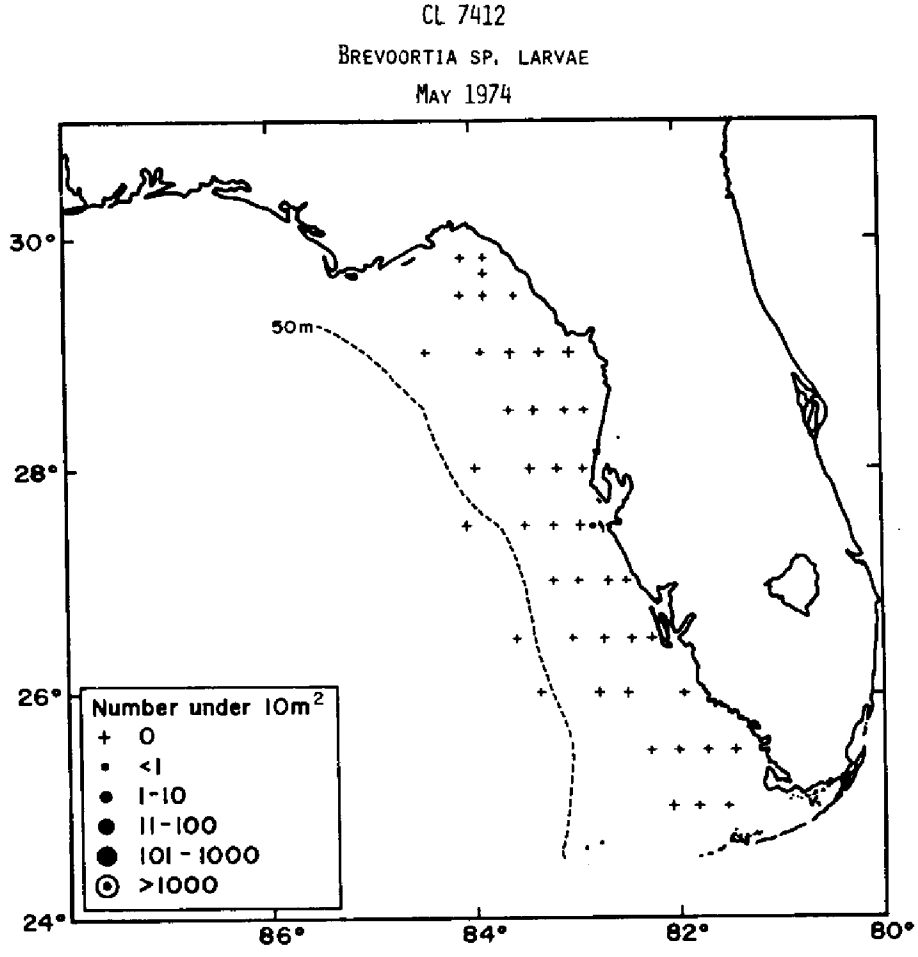

CL 7412
BREVOORTIA SP. LARVAE
MAY 1974
30°
28°
26°
24°
86°
84°
82°
80°
50m
Number under 10m²
+ 0
• <1
● 1-10
● 11-100
● 101-1000
⊙ >1000

Figure 77