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ABSTRACT
(Instructions on reverse side)

A total of 11,774,483 pounds of fish and shell fish were reported as landed in Puerto Rico betwee January 1, 1983 and March 31, 1986. Reported landings represent a total income of about $15.1 million for the 39 month period. There were 1,415 and 1,585 fishermen in the 1983 and 1985 census respectively, however, there are 2,660 fishermen on our lists. A total of 5,940 vessels were registered as commercial fishing boats in 1983, while only 3,171 were registered in 1985. The most abundant fishes in the commercial catch were snappers, groupers, and grunts. Conch was the most abundant shellfish folowed by lobsters. The west coast reported more landings than any other coast for all three years. Fish pots produced 36% of the total landings. Biostatical samples were obtained for reeffishes, spiny lobsters, and coastal and oceanic pelagic fishes. The modal size class for captured spiny lobster, Panulirus argus ranged from 3.0 - 4.0 in. CL in 1985 -1986. Egg bearing females were found in all months except July and September 1984.

The mean size for the blue marlin, Makaira nigricans was found to be 208 ± 33 cm (n=226) and 217. ± 33.6 (n=278) for 1984 and 1985, respectively. Length-frequency data for the dolphin fish, Coryphaena hippurus shows that the modal size class was 90-99 cm FL for both years. Dolphin fish were mostly caught in April through June, while blue marlins were most abundant in August and September .

CORPORATION FOR THE DEVELOPMENT AND ADMINISTRATION OF THE MARINE, LACUSTRINE AND FLUVIAL RESOURCES

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National Marine Fisheries Service

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by

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ABSTRACT

A total of 11,774,483 pounds of fish and shellfish were reported as landed in Puerto Rico between January 1, 1983 and March 31, 1986. The data reported herein is raw data, no correction factor has been used to account for non-reporting and/or mis-reporting. Reported landings represent a total income of about $15.1 million for the 39 month period. There were 1,415 and 1,585 fishermen in the 1983 and 1985 census respectively. However, as of 1984 data, there are a total of 2,660 fishermen on our lists. A total of 5,940 vessels were registered as commercial fishing boats in 1983, while only 3,171 were registered in 1985 (Puerto Rico Ports Authority).

The most abundant fishes in the commercial catch were snappers, groupers and grunts for each year separately and all years combined.Conch was the most abundant shellfish followed by lobsters. The West coast, as in the past, reported more landings than any other coast for all three project years. Fish pots were the most widely used gear producing 36% of the total landings during all three years.

Biostatistical samples were obtained for reeffishes, spiny lobsters, and coastal and oceanic pelagic fishes. Data from one of the targeted reef fish species, Ocyurus chrysurus indicated a mean size at capture of 241 ± 38 mm FL (n= 330) and 262 ± 72.9 mm FL (n=891) for 1984-1985 and 1985-1986, respectively.

The data for spiny lobster, Panulirus argus shows a shift in modal size class from 3.5-4.0 in CL in 1984-1985 to the 3.0-3.5 in CL size class in 1985-1986. Egg bearing females were found in all months except during July and September, 1984.

The mean size for the blue marlin, Makaira nigricans, was found to be 208 ±33 cm (n=226) and 217.7 ± 33.6 (n=278) for 1984 and 1985, respectively. Length-frequency data for the dolphin fish, Coryphaena hippurus shows that the modal size class was 90-99 cm FL for both years. Dolphin fish were mostly caught in April through June, while blue marlins were most abundant in August and September.

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Introduction

The State/Federal Agreement started with the Federal Law PL 94-265 in October, 1982 (Project SF-11) as a complement for the PL 88-309 to obtain a better appraisal of the fisheries resources of Puerto Rico and to modernize the tabulation of data through the use of micro-computers.

This completion report represents segment 3 of Puerto Rico's State/Federal Agreement (S/F-23). The main objective of this segment was to collect, process, and disseminate fisheries statistics on the commercial fisheries of Puerto Rico for use in the territorial and Federal fisheries management programs.

To satisfy this objective three jobs were distinguished.

Job 1 entitled "Computarization and transfer of data collected in 1980, 1981, and 1982 by CODREMAR to the NMFS" had been deleted from the 1985-1986 proposal but was not actually completed until 1985.

Job 2 entitled "Collection, processing, and transfer of commercial fisheries statistics", had the following objectives:

1. To collect commercial fisheries statistics in Puerto Rico between April 1, 1985 and March 31, 1986.

2. To enter, edit, and process data on the Apple II computer.

3. To transfer data to NMFS in:

   a. a non-summarized form by diskette.

   b. a summarized form by tables and diskette.

The main objective of Job 4 entitled, "Biostatistical

Sampling Program" was to obtain biological data from species of finfish and shellfish caught in the waters around Puerto Rico from April, 1985 to March, 1986. Specific sub-objectives were:

1. To collect length-frequency measurements for various commercially important and predominant species of finfish. Ocyurus chrysurus, the yellowtail snapper, and Balistes vetula, the queen triggerfish, were among those species targeted as priority species. Minimum quotas of 100 fish per primary species per month were set.

2. To collect length-frequency measurements for the spiny lobster from the main fishing centers around the Island.

a. To collect data about each fishing trip (gear used, hours spent fishing, etc.).

b. To collect data about sex, sexual state and weight in addition to carapace length, for a minimum of 100 lobsters per month.

3. To collect length-frequency measurements from several predominant coastal and oceanic pelagic fishes upon availability (e.g., Scomberomorus, Coryphaena, Acanthocybium, and others). (This sub-objective used to be Job 3, 1983-1984 proposal).

PROCEDURES

Job 2, "Collection, Processing, and Transfer of Commercial Fisheries Statistics".

Commercial fisheries statistics were collected on a weekly basis from fishermen, fish buyers, and fishing centers around the island from April, 1985 to March, 1986. Five field agents visited the 92 island fishing centers comprised of the 42 coastal municipalities, including the islands of Vieques and Culebra (Fig. 1). One agent covered the area from Vega Baja to Luquillo, the second agent covered Fajardo to Maunabo including Vieques and Culebra. A third agent covered from Patillas to Guayanilla and the fourth and fifth agents covered from Guanica to Cabo Rojo and from Mayaguez to Manati, respectively.

Data was collected from fishermen and fish buyers through the use of a fish ticket system (Fig. 2). The data collected included: date, number of trips, hours spent fishing, municipality, fishing center, name of fisherman and/or fish buyer, species, weight, value (price per pound), and gear used. The data was then transcribed to pre-coded forms to facilitate computer entry (Fig.3). Data was processed and tabulated by fishing center, municipality, coast, species, gear, month, and year. Ticket notebooks were distributed to vessel owners, fishermen, fishing associations, and fish buyers to collect information of the landings made by their vessels, fishermen, members and independent fishermen.

To make data available for biological research, contact was

made with the University of Puerto Rico Department of Marine Sciences and Sea Grant, the Caribbean Management Council, and other agencies. Interested parties were advised that the data were available, in raw form, concerning landings value, monthly landings by species, etc., except for the names or addresses of the fishermen in order to protect the confidentiality of their statistics.

Job 4, "Biostatistical Sampling Program".

Biostatistical data were collected on a weekly basis for various commercially important and predominant finfish species around Puerto Rico from April 1, 1985 to March 31, 1986. The data was collected by three field agents at pre-selected ports from which data for lobster could also be obtained (Table 1).

At least six unnamed but primary species were designated by the proposal to be targeted species. These species were to be comprised of those species thought to be among the most commercially important in terms of value and quantity landed. They were to be species which could be available to port agents for measuring. Among some 50 species sampled were yellowtail snapper, (*Ocyurus chrysurus*), and queen triggerfish (*Balistes vetula*), red hind (*Epinephelus guttatus*), lane snapper (*Lutjanus synagris*),white grunt (*Haemulon plumieri*), spotted goatfish (*Pseudupeneus maculatus*) and trunkfish (*Lactophrys trigonus*), all important members of Puerto Rico's commercial catch.

The data forms used for the Biostatistical Sampling Program were designed to gather information about the fishing trip (Fig. 4), to estimate each species' total biomass (Fig. 5), and/or to

determine individual lengths and weights for each species (Fig. 6). Fork length of each specimen was measured to the nearest mm and weighed on a digital scale in grams. Measurement quotas were set at a minimum of 100 fish per primary species per month (subject to availability) and fish representative of the entire size range were measured.

Lobster measurement quotas were set at 100 individuals per month (subject to availability). Samples were taken from 1 April, 1985 to 31 March, 1986 among 18 fishing centers around Puerto Rico. The information about each fishing trip was collected on the same forms as was the information for reeffish (Fig. 4). The data sheet used for the spiny lobster included information on size and sex (Fig. 7).

Coastal and oceanic pelagic fishes were sampled from catches of sport-fishermen at local tournaments sponsored by private yatch and fishing clubs between April and October, 1985. Most data was collected by 3 attending field agents . Information was gathered from the North (Arecibo, Vega Baja, Dorado and San Juan), West (Rincon and Mayaguez), and South (Ponce, Guanica, Parguera, and Boqueron) coasts (Fig. 8). Additional non-tournament data was collected from sport fishermen from the same area.

Length-frequency data was compiled for Coryphaena hippurus (dolphin), Makaira nigricans (blue marlin), Tetrapturus albidus (white marlin), Acanthocybium solanderi (wahoo), Scomberomorus cavalla (king mackerel), Istiophorus platypterus (sailfish), Thunnus albacares (yellowfin tuna), and Thunnus atlanticus (blackfin tuna), among others. Fork length in centimeters and

weight in pounds were recorded as specified by NMFS for these species whenever possible.

The information collected by the agents was summarized on forms as shown in Fig. 9.

All biostatistical data collected between April and March, 1986, related to reeffishes were micro-computerized and analyzed by the Caribbean Fishery Management Council. The species chosen for presentation of length-frequency information for this report were selected according to the total number of individuals measured per month and our sample size.

RESULTS AND DISCUSSION

Job 2: "Commercial Fisheries Statistics"

Commercial fisheries landings data for 1983, 1984, 1985 and January through March, 1986, were entered and edited on an Apple II microcomputer.

Monthly summaries of finfish and shellfish landings were tabulated by municipality, coast, species, and gear and are available. These same summaries were submitted to the Southeast Fisheries Center, NMFS, on an approximately monthly basis. Yearly summaries of these data are included in this report.

The data reported here is raw data. There is no correction factor to account for mis-reporting or for those landings that go unreported. Previously, raw data was divided by a factor of 0.75 to account for an estimated 25% unreporting. It is thought that the 0.75 correction factor is no longer real. The new correction factor is estimated to lie between 0.61 and 0.56 for 1983 and 1985 respectively. Attempts are currently being made to validate this factor through comparison of fisheries-dependent <u>versus</u> fisheries-independent data collections coupled with an update of the number of local fishermen. Table 2 shows the number of fishermen registered with either the Department of Natural Resources or the Fisheries Research Lab. Table 3 shows the number of tickets gathered monthly in 1982, 1983, 1984, 1985 and January through March, 1986. As can be seen, 1984 shows a decrease of about 40% in the number of tickets collected (i.e.landings reported). The most probable reason

for the decrease in reported landings was due to the fishermen's reaction to the proposed Federal Marine Sanctuary in the area of Parguera, on the South coast of Puerto Rico. Fishermen, affraid that a sanctuary and/or management measures would restrict their fishing rights, are reluctant to cooperate with and submit landings information to government agencies. Such a reaction affects the cooperation of fishermen with laboratory port agents so that fewer tickets are submitted. Also, lack of belief in the strict confidentiality of their landings statistics has been a major factor in the unreporting or mis-reporting of these data.

It should also be mentioned here that due to the floods and bad weather that occured in the Island during the months of May and October, 1985, the reciept of landings statistics from fishermen was low. This was due to the belief of fishermen that CODREMAR was responsible for replacing gear lost during the floods. Presently much of the confusion has cleared and fishermen cooperation has increased.

In 1983, 1984, and 1985 the total yearly landings reported in Puerto Rico were 4,186,058, 3,485,876 and 3,311,046 pounds of fish and shellfish (Tables 4-6) which sold at a combined yearly-average price of $1.22, 1.32. and 1.42 per pound, respectively. Fish and shellfish yielded 5.1, 4.4 and 4.7 million dollars on the market during the three years. Of the total value of landings reported, fish accounted for a total of $9,585,380 and shellfish yielded $4,848,699. Tables 4 through 7 show the distribution of landings and average price per pound by species for 1983, 1984, 1985 and January through March, 1986. From these data, it can be seen that snappers (silk, snappers,

yellowtail, and lane) account foran average 27.2% of the total pounds of fish landed, grunts account for 12.2%, groupers for 12.3%, and parrotfishes for 7.9%. Of the shellfish, conch accounts for 49% of the total landings reported and lobster for 40%. These same species have been the most utilized species in Puerto Rico since 1967 (Juhl and Suarez-Caabro, 1972; Rolon, 1975; Abreu, 1978; Weiler and Suarez-Caabro, 1980; Calderon and Collazo, 1983; Gonzalez, 1985; Garcia-Moliner and Kimmel, 1985). The silk snapper, Lutjanus vivanus, accounted for an average 12 % of the total landings reported and it sold at an average wholesale price of $1.68 per pound. The lobster, however, was the species that sold at the highest average price, $3.48 per pound. A total of $3,019,989 were grossed from lobster landings alone.

The total monthly landings and the price per pound of species by coast are available for 1983 to 1986. A yearly summary of landings by municipality and coast for these years are presented in Tables 8 to 11. A summary of landings per coast is reported in Table 12. The West coast was the most productive as previously reported (Suarez-Caabro, 1970; Juhl and Suarez-Caabro, 1972; Suarez-Caabro, 1973; Suarez-Caabro and Rolon, 1974; Rolon, 1975; Suarez-Caabro and Abreu, 1976; Abreu, 1978; Weiler and Suarez - Caabro, 1980; Calderon and Collazo, 1983; Garcia - Moliner and Kimmel, 1985). The only exception to this pattern occured during 1970 when the East coast reported the highest landings with the West coast second (Juhl and Suarez-Caabro, 1971). The East coast usually ranks as second most productive but, during the period covered by this report

(January 1983 to March, 1986) the South coast ranked second and the East coast third. Tables 8-11 also include an estimate of the reported monthly mean landings by coast. An apparent decrease in mean monthly landings has been detected for all coasts since 1983. As an example, the town of Aguadilla reported 247,467 pounds as landed in 1983 ($\bar{x}$= 20.6) while only 64,734 pounds were reported in 1985 ($\bar{x}$ = 5.4). This difference might be due to the fact that fishermen from one of the associations are not surrendering statistics. This area in particular is very well known for tuna catches and thus the decrease in reported landings for these species.

The total landings reported by gear for 1983, 1984, 1985, are summarized in Tables 13 through 16c. The monthly summaries by species and gear can be made available to any interested parties.

Data was submitted to NMFS on a monthly basis (in summarized or non-summarized form) as proposed and hence are not included with this completion report.

In 1983 a total of 2,296 fishermen were reporting their catch to CODREMAR port agents even though census data only accounted for 1,415 fishermen (Calderon, 1984). No annual fishermen census was conducted for 1984 but the number of fishermen can be determined from our lists, maintained by CODREMAR, of regular suppliers of landings statistics. Our 1984 list shows a total of 2,660 fishermen in Puerto Rico. A similar list maintained by the Department of Natural Resources reports a total of 5,985 registered fishermen of which only 1,295 were active (only, 22%) (telephone conversation with Mr. Julio Velez

from DNR). The Puerto Rico Port Authority have, for 1985, 3,171 boats registered as commercial fishing boats (personal communication, Mr. M. Gonzalez, Acting Director, P.R. Port Authority Electronic Division). From our 1985 census, there a total of 1,585 active fishermen on the island. However, only 842 filled out the requiered forms. Figure 9 shows the number of fishermen in the 1983 (numerator) and the 1985 (denominator) censuses (Garcia-Moliner, 1986).

The most widely used gear was the fish pot. Tables 17-19 show yearly summaries (1983-1985) of the total landings reported by gear in Puerto Rico and the percent these represent. A total of 16,045 were reported in 1983 (Calderon, 1984). While the number of pots fished in 1984 is not known, they accounted for over 1.3 million pounds (38%) of total finfish landings (Table 18). The second most productive gear was hook and line, which includes snapper reels and hand lines, and which accounted for 20% of landings. Gill nets were less productive yielding 351,007 pounds (10%). Summaries of these results have been supplied monthly to the Department of Agriculture for publication in their statistics reports.

In 1985, a total of 9,650 fish pots were reported, (Table 21) (Garcia-Moliner, 1986), 6395 less than in 1983 which accounted for nearly 1.2 million pounds (34%) of the total finfish landings. There are more fish pots being used than those reported here. However, due to the bad timing of the 1985 census, no further statements are possible. The second most productive gear was the snapper reel (Tables 15 and 19) which accounted for 20% of the

landings. Gill nets were again the third most productive gear yielding 438,259 pounds or 13% of the total landings. Attempts are being made to gather information (type of gear, number of gear types, etc.) through the Department of Natural Resources' liscensing program.

Yearly summaries of the total landings by species and month are presented as Tables 21 through 24. The months with the lowest landings reported were December in 1983 and 1984, May 1985 and March 1986. Possible explanations for these decreased landings include poor weather conditions inhibiting fishing, non-reporting, mis-reporting, natural biological characteristics of the species, and/or decrease data collection effort.

The highest landings were reported during the months of January, 1983 and August, 1984 and 1985. The month of January 1986 represented an apparent increase though statistically non-significant (G test: p=.05) in reported landings as compared to the 1984 and 1985 landings for this month.

Job 4: "Biostatistical Sampling Program"

REEF FISHES

A total of 50 different species were measured between April, 1985 and March, 1986. The total number of each species measured per month is presented in Table 25. Of these 50 species, only 11 were used for length-frequency analysis. Data on which these analyses were done was derived from East and South coasts landings only since data collection problems were frequent on the West and North coasts. Tables 26 to 36 show the length-frequency distribution for 11 species of fish which are best represented by the 1985-1986 data, species of primary concern for the fishery.

The mean size for *Ocyurus chrysurus* for the months of April 1985 through March, 1986 was 262.1 ± 72.9 mm FL (N=891) as compared to 241±38 mm FL (n=330) for the 1984-1985 data. Of the 891 fish measured, 21% were represented in the modal size class, 251-275 mm (Table 26). Fifty-two and seventy percent of the individuals sampled are smaller than the minimum size at reproduction cited for this species (i.e., 260 mm for males and 290-310 mm for females; Thompson and Munro, 1974). A maximum size of 750 mm TL has been reported for this species (CFMC, 1985). The largest individuals were sampled in July and measured between 476 and 500 mm FL; the smallest, sampled in October and November, the time at recruitment to the fishery measured between 151 and 175 mm FL. The spawning season for *O. chrysusrus* is from February to June (CFMC, 1985). Erdman (1976) reported ripe individuals in March for Puerto Rico. The data

presented here agrees with published information on spawning and suggests that recruits enter the population during the period of April-August. This species was most abundant in landings during October, November, and March.

A total of 468 queen triggerfish Balistes vetula, were measured during 1985-1986. Of the 468 fish measured, 22.2% were represented in the modal size class, 226-250 mm (Table 27). Less than one percent of the individuals sampled are smaller than the minimum size at reproduction (165 and 175 mm for females and males, respectively) cited for the species (Aiken, 1975). This species spawns during the months of January through July and attains a maximum size of 570 mm TL (Aiken, 1975; CFMC, 1985). The largest individual measured between 426 and 450 mm FL. Even though 43% of the individuals measured occured during the period of April-May, no trends in seasonal abundance were evident.

The mean size for the red hind, Epinephelus guttatus, was 268.9 ± 47.7 mm FL, n=1,042 (Table 28). A total of 1,042 fish were measured and of these, 23% were represented in the modal size class, 251-275 mm. These represent larger fish than those reported for 1984-1985 for which the modal size class was 226-250mm. The minimum size at reproduction, cited for this species, is 235 mm TL and 286 mm TL for females and males, respectively (CFMC, 1985). Twenty two percent of the individuals sampled were smaller than 250 mm FL. The CFMC (1985) reports a maximum size of 575 mm TL for this species. One individual, measuring between 476 and 500 mm FL were reported in October.

This species is a protogynous hermaphrodite. This means that individuals mature as females and later become males, thus, males

are generally the largest individuals in a population. This species spawns during the full moon in the months of January and February. This species, like several other groupers, aggregates during its spawning season and these aggregations are actively fished by knowledgeable fishermen. In response to these special characteristics, groupers belonging to the genus Epinephelus will need a management strategy different from that traditionally used. Highests landings were reported during August 1985, contrary to the January peak observed in 1983 and 1984. Due to the paucity of data at hand, no trends in seasonal abundance were evident. However, the data at hand suggest that recruits are entering the spawning population during April-August, the period when most small individuals occur in our sample.

The mean length for Lutjanus synagris the lane snapper was 211.7 ± 31.7 mm FL, n= 955. Thirty one per cent of the fish measured were represented in the 201-225 mm modal size class (Table 29). The smallest size of ripe individuals reported in the literature is 176 and 183 mm FL for females and males, respectively (Thompson and Munro, 1974). Thirty eight (38%) per cent of the individuals sampled were smaller than 200 mm FL. This species was most abundant during the months of July through October. The highest landings were reported in August 1985.

The data available for Haemulon plumieri was analyzed separatey by Laboratory staff (LIP) and students from the Department of Marine Sciences (DMS), University of Puerto Rico.

Monthly sample sizes for the two groups' analyses do not balance, however, since each group used different criteria to select "usable" data points. While both groups ignored data from the West and North coasts, DMS researchers did not consider some data points considered by LIP and thus their monthly sample sizes are slightly smaller for each month. While results are similar some observations (e.g. stated size range) differ.

For *H. plumieri* the mean length was 200.8 ± 34. 7 mm FL (n= 2,535). Thirty one percent of the fish measured were represented in the modal size class, 176-200 mm (Table 30). Seventy-nine percent of the individuals sampled were smaller than the minimum size at maturity, which is, 200 and 220 mm FL for males and females, respectively (Billings and Munro, 1974). The largest individual, sampled in December, 1985, measured between 426 and 450 mm FL. About 50% of the fish were measured during August and October, with a peak in September which might suggest seasonal abundance and evidence of recruitment during those months. Monthly and yearly (1985) length-weight relationships are shown on Table 30a. The mean, 95% confidence intervals, and range of fork-length by month are shown in Figure 11.

Monthly summaries of length for *H. sciurus*, *H. flavolineatum*, are presented in Figures 12 and 13, respectively. Due, in part to the paucity of the data little can be said of any seasonal patterns for either species. For *H. sciurus* mean monthly samples ranged from 203 mm in April to 231 mm in July. Mean monthly samples for *H. flavolineatum* ranged from 160 mm in July to 193 in August.

Mean, 95% confidence interval, and range of fork lengths for eight species of haemulids (i.e. H. plumieri, H. sciurus, H. flavolineatum, H. album, H. macrostomus, H. parrai, H. aurolineatum, and H. melanurum) measured from the 1985 trap fishery are presented in Figure 14. Lower size ranges represent approximate sizes at recruitment to this fishery. Table 30b indicates the percent composition of each of the eight haemulids to the total 1985 trap fishery.

A total of 1, 096 individuals of Pseudupeneus maculatus were measured between April 1985 and March, 1986. Of the total (1,096), 41% were represented in the modal size class, 176-200 mm. The mean size was 194.1± 24.4 mm FL (n =1,096)(Table 31). Thirty five percent of the individuals sampled are smaller than the smallest ripe individual cited in the literature (160 mm for females and 175 for males; Munro, 1974). Munro (1974) reports that no fish were found in June of any year; 34 were measured in 1985 in Puerto Rico. No ripe fish were found in July or August. The main spawning season is reported between January and April with another peak in October (Munro, 1974; CFMC, 1985). While 195 (18%) individuals were measured in September, due to the puacity of data at hand, no trends in seasonal abundance were evident.

Table 32 presents the length-frequency distribution for Lactophrys trigonus. Of the 25 fish measured, 44% were represented in the modal size class, 301-325 mm. Little is known about reproduction in ostraciids. Munro et al (1973) suggest that spawning of species belonging to this family (Ostraciidae) occurs

throughout the year with a peak in activity in late winter-early spring. Due to the paucity of data at hand, no trends in seasonal abundance were evident. However, during 1984-1985, 725 inividuals were measured and (modal size class was 176-200) of these, 449 fish or 62% were measured during May 1984.

Tables 33-36 present the length-frequency distribution for Lactophrys quadricornis (Table 33), L. polygonia (Table 34; which seems to be the most abundant), L. triqueter (Table 35), and L. bicaudalis (Table 36). There seems to be a peak for the months of August and September for all five species. This coincides with the landings data presented in Table 23 which shows the highest total landings for trunkfish during the month of August 1985. However, due to the paucity of the data at hand no trends in seasonal abundance were evident.

SPINY LOBSTER

Data was collected from a total of 2,021 spiny lobsters, Panulirus argus between April, 1985 and March, 1986. Table 37a shows the monthly totals of lobsters measured by coast. Most lobsters measured during this period were landed on the South coast while most lobsters measured between April, 1984 and March, 1985 were landed on the West coast. This difference is probably due to port agent sampling effort and does not represent a natural shift in populations. Pots were the most productive gear for lobster. The average soak time per pot ranged between 2-7 days, the depth fished ranged from 4 to 36 fathoms, while the distance from shore varied between 1 and 30 miles. Table 37b shows the

number of lobsters reported by coast and month for 1984-1985 (from Garcia-Moliner and Kimmel, 1985). Data collected between October, 1983 and March, 1984 were cryptically stored on diskette which remain unreadable. Table 37c however, is a summary presented by Calderon (1984).

Table 38 shows the monthly length-frequency distribution by sex for the spiny lobster (n=2,021). The Caribbean Fishery Management Council (1981) reported that lobsters were sexually mature at between 3.1 and 3.5 in. CL. The overall modal size class for this sample of 2,021 individuals was found to be 3.0 to 3.5 in. CL (Table 38). This represents a shift from last years modal modal size class of 3.5-4.0 in. CL (Table 38b). About 20% of the lobsters sampled were less than 3.0 in. CL as compared to 16% for 1984-1985. Seventeen female lobsters were reported during September as measuring less than 2.5 in CL. Forty-nine percent of the lobsters measured were greater than 3.5 in. CL. There are more males than females above the 3.5 in. CL size class while the opposite is true for smaller size classes except for the size class 2.0 - 2.5 in. CL. Only six (6) specimens (all males) measured between 6.0 and 7.0 in. CL. Largest males were found in June and July.The smallest lobster (a female) measured less than 2.0 in CL. The overall sex ratio of males to to females was 1:1. The month during which the greatest number of berried females were found was August (2 total). Lobsters were most abundant in commercial catches reported for November.

COASTAL AND OCEANIC PELAGICS

Length-frequency measurements of coastal and oceanic pelagic fishes were to be taken opportunistically from 1 April, 1985 to 31 March, 1986. The species available to be sampled were landed at fishing tournaments held between April and October, 1985 and were comprised of *Coryphaena hippurus*, *Makaira nigricans*, *Tetrapturus albidus*, *Acanthocybium solanderi*, *Scomberomorus cavalla*, *Istiophorus platypterus*, *Thunnus albacares*, and *Thunnus atlanticus* (Table 39).

Scomberomorus, a targeted species, was not abundant at tournaments. However, length-frequency data on king mackerel and cero, collected mainly on the East coast from commercial fishermen, was sent to SEFC, Panama City. Table 40 shows the number of these fish measured by month.

A total of 95 dolphin, (*Coryphaena hippurus*) were landed and 90 were measured between April and October, 1985 (Table 41). Forty five percent of the dolphin fish were landed in May, 1985. The length-frequency distribution of dolphin consists of 7 size classes (Table 42). The most abundant size class, for 1984 and 1985 data is comprised of individuals of both sexes measuring between 90 and 99 cm. Females are more abundant than males. The ratio of females to males showed 2.1 females to every male. Inadequate sample size precludes further comparisons. No samples were obtained for July and August, 1985.

Pelagic fish of the genus *Scomberomorus* were targeted to be measured between April, 1985 and March, 1986. However, very few

samples were obtained for any of the scombroids. No Scomberomorus cavalla, the king mackerel, were reported as landed at tournaments during 1985. Seventeen (17) specimens of wahoo, Acanthocybium solanderi were measured during the sampling period (i.e., April to October, 1985). The mean size for all fish measured (n=17) was found to be 126.5 ± 10 cm FL. The mean weight for n=17 was 26.6 ± 6.4 lbs.

The yellowfin tuna Thunnus albacares, was encountered rarely. Only six (6) individuals were measured out of 12 fish reported during the months of June, September and October, 1985. In 1984 yellowfin tuna were reported during April, July, and October. A mean size of 115.9 ± 18 cm FL and mean weight of 56 ± 19 lbs were calculated for n=6.

Among the scombroids measured during this study are two (2) Katsuwonus pelamis (skipjack tuna), 67 and 71 cm FL caught in May; 1 Thunnus thynnus (bluefin tuna) caught in June (not measured); and one unidentified tuna caught in May measured 74 cm FL and weighed 15.5 lbs. Seven other tunas were reported in October but not measured. One of three bonitos Sarda sarda reported from the North coast, measured 80.3 cm FL, 15 lbs (June) (two caught in October were not measured).

One spanish mackerel was reported in October 1985. This was probably Scomberomorus regalis since S. maculatus is not reported for this area (FAO, 1978).

Four species of the family Istiophoridae were sampled between April and October, 1985. Most of the data concerns the blue marlin, Makaira nigricans. A total of 282 M. nigricans were measured, 278 were used for length-frequency analysis (Table 43).

Most blue marlin were landed during August and September. Similar monthly trends in abundance have been reported by Erdman (1962; 1968). The largest fish (females) were found in July. The mean size for females (all months) was 241.8 ±30.2 (N= 107);for males (N=163),202.3 ± 25 cm FL, and for eight unidentified individuals, 211.5 ± 42.7 cm FL. The overall mean size was 217.7 ± 33.6 cm FL (N=278). Table 43 presents the monthly distribution of sexes for M. nigricans. The sex ratio, for all months, was 1:1.5, males to females (N= 270). Most females were reported from the North coast while most males were reported from the West coast. Data collected during 1983 was sent to Mr. Monty Lopez of NMFS and analyzed by Mr. Ignacio Morales of the CFMC. Results of these data show that 497 blue marlins were weighed and measured in 1983. During 1984, 381 blue marlins were weighed and measured. The overall mean size reported or 1984 (n=226) was 208 ± 33 cm FL.

One spearfish Tetrapterus pfluegeri was caught in August off the North coast. This fish was a female measuring 176 mm FL and weighing 52 lbs.

The white marlin, Tetrapterus albidus, had a mean size of 154.9 ± 16.1 cm FL(N=13) and a mean weight of 43.9 ± 11.5 lbs. There were 3 fish identified as females (size range: 148.2-178.8 cm FL) and 8 as males (1110.6-170 cm FL). A total of 17 fish were reported (Table 40) but not all fish were measured. The greatest number of fish were reported in October (N= 13). In 1984 for n=13 the mean size was 159 ± 9.4 cm FL. The sex ratio was three females to five males and the greatest number of fish were

reported in July, 1984. A total of 60 white marlins were landed in 1983.

The sailfish, Istiophorus platypterus had a mean size of 157.9 ±15.8 cm FL (N= 16) and a mean weight of 37.2 ± 11.3 lbs. These fish were mostly caught in October and the sex ratio was 1:1.8 males to females. Only one specimen was weighed in May (37 lbs) and one in September (165 cm FL and 53 lbs).

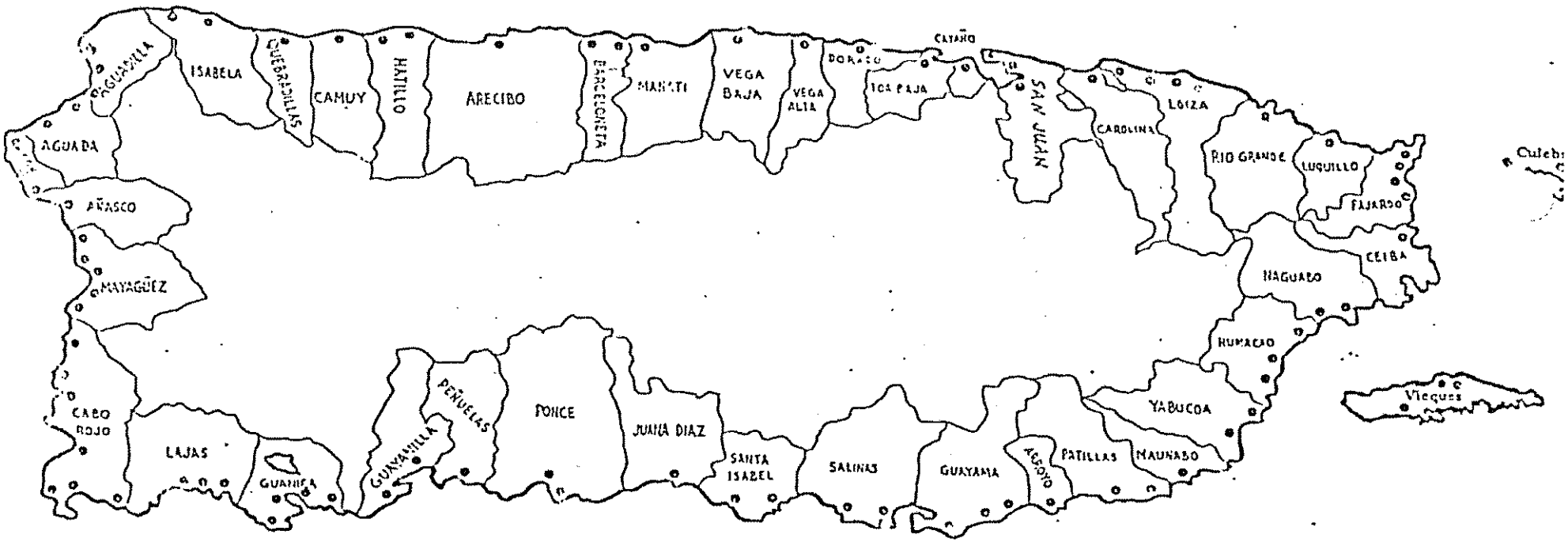
A total of four (4) unidentified sharks were caught between June and October 1985, one male measuring 130 cm and weighing 64 lbs and a second male weighing 97 lbs.

Fourteen unidentified specimens were reported as landed at fishing tournaments in the North coast during October, 1985 (1 reported in June).

Data for winter months (December to March) is not available since fishing tournaments are traditionally scheduled between April and November. Winter periods coincide with our most severe sea conditions and thus a lower catch per unit effort.

FIGURES

Figure 1. Coastal Municipalities and Fishing Centers in Puerto Rico.



ISABELA:
Bajura
Jobos

QUEBRADILLAS:
Terranova

CAMUY:
Peñon Amador

HATILLO:
Punta Maracayo
Pueblo

ARECIBO:
Jarealito

BARCELONETA:
Bocas
Punta Manatí

VEGA ALTA:
Cerro Gordo

DORADO:
Hameyal

TOA BAJA:
Palo Seco

CATAÑO:
La Puntilla

MANATI:
Bo. California

VEGA BAJA:
Puerto Nuevo

SAN JUAN:
Parada 9 1/2
La Puntilla
La Coal

CAROLINA:
Torrecillas

LOIZA:
Vieques
Ancones
Parcelas Suárez
Medianía Baja

RIO GRANDE:
Palmer

LUQUILLO:
Fortuna

FAJARDO:
Las Croabas
Sardinera
Puerto Real
Maternillo
Quebrada Vuelta

CEIBA:
Los Machos

NAGUABO:
El Corcho
Playa Húcares

HUMACAO:
Punta Santiago
Candelero
Buena Vista

YABUCOA:
Guayanés
Playa Lucía

MAUNABO:
El Faro

CULEBRA:
Pueblo

VIEQUES:
Esperanza
Moropó
Bo. Cañón

PATILLAS:
Bajos
Guardarraya

ARROYO:
Playa

GUAYAMA:
Jobo
Barranca
Pozuelo

SALINAS:
Playa
Las Mareas

SANTA ISABEL:
Playa
Cortada

JUANA DIAZ:
Pastillo

PONCE:
Playa
Pueblo

PEÑUELAS:
Tallaboa

GUAYANILLA:
Bahía
Faro

GUANICA:
Bahía
Salinas Providencia
Guaypao
Caña Gorda

LAJAS:
Parguera
Papayo
Salinas

CABO ROJO:
Pitahaya
Bahía Sucia
El Combate
Boquerón
Puerto Real
Joyuda
Guanajibo
Guaniquilla

MAYAGUEZ:
El Seco
El Marí
Marina Meridional
Pasqueta
Boquilla

AÑASCO:
Tres Her

RINCON:
Parcelas Estela
Borrero
Córcega
Pueblo

AGUADA:
Espinar
Guaniquill

AGUADILLA:
Niguey
Tamarindo
Playuela

PUEBLO _____ FECHA: _____/_____/_____/
Mes Día Año

NOMBRE: _____ PESCADOR COMPRADOR

LE VENDE A: _____

LE COMPRA A: _____

Clase de Pescado	*Peso Total*	*Precio por Unidad*	*Precio Total*	*Arte de Pesca*
ARRAYADO				
ATUN				
BALAJU				
BOQUICOLORADO				
CAPITAN				
CHAPIN				
CHILLO				
COLIRRUBIA				
DORADO				
GALLO				
JAREA				
JUREL				
LORO				
MARLIN AZUL				
MERO				
MOJARRA				
OTROS PARGOS				
PEJE PUERCO				
PICUA				
PLUMA				
ROBALO				
SALMONETE				
SAMA				
SARDINA				
SIERRA				
OTROS PECES				
CAREY				
CARRUCHO				
JUEY				
LANGOSTA				
OSTION				
PULPO				
OTROS MARISCOS				
TOTAL				

Fig. 2. Fish ticket provided to fishermen to record their catch.

CODIFICACION DE ES' 'ES

Arrayado	50
Atún	51
Balajú	52
Boquicolorado	53
Capitán	54
Chapín	55
Chillo	56
Colirrubia	57
Dorado	58
Callo	59
Jarea	60
Jurel	61
Loro	62
Marlin Azul	63
Mero	64
Mojarra	65
Otros Pargos	66
Peje Puerco	67
Picúa	68
Pluma	69
Robalo	70
Salmonete	71
Sama	72
Sardina	73
Sierra	74
Otros Peces	75
Carey	76
Carrucho	77
Juey	78
Langosta	79
Ostion	80
Pulpo	81
Otros Mariscos	82

COI 'ACION DE ARTES DE PESCA

Chinchorro	100
Nasas	101
Cajón	102
Trasmallo o Filete	103
Cala	104
Silga	105
Carrete	106
Palangres	107
Trampa de Jueyes	108
Atarraya	109
Fisga	110
Otras Artes	111

CODREMAR

Laboratorio Investigaciones Pesqueras

Programa Estadísticas Pesqueras

Hoja #:

(1) NUM. CONTROL: MUN. | Cod | # PESCADOR (1 2 3 4 6)

(2) NOMBRE: APELLIDO PATERNO (7 16) | APELLIDO MATERNO (17 26) | NOMBRE (27 36)

(3) AREA PESCA: (37 39)

(4) SALIDAS: (40)

(5) LEVAS: (41 43)

(6) HORAS: (44 45)

(7) FECHA: MES (46 47) | DIA (48 49) | AÑO (50 51)

(8) PROFUNDIDAD: (52 54)

1 (80)

(55 68)

NUM. CONTROL (1 6)

ESP.	PESO TOTAL	PRECIO/UNIDAD	ARTE
7 8	9 12	13 16	17 19

ESP.	PESO TOTAL	PRECIO/UNIDAD	ARTE
20 21	22 25	26 29	30 32

ESP.	PESO TOTAL	PRECIO/UNIDAD	ARTE
33 34	35 38	39 42	43 45

ESP.	PESO TOTAL	PRECIO/UNIDAD	ARTE
46 47	48 51	52 55	56 58

ESP.	PESO TOTAL	PRECIO/UNIDAD	ARTE
59 60	61 64	65 68	69 71

(80)

Fig. 3. Computer form use to process the catch information for each fisherman.

REEFFISH SURVEY FORM

CASE NO. _____

		CODE For office use only
1.	Area * _____	_____
2.	Month _____	_____
3.	Fishing Port : _____	_____
4.	Port Location: _____	_____
5.	Date : _____	_____
6.	Fisherman I. D. Number: 1/ _____	_____
7.	Distance Fished From Port (miles) _____	_____
8.	Depth Fished (fathoms) _____	_____

9. Gear used in this trip /_/ Traps /_/ Hooks /_/ Both /_/ Other (Specify) _____

10. Number of Fishermen in this Trip _____

11. Number of Hauls _____

12. Soaking Time (days) _____

13. Number of Hooks _____

14. Hours Fished With Hooks _____

Comments: _____

_____

_____

_____

_____
Field Agent

* The possible areas are: P. R. West Coast, P. R. East Coast, P. R. South Coast, P. R. North Coast, St. Thomas-St. John, St. Croix.

1/ The I. D. number applies only to U. S. Virgin Islands.

Figure 4. Biostatical Sampling Program reeffish survey form

SPECIES (Be spe[illegible]c)	TOTAL NUMBER OF INDIVIDUALS	TOTAL WEIGHT (lbs)

USE NEXT PAGE TO WRITE DOWN THE DESCRIPTION OF EACH INDIVIDUAL FISH. IF MORE THAN ONE SHEET OF PAGE 3 IS NEEDED FOR A SINGLE CATCH, IDENTIFY EACH SHEET AS INDICATED. (EXAMPLE: sheet No. 1 of a total of 4 sheets).

w= whole; g= gutted; h= headed; m= mixed

Figure 5. Form for total catch composition

SPECIES	FORK LENGTH (mm)	WEIGHT (grams)	SEX	ENCIRCLE CORRES-PONDING LETTER*	OFFICE USE SPECIES CODE	LENGTH BRACKET	[illegible]
				w, g, h			01
				w, g, h			02
				w, g, h			03
				w, g, h			04
				w, g, h			05
				w, g, h			06
				w, g, h			07
				w, g, h			08
				w, g, h			09
				w, g, h			10
				w, g, h			11
				w, g, h			12
				w, g, h			13
				w, g, h			14
				w, g, h			15
				w, g, h			16
				w, g, h			17
				w, g, h			18
				w, g, h			19
				w, g, h			20
				w, g, h			21
				w, g, h			22
				w, g, h			23
				w, g, h			24

* w= whole; g= gutted; h= headed

Figure 6. Actual data form for individuals of species,- lengths and weights

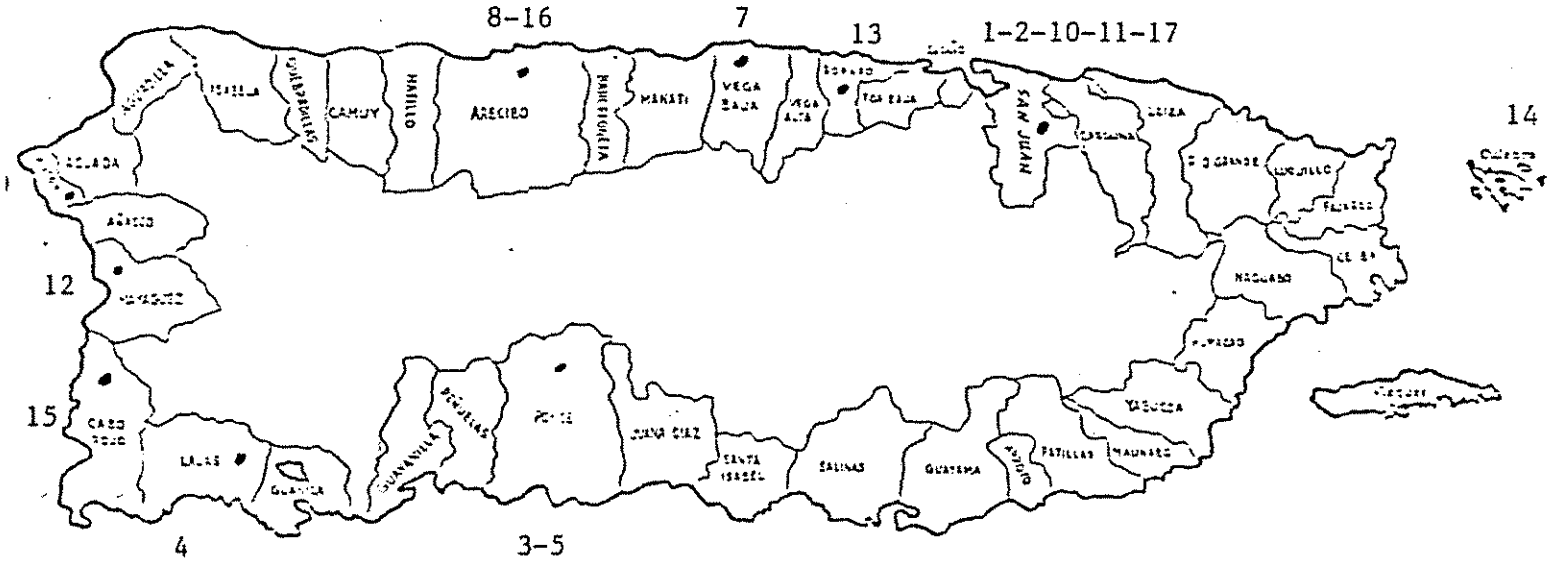
DI[illegible] [illegible]UCCION DE MEDIDAS Y PESO DE LAS LANGOST

26-29	30-33	34-37	38-41	42-45	46-49	26-29	30-33	34-37	38-41	42-45	46-49
	Largo Carapacho (pulgadas)						Largo Carapacho (pulgadas)				
Número	Macho	Hembras			Peso (Libras)	Número	Macho	Hembras			Peso (Libras)
		Sin Huevo	Con Huevo	Con esperma				Sin Huevo	Con Huevo	Con esperma	
[illegible]						29					
[illegible]						30					
[illegible]						31					
[illegible]						32					
[illegible]						33					
[illegible]						34					
[illegible]						35					
[illegible]						36					
[illegible]						37					
[illegible]						[illegible]					
[illegible]						39					
[illegible]						[illegible]					
[illegible]						[illegible]					
[illegible]						42					
[illegible]						43					
[illegible]						[illegible]					
[illegible]						45					
[illegible]						46					
[illegible]						47					
[illegible]						48					
[illegible]						49					
[illegible]						50					
[illegible]						51					
[illegible]						52					
[illegible]						53					
[illegible]						54					
[illegible]						55					
[illegible]						56					

Figure 7. Data sheet used for measurement of spiny lobster

Fig. 8. Areas from which data from coastal and oceanic pelagic species, were gathered for the Biostatistical Sampling Program. List of tournaments covered.

1985



1. Puerto Rico Light Tackle Anglers Torneo Delincon
*2. Tarpon Tournament - San Juan Marina
3. Blue Marlin Tournament-Ponce Yacht & Fishing Club
4. La Parguera Blue Marlin Tournament
5. Club de Pesca Deportiva Event Playa de Ponce
*6. 20th Torneo Internacional de Santo Domingo
7. Club Náutico de Vega Baja
8. Club Náutico de Arecibo
9. Club Náutico de Rincón
10. Cangrejo Yatch Club
11. Torneo Internacional Club Náutico de San Juan
12. Club Náutico de Mayaguez
13. Club Náutico de Dorado
14. Torneo Deportivo del Oeste (Isla de Mona)
15. Club Náutico de Boquerón
16. Torneo de Pez Vela, Club Náutico de Arecibo
*17. Puerto Rico Light Tackle Delicon

*Tournaments not covered by our Agents.

Fig. 9. Data sheet used by agents to collect information on coastal and oceanic pelagic fishes.

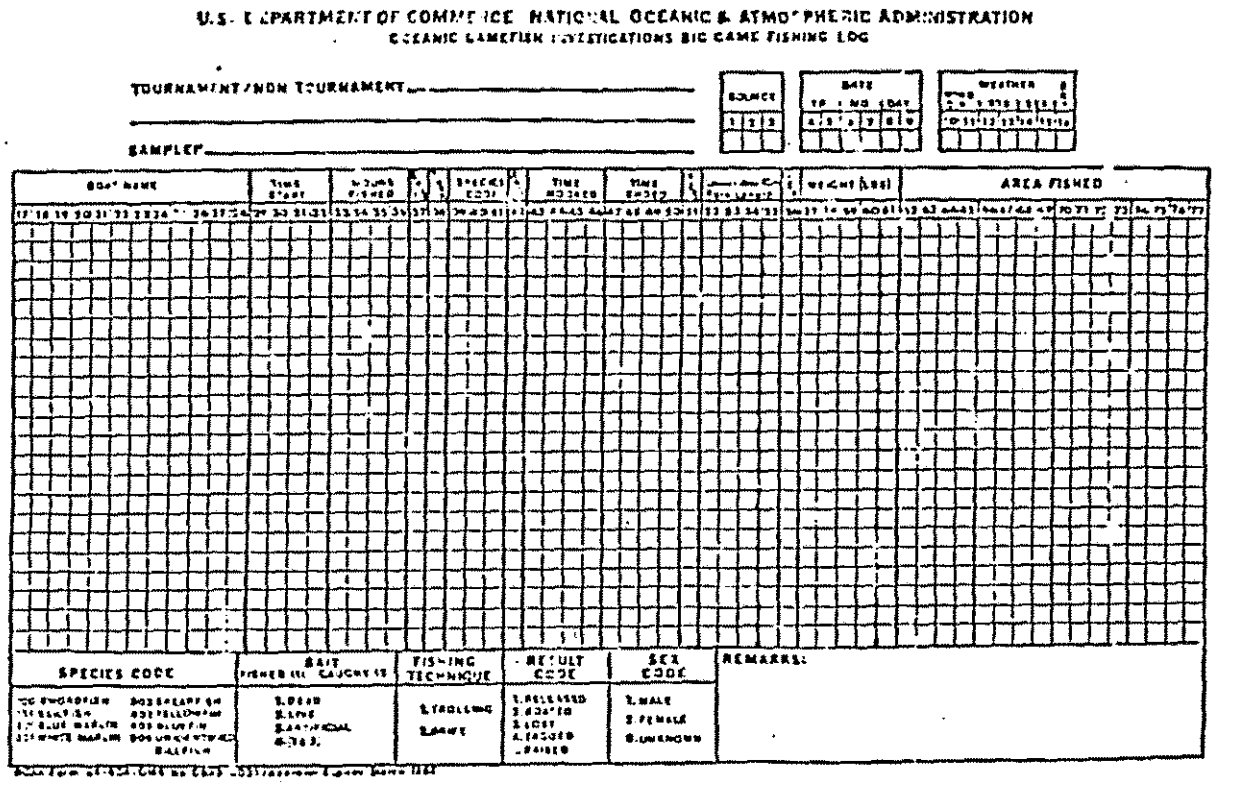


Figure 10 Total number of fishermen interviewed for the 1983 (top) and 1985 (bottom) surveys.

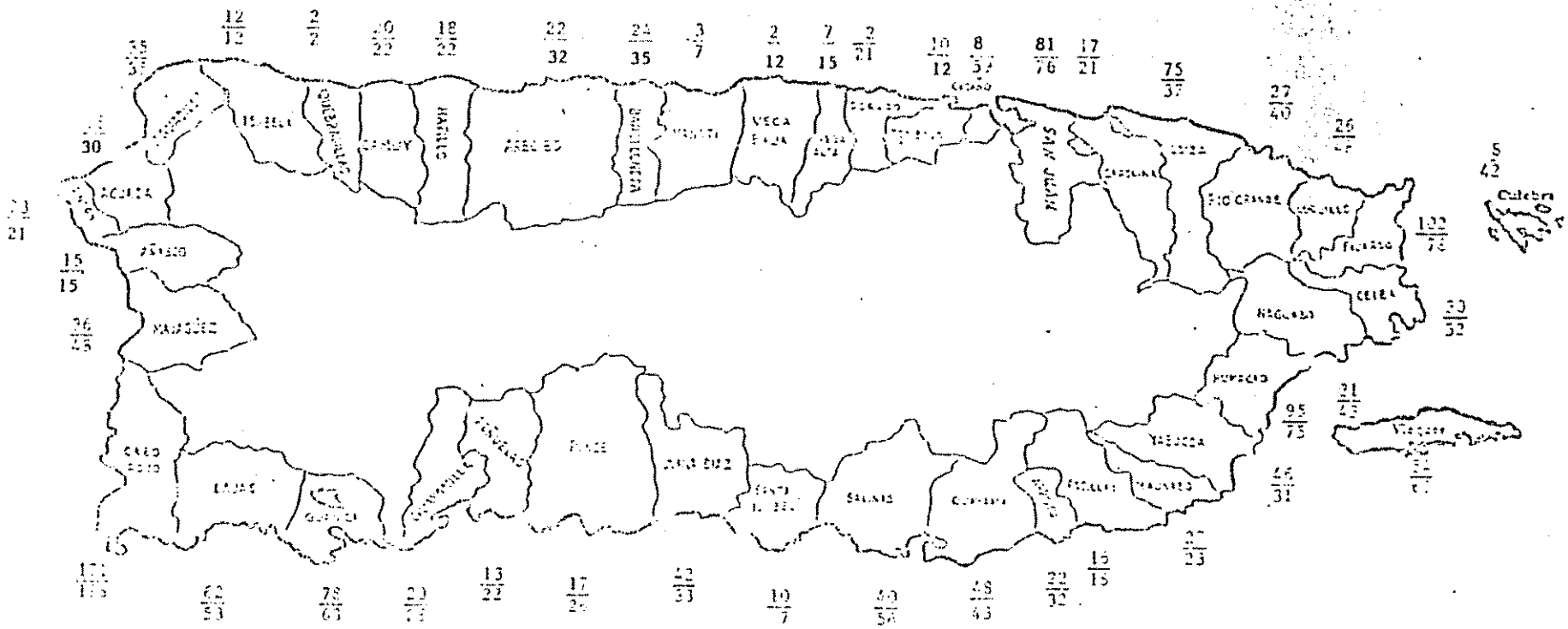


Figure 11. Mean, 95% confidence interval, and range of fork length by month for Haemulon plumieri, 1985

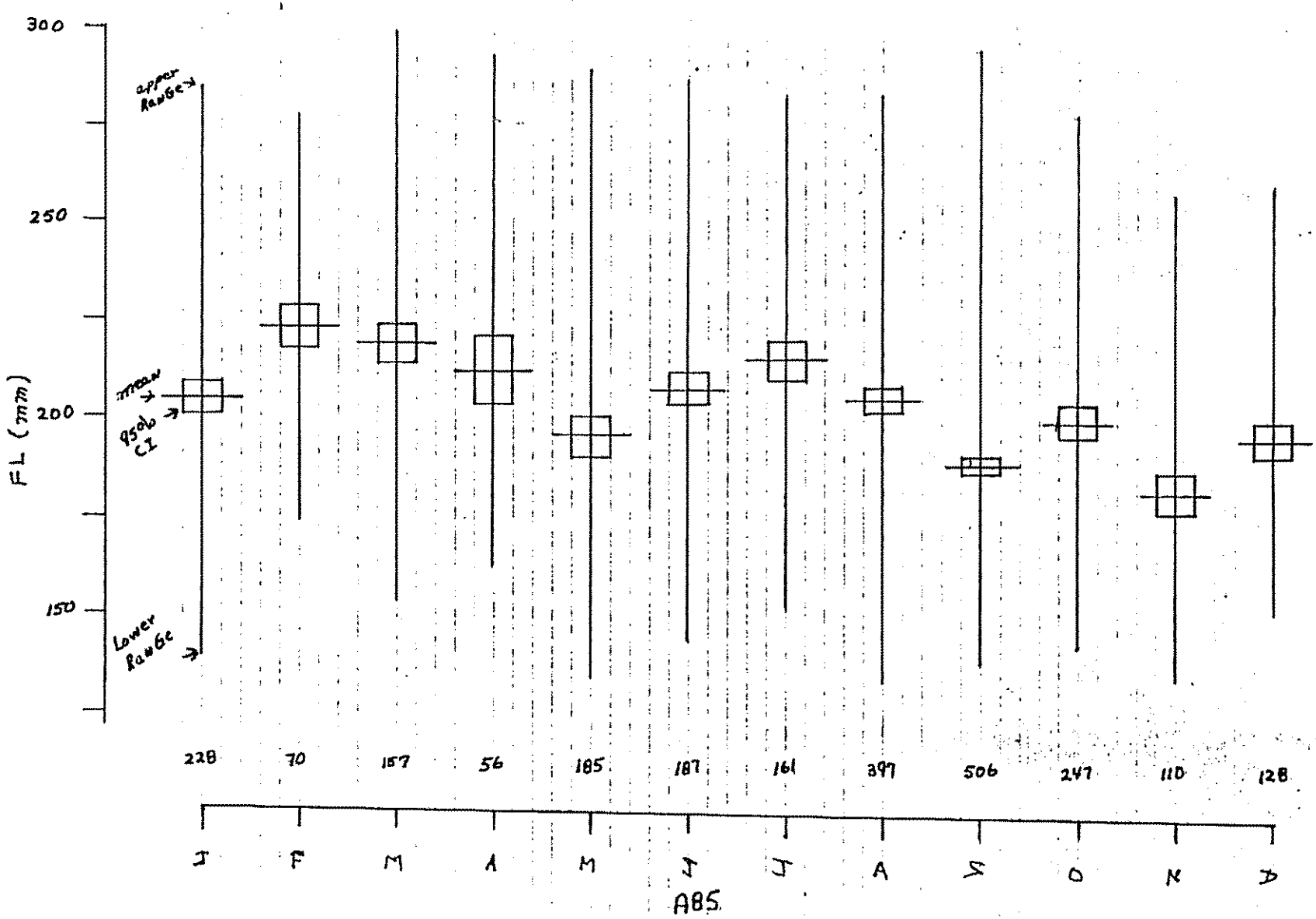


Figure 12. Mean, 95% confidence interval, and range of fork length by month for H. sciurus, 1985

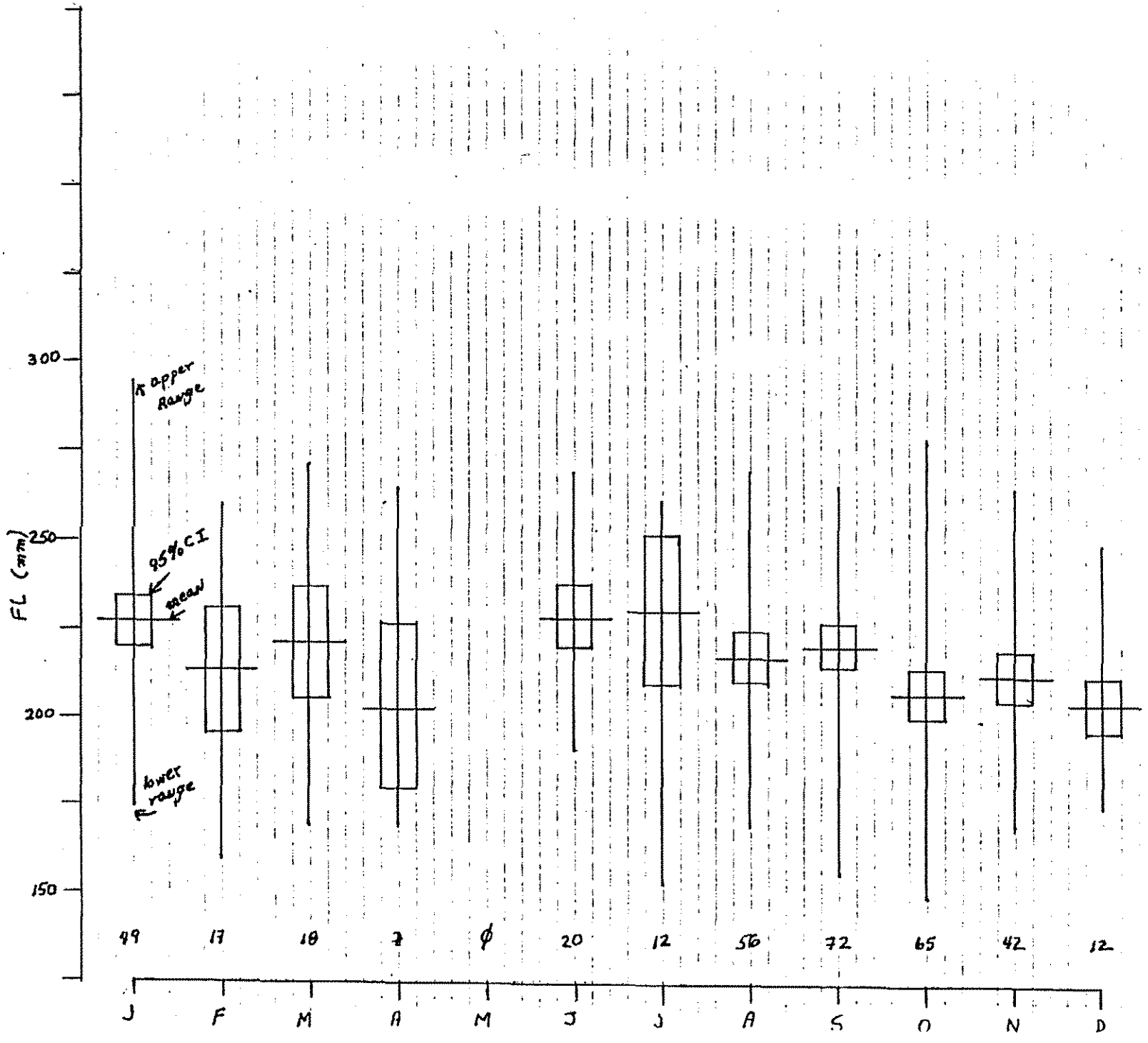


figure 13. Mean, 95% confidence interval, and range of fork length (mm) for H. flavolineatum by month. 1985

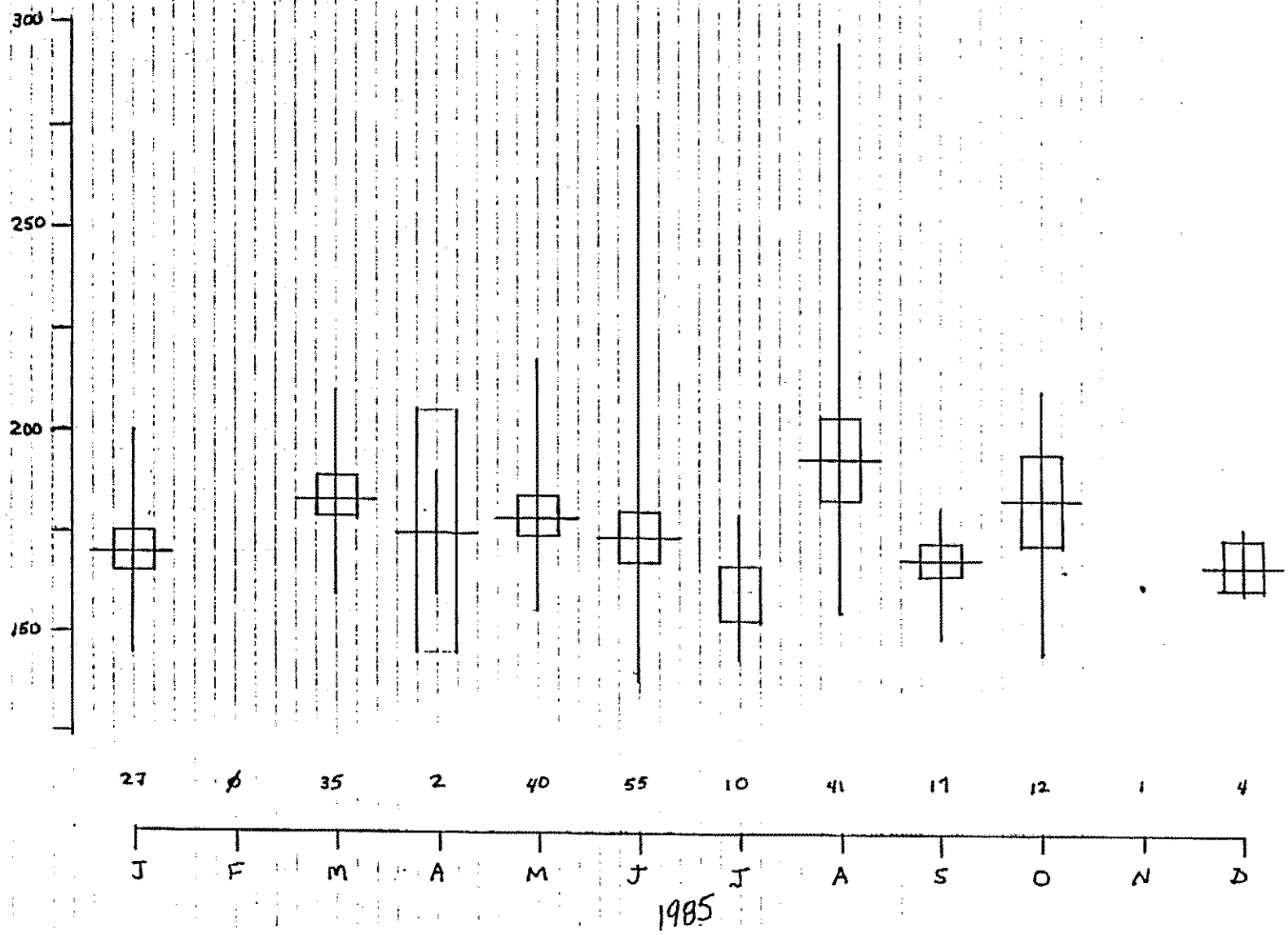
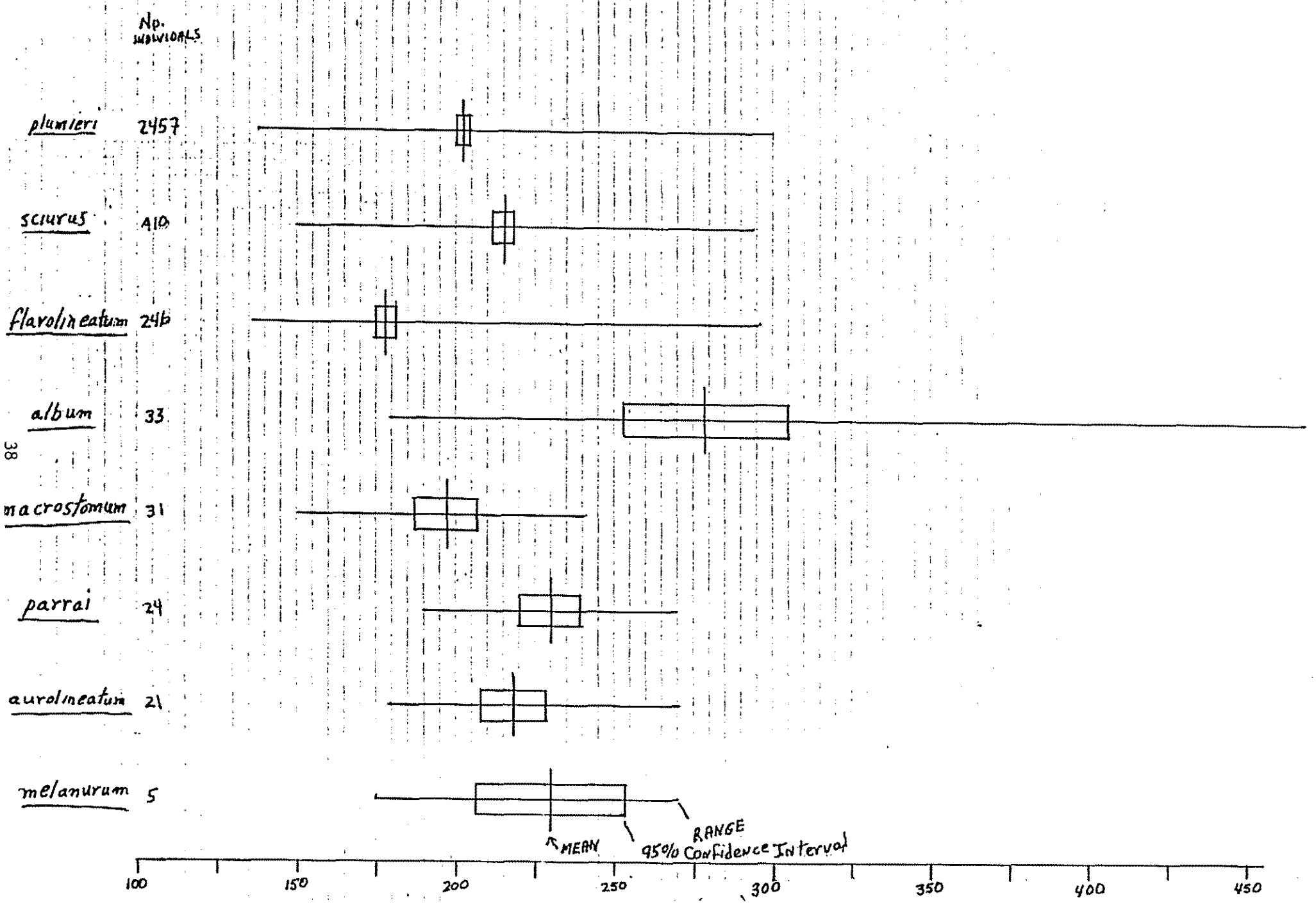


Figure 14. 1985 Trap Caught *Haemulon* spp: Mean, 95% confidence interval, and range of fork lengths in millimeters.



TABLES

Table 1. Selected ports for the collection of finfish and lobster data for the Biostatistical Sampling Program (fishing centers in parentheses).

NORTH COAST

1. San Juan (La Puntilla)
2. Arecibo (Jarealitos)

SOUTH COAST

1. Guánica (Bahía)
2. Juana Díaz (El Pastillo)
3. Guánica (Salinas Providencia)

EAST COAST

1. Vieques
2. Naguabo (Húcares)
3. Ceiba (Los Machos)
4. Fajardo (Las Croabas)

WEST COAST

1. Cabo Rojo

   (El Combate)
   (Joyuda)
   (Puerto Real)

2. Aguadilla (Higuey)
3. Mayaguez (El Seco)

Table 2. Number of fishermen for 1983 and 1985 (1) interviewed for the census, (2) found on our lists, and (3) registered through licensing program with Department of Natural Resources.

		1983	1985
1.	Census	1,417	1,500
2.	CODREMAR'S List	2,296	2,660
3.	D. N. R.	2,904	2,625
	No. of vessels	5,940	3,171

Table 3. Total number of tickets by month for 1982, 1983, 1984 and 1985 and 1986

Month	1982	1983	1984	1985	1986
January	Lab. closed	3,680	1,460	1,348	1,025
February	1,020	3,751	1,807	1,244	946
March	1,440	3,589	1,463	1,511	1,448
April	1,549	3,660	1,725	1,370	
May	1,604	3,760	1,860	1,396	
June	2,256	2,829	1,399	1,666	
July	2,209	1,172	1,103	1,306	
August	2,886	1,636	1,755	1,683	
September	3,019	2,205	1,946	1,590	
October	3,684	2,248	1,868	1,083	
November	3,323	1,930	1,167	1,102	
December	2,765	1,172	1,286	961	
TOTAL	25,755	31,632	18,839	16,260	3,419
$\bar{X}$	2,146	2,636	1,570	1,355	
S. D.	± 1,020	± 988	± 280	± 232	

Table 4. Recorded fish and shellfish landings, in pounds, reported in Puerto Rico between January-December 1983 by percentage of catch, average ($\bar{P}$/Lbs.) and catch value in dollars.

Species	Pounds	%*	%+	$/Lb.	Value
Arrayado (Lane snapper)	191,347	4.57	5.66	1.06	202,828
Atún (Tuna)	196,105	4.68	5.80	.83	162,767
Balajú (Ballyhoo)	24,476	0.58	0.72	.71	17,378
Boquicolorado (Grunts)	425,870	10.17	12.60	.75	319,403
Capitán (Hogfish)	82,445	1.96	2.43	1.09	89,865
Chapín (Trunkfish)	41,764	0.99	1.23	.93	38,841
Chillo (Silk snapper)	421,125	10.06	12.46	1.66	699,068
Colirrubia (Yellowtail)	180,119	4.30	5.32	1.29	232,354
Dorado (Dolphin)	42,773	1.02	1.26	1.05	44,912
Gallo (Squirrelfish)	21,718	0.51	0.64	.55	11,945
Jaras (Mullet)	57,327	1.36	1.69	.79	45,288
Jurel (Jack)	61,656	1.47	1.82	.91	56,107
Loro (Parrotfish)	232,029	5.54	6.86	.64	148,499
Marlín Azúl (Blue Marlin)	11,669	0.27	0.34	1.30	15,170
Mero (Grouper)	353,771	8.45	10.46	1.05	371,460
Mojarra (Mojarra)	13,161	0.31	0.38	.88	11,582
Pargos (Snappers)	68,007	1.62	2.01	1.12	76,163
Peje Puerco (Triggerfish)	96,882	2.31	2.86	.67	64,911
Picúa (Barracuda)	27,179	0.64	0.80	.98	26,635
Pluma (Porgy)	83,104	1.98	2.45	.65	54,018
Robalo (Snook)	42,773	1.02	1.26	1.09	46,623
Salmonete (Goatfish)	167,513	4.00	4.95	.69	115,584
Sama (Mutton snapper)	70,210	1.67	2.07	1.11	77,[illegible]33
Sardina (Sardine	22,955	0.54	0.67	.93	21,348
Sierra (Mackerel)	242,373	5.79	7.17	1.18	286,000
Tiburón (Shark)	-	-	-	-	-
Otros peces (Other fish)	201,394	4.81	5.95	1.00	201,394
Total peces (Total fish)	3,379,745	80.73	99.86	1.01	3,413,542
Carrucho (Conch)	437,436	10.44	54.25	1.31	573,041
Langosta (Lobster)	294,229	7.02	36.49	3.54	1,041,571
Ostión (Oysters)	54,059	1.29	6.70	1.39	75,142
Pulpo (Octopus)	16,161	0.38	2.00	1.78	28,767
Jueyes (Land crab)	83	**	**	2.93	243
Otros mariscos(Shellfish)	4,345	0.10	0.53	2.86	12,427
Total mariscos (Total)	806,313	19.26	99.97	2.14	1,725,509
TOTAL (TOTAL)	4,186,058	100%	100%	1.22	5,106,991

**less than one

Table 5. Recorded fish and shellfish landings, in pounds, reported in Puerto Rico between January-December 1984 by percentage of catch, average ($\bar{P}$/Lbs.) and catch value in dollars.

Species	Pounds	%*	%+	$/Lb.	Value
Arrayado (Lane snapper)	169,415	4.86	6.08	1.12	189,745
Atún (Tuna)	71,235	2.04	2.55	.80	56,988
Balajú (Ballyhoo)	16,680	0.47	0.59	.78	13,010
Boquicolorado (Grunts)	363,982	10.44	13.07	.78	283,906
Capitán (Hogfish)	75,455	2.16	2.70	1.15	86,773
Chapín (Trunkfish)	43,932	1.26	1.57	.91	39,978
Chillo (Silk snapper)	377,151	10.81	13.54	1.79	675,100
Colirrubia (Yellowtail)	146,165	4.19	5.24	1.28	187,091
Dorado (Dolphin)	15,299	0.43	0.54	1.25	19,124
Gallo (Squirrelfish)	11,495	0.32	0.41	.55	6,322
Jarea (Mullet)	46,490	1.33	1.66	.88	40,911
Jurel (Jack)	34,281	0.98	1.23	.89	30,510
Loro (Parrotfish)	243,568	6.98	8.74	.67	167,191
Marlin Azúl (Blue Marlin)	9,557	0.27	0.34	1.48	14,144
Mero (Grouper)	346,986	9.95	12.46	1.09	378,215
Mojarra (Mojarra)	12,268	0.35	0.44	.76	9,324
Pargos (Snappers)	40,426	1.16	1.45	1.17	47,298
Peje Puerco (Triggerfish)	81,521	2.33	2.92	.76	61,956
Picúa (Barracuda)	12,641	0.36	0.45	1.17	14,790
Pluma (Porgy)	69,678	1.99	2.50	.72	50,169
Robalo (Snook)	32,199	0.92	1.15	1.24	39,927
Salmonete (Goatfish)	134,034	3.84	4.81	.73	97,845
Sama (Mutton snapper)	61,205	1.75	2.19	1.13	69,162
Sardina (Sardine	20,861	0.59	0.74	1.06	22,113
Sierra (Mackerel)	173,168	4.96	6.21	1.19	206,070
Tiburón (Shark)	7,559	0.21	0.27	.87	6,576
Otros peces (Other fish)	167,612	4.80	6.01	1.03	172,640
Total peces (Total fish)	2,784,862	79.88	100%	1.07	2,979,802
Carrucho (Conch)	344,737	9.88	49.17	1.37	472,290
Langosta (Lobster)	280,262	8.04	39.98	3.67	1,028,562
Ostión (Oysters)	47,544	1.36	6.78	1.26	59,905
Pulpo (Octopus)	17,857	0.51	2.55	1.90	33,928
Jueyes (Land crab)	3,728	0.10	0.53	3.00	11,184
Otros mariscos(Shellfish)	6,819	0.19	0.97	2.16	14,729
Total mariscos (Total)	701,015	20.11	100%	2.31	1,619,345
TOTAL (TOTAL)	3,485,876	100%	100%	1.32	4,601,356

Table 6. Recorded fish and shellfish landings, in pounds, reported in Puerto Rico between January-December 1985 by percentage of catch, average ($\bar{P}$/Lbs.) and catch value in dollars.

Species	Pounds	%*	%+	$/Lb.	Value
Arrayado (Lane snapper)	134,443	4.1	5.1	1.28	172,087
Atún (Tuna)	78,964	2.4	3.0	.83	65,540
Balajú (Ballyhoo)	21,675	0.7	0.8	.80	17,341
Boquicolorado (Grunts)	314,886	9.5	11.8	.89	280,249
Capitán (Hogfish)	47,389	1.4	1.8	1.42	67,292
Chapín (Trunkfish)	41,548	1.3	1.6	1.06	4[illegible],041
Chillo (Silk snapper)	417,635	12.6	15.7	1.96	818,565
Colirrubia (Yellowtail)	169,691	5.1	6.4	1.34	229,083
Dorado (Dolphin)	22,216	0.7	0.8	1.13	25,104
Gallo (Squirrelfish)	17,350	0.5	0.7	.77	13,360
Jaren (Mullet)	49,122	1.5	1.8	.80	39,298
Jurel (Jack)	42,556	1.3	1.6	.96	40,854
Loro (Parrotfish)	239,030	7.2	9.0	.68	162,540
Marlin Azúl (Blue Marlin)	11,077	0.3	0.4	1.48	16,394
Mero (Grouper)	353,266	10.7	13.3	1.18	416,854
Mojarra (Mojarra)	11,483	0.3	0.4	.87	9,990
Pargos (Snappers)	36,614	1.1	1.4	1.22	44,669
Peje Puerco (Triggerfish)	55,252	1.7	2.1	.87	48,069
Picúa (Barracuda)	10,507	0.3	0.4	1.13	11,873
Pluma (Porgy)	27,482	0.8	1.0	.88	24,184
Robalo (Snook)	26,236	0.8	1.0	1.19	31,221
Salmonete (Goatfish)	60,952	1.8	2.3	.81	49,371
Sama (Mutton snapper)	51,336	1.6	1.9	1.29	66,223
Sardina (Sardine	22,764	0.7	0.9	.95	21,626
Sierra (Mackerel)	153,883	4.6	5.8	1.29	198,509
Tiburón (Shark)	5,724	0.2	0.2	.75	4,293
Otros peces (Other fish)	236,948	7.2	9.0	1.15	272,490
Total peces (Total fish)	2,660,030	80.4	100%	1.20	3,192,036
Carrucho (Conch)	325,543	9.8	50.0	1.45	472,037
Langosta (Lobster)	248,061	7.5	38.1	3.71	920,306
Ostión (Oysters)	38,413	1.2	6.0	1.19	45,711
Pulpo (Octopus)	31,684	1.0	4.9	1.61	51,011
Jueyes (Land crab)	3,709	0.1	0.6	3.00	11,127
Otros mariscos(Shellfish)	3,606	0.1	0.6	1.67	6,022
Total mariscos (Total)	651,016	19.7	100%	2.31	1,503,847
TOTAL (TOTAL)	3,311,046	100%	100%	1.42	4,701,685

Table 7. Recorded fish and shellfish landings, in pounds, reported in Puerto Rico between January-March, 1986 by percentage of catch, average ($\bar{P}$/Lbs.) and catch value in dollars.

Species	Pounds	%*	%+	$/Lb.	Value
Arrayado (Lane snapper)	27,803	3.5	4.2	1.31	36,422
Atún (Tuna)	22,668	2.9	3.5	.87	19,721
Balajú (Ballyhoo)	2,567	0.3	0.4	.69	1,771
Boquicolorado (Grunts)	74,625	9.4	11.4	.89	66,416
Capitán (Hogfish)	9,404	1.2	1.4	1.39	13,072
Chapín (Trunkfish)	10,712	1.4	1.6	1.21	12,962
Chillo (Silk snapper)	119,963	15.2	18.3	1.93	231,529
Colirrubia (Yellowtail)	32,294	4.1	4.9	1.38	44,566
Dorado (Dolphin)	14,130	1.8	2.2	1.23	17,380
Gallo (Squirrelfish)	5,374	0.7	0.8	.65	3,493
Jaroa (Mullet)	10,773	1.4	1.6	.82	8,834
Jurel (Jack)	15,902	2.0	2.4	.86	13,676
Loro (Parrotfish)	46,459	5.9	7.1	.80	37,167
Marlín Azúl (Blue Marlin)	2,436	0.3	0.4	1.54	3,751
Mero (Grouper)	85,725	10.8	13.1	1.11	95,155
Mojarra (Mojarra)	4,261	0.5	0.6	.90	3,834
Pargos (Snappers)	6,372	0.8	1.0	1.39	8,857
Peje Puerco (Triggerfish)	11,679	1.5	1.8	.97	11,329
Picúa (Barracuda)	9,153	1.2	1.4	.93	8,512
Pluma (Porgy)	3,847	0.5	0.6	.81	3,116
Robalo (Snook)	6,765	0.9	1.0	1.08	7,306
Salmonete (Goatfish)	11,402	1.4	1.7	1.00	11,402
Sama (Mutton snapper)	9,834	1.2	1.5	1.35	13,275
Sardina (Sardine	5,827	0.7	0.9	.99	5,769
Sierra (Mackerel)	29,604	3.7	4.5	1.34	39,669
Tiburón (Shark)	5,619	0.7	0.9	.64	3,596
Otros peces (Other fish)	70,874	9.0	10.8	1.01	71,583
Total peces (Total fish)	656,092	83.0	100%	1.20	787,310
Carrucho (Conch)	56,785	7.2	41.9	1.51	85,745
Langosta (Lobster)	9,850	7.9	45.9	3.00	29,550
Ostión (Oysters)	62,167	0.1	0.4	3.68	228,775
Pulpo (Octopus)	500	0.6	3.3	1.00	500
Jueyes (Land crab)	4,422	1.2	7.3	1.85	8,180
Otros mariscos(Shellfish)	1,688	0.2	1.2	1.70	2,869
Total mariscos (Total)	135,412	17.2	100%	2.63	356,134
TOTAL (TOTAL)	791,504	100%		1.44	1,139,765

Table 8 . Quantity of fish and shellfish landed by municipality and percent of total reported in Puerto Rico for 1983.

Municipio (Municipality)	Libras (Pounds)	%	Monthly mean (thousands of pounds)
COSTA NORTE (NORTH COAST)	466,846	11.15	38.9
Isabela	10,385	2.22	
Quebradilla	917	.19	
Camuy	12,479	2.67	
Carolina	6,479	1.38	
Arecibo	26,038	5.57	
Barceloneta	44,350	9.49	
Manatí	1,854	.39	
Vega Baja	22,826	4.88	
Vega Alta	20,838	4.46	
Dorado	17,405	3.72	
Toa Baja	3,536	.75	
Cataño	56,640	12.13	
San Juan	95,553	20.46	
Loíza	76,616	16.41	
Luquillo	32,774	7.02	
Río Grande	18,413	3.94	
Humacao	19,743	4.22	
COSTA SUR (SOUTH COAST)	1,002,899	23.95	83.6
Patillas	92,611	.95	
Arroyo	69,515	6.93	
Guayama	135,299	13.49	
Salinas	84,503	8.42	
Santa Isabel	15,756	1.57	
Juana Díaz	157,198	15.67	
Ponce	24,074	2.40	
Peñuelas	28,572	2.84	
Guayanilla	46,772	4.65	
Guánica	156,634	15.61	
Lajas	191,958	19.14	
COSTA ESTE (EAST COAST)	637,521	15.22	53.1
Fajardo	123,0[illegible]3	19.30	
Ceiba	60,581	9.50	
Naguabo	84,089	13.18	
Humacao	92,596	14.52	
Yabucoa	58,080	9.11	
Maunabo	45,715	7.17	
Vieques	147,833	23.18	
Culebra	25,579	4.01	
COSTA OESTE (WEST COAST)	2,079,792	49.65	173.2
Cabo Rojo	1,593,459	76.74	
Mayaguez	97,716	4.70	
Añasco	19,153	.92	
Rincón	55,971	2.69	
Aguada	63,924	3.08	
Aguadilla	247,487	11.94	20.6
TOTAL (TOTAL)	4,186,058	100	348.8

Table 9. Quantity of fish and shellfish landed by municipality and percent of total catch reported in Puerto Rico during 1984.

Municipio (Municipality)	Libras (Pounds)	% (Percent)	Monthly mean (thousands of pounds)
COSTA NORTE (NORTH COAST)	393,918	11.30	32.8
Isabela	8,274	2.10	
Quebradilla	80	.02	
Camuy	19,663	4.99	
Carolina	4,215	1.07	
Arecibo	15,105	3.83	
Barceloneta	23,118	5.86	
Manatí	1,927	.48	
Vega Baja	12,963	3.29	
Vega Alta	13,921	3.53	
Dorado	18,327	4.65	
Toa Baja	1,409	.35	
Cataño	60,431	15.34	
San Juan	73,006	18.53	
Loíza	56,880	14.43	
Luquillo	43,572	11.06	
Río Grande	19,305	4.90	
Hatillo	19,663	4.99	
COSTA SUR (SOUTH COAST)	837,544	24.02	69.8
Patillas	74,077	8.84	
Arroyo	81,758	9.76	
Guayama	135,301	16.15	
Salinas	94,412	11.27	
Santa Isabel	15,270	1.82	
Juana Díaz	151,113	18.04	
Ponce	21,990	2.62	
Peñuelas	36,541	4.36	
Guayanilla	38,049	4.54	
Guánica	189,030	22.56	
Lajas	-	-	
COSTA ESTE (EAST COAST)	435,711	12.49	36.3
Fajardo	96,273	22.09	
Ceiba	36,939	8.47	
Naguabo	81,015	18.59	
Humacao	47,683	10.94	
Yabucoa	37,153	8.52	
Maunabo	29,971	6.87	
Vieques	78,483	18.00	
Culebra	28,225	6.47	
COSTA OESTE (WEST COAST)	1,818,702	52.17	151.6
Cabo Rojo	1,556,178	85.56	
Mayaguez	50,098	2.91	
Añasco	15,942	.87	
Rincón	46,047	2.53	
Aguada	63,965	3.51	
Aguadilla	46,429	2.55	
TOTAL (TOTAL)	3,485,775	100	290.5

Table 10. Quant of fish and shellfish landed municipality and percent of total catch reported in Puerto Rico during 1985.

Municipio (Municipality)	Libras (Pounds)	%	Monthly mean (thousands c pounds)
COSTA NORTE (NORTH COAST)	404,316	12.21	33.7
Isabela	16,836	4.16	
Quebradilla	50	0.01	
Camuy	16,938	4.18	
Carolina	11,078	2.73	
Arecibo	13,142	3.25	
Barceloneta	41,041	10.15	
Manatí	1,697	0.41	
Vega Baja	15,600	3.85	
Vega Alta	15,288	3.78	
Dorado	20,678	5.11	
Toa Baja	3,011	0.74	
Cataño	64,195	15.87	
San Juan	81,755	20.22	
Loíza	27,899	6.90	
Luquillo	42,769	10.57	
Río Grande	13,904	3.43	
Ratillo	18,435	4.55	
COSTA SUR (SOUTH COAST)	711,649	21.49	59.3
Patillas	34,097	4.79	
Arroyo	65,699	9.23	
Guayama	120,673	16.95	
Salinas	76,519	10.75	
Santa Isabel	4,156	0.58	
Juana Díaz	91,487	12.85	
Ponce	9,179	1.28	
Peñuelas	41,154	5.78	
Guayanilla	46,690	6.56	
Guánica	149,317	20.98	
Lajas	72,678	10.21	
COSTA ESTE (EAST COAST)	576,597	17.41	48.1
Fajardo	136,857	23.73	
Ceiba	45,041	7.81	
Naguabo	86,777	15.04	
Humacao	80,683	13.99	
Yabucoa	38,001	6.59	
Maunabo	23,065	4.00	
Vieques	138,910	24.09	
Culebra	27,243	4.72	
COSTA OESTE (WEST COAST)	1,618,484	48.88	134.9
Cabo Rojo	1,333,196	82.37	
Mayaguez	93,670	5.78	
Añasco	17,005	1.05	
Rincón	51,852	3.20	
Aguada	58,027	3.58	
Aguadilla	64,734	3.99	5.4
TOTAL (TOTAL)	3,311,046	100%	275.9

Table 11. Quantity of fish and shellfish landed by municipality and percent of total reported in Puerto Rico for January through March, 1986.

Municipality	Lbs.	%	Monthly mean (thousands of pounds)
COSTA NORTE (NORTH COAST)	118,327	14.94	39.4
Isabela	1,071	0.1	
Quebradilla	-	-	
Camuy	536	0.1	
Carolina	600	0.1	
Arecibo	3,274	0.4	
Barceloneta	5,882	0.7	
Manatí	802	0.1	
Vega Baja	7,455	0.9	
Vega Alta	6,030	0.8	
Dorado	3,624	0.5	
Toa Baja	1,128	0.1	
Cataño	21,136	2.7	
San Juan	28,252	3.6	
Loíza	8,907	1.1	
Luquillo	14,319	1.8	
Río Grande	14,800	1.9	
Hatillo	511	0.0	
COSTA SUR (SOUTH COAST)	167,338	21.14	55.8
Patillas	4,595	0.6	
Arroyo	16,717	2.1	
Guayama	29,628	3.7	
Salinas	16,274	2.1	
Santa Isabel	3,531	0.5	
Juana Díaz	15,283	1.9	
Ponce	2,450	0.3	
Peñuelas	11,151	1.4	
Guayanilla	8,706	1.1	
Guánica	20,127	2.5	
Lajas	38,816	4.9	
COSTA ESTE (EAST COAST)	113,824	14.38	37.9
Fajardo	24,305	3.1	
Ceiba	10,286	1.3	
Naguabo	23,750	3.0	
Humacao	15,363	1.9	
Yabucoa	14,868	1.9	
Maunabo	6,557	0.8	
Vieques	11,016	1.4	
Culebra	7,179	0.9	
COSTA OESTE (WEST COAST)	392,015	49.52	130.7
Cabo Rojo	299,291	37.8	
Mayaguez	15,191	1.9	
Añasco	2,222	0.3	
Rincón	22,473	2.8	
Aguada	30,694	3.9	
Aguadilla	22,144	2.8	
TOTAL (TOTAL)	791,504	100	263.8

Table 12. Total landing of fish and shellfish in pounds by coast reported for Puerto Rico during 1983, 1984, 1985 and 1986

Year	North Coast	South Coast	East Coast	West Coast	Total
1983	466,846	1,002,899	637,521	2,028,792	4,186,058
1984	393,918	837,544	435,711	1,818,702	3,485,875
1985	404,316	711,649	576,597	1,618,484	3,311,046
1986	118,327	167,338	113,824	392,015	791,504
Total	1,383,407	2,719,430	1,763,653	5,907,993	11,774,483

Table 13. Quantity and value of fish and shellfish by species and gear for 1983.

Species (Especies)	Beach Seine (Chinchorro) lbs.	B/C	Fish Pot (nasa) lbs.	B/C	Lobster Pot (Cajones) lbs.	B/C	Gill Net (Trasmallo) lbs.	B/C	Line* (cordel) lbs.	B/C	Troll Line (Eslga) lbs.	B/C	Trot Line ** (Palangre) lbs.	B/C	Cast Net (Atarraya) lbs.	B/C	Spear (Fisga) lbs.	B/C	By Hand (A mano) lbs.	B/C	Total (Total) lbs.	B/C
Lane Snapper (Arrayado)	16,214	1.06	88,523	1.02			23	1.25	66,144	1.12	161	1.16	20,232	1.03							191,347	1.06
Tuna (Atún)	17,448	.85	53	1.00							178,565	.83									196,135	.83
Dolphin (Dorado)	9,245	.77	130	1.00			14,775	.67	250	1.00											24,476	.72
Snook (Róbalo Colorado)	24,539	.76	311,052	.72			70,939	.79	19,022	1.21							38	1.02			425,570	.75
Tarpon (Sábalo)			19,022	1.11					1,557	1.34							61,536	1.05			82,[illegible]	1.08
Grunts (Chapín)	361	.92	40,694	.91			606	.99													41,764	.93
Blue Runner (Jurel)	2,519	1.42	59,543	1.43					259,026	1.65											421,325	1.16
Yellowtail (Yelerubia)	19,067	1.03	53,121	1.10			7,906	1.13	93,829	1.47			4,231	1.12							180,219	1.29
Dolphin (Dorado)											42,773	1.05									42,773	1.05
Squirrelfish (Ardilla)	610	.76	18,549	.67			572	.88	2,157	1.05											21,718	.53
Mullet (Lisas)	11,419	.87	38	1.00			42,251	.75	3	.50					2,582	1.03					57,327	.79
Jack (Cibas)	35,279	.85	2,893	1.01			9,227	.94	14,633	1.03							6	2.00			61,636	.91
Barracuda (Cuda)	4,316	.66	136,760	.67			87,537	.53	3,254	1.30							134	1.45			232,023	.64
Blue Marlin (Marlín Azul)											11,669	1.30									11,669	1.33
Snapper (Pargo)	10,547	1.20	176,330	1.04			31	1.25	163,196	1.05							1,667	1.17			353,771	1.05
Tajasts (Tajasta)							12,932	.88							249	.78					13,261	.53
Groupers (Meros)	2,672	.97	18,655	.97			31,427	1.04	10,561	1.52	18	1.10					4,875	1.28			68,207	1.12
Trigerfish (Pez Puerco)	1,591	.75	85,415	.64					9,819	.95	57	1.09									96,882	.67
Barracuda (Cuda)	12,293	.92	212	1.00			3,421	.91	410	1.49	10,664	1.07									27,179	.98
Porgy (Pluma)	5,702	.79	66,060	.92			9,123	.66	2,142	1.00	58	.87									83,104	.85
Snook (Róbalo)	11,055	1.08	2,384	.98			23,723	1.05	5,612	1.33											42,773	1.09
Mackerel (Palometa)			167,513	.69																	167,513	.69
Mutton Snapper (Pargo)	4,151	1.00	41,972	1.07			3,705	1.02	19,037	1.25			630	1.17			665	1.02			70,019	1.21
Barracuda (Cuda)	1,449	.91					5,716	.85							12,501	1.00	69	1.00			22,955	.93
Porgy (Pluma)	17,346	1.15	2,724	1.10			20,193	1.15	2,953	.59	199,097	1.19					348	1.10			242,373	1.25
Other Fish (Otros peces)	43,340	.84	40,917	1.02			76,197	1.04	34,929	1.12	375	1.03	1,540	.93	1,226	.73	154	2.00			221,394	1.00
Total Fish (Total peces)	[illegible]	[illegible]	[illegible]	[illegible]			[illegible]	.81	[illegible]	1.35	[illegible]	1.03	[illegible]	1.35	[illegible]	.85	[illegible]	1.10			[illegible]	1.07
Other Species																						
Lobster (Langosta)	477	3.25	162,160	3.52	12,693	3.41	2	4.25											437,436	1.21	437,436	1.31
Conch (Caracol)																	104,306	3.57	14,091	3.15	29,229	3.54
Octopus (Pulpo)	163	1.32	3,559	1.54			41	1.35											54,259	1.39	5,[illegible]	1.77
Sea Urchin (Erizo)															9	3.50	8,225	1.71	4,347	1.85	16,161	1.78
Sea Cucumber (Pepino de mar)	93	4.00	705	2.93															93	2.93	93	2.93
Other Shellfish (Otros mariscos)																	64	4.00	3,453	2.02	4,345	2.36
Total Shellfish (Total mariscos)	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]							[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
Grand Total	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]

*Trolling line, fishing reel (cuda, carrete, etc.)
**Baited line

Table 14. Quantity and value of fish and shellfish by species and gear for 1984.

Species (Especies)	Beach Seine (Chinchorro) lbs.	P/L	Fish Pot (Nasa) lbs.	P/L	Lobster Pot (Cajones) lbs.	P/L	Gill net (Trasmallo) lbs.	P/L	Line* (Cordel) lbs.	P/L	Troll line (Sirga) lbs.	P/L	Trot line (Palangre) lbs.	P/L	Cast Net (Atarraya) lbs.	P/L	Spear (Fisga) lbs.	P/L	Sp Bird (A mano) lbs.	P/L	Total lbs.	P/L
Lane Snapper (Pargo rojo)	14,045	1.11	74,508	1.09					61,015	1.17											[illegible]	[illegible]
Tuna (Atún)	15,971	.74									55,264	.82	16,974	1.07	873	1.07					[illegible]	[illegible]
Bonito (Bonito)	11,214	.60																			[illegible]	[illegible]
Permit (Palometa)	17,501	.72	282,082	.77			5,466	.53													[illegible]	[illegible]
Bigeye (Ojinete)			[illegible]	1.12			52,056	.83	12,025	1.16											[illegible]	[illegible]
Trunkfish (Cofre)	20	1.50	43,031	.91			1,395	1.10	2,871	1.33											[illegible]	[illegible]
Silk Snapper (Chillo)			[illegible]	1.76			881	1.04									52,625	1.15			[illegible]	[illegible]
Yellowtail (California)	15,457	1.04	40,432	1.12					316,310	1.79											[illegible]	[illegible]
Jolthin (Jerez)							6,545	1.15	53,240	1.41			491	1.36							[illegible]	[illegible]
Squirrelfish (Chillo)	32	.59	8,429	.39							15,299	1.25									[illegible]	[illegible]
Mullet (Lisa)	16,138	.96					290	1.03	2,734	.98											[illegible]	[illegible]
Jack (Jurel)	9,958	.85	2,293	.75			29,497	.83													[illegible]	[illegible]
Parrotfish (Loro)	1,253	1.01	148,870	.69			8,242	.71	13,578	1.04					853	1.13					[illegible]	[illegible]
Blue Marlin (Marlin Azul)							89,059	.62	4,265	1.08											[illegible]	[illegible]
Grouper (Nero)	6,571	1.22	190,573	1.08							9,557	1.48									[illegible]	[illegible]
Mojarra (Mojarra)									149,640	1.10											[illegible]	[illegible]
Snappers (Pargos)	2,448	1.03	34,193	1.02			11,979	.76													[illegible]	[illegible]
Triggerfish (Pez Puerco)							16,550	1.11	6,234	1.68					259	.78					[illegible]	[illegible]
Barracuda (Picúa)	898	.91	70,373	.69					10,230	1.20							995	1.23			[illegible]	[illegible]
Perry (Pluma)	4,752	.94					792	.83			7,097	1.37									[illegible]	[illegible]
Snook (Robalo)	5,153	.68	51,291	.73			11,605	.67	1,594	1.31											[illegible]	[illegible]
Grunting (Balmoreo)	7,267	1.17	293	1.02			22,655	1.25	1,784	1.41											[illegible]	[illegible]
Mutton Snapper (Pargo)			134,034	.73																	[illegible]	[illegible]
Sardine (Sardina)	5,879	1.13	32,036	1.07			3,876	1.10	18,442	1.23											[illegible]	[illegible]
Mackerel (Sierra)	1,271	.93					1,697	1.08					953	1.26							[illegible]	[illegible]
Shark (Tiburón)	9,101	1.15					13,843	1.17							17,893	1.07					[illegible]	[illegible]
Other fish (Otros peces)			400	1.00					4,229	.85	100,234	1.29									[illegible]	[illegible]
Total fish (Total peces)	32,141	.99	25,736	1.11			34,371	.95	34,264	1.13			2,890	.87							[illegible]	[illegible]
													752	1.09	318	1.17					[illegible]	[illegible]
	177,234	.86	1,193,097	.91			351,007	.85	722,328	1.26	237,621	1.32	22,157	1.24	20,225	1.07	53,620	1.15			[illegible]	[illegible]
Conch (Caracol)																						
Lobster (Langosta)			145,152	3.68	26,494	3.45																
Oysters (Ostras)																	101,234	3.72	[illegible]	[illegible]	[illegible]	[illegible]
Cocoyu (Pulpo)			4,833	2.03															[illegible]	[illegible]	[illegible]	[illegible]
Land Crab (Jaiba)					1,529	3.00											11,550	1.81	1,715	[illegible]	[illegible]	[illegible]
Shellfish (Otros mariscos)			3,279	3.59															2,199	[illegible]	[illegible]	[illegible]
																			3,740	[illegible]	[illegible]	[illegible]
Total shellfish (Total mariscos)			153,852	3.59	28,023	3.32											[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
TOTAL (TOTAL)	177,234	.86	1,353,887	1.21	28,023	3.38	351,007	.85	722,328	1.26	237,621	1.32	22,157	1.24	20,225	1.07	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]

*Tuna line, skipper reel
**Long line

Table 15. Quantity and value of fish and shellfish by species and gear for 1985.

Species (Especies)	Hand Line* (Cuerda) Lbs.	P/L	Net (Nasa) Lbs.	P/L	Barrier Net (Tajorea) Lbs.	P/L	Drift Net (Chinchorro) Lbs.	P/L	Reel (Carrete) Lbs.	P/L	Longline (Cordel) Lbs.	P/L	Troll Line (Silga) Lbs.	P/L	Free Line** (Palangre) Lbs.	P/L	Cast Net (Atarraya) Lbs.	P/L	Spear (Fisga) Lbs.	P/L	Other Gears (Otras Artes) Lbs.	P/L	By Hand (A Mano) Lbs.	P/L	TOTAL Lbs.	P/L
Lane Snapper(Pargo rojo)	6,507	1.06	56,103	1.23	75	.97	12,076	1.36	705	1.72	41,065	1.36			17,539	1.25	99	1.09	271	1.25					134,463	1.33
Tuna (Atún)	11,802	.29					2,991	.84	2,226	.86	3,005	1.22	56,695	.82	225	1.16			40	.75					78,964	.81
Jallnaso (Jaloso)	4,717	.81					11,186	.77									1,773	.95							21,676	.81
Trunk (Sierra-Corrado)	9,619	.78	231,179	.29	36	1.05	56,296	.87	506	1.18	16,375	1.08			353	.82	12	.93	410	.82					314,886	.85
Perfish (Pargito)	10	1.20	19,506	1.28	14	.92	347	1.18							37	.78	170	1.24	27,305	1.53					47,189	1.41
Snapfish (Chanda)	177	.78	36,036	1.05	204	.71	2,935	1.13	15	.43	543	.92			12	.75	27	1.00	1,529	1.18					41,548	1.16
Silk Snapper (Chillo)	1,036	1.01	73,287	1.80	12	1.50	15,611	1.80	76,692	2.23	250,592	1.94			323	1.74	92	2.07							417,633	1.97
Yellowtail (California)	7,488	1.10	33,977	1.17	11	1.18	13,298	1.13			94,041	1.49			435	1.29	322	1.31	119	1.29					169,691	1.34
Salmon (Tarpon)							1,127	1.65	207	1.54	2,248	1.60	18,635	1.04											22,216	1.53
Sardinelfish (Sardo)			14,238	.73	12	.75	421	.96	158	.84	2,404	.92	44	.75			73	1.67							17,350	.77
Mullet (Lisa)	2,508	.98	360	.88			44,575	.78							154	.39	1,512	1.12	13	1.46					49,122	.80
Jack (Jurel)	9,393	.89	1,282	.80			19,152	.97			5,455	1.16	6,303	.91	777	.77	8	3.00	84	1.54					42,556	.94
Tarpon(Sabalo)	4,040	.85	163,243	.64	28	.82	85,927	.71	86	.82	3,679	.87			82	.96			1,943	1.31					239,030	.68
Blue Marlin (Marlin Azul)											10,503	1.52	569	.81											11,072	1.41
Grouper (Mero)	149	1.04	187,479	1.20			4,220	1.23	32,174	1.09	100,723	1.24			325	1.63	24	1.25	27,972	.96					353,266	1.19
Mojarra (Mojarra)	1,303	.86	832	1.32			9,414	.84									132	.69							11,681	.87
Snappers (Pargos)	2,478	1.04	7,572	1.55			23,728	1.30	683	1.40	11,855	1.19													36,816	1.22
Triggerfish (Pez Puerco)	246	.92	46,810	.82			496	1.35	172	.76	5,667	1.19			172	.62			1,859	1.05					55,232	.87
Barracuda (Picúa)	2,736	.84	215	.76			1,819	.9	167	1.78	2,300	1.39	2,738	1.28	76	.50			56	.78					10,507	1.13
Perch (Chara)	2,903	.80	18,314	.92			4,396	.70	66	1.00	1,771	1.10							34	1.73					27,482	.88
Snook (Robalo)	2,984	1.16	556	.89			19,481	1.16	228	1.03	2,672	1.50					80	1.17	178	1.46					26,226	1.19
Swordfish (Espadarte)	84	3.14	60,056	.81	33	1.18	648	.81							72	1.04	7	2.00	12	.50					60,952	.81
Mutton Snapper (Sama)	1,906	1.08	21,681	1.19	38	.71	7,285	1.18	1,436	1.62	18,194	1.45							1,396	1.33					51,396	1.25
Sardine (Sardina)	2,309	.57					2,888	1.10									17,567	.97							22,764	.99
Mackerel (Sierra)	15,702	1.27					17,165	1.30	9,213	1.31	19,732	1.35	91,753	1.27			38	1.86	230	2.39					153,853	1.29
Shark (Tiburón)			19	.89			2,061	.53	278	1.07	897	.82	419	.96	2,030	.65									5,724	.75
Other fish(Otras especies)	39,572	.95	41,822	1.00	75	.44	80,797	1.10	1,110	1.21	32,713	1.40	1,944	.90	3,851	.87	2,094	.57	9,9 2	2.00					236,968	1.15
Total fish(Total peces)	131,613	.95	1,017,225	1.03	524	.90	430,238	.98	126,125	1.81	664,659	1.37	179,142	1.08	26,757	1.14	24,007	.95	73,516	1.24					2,660,030	1.22
Conch (Carrucha)							770	.65													324,773	1.45			325,543	1.45
Lobster (Langosta)	735	2.59	128,118	3.61	15,599	3.62	6,849	3.44											92,918	3.88	33,342	3.84			248,061	3.71
Oysters (Ostras)																					38,613	1.19			38,613	1.19
Conchs (Caracoles)	391	1.87	3,275	1.91	23	1.73	34	1.11											9,652	1.83	18,509	1.44			31,684	1.61
Land Crab (Jaiba)																							3,709	3.00	3,709	3.00
Shellfish(Otros mariscos).	463	1.92	341	1.55	16	1.75	268	1.05									72	5.70			2,468	2.59			3,606	1.67
Total shellfish(Total mariscos)	1,589	2.49	131,734	2.56	15,638	3.62	7,921	3.08									72	5.70	92,570	3.67	398,005	1.51	3,709	3.00	651,016	2.31
TOTAL (TOTAL)	133,202	.97	1,149,959	1.27	16,176	3.53	438,159	1.27	126,125	1.81	664,659	1.37	179,142	1.08	26,757	1.14	24,079	.96	166,126	2.54	398,005	1.51	3,709	3.00	3,311,046	2.31

*Hand line, snapper reel
**Plano line

Tabla 16a. 1. CANTIDAD Y VALOR DE LOS DESEMBARCOS DE PECES EN PUERTO RICO POR ESPECIES Y POR ARTES DE PESCA 1986

TABLE 1. QUANTITY AND VALUE OF FISH LANDINGS IN PUERTO RICO BY SPECIES AND GEAR 1986

	CHINCHORRO		NASAS		CAJON		TRASMALLO		CALA		SILGA		CARRETE		PALANGRES		TRAMPAJUEYES		ATARRAYA		FISGA		OTROS		TOTAL	
	CANT.	VAL.	CANT.	VAL.	CANT.	VAL.	CANT.	VAL.	CANT.	VAL.	CANT.	VAL.	CANT.	VAL.	CANT.	VAL.	CANT.	VAL.	CANT.	VAL.	CANT.	VAL.	CANT.	VAL.	CANT.	VAL.
ATUN	0	0	0	0	0	0	34	37	521	615	13998	11573	0	0	0	0	0	0	0	0	0	0	0	0	14553	12244
BALAJU	735	464	0	0	0	0	60	60	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	795	524
BOQUICOLORA	208	182	15430	12979	0	0	7240	6936	1791	1599	0	0	44	28	0	0	0	0	29	43	88	82	0	0	24830	21952
CAPITAN	0	0	1998	2706	0	0	132	168	165	235	0	0	0	0	0	0	0	0	0	0	1445	2108	11	12	3751	5231
CHAPIN	0	0	2562	2475	44	17	574	690	40	32	60	75	0	0	0	0	0	0	0	0	107	106	11	22	3398	3439
DORADO	0	0	40	60	0	0	0	0	0	0	10431	19103	0	0	0	0	0	0	0	0	0	0	0	0	10471	19163
GALLO	0	0	2230	1241	0	0	15	18	74	76	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2269	1335
JAREA	384	304	78	78	0	0	2832	2121	222	228	0	0	0	0	0	0	0	0	0	0	54	81	0	0	3570	2813
JUREL	1794	1381	7	6	0	0	6311	3333	730	862	356	293	0	0	0	0	0	0	0	0	63	78	0	0	9261	5985
LORO	0	0	8871	6180	0	0	7211	5649	799	703	110	110	0	0	0	0	0	0	0	0	146	171	6	12	17083	12827
MARLIN AZUL	0	0	0	0	0	0	0	0	0	0	1785	3147	0	0	0	0	0	0	0	0	0	0	0	0	1785	3147
MERO	147	224	15401	18439	24	19	1164	1273	18224	22966	25	20	0	0	87	126	0	0	0	0	3707	4619	25	28	38804	47717
MOJARRA	584	389	0	0	0	0	608	555	200	250	0	0	0	0	0	0	0	0	0	0	105	130	0	0	1497	1325
PARGOS																										
ARRAYADO	180	271	3853	4899	0	0	1620	2253	3473	4377	6	8	240	423	529	665	0	0	0	0	6	8	0	0	10907	12907
COLIRUBIA	1024	1217	1797	2226	0	0	835	1009	8537	13676	237	270	4	4	87	105	0	0	124	155	50	70	0	0	12695	18755
CHILLO	0	0	5129	7354	0	0	0	0	31045	60859	194	388	0	0	0	0	0	0	0	0	80	140	0	0	36448	70742
SAMA	63	55	1504	2092	4	5	476	628	1093	1578	0	0	15	15	21	24	0	0	10	10	48	73	0	0	3274	4392
OTROS PARGO	0	0	294	312	0	0	686	839	761	1097	0	0	141	141	0	0	0	0	0	0	221	340	0	0	2103	2730
PEJE PUERCO	0	0	4620	4325	0	0	0	0	224	216	0	0	0	0	0	0	0	0	0	0	333	327	0	0	5195	4869
PICUA	2977	1547	48	30	0	0	18	21	1910	1314	697	691	0	0	0	0	0	0	0	0	285	652	0	0	4735	4257
PLUMA	30	12	1581	1255	0	0	319	228	53	49	5	5	0	0	0	0	0	0	0	0	0	0	0	0	1988	1650
ROBALO	964	1137	16	16	0	0	1761	2020	153	228	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2894	3402
SALMONETE	0	0	6439	5834	4	3	124	170	37	48	0	0	0	0	0	0	0	0	0	0	0	0	0	0	6604	5855
SARDINA	10	10	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2478	2451	0	0	0	0	2488	2461
SIERRA	1147	1760	40	50	0	0	3597	4495	1902	2510	7697	10328	0	0	0	0	0	0	0	0	16	27	221	331	14572	19605
TIBURON	15	15	0	0	0	0	1243	1083	957	486	0	0	0	0	500	500	0	0	0	0	25	37	0	0	2740	2122
OTROS PECES	2481	2091	10700	11489	4	1	7582	7756	2429	2627	147	129	56	72	179	112	0	0	39	53	193	249	0	0	23809	24573
TOTAL PECES	11845	11065	82726	80883	80	46	44312	41352	74440	116849	33948	37375	600	685	1403	1533	0	0	2679	2712	7022	9382	274	406	75	112
CARUCHO	0	0	544	816	0	0	0	0	209	313	3	8	0	0	0	0	0	0	0	0	5717	8563	13864	21017	20242	30718
JUEY	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	57	8	57	8
LANGOSTA	0	0	9933	36623	2387	8367	596	2293	114	229	125	150	0	0	0	0	0	0	0	0	5636	21819	2286	8453	21077	77725
OSTION	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
PULPO	0	0	435	777	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	533	1135	670	1077	1646	3214
OTROS MARIS	34	68	62	62	0	0	492	342	0	0	0	0	0	0	0	0	0	0	27	174	0	0	129	450	777	1096
TOTAL	11879	11133	93700	126383	2467	8413	45400	43908	74713	117508	36081	37533	600	685	1403	1533	0	0	2708	2886	18933	40863	17223	31415	305117	422146

Tabla 16b. CANTIDAD Y VALOR DE LOS DESEMBARCOS DE PECES EN PUERTO RICO POR ESPECIES Y POR ARTES DE PESCA 1986
TABLE 1. QUANTITY AND VALUE OF FISH LANDINGS IN PUERTO RICO BY SPECIES AND GEAR 1986

	CHINCHORRO		NASAS		CAJON		TRASMALLO		CALA		SILGA		CARRETE		PALANGRES		TRAMPAJUEYES		ATARRAYA		FISGA		OTRAS		TOTAL	
	CANT.	VAL.	CANT.	VAL.	CANT.	VAL.	CANT.	VAL.	CANT.	VAL.	CANT.	VAL.	CANT.	VAL.	CANT.	VAL.	CANT.	VAL.	CANT.	VAL.	CANT.	VAL.	CANT.	VAL.	CANT.	VAL.
ATUN	0	0	0	0	0	0	11	16	37	63	6203	5742	0	0	0	0	0	0	0	0	0	0	0	0	6253	5821
BALAJU	398	285	0	0	0	0	132	72	0	0	0	0	0	0	40	40	0	0	0	0	0	0	0	0	570	397
BOCUICOLORA	211	224	14022	11397	0	0	7012	6385	563	751	398	398	0	0	145	143	0	0	0	0	0	0	0	0	22351	19300
CAPITAN	0	0	1352	1657	0	0	408	543	0	0	0	0	0	0	0	0	0	0	0	0	642	1217	37	55	2639	3476
CHAPIN	4	2	2894	3635	0	0	650	1022	67	89	0	0	0	0	0	0	0	0	0	0	38	47	0	0	3653	4788
DORADO	0	0	0	0	0	0	0	0	0	0	2592	4225	0	0	0	0	0	0	0	0	0	0	0	0	2592	4225
GALLO	0	0	1686	926	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	165	82	0	0	1851	1008
JAREA	273	249	113	68	0	0	3315	2696	220	195	0	0	0	0	0	0	0	0	15	11	0	0	0	0	3916	3240
JUREL	1061	764	127	68	0	0	963	814	878	753	473	347	0	0	0	0	0	0	0	0	0	0	0	0	3502	2748
LORO	376	406	8117	5622	0	0	6254	5952	438	331	49	49	0	0	0	0	0	0	0	0	400	800	0	0	15636	13160
MARLIN AZUL	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
MERO	14	14	8981	5599	0	0	309	344	19634	13162	50	45	0	0	87	126	0	0	0	0	376	505	0	0	29451	22797
MOJARRA	315	233	60	60	0	0	641	621	40	50	0	0	0	0	0	0	0	0	5	3	0	0	0	0	1061	967
PARGOS																										
ARRAYADO	5	3	2712	3307	0	0	481	606	2348	3092	0	0	0	0	989	1414	0	0	0	0	77	106	0	0	6612	8532
COLIRRUBIA	1943	1975	1604	1765	0	0	1455	1931	3232	4938	377	378	20	30	105	131	0	0	0	0	0	0	0	0	8736	11351
CHILLO	0	0	4497	7337	0	0	124	248	41379	61906	38	76	0	0	0	0	0	0	0	0	106	185	0	0	46144	89752
SARA	56	52	837	885	0	0	1264	1595	675	945	0	0	0	0	468	622	0	0	0	0	70	90	0	0	3370	4191
OTROS PARGO	230	172	341	427	0	0	1375	1793	597	889	0	0	0	0	0	0	0	0	0	0	25	44	0	0	2568	3326
PEJE PUERCO	0	0	1826	1613	0	0	8	7	294	457	0	0	0	0	0	0	0	0	0	0	4	3	0	0	2132	2081
PICUA	1676	949	0	0	0	0	42	42	495	666	260	245	0	0	0	0	0	0	0	0	0	0	0	0	2473	1903
PLUMA	49	49	626	544	0	0	346	202	20	21	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1041	817
ROBALO	350	290	0	0	0	0	1574	1956	0	0	0	0	0	0	0	0	0	0	6	6	56	69	0	0	1986	2221
SALMONETE	0	0	2443	2375	0	0	0	0	3	3	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2446	2378
SARDINA	40	40	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1415	1392	0	0	0	0	1455	1432
SIERRA	192	231	0	0	0	0	2401	3374	240	274	2616	3484	0	0	0	0	0	0	104	130	0	0	0	0	5553	7494
TIBURON	18	18	0	0	0	0	246	123	1071	608	40	20	0	0	116	85	0	0	0	0	0	0	0	0	1491	855
OTROS PECES	2777	2498	6196	6623	0	0	9056	8850	3205	3424	91	75	0	0	203	71	0	0	14	21	84	91	0	0	21626	21656
TOTAL PECES	9968	8461	56436	56137	0	0	38067	39200	75438	112613	13187	15097	20	30	2153	2636	0	0	1559	1563	2243	3244	37	55	0	0
CARRUCHO	0	0	51	76	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	108	185	12052	16389	12211	16650
JUEY	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	26	117	26	117
LANGOSTA	0	0	13217	48115	1626	6005	247	944	146	186	0	0	0	0	0	0	0	0	0	0	1541	5726	1966	7047	18743	68025
OSTION	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
PULPO	0	0	686	1170	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	179	358	452	722	1317	2250
OTROS MARIS	142	355	62	59	0	0	69	69	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	273	484
TOTAL	10110	8816	72452	107339	1626	6005	38383	40214	75584	112800	13187	15097	20	30	2153	2636	0	0	1559	1563	4071	9513	14533	26331	233678	330566

Tabla 16c.. CANTIDAD Y VALOR DE LOS DESEMBARCOS DE PECES EN PUERTO RICO POR ESPECIES Y POR ARTES DE PESCA 1986
TABLE 1. QUANTITY AND VALUE OF FISH LANDINGS IN PUERTO RICO BY SPECIES AND GEAR 1986

	CHINCHORRO		NASAS		CAJON		TRASMALLO		CALA		SILGA		CARRETE		PALANGRES		TRAMPAJUEYES		ATARRAYA		FISGA		OTRAS		TOTAL	
	CANT.	VAL.	CANT.	VAL.	CANT.	VAL.	CANT.	VAL.	CANT.	VAL.	CANT.	VAL.	CANT.	VAL.	CANT.	VAL.	CANT.	VAL.	CANT.	VAL.	CANT.	VAL.	CANT.	VAL.	CANT.	VAL.
ATUN	0	0	6	6	0	0	66	82	125	196	1685	133[illegible]	0	0	0	0	0	0	0	0	0	0	0	0	1882	1620
BALAJU	620	400	216	91	0	0	292	272	72	106	0	0	0	0	0	0	0	0	2	1	0	0	0	0	1202	872
BOQUICOLORA	632	519	16830	14318	0	0	8451	8245	1311	1591	100	100	0	0	0	0	0	0	0	0	120	202	0	0	27444	24977
CAPITAN	0	0	1428	1975	0	0	114	133	241	416	0	0	0	0	0	0	0	0	0	0	1231	1912	0	0	3014	4438
CHAPIN	0	0	2706	3359	0	0	635	977	194	242	0	0	0	0	0	0	0	0	0	0	126	224	0	0	3661	4602
DORADO	0	0	135	157	0	0	23	16	27	40	827	885	0	0	0	0	0	0	0	0	55	68	0	0	1067	1168
GALLO	0	0	1024	649	0	0	27	30	105	101	0	0	0	0	0	0	10	8	0	0	88	290	0	0	1254	1080
JAREA	88	88	9	5	44	33	2962	2561	118	134	0	0	0	0	60	54	0	0	6	6	0	0	0	0	3287	2883
JUREL	1282	1354	110	155	0	0	852	1096	738	932	152	112	0	0	0	0	0	0	0	0	5	7	0	0	3139	3658
LORO	0	0	7717	5968	0	0	5127	3941	443	628	0	0	0	0	0	0	0	0	0	0	435	718	0	0	13740	11256
MARLIN AZUL	0	0	0	0	0	0	0	0	0	0	651	866	0	0	0	0	0	0	0	0	0	0	0	0	651	866
MERO	31	34	10033	12019	0	0	453	694	5283	7074	6	6	0	0	35	47	0	0	0	0	1629	3186	0	0	17470	23062
MOJARRA	1076	917	12	12	0	0	550	540	65	96	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1703	1565
PARGOS																										
ARRAYADO	142	158	4825	6687	0	0	1741	2422	3800	5153	0	0	0	0	519	701	0	0	0	0	157	240	0	0	11184	15364
COLIRRUBIA	476	492	2765	3919	0	0	1832	2196	4854	7431	607	758	0	0	0	0	0	0	32	35	230	352	67	100	10863	15287
CHILLO	0	0	3379	7031	0	0	213	298	33773	65046	0	0	0	0	0	0	0	0	0	0	6	9	0	0	37371	72385
SAMA	242	287	1188	1668	0	0	292	432	984	1626	0	0	0	0	0	0	0	0	60	60	405	632	19	19	3190	4726
OTROS PARGO	80	13.	356	472	0	0	420	578	646	1206	0	0	0	0	0	0	0	0	0	0	199	357	0	0	1701	2745
PEJE PUERCO	27	27	3719	3637	0	0	16	32	116	133	0	0	0	0	5	7	0	0	0	0	469	669	0	0	4352	4506
PICUA	1677	1414	28	53	0	0	47	52	508	754	42	41	0	0	0	0	0	0	0	0	43	79	0	0	2345	2394
PLUMA	192	129	332	294	0	0	262	228	24	29	0	0	0	0	0	0	0	0	0	0	8	16	0	0	818	696
ROBALO	523	541	0	0	0	0	832	898	398	711	0	0	0	0	0	0	0	0	0	0	152	264	0	0	1885	2414
SALMONETE	0	0	2097	2011	0	0	204	210	40	52	0	0	0	0	0	0	0	0	0	0	9	18	0	0	2352	2291
SARDINA	10	7	668	668	0	0	190	186	43	77	0	0	0	0	16	6	0	0	957	962	0	0	0	0	1884	1909
SIERRA	1359	1798	177	274	0	0	2305	3231	1746	2065	38[illegible]	5548	0	0	0	0	0	0	29	20	14	42	0	0	9519	12980
TIBURON	0	0	0	0	0	0	992	495	396	341	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1388	836
OTROS PECES	2622	2167	8294	8609	0	0	9834	9782	3755	4216	80	108	0	0	89	70	0	0	94	78	494	762	177	97	25439	25391
TOTAL PECES	11079	10469	68054	74046	44	33	38732	39635	59805	100407	8037	9762	0	0	724	887	10	8	1180	1163	3875	10055	263	216	0	0
CARRUCHO	0	0	50	85	0	0	8	16	0	0	0	0	0	0	0	0	0	0	0	0	6665	10998	17509	25581	24232	36680
JUEY	196	117	4	4	0	0	0	0	40	46	0	0	0	0	0	0	0	0	0	0	0	0	9527	37501	9767	37669
LANGOSTA	0	0	12617	47128	1722	6241	360	1319	66	82	0	0	0	0	0	0	0	0	0	0	5541	21256	2039	7635	22345	83662
OSTION	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	500	500	500	500
PULPO	0	0	191	368	0	0	24	60	0	0	0	0	0	0	0	0	0	0	0	0	639	1438	603	1095	1457	2962
OTROS MARIS	321	842	175	191	0	0	41	30	0	0	0	0	0	0	0	0	0	0	0	0	10	20	131	166	678	1270
TOTAL	115[illegible]	11429	81091	121824	1766	6274	39165	41061	59911	100535	8037	9762	0	0	724	887	10	8	1180	1163	16730	43768	30572	72716	252784	409429

Table 17 Yearly Summary of total landing by gear for 1983

Gear	Pounds	Percent
Beach seine	253,652	6
Pot	1,500,824	35
Lobster pot	12,693	less than one
Gill net	426,084	10
* Line	811,020	19
Troll line	442,460	10
** Trot line	27,072	less than one
Cast net	16,567	less than one
Spear	182,188	6
By hand	513,498	12
Total	4,186,058	100

*Hand line, snapper reel
**Long line

Table 18 Yearly summary of total landing by gear for 1984

Gear	Pounds	Percent
Beach seine	177,414	5
Pot	1,350,987	38
Lobster pot	28,023	less than one
Gill net	351,007	10
*Line	722,908	20
Troll line	237,441	6
**Trot line	24,150	less than one
Cast net	20,225	less than one
Spear	170,406	4
By hand	403,315	11
Total	3,485,876	100

*Hand line, snapper reel (cala, carrete, etc.)
**Long line

1985

Table 19 Yearly summary of total landing by gear for 1985

Gear	Pounds	Percent
Beach seine	137,022	4
Fish pot	1,148,969	34
Lobster pot	16,176	less than one
Gill net	438,259	13
Reel	126,125	4
*Line	646,659	20
**Troll line	179,142	5
Trot line	26,767	1
Cast net	24,079	1
Spear	166,136	5
by hand	3,709	less than one
Others	398,003	12
TOTAL	3,311,046	100

*Hand line, snapper reel
**Long line

Table 20.. Summary of operating gears, and percent of the total in Puerto Rico, 1983-1985.

Gear	1983	%	1985	%
Beach seine	299	.9	235	.9
Fish pots	16,045	49.9	9,650	40.5
Lobster pots	3,402	10.6	2,218	9.3
Gill nets	1,067	3.3	699	2.9
Hand lines	4,280	13.3	8,131	34.2
Troll lines	2,473	7.7	1,084	4.65
Reels	1,097	3.4	300	1.3
Long lines	416	1.3	355	1.5
Cast nets	1,376	4.3	717	3.0
Spears	602	1.9	163	.7
Others	542	1.7	183	.8
By hand	536	1.7	77	.3
TOTAL	32,135		23,812	

Table 21. Quantity and value of fish and shellfish by species and month for 1983.

Species (Especies)	January (Enero)		February (Febrero)		March (Marzo)		April (Abril)		May (Mayo)		June (Junio)		July (Julio)		August (Agosto)		September (Septiembre)		October (Octubre)		November (Noviembre)		December (Diciembre)		TOTAL	
	Lbs.	P/L	Lbs.	P/L	Lbs.	P/L	Lbs.	P/L	Lbs.	P/L	Lbs.	P/L	Lbs.	P/L	Lbs.	P/L	Lbs.	P/L	Lbs.	P/L	Lbs.	P/L	Lbs.	P/L	Lbs.	P/L
Lane Snapper (Arrayado)	16,498	1.07	16,527	1.04	18,688	1.09	19,053	1.07	18,055	1.06	12,158	1.06	12,353	1.12	15,030	1.06	23,139	1.04	15,114	1.04	14,630	1.05	9,017	1.08	191,347	1.06
Tuna (Atún)	45,311	.81	13,037	.70	5,518	.94	9,813	.78	27,289	.88	19,220	.77	12,974	.88	26,960	.79	20,527	.94	12,420	.95	2,230	.74	807	.99	194,335	.53
Jallyfish (Zalaqín)	3,898	.61	2,217	.59	1,292	.62	3,261	.95	1,136	.55	1,629	.77	1,352	.50	437	1.03	2,112	.85	2,326	.70	2,849	.75	1,957	.65	24,476	.71
Tuna (Barriletecado)	39,904	.78	35,673	.78	43,575	.80	32,281	.72	32,474	.73	37,953	.76	25,450	.68	37,406	.64	40,656	.83	37,926	.71	35,597	.80	22,625	.69	425,875	.75
Porgfish (Cazón)	5,683	1.05	4,618	1.03	2,045	1.04	8,299	1.11	8,009	1.11	8,870	1.07	7,192	1.06	9,701	1.08	8,717	1.18	6,813	1.11	7,329	1.07	4,257	1.18	82,445	1.09
Triggerfish (Capitán)	2,884	.92	3,561	.87	3,448	.89	4,294	1.00	4,771	.91	3,855	.92	2,868	.92	4,993	.97	2,656	.97	2,778	.92	2,650	.93	3,006	.92	41,754	.93
Silk Snapper (Chillo)	34,119	1.37	43,353	1.68	33,262	1.62	32,912	1.64	46,476	1.64	34,924	1.62	17,179	1.57	21,270	1.73	27,096	1.73	40,820	1.80	48,325	1.68	35,269	1.76	421,223	1.68
Yellowtail (Colirrubia)	14,714	1.42	12,845	1.26	18,776	1.41	18,456	1.29	17,417	1.30	11,590	1.18	10,575	1.19	13,588	1.12	18,721	1.26	20,650	1.26	15,808	1.26	6,979	1.28	180,219	1.29
Jolocate (Corado)	6,189	.86	6,445	1.16	4,884	1.02	3,579	1.04	8,181	.92	2,293	1.02	220	1.40	72	1.06	304	1.06	1,256	1.32	1,059	1.22	8,182	1.19	42,773	1.05
Squirrelfish (Gallo)	922	.70	1,113	.54	1,146	.87	427	.79	2,910	.48	2,753	.54	3,248	.43	808	.76	3,240	.60	2,281	.54	1,541	.42	1,129	.45	21,718	.55
Mullet (Jurel)	4,376	.82	6,457	.69	7,814	.74	4,945	.73	2,752	.62	6,315	.78	3,486	.89	3,928	.85	7,134	.93	4,934	.78	3,404	.83	1,492	.75	57,327	.79
Jack (Jurel)	2,534	.92	5,006	.90	4,589	.86	2,910	1.43	17,515	.88	4,119	.93	8,230	.71	5,354	.88	4,301	1.08	3,555	.88	1,790	1.05	1,243	1.01	61,656	.91
Barracuda (Lorro)	11,090	.64	17,122	.63	21,663	.67	19,312	.50	18,336	.64	19,091	.69	17,858	.58	21,605	.67	27,214	.69	23,343	.73	17,246	.48	18,103	.63	233,029	.64
Blue Marlin (Marlín Azul)	996	.73	662	1.30	208	1.07	153	.93	360	.70	2,200	1.17	359	1.71	1,318	.95	3,085	1.80	1,502	1.09	871	1.58	153	1.06	11,[illegible]	1.30
Grouper (Cuero)	52,110	.96	33,534	1.01	22,361	1.05	26,886	1.05	28,830	1.06	30,455	1.07	22,126	1.05	27,434	1.03	26,394	1.12	31,979	1.10	25,154	1.03	23,968	1.10	353,774	1.05
Mojarra (Mojarra)	717	1.06	1,603	.69	843	.67	1,474	.60	1,489	.79	1,227	.77	990	1.47	799	1.02	1,742	1.26	1,443	.61	538	.86	296	1.08	13,251	.83
Snappers (Pargos)	5,923	1.19	5,044	1.11	3,818	1.17	4,849	1.08	5,557	1.16	5,929	1.11	14,708	1.01	4,170	1.08	5,774	1.22	5,876	1.15	4,301	1.19	2,348	1.11	69,[illegible]	1.12
Triggerfish (Peje Puerco)	6,347	.74	7,366	.66	9,194	.92	8,609	.62	9,103	.55	9,387	.62	6,059	.71	9,285	.77	7,425	.64	9,347	.66	5,885	.55	8,875	.57	94,[illegible]	.67
Barracuda (Picúa)	2,173	.85	3,599	.85	2,570	.96	3,222	.90	3,410	.94	1,057	1.12	1,820	1.09	1,017	1.05	2,808	1.07	3,509	1.02	1,230	1.12	735	1.09	27,179	.99
Porgy (Pizma)	3,963	.70	4,658	1.00	5,580	.70	6,364	.64	6,153	.60	9,448	.65	10,548	.68	8,109	.56	8,493	.57	8,203	.63	5,540	.67	6,018	.74	83,1[illegible]	.65
Snook (Robalo)	3,196	1.03	3,303	1.00	2,591	1.05	2,518	1.01	4,093	1.03	4,780	1.19	2,870	1.04	2,660	1.11	7,657	1.22	2,171	1.22	4,031	1.04	2,503	1.24	42,773	1.09
Grunfish (Salmonete)	18,120	.65	13,634	.62	12,089	.58	8,278	.60	11,272	.57	10,759	.72	10,550	.60	11,442	.78	14,890	.76	15,912	.77	24,535	.78	16,032	.70	167,323	.69
Mutton Snapper (Sama)	5,487	1.04	6,394	1.03	6,798	1.10	6,428	1.04	6,340	1.09	6,950	1.04	4,597	1.05	6,003	1.03	6,130	1.66	6,237	1.08	4,995	1.07	3,911	1.11	70,210	1.11
Sardine (Sardina)	3,238	.88	2,554	.87	2,753	.80	1,942	.88	2,186	.92	1,115	.90	499	1.15	1,248	1.25	1,980	.93	1,966	1.00	2,520	.98	949	.98	22,935	.93
Mackerel (Sierra)	16,968	1.13	21,255	1.19	16,701	1.13	23,071	1.18	22,569	1.19	34,114	1.24	23,943	1.25	20,844	1.19	23,742	1.20	14,726	1.16	9,097	1.16	9,123	1.12	242,373	1.18
Shark (Tiburón)																										
Other fish (Otros peces)	29,603	.78	24,237	.80	18,514	.89	21,473	.82	19,328	.88	22,702	1.27	7,300	1.23	11,088	1.34	12,811	1.17	11,494	1.12	12,296	1.23	10,548	1.01	201,394	1.20
Total fish (Total peces)	336,852	.94	295,833	1.01	272,955	1.01	281,019	1.01	322,390	1.02	306,053	1.03	233,343	.95	266,560	.97	310,748	1.06	288,765	1.05	255,831	1.06	199,527	1.05	3,379,[illegible]	1.01
Conch (Caracol)	28,502	1.22	32,957	1.29	34,582	1.29	42,600	1.36	45,440	1.16	43,923	1.24	30,294	1.27	30,119	1.38	32,157	1.30	37,290	1.41	43,110	1.35	37,520	1.54	437,436	1.31
Lobster (Langosta)	30,536	3.28	25,229	3.42	30,724	3.43	29,208	3.35	20,574	3.43	22,956	3.49	17,893	3.51	21,701	3.60	26,624	3.67	26,483	3.90	26,081	3.67	16,070	3.86	[illegible]	[illegible]
Crabs (Jaibas)	4,586	1.27	4,110	1.30	5,425	1.23	4,465	1.25	6,270	2.03	4,153	1.30	4,245	1.22			4,940	1.25	7,654	1.50	3,929	1.30	3,745	1.25	54,239	1.19
Shrimp (Camarón)	1,857	1.75	1,357	1.70	1,098	1.54	1,473	1.86	1,054	1.88	729	1.84	627	1.86	1,942	1.66	2,537	1.76	956	2.23	1,908	1.84	683	1.89	16,191	1.75
Land Crab (Cuero)	.10	1.00	70	1.00			3	1.03																	83	2.93
Shellfish (Otros mariscos)	303	3.10	426	2.35	527	2.19	147	4.17	735	2.77	291	3.35	41	5.20	455	3.14	367	4.13	370	2.28	620	1.04	63	2.17	4,3[illegible]	2.84
Total shellfish (Total mariscos)	72,796	2.25	64,079	2.14	74,356	2.17	77,896	2.11	76,673	1.89	71,921	1.97	53,100	2.03	54,217	2.21	66,725	2.28	72,543	2.33	75,648	2.15	48,051	2.30	526,[illegible]	2.1[illegible]
TOTAL (TOTAL)	409,646	1.7	359,912	1.21	347,211	1.25	358,915	1.24	407,263	1.17	377,974	1.20	286,463	1.15	320,786	1.19	377,473	1.27	361,308	1.20	331,479	1.30	247,608	1.29	4,186,[illegible]	1.22

Table 22. Quantity and value of fish and shellfish by species and month for 1984.

Species (Especies)	January (Enero)		February (Febrero)		March (Marzo)		April (Abril)		May (Mayo)		June (Junio)	
	Lbs.	P/L	Lbs.	P/L	Lbs.	P/L	Lbs.	P/L	Lbs.	P/L	Lbs.	P/L
Lane Snapper (Arrayado)	12,289	1.06	13,800	1.13	14,802	1.16	15,241	1.12	16,028	1.13	15,937	1.11
Tuna (Atún)	2,031	.48	1,892	.60	1,498	1.04	2,987	.88	7,256	.75	22,372	.74
Pillyhoe (Zalajú)	1,387	.71	1,629	.93	1,571	.91	2,423	.76	3,346	.53	481	.96
Grunt (Piruiocolorado)	29,616	.76	28,184	.78	30,020	.78	30,289	.86	38,239	.83	23,529	.84
Porgy (Cantín)	5,465	1.10	6,376	1.08	7,246	1.24	5,020	1.17	5,926	1.27	5,573	1.06
Dunkfish (Cantín)	2,165	.89	3,301	.84	2,895	.88	3,297	.93	4,596	.95	3,998	.89
Pink Snapper (Chillo)	23,611	1.32	33,031	1.74	34,949	1.77	36,374	1.75	32,949	1.50	30,111	1.82
Yellowtail (Colirrubia)	8,593	1.24	16,425	1.49	18,169	1.40	12,571	1.30	6,459	1.13	8,343	1.25
Dolphin (Dorado)	2,836	1.37	2,406	1.32	268	.93	678	1.06	694	1.02	712	.91
Squirrelfish (Gallo)	25	.35	1,140	.42	1,211	.59	1,356	.55	974	.93	2,509	.42
Mullet (Lisa)	3,101	.64	5,480	.86	3,348	.95	4,178	.94	4,928	.87	4,493	1.00
Jack (Jurel)	2,556	1.08	2,073	.85	2,314	1.01	4,628	.93	4,905	.97	3,324	.96
Barracuda (Lora)	17,560	.76	15,257	.50	16,927	.70	17,490	.73	18,261	.76	17,869	.67
Blue Marlin (Marlín Azul)	263	1.90	375	1.44	739	.74	215	.60	299	1.26	534	1.25
Grouper (Cherna)	36,666	1.19	34,109	1.08	30,536	1.10	28,303	1.10	29,695	1.08	29,120	1.10
Tarpon (Sábalo)	1,229	.70	1,276	.57	1,477	.89	1,183	.71	1,928	.80	792	.87
Snappers (Pargos)	3,704	1.15	3,448	1.15	3,094	1.09	2,898	1.23	3,436	1.22	3,113	1.22
Grouperfish (Pejo Puerco)	8,851	.68	8,776	.74	9,804	.77	8,652	.88	7,374	.79	6,031	.74
Barracuda (Picúa)	1,692	.91	1,569	1.07	1,503	1.15	1,634	1.27	956	1.19	451	1.47
Porgy (Pluma)	4,276	.63	6,609	.73	5,747	1.33	4,229	.75	8,435	.65	7,980	.69
Snook (Róbalo)	1,246	1.08	2,915	1.18	2,438	1.10	3,310	1.25	4,636	1.22	1,894	1.26
Snapper (Salmonete)	17,418	.75	15,123	.73	11,122	.66	9,915	.72	8,863	.71	8,448	.91
Mutton Snapper (Sama)	5,600	1.04	6,323	1.11	5,059	1.23	6,017	1.15	3,928	1.07	3,662	1.16
Sardine (Sardina)	3,024	1.63	2,382	1.00	1,780	1.03	3,212	.93	1,084	1.10	1,467	.93
Mackerel (Sierra)	8,499	1.12	12,022	1.20	18,800	1.26	15,196	1.26	15,763	1.20	21,643	1.23
Shark (Tiburón)											313	.36
Other fish (Otros peces)	12,579	1.02	13,974	1.10	20,731	1.04	16,021	1.17	13,063	1.06	16,734	1.14
Total fish (Total peces)	218,991	1.06	240,026	1.08	249,218	1.13	238,017	1.12	249,721	1.09	241,621	1.09
Conch (Carrucho)	44,501	1.29	25,482	1.37	32,401	1.34	34,197	1.30	33,624	1.42	25,334	1.43
Lobster (Langosta)	24,087	3.42	26,949	3.47	28,157	3.72	22,596	3.62	23,057	3.73	18,044	3.73
Oysters (Ostras)	5,239	1.25	3,663	1.25	3,404	1.25	1,570	1.25	3,699	1.25	5,114	1.27
Conch (Cubito)	1,305	1.83	1,231	1.78	863	1.97	714	1.36	1,293	1.97	977	2.08
Land Crab (Jueyes)					170	3.00	409	3.00	330	3.00	735	3.00
Shellfish (Otros mariscos)	95	1.93	411	1.54	345	2.45	2,022	1.39	700	3.22	923	2.86
Total shellfish (Total mariscos)	75,207	2.24	60,557	2.31	63,360	2.28	62,008	2.16	63,033	2.31	51,217	2.30
Total (TOTAL)	294,291	1.31	300,583	1.33	313,638	1.39	300,025	1.34	312,754	1.31	292,838	1.29

Species (Especies)	July (Julio)		August (Agosto)		September (Septiembre)		October (Octubre)		November (Noviembre)		December (Diciembre)		TOTAL	
	Lbs.	P/L	Lbs.	P/L	Lbs.	P/L	Lbs.	P/L	Lbs.	P/L	Lbs.	P/L	Lbs.	P/L
Lane Snapper (Arrayado)	12,570	1.09	17,211	1.14	12,051	1.14	14,257	1.18	13,743	1.03	10,486	1.07	169,415	1.12
Tuna (Atún)	6,270	.79	3,112	.77	3,853	.88	16,145	.87	1,406	.85	2,387	.93	71,235	.81
Pillyhoe (Zalajú)	635	.89	440	.89	928	.96	1,782	.76	638	.92	620	.87	16,680	.75
Grunt (Piruiocolorado)	31,255	.71	33,725	.85	33,625	.77	29,550	.79	30,374	.73	26,866	.76	363,832	.78
Porgy (Cantín)	5,139	1.15	6,142	1.13	8,140	1.08	8,235	1.08	6,157	1.10	5,846	1.14	75,615	1.18
Dunkfish (Cantín)	3,263	.91	4,859	.86	4,112	.86	4,369	1.00	4,317	.97	1,860	.88	43,922	.91
Pink Snapper (Chillo)	21,975	1.75	32,396	1.84	30,031	1.78	36,941	1.71	33,220	1.82	23,044	1.73	377,151	1.79
Yellowtail (Colirrubia)	9,072	1.14	11,889	1.22	12,599	1.27	19,082	1.31	12,968	1.13	8,793	1.25	146,163	1.28
Dolphin (Dorado)	20	1.00	253	1.94	436	1.25	1,117	1.09	2,421	1.19	3,458	1.29	15,299	1.28
Squirrelfish (Gallo)	695	.37	1,250	.64	958	.49	933	.53	60	.30	364	1.20	11,455	.55
Mullet (Lisa)	1,502	.90	4,819	.59	4,160	.88	4,457	.87	3,357	.96	2,447	.77	46,490	.85
Jack (Jurel)	2,217	.77	1,595	1.07	2,012	.89	5,354	.65	1,169	.74	1,134	.30	34,251	.89
Barracuda (Lora)	20,402	.61	25,762	.66	20,780	.62	27,917	.75	25,418	.61	19,894	.63	243,567	.67
Blue Marlin (Marlín Azul)	1,339	1.60	3,375	1.54	488	.90	1,121	1.28	361	1.00	448	1.61	9,557	1.48
Grouper (Cherna)	25,941	1.09	32,164	1.07	30,224	1.10	22,290	1.11	22,955	1.04	24,582	1.04	346,938	1.19
Tarpon (Sábalo)	655	.58	831	.90	931	.01	788	.65	567	.77	610	.54	12,269	.76
Snappers (Pargos)	2,591	1.10	4,950	1.05	2,398	1.18	5,194	1.36	3,461	1.12	2,207	1.00	40,426	1.17
Grouperfish (Pejo Puerco)	3,466	.67	8,330	.70	6,673	.87	5,058	.73	3,555	.70	2,951	.71	81,521	.75
Barracuda (Picúa)	464	1.38	696	1.18	555	1.16	1,655	1.40	665	1.25	521	1.06	12,641	1.17
Porgy (Pluma)	6,756	.61	6,934	.66	5,720	.61	4,721	.63	3,135	.60	3,016	.59	69,678	.72
Snook (Róbalo)	2,414	1.07	4,885	1.67	2,774	1.06	2,613	1.15	1,537	1.04	835	1.37	32,199	1.14
Snapper (Salmonete)	8,182	.64	13,655	.73	11,059	.75	10,023	.67	11,310	.76	8,934	.71	134,034	.73
Mutton Snapper (Sama)	7,309	1.28	5,171	1.15	4,825	1.13	4,[illegible]	1.11	3,512	1.02	2,819	1.05	61,225	1.15
Sardine (Sardina)	922	1.08	1,540	.92	1,465	.97	2,133	.98	1,306	.96	539	.88	20,941	1.14
Mackerel (Sierra)	15,665	1.23	18,267	1.19	15,905	1.16	6,520	1.15	9,918	1.03	14,965	1.06	173,186	1.19
Shark (Tiburón)	2,106	1.00	1,438	.98	333	1.30	1,921	.71	508	.50	940	.90	7,539	.87
Other fish (Otros peces)	14,361	1.03	19,547	.99	11,324	.90	12,635	.90	7,650	.94	8,889	.95	167,619	1.03
Total fish (Total peces)	312,256	1.00	265,316	1.05	229,359	1.05	250,761	1.06	210,719	1.03	180,671	1.04	2,766,242	1.07
Conch (Carrucho)	23,303	1.32	20,420	1.41	29,031	1.40	32,543	1.42	15,545	1.40	22,144	1.42	344,737	1.37
Lobster (Langosta)	16,592	3.79	24,463	3.66	22,783	3.56	24,559	3.70	28,741	3.69	19,895	3.59	290,242	3.67
Oysters (Ostras)	4,920	1.25	4,270	1.24	3,822	1.25	2,715	1.25	3,342	1.25	5,284	1.26	47,344	1.26
Conch (Cubito)	579	1.98	1,193	1.94	2,512	1.78	3,320	1.80	2,619	1.80	1,596	1.23	17,924	1.92
Land Crab (Jueyes)	825	3.00	40	3.00	270	3.00	759	3.00			10	3.00	3,715	3.
Shellfish (Otros mariscos)	549	2.09	757	3.08	119	2.10	98	1.40			200	2.00	6,519	1.
Total shellfish (Total mariscos)	[illegible]	[illegible]	[illegible]	[illegible]	58,337	[illegible]	63,675	[illegible]	53,517	2.63	49,231	2.10	[illegible]	[illegible]
Total (TOTAL)	288,634	1.22	316,489	1.31	286,896	1.30	315,820	1.32	264,266	1.35	229,[illegible]32	1.23	3,455,474	1.32

*Line, snapper reel
*Long line

Table 23. Quantity and value of fish and shellfish by species and month for 1985.

Species (Especies)	January (Enero)		February (Febrero)		March (Marzo)		April (Abril)		May (Mayo)		June (Junio)		July (Julio)		August (Agosto)		September (Septiembre)		October (Octubre)		November (Noviembre)		December (Diciembre)		TOTAL	
	Lbs.	%	Lbs.	%	Lbs.	%	Lbs.	%	Lbs.	%	Lbs.	%	Lbs.	%	Lbs.	%	Lbs.	%	Lbs.	%	Lbs.	%	Lbs.	%	Lbs.	%
Lane Snapper (Caballerote)	9,289	1.39	10,449	1.10	12,392	1.37	13,480	1.24	7,443	1.23	17,571	1.32	19,252	1.25	18,276	1.41	21,212	1.26	19,223	1.39	9,811	[illegible]	14,747	1.22	154,442	1.24
Tuna (Atún)	3,263	.87	3,958	.78	4,971	.93	6,845	.87	11,326	.82	11,715	.74	12,814	.83	7,313	.57	2,759	.79	3,910	.77	2,212	.45	8,247	.82	78,154	.83
Yellowtail (Cola de Gallo)	1,728	.82	795	.88	1,503	.89	1,900	.71	722	.57	872	.91	1,321	.95	1,975	.83	1,316	.73	2,432	1.01	5,444	.67	2,349	.28	21,579	.62
Grunt (Sarnicolorado)	23,728	.48	22,571	.82	24,726	.51	24,195	1.11	18,373	.95	21,915	.87	22,423	.84	43,123	.36	32,577	.88	26,595	.83	26,226	.85	22,921	.94	274,335	.89
Porgies (Cartucho)	4,402	1.11	4,471	1.13	4,132	1.16	917	1.42	1,554	1.44	2,171	1.21	2,171	1.21	3,176	1.37	4,239	1.43	3,661	1.56	4,390	1.45	5,742	1.27	41,249	1.42
Drumfish (Corvina)	3,922	.89	4,225	1.06	4,203	1.25	3,353	.94	2,184	1.05	3,853	1.23	3,528	.96	4,326	1.08	2,156	1.05	4,237	1.23	3,873	1.22	3,283	1.22	41,548	1.14
Pink Snapper (Chillo)	25,373	1.55	26,371	1.41	36,434	1.52	43,811	2.13	43,156	2.19	32,322	1.97	41,221	1.97	35,251	1.72	31,722	1.78	42,473	1.96	31,[illegible]	1.41	31,409	1.54	4[illegible],255	1.75
Yellowtail (Cola de Gallo)	10,953	1.21	12,245	1.41	12,233	1.29	14,[illegible]	1.24	10,127	1.47	9,311	1.34	10,474	1.24	17,102	1.24	16,621	1.34	14,527	1.34	12,[illegible]	1.23	10,974	1.24	163,691	1.34
Dolphin (Dorado)	2,348	1.20	2,741	1.11	742	1.16	1,175	1.22	2,153	.89	1,232	.69	957	1.12	578	.70	410	.91	533	1.25	2,619	1.25	6,619	1.12	[illegible]	1.13
Snappers (Pargo)	379	.83	1,179	.84	1,229	.85	762	.75	834	.75	952	.82	1,744	.73	1,818	.92	1,979	.56	2,759	1.29	2,562	.69	1,721	.84	17,112	.77
Mullet (Lisa)	4,058	.65	3,352	.74	3,363	.46	3,611	.91	2,713	.74	3,512	.57	6,793	.97	5,277	.72	4,250	.81	4,046	.87	5,177	.83	2,827	.81	49,102	.83
Jack (Cero)	1,979	.73	1,353	1.14	1,237	1.17	2,313	.93	2,873	.86	3,435	.87	2,742	1.04	10,329	.93	10,261	.98	1,444	.99	1,927	.83	1,594	.74	42,116	.94
Barracuda (Barra)	22,755	.70	26,790	.62	30,746	.65	21,178	.73	13,173	.77	16,[illegible]	.64	26,549	.44	26,795	.70	19,265	.58	11,553	.67	11,932	.55	11,765	.72	239,352	.68
Blue Marlin (Marlin Azul)	361	1.07	54	1.50	166	1.07	225	.93	413	.73	475	1.24	1,132	1.22	4,276	1.39	1,413	.93	1,153	2.30	152	1.27	646	.59	11,777	1.[illegible]
Grouper (Mero)	30,742	1.15	22,319	1.29	23,543	1.12	24,753	1.42	23,813	1.32	22,773	1.24	32,212	1.09	53,223	1.23	29,[illegible]	1.21	25,771	1.21	32,242	.99	24,937	1.17	321,2[illegible]	1.18
Mojarra (Mojarra)	367	.92	344	.75	1,241	.84	1,325	1.25	454	.85	314	.83	1,536	.84	2,159	1.00	337	.87	910	.67	512	.72	1,446	.71	11,163	.87
Snappers (Pargo)	3,749	1.34	2,473	1.04	2,471	1.16	3,882	1.22	1,996	1.43	2,420	1.21	2,909	1.41	4,243	1.22	3,479	1.25	3,839	1.16	2,754	1.29	2,159	1.24	34,616	1.22
Triggerfish (Peje Puerco)	4,767	.77	3,463	.77	6,193	.86	6,229	.92	1,[illegible]	.99	2,[illegible]	1.03	4,537	.84	6,519	.83	5,151	.89	3,[illegible]67	.93	3,[illegible]	.79	3,832	.91	55,552	.87
Barracuda (Picúa)	706	1.11	525	.99	1,093	1.25	1,389	.79	762	1.04	916	1.10	553	1.37	971	1.05	334	2.33	964	.89	641	.84	1,392	1.27	12,117	1.13
Perch (Pluma)	2,842	.83	2,114	.79	2,352	.87	3,171	.93	1,277	1.10	837	.87	1,183	1.14	4,534	1.03	1,445	.92	1,421	.82	1,222	.84	1,342	.94	27,462	.88
Snook (Róbalo)	1,343	1.01	1,704	1.25	1,722	1.29	1,224	1.19	1,[illegible]	1.[illegible]	3,279	1.17	2,632	1.29	2,159	1.24	2,713	1.39	3,244	.98	2,193	1.[illegible]	374	1.22	24,126	1.19
Sardines (Salmonete)	9,303	.67	7,[illegible]	.65	8,[illegible]	.63	3,224	.94	944	1.07	1,[illegible]	.93	2,[illegible]	.92	4,258	1.23	3,[illegible]2	.97	4,[illegible]	.81	7,[illegible]	.97	6,143	1.34	[illegible]	.82
Mutton Snapper (Pargo)	2,979	1.21	2,[illegible]	1.07	5,[illegible]	1.22	3,331	1.22	4,[illegible]	1.34	3,[illegible]	1.23	3,[illegible]	1.29	6,216	1.29	5,377	1.27	3,[illegible]	1.26	2,[illegible]	1.21	4,[illegible]	1.23	[illegible]	1.29
Jacks (Jacks)	1,159	1.13	2,[illegible]	.93	2,[illegible]	.93	1,713	1.1[illegible]	2,[illegible]	1.32	1,[illegible]	.79	2,[illegible]	.91	1,[illegible]	.55	2,[illegible]	.93	1,[illegible]	.93	1,[illegible]	.65	1,[illegible]	.75	[illegible]	.91
Mackerel (Sierra)	10,[illegible]	1.25	8,[illegible]	1.25	9,[illegible]	1.27	11,[illegible]	1.[illegible]	21,[illegible]	1.26	19,[illegible]	1.27	16,19[illegible]	1.[illegible]	22,[illegible]	1.[illegible]	7,[illegible]	1.27	4,[illegible]	1.23	8,[illegible]	1.13	9,[illegible]	1.[illegible]	[illegible]	1.24
Shark (Tiburón)	[illegible]	.92	[illegible]	.53	[illegible]	.63	[illegible]	.[illegible]	—	—	—	—	—	—	—	—	1,[illegible]	.87	1,[illegible]	.83	[illegible]	.47	3,[illegible]	.[illegible]	3,[illegible]	.73
Other fish (Otros peces)	10,418	.97	11,[illegible]	.87	13,[illegible]	.92	14,[illegible]	1.[illegible]	25,[illegible]	.93	22,[illegible]	.93	15,[illegible]	1.08	37,[illegible]	1.19	25,[illegible]	1.42	22,[illegible]	1.43	18,[illegible]	1.02	24,[illegible]	1.[illegible]	[illegible]	1.[illegible]
Total fish Total pesca	[illegible]	1.24	[illegible]	1.17	[illegible]	1.1[illegible]	[illegible]	1.[illegible]	[illegible]	1.32	[illegible]	1.19	[illegible]	1.17	[illegible]	1.19	[illegible]	1.21	[illegible]	1.27	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
Conch (Carrucha)	26,[illegible]	1.45	35,[illegible]	1.49	27,[illegible]	1.43	27,[illegible]	1.47	28,[illegible]	1.43	26,[illegible]	1.45	26,[illegible]	1.37	24,[illegible]	1.35	21,[illegible]	1.47	14,[illegible]	1.47	18,[illegible]	1.45	19,[illegible]	1.42	[illegible]	1.43
Lobster (Langosta)	[illegible]	3.78	[illegible]	3.[illegible]	[illegible]	3.[illegible]	19,[illegible]	3.67	10,[illegible]	3.67	11,[illegible]	3.67	[illegible]	3.19	3[illegible]	3.[illegible]	21,[illegible]	3.71	[illegible]	3.[illegible]	[illegible]	3.72	24,[illegible]	3.[illegible]	[illegible]	3.[illegible]
Tarpon (Sábalo)	[illegible]	1.[illegible]	[illegible]	1.[illegible]	[illegible]	1.[illegible]	[illegible]	1.[illegible]	[illegible]	1.23	—	—	[illegible]	1.[illegible]	[illegible]	1.[illegible]	[illegible]	1.[illegible]	—	—	[illegible]	1.[illegible]	—	—	[illegible]	1.[illegible]
Jewfish (Cherna)	[illegible]	1.[illegible]	[illegible]	2.[illegible]	[illegible]	1.[illegible]	[illegible]	2.[illegible]	[illegible]	1.95	[illegible]	1.19	[illegible]	1.[illegible]	[illegible]	1.[illegible]	[illegible]	1.[illegible]	[illegible]	1.[illegible]	[illegible]	1.[illegible]	13,[illegible]	1.[illegible]	[illegible]	1.[illegible]
Land Crab (Jaiba)	[illegible]	3.[illegible]	—	—	[illegible]	3.[illegible]	[illegible]	3.[illegible]	[illegible]	3.[illegible]	[illegible]	3.[illegible]	—	—	[illegible]	3.[illegible]	[illegible]	3.[illegible]	[illegible]	3.[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
Shellfish Total (Mariscos)	[illegible]	[illegible]	[illegible]	1.[illegible]	[illegible]	1.[illegible]	[illegible]	2.[illegible]	[illegible]	1.7[illegible]	[illegible]	1.[illegible]	[illegible]	1.[illegible]	[illegible]	1.[illegible]	[illegible]	1.[illegible]	[illegible]	2.[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
Total Fish/Shellfish (Pesca/Mariscos)	[illegible]	1.[illegible]	[illegible]	1.44	[illegible]	1.44	[illegible]	1.[illegible]	[illegible]	2.07	[illegible]	2.[illegible]	[illegible]	2.12	[illegible]	2.13	[illegible]	2.13	[illegible]	2.73	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
Grand Total (Total)	[illegible]	1.[illegible]	[illegible]	1.[illegible]	[illegible]	1.[illegible]	[illegible]	1.[illegible]	[illegible]	1.44	[illegible]	1.[illegible]	[illegible]	1.[illegible]	[illegible]	1.[illegible]	[illegible]	1.[illegible]	[illegible]	1.[illegible]	[illegible]	1.[illegible]	[illegible]	[illegible]	[illegible]	[illegible]

Table 24 . Quantity of fish landings in Puerto Rico by species and month, 1986.

Species (Especies)	January Lbs.	P/L	February Lbs.	P/L	March Lbs.	P/L	TOTAL Lbs.	P/L
Lane Snapper (Arrayado)	10,007	1.28	6,612	1.29	11,184	1.37	27,803	1.31
Tuna (Atún)	14,553	.84	6,253	.93	1,882	.86	22,688	.87
Ballyhoo (Balajú)	795	.66	570	.69	1,202	.72	2,567	.69
Grunt (Boquicolorado)	24,830	.92	22,351	.86	27,444	.91	74,625	.89
Hogfish (Capitán)	3,751	1.39	2,639	1.31	3,014	1.47	9,404	1.39
Trunkfish (Chapín)	3,398	1.01	3,653	1.31	3,661	1.31	10,712	1.21
Silk Snapper (Chillo)	36,448	1.94	46,144	1.94	37,371	1.93	119,963	1.93
Yellowtail (Colirrubia)	12,695	1.47	8,736	1.29	10,863	1.40	32,294	1.38
Dolphin (Dorado)	10,471	.97	2,592	1.63	1,067	1.09	14,130	1.23
Squirrelfish (Gallo)	2,269	.57	1,851	.54	1,254	.86	5,374	.65
Mullet (Jarea)	3,570	.78	3,916	.82	3,287	.87	10,773	.82
Jack (Jurel)	9,261	.64	3,502	.78	3,139	1.16	15,902	.86
Parrotfish (Loro)	17,083	.75	15,636	.84	13,740	.81	46,459	.80
Blue Marlin (Marlin Azúl)	1,785	1.76	-	-	651	1.33	2,436	1.54
Grouper (Mero)	38,804	1.22	29,451	.80	17,470	1.32	85,725	1.11
Mojarra (Mojarra)	1,497	.88	1,061	.91	1,703	.91	4,261	.90
Snappers (Pargos)	2,103	1.29	2,568	1.29	1,701	1.61	6,372	1.39
Triggerfish (Peje Puerco)	5,195	.93	2,132	.97	4,352	1.03	11,679	.97
Barracuda (Picúa)	4,335	1.02	2,473	.76	2,345	1.02	9,153	.93
Porgy (Pluma)	1,988	.82	1,041	.78	818	.85	3,847	.81
Snook (Robalo)	2,894	1.17	1,986	1.16	1,885	.92	6,765	1.08
Goatfish (Salmonete)	6,604	1.06	2,446	.97	2,352	.97	11,402	1.00
Mutton Snapper (Sama)	3,274	1.34	3,370	1.24	3,190	1.48	9,834	1.35
Sardine (Sardina)	2,488	.98	1,455	.98	1,884	1.01	5,827	.99
Mackerel (Sierra)	14,532	1.34	5,553	1.34	9,519	1.36	29,604	1.34
Shark (Tiburón)	2,740	.77	1,491	.57	1,388	.60	5,619	.64
Other fish (Otros peces)	23,809	1.03	21,626	1.00	25,439	1.01	70,874	1.01
Total fish (Total peces)	261,179	1.17	201,108	1.19	193,805	1.26	656,092	1.20
Conch (Carrucho)	20,342	1.51	12,211	1.52	24,232	1.51	56,785	1.51
Land Crab (jueyes)	57	3.00	26	3.00	9,767	3.00	9,850	3.00
Lobster (Langosta)	21,079	3.69	18,743	3.62	22,345	3.74	62,167	3.68
Oysters (Ostiones)	-	-	-	-	500	1.00	500	1.00
Octopus (Pulpo)	1,648	1.82	1,317	1.70	1,457	2.03	4,422	1.85
Shellfish (Otros mariscos)	737	1.48	273	1.77	678	1.87	1,688	1.70
Total shellfish (Total mariscos)	43,863	2.57	32,570	2.73	58,979	2.61	135,412	2.63
TOTAL	305,042	1.37	233,678	1.40	252,784	1.57	791,504	1.44

Table 25 . Number of fish per species measured by month for the Biostatistical Sampling Program

Family and Species	1985 April	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	1986 Jan.	Feb.	Mar.	TOTA
Serranidae													
Epinephelus fulvus	47	121	108	63	244	110	8	38	60	37	50	58	94
E. guttatus	34	64	90	112	348	142	77	39	91	30	12	43	104
E. striatus	4	5	6	6	22	6	2	5	2	4	0	0	67
E. afer	0	1	1	0	3	2	0	0	0	48	2	0	57
E. adscensionis	0	1	9	0	2	0	1	0	0	3	0	0	16
E. morio	0	1	1	1	4	0	0	0	0	0	0	0	7
E. itajarra	0	0	0	0	2	0	0	0	0	0	0	0	2
E. cruentatus	0	0	0	0	1	0	0	0	0	0	0	0	1
Mycteroperca interstitialis	0	0	0	0	0	2	0	0	0	0	0	0	2
Mycteroperca venenosa	1	1	3	1	20	3	1	2	3	1	0	0	36
Lutjanidae													
Lutjanus mahogoni	1	9	14	6	2	13	0	4	0	2	0	1	52
Lutjanus apodus	36	6	12	8	19	67	12	9	24	7	4	0	204
L. synagris	111	71	41	151	217	143	131	43	60	32	36	77	1113
L. vivanus	20	0	1	76	127	42	8	19	28	23	52	0	396
L. griseus	0	1	0	0	0	1	2	0	14	0	0	0	18
L. jocu	0	2	2	4	3	4	3	1	0	0	0	5	24
L. analis	2	5	4	8	9	23	13	4	0	3	1	0	72
L. buccanella	0	0	0	1	19	12	0	0	0	22	22	0	76
L. campechanus	0	0	0	0	0	5	0	0	0	0	0	0	5
Ocyurus chrysurus	22	17	177	112	74	233	165	22	35	49	31	15	952
Rhomboplites aurorubens	1	6	0	1	10	11	0	0	1	9	0	8	47
Etelis oculatus	0	0	0	0	0	0	1	0	0	0	0	0	1
Haemulidae													
Haemulon plumieri	59	186	194	182	570	602	377	192	261	181	42	43	2889
H. flavolineatum	2	40	52	10	44	20	2	1	13	15	1	9	209
H. album	0	0	1	0	0	0	5	0	0	0	0	0	6
H. sciurus	7	26	21	14	63	77	10	42	28	27	0	1	316
H. aurolineatum	0	0	0	0	5	0	0	0	9	1	0	0	15
H. macrostomum	0	0	14	9	2	7	0	0	0	0	0	2	34
H. parrai	0	0	0	3	2	7	0	0	0	0	0	2	14
H. bonariense	0	0	0	0	0	0	0	1	0	0	0	0	1
Sparidae													
Calamus pennatula	25	103	57	62	157	106	3	33	46	59	4	25	680
C. bajonado	0	0	0	2	3	1	0	0	0	14	0	0	20
Calamus spp.	0	0	0	0	0	0	0	5	1	0	0	2	8
Calamus calamus	0	0	28	0	4	0	0	0	0	0	0	0	32
Carangidae													
Vomer (Selene) setapinnis	0	0	0	10	0	0	0	0	0	0	0	0	10
Mullidae													
Pseudupeneus maculatus	30	75	39	77	195	195	151	157	111	109	27	5	1171
Mulloidichthys martinicus	6	13	13	51	43	39	4	11	8	12	15	6	221
listidae													
Balistes vetula	55	35	82	52	55	103	43	1	25	13	4	0	468
Ostraciidae													
Lactophrys trigonus	3	4	8	0	5	1	0	0	7	1	0	0	29
L. bicaudalis	8	10	26	16	44	0	0	9	5	0	0	0	118
L. polygonia	8	25	77	26	79	123	1	4	15	20	3	0	381
L. triqueter	13	11	10	0	17	14	0	2	6	15	0	1	80
Lactophrys spp.	0	26	0	0	0	0	0	0	0	0	0	0	26
L. quadricornis	40	44	41	17	37	42	0	12	0	30	6	0	269
Labridae													
Lachnolamus maximus	7	4	4	6	9	15	27	0	4	1	3	2	82
Halichoeres radiatus	0	0	1	0	0	0	0	0	0	0	0	0	1
Scombridae													
Scomberomorus regalis	2	0	8	10	0	0	0	0	2	0	0	0	22
S. cavalla	0	3	3	14	0	13	0	0	0	1	0	0	34
S. maculatus (probably regalis)	6	0	0	6	0	4	0	0	0	0	0	0	16
Thunnus atlanticus	0	0	0	1	0	0	0	0	0	0	0	0	1
Coryphaenidae													
Coryphaena hippurus	0	2	0	0	0	0	0	0	0	0	0	0	[illegible]
TOTAL	550	918	1148	1118	2460	2188	1047	656	859	769	315	265	1229[illegible]

Includes all fish even if not all data was used for length frequency analysis-see text.

Table 26. Seasonal distribution of size classes of individuals of the yellowtail snapper *Ocyurus chrysurus* from April 1985 through March 1986.

	1985									1986			
Size class (mm)	April	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Jan.	Feb.	March	TOTAL
151-175							1	1					2
176-200	3	5	9	8	9	9	9	3		1			56
201-225	8	4	14	8	30	18	12	9	1				104
226-250	7	6	13	15	13	19	23	4	11	2		3	116
251-275	3		33	23	12	46	39	3	9	8		7	183
276-300	1		41	6	2	55	36	1	7	11		3	163
301-325		2	44	11	2	39	27	1	4	4		2	136
326-350			16	8	1	26	11		3	5			70
351-375			6	8		12	6			1			33
376-400			1	4		1				1			7
401-425				3		4				1			8
426-450				4		3	1						8
451-475				2		1							3
476-500				2									2
TOTAL	22	17	177	102	69	233	165	22	35	34		15	891

Table 27. Seasonal distribution of size classes of individuals of the queen triggerfish *Balistes vetula* from April 1985 through March 1986.

	1985									1986			
Size class (mm)	April	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Jan.	Feb.	March	TOTAL
151-175			1	1	1								3
176-200	2	3	5	3	1	8	1		1	1			25
201-225	9	5	21	5	6	24	7		3	3			83
226-250	6	5	22	11	7	29	8	1	10	4	1		10[illegible]
251-275	14	8	15	9	17	19	2		4	1	1		9[illegible]
276-300	9	7	10	7	13	11	6		4	3	1		71
301-325	4	3	5	8	6	9	11		2	1			49
326-350	4	1	2	5	2	1	4						19
351-375	3			3	2	1	4		1		1		15
376-400	2	2	1			1							7
401-425	1												1
426-450		1											1
TOTAL	55	35	82	52	55	103	43	1	25	13	4		468

Table 28. Seasonal distribution of size classes of individuals of the red hind *Epinephelus guttatus* from April 1985 through March 1986

Size class (mm)	1985 April	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	1986 Jan.	Feb.	March	TOTAL
151-175					1								1
176-200	1		4	2					3				10
201-225	3	4	8	16	8	7	3	1		1	2		53
226-250	11	8	13	13	67	18	13	7	7	2	1	2	16[illegible]
251-275	8	12	19	21	100	33	16	12	15	4	3	1	24
276-300	8	12	22	22	52	30	13	8	13	4	1		185
301-325		9	10	16	45	24	11	5	18	5	2		145
326-350	2	6	7	10	36	10	10	2	14	5	2		104
351-375	1	7	4	4	13	11	7	3	12	6			68
376-400		1	3	5	14	4	2	1	5	2	1		38
401-425		4		2	9	4	1		1				21
426-450					2	1			3	1			7
451-475		1		1	1								3
476-500							1						1
TOTAL	34	64	90	112	348	142		39		30	12	3	1,042

Table 29 . Seasonal distribution of size classes of individuals of the lane snapper *Lutjanus synagris* from April, 1985 through March, 1986.

	1985									1986			
Size class (mm)	April	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Jan.	Feb.	March	TOTAL
126-150			2	5	1	3			1				12
151-175	1	9	5	20	19	22	1	3	3	7			90
176-200	28	14	19	38	80	55	25	3	16	11		4	293
201-225	39	23	11	28	65	35	47	8	25	7	1	38	327
226-250	18	17	3	26	34	23	28	7	10	3		23	192
251-275	10	4		24	17	3	16	5	4			7	90
276-300	6	2		4		2	11	1	1	2		3	32
301-325	6	1			1		3			1		1	13
326-350		1											1
351-375	1												1
376-400	1												1
401-425	1												1
426-450													
451-475										1			1
476-500													
TOTAL	111	71	40	145	217	143	131	27	60	32	1	76	1,05

Table 30 . Seasonal distribution of size classes of individuals of the white grunt (*Haemulon plumieri*), 1985 - 1986

	1985								1986				
Size class (mm)	April	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Jan.	Feb.	March	TOTAL
101-125							2						2
126-150		11	2		4	11	12	7	11	11			70
151-175	3	43	26	15	50	155	87	43	67	38	1		528
176-200	28	55	46	32	115	190	104	60	95	58	4	6	793
201-225	9	41	60	52	110	113	77	54	57	30	2	4	609
226-250	10	26	42	39	69	61	71	23	20	18	2	3	384
251-275	3	9	16	9	27	10	21	4	6	3		1	109
276-300	6	1	1		7	2	3	1	3	1	1		26
301-325									1			11	12
326-350				1									1
426-450									1				1
TOTAL	59	186	193	148	382	542	377	192	261	159	10	26	2,535

Table 30a: Length-Weight Relationships of the Haemulon spp from the trap fishery for 1985. Predictive regression

H. aurolineatum	log10 (WT) = -3.155 + 2.333 log10 (FL)	n= 21 r^2=.909
H. album	log10 (WT) = -3.749 + 2.599 log10 (FL)	n= 33 r^2=.853
H. flavolineatum	log10 (WT) = -3.774 + 2.603 log10 (FL)	n=207 r^2=.800
H. macrostomum	log10 (WT) = -3.849 + 2.648 log10 (FL)	n= 32 r^2=.956
H. parrai	log10 (WT) = -4.478 + 2.905 log10 (FL)	n=23 r^2=.974
H. plumieri	log10 (WT) = -4.420 + 2.885 log10 (FL)	n=2433 r^2=.928
H. sciurus	log10 (WT) = -4.498 + 2.917 log10 (FL)	n=398 r^2=.929

H. plumieri by month log10 (WT) = A + B(log10 (FL))

	A	B	n	r^2
J	-4.688	2.996	228	.943
F	-4.431	2.895	70	.952
M	-4.463	2.908	157	.947
A	-4.069	2.711	56	.847
M	-4.757	3.018	185	.921
J	-3.903	2.666	187	.915
J	-4.648	2.979	161	.954
A	-4.062	2.736	397	.913
S	-4.345	2.850	507	.900
O	-4.522	2.939	247	.961
N	-4.203	2.790	110	.965
D	-4.209	2.794	128	.896

Predicted weight for a 200 mm FL fish

	Wt(g)
H. aurolineatum	163.4
H. album	170.4
H. flavolineatum	164.3
H. macrostomum	175.4
H. parrai	160.9
H. plumieri	165.4
H. sciurus	163.7

Table 30b. Haemulon composition of the trap catch. (Dennis and Rooker)

	N	%
H. plumieri	2457	76.1
H. sciurus	410	12.7
H. flavolineatun	246	7.6
H. album	33	1.0
H. macrostomum	31	1.0
H. parrai	24	0.7
H. aurolineatum	21	0.7
H. melanurum	5	0.1
Total	3227	

Table 31. Seasonal distribution of size classes of individuals of the spotted goatfish *Pseudupeneus maculatus*. from April, 1985 through March, 1986

	1985									1986			
Size class (mm)	April	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Jan.	Feb.	March	TOTAL
126-150		3	3	22	15	11		1	1	3			59
151-175	4	20	9	25	104	91	18	22		32			325
176-200	14	23	10	12	48	68	86	94	47	46			448
201-225	6	21	8	9	12	20	43	39	37	19	2	1	217
226-250	2	7	3	2		5	4	1	3	4	2	4	37
251-275			1										1
276-300							2			1			3
376-400							1						1
401-425				2									2
426-450				2									2
501-525				1									1
TOTAL	26	74	34	75	179	195	154	157	88	105	4	5	1,096

Table 32 . Seasonal distribution of size classes of individuals of the trunkfish *Lactophrys trigonus*. from April, 1985 through March, 1986.

Size class (mm)	1985 April	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	1986 Jan.	Feb.	March	TOTAL
226-250								2					2
276-300	1	1	2		3		1		1				9
301-325	1		3		1	1	3		2				11
351-375		1			1								2
376-400		1											1
TOTAL	2	3	5		5	1	4	2	3				25

Table 33 . Seasonal distribution of size classes of individuals of the scrawled cowfish *Lactophrys quadricornis*. from April 1985 through March 1986.

Size class (mm)	1985 April	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	1986 Jan.	Feb.	March	TOTAL
126-150				1	2	1							4
151-175	4	1	8	6	8	3	4		2				3[illegible]
176-200	7	9	11	6	12	11	7		5		1		6[illegible]
201-225	7	6	8	2	5	11	9	6	4	1	1		60
226-250	4	6	1	1	8	4	1	10	3		1		39
251-275	1	4	2		2	2	2	1	6				20
276-300	1		1			5	3		4				14
301-325		1		1			1		1				4
326-350													
351-375		3											3
TOTAL	24	30	31	17	37	37	27	17	25	1	3		249

Table 34 . Seasonal distribution of size classes of individuals of the honeycomb cowfish *Lactophrys poligonia*. from April 1985 through March 1986.

	1985									1986			
Size class (mm)	April	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Jan.	Feb.	March	TOTAL
126-150				1	3	1				1			6
151-175	1		3	4	8	13				3			32
176-200	1	3	17	6	21	46	5	2	5	1			107
201-225		4	24	10	23	39	11	1	6	2			120
226-250	1	3	8	5	10	13	6	3	3				52
251-275	1	3	6		11	6	4	4	1				36
276-300	1	3	5		1	1	1	2					14
301-325		1	4		2								7
326-350						1							1
TOTAL	5	17	67	26	79	120	27	12	15	7			375

Table 35 . Seasonal distribution of size classes of individuals of the smooth trunkfish *Lactophrys triqueter*, from April 1985 through March 1986.

Size class (mm)	1985 April	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	1986 Jan.	Feb.	March	TOTAL
100-125			1			1							2
126-150	3		4		11	1			1				20
151-175	3	1	2		7	4	4	1	1				23
176-200	2	2	2			1		1	1				9
201-225			1						3				4
226-250	2	1											3
251-275								2					2
276-300								2					2
TOTAL	10	4	10		18	7	4	6	6				65

Table 36 . Seasonal distribution of size classes of individuals of the spotted trunkfish *Lactophrys bicaudalis*. from April 1985 through March 1986.

	1985									1986			
Size class (mm)	April	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Jan.	Feb.	March	TOTAL
101-125		2			1								
126-150		2	2	2	3		1			1			
151-175	5	3	6	5	5	14	3		2				[illegible]
176-200	3	5	7	3	6	19	7		3	1			54
201-225		1	7	6		7	5		1				27
226-250			3	3	1	3			1				11
251-275													
276-300						1	2		1				4
351-375				1									1
TOTAL	8	13	25	20	16	44	18		8	2			154

Table 37a. Number of lobsters reported by coast by month and total number of lobsters measured by sex per month.

Coast	1985 Apr.	May	Jun.	Jul.	Aug.	Sept.	Oct.	Nov.	Dec.	1986 Jan.	Feb.	March	TOT
East	24	26	21	15	22	104	12	125	31	14	-	12	4
West	180	-	65	70	87	82	60	33	67	32	39	-	7
North	-	-	-	-	-	-	5	12	5	8	-	-	3
South	50	29	62	91	55	124	126	157	97	50	-	29	8
TOTALS	254	55	148	176	164	310	203	327	200	104	39	41	2,0
Egg bearing	-	-	-	-	2	-	1	-	-	1	-	-	
No. female	130	23	69	81	86	138	106	150	88	52	19	13	9
No. male	124	32	79	95	76	172	96	177	112	51	20	28	1,0

Table 37b. Number of lobsters reported by coast by month from April 1984 through March 1986.

	1984									1985			
Coast	Apr.	May	Jun.	Jul.	Aug.	Sept.	Oct.	Nov.	Dec.	Jan.	Feb.	March	Total
West	158	246	100	103	80	46	63	28	169	-	-	-	993
East	26	118	67	-	13	-	-	5	52	34	33	42	390
South	2	-	34	12	-	-	45	-	39	34	66	33	265
North	-	-	-	-	-	-	-	-	3	-	-	-	3
Totals	186	364	201	115	93	46	108	33	263	68	99	75	1651

Table 37c: Summary of spiny lobsters sampled from October, 1983 to March, 1984 in Puerto Rico by month.

Month	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Total
No. of lobsters	326	429	208	236	303	291	1793

Table 38A. Length-frequency distribution by sex and by month for the spiny lobster, *Panulirus argus* (n=2021)

Year	Month	Sex	Size classes 2	2-2.5	2.5-3	3-3.5	3.5-4	4-4.5	4.5-5	5-5.5	5.5-6	6-6.5	6.5-7	TOTALS
1985	April	female		2	22	47	40	14	5					130
		male		1	19	19	44	31	9		1			124
	May	female			2	5	8	7	1					23
		male			5	4	7	9	3		4			32
	June	female		17	14	14	17	5	1		1			69
		male		6	19	12	13	17	8	1	1	1	1	79
	July	female	1	2	17	29	22	10						81
		male		5	15	34	28	9	2	1			1	95
	August	female		4	14	38	15	13	3	1				88
		male		12	20	19	14	8	3					76
	September	female		2	31	66	30	7	2					138
		male		11	29	57	40	20	7	7	1			172
	October	female		1	10	38	39	17	2					107
		male			11	17	43	15	7	3				96
	November	female		6	23	59	49	8	4	1	2			150
		male		3	14	53	71	24	11		1			177
	December	female		2	11	33	28	9	3					88
		male			9	31	30	28	11	1		2		117
1986	January	female		1	8	19	13	8	3	1				53
		male			7	12	10	13	4	4		1		51
	February	female			11	7	1							19
		male		1	9	6	2		2					20
	March	female		1	3	9								13
		male				4	14	9	1					28
TOTALS			1	77	323	632	578	281	92	20	11	4	2	2,021
		females	1	38	166	364	262	98	24	3	3	0	0	959
		male	0	39	157	268	316	183	68	17	8	4	2	1,062

Table 38b. Length-frequency distribution by sex and by month for the spiny lobster, *Panulirus argus*. (N=1595)

Year	Month		Size classes 2-2.5	2.5-3	3-3.5	3.5-4	4-4.5	4.5-5	5-5.5	4-5.6	6-6.5	5.5-7	Totals
1984	April	females	1	18	24	23	15	5	1				87
		males	2	23	18	21	21	12	2				99
	May	females	13	27	44	64	28	12	4				192
		males	11	22	34	48	37	15	8	3	1	1	180
	June	females	7	14	18	16	9	4	1	2			71
		males	8	16	17	12	12	5	2	2			74
	July	females	1	15	10	14	6	6					52
		males	2	11	22	13	11	4					63
	August	females		3	9	16	15	5					48
		males		3	6	15	12	4	4		1		45
	September	females		2	8	11							21
		males	1	6	7	5	4	2					25
	October	females		4	21	25	16	3					69
		males		1	9	8	14	6	1				39
	November	females		1	5	7	1		1				15
		males		1	7	5	3	1					17
	December	females	1	22	32	38	17	6	1				117
		males	5	12	25	46	38	11	2	1			140
1985	January	females		1	15	13	3	4	1				37
		males		2	10	10	4	4		1			31
	February	females		5	12	12	11	1					41
		males		2	11	23	16	3	3				55
	March	females			12	15	3	1					31
		males		1	9	15	10	6	2				43
		Totals	52	212	385	475	306	120	33	9	2	1	1,595
Totals------		females	23	112	210	254	124	47	9	2	0	0	781
		males	29	100	175	221	182	73	24	7	2	1	814

Table 39. Coastal and oceanic pelagic fishes landes per month at local fishing tournaments, Males (M), Female (F), and Totals (T) are presented in each volumn. (1985)

Species	April			May			June			July			August			September			October			TOTALS
	F	M	T	F	M	T	F	M	T	F	M	T	F	M	T	F	M	T	F	M	T	
Coryphaena hippurus	17	4	23	28	12	43	10	10	20	-	-	-	-	-	1	3	2	6	1	0	2	95
Acanthocybium solanderi	-	-	-	-	-	6	-	1	9	-	-	-	-	-	1	-	-	3	-	-	-	1
Makaira nigricans	-	-	1	2	12	16	7	13	20	9	10	19	58	52	114	28	71	99	3	10	13	282
Tetrapturus albidus	-	-	-	-	-	-	1	-	1	-	-	-	-	3	3	-	-	-	3	5	13	17
Thunnus albacares	-	-	-	-	-	-	-	-	1	-	-	-	-	-	-	-	-	4	-	-	1	6
Istiophorus platypterus	-	-	-	-	-	1	-	-	-	-	-	1	-	-	-	-	-	-	9	5	17	19
Katsuwonus pelamis	-	-	-	-	-	2	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	2
Tetrapturus pfluegeri	-	-	-	-	-	-	-	-	-	-	-	-	1	-	1	-	-	-	-	-	-	1

Table 40 . Number of king mackerels *Scomperomorus cavalla* and cero *S. regalis* measured between May and July, 1985.

Species	May	June	July	T O T A L
Scomeromorus cavalla	14	37	13	64
S. regalis	120	32	10	162
TOTAL	134	69	23	226

Table 41. Number and sex of dolphin (fish) *Coryphaena hippurus* per month.

Sex	April	May	June	July	August	September	October	TOTAL
Female	17	28	10	0	0	3	1	59
Male	4	12	10	0	0	2	0	28
Unknown	0	3	0	0	0	0	0	3
Total	21	43	20	0	0	5	1	90
Not measured	2	0	0	0	1	1	1	5

Total reported - 95

Table 42. Fork length-frequency distribution for *Coryphaena hippurus* for April - October, 1985 (n=90)

Classes	Size (cm)	Frequency			
		Males	Females	Unidentified	TOTAL
1	80-99	-	5	-	5
2	90-99	11	18	2	31
3	100-109	4	16	-	20
4	110-119	4	11	1	16
5	120-129	3	5	-	8
6	130-139	-	4	-	4
7	180	-	-	-	-
TOTAL		22	59	3	84

*Not all fish landed were measured.

Table 43. Number of blue marlin, *Makaira nigricans* per month by sex (1985).

Sex	April	May	June	July	August	September	October	TOTAL
Female	0	2	7	9	58	28	3	107
Male	0	12	13	10	52	71	10	168
Unknown	1	2	0	0	4	1	0	8
Total	1	16	20	19	114	100	13	282
Not measured or not landed	2	3	34	-	85	13	5	142

Total reported - 288

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