APRIL 1994

FISHERY STATISTICS OF THE WESTERN PACIFIC

VOLUME IX

Territory of American Samoa (1992)

Commonwealth of the Northern Mariana Islands (1992)

Territory of Guam (1992)

State of Hawaii (1992)

Compiled by

David C. Hamm, Frederick Dowdell, and Michael M. Quach

Honolulu Laboratory
Southwest Fisheries Science Center
National Marine Fisheries Service, NOAA
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Southwest Fisheries Science Center
Administrative Report H-94-02

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PREFACE

In recent years, the demand for data and information concerning marine fisheries has greatly increased. To help meet these increased needs in the central and western Pacific areas, the National Marine Fisheries Service's Southwest Fisheries Center initiated the Western Pacific Fishery Information Network (WPACFIN), which assists Pacific island fisheries agencies in upgrading their data collecting, processing, and reporting capabilities. Several agencies are participating in this program: the National Marine Fisheries Service's Southwest Fisheries Center and its Honolulu Laboratory, and the Southwest Region and its Western Pacific Program Office, American Samoa's Department of Marine and Wildlife Resources, the Commonwealth of the Northern Mariana Islands' Division of Fish and Wildlife, Guam's Division of Aquatic and Wildlife Resources, Hawaii's Division of Aquatic Resources, and the Western Pacific Regional Fishery Management Council.

In 1982, these agencies formed a Fisheries Data Coordinating Committee (FDCC) and a FDCC Technical Subcommittee to help guide, coordinate, and monitor all of the many activities being undertaken by each agency to improve their systems. Significant progress has been made by all participating agencies, particularly in the areas of upgrading data collecting and processing systems.

As a major step in improving and coordinating the data reporting and distributing systems of the agencies, in May 1985, the FDCC agreed to begin producing a combined document reporting each island's major fisheries statistics. Production of the document would be the responsibility of the FDCC Technical Subcommittee and would be coordinated by the WPACFIN program manager. Each agency would supply the data required to produce the tables and graphs for its respective chapter of the report, and central WPACFIN staff would produce and distribute the document as part of the Administrative Report Series of the Southwest Fisheries Science Center.

This document is the ninth volume in the series "Fishery Statistics of the Western Pacific" and contains summaries of commercial and creel survey fishery landings data for 1992 for American Samoa, the Commonwealth of the Northern Mariana Islands, Guam, and Hawaii. The first eight volumes of this series contained similar reports for these areas for 1979 through 1991. This volume is different from the previous volumes in that the American Samoa chapter contains an additional summary report on annual creel survey data and some of the expansion algorithms for American Samoa were changed, and the Guam chapter contains only commercial landings data because no creel survey data were available from the Division of Aquatic and Wildlife Resources.

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BACKGROUND

This report has been compiled by governmental fisheries agencies of several islands in the central and western Pacific area in a cooperative and continuing effort to improve the availability and dissemination of fisheries information. The data contained herein have been collected, computerized, edited, and processed by agencies participating in the Western Pacific Fishery Information Network (WPACFIN), including American Samoa's Department of Marine and Wildlife Resources (DMWR), the Commonwealth of the Northern Mariana Islands' (CNMI) Division of Fish and Wildlife (DFW), Guam's Division of Aquatic and Wildlife Resources (DAWR), Hawaii's Division of Aquatic Resources (HDAR) and the Southwest Fisheries Center's (SWFC) Honolulu Laboratory, National Marine Fisheries Service (NMFS). The data summaries and graphs contained in this document were prepared by WPACFIN staff at the Honolulu Laboratory from data collected by WPACFIN or provided by these agencies. Data from DMWR and DFW were supplied on floppy diskettes in established WPACFIN data base formats, whereas data on the Guam commercial fisheries were collected on forms provided to fish wholesalers by WPACFIN through DAWR. Data for Hawaii were provided by HDAR on computer tape or via a dial in telecommunications link. Once data from all agencies were put into the proper format on the central WPACFIN computer and appropriate edit and verification procedures completed, summary reports and files were produced using software developed specifically for this purpose. Graphs were produced using commercially available software.

PROGRESS

In 1981, when WPACFIN began assisting agencies in improving their data collecting and processing systems, only the State of Hawaii had computerized processing. By mid-1982, fisheries offices in American Samoa, Guam, and the CNMI had implemented computerized processing on microcomputers supplied by WPACFIN. Since that time, these agencies have made many significant improvements to their data collecting systems and have established sound automated data processing systems. Most agencies can now provide fishery statistics to WPACFIN within 45 days of the date of collection. The HDAR has also improved its systems in recent years and has significantly reduced the lag time in data processing from about 2.5 years to less than 3 months for most data. The HDAR has also improved its procedures for editing, updating, and processing Hawaii's data. The biggest problems still facing HDAR in improving their data systems are reducing deliquency of fishermen reporting and implementing a validation system to ensure that what gets reported by fishermen is accurate.

PRECAUTIONS

Data collecting and processing systems vary greatly among Pacific island fisheries agencies. Although much standardization has taken place and is continuing, there remain many unique aspects of each island's systems based on local needs and capabilities. When using summaries contained in this report, especially if making comparisons, one should keep in mind the nature of the systems used to produce the data. For instance, Hawaii's data are based on mandatory monthly reporting by licensed commercial fishermen, CNMI's data are based on voluntary monthly reporting of fish buyers using government-provided invoices, Guam's data are from WPACFIN-sponsored voluntary reporting by major commercial dealers, and American Samoa's data are based on creel survey sampling of participation and interviews of fishermen and a data expansion program. Each system has advantages and disadvantages, and the user should be aware of them when comparing or interpreting data.

The user should also be aware that species assemblages vary among island groups, as do cultural preferences and principal fishing techniques. Population size is of particular importance when making interpretations of the relative value and importance of the fisheries. To help the user make these value judgments, more detailed explanations of the data collecting and processing systems are provided in each island's section of this report.

CONTENTS

This document is divided into sections by island group. Each section contains reports on the monthly and annual landings by species or species groups for the commercial fleet. The section for American Samoa also contains estimates of total catch and effort of all boat-based fisheries including recreational and subsistence fishing activities. These estimates and their associated confidence limits were generated by computer-based data expansion systems using sample fishery data collected by creel survey programs. Commercial landings for American Samoa were calculated based on information gathered during the creel survey sampling program. Two sets of annual summaries are included for Hawaii, one each for commercial landings that were sold and not sold.

Definitions

In addition to the description of the systems and the monthly and annual reports, each section contains graphs of some of the summary fishery statistics of particular interest or importance to participating WPACFIN agencies. For purposes of graphical presentation of the data, several categories have been defined for each island's fisheries. Because of differences in reporting systems and capabilities among the islands, species

contained within each category may vary, but all categories are documented in each island's section. Overlap exists among some of the categories used for different graphs. Categories used in the graphs include the following:

1. Fisheries Categories - These are combinations of species of similar ecological types, specifically, pelagic, bottom fish, reef fish, and "other." "Other" includes groups that generally traverse these categories, such as certain sharks and jacks, or are not typically included in these groups, such as mullet and milkfish.

2. Pelagic Management Unit Species (PMUS) - The Magnuson Fishery Conservation and Management Act of 1976 was amended in 1992 to place tunas under U.S. jurisdiction for management. The Fishery Management Plan for Pacific pelagic species was amended to reflect this change. However, this report series will continue to treat the tunas as a separate category for graphical purposed. Therefore, the PMUS category in this document includes only the billfishes, wahoo, mahimahi, and oceanic sharks.

3. Bottom Fish Management Unit Species (BMUS) - Defined as the species of initial importance in the Fishery Management Plan for bottom fish and seamount fisheries, including the major deepwater snapper, grouper, emperor, and certain jacks.

4. Tunas - Predominantly skipjack and yellowfin tunas in all areas, but also including most other tuna species and excluding wahoo. In Hawaii bigeye tuna are also of major importance in recent years.

5. Other Tunas - All tunas as defined above, but excluding skipjack and yellowfin tunas.

6. Billfish - Combination of all marlin, sailfish, spearfish, and swordfish species.

Graphics

A minimum of four types of graphs are provided with each island's data. The chapter for American Samoa has an additional type of graph on catch and effort from creel survey data. Type I graphs present summary charts of the major species and species groups for 1992. Type II graphs are seasonality plots for the major species or species groups, showing the average weight landed during each month for all years combined. Type III graphs are based on annual summary statistics and help visualize the variability among years. Type IV graphs are plots of monthly landings of some of the major commercially important species and

document fluctuations in landings of these species over the entire time series. Type V graphs are based on creel survey data and include plots of catch and effort by fishing method plus a combination of several of the types I-IV graphs.

I. Monthly graphs for each year's data including:

- A. Major fisheries categories
- B. Tunas, PMUS, and BMUS
- C. Wahoo, mahimahi, and billfish
- D. Skipjack, yellowfin, and other tunas

II. Plots of average monthly landings for:

- A. Tunas, PMUS, and BMUS
- B. Wahoo and mahimahi
- C. Billfish species:
  1. Marlin and sailfish - American Samoa and CNMI
  2. Blue marlin, black marlin, and striped marlin - Hawaii
  3. Sailfish, shortbill spearfish, and swordfish - Hawaii
- D. Skipjack, yellowfin, and other tunas
- E. BMUS and the most important bottom fish species
  1. BMUS, ehu, and onaga - American Samoa
  2. BMUS, emperor, and grouper - CNMI and Guam
  3. BMUS, onaga, and opakapaka - Hawaii
  4. BMUS, ehu, and uku - Hawaii

III. Graphs of annual summary statistics for:

- A. Major fisheries categories
- B. Total commercial landings - pounds and dollars
- C. Tunas, PMUS, and BMUS
- D. Wahoo, mahimahi, and billfish
- E. Skipjack, yellowfin, and other tunas

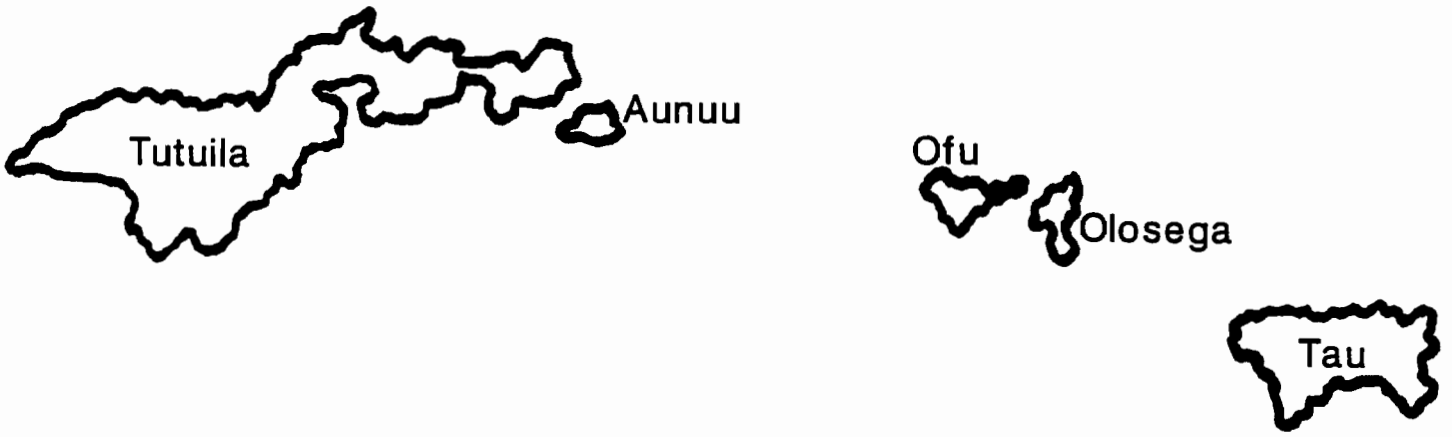
IV. Graphs of monthly landings over the entire time series for the following major species:

- A. Wahoo - All four areas
- B. Mahimahi - All four areas
- C. Blue marlin - All four areas
- D. Black marlin - Hawaii
- E. Striped marlin - Hawaii
- F. Sailfish - American Samoa, Guam, and Hawaii
- G. Shortbill spearfish - Guam and Hawaii
- H. Swordfish - Hawaii
- I. Skipjack tuna - All four areas
- J. Yellowfin tuna - All four areas
- K. Opakapaka - Hawaii
- L. Onaga - American Samoa and Hawaii
- M. Uku - Hawaii
- N. Ehu - American Samoa and Hawaii

O. Emperors - CNMI and Guam
P. Grouper - CNMI and Guam

V. Graphs of certain statistics generated by creel surveys for American Samoa

A. Offshore monthly catch by method
B. Offshore monthly effort by method
C. Offshore annual catch and effort for the time series



American Samoa

Fishery Statistics
1992

AMERICAN SAMOA 1992 FISHERY STATISTICS

Compiled by

American Samoa
Department of Marine and Wildlife Resources
and the
Western Pacific Fishery Information Network

April 1994

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AMERICAN SAMOA 1992 FISHERY STATISTICS

INTRODUCTION

American Samoa (approximately lat. 14° S, long. 170° W) is composed of the major island of Tutuila, where about 87% of the total population of 35,000 live; Aunu'u, a small island less than 1 mile off Tutuila's southeast shore; the Manu'a Islands of Ofu, Olesaga, and Ta'u, located about 105 km (65 miles) east of Tutuila and having about 4,300 residents; the uninhabited Rose Atoll, some 290 km (180 miles) east of Tutuila; and Swain's Island about 350 km (220 miles) north of Tutuila, where approximately 20 people live. The American Samoa Department of Marine and Wildlife Resources (DMWR), formerly the Office of Marine Resources, located in Pago Pago on Tutuila, has been collecting commercial fisheries data from the local fleet on Tutuila since the early 1970's and from the Manu'a Islands since 1983. Most data collected over the years have been from the commercial fleet, but beginning in October 1985, DMWR's data collection programs were modified to include data on recreational and subsistence fisheries as well.

The domestic fisheries of American Samoa are typically small boat, one-day fisheries. Although one domestic longliner operated for a few years, the majority of the fleet is composed of two types of 28- to 29-foot outboard engine powered catamarans called alias and manta cats. During 1992, 27 boats were sampled, 23 from Tutuila and 4 from the Manu'a Islands. Fishing is mostly done by trolling and bottom fishing methods, and the majority of the catch is sold locally. During 1992, on average, trips on boats from Tutuila had three-man crews, fished 10 hours, and caught a little over 225 pounds of fish.

DATA COLLECTING SYSTEM

The major method used by DMWR for obtaining catch statistics has always been interviewing fishermen at the end of their trips. Before October 1985, the DMWR data collectors kept records of as much commercial fishing activity as possible and routinely obtained interviews from fishermen as often as possible. This method of data collection provided accurate data on the commercial fleet for the trips where interviews were conducted, but was very labor intensive, did not cover all trips, and intentionally excluded the recreational and subsistence fisheries. Therefore, in October 1985, a new sampling program was implemented on Tutuila to provide better coverage and statistics for all boat-based fisheries. The new sampling methods were not implemented in the Manu'a Islands because the fishing fleet is centrally located and is small enough that statistics were being collected for nearly every trip.

The boat-based fishery sampling program used for Tutuila since October 1985 is similar to the one used in Guam. This systematic, random sampling program stratifies sampling by type of day, either weekday or weekend-holiday. The DMWR staff normally sample 2 weekdays and 1 weekend-holiday per week. During survey days, counts of total participation are collected to facilitate expansion of the survey data to estimates of total catch and effort for Tutuila. Unless contrary information is available, a boat is assumed to be fishing if it is "out," as evidenced by its trailer at a boat ramp or being missing from its normal berthing area. Tutuila is divided into six areas, five of which are sampled. Presumably, fishing activity and success rate of boats in the non-sampled area are similar to those in the sampled areas. Further assumptions are that information given by the fishermen during the interview is accurate and that the fishermen interviewed are representative of the entire fishing population.

Survey data are collected in the field on interview log sheets and returned to the DMWR office for editing. The following information is collected for each interview:

* Date
* Type of day
* Time
* Boat name
  Captain or boat owner's name
* Method of fishing
* Disposition of catch
* Species caught
  Number of pieces for each species
* Weight in pounds for each species
  Price per pound for each species
  Area fished
* Home island
  Number of trips since last interview
* Total trip weight in pounds
  Total hours fished (trip length)
  Number of fishermen
  Number of gear used

It is not always possible for the interviewer to obtain information on all items listed. However, the ones marked with an asterisk (*) are considered essential for data expansion purposes. Identification and weight of each species are often not obtainable; in which case, a code for species groupings (e.g., miscellaneous bottom fish) is used.

DATA PROCESSING SYSTEM

Interview forms are returned to the office, edited, coded, and entered into computerized databases--the commercial landings database for data collected before October 1985, and the offshore

creel survey database for data collected since then. Edit and summary reports are produced to help verify that the data were entered correctly. The creel survey data are then processed using the offshore data expansion system programmed by WPACFIN specifically for DMWR. The data expansion system is menu-driven and steps the user through a series of processes that summarize creel survey data to produce catch and effort expansion and species composition files and reports. Typically 1 month of data is processed at a time, although the system allows for processing broader time increments of data. The data expansion system was modified in 1992 to improve the estimates generated by the system by pooling interview data for the time period in calculating mean catch rates for each fishing method.

In fisheries applications, calculation of catch per unit of effort (CPUE) may be done in several ways. In the pre-1992 version of the data expansion system average monthly CPUE was calculated by using daily CPUEs as observations and finding the simple mean of those observations. Daily CPUE measurements were calculated by dividing the sum of the catch by the sum of the hours fished from the interviews for each day sampled. The variance of the mean monthly CPUE was calculated using standard variance formulas with each daily CPUE as input to the equation, keeping day types and methods separate. This method requires a high interview rate be obtained for each day sampled if the daily estimates of effort, catch, and CPUE for each fishing method are to be representative of the whole offshore fishery. Since this is not always the case, it is believed that more representative estimates could be obtained by pooling interview data over the entire time period for which an expansion was being made and using daily participation counts to estimate effort. Therefore, the new expansion algorithms implemented in 1992 calculate the monthly mean CPUE for each fishing method the same as the daily measurements were previously calculated (the sum of the catch divided by the sum of the effort), but use all interviews for the time period. The variance of the CPUE is estimated by using the standard, but more complex, formula for a ratio estimator. Sample day participation counts and percent coverage estimates are still used to estimate total effort, but the split of the effort between fishing methods and the mean CPUE for each method are now calculated using interviews collected during the entire time period, thus reducing the potential biases caused by the small number of interviews on any given sample day.

The new expansion system generates estimates of time-period catch, effort, and participation for each fishing method and day type. Percent species composition by weight is calculated from the sampled catch and used to create estimates of total landings by species by multiplying the sampled percent by the expanded estimated catch. All steps in the expansion process are stratified by fishing method. The expansion system produces reports and files of the final totals for all important catch and effort statistics. These files are later used to produce the reports contained in this document. On a quarterly basis, copies

of the DMWR data bases are sent to the Honolulu Laboratory for updating the central WPACFIN files.

At the Honolulu Laboratory, the creel survey data are transferred to the central computer for further verification and processing before generating the summary reports contained in this report series. Because DMWR changed their data collecting systems during 1985, new processing procedures were established by WPACFIN to standardize reports as much as possible to facilitate comparisons between years. Data collected before October 1985 were adjusted upward by the percent coverage to account for missed trips. The offshore creel survey data collected since October 1985 were expanded to estimates of total Tutuila landings and then separated into commercial versus noncommercial landings (e.g., sold versus not sold). The expansion and separation algorithms stratify the data by fishing method to improve the final estimates of landings by species. After the file of estimated commercial landings for Tutuila was created from the expansion files, the adjusted commercial landings for Manu'a were added to it, thereby creating the commercial landings data base for American Samoa. Additionally, because price information was not obtained for all landings that were sold, the commercial data were edited to create price information when none was available. To accomplish this, a three-tiered editing system was designed to "create" price estimates based on the best information available. The edit system puts average price information in each record where it is missing, based on the following three levels of available information:

1. If price information is available for the same species in the same month, the weighted average price per pound is written into all records missing that information for that species and month.

2. If no price information is available for the same species and same month, the annual weighted average price for that species is written into records for that species and month.

3. If no price information is available for a species for the entire year, the program prompts the user for input and updates the file based on the response.

As data base records are updated, each is flagged to indicate which level of estimation was used for the price information. This makes it possible to easily exclude the "created" data, if desired, when doing economic analysis.

DATA REPORTING SYSTEM

After all editing, quality control, and other processing activities are completed on the central WPACFIN computer, monthly

and annual commercial landings reports by species are generated. Each of the commercial landings reports contains the common name, weight in pounds, value in dollars, and the average price per pound of each species or species group. Each monthly report contains a subtotal for the sum of all species for that month, and the December report contains the December subtotal and the annual total. Annual reports contain the total estimated commercial landings for each species and for all species combined for the calendar year.

Estimated total landings reports are provided separately for Tutuila and Manu'a. Monthly and annual estimated total landings reports are provided for the Manu'a Islands. Two types of total landings reports are included from the creel survey data expansion system for Tutuila: catch and effort expansion reports and species composition reports. These reports were produced by using the expansion and species composition files as input to report generating programs developed by WPACFIN. The programs reorganize, format, and summarize data from the expansion files to improve the presentation of data and reduce the amount of space required to report the important statistics. Monthly and annual estimated total landings reports for 1992 include the expansion summary of catch and effort statistics by fishing method and the summary species composition reports for all methods combined.

Monthly expansion and species composition reports have matching totals for catch by fishing method since the monthly species composition reports are based on the expansion files. Annual expansion and species composition reports also have identical totals because the species reports were generated from the annual expansion files. However, the totals on the annual report will not equal the total obtained by adding all of the monthly files together because the annual expansion reports were generated by re-expanding the entire year's data together, thereby increasing the sample size significantly, and it is hoped, improving the annual estimates of percent species composition and of catch and effort and their associated coefficients of variation (CV's). The annual species composition report was created by calculating annual percentages of species composition by combining all sampling for the year and then multiplying these percentages by the annual expansion totals. This allows calculation of annual percent species composition based on greatly increased sample size.

Computer generated numbers and all totals in the reports are subject to rounding error. All catches are reported in pounds, and effort, in boat hours. In the offshore expansion reports, the boat counts by fishing method will not add to the total boat count when the same boat was used for more than one method on a single trip. In these cases, the boat is included in the count for each method used but included only once in the total count. A CV is included for each statistic in the expansion reports. The CV provides a measurement of the relative variation

associated with the estimate preceding it and is calculated by dividing the standard error of the estimate by the estimate and multiplying by 100 and rounding to express the answer as a whole percentage. The larger the CV, the larger the relative variation in the data used to generate the estimate and, therefore, the less precise the estimate. An asterisk following a line means the number of samples collected for that method during that month were insufficient to properly calculate the CV. There must be at least two weekday and two weekend-holiday samples for each method to properly compute a standard error and, therefore, properly compute the CV. If an asterisk is present and the CV is greater than zero, then samples on either weekdays or weekend-holidays were sufficient to compute a standard error for that type of day but not for the other type of day. In this case, the CV provided in the report is for the type of day in which sample information met the minimum requirements for calculating CV. If an asterisk is present and the CV equals zero, then neither type of day had sufficient number of samples to calculate CV. It follows then, anytime an asterisk is present for any of the fishing methods, the totals for the month are questionable.

The following species, species groups, and abbreviations are used in the tables and graphs of American Samoa's data:

I. Pelagic Management Unit Species (PMUS)

Although the Magnuson Fishery Conservation and Management Act of 1976 was amended in 1992 to include tunas in the Pacific PMUS (PPMUS), this report series will continue to consider tunas as a separate category. The PMUS category includes:

Dolphin (mahimahi)
Blue marlin
Black marlin
Sailfish
Shortbill spearfish
Wahoo
Sharks

II. Bottom Fish Management Unit Species (BMUS)

Jacks (unclassified)
Black jack
Amberjack
Giant trevally
Bottom fish (unclassified)
Groupers (unclassified)
Blacktip grouper
Lunartail grouper
Snappers (unclassified)
Bluelined snapper
Gray jobfish (uku)
Deepwater bottom fish (unclassified)
Yellow opakapaka

II. Bottom Fish Management Unit Species (BMUS) (cont.)

Hawaiian opakapaka
Opakapaka
Gindai (flower snapper)
Yellowtail snapper
Lehi (silverjaw snapper)
Onaga (red or longtail snapper)
Ehu (red snapper)
Emperorfish (unclassified)
Ambon emperor
Redgill emperor

III. Billfish

Blue marlin
Black marlin
Sailfish
Shortbill spearfish

IV. Tunas

Tunas (unclassified)
Skipjack tuna
Yellowfin tuna
Dogtooth tuna
Albacore
Bigeye tuna
Kawakawa

V. Other Tuna

The above tuna species excluding skipjack and yellowfin tuna

VI. Fisheries Categories

A. Pelagics

All PMUS and tuna species plus the following:
Troll fish (unclassified)
Barracuda
Rainbow runner

B. Bottom Fish

All BMUS plus the following:
Bigeye trevally
Bluefin trevally
Goldspot trevally
Trevally
Whitemouth trevally
Peacock grouper
Flagtail grouper
Tomato grouper

B. Bottom Fish (cont.)

Yellowspot grouper
Striped grouper
Spotted grouper
Small mouth grouper
Giant grouper
Rufous snapper
Blacktail snapper
Onespot snapper
Twinspot/red snapper
Humpback snapper
Blood snapper
Brown snapper
Bluelined gindai
Black snapper
Stone's snapper
Kusakar's snapper
Bigeye emperor
Goldenline bream
Longnose emperor
Bluelined bream
Orangespot emperor
Snake mackerel
Oilfish

C. Reef Fish

Reef fish (unclassified)
Mullet
Rabbitfish
Surgeonfish and tangs (unclassified)
Lined surgeon
Yelloweyed surgeon
Convict tang
Dussumier's surgeon
Spotted surgeon
Unicornfish
Squirrelfish (unclassified)
Berndt's soldierfish
Bigeye squirrelfish
Parrotfish
Terapon perch
Wrasse
Goatfish (unclassified)
Pink goatfish
Inshore groupers (unclassified)
Triggerfish
Butterflyfish
Porcupinefish
Inshore snappers (unclassified)

D. Other

Miscellaneous
Bigeye scad
Rays
Eels
Invertebrates (unclassified)
Crabs (unclassified)
Kona crab
Mangrove crab
Spiny lobster
Slipper lobster
Shrimp
Octopus
Squid
Clams
Turtle

INTERPRETATION OF STATISTICS

The user is reminded to pay heed to the precautions and assumptions identified earlier in this document, when making interpretations of or inferences from data reported in the tables and graphs. Remember also that neither the commercial landings summaries nor the creel summaries are based on a census of all the fishing activities, but on samples of those activities. One of the major factors in expanding the creel survey data into monthly and annual estimates is the use of proportionality constants to adjust for percent coverage of the surveys. The flexibility of the survey design allows for refinement of these constants as additional information is gained on the fishing activities. If the constants are improved upon, the basic survey data can be re-expanded to create better overall estimates. However, the variability and species composition would not be expected to change since these statistics are based on the actual survey information collected from the fishermen. The estimates of total landings are considered to be conservative because the catch from the subsistence inshore fisheries are currently not included in this document. DMWR has implemented an inshore sampling program and WPACFIN staff has nearly completed writing the computer software to process the data. Therefore, inshore data summaries should be available in future volumes of this report series.

Table II.1.1

American Samoa 1992 Estimated Commercial Landings

Species	Pounds	Value	$/lb
Jacks	12	21	1.67
Black jack	549	1,338	2.44
Barracudas	79	118	1.50
Large barracuda	488	927	1.90
Small barracuda	408	709	1.74
Sharks	399	679	1.70
Eels	99	198	2.00
Bottom fish	449	897	2.00
Groupers	291	590	2.03
Tomato grouper	22	35	1.58
Lunartail grouper	725	1,461	2.02
Blue lined snapper	1,161	2,158	1.86
Twinspot/red snapper	35	71	2.00
Humpback snapper	576	1,163	2.02
Gray jobfish	1,674	3,283	1.96
Opakapaka	199	379	1.90
Gindai (flower snap)	252	483	1.92
Lehi (silverjaw)	755	1,814	2.40
Ehu (red snapper)	851	1,713	2.01
Stone's snapper	48	91	1.90
Emperors (misc)	2,440	4,274	1.75
Longnose emperor	1,779	3,684	2.07
Orangespot emperor	34	68	2.00
Redgill emperor	2,140	4,144	1.94
Squirrelfish	28	43	1.52
Saber squirrelfish	4	7	1.90
Dolphin (mahimahi)	1,860	4,377	2.35
Blue marlin	4,598	8,622	1.88
Rainbow runner	1,106	2,101	1.90
Wahoo	3,194	5,323	1.67
Skipjack tuna	70,358	56,030	0.80
Dogtooth tuna	1,758	3,512	2.00
Yellowfin tuna	24,510	54,461	2.22
Kawakawa	183	157	0.86
** TOTAL **	123,065	164,932	1.34

Table II.1.2

American Samoa January 1992 Estimated Commercial Landings

Species	Pounds	Value	$/lb
Wahoo	11	17	1.50
Skipjack tuna	2,121	1,747	0.82
Yellowfin tuna	2,297	5,249	2.29
** SUBTOTAL **	4,428	7,012	1.58

Table II.1.3

American Samoa February 1992 Estimated Commercial Landings

Species	Pounds	Value	$/lb
Skipjack tuna	8,236	8,641	1.05
Yellowfin tuna	694	1,500	2.16
** SUBTOTAL **	8,930	10,141	1.14

Table II.1.4

American Samoa March 1992 Estimated Commercial Landings

Species	Pounds	Value	$/lb
Large barracuda	392	745	1.90
Small barracuda	25	47	1.90
Groupers	46	89	1.93
Lunartail grouper	280	546	1.95
Blue lined snapper	68	125	1.85
Humpback snapper	20	38	1.95
Gray jobfish	264	505	1.91
Opakapaka	22	42	1.90
Ehu (red snapper)	81	214	2.65
Emperors (misc)	149	290	1.95
Longnose emperor	57	111	1.95
Redgill emperor	227	443	1.95
Dolphin (mahimahi)	341	853	2.50
Blue marlin	3,993	7,427	1.86
Wahoo	389	296	0.76
Skipjack tuna	2,403	3,235	1.35
Dogtooth tuna	790	1,580	2.00
Yellowfin tuna	4,390	8,294	1.89
Kawakawa	43	36	0.85
** SUBTOTAL **	13,978	24,915	1.78

Table II.1.5

American Samoa April 1992 Estimated Commercial Landings

Species	Pounds	Value	$/lb
Black jack	12	24	2.00
Small barracuda	169	292	1.73
Eels	99	198	2.00
Groupers	20	61	3.00
Lunartail grouper	102	195	1.91
Blue lined snapper	466	783	1.68
Humpback snapper	186	355	1.91
Gray jobfish	441	754	1.71
Gindai (flower snap)	15	30	2.00
Lehi (silverjaw)	108	324	3.00
Emperors (misc)	1,955	3,304	1.69
Longnose emperor	495	1,123	2.27
Redgill emperor	949	1,718	1.81
Dolphin (mahimahi)	124	310	2.50
Rainbow runner	18	35	1.90
Wahoo	165	495	3.00
Skipjack tuna	1,525	1,508	0.99
Dogtooth tuna	547	1,215	2.22
Yellowfin tuna	3,060	6,435	2.10
Kawakawa	62	53	0.85
** SUBTOTAL **	10,518	19,211	1.83

Table II.1.6

American Samoa May 1992 Estimated Commercial Landings

Species	Pounds	Value	$/lb
Black jack	22	42	1.90
Small barracuda	59	92	1.55
Groupers	30	56	1.90
Lunartail grouper	65	112	1.73
Blue lined snapper	136	213	1.57
Humpback snapper	44	69	1.55
Gray jobfish	100	155	1.55
Gindai (flower snap)	113	215	1.91
Lehi (silverjaw)	74	115	1.55
Ehu (red snapper)	447	851	1.91
Stone's snapper	48	91	1.90
Longnose emperor	81	126	1.55
Redgill emperor	215	371	1.73
Dolphin (mahimahi)	195	455	2.33
Wahoo	138	272	1.97
Skipjack tuna	2,673	2,629	0.98
Dogtooth tuna	11	22	2.00
Yellowfin tuna	1,020	2,220	2.18
** SUBTOTAL **	5,471	8,105	1.48

Table II.1.7

American Samoa June 1992 Estimated Commercial Landings

Species	Pounds	Value	$/lb
Small barracuda	37	71	1.90
Sharks	209	356	1.70
Groupers	120	227	1.90
Lunartail grouper	8	15	1.98
Blue lined snapper	93	178	1.90
Humpback snapper	105	199	1.90
Gray jobfish	56	105	1.87
Lehi (silverjaw)	37	71	1.90
Longnose emperor	707	1,343	1.90
Redgill emperor	168	318	1.89
Dolphin (mahimahi)	329	733	2.23
Blue marlin	400	800	2.00
Rainbow runner	8	14	1.90
Wahoo	57	151	2.65
Skipjack tuna	2,762	2,471	0.89
Dogtooth tuna	124	136	1.10
Yellowfin tuna	2,135	4,733	2.22
Kawakawa	67	57	0.85
** SUBTOTAL **	7,423	11,979	1.61

Table II.1.8

American Samoa July 1992 Estimated Commercial Landings

Species	Pounds	Value	$/lb
Sharks	100	170	1.70
Groupers	6	12	2.00
Lunartail grouper	11	22	2.00
Blue lined snapper	15	30	2.00
Humpback snapper	7	14	2.00
Gray jobfish	6	12	2.00
Gindai (flower snap)	20	40	2.00
Ehu (red snapper)	23	46	2.00
Dolphin (mahimahi)	42	99	2.33
Wahoo	313	604	1.93
Skipjack tuna	7,008	5,895	0.84
Yellowfin tuna	2,317	6,715	2.90
** SUBTOTAL **	9,868	13,659	1.38

Table II.1.9

American Samoa August 1992 Estimated Commercial Landings

Species	Pounds	Value	$/lb
Jacks	12	21	1.67
Large barracuda	96	182	1.90
Small barracuda	37	65	1.78
Groupers	31	62	2.02
Lunartail grouper	47	94	1.98
Humpback snapper	33	62	1.87
Gray jobfish	198	370	1.87
Ehu (red snapper)	267	534	2.00
Emperors (misc)	229	466	2.03
Orangespot emperor	34	68	2.00
Squirrelfish	10	16	1.57
Dolphin (mahimahi)	208	484	2.33
Rainbow runner	999	1,899	1.90
Wahoo	178	292	1.64
Skipjack tuna	8,066	4,033	0.50
Yellowfin tuna	2,730	6,824	2.50
** SUBTOTAL **	13,176	15,472	1.17

Table II.1.10

American Samoa September 1992 Estimated Commercial Landings

Species	Pounds	Value	$/lb
Black jack	55	133	2.42
Small barracuda	51	92	1.78
Groupers	24	45	1.90
Lunartail grouper	42	84	1.98
Blue lined snapper	90	199	2.21
Twinspot/red snapper	6	11	2.00
Humpback snapper	30	57	1.90
Gray jobfish	221	421	1.90
Lehi (silverjaw)	156	364	2.33
Emperors (misc)	17	32	1.90
Longnose emperor	101	192	1.90
Redgill emperor	221	419	1.90
Saber squirrelfish	4	7	1.90
Blue marlin	205	396	1.93
Rainbow runner	28	54	1.90
Wahoo	892	1,464	1.64
Skipjack tuna	11,832	5,916	0.50
Dogtooth tuna	252	492	1.95
Yellowfin tuna	1,641	3,610	2.20
** SUBTOTAL **	15,869	13,987	0.88

Table II.1.11

American Samoa October 1992 Estimated Commercial Landings

Species	Pounds	Value	$/lb
Black jack	389	972	2.50
Barracudas	79	118	1.50
Small barracuda	22	40	1.78
Bottom fish	434	867	2.00
Groupers	15	37	2.50
Lunartail grouper	122	304	2.50
Blue lined snapper	144	355	2.48
Twinspot/red snapper	30	60	2.00
Humpback snapper	142	350	2.48
Gray jobfish	370	926	2.50
Opakapaka	178	337	1.90
Gindai (flower snap)	11	21	1.95
Lehi (silverjaw)	327	818	2.50
Ehu (red snapper)	9	18	2.00
Emperors (misc)	90	182	2.03
Longnose emperor	219	547	2.50
Redgill emperor	318	795	2.50
Dolphin (mahimahi)	82	187	2.29
Rainbow runner	52	100	1.90
Wahoo	930	1,529	1.64
Skipjack tuna	14,414	12,040	0.84
Dogtooth tuna	9	18	2.00
Yellowfin tuna	3,420	7,262	2.12
** SUBTOTAL **	21,803	27,885	1.28

Table II.1.12

American Samoa November 1992 Estimated Commercial Landings

Species	Pounds	Value	$/lb
Black jack	11	22	2.00
Small barracuda	7	11	1.50
Sharks	90	153	1.70
Bottom fish	15	30	2.00
Tomato grouper	18	28	1.58
Lunartail grouper	34	68	2.00
Blue lined snapper	54	108	2.00
Gindai (flower snap)	73	146	2.00
Ehu (red snapper)	25	50	2.00
Squirrelfish	11	17	1.50
Wahoo	15	32	2.10
Skipjack tuna	5,558	4,758	0.86
Dogtooth tuna	24	48	2.00
Yellowfin tuna	347	645	1.86
** SUBTOTAL **	6,282	6,116	0.97

Table II.1.13

American Samoa December 1992 Estimated Commercial Landings

Species	Pounds	Value	$/lb
Black jack	60	144	2.42
Tomato grouper	4	6	1.58
Lunartail grouper	15	23	1.50
Blue lined snapper	95	167	1.76
Humpback snapper	10	19	1.87
Gray jobfish	17	34	2.00
Gindai (flower snap)	21	32	1.50
Lehi (silverjaw)	52	122	2.33
Longnose emperor	119	242	2.03
Redgill emperor	42	80	1.89
Squirrelfish	7	11	1.50
Dolphin (mahimahi)	540	1,258	2.33
Wahoo	105	172	1.64
Skipjack tuna	3,761	3,157	0.84
Yellowfin tuna	461	974	2.11
Kawakawa	11	11	1.00
** SUBTOTAL **	5,320	6,450	1.21
** TOTAL **	123,065	164,932	1.34

Table II.2.1

American Samoa 1992 Manu'a Estimated Commercial Landings

Species	Pounds	Value	$/lb
Black jack	23	46	2.00
Small barracuda	7	11	1.50
Sharks	190	323	1.70
Bottom fish	15	30	2.00
Groupers	6	12	2.00
Tomato grouper	22	35	1.58
Lunartail grouper	74	141	1.90
Blue lined snapper	119	226	1.89
Humpback snapper	14	28	2.00
Gray jobfish	39	78	2.00
Gindai (flower snap)	143	276	1.93
Ehu (red snapper)	80	160	2.00
Squirrelfish	18	27	1.50
Dolphin (mahimahi)	4	6	1.50
Blue marlin	400	800	2.00
Wahoo	395	822	2.08
Skipjack tuna	3,315	3,460	1.04
Dogtooth tuna	846	1,692	2.00
Yellowfin tuna	1,951	3,214	1.65
Kawakawa	11	11	1.00
** TOTAL **	7,672	11,396	1.49

Table II.2.2

American Samoa January 1992 Manu'a Estimated Commercial Landings

Species	Pounds	Value	$/lb
Wahoo	11	17	1.50
Skipjack tuna	251	251	1.00
Yellowfin tuna	292	438	1.50
** SUBTOTAL **	554	706	1.27

Table II.2.3

American Samoa February 1992 Manu'a Estimated Commercial Landings

Species	Pounds	Value	$/lb
Skipjack tuna	129	129	1.00
Yellowfin tuna	236	354	1.50
** SUBTOTAL **	365	483	1.32

Table II.2.4

American Samoa March 1992 Manu'a Estimated Commercial Landings

Species	Pounds	Value	$/lb
Wahoo	22	46	2.10
Skipjack tuna	100	103	1.03
Dogtooth tuna	790	1,580	2.00
Yellowfin tuna	12	20	1.68
** SUBTOTAL **	924	1,749	1.89

Table II.2.5

American Samoa April 1992 Manu'a Estimated Commercial Landings

Species	Pounds	Value	$/lb
Black jack	12	24	2.00
Lunartail grouper	14	28	2.00
Blue lined snapper	12	24	2.00
Gray jobfish	16	32	2.00
Gindai (flower snap)	15	30	2.00
Skipjack tuna	287	269	0.94
Yellowfin tuna	117	197	1.68
** SUBTOTAL **	473	604	1.28

Table II.2.6

American Samoa May 1992 Manu'a Estimated Commercial Landings

Species	Pounds	Value	$/lb
Blue lined snapper	6	12	2.00
Gindai (flower snap)	9	18	2.00
Ehu (red snapper)	23	46	2.00
Wahoo	31	58	1.85
Skipjack tuna	457	457	1.00
Dogtooth tuna	11	22	2.00
Yellowfin tuna	295	501	1.70
** SUBTOTAL **	832	1,114	1.34

Table II.2.7

American Samoa June 1992 Manu'a Estimated Commercial Landings

Species	Pounds	Value	$/lb
Blue marlin	400	800	2.00
Wahoo	57	151	2.65
Skipjack tuna	271	404	1.49
Dogtooth tuna	12	24	2.00
Yellowfin tuna	164	397	2.42
** SUBTOTAL **	904	1,775	1.96

Table II.2.8

American Samoa July 1992 Manu'a Estimated Commercial Landings

Species	Pounds	Value	$/lb
Sharks	100	170	1.70
Groupers	6	12	2.00
Lunartail grouper	11	22	2.00
Blue lined snapper	15	30	2.00
Humpback snapper	7	14	2.00
Gray jobfish	6	12	2.00
Gindai (flower snap)	20	40	2.00
Ehu (red snapper)	23	46	2.00
Wahoo	250	500	2.00
Skipjack tuna	465	465	1.00
Yellowfin tuna	157	236	1.50
** SUBTOTAL **	1,060	1,547	1.46

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No tables are available for the
months of August and September
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Table II.2.9

American Samoa October 1992 Manu'a Estimated Commercial Landings

Species	Pounds	Value	$/lb
Blue lined snapper	7	14	2.00
Humpback snapper	7	14	2.00
Gindai (flower snap)	5	10	2.00
Ehu (red snapper)	9	18	2.00
Dolphin (mahimahi)	4	6	1.50
Wahoo	9	19	2.10
Skipjack tuna	452	452	1.00
Dogtooth tuna	9	18	2.00
Yellowfin tuna	373	560	1.50
** SUBTOTAL **	875	1,110	1.27

Table II.2.10

American Samoa November 1992 Manu'a Estimated Commercial Landings

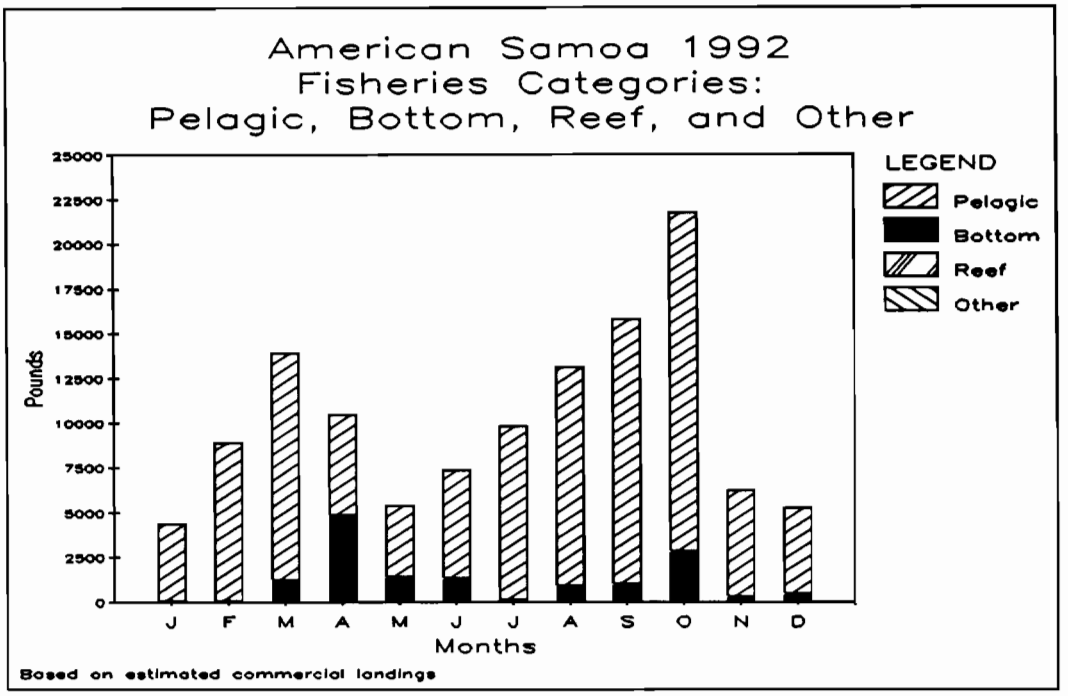
Species	Pounds	Value	$/lb
Black jack	11	22	2.00
Small barracuda	7	11	1.50
Sharks	90	153	1.70
Bottom fish	15	30	2.00
Tomato grouper	18	28	1.58
Lunartail grouper	34	68	2.00
Blue lined snapper	54	108	2.00
Gindai (flower snap)	73	146	2.00
Ehu (red snapper)	25	50	2.00
Squirrelfish	11	17	1.50
Wahoo	15	32	2.10
Skipjack tuna	727	749	1.03
Dogtooth tuna	24	48	2.00
Yellowfin tuna	228	383	1.68
** SUBTOTAL **	1,332	1,844	1.38

Table II.2.11

American Samoa December 1992 Manu'a Estimated Commercial Landings

Species	Pounds	Value	$/lb
Tomato grouper	4	6	1.58
Lunartail grouper	15	23	1.50
Blue lined snapper	25	38	1.50
Gray jobfish	17	34	2.00
Gindai (flower snap)	21	32	1.50
Squirrelfish	7	11	1.50
Skipjack tuna	176	181	1.03
Yellowfin tuna	77	129	1.68
Kawakawa	11	11	1.00
** SUBTOTAL **	353	464	1.31
** TOTAL **	7,672	11,396	1.49

Figure II.1.1



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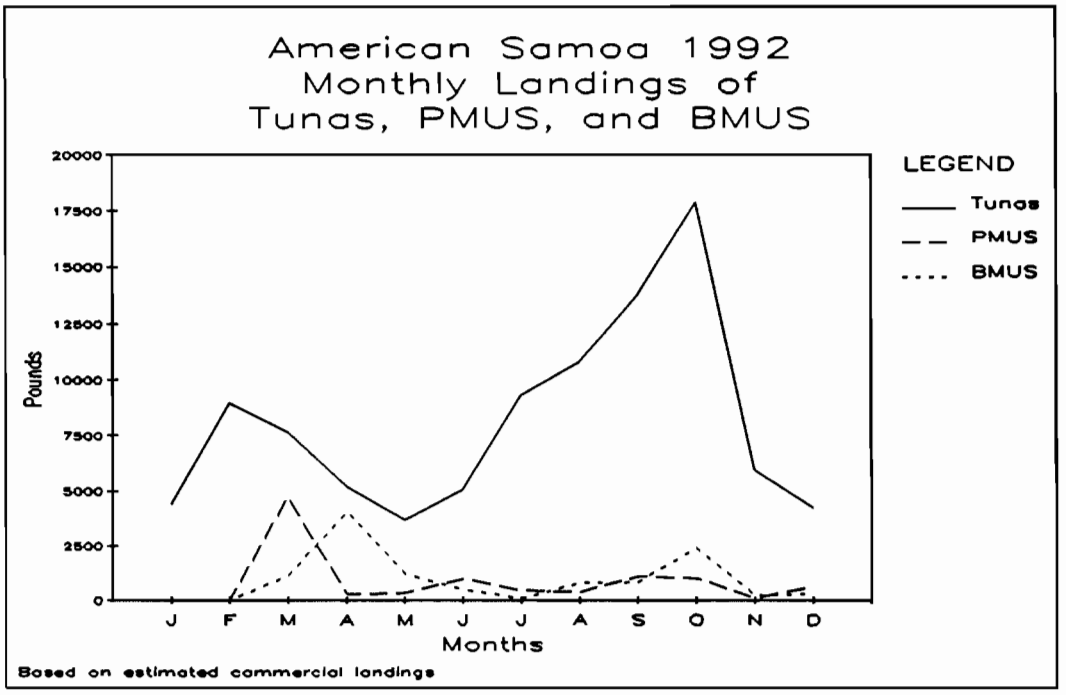

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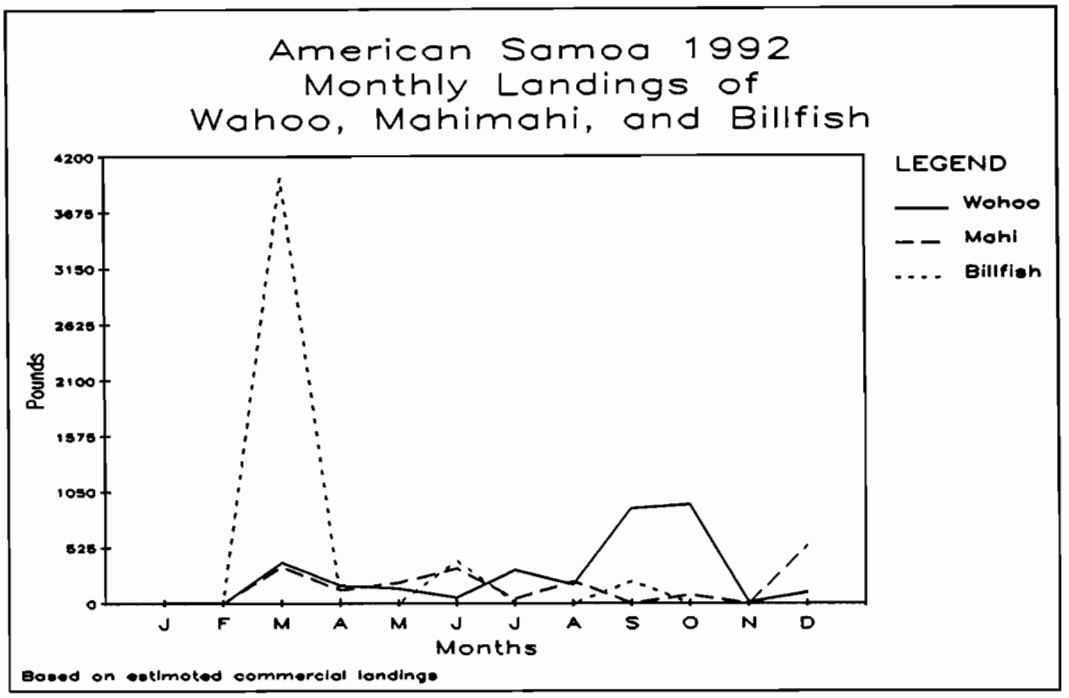
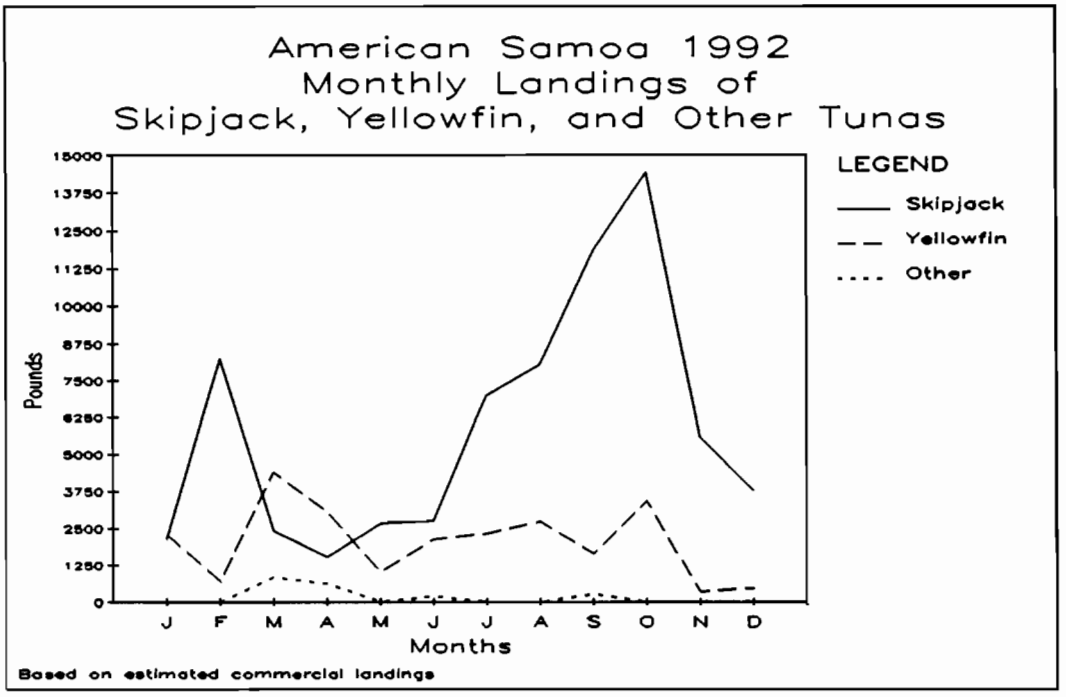


Figure II.1.4



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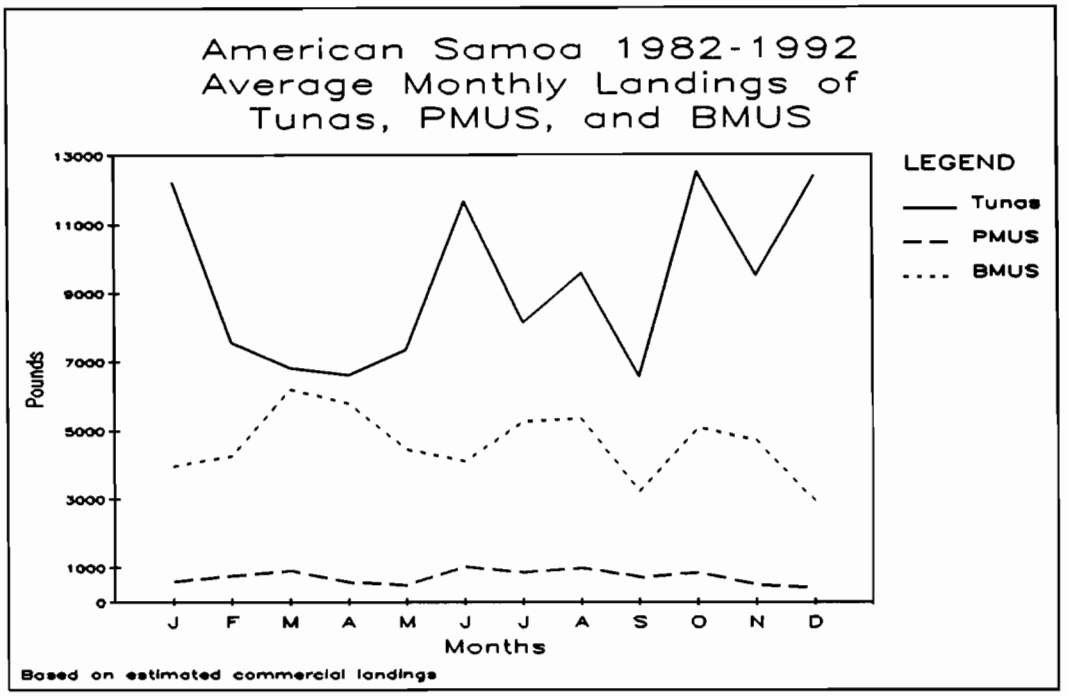

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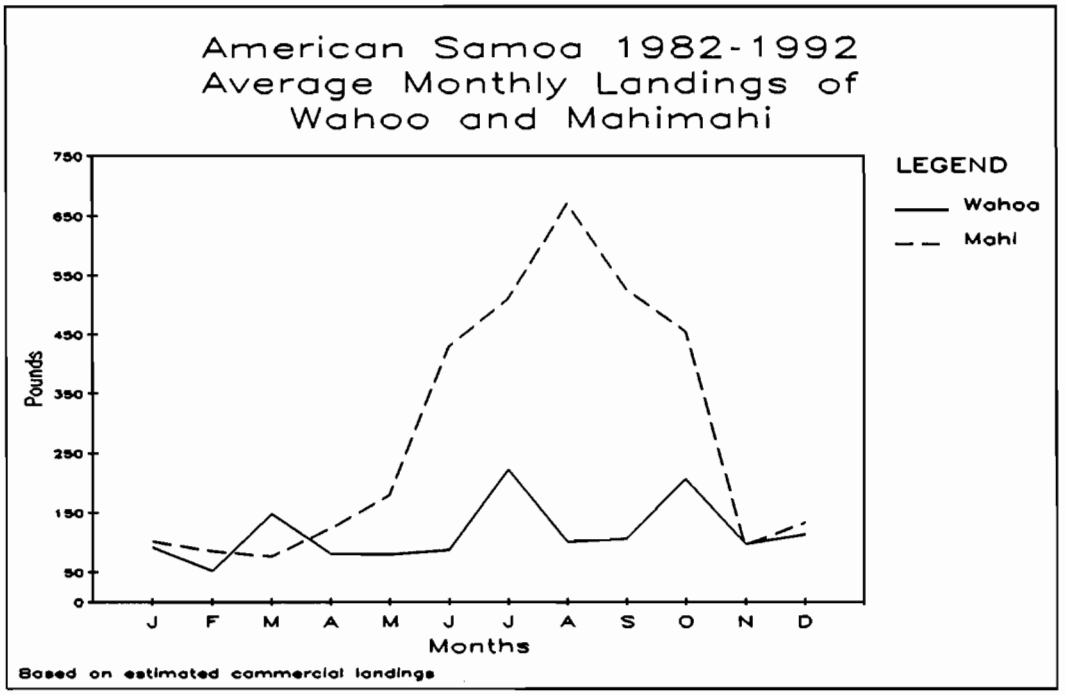

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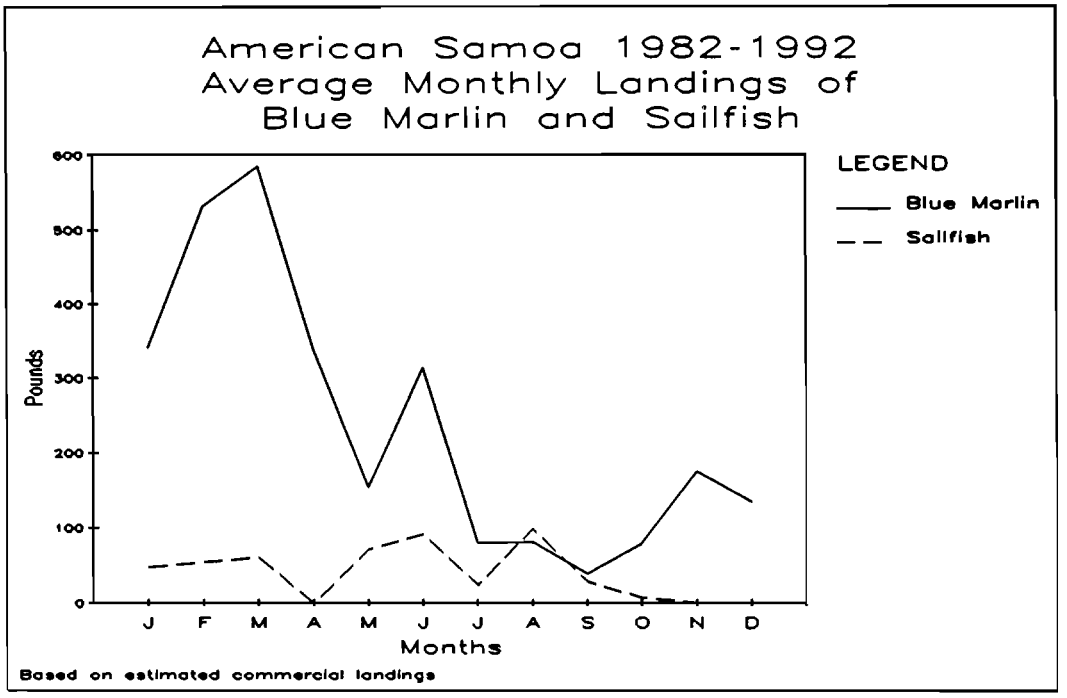

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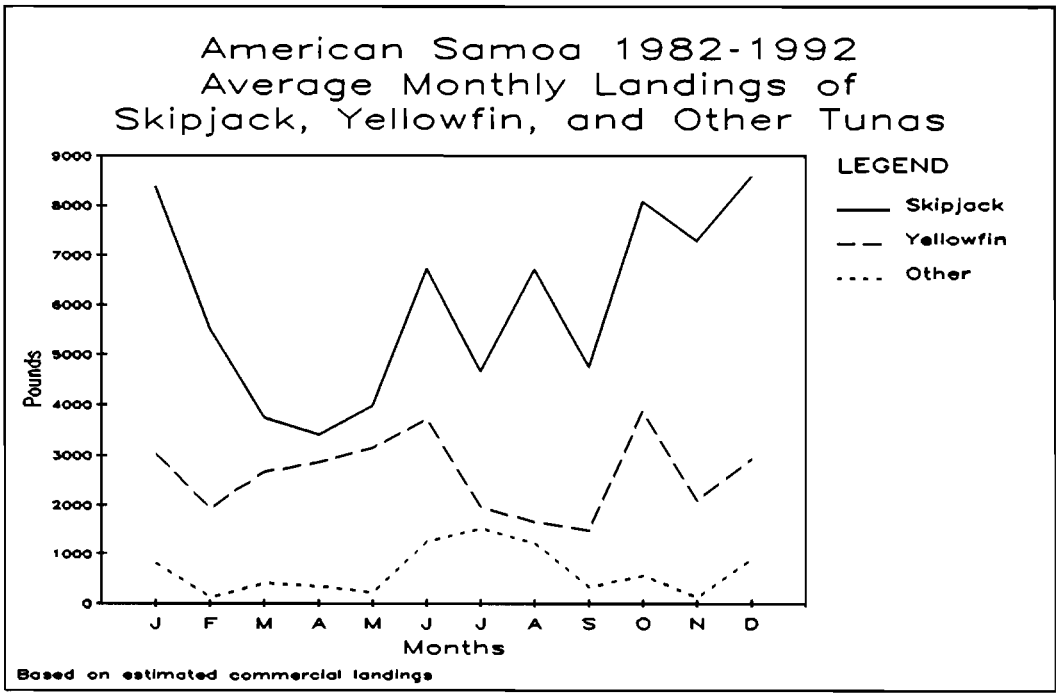

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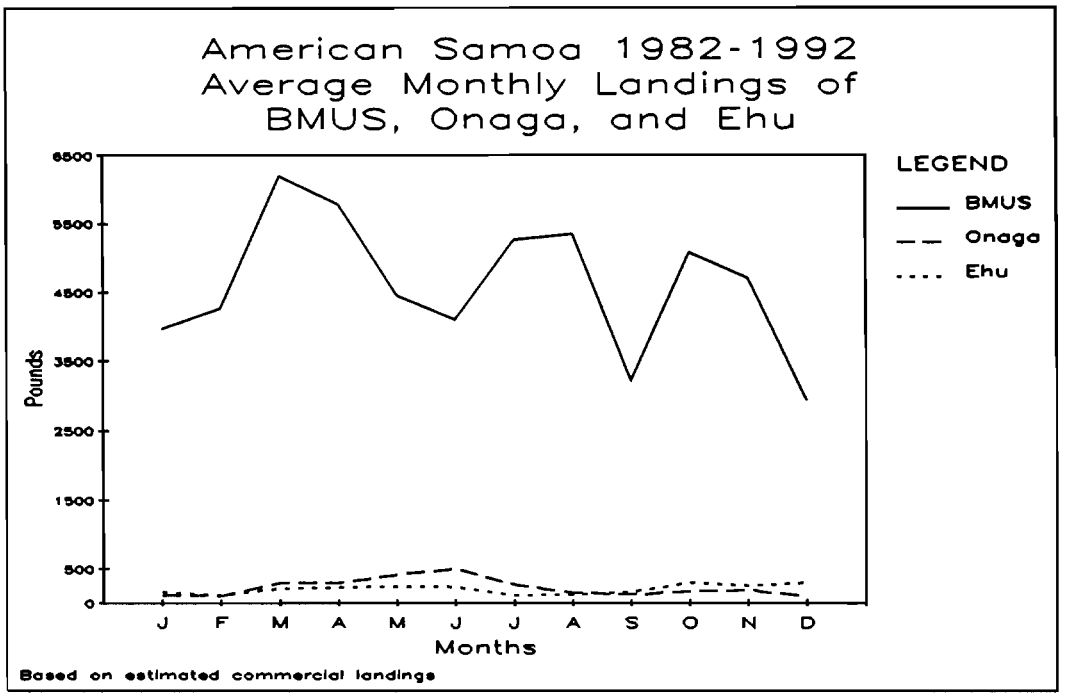
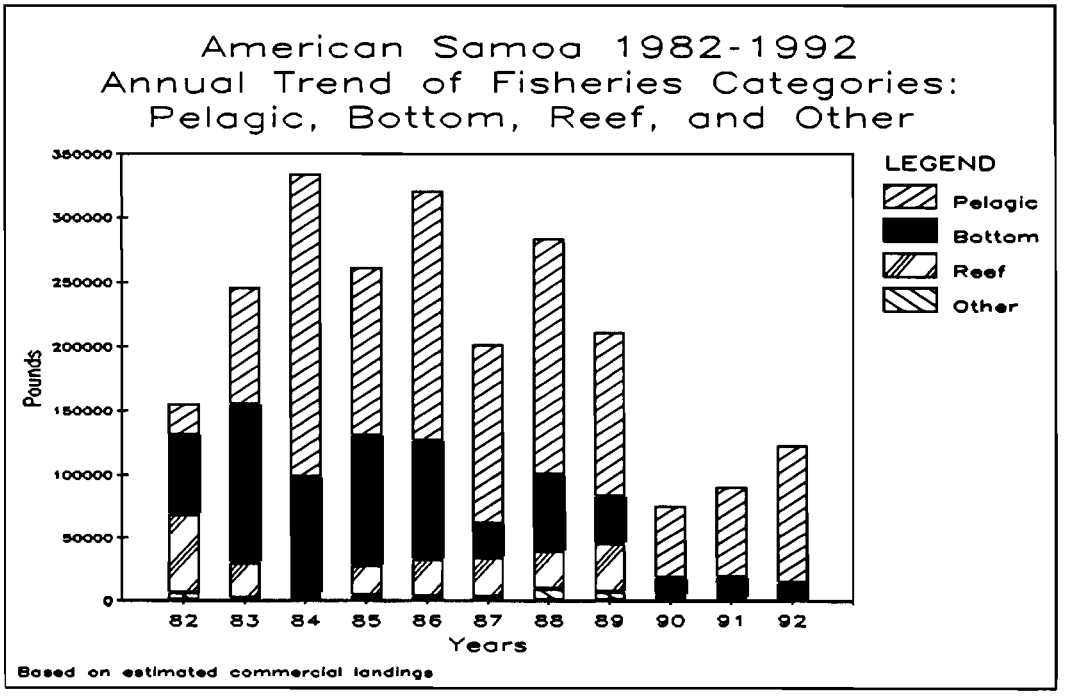


Figure II.3.1



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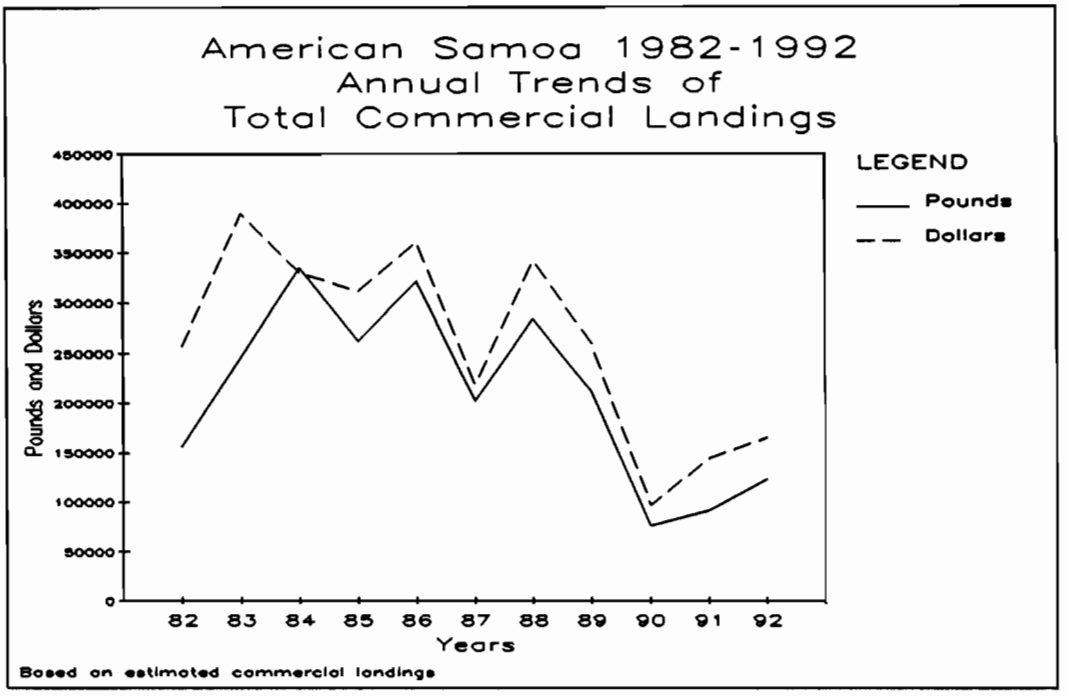

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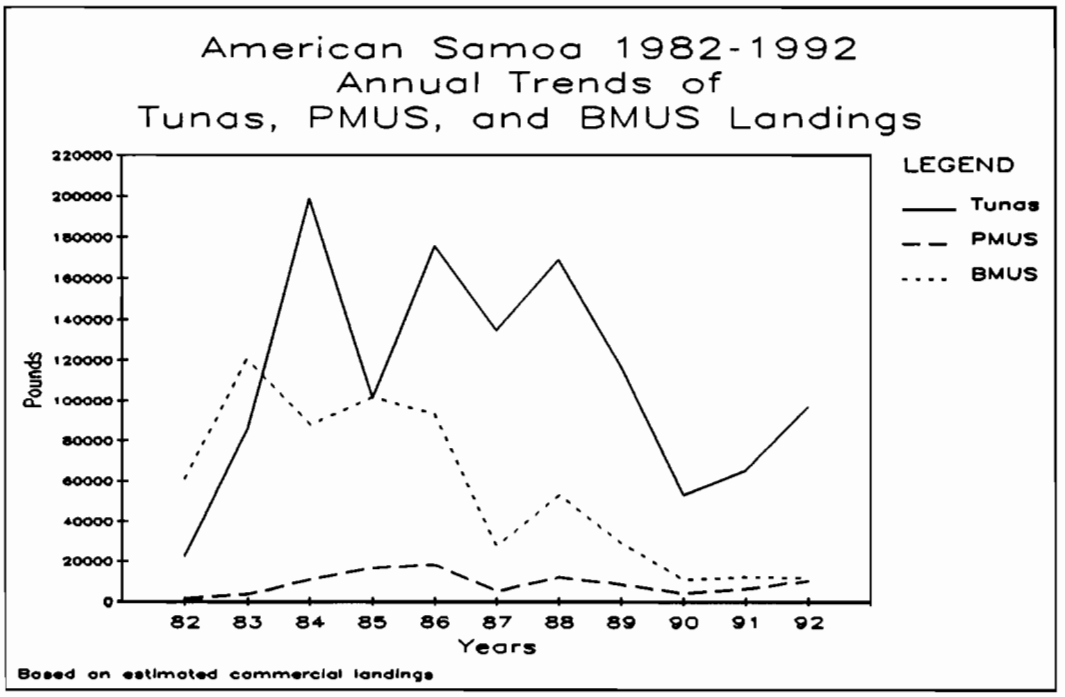

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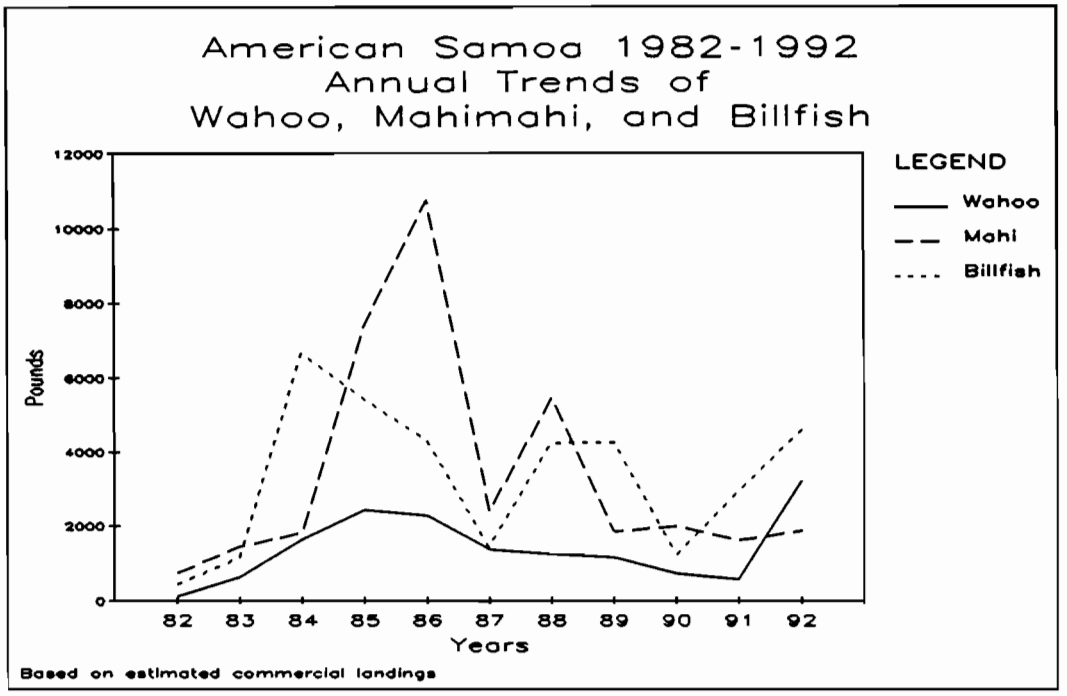

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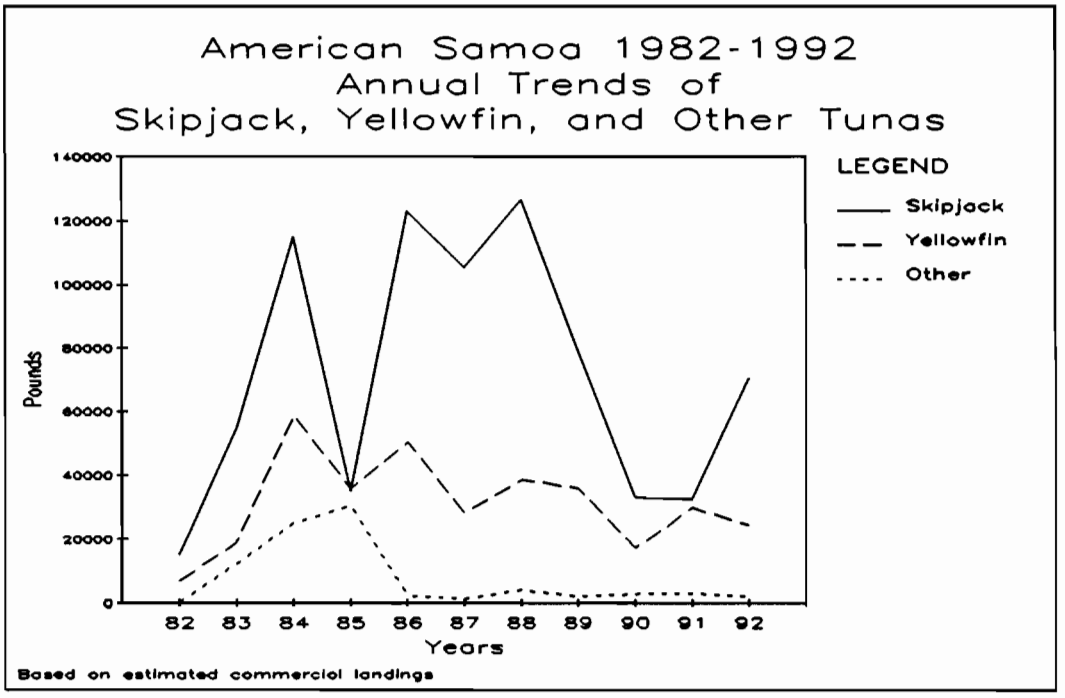
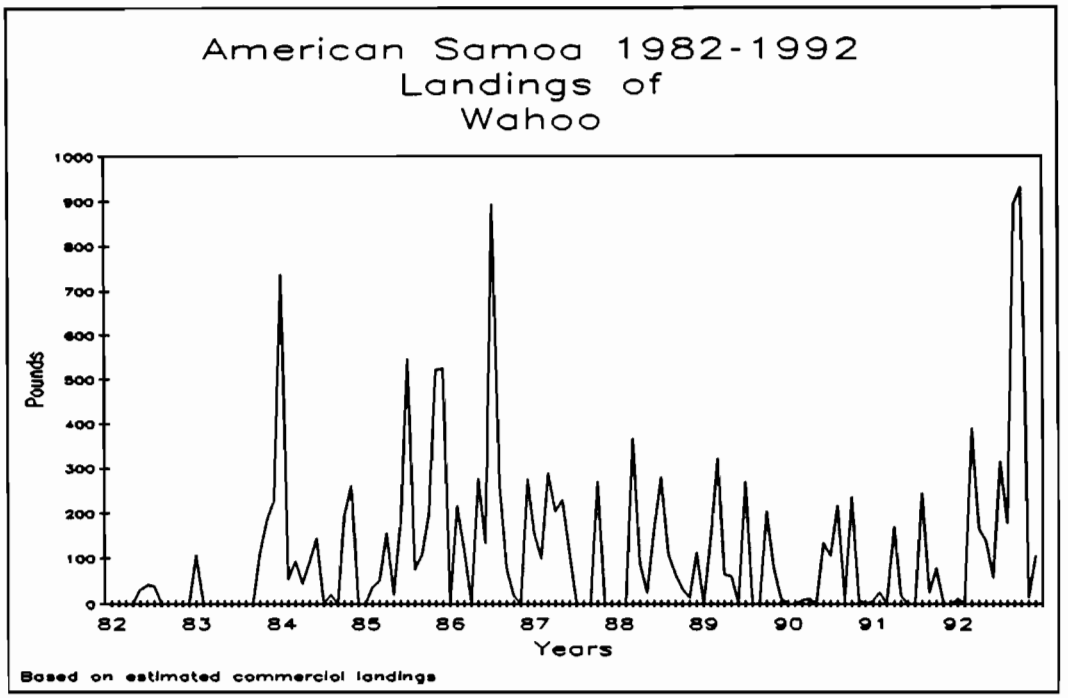


Figure II.4.1



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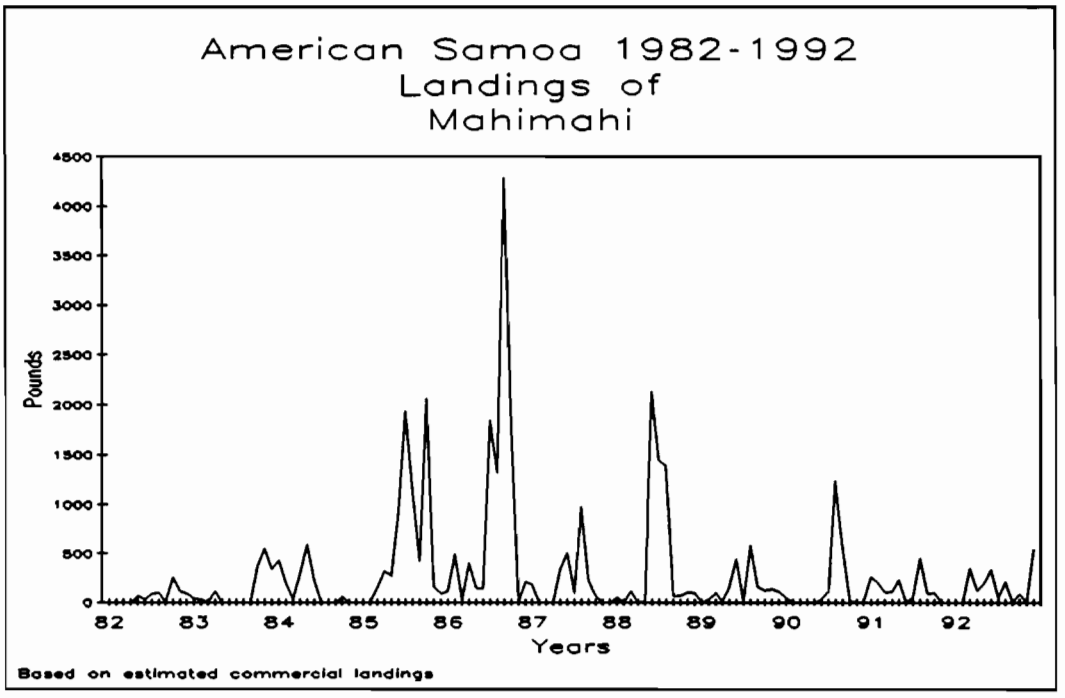

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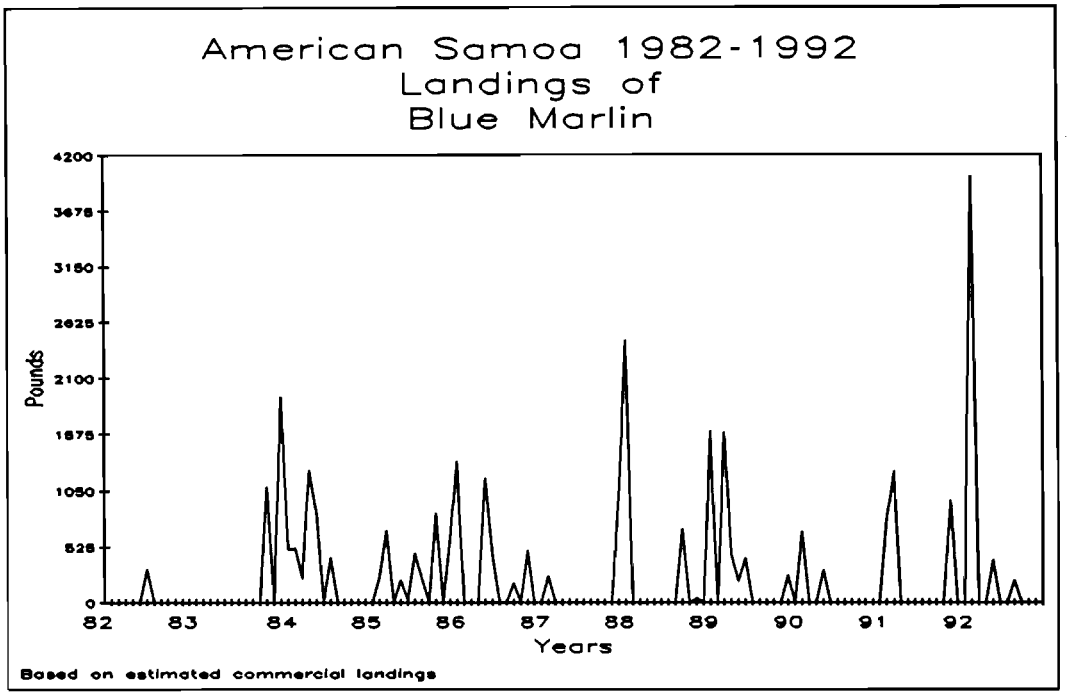

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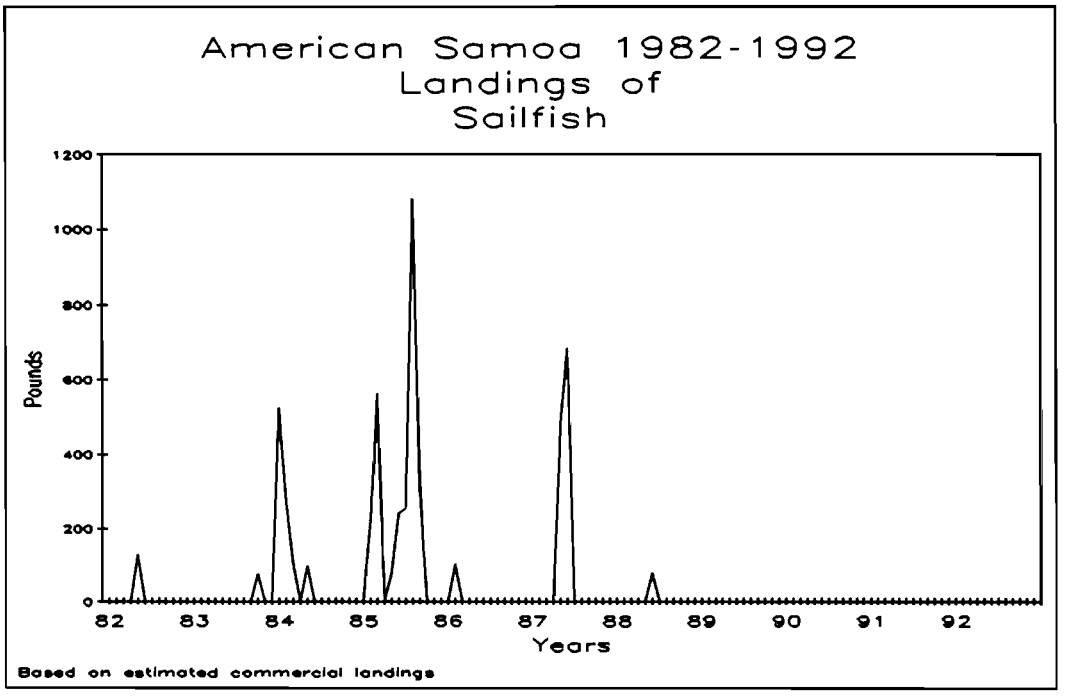

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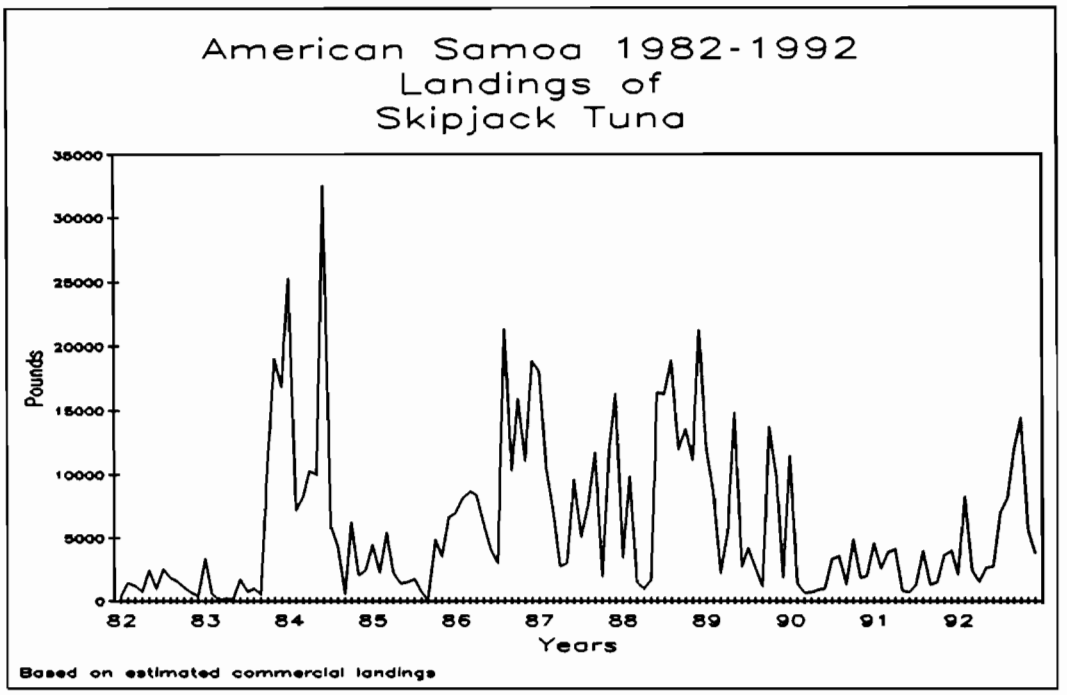

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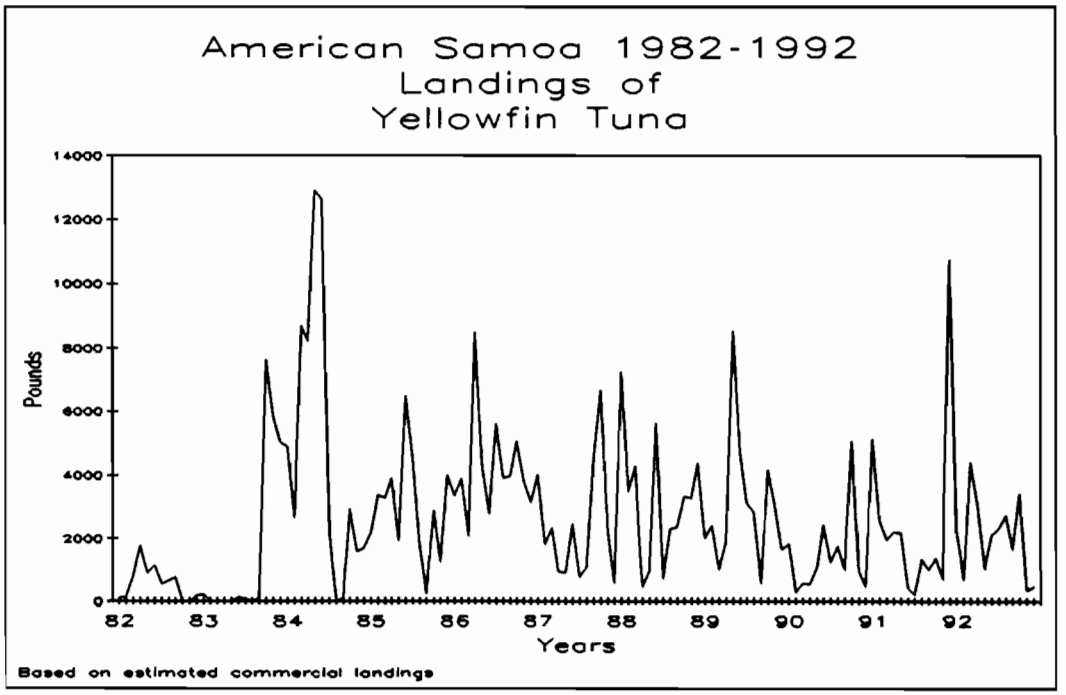

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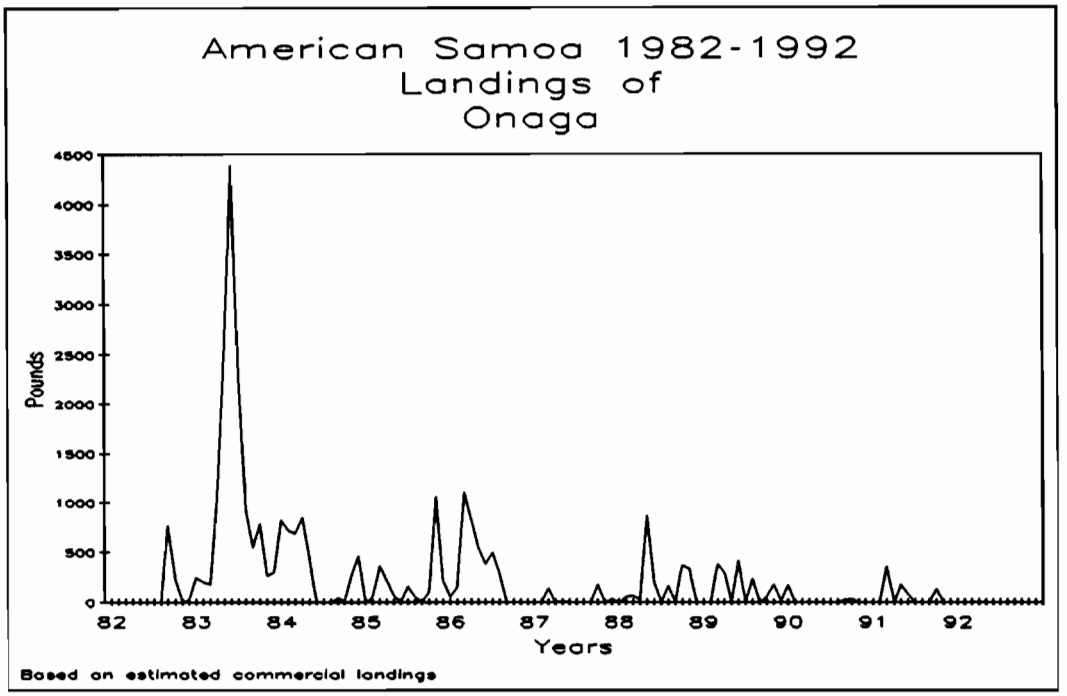


Figure II.4.8

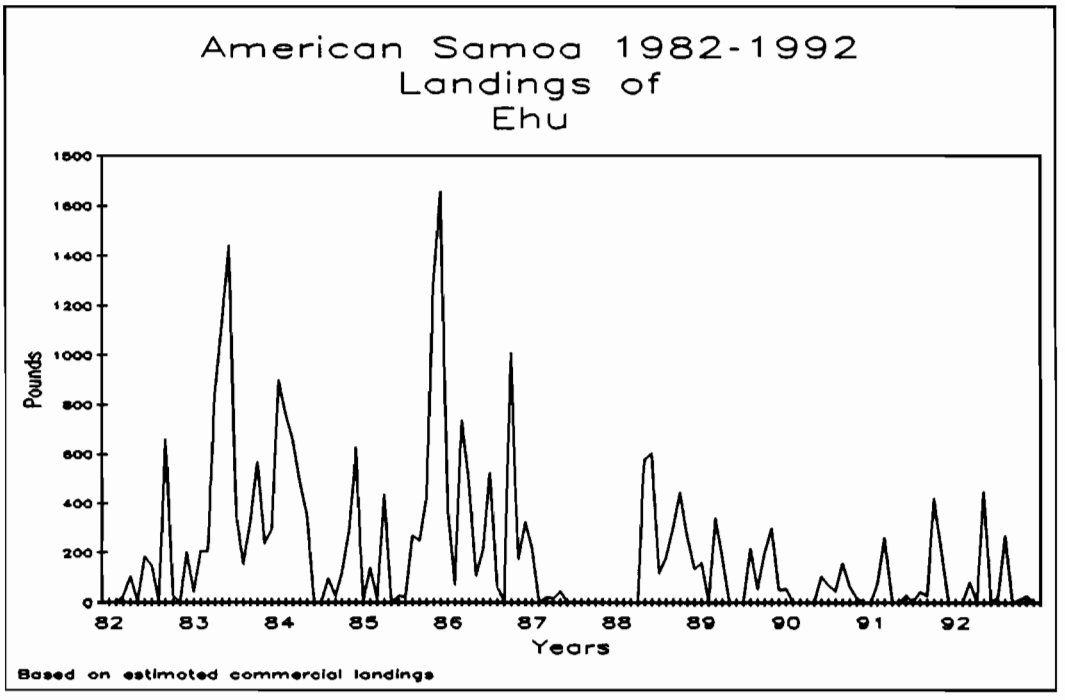


Table II.3.1

Tutuila 1992 Annual Offshore Creel Survey
Summary Expansion Reports

Based on 249 Weekdays and 117 Weekend/Holidays

	Troll(CV)	Bottom(CV)	Total(CV)
Number of Days Sampled	150	150	150
Total Number of Interviews	111	26	137
Number of Interviews with Hours	111	26	137
Number of Interviews with Fishers	111	26	137
Estimated Trips on Survey Days	173	41	213
Average Trips per Day	1.2(21)	0.3(18)	1.4(17)
Average Hours per Trip	8.2(30)	15.5(41)	9.6(37)
Average Fishers per Trip	2.7(37)	2.2(18)	2.6(35)
Average Catch per Trip	245.3(10)	138.7(25)	225.1(12)
Average Catch per Hour	30.1(11)	9.0(30)	23.6(13)
Expanded Number of Trips	421(10)	98(9)	519(8)
Expanded Boat Hours Fished	3438(27)	1525(35)	4963(22)
Expanded Number of Fishers	1134(27)	212(16)	1346(23)
Expanded Fisher Hours	6554(56)	2655(47)	9209(42)
Expanded Catch (based on trips)	103335(12)	13645(18)	116980(11)
Expanded Catch (based on hours)	103361(29)	13646(39)	117007(26)

Gear	Catch	CV	Boat Hrs	CV	Trips	CV	Prsn Hrs	CV	Prsn Trips	CV	CPUE	CV
TROLL	103335.3	12	3437.7	27	421.1	10	6554.4	56	1133.8	27	30.1	11
BOTTOM	13645.1	18	1525.2	35	98.4	9	2655.0	47	211.7	16	9.0	30
Total:	116980.4	11	4962.9	22	519.5	8	9209.4	42	1345.5	23	23.6	13

Table II.3.2

Tutuila 1992 Annual
Offshore Creel Survey Species Composition

Common Name	Total all gears	% all gears	trolling	% this gear	bottom	% this gear	other	% this gear
Jacks (misc)	14.8	0.01	14.8	0.01	0.0	0.00	0.0	0.00
Black jack	585.4	0.50	0.0	0.00	585.4	4.29	0.0	0.00
Barracudas	70.9	0.06	0.0	0.00	70.9	0.52	0.0	0.00
Large barracuda	520.4	0.44	520.4	0.50	0.0	0.00	0.0	0.00
Small barracuda	410.6	0.35	55.3	0.05	355.3	2.60	0.0	0.00
Sharks	948.2	0.81	948.2	0.92	0.0	0.00	0.0	0.00
Eels	74.3	0.06	0.0	0.00	74.3	0.54	0.0	0.00
Bottomfish (Assorted)	391.7	0.33	0.0	0.00	391.7	2.87	0.0	0.00
Groupers (misc)	254.8	0.22	0.0	0.00	254.8	1.87	0.0	0.00
Lunartail grouper	635.9	0.54	0.0	0.00	635.9	4.66	0.0	0.00
Blue lined snapper	1058.7	0.91	0.0	0.00	1058.7	7.76	0.0	0.00
Twinspot/red snapper	32.1	0.03	0.0	0.00	32.1	0.24	0.0	0.00
Humpback snapper	557.5	0.48	0.0	0.00	557.5	4.09	0.0	0.00
Gray jobfish	1571.9	1.34	0.0	0.00	1571.9	11.52	0.0	0.00
Opakapaka	179.1	0.15	0.0	0.00	179.1	1.31	0.0	0.00
Gindai (flower snap)	180.7	0.15	0.0	0.00	180.7	1.32	0.0	0.00
Lehi (silverjaw)	665.7	0.57	0.0	0.00	665.7	4.88	0.0	0.00
Ehu (squirrelfish snap	826.3	0.71	0.0	0.00	826.3	6.06	0.0	0.00
Stone's snapper	43.9	0.04	0.0	0.00	43.9	0.32	0.0	0.00
Emperors (misc)	1911.9	1.63	0.0	0.00	1911.9	14.01	0.0	0.00
Longnose emperor	1743.9	1.49	0.0	0.00	1743.9	12.78	0.0	0.00
Orangespot emperor	34.5	0.03	0.0	0.00	34.5	0.25	0.0	0.00
Redgill emperor	1991.8	1.70	0.0	0.00	1991.8	14.60	0.0	0.00
Squirrelfish	10.1	0.00	0.0	0.00	10.1	0.07	0.0	0.00
Saber squirrelfish	3.3	0.00	0.0	0.00	3.3	0.02	0.0	0.00
Dolphin (mahimahi)	2331.4	1.99	2331.4	2.26	0.0	0.00	0.0	0.00
Blue marlin	4386.3	3.75	4386.3	4.24	0.0	0.00	0.0	0.00
Rainbow runner	1248.1	1.07	1226.3	1.19	21.8	0.16	0.0	0.00
Wahoo	3034.8	2.59	3034.8	2.94	0.0	0.00	0.0	0.00
Skipjack tuna	66756.8	57.07	66756.8	64.60	0.0	0.00	0.0	0.00
Dogtooth tuna	1785.0	1.53	1341.5	1.30	443.6	3.25	0.0	0.00
Yellowfin tuna	22491.9	19.23	22491.9	21.77	0.0	0.00	0.0	0.00
Kawakawa	227.4	0.19	227.4	0.22	0.0	0.00	0.0	0.00
Total all species:	116980.1	100.00	103335.1	88.34	13645.1	11.66	0.0.	0.00

Table II.4.1

Tutuila January 1992
Offshore Creel Survey Expansion Summary

Gear	Catch	CV	Boat Hrs	CV	Trips	CV	Prsn Hrs	CV	Prsn Trips	CV	CPUE	CV
TROLL	3874.4	58	179.5	43	22.1	41	419.4	67	71.4	40	22.2	34
Total:	3874.4	58	179.5	43	22.1	41	419.4	67	71.4	40	22.2	34

Table II.4.2

Tutuila February 1992
Offshore Creel Survey Expansion Summary

Gear	Catch	CV	Boat Hrs	CV	Trips	CV	Prsn Hrs	CV	Prsn Trips	CV	CPUE	CV
TROLL	8822.8	83	151.1	45	17.9	45	240.8	68	41.2	38	62.7	77
Total:	8822.8	83	151.1	45	17.9	45	240.8	68	41.2	38	62.7	77

Table II.4.3

Tutuila March 1992
Offshore Creel Survey Expansion Summary

Gear	Catch	CV	Boat Hrs	CV	Trips	CV	Prsn Hrs	CV	Prsn Trips	CV	CPUE	CV
TROLL	11841.1	31	648.3	26	63.4	25	1422.2	32	168.4	22	19.4	17
BOTTOM	1213.1	56	192.4	33	10.3	28	274.6	46	20.6	19	6.7	27
Total:	13054.2	29	840.7	21	73.6	22	1696.7	28	188.9	20	16.9	19

Table II.4.4

Tutuila April 1992
Offshore Creel Survey Expansion Summary

Gear	Catch	CV	Boat Hrs	CV	Trips	CV	Prsn Hrs	CV	Prsn Trips	CV	CPUE	CV
TROLL	4902.7	52	229.5	35	36.1	32	329.2	52	77.4	25	26.2	36
BOTTOM	5352.5	50	421.0	35	25.8	30	776.4	44	57.8	28	11.9	35
Total:	10255.1	36	650.4	26	61.9	23	1105.6	35	135.2	19	16.2	39

Table II.4.5

Tutuila May 1992
Offshore Creel Survey Expansion Summary

Gear	Catch	CV	Boat Hrs	CV	Trips	CV	Prsn Hrs	CV	Prsn Trips	CV	CPUE	CV
TROLL	3861.0	39	206.6	30	29.6	28	619.8	33	88.8	32	18.7	24
BOTTOM	1369.0	29	125.8	51	7.4	28	251.6	51	14.8	28	10.9	33
Total:	5230.0	30	332.4	27	37.0	23	871.4	28	103.6	27	15.7	27

Table II.4.6

Tutuila June 1992
Offshore Creel Survey Expansion Summary

Gear	Catch	CV	Boat Hrs	CV	Trips	CV	Prsn Hrs	CV	Prsn Trips	CV	CPUE	CV
TROLL	5067.7	58	314.2	48	26.2	46	672.4	48	56.0	47	16.1	33
BOTTOM	1451.1	47	97.2	47	7.5	46	194.5	47	15.0	46	14.0	3
Total:	6518.8	47	411.4	38	33.7	37	866.8	39	71.0	38	15.8	29

Table II.4.7

Tutuila July 1992
Offshore Creel Survey Expansion Summary

Gear	Catch	CV	Boat Hrs	CV	Trips	CV	Prsn Hrs	CV	Prsn Trips	CV	CPUE	CV
TROLL	10331.9	48	260.5	45	34.5	46	317.4	87	81.7	16	53.2	50
Total:	10331.9	48	260.5	45	34.5	46	317.4	87	81.7	16	53.2	50

Table II.4.8

Tutuila August 1992
Offshore Creel Survey Expansion Summary

Gear	Catch	CV	Boat Hrs	CV	Trips	CV	Prsn Hrs	CV	Prsn Trips	CV	CPUE	CV
TROLL	12290.8	28	303.0	26	42.0	24	359.9	74	132.2	17	38.5	25
BOTTOM	886.4	39	120.1	35	6.7	25	160.7	73	16.7	24	7.4	6
Total:	13177.2	26	423.0	21	48.7	21	520.6	56	148.9	15	22.5	30

Table II.4.9

Tutuila September 1992
Offshore Creel Survey Expansion Summary

Gear	Catch	CV	Boat Hrs	CV	Trips	CV	Prsn Hrs	CV	Prsn Trips	CV	CPUE	CV
TROLL	15472.9	32	329.0	28	45.6	26	608.9	51	132.0	18	48.6	15
BOTTOM	1018.1	31	183.8	35	14.7	22	367.5	35	29.4	22	5.5	36
Total:	16491.0	30	512.8	22	60.3	20	976.4	35	161.4	15	29.3	18

Table II.4.10

Tutuila October 1992
Offshore Creel Survey Expansion Summary

Gear	Catch	CV	Boat Hrs	CV	Trips	CV	Prsn Hrs	CV	Prsn Trips	CV	CPUE	CV
TROLL	18059.6	26	380.2	24	51.9	24	980.9	28	133.8	27	47.5	15
BOTTOM	2868.5	31	448.7	30	27.0	24	778.7	40	62.7	21	6.5	26
Total:	20928.0	23	828.9	20	78.9	18	1759.6	23	196.5	20	28.6	18

Table II.4.11

Tutuila November 1992
Offshore Creel Survey Expansion Summary

Gear	Catch	CV	Boat Hrs	CV	Trips	CV	Prsn Hrs	CV	Prsn Trips	CV	CPUE	CV
TROLL	4949.9	59	186.0	51	22.3	51	558.0	53	67.0	53	26.7	24
Total:	4949.9	59	186.0	51	22.3	51	558.0	53	67.0	53	26.7	24

Table II.4.12

Tutuila December 1992
Offshore Creel Survey Expansion Summary

Gear	Catch	CV	Boat Hrs	CV	Trips	CV	Prsn Hrs	CV	Prsn Trips	CV	CPUE	CV
TROLL	4613.3	51	175.3	38	24.0	37	394.5	39	54.0	38	26.3	32
BOTTOM	353.3	39	37.6	37	3.1	36	93.3	57	7.6	56	9.4	12
Total:	4966.6	48	212.9	32	27.1	33	487.7	33	61.6	34	11.1	26

Table II.5.1

Tutuila January 1992
Offshore Creel Survey Species Composition

Common Name	Total all gears	% all gears	trolling	% this gear	bottom	% this gear	other	% this gear
Skipjack tuna	1611.8	41.60	1611.8	41.60	0.0	0.00	0.0	0.00
Yellowfin tuna	2262.6	58.40	2262.6	58.40	0.0	0.00	0.0	0.00
Total all species:	3874.4	100.00	3874.4	100.00	0.0	0.00	0.0	0.00

Table II.5.2

Tutuila February 1992
Offshore Creel Survey Species Composition

Common Name	Total all gears	% all gears	trolling	% this gear	bottom	% this gear	other	% this gear
Skipjack tuna	8479.5	96.11	8479.5	96.11	0.0	0.00	0.0	0.00
Yellowfin tuna	343.4	3.89	343.4	3.89	0.0	0.00	0.0	0.00
Total all species:	8822.9	100.00	8822.9	100.00	0.0	0.00	0.0	0.00

Table II.5.3

Tutuila March 1992
Offshore Creel Survey Species Composition

Common Name	Total all gears	% all gears	trolling	% this gear	bottom	% this gear	other	% this gear
Large barracuda	393.8	3.02	393.8	3.33	0.0	0.00	0.0	0.00
Small barracuda	24.9	0.19	24.9	0.21	0.0	0.00	0.0	0.00
Groupers (misc)	76.4	0.59	0.0	0.00	76.4	6.30	0.0	0.00
Lunartail grouper	225.3	1.73	0.0	0.00	225.3	18.57	0.0	0.00
Blue lined snapper	54.6	0.42	0.0	0.00	54.6	4.50	0.0	0.00
Humpback snapper	15.8	0.12	0.0	0.00	15.8	1.30	0.0	0.00
Gray jobfish	344.3	2.64	0.0	0.00	344.3	28.38	0.0	0.00
Opakapaka	83.3	0.64	0.0	0.00	83.3	6.87	0.0	0.00
Ehu (squirrelfish snap	65.1	0.50	0.0	0.00	65.1	5.37	0.0	0.00
Emperors (misc)	119.7	0.92	0.0	0.00	119.7	9.87	0.0	0.00
Longnose emperor	45.8	0.35	0.0	0.00	45.8	3.77	0.0	0.00
Redgill emperor	183.0	1.40	0.0	0.00	183.0	15.08	0.0	0.00
Dolphin (mahimahi)	242.0	1.85	242.0	2.04	0.0	0.00	0.0	0.00
Blue marlin	4011.3	30.73	4011.3	33.88	0.0	0.00	0.0	0.00
Wahoo	267.6	2.05	267.6	2.26	0.0	0.00	0.0	0.00
Skipjack tuna	2102.7	16.11	2102.7	17.76	0.0	0.00	0.0	0.00
Dogtooth tuna	401.3	3.07	401.3	3.39	0.0	0.00	0.0	0.00
Yellowfin tuna	4381.4	33.56	4381.4	37.00	0.0	0.00	0.0	0.00
Kawakawa	16.1	0.12	16.1	0.14	0.0	0.00	0.0	0.00
Total all species:	13054.4	100.00	11841.1	90.71	1213.3	9.29	0.0	0.00

Table II.5.4

Tutuila April 1992
Offshore Creel Survey Species Composition

Common Name	Total all gears	% all gears	trolling	% this gear	bottom	% this gear	other	% this gear
Black jack	119.0	1.16	0.0	0.00	119.0	2.22	0.0	0.00
Small barracuda	181.4	1.77	0.0	0.00	181.4	3.39	0.0	0.00
Eels	81.8	0.80	0.0	0.00	81.8	1.53	0.0	0.00
Groupers (misc)	16.8	0.16	0.0	0.00	16.8	0.31	0.0	0.00
Lunartail grouper	152.9	1.49	0.0	0.00	152.9	2.86	0.0	0.00
Blue lined snapper	518.4	5.06	0.0	0.00	518.4	9.69	0.0	0.00
Humpback snapper	219.6	2.14	0.0	0.00	219.6	4.10	0.0	0.00
Gray jobfish	490.1	4.78	0.0	0.00	490.1	9.16	0.0	0.00
Gindai (flower snap)	55.8	0.54	0.0	0.00	55.8	1.04	0.0	0.00
Lehi (silverjaw)	89.3	0.87	0.0	0.00	89.3	1.67	0.0	0.00
Emperors (misc)	1617.5	15.77	0.0	0.00	1617.5	30.22	0.0	0.00
Longnose emperor	575.1	5.61	0.0	0.00	575.1	10.74	0.0	0.00
Redgill emperor	949.8	9.26	0.0	0.00	949.8	17.75	0.0	0.00
Dolphin (mahimahi)	123.8	1.21	123.8	2.53	0.0	0.00	0.0	0.00
Rainbow runner	12.7	0.12	0.0	0.00	12.7	0.24	0.0	0.00
Wahoo	165.1	1.61	165.1	3.37	0.0	0.00	0.0	0.00
Skipjack tuna	1379.4	13.45	1379.4	28.14	0.0	0.00	0.0	0.00
Dogtooth tuna	432.2	4.21	160.0	3.26	272.2	5.09	0.0	0.00
Yellowfin tuna	2979.0	29.05	2979.0	60.76	0.0	0.00	0.0	0.00
Kawakawa	95.3	0.93	95.3	1.94	0.0	0.00	0.0	0.00
Total all species:	10255.0	100.00	4902.6	47.81	5352.4	52.19	0.0	0.00

Table II.5.5

Tutuila May 1992
Offshore Creel Survey Species Composition

Common Name	Total all gears	% all gears	trolling	% this gear	bottom	% this gear	other	% this gear
Black jack	19.8	0.38	0.0	0.00	19.8	1.45	0.0	0.00
Small barracuda	52.8	1.01	23.0	0.60	29.8	2.18	0.0	0.00
Groupers (misc)	26.5	0.51	0.0	0.00	26.5	1.94	0.0	0.00
Lunartail grouper	57.9	1.11	0.0	0.00	57.9	4.23	0.0	0.00
Blue lined snapper	135.6	2.59	0.0	0.00	135.6	9.90	0.0	0.00
Humpback snapper	39.7	0.76	0.0	0.00	39.7	2.90	0.0	0.00
Gray jobfish	89.3	1.71	0.0	0.00	89.3	6.52	0.0	0.00
Gindai (flower snap)	122.4	2.34	0.0	0.00	122.4	8.94	0.0	0.00
Lehi (silverjaw)	66.1	1.26	0.0	0.00	66.1	4.83	0.0	0.00
Ehu (squirrelfish snap	454.7	8.69	0.0	0.00	454.7	33.21	0.0	0.00
Stone's snapper	43.0	0.82	0.0	0.00	43.0	3.14	0.0	0.00
Longnose emperor	72.8	1.39	0.0	0.00	72.8	5.32	0.0	0.00
Redgill emperor	191.8	3.67	0.0	0.00	191.8	14.01	0.0	0.00
Dolphin (mahimahi)	454.4	8.69	454.4	11.77	0.0	0.00	0.0	0.00
Wahoo	94.9	1.81	94.9	2.46	0.0	0.00	0.0	0.00
Skipjack tuna	2477.7	47.37	2477.7	64.17	0.0	0.00	0.0	0.00
Dogtooth tuna	34.2	0.65	14.4	0.37	19.8	1.45	0.0	0.00
Yellowfin tuna	796.6	15.23	796.6	20.63	0.0	0.00	0.0	0.00
Total all species:	5230.2	100.00	3861.0	73.82	1369.2	26.18	0.0	0.00

Table II.5.6

Tutuila June 1992
Offshore Creel Survey Species Composition

Common Name	Total all gears	% all gears	trolling	% this gear	bottom	% this gear	other	% this gear
Small barracuda	37.4	0.57	0.0	0.00	37.4	2.58	0.0	0.00
Sharks	188.9	2.90	188.9	3.73	0.0	0.00	0.0	0.00
Groupers (misc)	119.7	1.84	0.0	0.00	119.7	8.25	0.0	0.00
Lunartail grouper	7.5	0.12	0.0	0.00	7.5	0.52	0.0	0.00
Blue lined snapper	93.5	1.43	0.0	0.00	93.5	6.44	0.0	0.00
Humpback snapper	104.7	1.61	0.0	0.00	104.7	7.21	0.0	0.00
Gray jobfish	56.1	0.86	0.0	0.00	56.1	3.87	0.0	0.00
Lehi (silverjaw)	37.4	0.57	0.0	0.00	37.4	2.58	0.0	0.00
Longnose emperor	706.9	10.84	0.0	0.00	706.9	48.71	0.0	0.00
Redgill emperor	168.3	2.58	0.0	0.00	168.3	11.60	0.0	0.00
Dolphin (mahimahi)	296.9	4.55	296.9	5.86	0.0	0.00	0.0	0.00
Rainbow runner	7.5	0.12	0.0	0.00	7.5	0.52	0.0	0.00
Wahoo	124.8	1.91	124.8	2.46	0.0	0.00	0.0	0.00
Skipjack tuna	2618.2	40.16	2618.2	51.67	0.0	0.00	0.0	0.00
Dogtooth tuna	112.2	1.72	0.0	0.00	112.2	7.73	0.0	0.00
Yellowfin tuna	1778.1	27.28	1778.1	35.09	0.0	0.00	0.0	0.00
Kawakawa	60.7	0.93	60.7	1.20	0.0	0.00	0.0	0.00
Total all species:	6518.8	100.00	5067.6	77.74	1451.2	22.26	0.0	0.00

Table II.5.7

Tutuila July 1992
Offshore Creel Survey Species Composition

Common Name	Total all gears	% all gears	trolling	% this gear	bottom	% this gear	other	% this gear
Sharks	819.0	7.93	819.0	7.93	0.0	0.00	0.0	0.00
Dolphin (mahimahi)	25.5	0.25	25.5	0.25	0.0	0.00	0.0	0.00
Wahoo	191.1	1.85	191.1	1.85	0.0	0.00	0.0	0.00
Skipjack tuna	7576.0	73.32	7576.0	73.32	0.0	0.00	0.0	0.00
Yellowfin tuna	1720.5	16.65	1720.5	16.65	0.0	0.00	0.0	0.00
Total all species:	10332.1	100.00	10332.1	100.00	0.0	0.00	0.0	0.00

Table II.5.8

Tutuila August 1992
Offshore Creel Survey Species Composition

Common Name	Total all gears	% all gears	trolling	% this gear	bottom	% this gear	other	% this gear
Jacks (misc)	14.1	0.11	14.1	0.11	0.0	0.00	0.0	0.00
Large barracuda	105.8	0.80	105.8	0.86	0.0	0.00	0.0	0.00
Small barracuda	28.1	0.21	0.0	0.00	28.1	3.17	0.0	0.00
Groupers (misc)	23.5	0.18	0.0	0.00	23.5	2.65	0.0	0.00
Lunartail grouper	36.3	0.28	0.0	0.00	36.3	4.09	0.0	0.00
Humpback snapper	25.5	0.19	0.0	0.00	25.5	2.88	0.0	0.00
Gray jobfish	151.7	1.15	0.0	0.00	151.7	17.11	0.0	0.00
Ehu (squirrelfish snap	412.0	3.13	0.0	0.00	412.0	46.47	0.0	0.00
Emperors (misc)	175.7	1.33	0.0	0.00	175.7	19.82	0.0	0.00
Orangespot emperor	26.1	0.20	0.0	0.00	26.1	2.94	0.0	0.00
Squirrelfish	7.7	0.06	0.0	0.00	7.7	0.87	0.0	0.00
Dolphin (mahimahi)	225.2	1.71	225.2	1.83	0.0	0.00	0.0	0.00
Rainbow runner	1097.2	8.33	1097.2	8.93	0.0	0.00	0.0	0.00
Wahoo	192.0	1.46	192.0	1.56	0.0	0.00	0.0	0.00
Skipjack tuna	7887.0	59.85	7887.0	64.17	0.0	0.00	0.0	0.00
Yellowfin tuna	2769.5	21.02	2769.5	22.53	0.0	0.00	0.0	0.00
Total all species:	13177.4	100.00	12290.8	93.27	886.6	6.73	0.0	0.00

Table II.5.9

Tutuila September 1992
Offshore Creel Survey Species Composition

Common Name	Total all gears	% all gears	trolling	% this gear	bottom	% this gear	other	% this gear
Black jack	55.1	0.33	0.0	0.00	55.1	5.41	0.0	0.00
Small barracuda	51.5	0.31	0.0	0.00	51.5	5.06	0.0	0.00
Groupers (misc)	23.9	0.14	0.0	0.00	23.9	2.35	0.0	0.00
Lunartail grouper	42.3	0.26	0.0	0.00	42.3	4.15	0.0	0.00
Blue lined snapper	90.1	0.55	0.0	0.00	90.1	8.85	0.0	0.00
Twinspot/red snapper	5.5	0.03	0.0	0.00	5.5	0.54	0.0	0.00
Humpback snapper	30.1	0.18	0.0	0.00	30.1	2.96	0.0	0.00
Gray jobfish	221.4	1.34	0.0	0.00	221.4	21.74	0.0	0.00
Lehi (silverjaw)	156.2	0.95	0.0	0.00	156.2	15.34	0.0	0.00
Emperors (misc)	16.9	0.10	0.0	0.00	16.9	1.66	0.0	0.00
Longnose emperor	101.1	0.61	0.0	0.00	101.1	9.93	0.0	0.00
Redgill emperor	220.5	1.34	0.0	0.00	220.5	21.65	0.0	0.00
Saber squirrelfish	3.7	0.02	0.0	0.00	3.7	0.36	0.0	0.00
Blue marlin	217.0	1.32	217.0	1.40	0.0	0.00	0.0	0.00
Rainbow runner	29.7	0.18	29.7	0.19	0.0	0.00	0.0	0.00
Wahoo	946.1	5.74	946.1	6.11	0.0	0.00	0.0	0.00
Skipjack tuna	12305.3	74.62	12305.3	79.53	0.0	0.00	0.0	0.00
Dogtooth tuna	267.1	1.62	267.1	1.73	0.0	0.00	0.0	0.00
Yellowfin tuna	1707.8	10.36	1707.8	11.04	0.0	0.00	0.0	0.00
Total all species:	16491.3	100.00	15473.0	93.83	1018.3	6.17	0.0	0.00

Table II.5.10

Tutuila October 1992
Offshore Creel Survey Species Composition

Common Name	Total all gears	% all gears	trolling	% this gear	bottom	% this gear	other	% this gear
Black jack	384.9	1.84	0.0	0.00	384.9	13.42	0.0	0.00
Barracudas	90.8	0.43	0.0	0.00	90.8	3.17	0.0	0.00
Small barracuda	26.0	0.12	0.0	0.00	26.0	0.91	0.0	0.00
Bottomfish (Assorted)	501.8	2.40	0.0	0.00	501.8	17.49	0.0	0.00
Groupers (misc)	10.8	0.05	0.0	0.00	10.8	0.38	0.0	0.00
Lunartail grouper	120.3	0.57	0.0	0.00	120.3	4.19	0.0	0.00
Blue lined snapper	118.1	0.56	0.0	0.00	118.1	4.12	0.0	0.00
Twinspot/red snapper	34.6	0.17	0.0	0.00	34.6	1.21	0.0	0.00
Humpback snapper	133.0	0.64	0.0	0.00	133.0	4.64	0.0	0.00
Gray jobfish	379.5	1.81	0.0	0.00	379.5	13.23	0.0	0.00
Opakapaka	205.5	0.98	0.0	0.00	205.5	7.16	0.0	0.00
Gindai (flower snap)	6.5	0.03	0.0	0.00	6.5	0.23	0.0	0.00
Lehi (silverjaw)	339.5	1.62	0.0	0.00	339.5	11.84	0.0	0.00
Emperors (misc)	103.8	0.50	0.0	0.00	103.8	3.62	0.0	0.00
Longnose emperor	184.0	0.88	0.0	0.00	184.0	6.41	0.0	0.00
Redgill emperor	229.5	1.10	0.0	0.00	229.5	8.00	0.0	0.00
Dolphin (mahimahi)	75.5	0.36	75.5	0.42	0.0	0.00	0.0	0.00
Rainbow runner	50.2	0.24	50.2	0.28	0.0	0.00	0.0	0.00
Wahoo	892.7	4.27	892.7	4.94	0.0	0.00	0.0	0.00
Skipjack tuna	13642.2	65.19	13642.2	75.54	0.0	0.00	0.0	0.00
Yellowfin tuna	3399.0	16.24	3399.0	18.82	0.0	0.00	0.0	0.00
Total all species:	20928.2	100.00	18059.6	86.29	2868.6	13.71	0.0	0.00

Table II.5.11

Tutuila November 1992
Offshore Creel Survey Species Composition

Common Name	Total all gears	% all gears	trolling	% this gear	bottom	% this gear	other	% this gear
Skipjack tuna	4830.8	97.59	4830.8	97.59	0.0	0.00	0.0	0.00
Yellowfin tuna	119.1	2.41	119.1	2.41	0.0	0.00	0.0	0.00
Total all species:	4949.9	100.00	4949.9	100.00	0.0	0.00	0.0	0.00

Table II.5.12

Tutuila December 1992
Offshore Creel Survey Species Composition

Common Name	Total all gears	% all gears	trolling	% this gear	bottom	% this gear	other	% this gear
Black jack	59.7	1.20	0.0	0.00	59.7	16.89	0.0	0.00
Blue lined snapper	69.7	1.40	0.0	0.00	69.7	19.72	0.0	0.00
Humpback snapper	10.0	0.20	0.0	0.00	10.0	2.83	0.0	0.00
Lehi (silverjaw)	52.3	1.05	0.0	0.00	52.3	14.80	0.0	0.00
Longnose emperor	119.4	2.40	0.0	0.00	119.4	33.79	0.0	0.00
Redgill emperor	42.3	0.85	0.0	0.00	42.3	11.97	0.0	0.00
Dolphin (mahimahi)	539.6	10.86	539.6	11.70	0.0	0.00	0.0	0.00
Wahoo	104.9	2.11	104.9	2.27	0.0	0.00	0.0	0.00
Skipjack tuna	3585.1	72.18	3585.1	77.71	0.0	0.00	0.0	0.00
Yellowfin tuna	383.7	7.73	383.7	8.32	0.0	0.00	0.0	0.00
Total all species:	4966.7	100.00	4613.3	92.88	353.4	7.12	0.0	0.00

Figure II.5.1

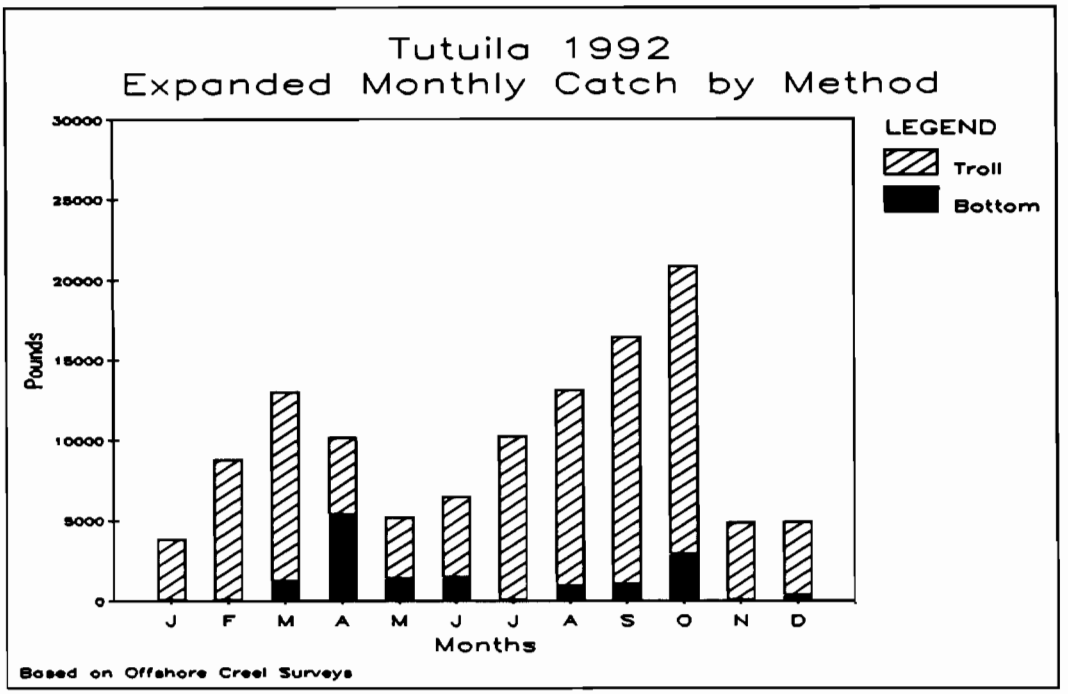


Figure II.5.2

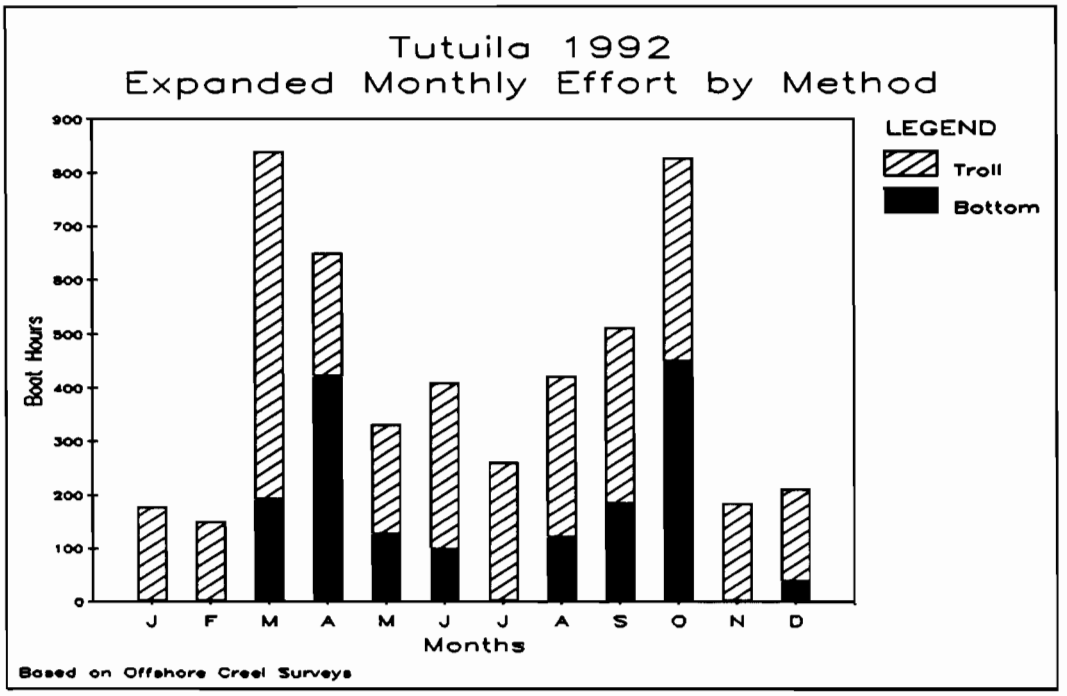
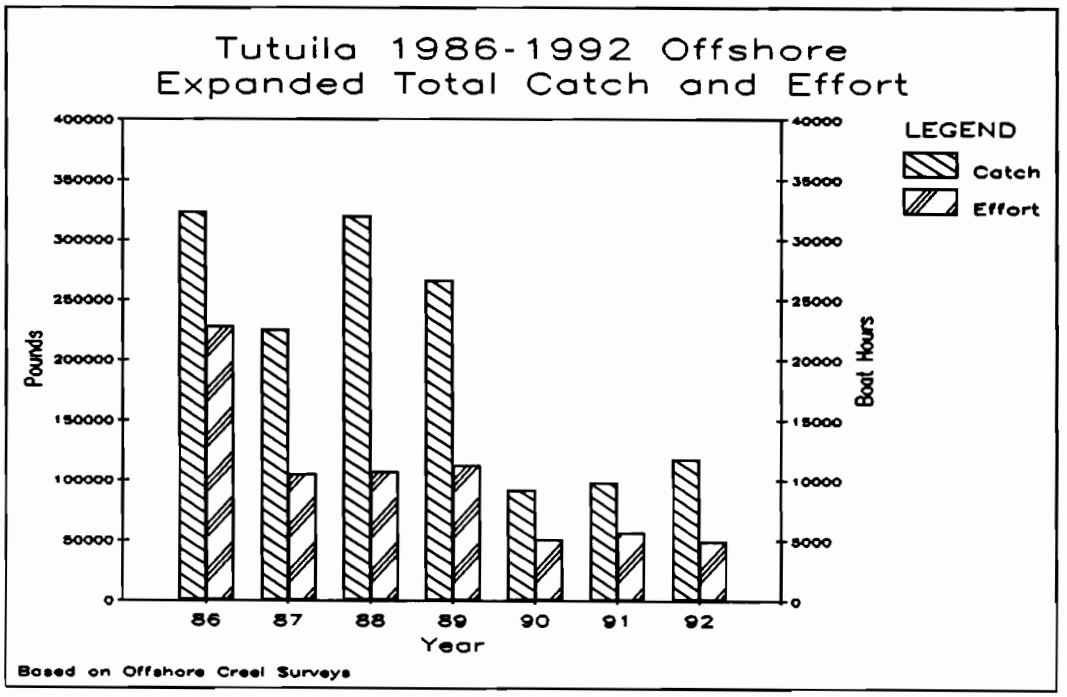
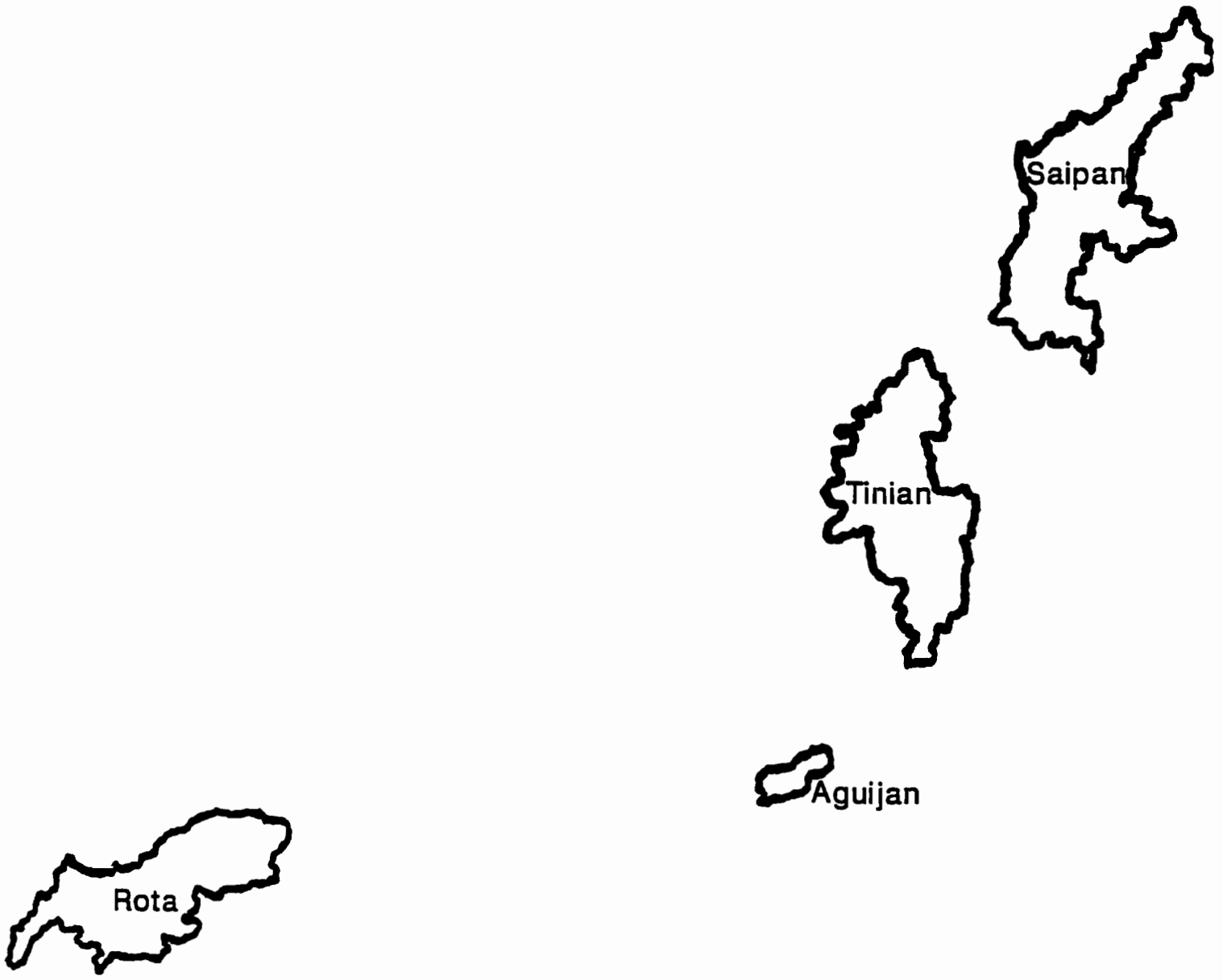


Figure II.5.3


Tutuila 1986-1992 Offshore
Expanded Total Catch and Effort
LEGEND
Catch
Effort
Pounds
Boat Hours
400000
350000
300000
250000
200000
150000
100000
50000
0
40000
35000
30000
25000
20000
15000
10000
5000
0
86
87
88
89
90
91
92
Year
Based on Offshore Creel Surveys



Commonwealth of the Northern Mariana Islands

Fishery Statistics 1992

COMMONWEALTH OF THE NORTHERN MARIANA ISLANDS
1992 FISHERY STATISTICS

Compiled by

Division of Fish and Wildlife

and the

Western Pacific Fishery Information Network

April 1994

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COMMONWEALTH OF THE NORTHERN MARIANA ISLANDS
1992 FISHERY STATISTICS

INTRODUCTION

The Commonwealth of the Northern Mariana Islands (CNMI) comprises a string of islands located at about long. 145° E and extending northward from about lat. 14 to 21° N. About 99% of the approximately 21,000 inhabitants of the CNMI live on the three main islands, Saipan (87%), Rota (7%), and Tinian (5%). The Division of Fish and Wildlife (DFW) has been collecting fishery statistics on the commercial fishing fleet of Saipan since the mid-1970's. In 1983, DFW also began collecting information on vessels transshipping tuna out of Tinian. Significant improvements to the data collecting and processing systems were made in 1982 when microcomputer hardware, software, and training were provided by the WPACFIN program.

The major domestic commercial fishery of the CNMI is a small boat, one-day troll fishery. Most of the boats are 12- to 24-foot outboard-powered, runabout-type vessels; however, a few larger boats are also used. In the past few years, there has been a fairly rapid increase in the number of boats in the CNMI, about 70% of which are used in the commercial fisheries. Although trolling is by far the most common fishing method, many boats are also used for bottom fishing and reef fishing activities. Reef fish are an important component of the local diet and are a significant portion of the total commercial catch. Additionally, an increasing amount of reef fish is being imported from other Pacific islands to meet the local demand. In recent years, several larger boats have started fishing more intensively for bottom fish around the islands north of Saipan. The vast majority of the domestic catch is consumed locally, but there have been some exports of fish to Guam and Hawaii.

Beginning in 1983, fishing vessels from several nations began using the Tinian harbor as a port to off-load tuna catches to large transshipment vessels. In 1992, transshipments out of Tinian totaled nearly 42,300 metric tons, of which over 90% were made by 14 U.S. registered purse seiners.

DATA COLLECTING SYSTEM

The principal method used by DFW to collect domestic commercial fisheries data is a dealer invoicing system, sometimes referred to as a "trip ticket" system. The DFW provides numbered three-part invoices to all purchasers of fresh fishery products, including hotels, restaurants, stores, fish markets, and roadside vendors. Dealers complete an invoice each time they purchase fish directly from fishermen. They keep one copy for their records and provide one copy to DFW. Some advantages of this

method of data collection are that it is relatively inexpensive to implement and maintain, nearly complete coverage of the commercial fisheries is fairly easy to accomplish, and DFW can provide feedback to dealers and fishermen to ensure data accuracy and continued cooperation. Disadvantages include a dependence on non-DFW personnel to identify the catch and record the data, the types of data that can be collected are somewhat restricted, education and cooperation of all fish purchasers are required, and only the fish that are actually sold to dealers are recorded and a potentially important portion of the total landings is unrecorded. Since 1982, DFW has tried to minimize these disadvantages as much as possible by maintaining a close working relationship with dealers, by educating and adding new dealers to their list as they enter the business, and by implementing a creel survey to help estimate total catch, including recreational and subsistence catch.

The current system collects data from dealers on the island of Saipan, where DFW estimates over 90% of all CNMI commercial landings are made. The DFW further estimates that the proportion of total commercial landings that is recorded in the data base for Saipan since 1983 is over 90%.

Information collected for each commercial purchase of fish from the fishermen includes the following:

Date
Buyer's name (dealer)
Seller's name (fisherman)
Species
Weight (pounds)
Price per pound
Value
Invoice number

All of these data elements are collected for all purchases of fishery products; however, species identification is frequently made only to a group level, especially for reef fish.

DATA PROCESSING SYSTEM

At the beginning of each month, a DFW employee visits each of the dealers on Saipan to obtain the previous month's invoices, resolve problems, and answer any questions the dealer may have. The invoices are returned to the office for an initial visual edit during the coding process, and are then entered into the "Purchase" data base on the microcomputer. After the records are entered, reports are generated to help verify that all data were entered correctly. On a quarterly basis, copies of the data base are sent to the Honolulu Laboratory, where the data are transferred to the central computer for additional editing and verification before generation of summary reports. These reports

and databases are then ready for use by qualified WPACFIN participants.

DATA REPORTING SYSTEM

After all editing and quality control activities have been accomplished, monthly and annual summary reports by species are generated. Each of the following reports for 1992 contains information on the pounds, value and the average price per pound. Each monthly report contains a subtotal for the sum of all species for that month, and the December report also includes the annual total. Annual reports contain the total landings for each species and the total recorded landings for all species for the calendar year.

The following species, species groups, and abbreviations are used in the tables and graphs of CNMI's data:

I. Pelagic Management Unit Species (PMUS)

Although the Magnuson Fishery Conservation and Management Act of 1976 was amended in 1992 to include tunas in the Pacific PMUS (PPMUS), this report series will continue to consider tunas as a separate category. The PMUS category in this report includes:

Dolphin (mahimahi)
Marlin
Shortbill spearfish
Sailfish
Wahoo
Sharks

II. Bottomfish Management Unit Species (BMUS)

Jacks (unclassified, but excluding bigeye scad)
Bottom fish (unclassified)
Ehu (red snapper)
Gindai (flower snapper)
Grouper (unclassified)
Kalikali (pink snapper)
Lehi (silverjaw snapper)
Onaga (red or longtail snapper)
Opakapaka (pink snapper)
Uku (gray snapper)
Emperorfish

III. Billfish

Marlin (probably all blue marlin but could also include the rarely landed striped and black marlin)
Shortbill spearfish
Sailfish

IV. Tunas

Tunas (unclassified)
Skipjack tuna
Yellowfin tuna
Dogtooth tuna

V. Other Tuna

The above tunas excluding skipjack and yellowfin tuna

VI. Fisheries Categories

A. Pelagics

All PMUS and tuna species plus the following:
Troll fish (unclassified)
Barracuda
Rainbow runner

B. Bottom Fish

Same as BMUS

C. Reef Fish

Reef fish (unclassified)
Giant wrasse
Rabbitfish (hitting, hitting feda, menahac, and sesjun)
Rudderfish
Squirrelfish
Parrotfish
Snapper
Surgeonfish
Unicornfish
Goatfish

D. Other

Miscellaneous
Bigeye scad
Mullet
Eels
Milkfish
Invertebrates (unclassified)
Crabs (unclassified)
Coconut crab
Lobster
Shrimp
Octopus
Squid
Turtle
Seaweeds
Imported

Table II.1.1

CNMI 1992 Commercial Landings

Species	Pounds	Value	$/lb
Bigeye scad (atulai)	1,487	3,821	2.57
Jacks	269	729	2.71
Mullet	49	97	1.99
Bottom fish	4,448	10,828	2.43
Grouper	1,418	4,250	3.00
Onaga (red snapper)	17	102	6.00
Opakapaka (pink snp)	109	270	2.47
Reef fish	121,714	236,642	1.94
Wrasse	44	131	3.01
Rabbitfish (hitting)	2,521	6,903	2.74
Rudderfish (guilli)	1,073	2,518	2.35
Emperor (mafute)	1,886	4,854	2.57
Squirrelfish	233	475	2.04
Parrotfish	7,761	21,369	2.75
Snapper	360	360	1.00
Surgeonfish	719	1,504	2.09
Unicornfish	836	2,071	2.48
Goatfish	531	1,157	2.18
Troll fish	29,570	47,190	1.60
Barracuda	138	145	1.05
Dolphin (mahimahi)	21,462	45,363	2.11
Marlin	5,345	6,040	1.13
Sailfish	101	223	2.19
Rainbow runner	991	1,731	1.75
Wahoo	13,738	30,926	2.25
Tunas	277	510	1.84
Skipjack tuna	65,982	117,654	1.78
Dogtooth tuna	4,416	8,076	1.83
Yellowfin tuna	20,672	48,071	2.33
Lobster	2,240	8,701	3.88
Octopus	369	1,058	2.87
Shrimp (saltwater)	8	37	4.60
** TOTAL **	310,782	613,804	1.98

Table II.1.2

CNMI January 1992 Commercial Landings

Species	Pounds	Value	$/lb
Jacks	74	191	2.58
Bottom fish	163	433	2.66
Grouper	24	109	4.50
Opakapaka (pink snp)	31	70	2.25
Reef fish	11,803	19,958	1.69
Rabbitfish (hitting)	38	100	2.65
Emperor (mafute)	66	157	2.38
Parrotfish	688	2,046	2.97
Unicornfish	93	258	2.79
Goatfish	75	206	2.75
Troll fish	2,624	4,030	1.54
Dolphin (mahimahi)	2,890	6,131	2.12
Wahoo	186	560	3.01
Skipjack tuna	2,896	5,350	1.85
Dogtooth tuna	166	365	2.20
Yellowfin tuna	1,643	4,173	2.54
Shrimp (saltwater)	8	37	4.60
** SUBTOTAL **	23,467	44,173	1.88

Table II.1.3

CNMI February 1992 Commercial Landings

Species	Pounds	Value	$/lb
Bigeye scad (atulai)	47	156	3.32
Jacks	28	88	3.15
Bottom fish	524	1,231	2.35
Grouper	86	385	4.50
Reef fish	9,561	17,021	1.78
Wrasse	7	26	3.86
Rabbitfish (hitting)	122	339	2.78
Rudderfish (guilli)	84	189	2.25
Parrotfish	120	375	3.14
Unicornfish	53	133	2.50
Goatfish	185	278	1.50
Troll fish	1,112	1,933	1.74
Dolphin (mahimahi)	3,002	5,992	2.00
Rainbow runner	22	57	2.59
Wahoo	484	1,285	2.66
Skipjack tuna	437	768	1.76
Dogtooth tuna	178	433	2.43
Yellowfin tuna	491	1,308	2.66
Lobster	171	640	3.75
** SUBTOTAL **	16,711	32,638	1.95

Table II.1.4

CNMI March 1992 Commercial Landings

Species	Pounds	Value	$/lb
Bigeye scad (atulai)	60	179	3.00
Jacks	25	75	3.00
Bottom fish	45	113	2.50
Grouper	49	171	3.49
Reef fish	11,938	22,101	1.85
Rabbitfish (hitting)	88	243	2.77
Rudderfish (guilli)	48	88	1.84
Emperor (mafute)	242	783	3.24
Squirrelfish	34	77	2.25
Parrotfish	354	841	2.37
Surgeonfish	27	53	2.00
Unicornfish	97	226	2.34
Goatfish	65	171	2.62
Troll fish	3,645	6,200	1.70
Barracuda	14	21	1.50
Dolphin (mahimahi)	5,979	13,191	2.21
Marlin	103	206	2.00
Sailfish	31	47	1.50
Wahoo	1,897	4,979	2.63
Tunas	30	75	2.50
Skipjack tuna	1,141	1,896	1.66
Dogtooth tuna	126	252	2.00
Yellowfin tuna	961	2,407	2.51
Lobster	49	184	3.75
** SUBTOTAL **	27,046	54,576	2.02

Table II.1.5

CNMI April 1992 Commercial Landings

Species	Pounds	Value	$/lb
Bigeye scad (atulai)	350	834	2.38
Bottom fish	424	1,278	3.01
Grouper	92	400	4.36
Onaga (red snapper)	17	102	6.00
Reef fish	9,301	18,734	2.01
Rabbitfish (hitting)	256	796	3.11
Rudderfish (guilli)	14	37	2.75
Emperor (mafute)	179	477	2.66
Parrotfish	1,028	2,748	2.67
Surgeonfish	18	35	2.00
Unicornfish	3	5	2.00
Goatfish	4	7	2.00
Troll fish	2,958	4,932	1.67
Dolphin (mahimahi)	5,356	10,877	2.03
Marlin	275	275	1.00
Wahoo	8,716	19,002	2.18
Skipjack tuna	5,363	9,865	1.84
Dogtooth tuna	587	1,035	1.76
Yellowfin tuna	1,295	2,989	2.31
Lobster	288	1,211	4.21
Octopus	96	322	3.35
** SUBTOTAL **	36,617	75,960	2.07

Table II.1.6

CNMI May 1992 Commercial Landings

Species	Pounds	Value	$/lb
Bigeye scad (atulai)	13	41	3.25
Jacks	10	31	3.00
Mullet	29	58	2.00
Bottom fish	1,398	3,507	2.51
Grouper	74	240	3.27
Opakapaka (pink snp)	68	170	2.50
Reef fish	9,623	18,979	1.97
Rabbitfish (hitting)	943	2,481	2.63
Emperor (mafute)	185	431	2.32
Squirrelfish	36	71	2.00
Parrotfish	612	1,781	2.91
Snapper	58	58	1.00
Surgeonfish	276	718	2.61
Unicornfish	408	1,000	2.45
Goatfish	55	141	2.54
Troll fish	4,058	6,188	1.53
Dolphin (mahimahi)	1,645	3,246	1.97
Marlin	724	778	1.07
Rainbow runner	45	121	2.70
Wahoo	500	1,036	2.07
Skipjack tuna	11,281	18,753	1.66
Dogtooth tuna	1,086	2,039	1.88
Yellowfin tuna	2,966	5,567	1.88
Lobster	334	1,199	3.59
Octopus	4	15	3.75
** SUBTOTAL **	36,428	68,649	1.88

Table II.1.7

CNMI June 1992 Commercial Landings

Species	Pounds	Value	$/lb
Mullet	11	21	1.95
Bottom fish	392	1,191	3.04
Grouper	15	44	3.00
Reef fish	12,466	23,745	1.90
Rabbitfish (hitting)	119	326	2.75
Rudderfish (guilli)	59	117	1.98
Emperor (mafute)	825	2,041	2.47
Squirrelfish	52	103	2.00
Parrotfish	1,834	4,706	2.57
Snapper	96	96	1.00
Surgeonfish	352	603	1.71
Goatfish	20	40	2.00
Troll fish	394	757	1.92
Barracuda	10	10	1.00
Dolphin (mahimahi)	593	1,377	2.32
Marlin	1,726	1,788	1.04
Rainbow runner	64	167	2.61
Wahoo	89	137	1.55
Tunas	58	87	1.50
Skipjack tuna	9,191	16,359	1.78
Dogtooth tuna	305	547	1.80
Yellowfin tuna	3,754	8,273	2.20
Lobster	231	930	4.03
Octopus	43	86	2.00
** SUBTOTAL **	32,696	63,551	1.94

Table II.1.8

CNMI July 1992 Commercial Landings

Species	Pounds	Value	$/lb
Bigeye scad (atulai)	83	238	2.89
Mullet	9	18	2.00
Bottom fish	94	325	3.46
Opakapaka (pink snp)	10	30	3.00
Reef fish	15,759	32,638	2.07
Rabbitfish (hitting)	141	450	3.19
Rudderfish (guilli)	640	1,515	2.37
Emperor (mafute)	23	69	3.00
Squirrelfish	35	70	2.00
Parrotfish	347	863	2.49
Snapper	102	102	1.00
Surgeonfish	17	34	2.00
Unicornfish	67	164	2.44
Goatfish	7	14	2.00
Troll fish	4,208	6,399	1.52
Dolphin (mahimahi)	153	274	1.79
Marlin	454	486	1.07
Rainbow runner	117	205	1.75
Wahoo	249	693	2.78
Skipjack tuna	7,645	13,710	1.79
Dogtooth tuna	1,111	2,374	2.14
Yellowfin tuna	2,155	5,149	2.39
Lobster	190	1,005	5.29
Octopus	80	145	1.81
** SUBTOTAL **	33,695	66,970	1.99

Table II.1.9

CNMI August 1992 Commercial Landings

Species	Pounds	Value	$/lb
Bottom fish	456	456	1.00
Grouper	592	1,597	2.70
Reef fish	7,052	14,888	2.11
Rabbitfish (hitting)	59	176	3.00
Rudderfish (guilli)	131	295	2.25
Emperor (mafute)	279	645	2.31
Parrotfish	885	2,482	2.81
Snapper	56	56	1.00
Unicornfish	60	165	2.75
Goatfish	60	170	2.83
Troll fish	1,943	3,248	1.67
Dolphin (mahimahi)	182	382	2.09
Marlin	861	879	1.02
Rainbow runner	4	11	3.00
Wahoo	164	271	1.66
Skipjack tuna	5,100	10,041	1.97
Dogtooth tuna	159	159	1.00
Yellowfin tuna	1,405	3,673	2.61
Lobster	282	1,152	4.08
Octopus	39	231	6.00
** SUBTOTAL **	19,769	40,976	2.07

Table II.1.10

CNMI September 1992 Commercial Landings

Species	Pounds	Value	$/lb
Bigeye scad (atulai)	786	1,947	2.48
Bottom fish	218	429	1.97
Grouper	100	285	2.85
Reef fish	10,960	20,829	1.90
Wrasse	37	105	2.85
Rabbitfish (hitting)	279	811	2.91
Parrotfish	793	2,291	2.89
Snapper	47	47	1.00
Surgeonfish	4	9	2.00
Troll fish	357	823	2.31
Barracuda	8	8	1.00
Dolphin (mahimahi)	48	48	1.00
Marlin	605	647	1.07
Rainbow runner	170	223	1.31
Wahoo	310	639	2.06
Skipjack tuna	10,507	17,505	1.67
Dogtooth tuna	77	77	1.00
Yellowfin tuna	1,031	2,184	2.12
Lobster	409	1,371	3.35
Octopus	40	90	2.25
** SUBTOTAL **	26,787	50,369	1.88

Table II.1.11

CNMI October 1992 Commercial Landings

Species	Pounds	Value	$/lb
Bigeye scad (atulai)	150	428	2.85
Jacks	64	160	2.50
Bottom fish	522	1,199	2.30
Grouper	200	571	2.85
Reef fish	8,472	15,045	1.78
Rabbitfish (hitting)	153	397	2.59
Emperor (mafute)	80	234	2.92
Squirrelfish	3	8	2.50
Parrotfish	360	1,110	3.09
Surgeonfish	18	36	2.00
Goatfish	43	96	2.22
Troll fish	3,084	4,625	1.50
Barracuda	106	106	1.00
Dolphin (mahimahi)	46	133	2.92
Marlin	597	981	1.64
Rainbow runner	180	343	1.91
Wahoo	715	1,293	1.81
Tunas	6	13	2.17
Skipjack tuna	2,535	5,267	2.08
Dogtooth tuna	575	683	1.19
Yellowfin tuna	1,991	4,612	2.32
Lobster	115	345	3.00
Octopus	52	130	2.50
** SUBTOTAL **	20,066	37,814	1.88

Table II.1.12

CNMI November 1992 Commercial Landings

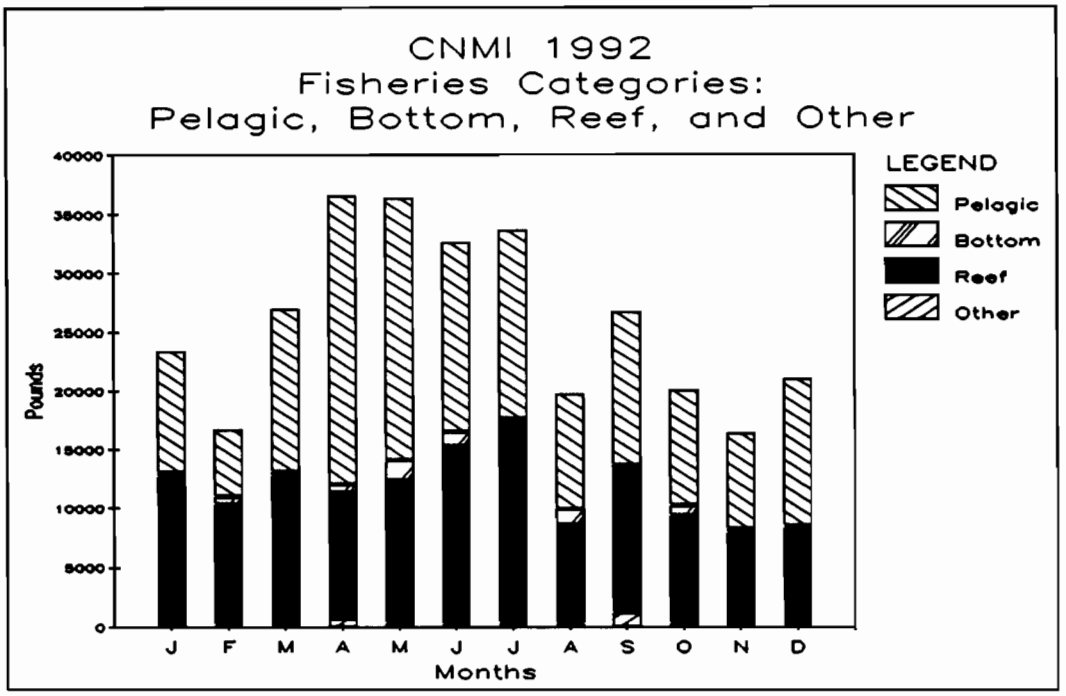
Species	Pounds	Value	$/lb
Jacks	47	133	2.85
Bottom fish	152	504	3.32
Grouper	86	245	2.85
Reef fish	7,234	14,648	2.02
Rabbitfish (hitting)	152	379	2.50
Rudderfish (guilli)	29	73	2.50
Emperor (mafute)	4	10	2.50
Squirrelfish	57	114	2.00
Parrotfish	424	1,241	2.93
Unicornfish	30	53	1.75
Goatfish	1	3	2.50
Troll fish	4,230	6,426	1.52
Dolphin (mahimahi)	22	66	3.00
Sailfish	70	176	2.50
Rainbow runner	39	109	2.82
Wahoo	292	630	2.16
Tunas	10	29	3.00
Skipjack tuna	2,575	5,229	2.03
Dogtooth tuna	48	113	2.35
Yellowfin tuna	887	2,329	2.63
Lobster	29	129	4.45
** SUBTOTAL **	16,415	32,635	1.99

Table II.1.13

CNMI December 1992 Commercial Landings

Species	Pounds	Value	$/lb
Jacks	22	51	2.38
Bottom fish	61	162	2.66
Grouper	101	203	2.00
Reef fish	7,545	18,056	2.39
Rabbitfish (hitting)	172	405	2.35
Rudderfish (guilli)	68	204	3.00
Emperor (mafute)	3	7	2.50
Squirrelfish	17	33	1.91
Parrotfish	318	883	2.78
Surgeonfish	8	16	2.00
Unicornfish	27	69	2.60
Goatfish	16	32	2.08
Troll fish	959	1,630	1.70
Dolphin (mahimahi)	1,545	3,647	2.36
Rainbow runner	350	496	1.41
Wahoo	138	401	2.91
Tunas	173	307	1.77
Skipjack tuna	7,311	12,910	1.77
Yellowfin tuna	2,093	5,409	2.58
Lobster	143	535	3.75
Octopus	16	40	2.50
** SUBTOTAL **	21,084	45,494	2.16
** TOTAL **	310,782	613,804	1.98

Figure III.1.1



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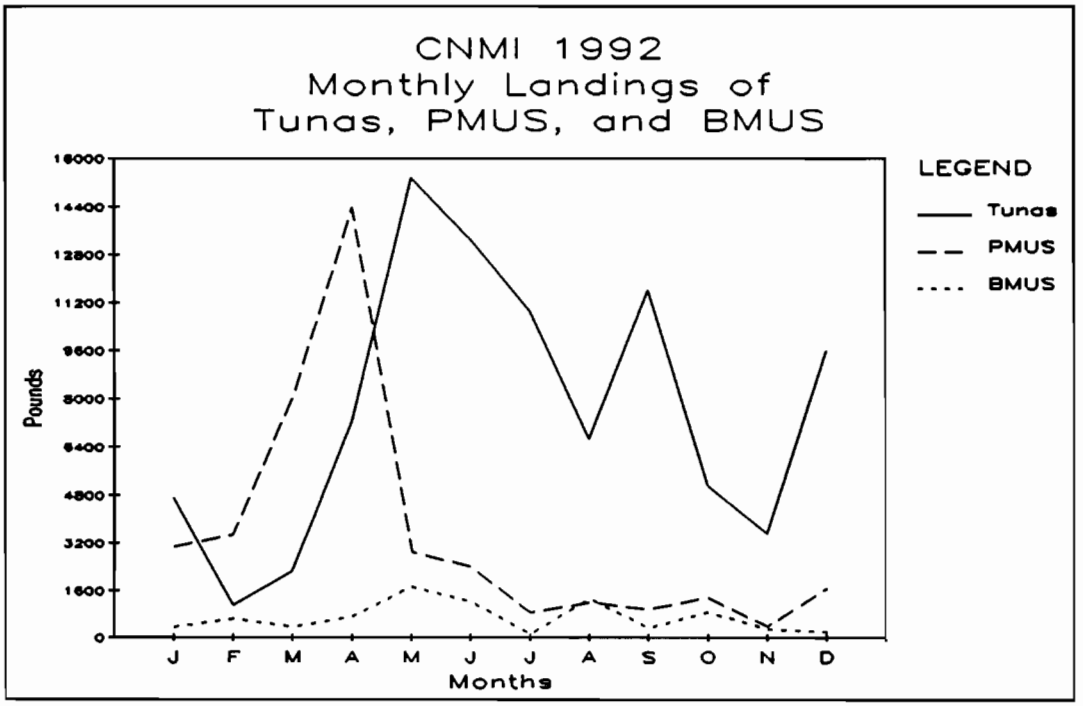

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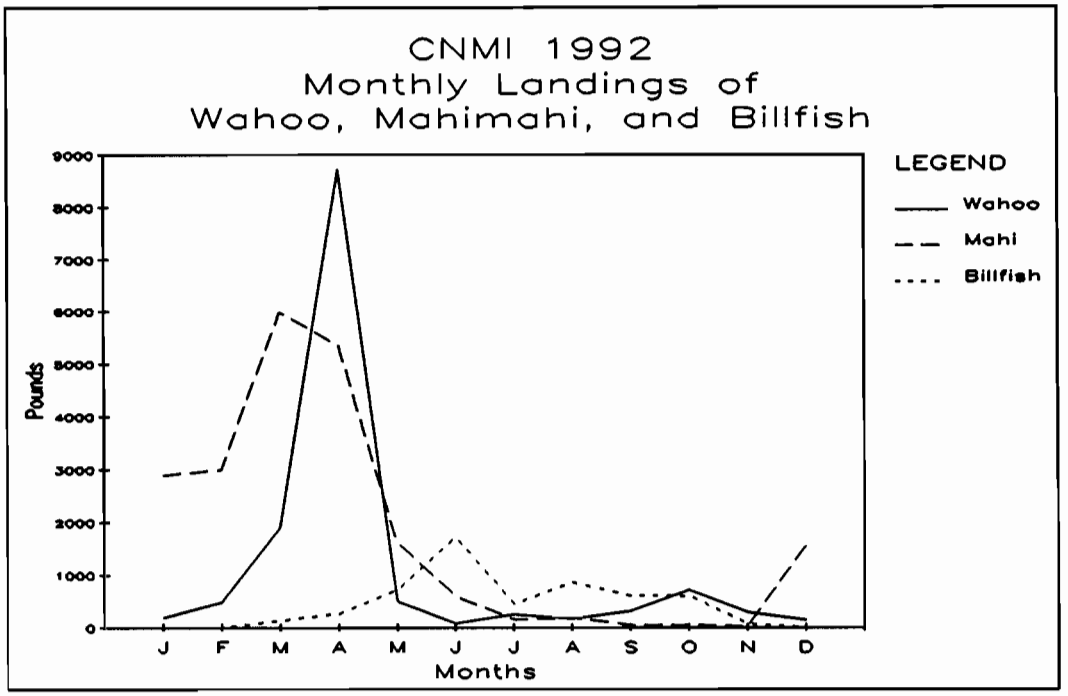

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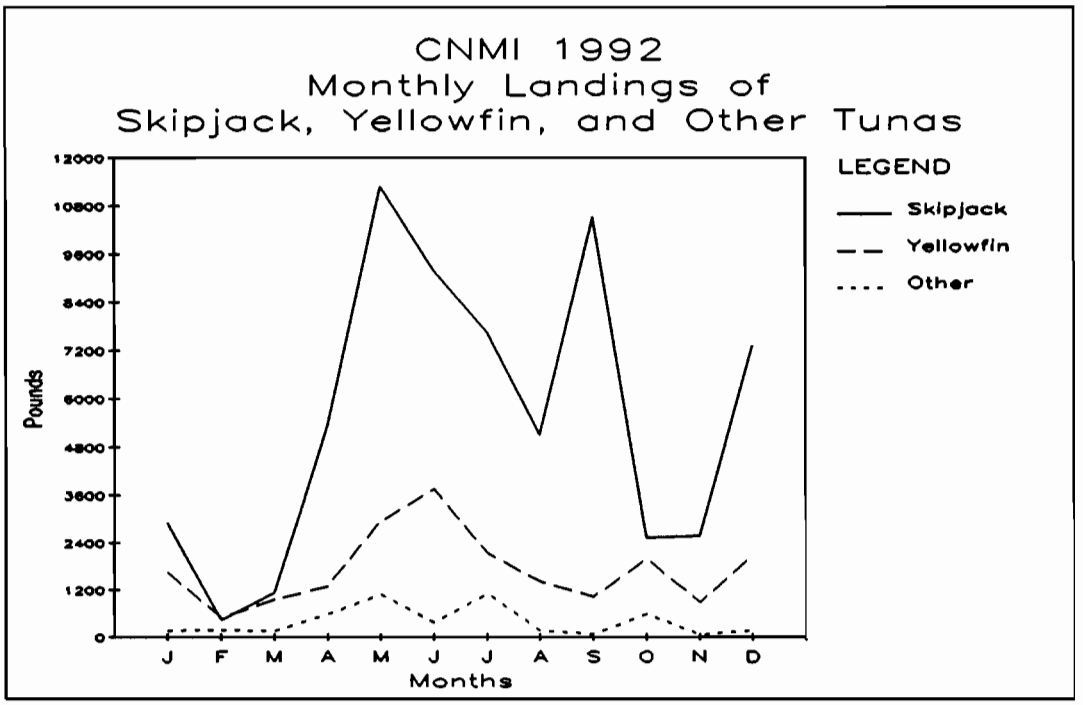

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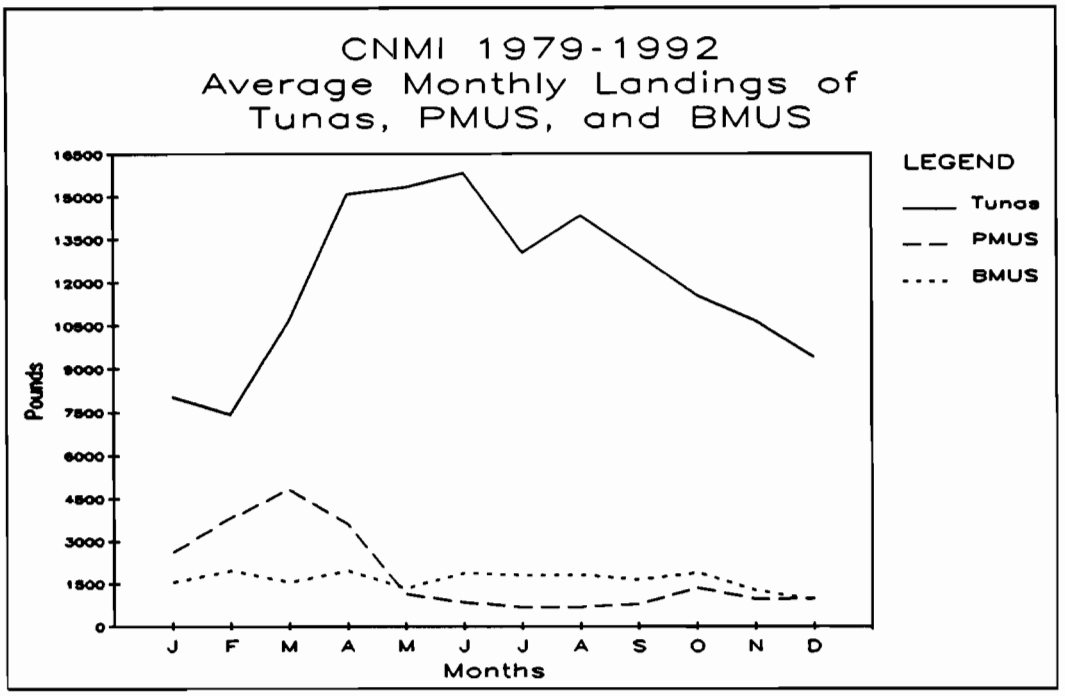

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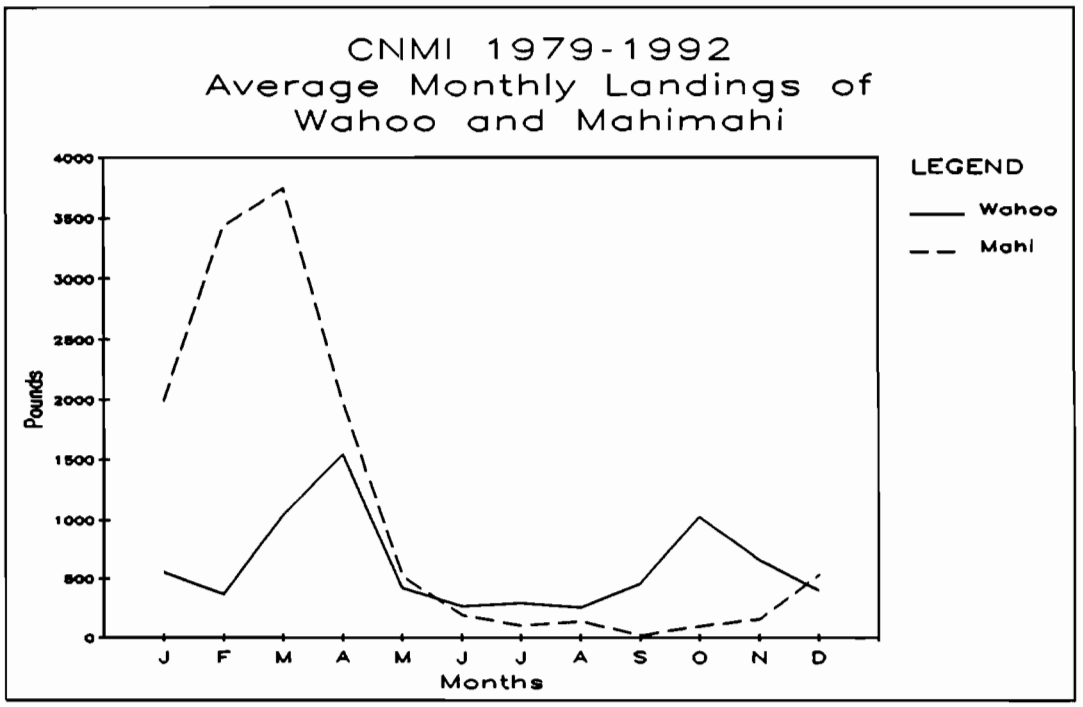

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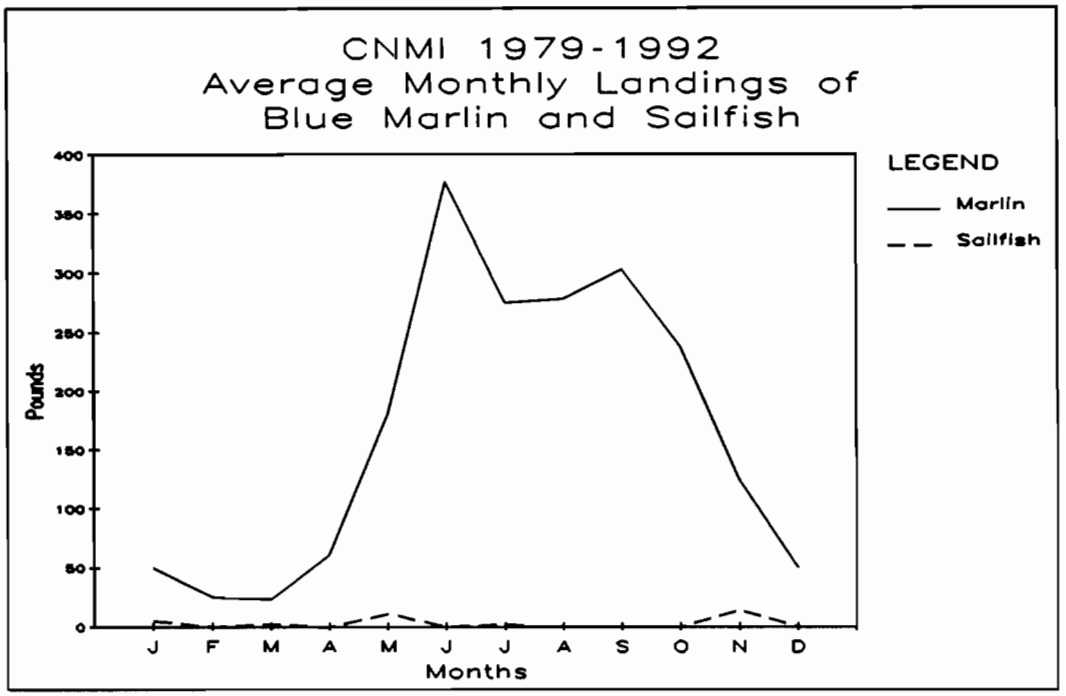

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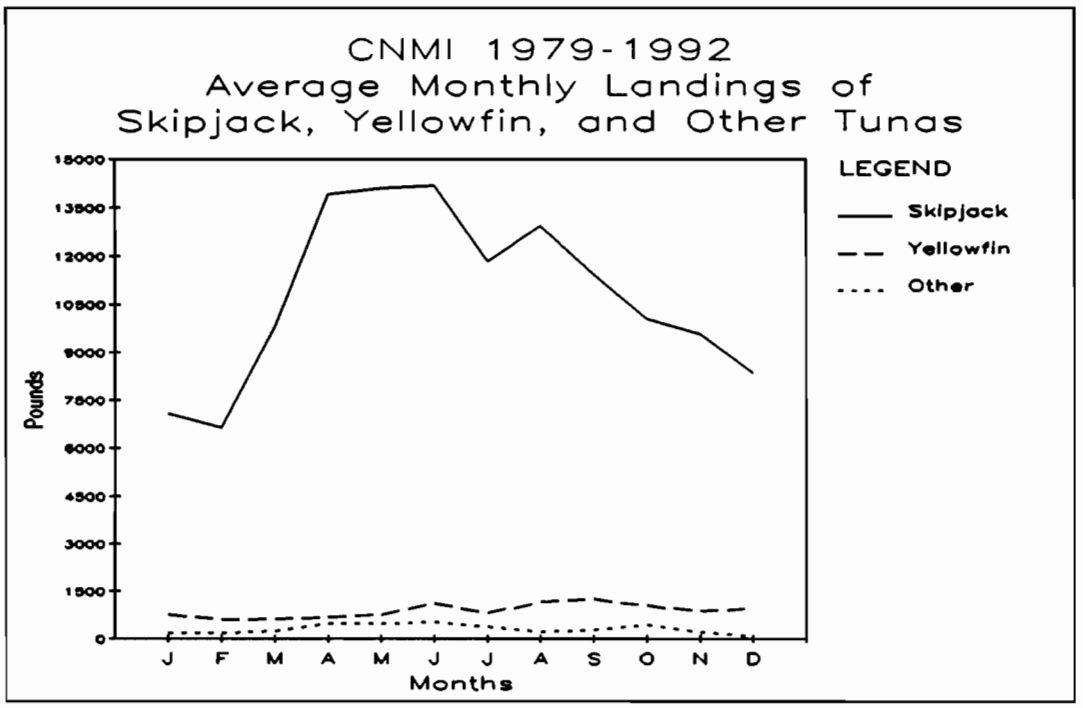

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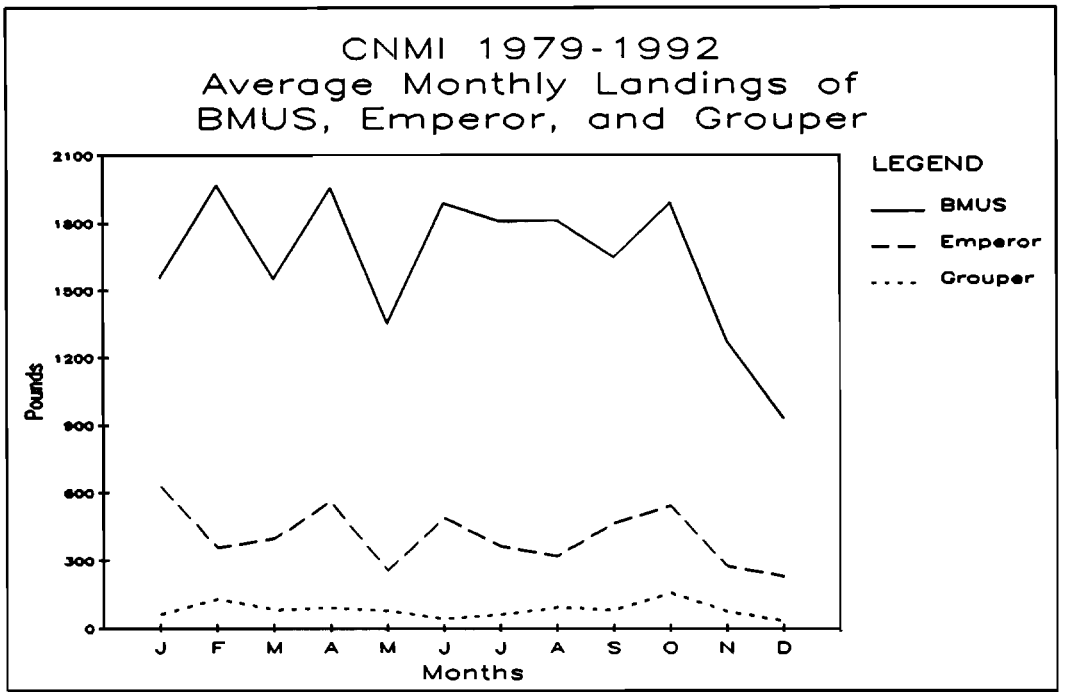

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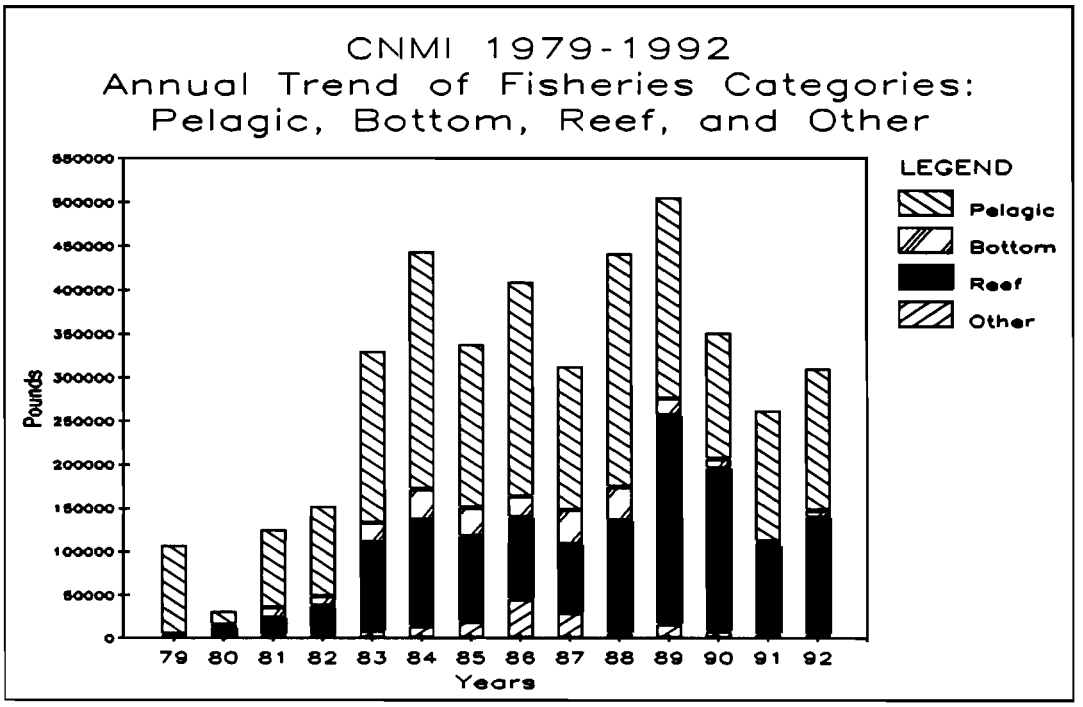

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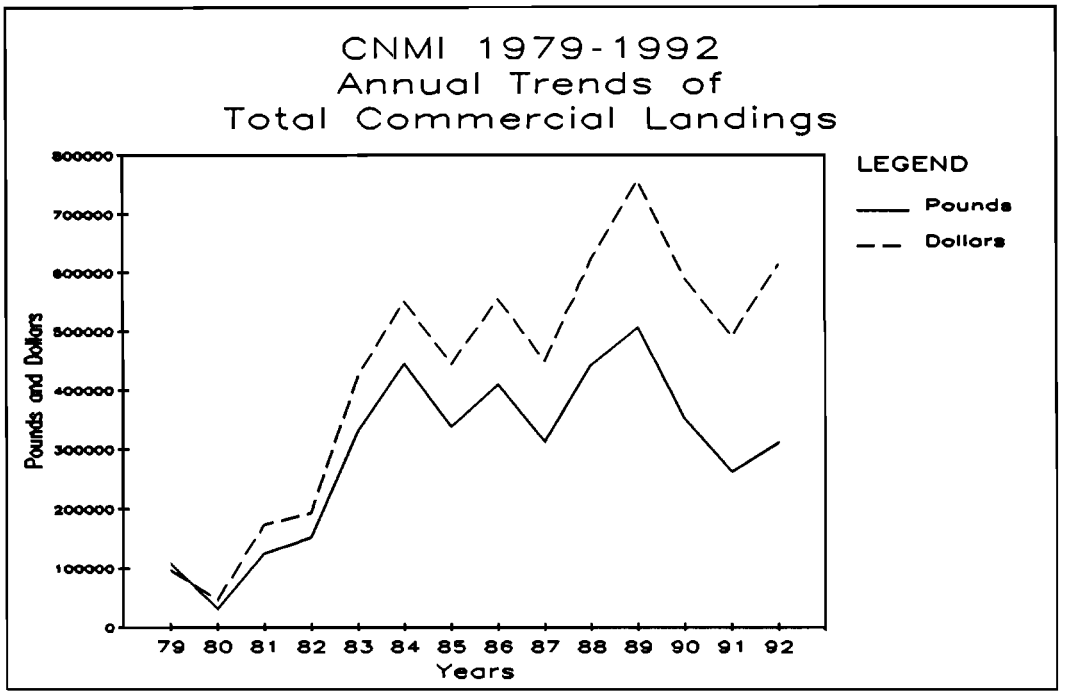

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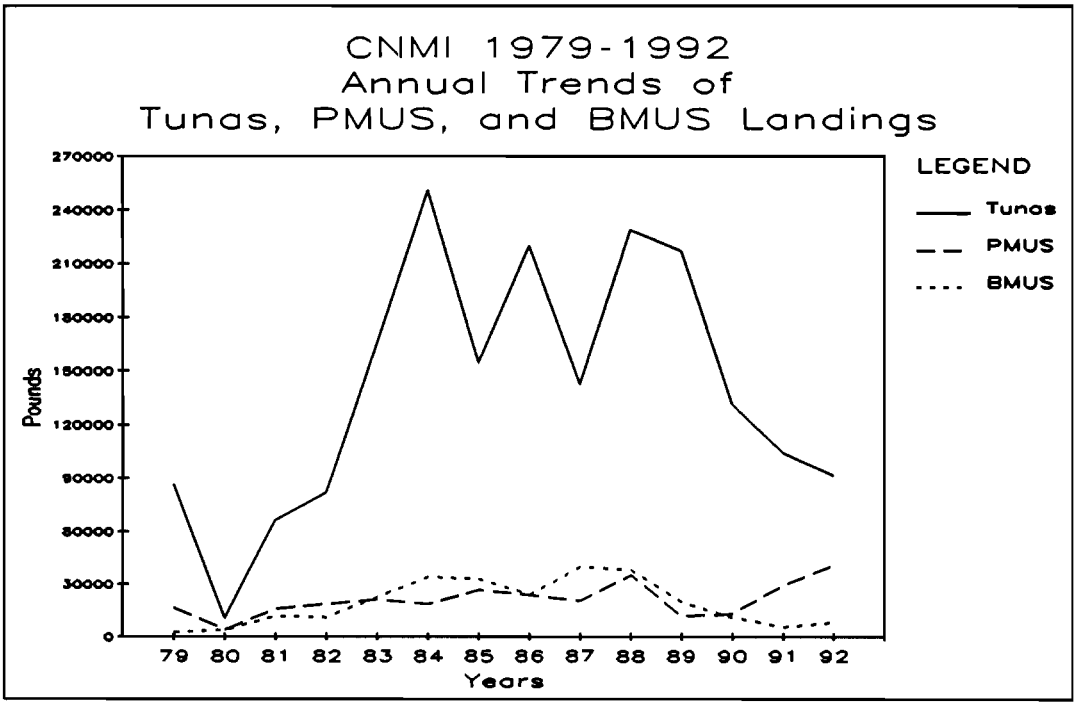

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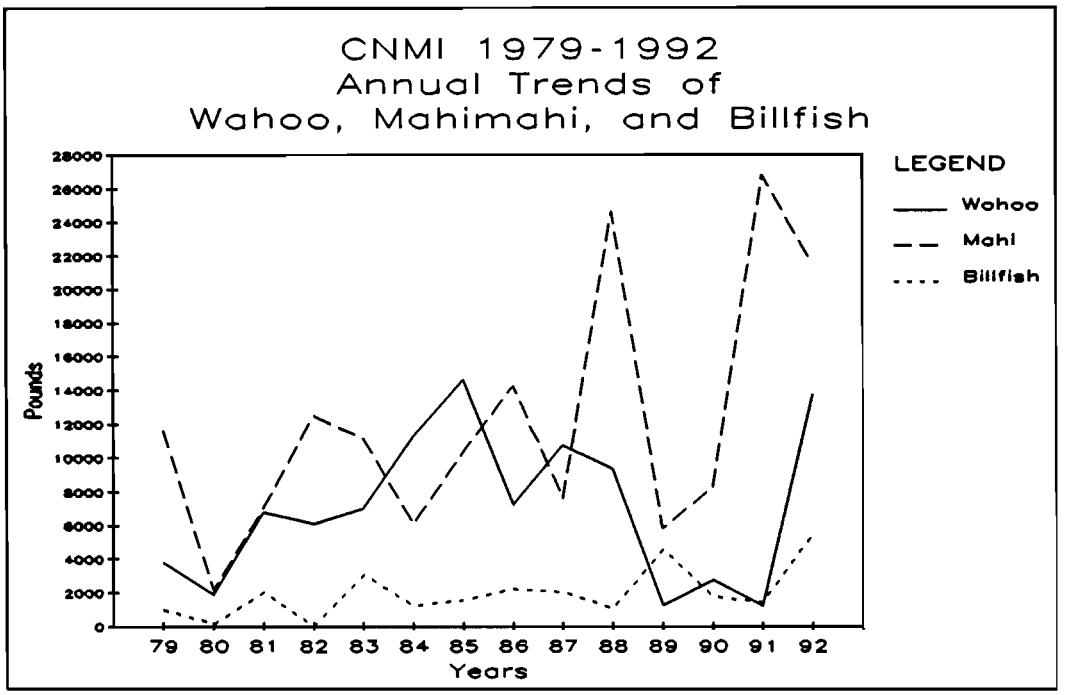

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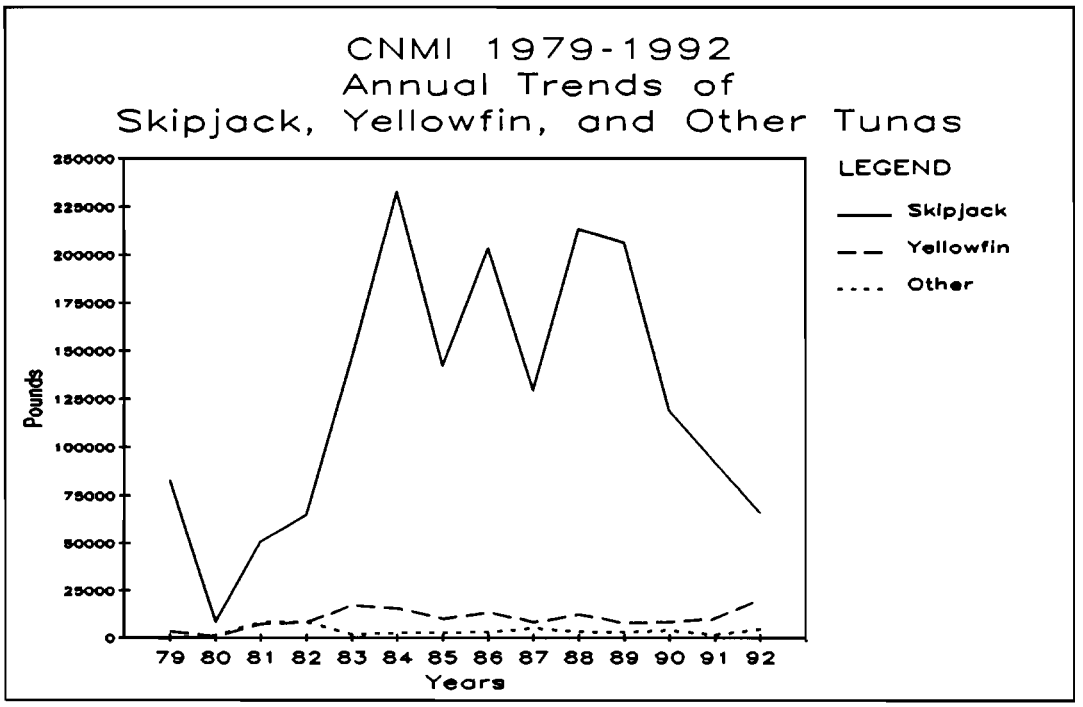

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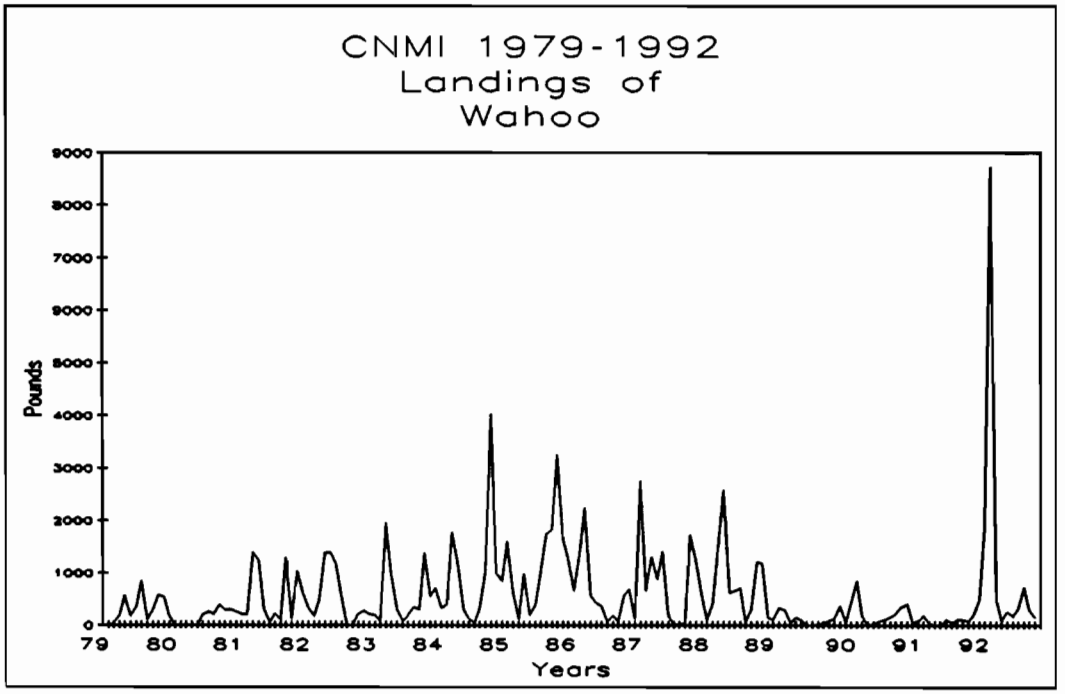

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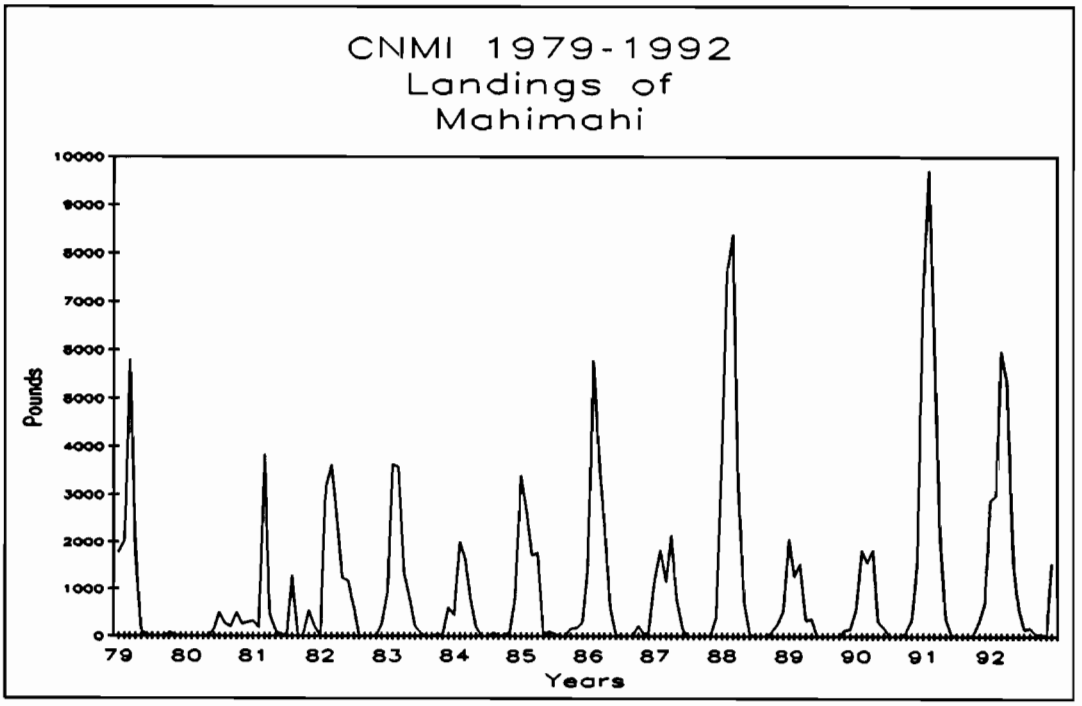

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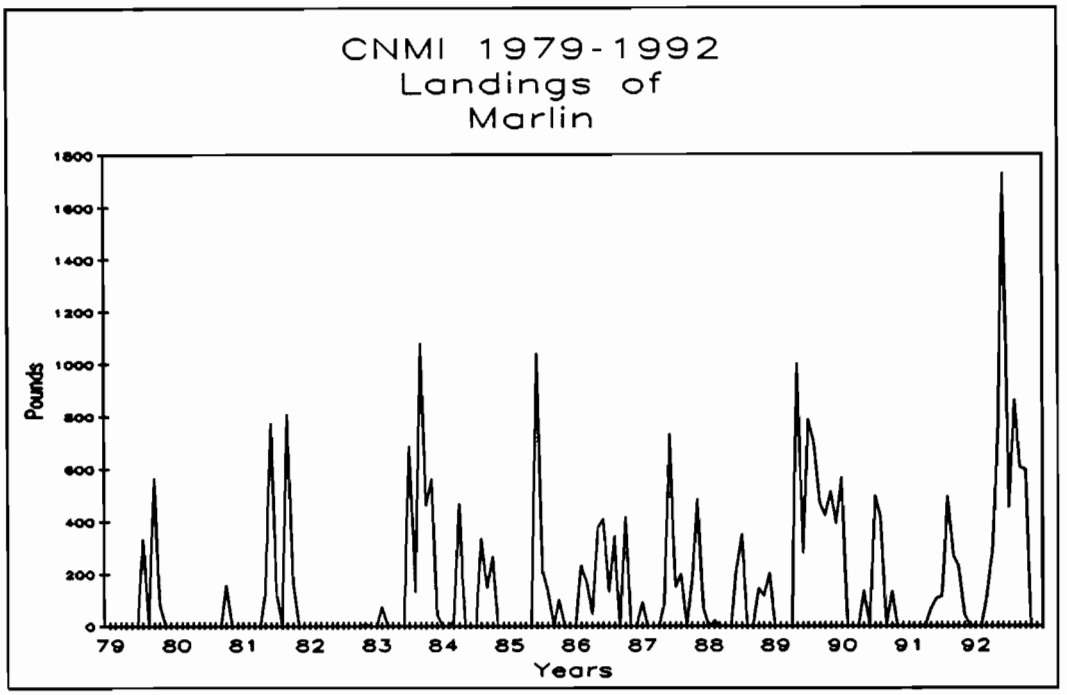

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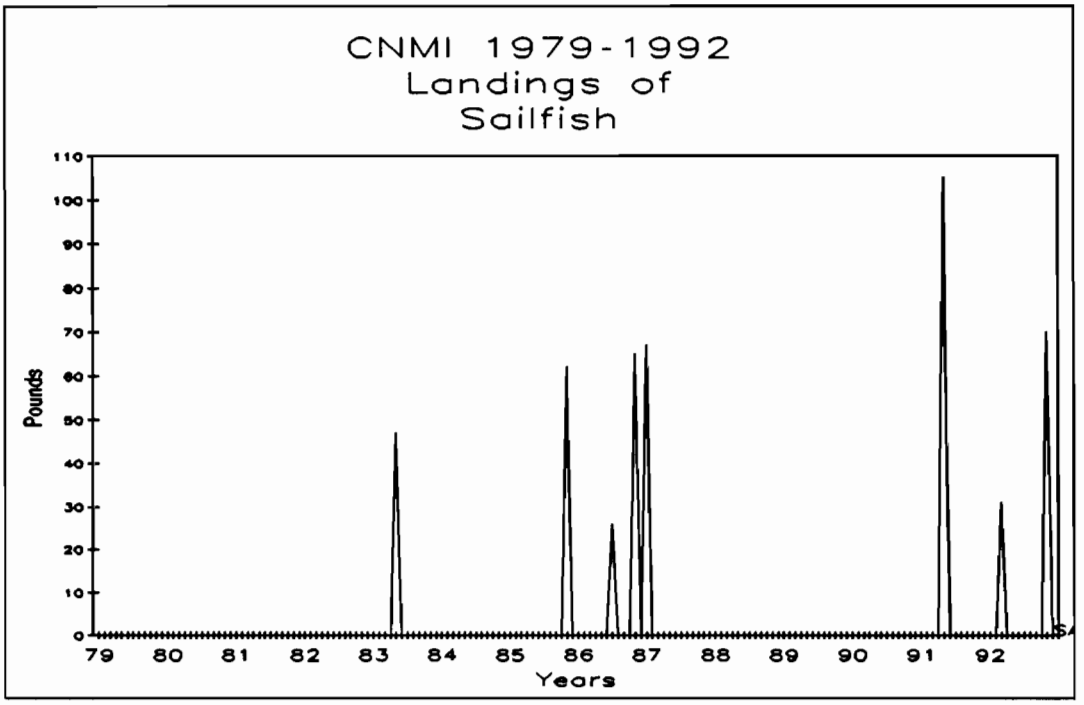

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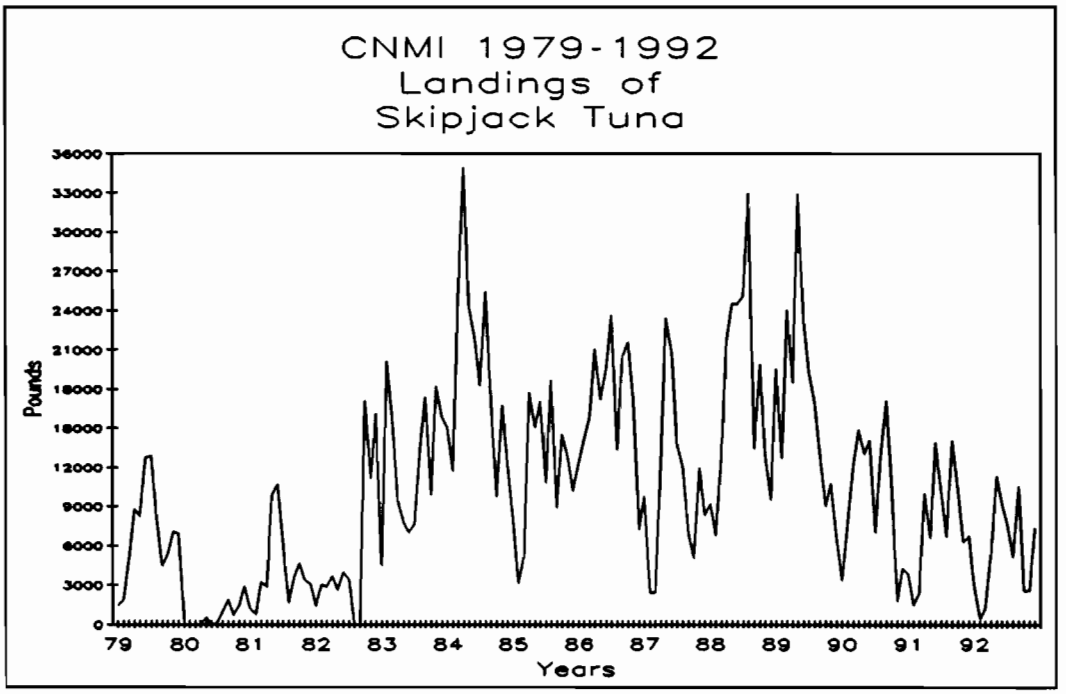

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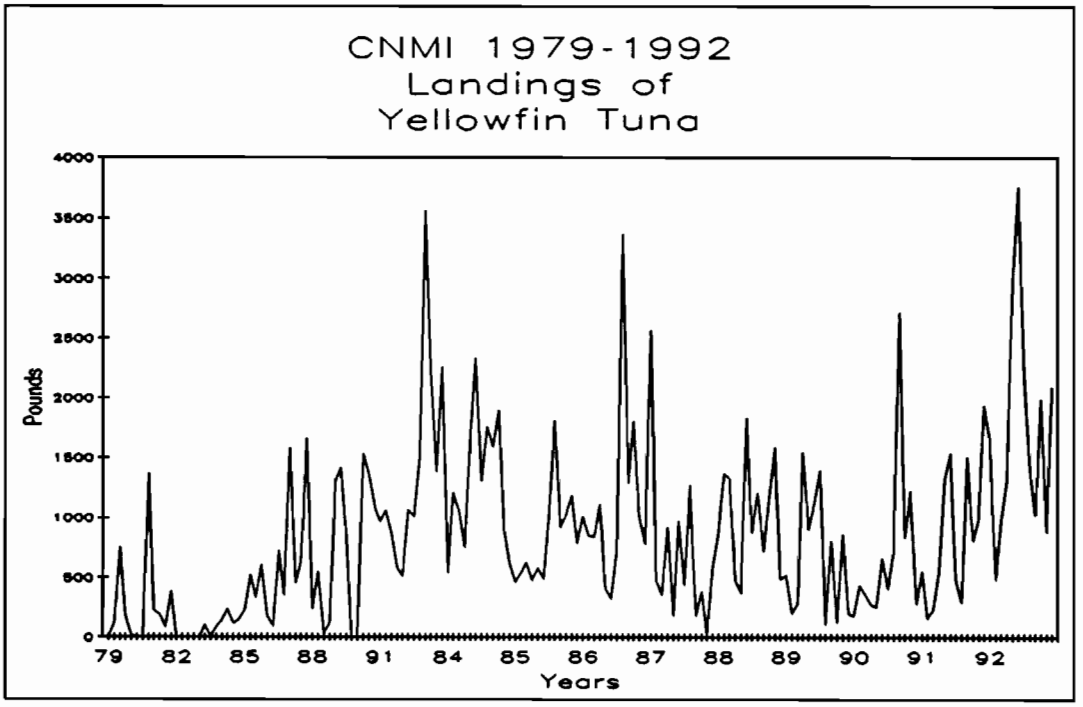

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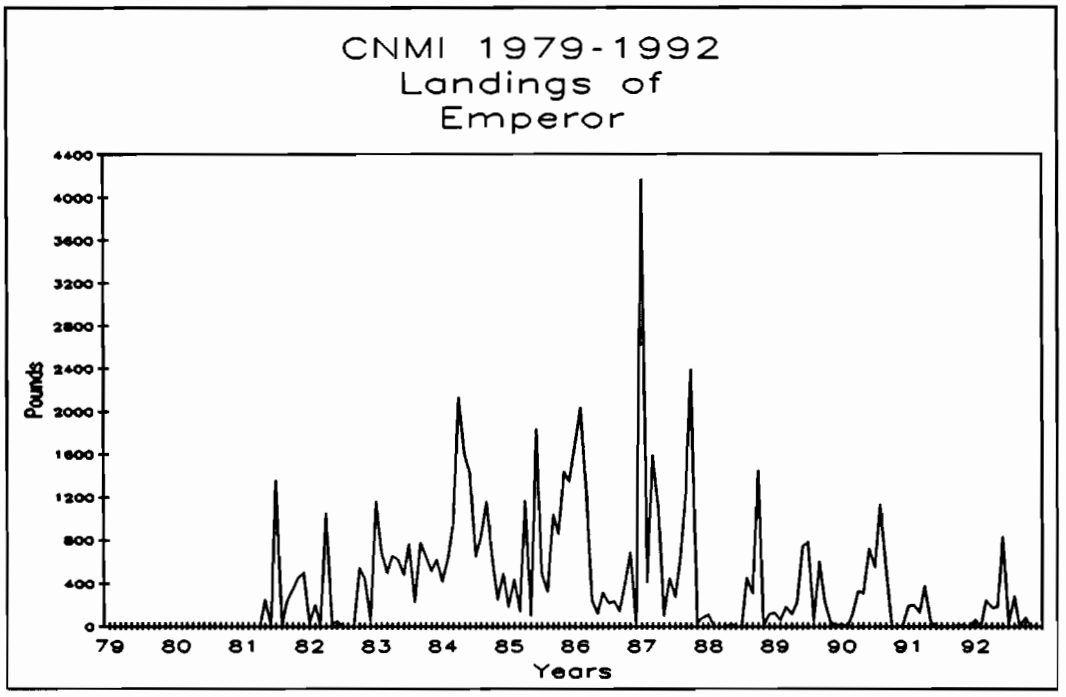

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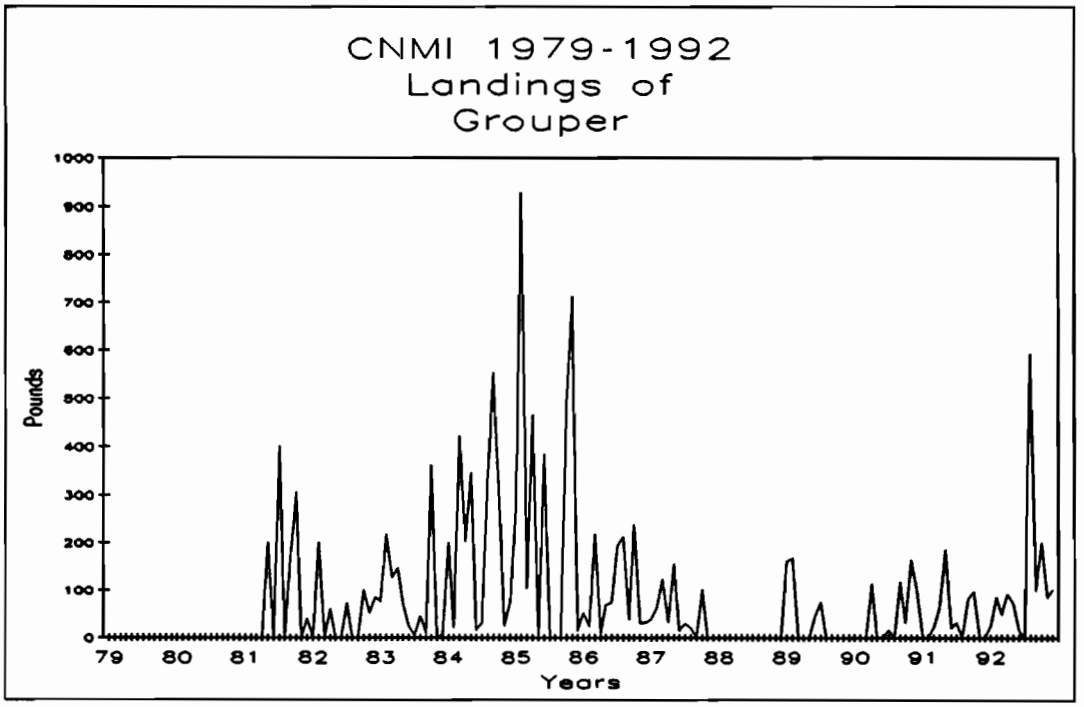

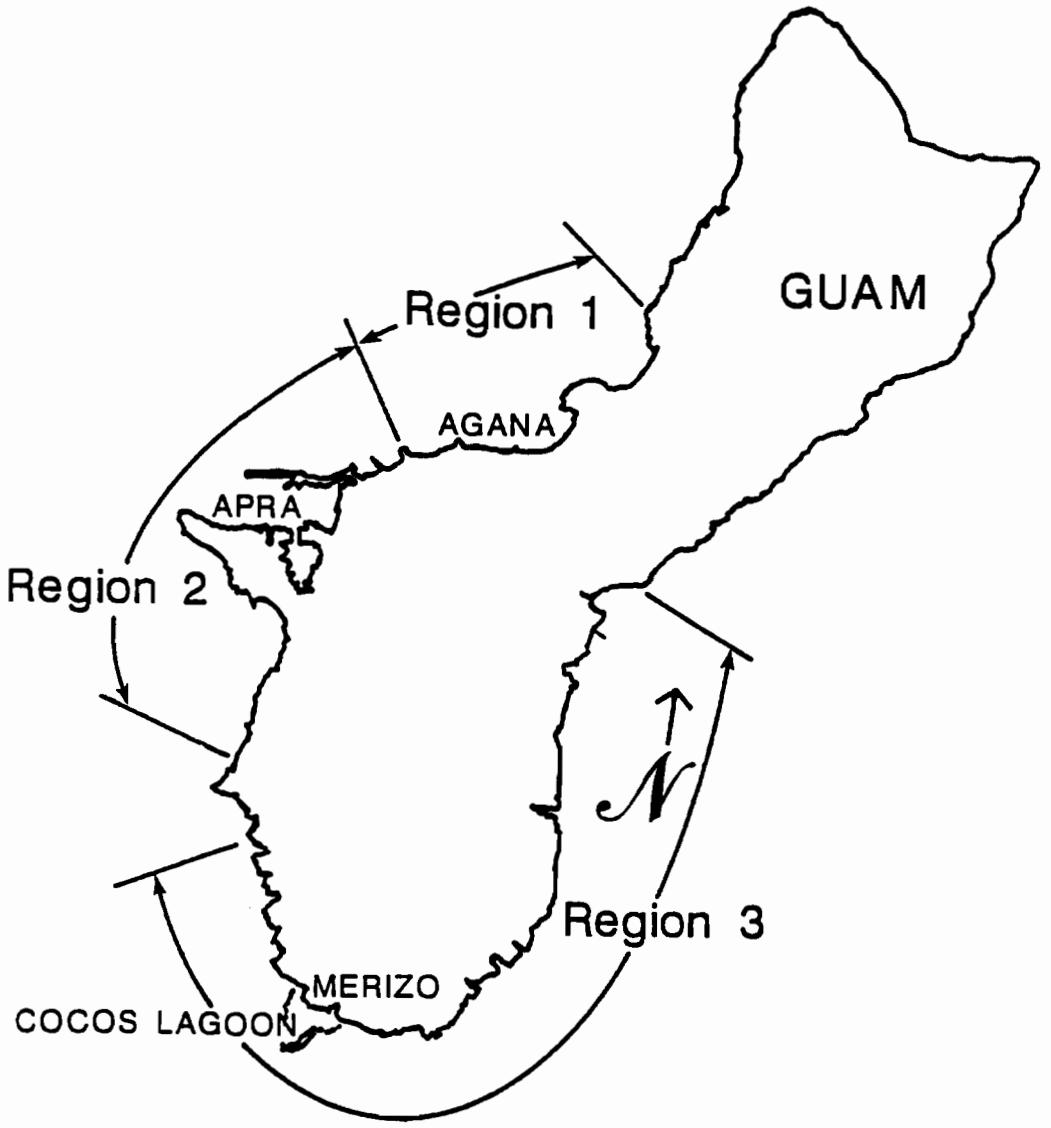

Territory of Guam

Fishery Statistics
1992

GUAM 1992 FISHERY STATISTICS

Compiled by

Guam Division of Aquatic and Wildlife Resources

and the

Western Pacific Fishery Information Network

April 1994

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LIST OF GUAM SUMMARY TABLES

LIST OF GUAM FIGURES

GUAM 1992 FISHERY STATISTICS

INTRODUCTION

The Territory of Guam (lat. 13.4° N and long. 144.4° E) is the southernmost, largest, and most populous island in the Mariana Archipelago. All of the islands in the chain north of Guam belong to the Commonwealth of the Northern Mariana Islands. Guam is located about 6,000 km (3,700 mi) west-southwest of Honolulu, 2,500 km (1,550 mi) south-southeast of Tokyo, and 2,600 km (1,600 mi) east of Manila. Guam is about 48 km (30 mi) long, varies from 6 to 14 km (4 to 9 mi) wide, and has an estimated land area of 554 km^2 (214 mi^2) and a population of about 120,000.

Fishing activities on Guam can be divided into two basic categories: offshore and inshore fishing. Offshore fishing typically involves small boat (12 to 48 feet), 1 to 2-day trolling and bottom fishing trips that usually originate from one of the three principal harbors located on the west coast and southern tip of the island. In recent years, the sportfishing charter boat industry has increased significantly. Inshore fishing is typically conducted without the use of a boat and consists mostly of nearshore casting, netting, and spearfishing. The Guam Department of Agriculture's Division of Aquatic and Wildlife Resources (DAWR) has been conducting offshore and inshore creel surveys since the early 1970's. Beginning in 1982, DAWR began modifying its data collecting and processing systems to improve estimates of catch and effort by improving sampling techniques and by incorporating the use of microcomputers to expand the survey data. The WPACFIN provided microcomputers and training and worked with DAWR staff and a contractor to redesign the sampling program. Summary statistics from the inshore and offshore creel survey sampling programs have ben included in previous volumes of this report series using the original data processing systems provided to DAWR through WPACFIN. However, DAWR is in the process of converting all data systems to a new microcomputer environment and survey data for 1992 are not available to include in this volume. Sampling has continued without interruption to maintain the continuity of the data base and summary statistics should be available for publication in the next volume of this report series.

In 1982, WPACFIN also began working with local fish wholesalers to obtain information on the commerical landings of Guam through volunteer use of invoices provided by WPACFIN. No interruptions in collecting or processing these data have occurred and summaries from all participating wholesalers combined are provided in this volume as in previous volumes of this report series.

COMMERICAL LANDINGS DATA COLLECTION SYSTEM

Fish enter the commercial market in Guam from three sources, full-time commercial fishermen, part-time commercial fishermen, and subsistence or recreational fishermen who frequently sell portions of their catch. No licenses are required to sell fish in Guam, nor are there any reporting requirements for those selling fish. Before 1979, there was no central place to sell fish, so fishermen had to develop their own markets and peddle their own fish after each trip. The Guam Fishermen's Coop was established, via some government funding, in Agana in July 1979. The Coop subsequently became the central distribution center for fresh local fish. In 1982, WPACFIN began working with the Coop to improve their invoicing system and obtain data on all fish purchases. A cooperative system was established whereby the Coop would use the forms and coding schemes designed by WPACFIN and would supply copies of all invoices to WPACFIN for entering into computer format. In return, WPACFIN would provide the Coop with document quality control and computer generated summary statistics. All purchase data back to July 1979 also were coded and computerized.

Data from two other fish wholesalers were collected beginning in 1983 and continued until early 1987 by which time both had left the business. One other major fish wholesaler and several other important retailers who make purchases directly from fishermen have begun operating since then, and are providing data to WPACFIN by using the invoices given to them through DAWR. A law is being developed that will require reporting by dealers and possibly fishermen, but until it is implemented, the commercial landings data collection system will remain a voluntary system. Therefore, the reported commercial data do not reflect the true commercial fisheries. All tables and figures of commercial landings information included in this report are provided with the consent of the participating dealers.

Data collected on commercial forms include

- Date
- Fisherman code
- Number of fishermen
- Hours fished
- Area fished
- Species caught
- Number of pieces caught
- Pounds caught
- Price per pound

COMMERICAL LANDINGS DATA PROCESSING SYSTEM

The processing system for the commercial landings data collected from the fish dealers is fairly straightforward. A purchase form is completed by the dealer each time fish are purchased from a fisherman. Catches are divided into categories

for weighing by species or species group, and where practicable, number of pieces is recorded. Preferably, coding and initial quality control of the forms are done by Coop or DAWR personnel before they are shipped to WPACFIN for computer processing; however, these activities must sometimes be done by WPACFIN staff. Invoices are collected by DAWR and sent to the WPACFIN central office in Honolulu. Data are entered into a computer and loaded into central WPACFIN data bases, where edit reports are generated and used to locate and correct any errors in the data base. Once all edits, verifications, and corrections are made, summary reports are generated. Standard reports available include total monthly and annual landings by species, total landings by fisherman, and landings by fisherman by species. Purchase forms are returned to DAWR along with summary reports and graphs for their use and for distribution to dealers.

COMMERICAL LANDINGS DATA REPORTING SYSTEM

After completing all editing and quality control activities for the commercial landings data, monthly and annual summary reports by species are generated. The commercial landings reports section of this document includes monthly and annual reports for 1992. Each table contains information on the pounds, value and the average price per pound for each species or species group. Each monthly report contains a subtotal for the sum of all species combined for that month, and the December report also includes the annual total. Annual reports contain the total landings for each species and the total recorded landings for all species for the calendar year.

Included with the commercial landings summary reports are graphs of some of the important statistics. The following groupings of species, species categories, and abbreviations are used in the tables and graphs for Guam's commercial landings:

I. Pelagic Management Unit Species (PMUS)

Although the Magnuson Fishery Conservation and Management Act of 1976 was amended in 1992 to include tunas in the Pacific PMUS (PPMUS), this report series will continue to consider tunas as a separate category. The PMUS category in this report includes:

Mahimahi (dolphinfish)
Marlin (probably all blue but possibly striped or black)
Shortbill spearfish
Sailfish
Wahoo
Sharks

II. Bottom Fish Management Unit Species (BMUS)

Jacks (unclassified but excluding bigeye scad)
Bottom fish (unclassified)
Ehu (red snapper)
Gindai (flower snapper)
Grouper
Kalekale (pink snapper)
Lehi (silverjaw snapper)
Onaga (red or longtail snapper)
Opakapaka (pink snapper)
Uku (gray snapper)
Emperorfish

III. Billfish

Marlin (probably all blue but possibly striped or black)
Shortbill spearfish
Sailfish

IV. Tunas

Tunas (unclassified)
Skipjack tuna
Yellowfin tuna
Dogtooth or white tuna
Kawakawa

V. Other Tuna

All the above tunas excluding skipjack and yellowfin tunas.

VI. Fisheries Categories

A. Pelagic Species

All PMUS and tuna species plus the following:
Troll fish (unclassified)
Barracuda
Rainbow runner

B. Bottom Fish

Same as the BMUS

C. Reef Fish

Reef fish (unclassified)
Giant wrasse
Rabbitfish
Rudderfish
Squirrelfish
Parrotfish
Snapper
Surgeonfish
Unicornfish
Goatfish

D. Other

Miscellaneous (unclassified)
Bigeye scad
Mullet
Eels
Milkfish
Invertebrates (unclassified)
Crabs (unclassified)
Coconut crab
Lobster
Shrimp
Octopus
Squid
Seaweeds
Imported

INTERPRETATION OF STATISTICS

The user is reminded again to pay heed to the precautions and assumptions identified earlier in this document, when making interpretations of or inferences from data reported in the tables and graphs. Remember also that the commercial landings summaries are not based on a census of all the fishing activities, but on samples of those activities. Commercial landings reports are believed to include a high percentage (approximately 80% in 1992) of the actual commercial landings made on Guam.

Table IV.1.1

Guam 1992 Commerical Landings

Species	Pounds	Value	$/lb
Assorted	19.00	54.50	2.87
Miscellaneous	188.50	554.00	2.94
Bigeye scad (atulai)	1,422.83	4,143.75	2.91
Jacks	1,275.00	2,798.38	2.19
Mullet	95.00	265.75	2.80
Eel (freshwater)	18.00	54.00	3.00
Bottom fish	2,801.00	8,184.51	2.92
Ehu (red snapper)	199.75	654.75	3.28
Gindai (flower snap)	365.00	1,284.75	3.52
Grouper	639.50	1,563.00	2.44
Kalikali (pink snap)	88.50	280.50	3.17
Lehi (silverjaw)	387.00	1,081.01	2.79
Onaga (red snapper)	405.75	1,865.00	4.60
Opakapaka (pink snp)	263.50	845.12	3.21
Uku (gray snapper)	685.50	1,736.13	2.53
Reef fish	7,359.65	20,081.68	2.73
Wrasse	212.00	442.00	2.08
Rabbitfish (hitting)	217.00	522.50	2.41
Rabbitfish (menahac)	356.00	890.00	2.50
Rabbitfish (sesjun)	14.50	41.38	2.85
Emperor (mafute)	1,165.00	3,235.14	2.78
Squirrelfish	97.00	236.00	2.43
Parrotfish	1,941.50	5,691.25	2.93
Snapper	259.00	755.49	2.92
Surgeonfish	265.00	795.00	3.00
Unicornfish	1,218.50	3,655.50	3.00
Goatfish	6.00	16.50	2.75
Troll fish	2.00	3.00	1.50
Barracuda	1,583.25	3,210.68	2.03
Dolphin (mahimahi)	58,236.85	101,683.61	1.75
Marlin	30,305.50	26,790.67	0.88
Spearfish	46.00	84.00	1.83
Sailfish	847.50	1,148.75	1.36
Rainbow runner	1,403.75	3,212.05	2.29
Wahoo	51,165.00	97,930.07	1.91
Skipjack tuna	32,073.18	35,450.87	1.11
Dogtooth tuna	2,045.05	3,665.83	1.79
Yellowfin tuna	59,509.28	120,583.36	2.03
Kawakawa	229.50	402.99	1.76
Crabs (misc)	52.50	57.50	1.10
Lobster	117.00	462.50	3.95
Octopus	111.00	271.75	2.45
Imported	71,824.10	180,166.26	2.51
** TOTAL **	331,516.44	636,851.48	1.92

Table IV.1.2

Guam January 1992 Commerical Landings

Species	Pounds	Value	$/lb
Bigeye scad (atulai)	219.00	547.50	2.50
Jacks	7.00	21.00	3.00
Eel (freshwater)	18.00	54.00	3.00
Bottom fish	140.50	377.50	2.69
Gindai (flower snap)	28.00	91.00	3.25
Grouper	165.50	496.50	3.00
Reef fish	80.75	231.75	2.87
Parrotfish	402.00	1,206.00	3.00
Snapper	8.00	24.00	3.00
Unicornfish	348.00	1,044.00	3.00
Barracuda	108.00	220.50	2.04
Dolphin (mahimahi)	8,638.95	15,668.78	1.81
Marlin	396.50	722.25	1.82
Sailfish	82.50	123.75	1.50
Rainbow runner	18.50	42.00	2.27
Wahoo	4,513.00	9,075.40	2.01
Skipjack tuna	2,367.00	3,916.90	1.65
Dogtooth tuna	40.50	74.00	1.83
Yellowfin tuna	6,943.00	12,761.00	1.84
Kawakawa	14.00	28.00	2.00
Octopus	1.50	4.50	3.00
Imported	6,573.00	16,973.85	2.58
** SUBTOTAL **	31,113.20	63,704.18	2.05

Table IV.1.3

Guam February 1992 Commerical Landings

Species	Pounds	Value	$/lb
Miscellaneous	23.50	70.50	3.00
Jacks	5.00	12.50	2.50
Bottom fish	70.50	200.74	2.85
Uku (gray snapper)	29.00	79.75	2.75
Reef fish	66.50	182.88	2.75
Emperor (mafute)	29.00	87.00	3.00
Parrotfish	269.00	807.00	3.00
Snapper	17.00	51.00	3.00
Surgeonfish	20.00	60.00	3.00
Unicornfish	259.50	778.50	3.00
Barracuda	375.00	728.75	1.94
Dolphin (mahimahi)	9,767.40	15,471.27	1.58
Marlin	757.50	1,128.75	1.49
Sailfish	48.00	72.00	1.50
Rainbow runner	7.50	15.00	2.00
Wahoo	6,006.00	11,835.38	1.97
Skipjack tuna	2,108.75	2,582.79	1.22
Dogtooth tuna	109.00	203.63	1.87
Yellowfin tuna	7,102.50	13,074.64	1.84
Kawakawa	23.00	46.00	2.00
Crabs (misc)	50.00	50.00	1.00
Imported	6,654.00	17,442.80	2.62
** SUBTOTAL **	33,797.65	64,980.88	1.92

Table IV.1.4

Guam March 1992 Commerical Landings

Species	Pounds	Value	$/lb
Jacks	27.00	67.50	2.50
Bottom fish	14.00	42.00	3.00
Reef fish	447.50	1,102.63	2.46
Wrasse	18.00	54.00	3.00
Surgeonfish	92.00	276.00	3.00
Barracuda	42.50	85.00	2.00
Dolphin (mahimahi)	18,090.50	29,292.31	1.62
Marlin	594.00	1,169.50	1.97
Spearfish	30.00	60.00	2.00
Sailfish	82.50	165.00	2.00
Wahoo	5,463.50	9,388.19	1.72
Skipjack tuna	2,695.50	3,665.40	1.36
Dogtooth tuna	217.50	370.25	1.70
Yellowfin tuna	3,705.51	6,617.38	1.79
Kawakawa	3.00	6.00	2.00
Octopus	6.00	15.00	2.50
Imported	5,713.00	14,328.90	2.51
** SUBTOTAL **	37,242.01	66,705.06	1.79

Table IV.1.5

Guam April 1992 Commerical Landings

Species	Pounds	Value	$/lb
Bigeye scad (atulai)	101.00	303.00	3.00
Jacks	7.00	17.50	2.50
Bottom fish	105.50	316.50	3.00
Reef fish	544.50	1,481.00	2.72
Rabbitfish (sesjun)	8.50	23.38	2.75
Squirrelfish	53.00	106.00	2.00
Parrotfish	25.00	75.00	3.00
Troll fish	2.00	3.00	1.50
Barracuda	141.00	318.75	2.26
Dolphin (mahimahi)	7,944.00	12,749.63	1.60
Marlin	1,454.50	1,677.01	1.15
Sailfish	139.50	202.50	1.45
Rainbow runner	14.00	35.00	2.50
Wahoo	13,255.00	20,833.87	1.57
Skipjack tuna	730.50	1,136.01	1.56
Dogtooth tuna	433.50	845.00	1.95
Yellowfin tuna	2,994.00	6,982.25	2.33
Lobster	29.00	116.00	4.00
Imported	5,955.00	13,043.60	2.19
** SUBTOTAL **	33,936.50	60,265.00	1.78

Table IV.1.6

Guam May 1992 Commerical Landings

Species	Pounds	Value	$/lb
Miscellaneous	34.00	102.00	3.00
Bigeye scad (atulai)	483.00	1,449.00	3.00
Jacks	206.50	414.89	2.01
Mullet	25.00	67.00	2.68
Bottom fish	143.00	429.00	3.00
Ehu (red snapper)	67.50	219.38	3.25
Gindai (flower snap)	135.50	534.13	3.94
Grouper	51.00	156.50	3.07
Kalikali (pink snap)	64.00	207.00	3.23
Lehi (silverjaw)	111.00	277.50	2.50
Onaga (red snapper)	20.00	120.00	6.00
Opakapaka (pink snp)	37.50	120.25	3.21
Uku (gray snapper)	74.00	186.00	2.51
Reef fish	964.00	2,719.01	2.82
Rabbitfish (hitting)	62.50	174.50	2.79
Rabbitfish (menahac)	356.00	890.00	2.50
Rabbitfish (sesjun)	6.00	18.00	3.00
Emperor (mafute)	130.50	358.87	2.75
Parrotfish	191.50	559.50	2.92
Snapper	70.00	210.00	3.00
Unicornfish	299.50	898.50	3.00
Barracuda	426.00	829.00	1.95
Dolphin (mahimahi)	3,614.00	7,049.79	1.95
Marlin	3,464.50	2,824.51	0.82
Sailfish	269.50	320.25	1.19
Rainbow runner	17.50	39.75	2.27
Wahoo	2,339.50	4,526.43	1.93
Skipjack tuna	3,712.25	4,263.13	1.15
Dogtooth tuna	457.05	699.08	1.53
Yellowfin tuna	5,442.00	11,635.64	2.14
Kawakawa	7.50	12.37	1.65
Lobster	11.00	44.00	4.00
Octopus	1.00	2.75	2.75
Imported	7,806.00	19,457.40	2.49
** SUBTOTAL **	31,099.80	61,815.13	1.99

Table IV.1.7

Guam June 1992 Commerical Landings

Species	Pounds	Value	$/lb
Assorted	5.00	12.50	2.50
Miscellaneous	6.00	18.00	3.00
Bigeye scad (atulai)	87.50	262.50	3.00
Jacks	57.50	147.37	2.56
Bottom fish	149.50	426.75	2.85
Ehu (red snapper)	24.50	79.62	3.25
Gindai (flower snap)	9.00	29.25	3.25
Lehi (silverjaw)	29.50	95.88	3.25
Onaga (red snapper)	16.75	100.50	6.00
Opakapaka (pink snp)	171.50	557.37	3.25
Uku (gray snapper)	25.50	51.00	2.00
Reef fish	780.50	2,183.01	2.80
Wrasse	100.00	200.00	2.00
Rabbitfish (hitting)	18.00	54.00	3.00
Squirrelfish	2.00	5.50	2.75
Parrotfish	187.00	561.00	3.00
Snapper	68.00	204.00	3.00
Surgeonfish	76.50	229.50	3.00
Unicornfish	32.50	97.50	3.00
Barracuda	55.00	105.00	1.91
Dolphin (mahimahi)	1,575.50	2,934.50	1.86
Marlin	7,694.50	5,515.63	0.72
Spearfish	16.00	24.00	1.50
Rainbow runner	105.00	210.00	2.00
Wahoo	608.50	1,326.88	2.18
Skipjack tuna	1,720.50	2,048.51	1.19
Dogtooth tuna	130.50	203.25	1.56
Yellowfin tuna	10,114.65	17,696.77	1.75
Kawakawa	9.50	14.25	1.50
Lobster	4.00	20.00	5.00
Octopus	12.50	37.50	3.00
Imported	4,087.00	10,176.85	2.49
** SUBTOTAL **	27,979.90	45,628.39	1.63

Table IV.1.8

Guam July 1992 Commerical Landings

Species	Pounds	Value	$/lb
Miscellaneous	19.00	52.25	2.75
Bigeye scad (atulai)	55.50	166.50	3.00
Jacks	326.50	690.12	2.11
Bottom fish	251.00	753.00	3.00
Ehu (red snapper)	14.00	45.50	3.25
Grouper	196.00	311.00	1.59
Kalikali (pink snap)	24.50	73.50	3.00
Lehi (silverjaw)	51.50	154.50	3.00
Onaga (red snapper)	272.00	1,224.00	4.50
Opakapaka (pink snp)	16.00	48.00	3.00
Uku (gray snapper)	103.00	281.50	2.73
Reef fish	1,832.50	5,072.38	2.77
Wrasse	94.00	188.00	2.00
Rabbitfish (hitting)	108.50	217.00	2.00
Emperor (mafute)	214.50	591.52	2.76
Squirrelfish	6.00	18.00	3.00
Snapper	4.50	12.37	2.75
Unicornfish	16.00	48.00	3.00
Barracuda	162.00	356.50	2.20
Dolphin (mahimahi)	352.00	779.49	2.21
Marlin	6,141.50	4,468.76	0.73
Sailfish	143.00	197.75	1.38
Rainbow runner	177.50	439.50	2.48
Wahoo	1,336.50	3,274.66	2.45
Skipjack tuna	2,831.50	2,459.59	0.87
Dogtooth tuna	380.00	662.12	1.74
Yellowfin tuna	5,836.95	11,678.01	2.00
Kawakawa	7.50	11.25	1.50
Lobster	27.50	106.00	3.85
Imported	5,293.00	13,173.55	2.49
** SUBTOTAL **	26,293.95	47,554.32	1.81

Table IV.1.9

Guam August 1992 Commerical Landings

Species	Pounds	Value	$/lb
Assorted	14.00	42.00	3.00
Miscellaneous	106.00	311.25	2.94
Bigeye scad (atulai)	80.00	224.75	2.81
Jacks	335.50	686.37	2.05
Mullet	45.00	123.75	2.75
Bottom fish	356.00	1,008.77	2.83
Ehu (red snapper)	21.75	70.25	3.23
Gindai (flower snap)	58.00	199.87	3.45
Grouper	89.00	249.62	2.80
Lehi (silverjaw)	127.50	350.63	2.75
Opakapaka (pink snp)	22.50	67.50	3.00
Uku (gray snapper)	239.50	587.01	2.45
Reef fish	1,111.90	3,137.52	2.82
Rabbitfish (hitting)	28.00	77.00	2.75
Emperor (mafute)	484.00	1,343.26	2.78
Squirrelfish	30.00	90.00	3.00
Parrotfish	558.00	1,674.00	3.00
Snapper	86.50	244.12	2.82
Surgeonfish	76.50	229.50	3.00
Unicornfish	213.00	639.00	3.00
Barracuda	64.75	134.68	2.08
Dolphin (mahimahi)	155.50	372.89	2.40
Marlin	4,014.00	3,063.63	0.76
Sailfish	60.00	45.00	0.75
Rainbow runner	340.50	693.25	2.04
Wahoo	1,670.50	4,170.35	2.50
Skipjack tuna	4,078.00	3,511.49	0.86
Dogtooth tuna	170.00	367.75	2.16
Yellowfin tuna	3,834.00	8,770.27	2.29
Kawakawa	73.00	146.00	2.00
Crabs (misc)	2.50	7.50	3.00
Lobster	45.50	176.50	3.88
Octopus	83.00	191.00	2.30
Imported	5,414.00	12,482.93	2.31
** SUBTOTAL **	24,087.90	45,489.41	1.89

Table IV.1.10

Guam September 1992 Commerical Landings

Species	Pounds	Value	$/lb
Bigeye scad (atulai)	47.00	141.00	3.00
Jacks	80.00	186.63	2.33
Bottom fish	478.50	1,435.50	3.00
Ehu (red snapper)	48.00	168.00	3.50
Grouper	44.50	110.00	2.47
Onaga (red snapper)	22.00	60.50	2.75
Uku (gray snapper)	101.00	275.50	2.73
Reef fish	438.00	1,263.50	2.88
Emperor (mafute)	67.00	184.99	2.76
Squirrelfish	6.00	16.50	2.75
Parrotfish	64.00	192.00	3.00
Unicornfish	50.00	150.00	3.00
Barracuda	20.00	50.00	2.50
Dolphin (mahimahi)	153.00	352.50	2.30
Marlin	1,866.50	2,241.38	1.20
Rainbow runner	160.50	409.74	2.55
Wahoo	1,758.50	4,924.88	2.80
Skipjack tuna	4,945.50	3,875.38	0.78
Yellowfin tuna	4,059.50	9,176.27	2.26
Kawakawa	27.00	48.00	1.78
Imported	6,917.60	18,028.45	2.61
** SUBTOTAL **	21,354.10	43,290.72	2.03

Table IV.1.11

Guam October 1992 Commercial Landings

Species	Pounds	Value	$/lb
Bigeye scad (atulai)	349.83	1,049.50	3.00
Jacks	223.00	554.50	2.49
Bottom fish	309.50	922.50	2.98
Gindai (flower snap)	132.50	424.50	3.20
Grouper	93.50	239.38	2.56
Lehi (silverjaw)	30.00	90.00	3.00
Onaga (red snapper)	62.50	297.50	4.76
Opakapaka (pink snp)	16.00	52.00	3.25
Uku (gray snapper)	113.50	275.37	2.43
Reef fish	263.00	706.00	2.68
Emperor (mafute)	240.00	669.50	2.79
Snapper	5.00	10.00	2.00
Goatfish	6.00	16.50	2.75
Barracuda	43.00	89.50	2.08
Dolphin (mahimahi)	962.50	2,433.99	2.53
Marlin	2,186.00	1,808.75	0.83
Rainbow runner	167.50	394.25	2.35
Wahoo	4,459.50	9,892.75	2.22
Skipjack tuna	3,497.00	3,412.50	0.98
Dogtooth tuna	39.00	78.00	2.00
Yellowfin tuna	3,552.50	8,360.13	2.35
Imported	5,236.50	12,664.80	2.42
** SUBTOTAL **	21,987.83	44,441.92	2.02

Table IV.1.12

Guam November 1992 Commercial Landings

Species	Pounds	Value	$/lb
Bottom fish	634.00	1,825.25	2.88
Ehu (red snapper)	24.00	72.00	3.00
Lehi (silverjaw)	10.50	31.50	3.00
Reef fish	425.50	1,048.50	2.46
Parrotfish	92.00	196.00	2.13
Barracuda	101.50	208.50	2.05
Dolphin (mahimahi)	2,619.50	5,191.73	1.98
Marlin	1,036.00	1,092.50	1.05
Sailfish	22.50	22.50	1.00
Rainbow runner	273.50	592.24	2.17
Wahoo	7,821.50	14,466.13	1.85
Skipjack tuna	2,452.50	2,825.77	1.15
Dogtooth tuna	12.50	24.00	1.92
Yellowfin tuna	4,119.00	9,167.64	2.23
Kawakawa	28.50	35.62	1.25
Octopus	7.00	21.00	3.00
Imported	6,197.00	15,683.93	2.53
** SUBTOTAL **	25,877.00	52,504.81	2.03

Table IV.1.13

Guam December 1992 Commercial Landings

Species	Pounds	Value	$/lb
Mullet	25.00	75.00	3.00
Bottom fish	149.00	447.00	3.00
Gindai (flower snap)	2.00	6.00	3.00
Lehi (silverjaw)	27.00	81.00	3.00
Onaga (red snapper)	12.50	62.50	5.00
Reef fish	405.00	953.50	2.35
Parrotfish	153.00	420.75	2.75
Barracuda	44.50	84.50	1.90
Dolphin (mahimahi)	4,364.00	9,386.73	2.15
Marlin	700.00	1,078.00	1.54
Rainbow runner	121.75	341.32	2.80
Wahoo	1,933.00	4,215.15	2.18
Skipjack tuna	934.18	1,753.40	1.88
Dogtooth tuna	55.50	138.75	2.50
Yellowfin tuna	1,805.67	4,663.36	2.58
Kawakawa	36.50	55.50	1.52
Imported	5,978.00	16,709.20	2.80
** SUBTOTAL **	16,746.60	40,471.66	2.42
** TOTAL **	331,516.44	636,851.48	1.92

Figure IV.1.1

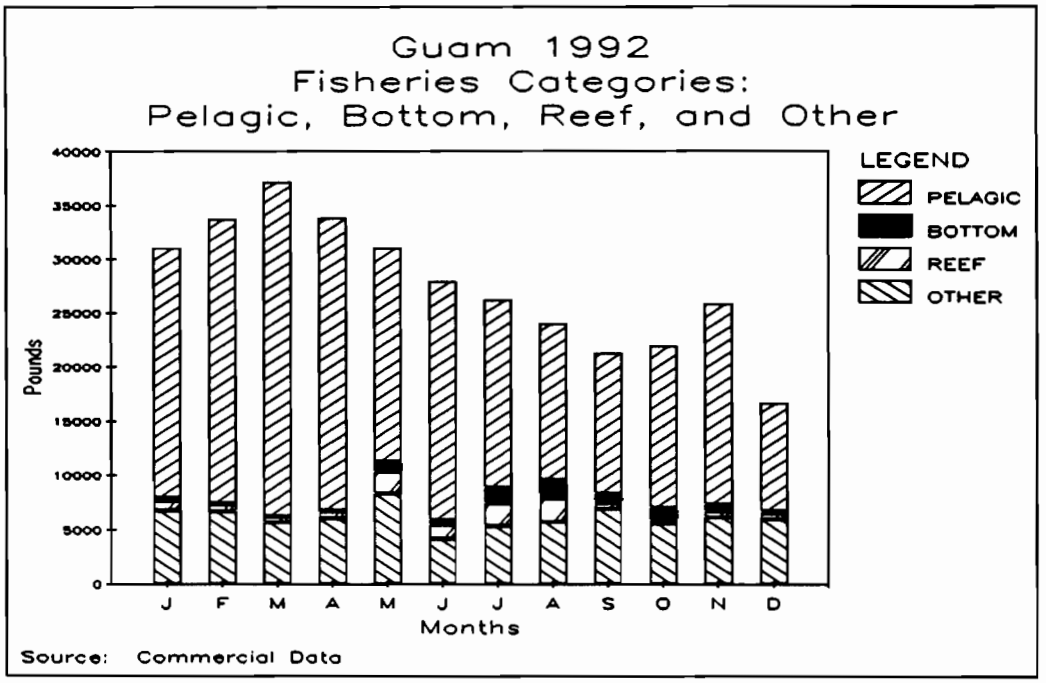


Figure IV.1.2

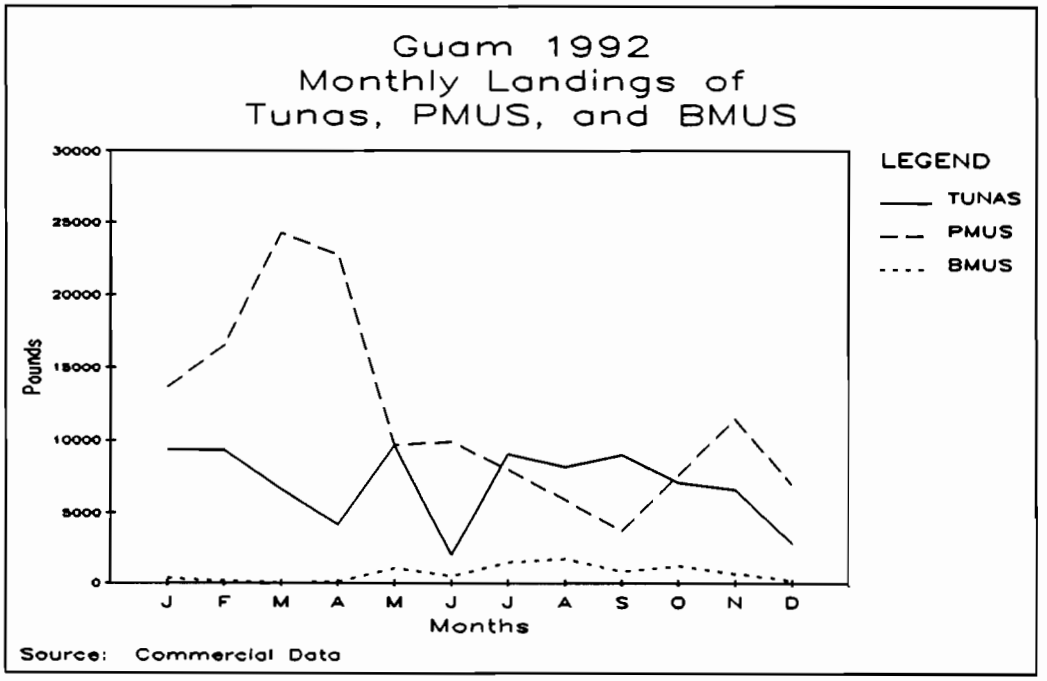


Figure IV.1.3

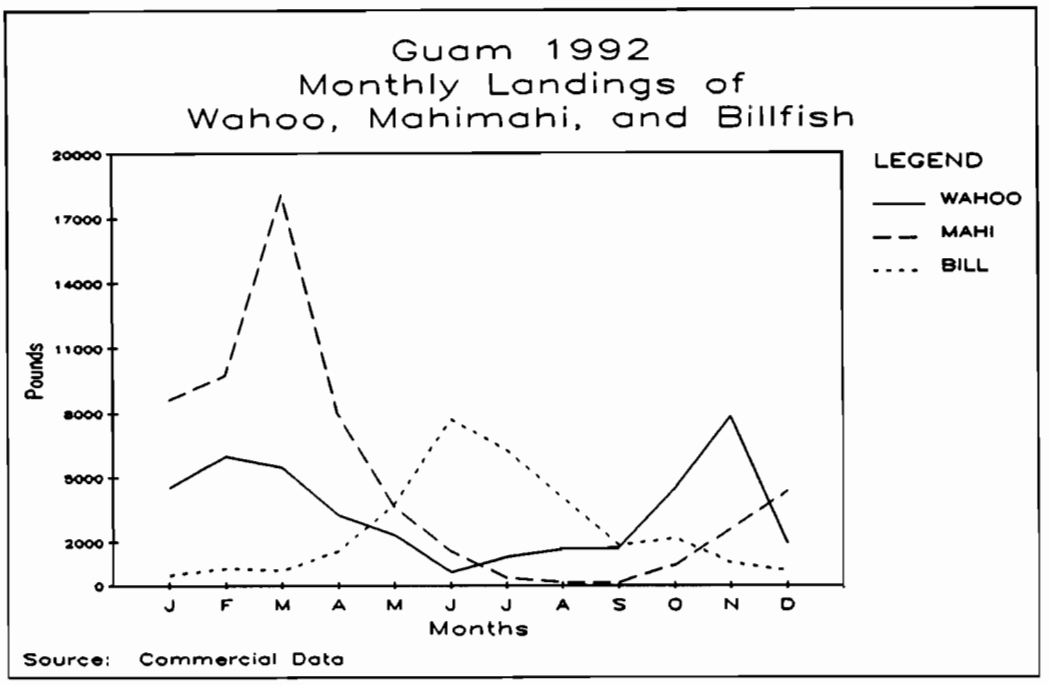


Figure IV.1.4

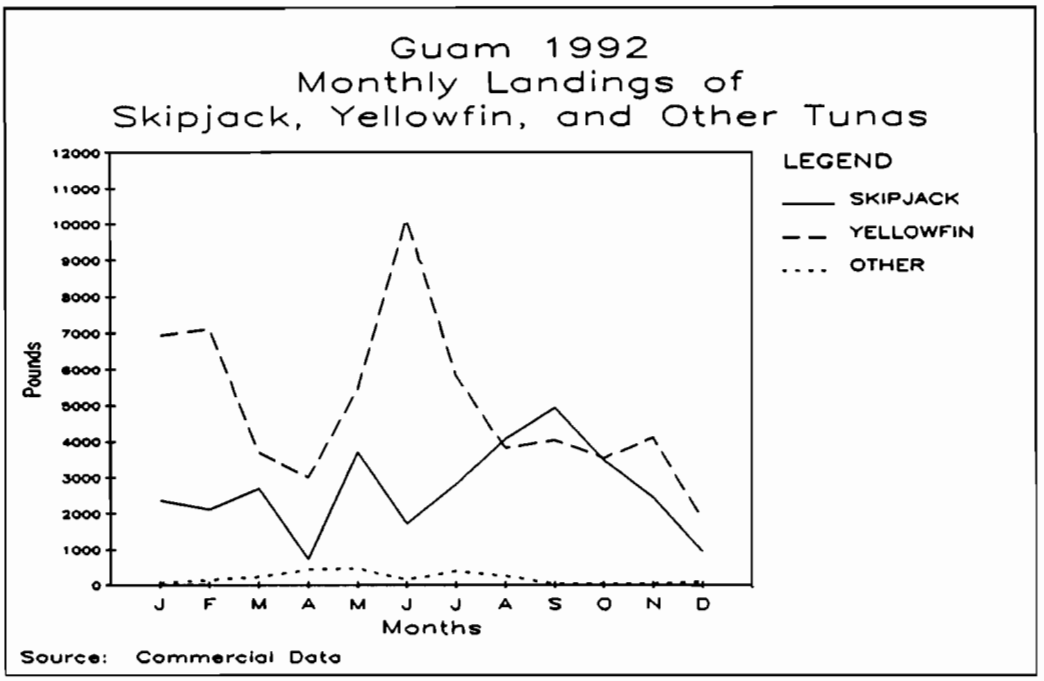


Figure IV.2.1

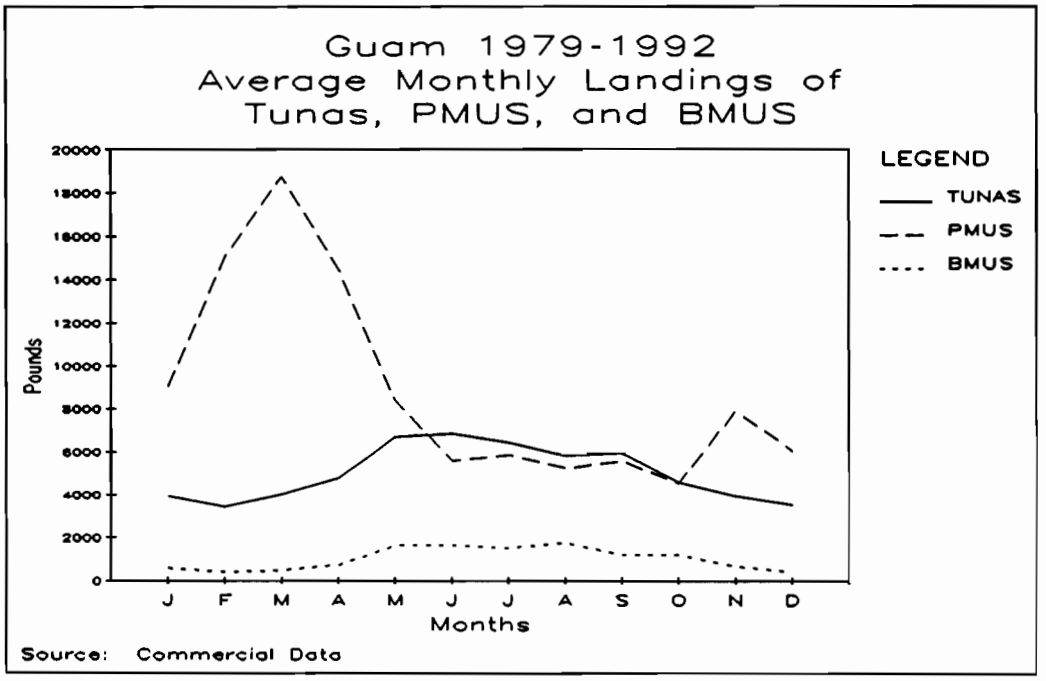


Figure IV.2.2

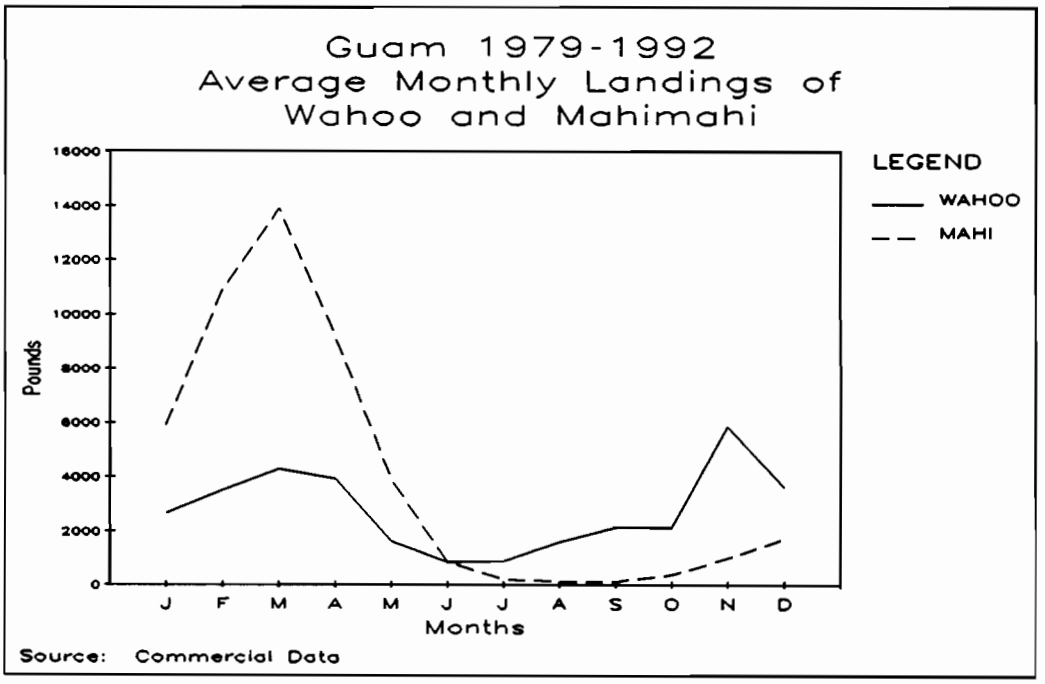


Figure IV.2.3

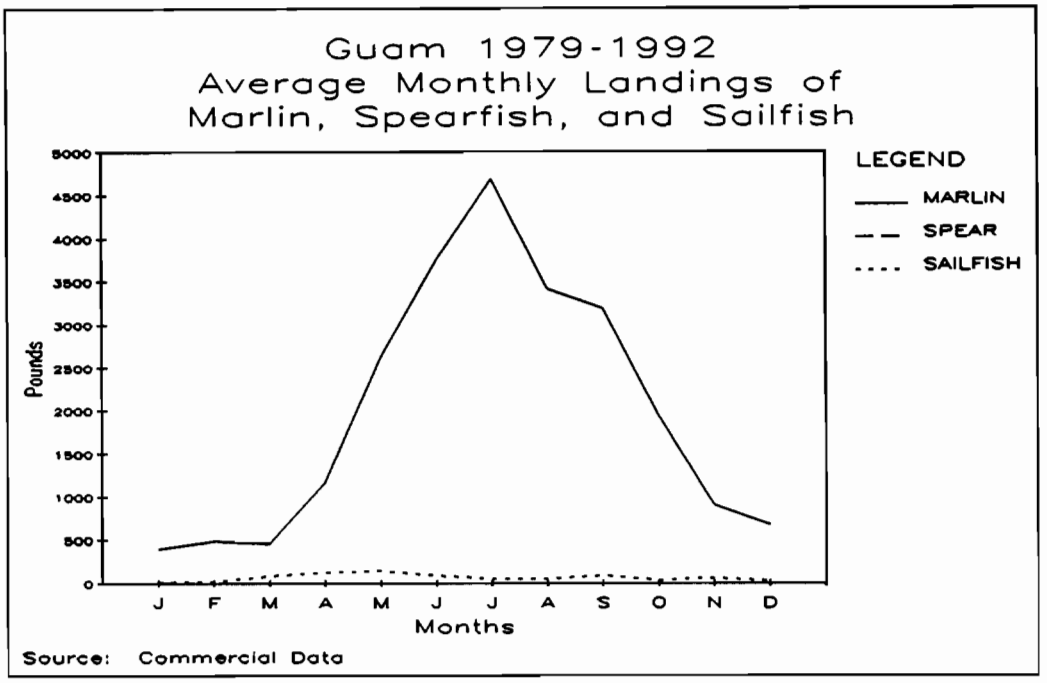
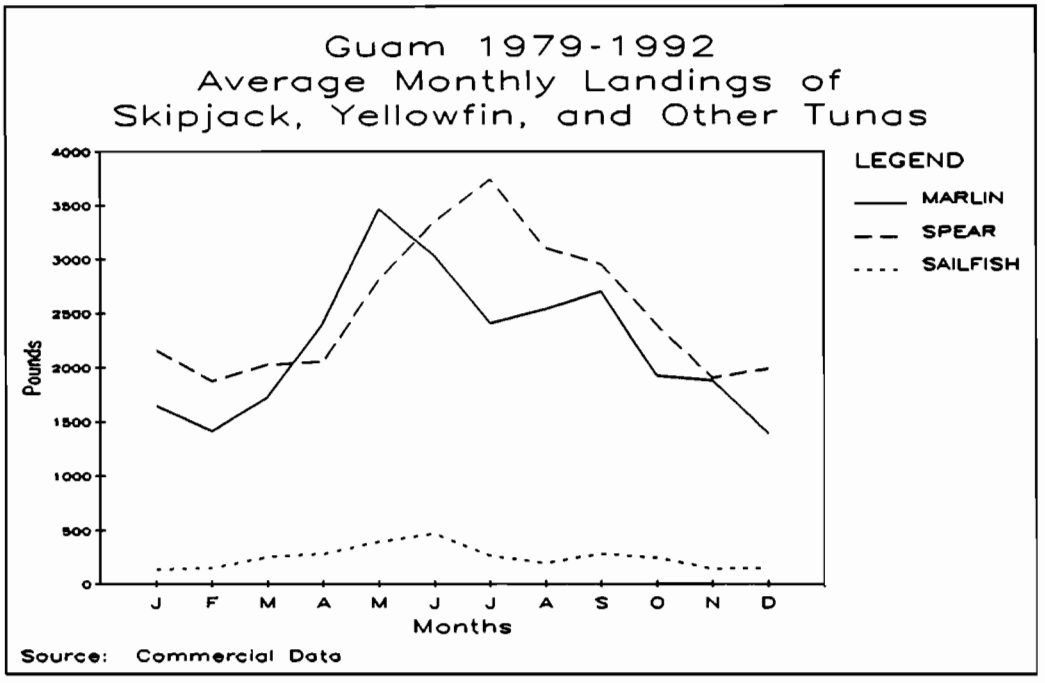


Figure IV.2.4



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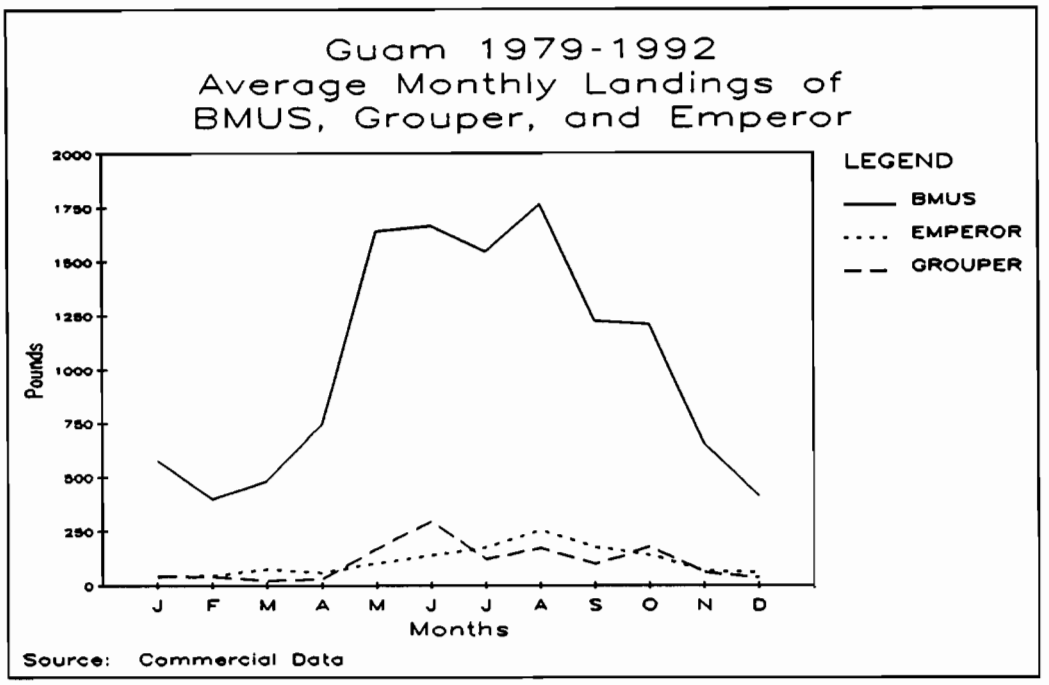

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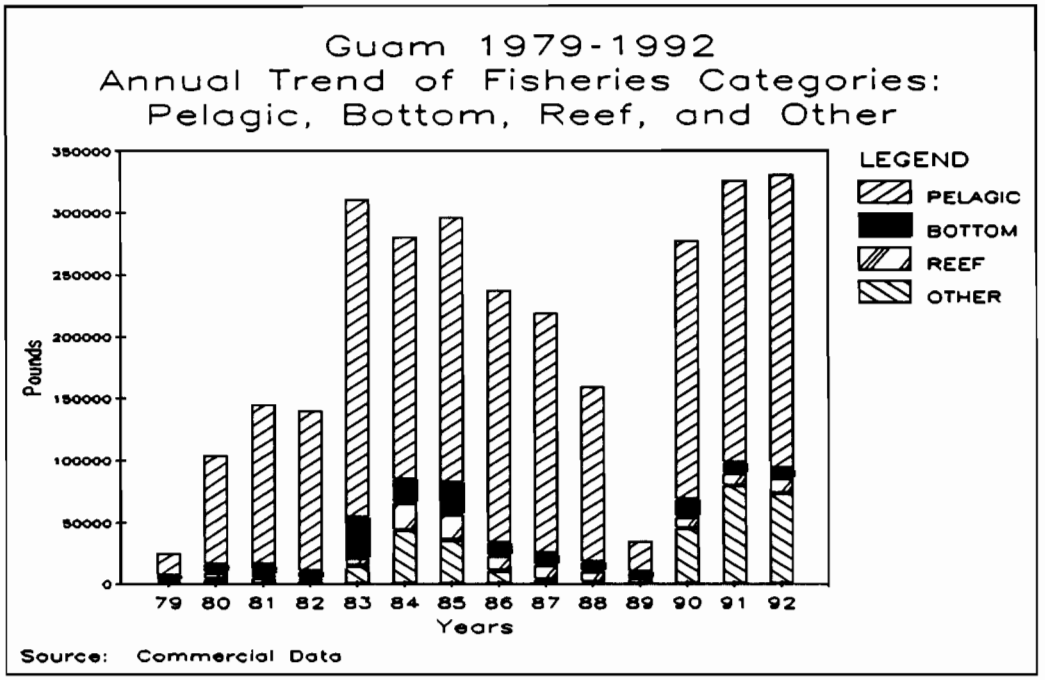

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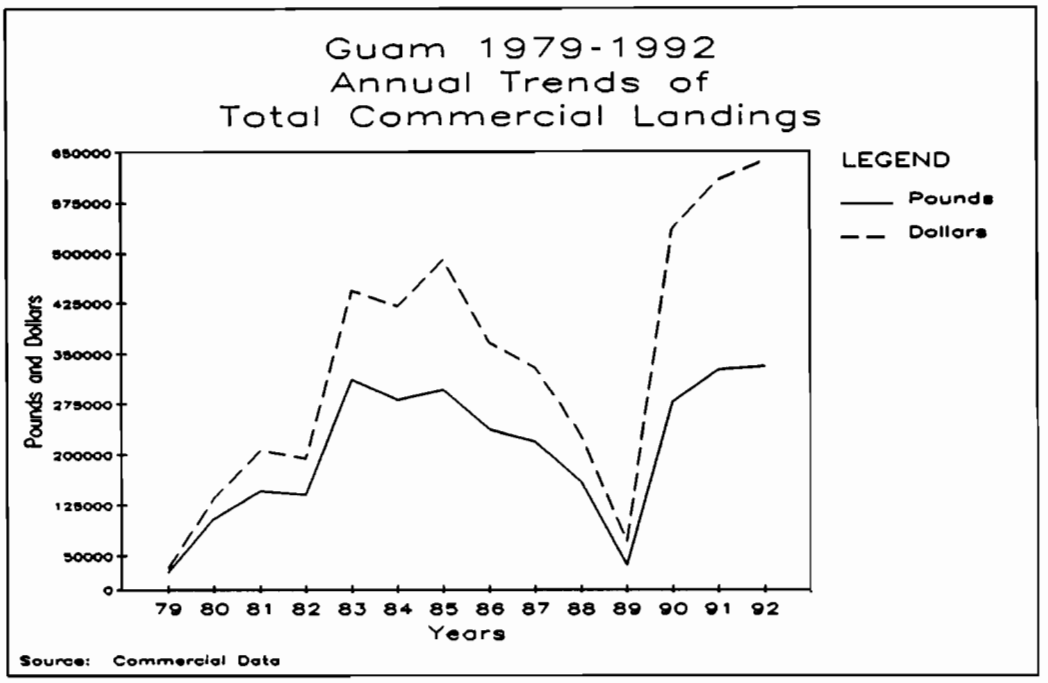

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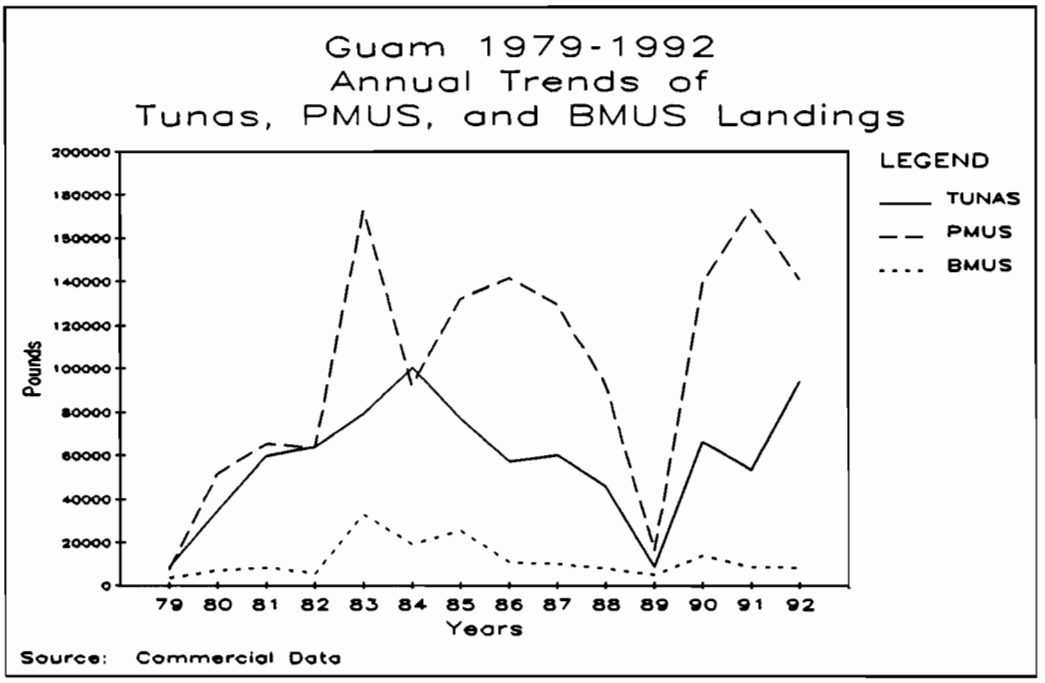

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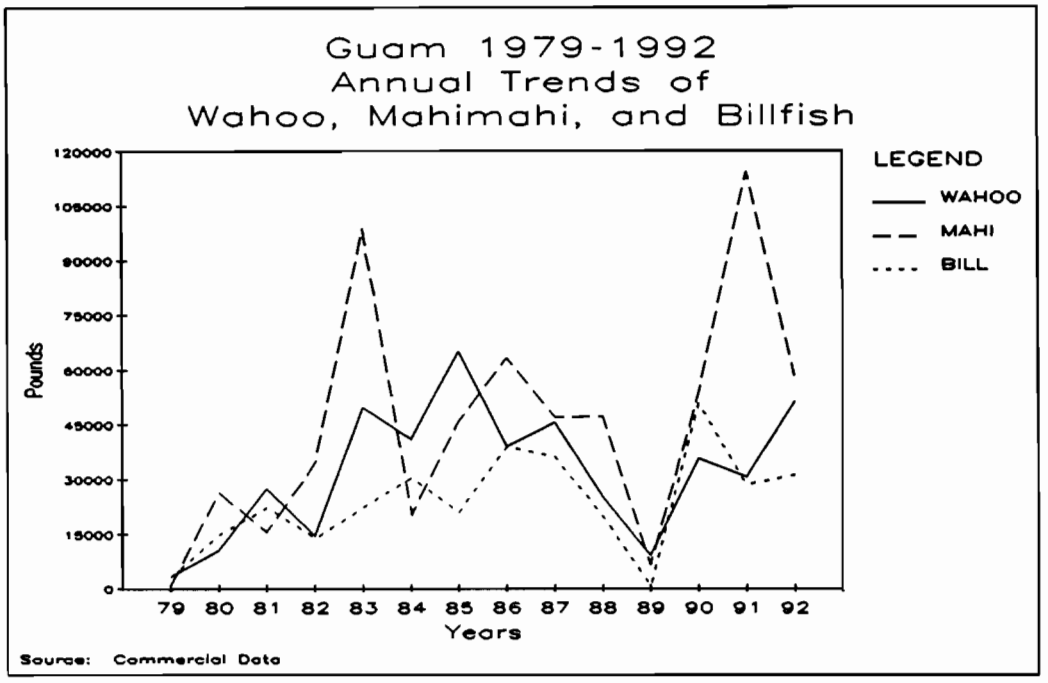

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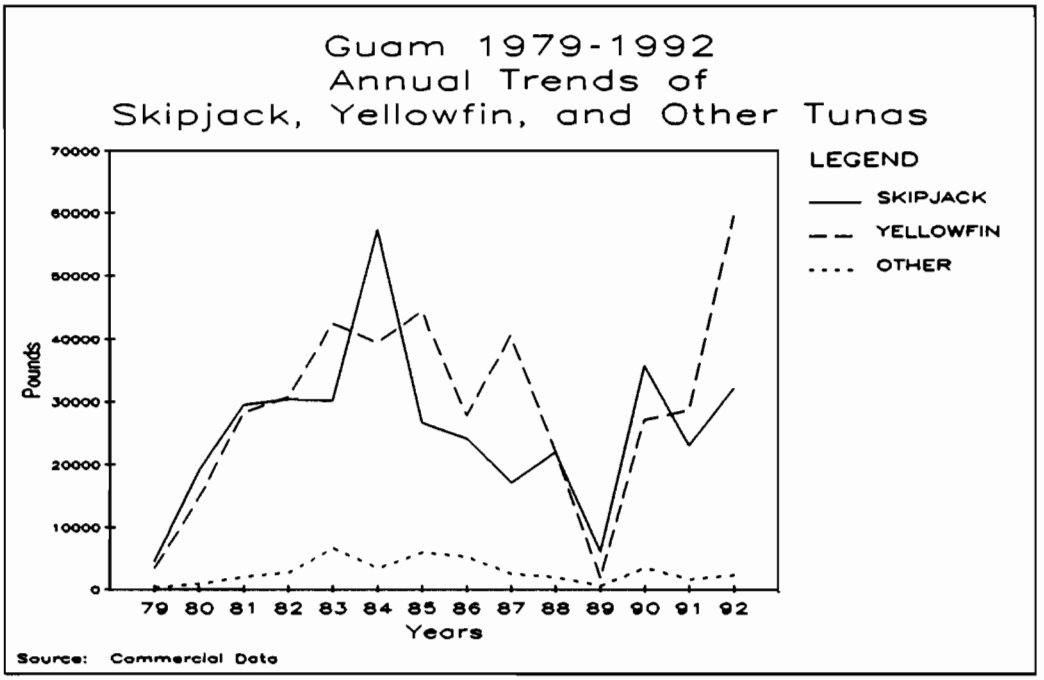

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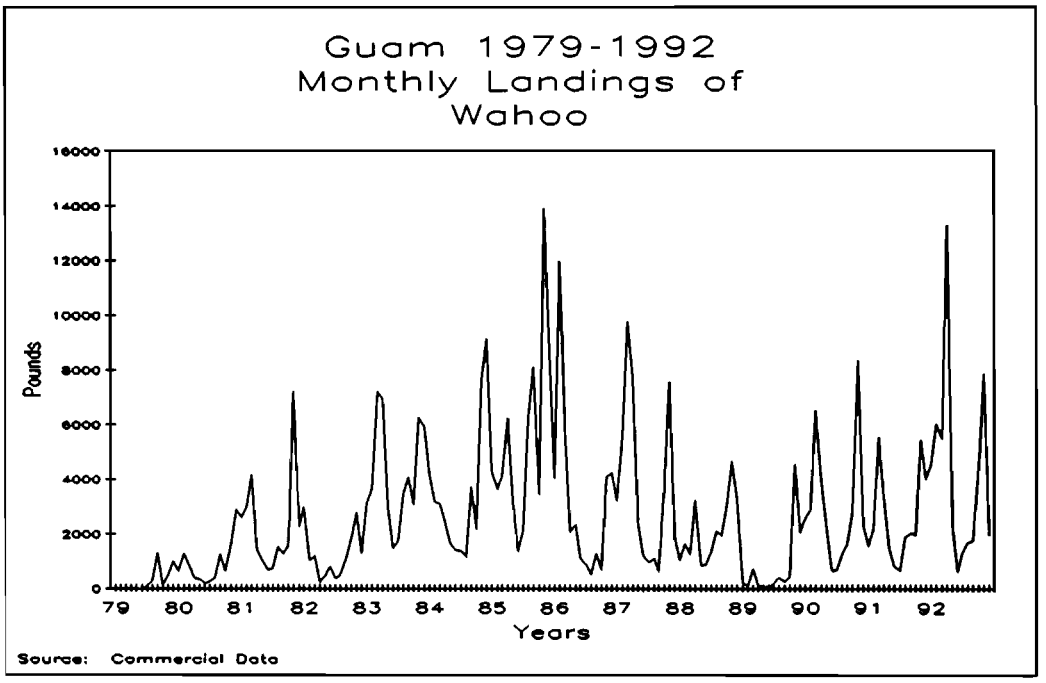

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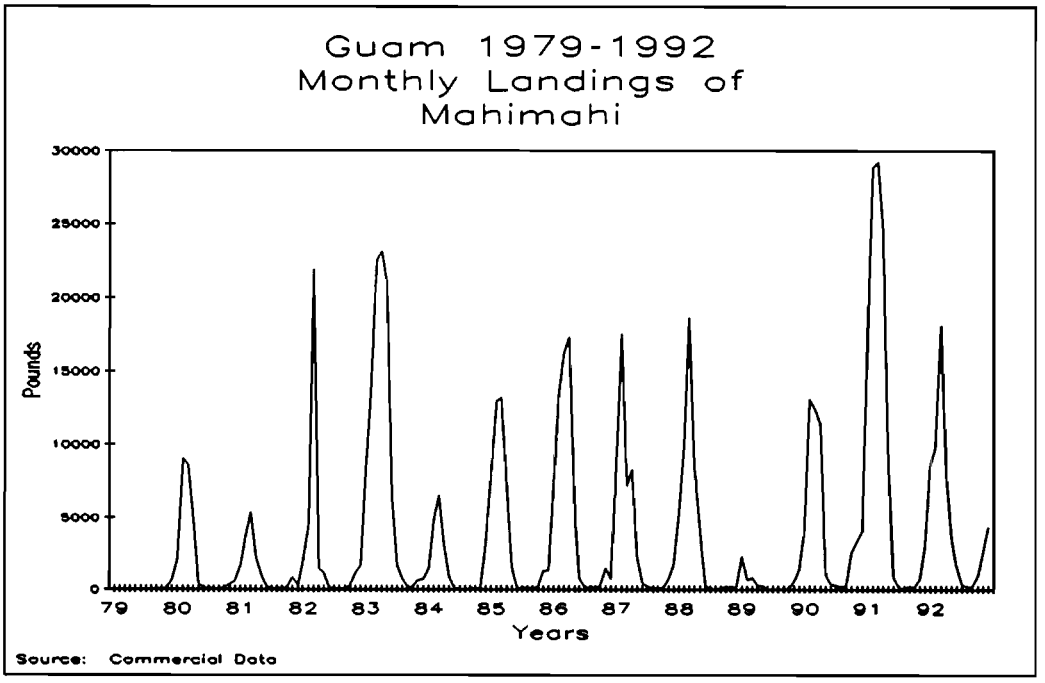

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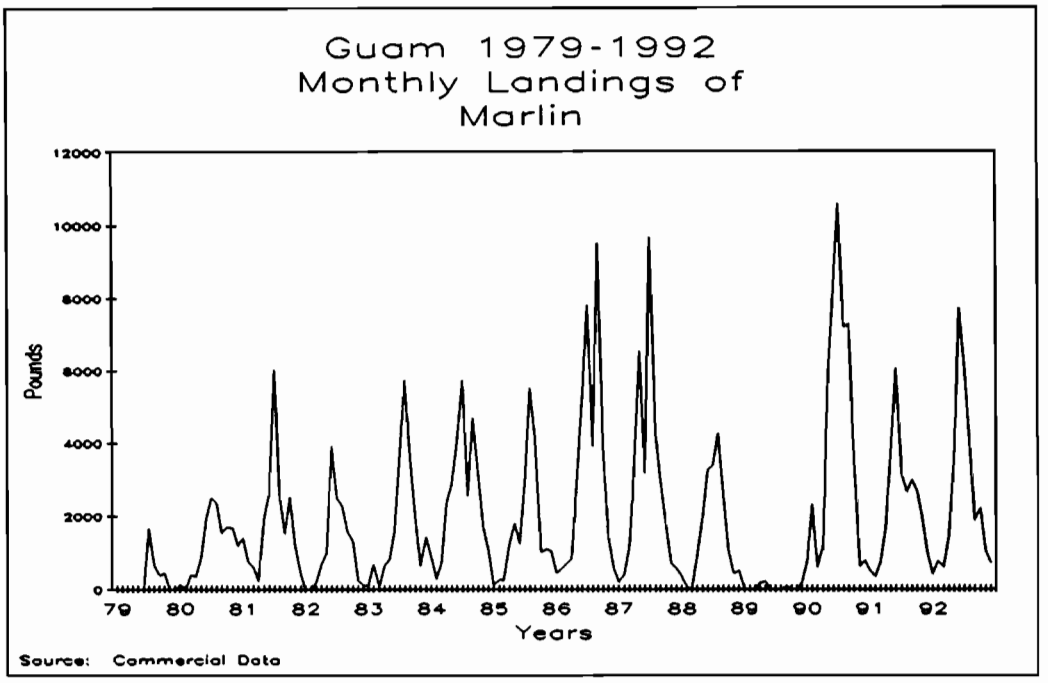

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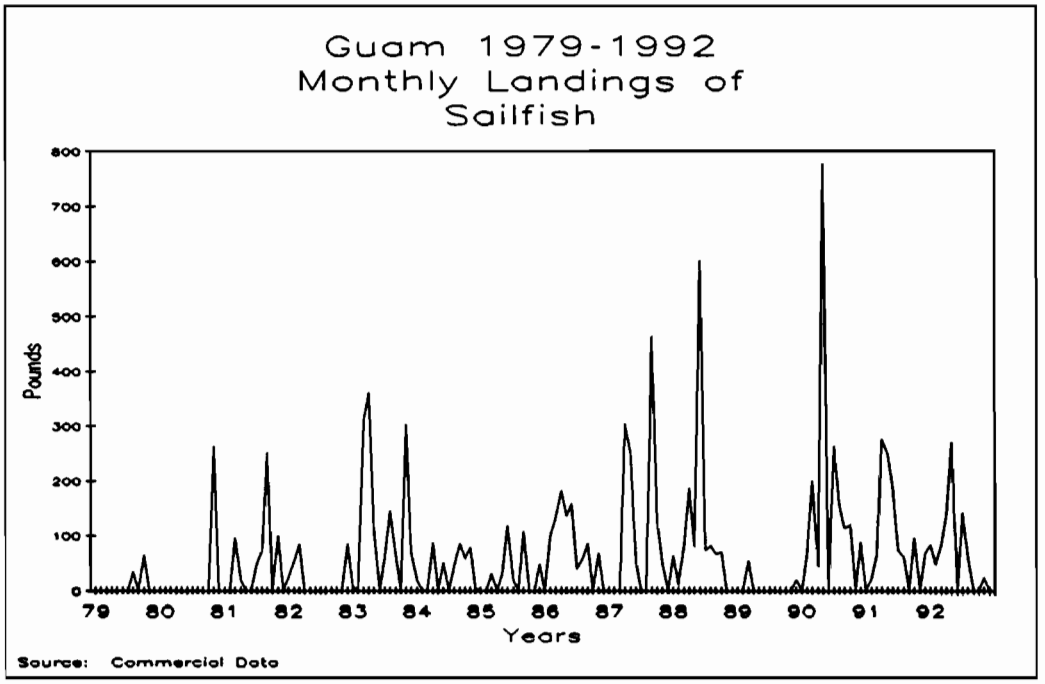

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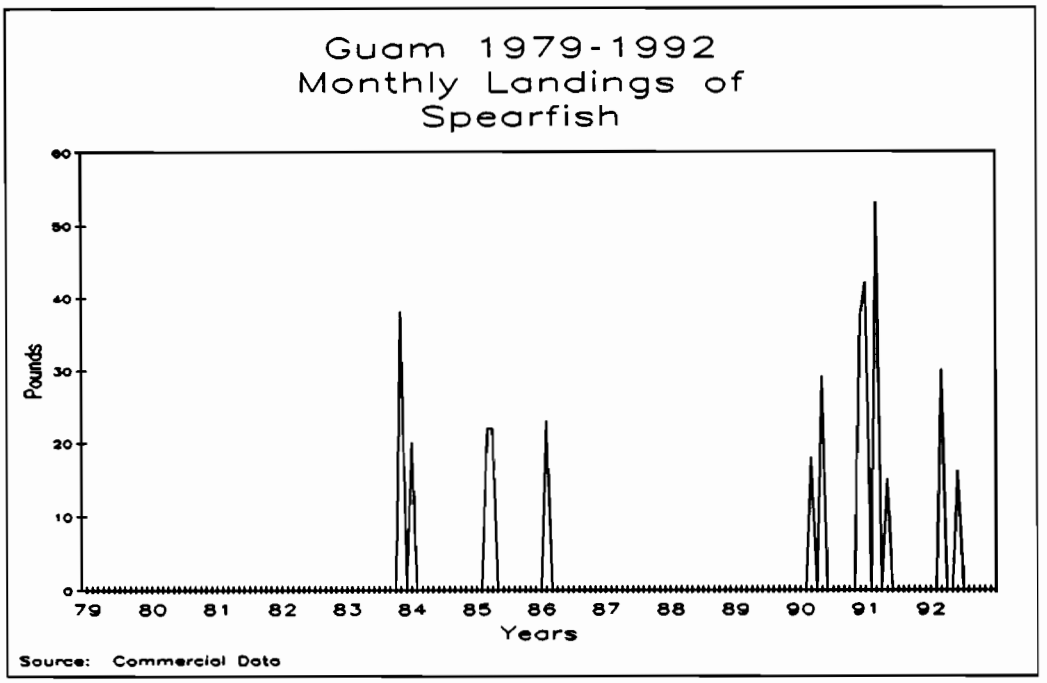

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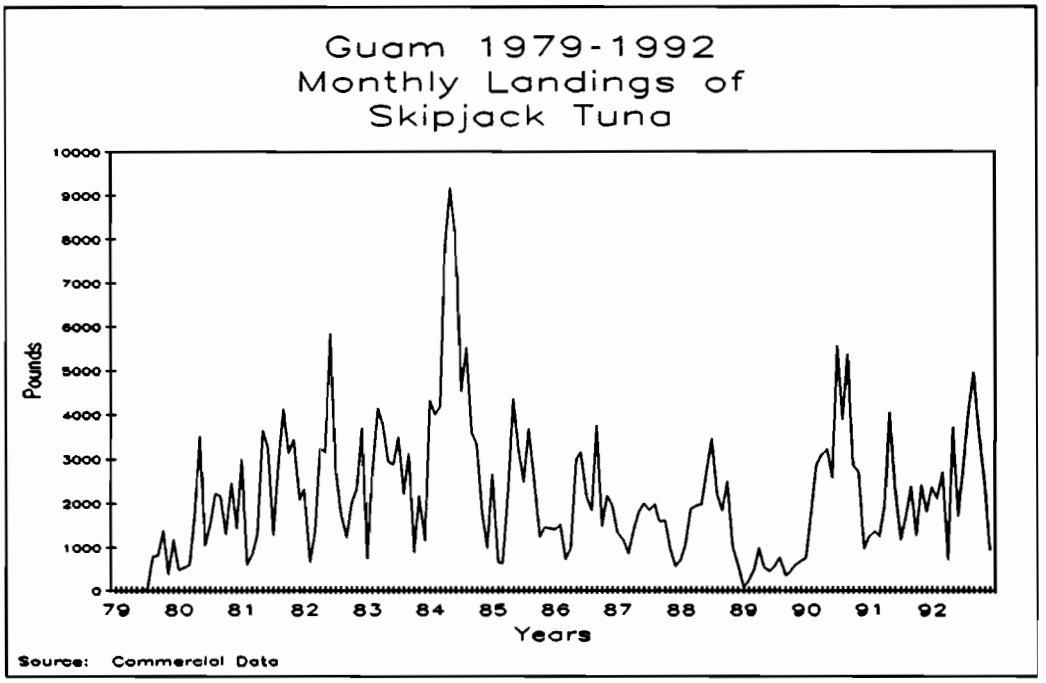

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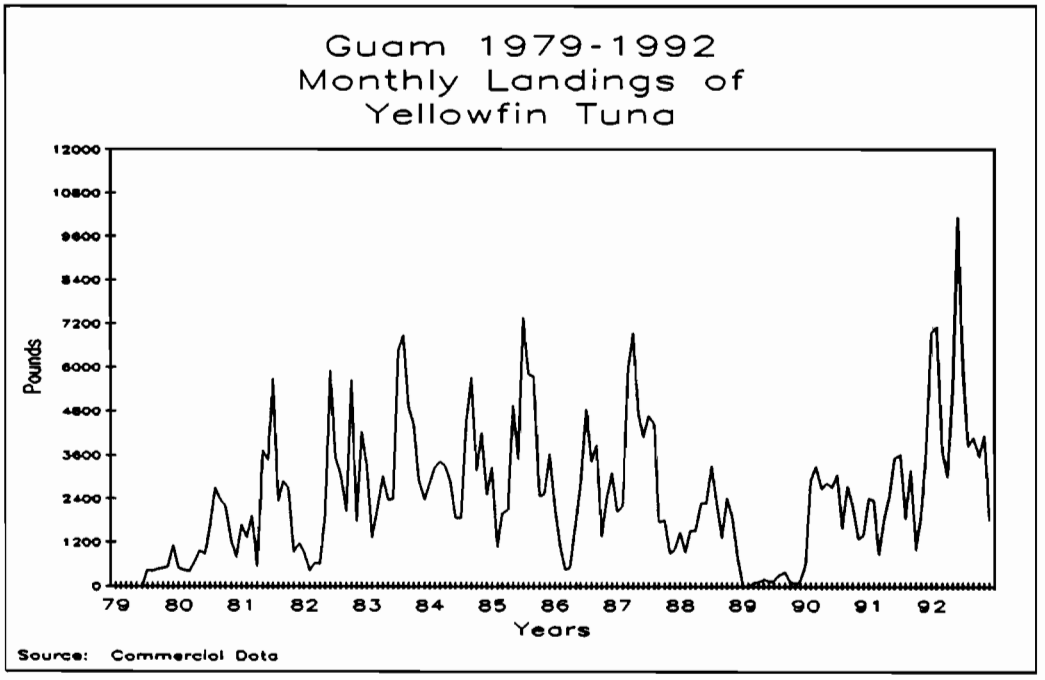

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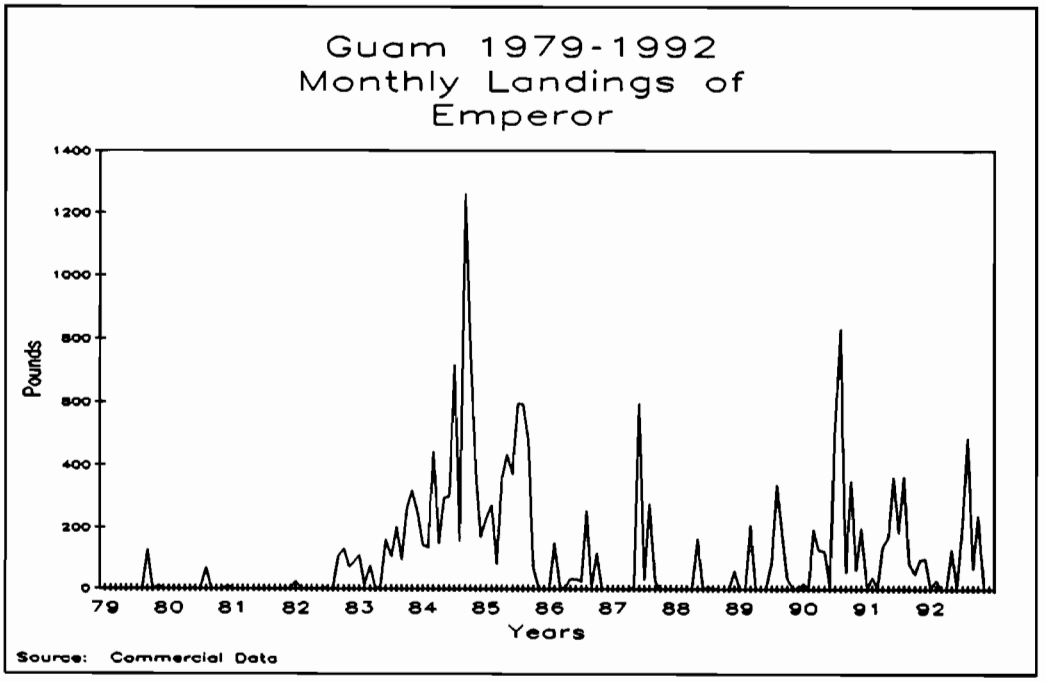

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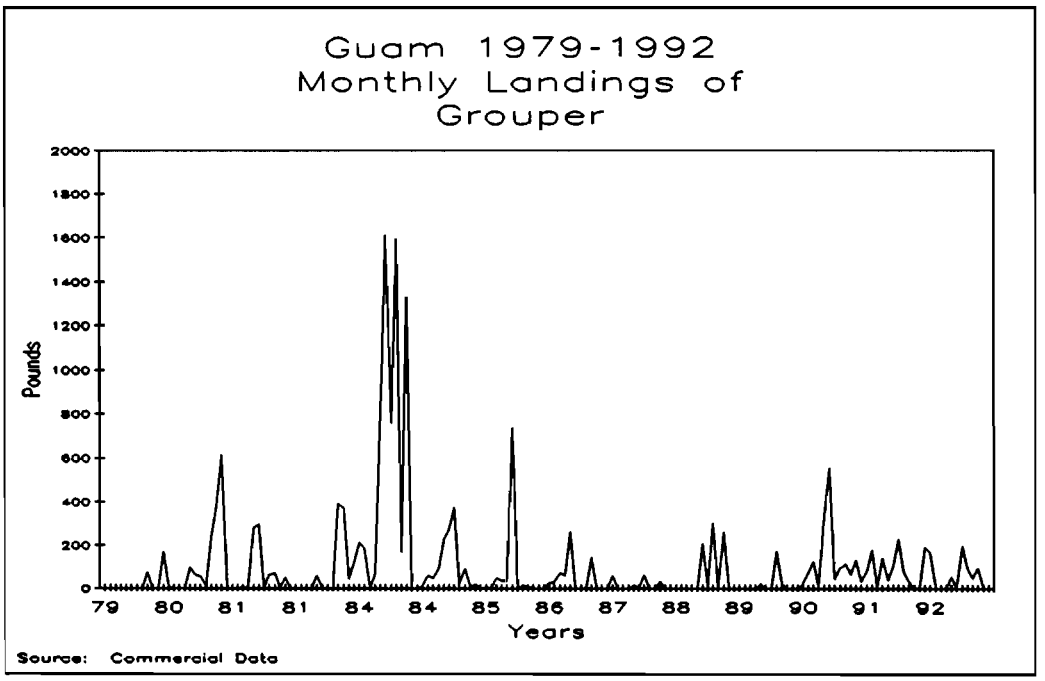
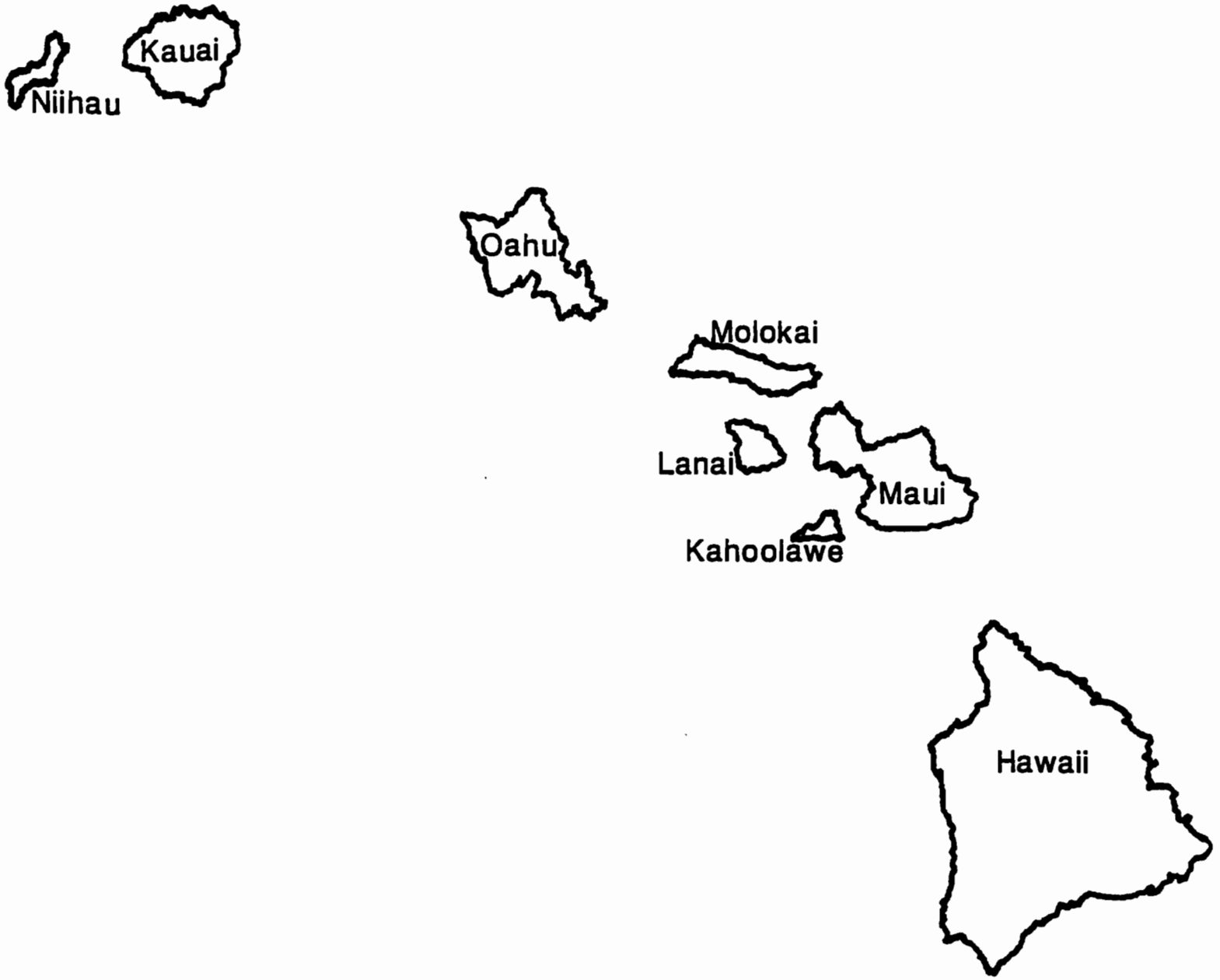

Guam 1979-1992
Monthly Landings of
Grouper
Pounds
2000
1800
1600
1400
1200
1000
800
600
400
200
0
79
80
81
81
84
84
85
86
87
88
89
90
91
92
Years
Source: Commercial Data



State of Hawaii

Fishery Statistics
1992

STATE OF HAWAII 1992 FISHERY STATISTICS

Compiled by

Division of Aquatic Resources

and the

Western Pacific Fishery Information Network

April 1994

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STATE OF HAWAII 1992 FISHERY STATISTICS

INTRODUCTION

The Hawaiian Archipelago stretches northwestward over 1,500 miles, from about lat. 19° N and long. 155° W to about lat. 28° N and long. 178° W. The seven main Hawaiian Islands--Hawaii, Maui, Lanai, Molokai, Oahu, Kauai, and Niihau--comprise over 99% of the total land area and have virtually all of the State's population of approximately 1 million residents. Over half of the State's commercial fish catch is landed on Oahu and about a third on Hawaii. The Department of Land and Natural Resources' Division of Aquatic Resources (DAR) has been collecting statistics on the commercial fisheries of Hawaii for over 40 years.

The fisheries of the State of Hawaii are quite diverse and vary from hand harvesting algae to large vessel fisheries, such as longlining and lobster fishing. The major fisheries include tuna fishing using several methods, longling for broadbill swordfish, lobster trapping, hook-and-line bottom fishing for the grouper-snapper-jack complex, net fishing for such species as the bigeye scad, and trolling for such pelagic species as marlin, wahoo, and mahimahi. Of the approximately 16,000 vessels in Hawaii, about 80% are pleasure boats, 10% commercial fishing or charter boats, and the remainder are registered in other categories. The pleasure category includes boats used for recreational, subsistence, and part-time commercial fishing as well as boats not typically used for fishing such as sailboats. To fish commercially (i.e., sell catches or provide charter fishing services) in Hawaii requires purchasing commercial marine fishing license. There are currently about 2,800 licensed commercial fishermen required to submit monthly reports to DAR. Substantial subsistence and recreational fisheries, which are primarily small boat, one-day fisheries, also exist. Summary data provided in this document were created from reports submitted to DAR by licensed commercial fishermen as of December 1993.

DATA COLLECTING SYSTEM

The major data collecting system used by DAR is based on a State law that requires commercial fishermen to report their catches on a monthly basis. Several different data collection forms are used because of the diversity of fishing methods and a desire to obtain specific information on some of these methods. The vast majority of commercial fishermen use the standard C-3 Fish Catch Report, which is submitted each month and requires the following information for each trip taken:

Fisherman's name and commercial license number
Boat's name and its registration number

Date
Area or buoy fished
Type of gear used
Species caught
Number caught
Pounds caught
Pounds sold
Value of sales
Port of landing

The other forms used to report commercial catches are for specific fisheries including the C-4 Aku Catch Report for the pole-and-line or bait-boat fishery for skipjack tuna, the C-5 Flagline Catch Report for the longline fishery for tunas and other pelagic species, and the Pond Operator's Monthly Fish Report for operators of saltwater fish ponds. All of the forms request basic catch and revenue information by species, plus additional fishery-specific information such as effort and bait.

Commercial collectors of tropical marine fish are required to have an aquarium permit in addition to their commercial marine license and are required to report monthly on the C-6 Aquarium Fish Catch Report. However, the aquarium fish catch is not included in the statistics provided in this document.

Some of the advantages of a mandatory fisherman-reporting system are its relative efficiency, low cost, the potential for excellent percent coverage, and the amount of information that can be collected directly from the fishermen. The major disadvantage is that it places the responsibility for accurate data recording and timely data submission on the fishermen. The assumption is made, therefore, that the data submitted by the fishermen are complete and accurate. The DAR is continuing its efforts to improve the quality of data and decrease the time delays in receiving and processing the data. No real measurement is available for what percent of the total commercial catch is actually reported to DAR, but estimates have ranged from about 10% to over 99%, depending on the species and fishery. The overall percent coverage was probably over 80% in 1992.

DATA PROCESSING SYSTEM

When the various data reporting forms are received by DAR, they undergo a series of coding and editing procedures before being sent out for keypunching. Forms that fail the initial editing by DAR staff are returned to the fishermen for correction and resubmission. Notices are sent to fishermen who fall more than a few months behind in the submission of their reports. Once the data are keypunched, computer generated reports are used by DAR staff to verify and correct errors in the database. When the database is considered to be reasonably complete and error free, it is ready for production of a variety of summary catch reports.

Since this system is based on submission of data from fishermen, late reporting has always been a problem. The DAR has tried to include as much information as possible in its published monthly and annual reports. Before about 1982, statistics from fishermen's reports received after the generation of the computerized monthly summary reports were hand tallied and added to the final version of the reports before they were published. However, because of processing restrictions or complications, the original databases were not updated. Since 1982, additional editing and data correction procedures were implemented, making database updates possible. The DAR has made significant progress recently in reducing late reporting by fishermen and the time lag before data are available. Data presented in this report series for 1979-86 were based on published monthly DAR reports and differ from final annual data base totals by some small percent (refer to Volumes I and III for details). Beginning with 1987, data were processed directly from the annual detailed databases received from DAR after enough time had passed to ensure that a high percentage of the required fisherman had submitted all reports.

DATA REPORTING SYSTEM

Recorded in DAR's monthly landings reports are more than 150 marine species and species groups, many of which are insignificant in the total catch. To help reduce the volume of this document and improve the usability of the tables, WPACFIN staff combined some of the less important species, reorganized the order of presentation, created a new species coding system, and translated all records in the database. The new coding system has 100 species and species groups based on flexible ecological and phylogenetic criteria. All of the commercially important pelagic and bottom fish species or unique species groups have individual codes and are reported separately. Marine pond catches are included in the species totals, but are less than 0.4% of the total landings for each year.

The monthly and annual reports included in this document contain the common name, weight in pounds, value rounded to the nearest dollar, and the average price per pound for each species. Also included are separate annual reports for commercial fishermen's landings that were not sold. Each monthly report contains a subtotal for the sum of all species for that month, and the December report contains the December subtotal and the annual total. Annual reports contain the total landings for each species and the total recorded landings for all species combined for the calendar year.

Four graphs of monthly landings are presented for 1992, and 26 trend and seasonality graphs, based on 1979-92 data, are also provided. The following species, species groups, and abbreviations are used in the tables and graphs of Hawaii's fishery statistics:

I. Pelagic Management Unit Species (PMUS)

Although the Magnuson Fishery Conservation and Management Act of 1976 was amended in 1992 to include tunas in the Pacific PMUS (PPMUS), this report series will continue to consider tunas as a separate category. The PMUS category in this report includes:

Dolphin (mahimahi)	Wahoo
Blue marlin	Black marlin
Striped marlin	Shortbill spearfish
Sailfish	Swordfish
Sharks	Billfish (misc)

II. Bottomfish Management Unit Species (BMUS)

Deep water jacks (misc.)	Amberjack
Pig-lipped ulua (jack)	White ulua
Giant sea bass	Bluelined snapper
Ehu (red snapper)	Gindai (flower snapper)
Kalikali (pink snapper)	Lehi (silverjaw snapper)
Onaga (long tailed snapper)	Opakapaka (pink snapper)
Uku (gray snapper)	

III. Billfish

Billfish (misc.)	Blue marlin
Black marlin	Striped marlin
Shortbill spearfish	Sailfish
Swordfish	

IV. Tunas

Tunas (misc.)	Skipjack tuna
Yellowfin tuna	Albacore
Bigeye tuna	Kawakawa
Dogtooth tuna	

V. Other Tunas

All of the previous tunas excluding skipjack and yellowfin tuna

VI. Fisheries Categories

A. Pelagics

All PMUS and tuna species plus the following:

Rainbow runner	Barracuda
Japanese mackerel	Frigate tuna
Ocean sunfish	Ocean moonfish

B. Bottom Fish

All BMUS plus the following:

Blue crevally	Dobe ulua (jack)
Paapaa ulua	Blue spot grouper
Porgy	

C. Reef Fish

Reef jacks (misc.)	Squirrelfish
Trumpetfish	Scorpionfish
Mountain bass	Bigeyes
Cardinalfish	Goatfish
Rudderfish	Butterflyfish
Damselfish	Hawkfish
Tilapia	Wrasse
Parrotfish	Gobies
Surgeonfish-tangs	Flounders
Triggerfish	Filefish
Pufferfish	

D. Other

Miscellaneous	Rays
Eels	Bigeye scad (akule)
Mackerel scad (opelu)	Leatherback
Anchovy	Ten pounder
Bonefish	Herring-sardine
Milkfish	Flyingfish
Needlefish	Halfbeaks
Threadfin	Mullet
Pomfret	Snake mackerel
Freshwater fish	Spiny lobster
Slipper lobster	Crabs
Shrimp (freshwater)	Shrimp (saltwater)
Octopus	Squid
Limpets (saltwater)	Limpets (freshwater)
Clams	Stoney corals
Precious corals	Sea urchins
Sea cucumbers	Sea turtles
Algae	

Table V.1.1

Hawaii 1992 Annual Commercial Landings

Species	Pounds	Value	$/lb
Miscellaneous	12,132	24,150	1.99
Sharks	100,610	95,799	0.95
Rays	7	14	2.00
Eels	490	947	1.93
Alfonsin	15	37	2.49
Bigeye scad (akule)	784,245	1,207,749	1.54
Mackerel scad	340,202	522,562	1.54
Leatherback	343	364	1.06
Ten pounder	2,153	1,803	0.84
Bonefish	6,609	6,303	0.95
Milkfish	3,851	6,267	1.63
Flying fish	16	7	0.45
Needlefish	120	128	1.07
Halfbeaks	69	170	2.46
Threadfin	1,386	6,486	4.68
Mullet	9,422	26,642	2.83
Pomfret	45,415	89,414	1.97
Snake mackerel	115,743	180,916	1.56
Jacks (misc)	53,869	90,047	1.67
Amberjack	1,421	1,748	1.23
Blue crevally	3,524	5,036	1.43
Pig-lipped ulua	52,659	85,512	1.62
Dobe ulua	72	111	1.54
Paapaa ulua	5,086	9,526	1.87
White ulua	14,486	21,457	1.48
Black ulua	153	274	1.79
Giant sea bass	55,103	156,389	2.84
Blue spot grouper	949	2,291	2.41
Snappers	2,857	10,731	3.76
Blue lined snapper	60,887	45,798	0.75
Ehu (red snapper)	33,752	129,144	3.83
Gindai (flower snapper)	5,222	14,788	2.83
Kalekale (pink snapper)	25,526	57,953	2.27
Lehi (silverjaw)	16,833	51,526	3.06
Onaga (red snapper)	86,040	463,511	5.39
Opakapaka (pink snapper)	250,748	1,032,429	4.12
Uku (gray snapper)	127,487	411,665	3.23
Porgy	3,418	8,427	2.47
Reef jacks	227	654	2.88
Squirrelfish	41,013	119,356	2.91
Trumpetfish	58	48	0.83
Scorpionfish	4,315	15,791	3.66
Mountain bass	4,752	10,594	2.23
Bigeyes	5,838	12,455	2.13
Cardinalfish	23	14	0.60
Goatfish	56,447	137,751	2.44

Table V.1.1 (Cont.)

Species	Pounds	Value	$/lb
Rudderfish	12,216	10,001	0.82
Damselfish	2,664	4,609	1.73
Hawkfish	1,292	2,580	2.00
Tilapia	27,533	18,117	0.66
Wrasse	9,457	23,135	2.45
Parrotfish	34,120	64,978	1.90
Surgeon/tangs	65,698	76,924	1.17
Flounders	86	78	0.90
Triggerfish	98	60	0.61
Filefish	363	784	2.16
Rainbow runner	6,732	9,060	1.35
Mahimahi (dolphin)	947,223	1,727,506	1.82
Barracudas	17,883	20,881	1.17
Wahoo	334,232	924,950	2.77
Tunas	24,840	109,310	4.40
Skipjack tuna	1,952,432	2,751,583	1.41
Yellowfin tuna	2,850,515	6,174,773	2.17
Albacore	734,421	781,734	1.06
Bigeye tuna	2,889,658	10,476,600	3.63
Kawakawa	20,704	27,926	1.35
Frigate tuna	956	1,133	1.18
Broadbill swordfish	8,205,872	23,886,389	2.91
Blue marlin	810,422	815,611	1.01
Black marlin	24,491	29,612	1.21
Striped marlin	1,139,879	1,458,566	1.28
Shortnose spearfish	130,307	148,571	1.14
Sailfish	5,143	5,325	1.04
Ocean moonfish	249,338	259,247	1.04
Spiny lobster	109,698	1,522,029	13.87
Slipper lobster	41,195	356,147	8.65
Crabs	53,940	227,358	4.22
Shrimp (freshwater)	5	25	5.00
Shrimp (saltwater)	16,897	74,434	4.41
Octopus	13,897	36,328	2.61
Squid	1,312	2,449	1.87
Limpets (saltwater)	7,327	27,209	3.71
Limpets (freshwater)	51	300	5.89
Precious corals	2,328	46,560	20.00
Sea cucumbers	234	1,628	6.96
Algae	12,913	31,817	2.46
** TOTAL **	23,093,965	57,201,111	2.48

Table V.1.2

Hawaii 1992 Annual Commercial Landings (not sold)

Species	Pounds
Miscellaneous	142
Sharks	25,624
Eels	31
Bigeye scad (akule)	61,850
Mackerel scad	9,860
Leatherback	130
Ten pounder	82
Bonefish	2,129
Milkfish	58
Flying fish	2
Needlefish	17
Threadfin	302
Mullet	1,230
Pomfret	97
Snake mackerel	2,010
Jacks (misc)	10,457
Amberjack	8,931
Blue crevally	405
Pig-lipped ulua	491
Dobe ulua	6
Paapaa ulua	376
White ulua	1,770
Giant sea bass	913
Blue spot grouper	90
Snappers	272
Blue lined snapper	6,240
Ehu (red snapper)	1,940
Gindai (flower snapper)	548
Kalekale (pink snapper)	2,443
Lehi (silverjaw)	1,267
Onaga (red snapper)	1,524
Opakapaka (pink snapper)	5,772
Uku (gray snapper)	4,030
Porgy	443
Reef jacks	16
Squirrelfish	4,026
Trumpetfish	16
Scorpionfish	186
Mountain bass	469
Bigeyes	810
Cardinalfish	1
Goatfish	5,434
Rudderfish	359

Table V.1.2 (Cont.)

Species	Pounds
Damselfish	65
Hawkfish	169
Tilapia	749
Wrasse	1,412
Parrotfish	4,602
Surgeon/tangs	6,258
Triggerfish	303
Filefish	39
Rainbow runner	667
Mahimahi (dolphin)	63,527
Barracudas	2,062
Wahoo	32,057
Japanese mackerel	21
Tunas	221
Skipjack tuna	112,648
Yellowfin tuna	112,569
Albacore	7,211
Bigeye tuna	19,323
Kawakawa	6,397
Frigate tuna	148
Billfish	55
Broadbill swordfish	92,915
Blue marlin	86,170
Black marlin	1,195
Striped marlin	23,974
Shortnose spearfish	6,742
Sailfish	337
Ocean moonfish	276
Spiny lobster	19,852
Slipper lobster	4,106
Crabs	3,892
Octopus	6,084
Squid	76
Limpets (saltwater)	2,215
Precious corals	70
Algae	1,371
** TOTAL **	782,577

Table V.1.3

Hawaii January 1992 Commercial Landings

Species	Pounds	Value	$/lb
Miscellaneous	1,211	4,383	3.62
Sharks	8,551	9,456	1.11
Eels	11	5	0.47
Bigeye scad (akule)	78,947	124,550	1.58
Mackerel scad	18,855	30,248	1.60
Leatherback	36	33	0.91
Ten pounder	50	46	0.92
Bonefish	759	778	1.03
Milkfish	779	1,041	1.34
Needlefish	18	26	1.42
Threadfin	186	923	4.96
Mullet	75	170	2.26
Pomfret	2,329	4,959	2.13
Snake mackerel	8,664	16,659	1.92
Jacks (misc)	6,955	11,781	1.69
Amberjack	174	236	1.35
Blue crevally	326	411	1.26
Pig-lipped ulua	2,387	5,464	2.29
Dobe ulua	46	81	1.77
Paapaa ulua	132	332	2.51
White ulua	1,739	4,975	2.86
Giant sea bass	2,568	9,626	3.75
Blue spot grouper	102	221	2.17
Snappers	170	486	2.86
Blue lined snapper	6,225	5,123	0.82
Ehu (red snapper)	4,184	14,326	3.42
Gindai (flower snapper)	469	1,319	2.81
Kalekale (pink snapper)	3,924	8,114	2.07
Lehi (silverjaw)	4,342	13,753	3.17
Onaga (red snapper)	14,492	72,506	5.00
Opakapaka (pink snapper)	31,107	124,441	4.00
Uku (gray snapper)	20,636	66,492	3.22
Porgy	222	440	1.98
Reef jacks	12	34	2.81
Squirrelfish	3,185	8,957	2.81
Trumpetfish	15	10	0.64
Scorpionfish	462	1,466	3.17
Mountain bass	274	614	2.24
Bigeyes	337	698	2.07
Cardinalfish	1	0	0.25
Goatfish	5,183	13,134	2.53

Table V.1.3 (Cont.)

Species	Pounds	Value	$/lb
Rudderfish	380	311	0.82
Damselfish	153	247	1.62
Hawkfish	51	91	1.78
Tilapia	3,002	2,148	0.72
Wrasse	1,367	3,788	2.77
Parrotfish	4,641	9,018	1.94
Surgeon/tangs	5,630	6,062	1.08
Flounders	7	6	0.83
Filefish	51	114	2.24
Rainbow runner	583	793	1.36
Mahimahi (dolphin)	15,482	46,203	2.98
Barracudas	1,133	1,530	1.35
Wahoo	15,508	60,030	3.87
Tunas	65	290	4.47
Skipjack tuna	91,154	127,792	1.40
Yellowfin tuna	164,667	401,228	2.44
Albacore	42,132	52,696	1.25
Bigeye tuna	292,333	1,260,083	4.31
Kawakawa	1,284	1,453	1.13
Frigate tuna	27	22	0.80
Broadbill swordfish	498,208	1,736,058	3.48
Blue marlin	43,389	53,913	1.24
Black marlin	1,116	1,429	1.28
Striped marlin	65,911	124,316	1.89
Shortnose spearfish	9,761	13,486	1.38
Sailfish	248	364	1.47
Ocean moonfish	12,044	17,753	1.47
Spiny lobster	10,511	173,253	16.48
Slipper lobster	1,564	14,729	9.42
Crabs	4,514	20,016	4.43
Shrimp (saltwater)	300	1,200	4.00
Octopus	272	706	2.59
Squid	539	695	1.29
Limpets (saltwater)	809	2,846	3.52
Precious corals	760	15,200	20.00
Sea cucumbers	15	105	7.00
Algae	1,141	3,750	3.29
** SUBTOTAL **	1,520,892	4,712,039	3.10

Table V.1.4

Hawaii February 1992 Commercial Landings

Species	Pounds	Value	$/lb
Miscellaneous	557	1,106	1.99
Sharks	10,305	13,370	1.30
Eels	145	625	4.31
Bigeye scad (akule)	60,343	102,605	1.70
Mackerel scad	18,833	32,007	1.70
Leatherback	9	14	1.50
Ten pounder	157	128	0.82
Bonefish	101	133	1.31
Milkfish	36	63	1.75
Needlefish	1	2	1.50
Threadfin	154	809	5.25
Mullet	183	491	2.68
Pomfret	3,625	8,799	2.43
Snake mackerel	6,420	16,436	2.56
Jacks (misc)	2,907	5,534	1.90
Amberjack	236	323	1.37
Blue crevally	106	187	1.76
Pig-lipped ulua	3,142	6,010	1.91
Paapaa ulua	376	980	2.61
White ulua	149	266	1.79
Giant sea bass	3,849	12,109	3.15
Blue spot grouper	68	176	2.59
Snappers	226	768	3.40
Blue lined snapper	5,634	5,317	0.94
Ehu (red snapper)	3,387	12,268	3.62
Gindai (flower snapper)	309	960	3.11
Kalekale (pink snapper)	2,177	5,093	2.34
Lehi (silverjaw)	2,068	6,732	3.26
Onaga (red snapper)	8,101	45,640	5.63
Opakapaka (pink snapper)	17,675	78,980	4.47
Uku (gray snapper)	5,304	19,098	3.60
Porgy	196	498	2.54
Squirrelfish	3,081	9,251	3.00
Scorpionfish	263	1,113	4.23
Mountain bass	201	466	2.32
Bigeyes	389	900	2.31
Goatfish	5,963	14,400	2.41
Rudderfish	959	814	0.85
Damselfish	158	246	1.55
Hawkfish	52	102	1.96
Tilapia	2,458	1,633	0.66

Table V.1.4 (Cont.)

Species	Pounds	Value	$/lb
Wrasse	835	2,278	2.73
Parrotfish	4,258	8,264	1.94
Surgeon/tangs	4,684	6,171	1.32
Flounders	5	3	0.64
Filefish	47	95	2.02
Rainbow runner	734	1,181	1.61
Mahimahi (dolphin)	26,576	72,526	2.73
Barracudas	809	1,107	1.37
Wahoo	15,265	57,967	3.80
Tunas	11	14	1.30
Skipjack tuna	40,095	75,598	1.89
Yellowfin tuna	151,567	414,246	2.73
Albacore	18,046	33,219	1.84
Bigeye tuna	255,876	1,252,455	4.89
Kawakawa	1,950	2,755	1.41
Broadbill swordfish	373,685	1,400,678	3.75
Blue marlin	61,239	70,253	1.15
Black marlin	817	1,145	1.40
Striped marlin	95,147	166,542	1.75
Shortnose spearfish	19,090	24,282	1.27
Sailfish	43	73	1.70
Ocean moonfish	19,005	26,920	1.42
Spiny lobster	4,982	79,778	16.01
Slipper lobster	278	2,780	10.00
Crabs	1,828	8,328	4.56
Shrimp (freshwater)	5	25	5.00
Octopus	390	991	2.54
Limpets (saltwater)	659	2,197	3.33
Limpets (freshwater)	12	69	5.75
Precious corals	650	13,000	20.00
Sea cucumbers	7	32	4.50
Algae	979	2,798	2.86
** SUBTOTAL **	1,269,877	4,134,221	3.26

Table V.1.5

Hawaii March 1992 Commercial Landings

Species	Pounds	Value	$/lb
Miscellaneous	1,171	2,064	1.76
Sharks	10,346	15,698	1.52
Eels	87	87	0.99
Bigeye scad (akule)	85,160	137,805	1.62
Mackerel scad	29,330	51,024	1.74
Leatherback	17	22	1.29
Ten pounder	485	412	0.85
Bonefish	165	196	1.19
Milkfish	316	545	1.72
Needlefish	19	23	1.24
Threadfin	58	196	3.37
Mullet	1,905	5,468	2.87
Pomfret	4,131	9,102	2.20
Snake mackerel	12,010	27,233	2.27
Jacks (misc)	2,851	5,157	1.81
Amberjack	164	244	1.49
Blue crevally	42	106	2.54
Pig-lipped ulua	5,042	10,271	2.04
Paapaa ulua	758	1,287	1.70
White ulua	362	666	1.84
Giant sea bass	4,410	12,772	2.90
Blue spot grouper	39	91	2.33
Snappers	145	496	3.42
Blue lined snapper	7,591	5,276	0.69
Ehu (red snapper)	2,255	8,304	3.68
Gindai (flower snapper)	276	738	2.67
Kalekale (pink snapper)	2,088	4,958	2.37
Lehi (silverjaw)	1,877	5,985	3.19
Onaga (red snapper)	7,477	37,907	5.07
Opakapaka (pink snapper)	23,548	100,691	4.28
Uku (gray snapper)	6,284	21,609	3.44
Porgy	382	1,094	2.86
Reef jacks	23	68	2.97
Squirrelfish	2,163	6,794	3.14
Trumpetfish	3	1	0.42
Scorpionfish	403	1,462	3.63
Mountain bass	890	1,691	1.90
Bigeyes	328	554	1.69
Goatfish	5,948	14,684	2.47
Rudderfish	484	481	0.99
Damselfish	185	367	1.98

Table V.1.5 (Cont.)

Species	Pounds	Value	$/lb
Hawkfish	65	128	1.96
Tilapia	2,477	1,578	0.64
Wrasse	813	2,455	3.02
Parrotfish	3,702	6,963	1.88
Surgeon/tangs	5,564	6,901	1.24
Flounders	1	1	0.95
Triggerfish	2	3	1.50
Filefish	104	224	2.16
Rainbow runner	804	1,240	1.54
Mahimahi (dolphin)	58,964	140,354	2.38
Barracudas	1,586	1,941	1.22
Wahoo	22,612	78,461	3.47
Tunas	589	1,718	2.92
Skipjack tuna	74,369	129,478	1.74
Yellowfin tuna	232,162	657,171	2.83
Albacore	40,445	54,995	1.36
Bigeye tuna	232,550	962,743	4.14
Kawakawa	3,553	5,823	1.64
Frigate tuna	85	116	1.36
Broadbill swordfish	1,185,919	3,384,213	2.85
Blue marlin	72,314	84,740	1.17
Black marlin	1,110	2,004	1.81
Striped marlin	71,018	122,779	1.73
Shortnose spearfish	22,488	27,496	1.22
Sailfish	217	334	1.54
Ocean moonfish	16,903	21,831	1.29
Spiny lobster	3,865	54,262	14.04
Slipper lobster	345	3,439	9.97
Crabs	5,284	21,579	4.08
Octopus	385	1,016	2.64
Squid	163	427	2.62
Limpets (saltwater)	335	1,157	3.45
Limpets (freshwater)	39	231	5.93
Sea cucumbers	33	228	6.89
Algae	1,313	3,257	2.48
** SUBTOTAL **	2,283,396	6,274,916	2.75

Table V.1.6

Hawaii April 1992 Commercial Landings

Species	Pounds	Value	$/lb
Miscellaneous	1,290	2,155	1.67
Sharks	11,316	13,796	1.22
Eels	23	9	0.38
Bigeye scad (akule)	98,465	146,090	1.48
Mackerel scad	22,306	37,855	1.70
Leatherback	11	11	1.02
Ten pounder	207	151	0.73
Bonefish	32	23	0.72
Milkfish	570	993	1.74
Flying fish	2	0	0.19
Needlefish	4	8	2.00
Threadfin	137	786	5.74
Mullet	1,038	3,040	2.93
Pomfret	3,791	8,475	2.24
Snake mackerel	20,287	30,678	1.51
Jacks (misc)	7,500	12,361	1.65
Amberjack	198	208	1.05
Blue crevally	331	757	2.29
Pig-lipped ulua	4,203	4,585	1.09
Dobe ulua	11	16	1.43
Paapaa ulua	287	387	1.35
White ulua	471	987	2.10
Giant sea bass	3,703	10,504	2.84
Blue spot grouper	16	62	3.86
Snappers	261	919	3.52
Blue lined snapper	3,905	3,406	0.87
Ehu (red snapper)	3,878	14,184	3.66
Gindai (flower snapper)	888	2,390	2.69
Kalekale (pink snapper)	3,878	8,219	2.12
Lehi (silverjaw)	867	2,618	3.02
Onaga (red snapper)	8,711	42,600	4.89
Opakapaka (pink snapper)	23,964	91,537	3.82
Uku (gray snapper)	14,816	46,576	3.14
Porgy	372	898	2.41
Squirrelfish	4,816	14,740	3.06
Trumpetfish	4	3	0.63
Scorpionfish	501	1,779	3.55
Mountain bass	328	685	2.09
Bigeyes	628	1,270	2.02
Goatfish	4,444	12,603	2.84
Rudderfish	3,208	2,295	0.72

Table V.1.6 (Cont.)

Species	Pounds	Value	$/lb
Damselfish	175	340	1.95
Hawkfish	126	237	1.88
Tilapia	104	52	0.50
Wrasse	1,214	2,746	2.26
Parrotfish	3,902	7,714	1.98
Surgeon/tangs	5,941	7,032	1.18
Flounders	2	2	1.23
Triggerfish	18	44	2.47
Filefish	9	16	1.76
Rainbow runner	343	486	1.42
Mahimahi (dolphin)	88,513	178,804	2.02
Barracudas	1,712	1,845	1.08
Wahoo	46,269	118,366	2.56
Tunas	259	4,377	16.90
Skipjack tuna	172,567	275,738	1.60
Yellowfin tuna	254,021	622,064	2.45
Albacore	67,782	76,368	1.13
Bigeye tuna	180,123	578,948	3.21
Kawakawa	2,323	2,883	1.24
Frigate tuna	193	203	1.05
Broadbill swordfish	1,736,196	4,403,118	2.54
Blue marlin	51,824	65,437	1.26
Black marlin	2,651	4,366	1.65
Striped marlin	82,569	151,393	1.83
Shortnose spearfish	9,525	12,820	1.35
Sailfish	787	1,014	1.29
Ocean moonfish	12,137	17,880	1.47
Spiny lobster	135	846	6.27
Crabs	10,806	46,965	4.35
Octopus	433	1,165	2.69
Squid	6	9	1.55
Limpets (saltwater)	602	2,183	3.63
Algae	858	2,475	2.88
** SUBTOTAL **	2,985,793	7,108,599	2.38

Table V.1.7

Hawaii May 1992 Commercial Landings

Species	Pounds	Value	$/lb
Miscellaneous	1,135	2,279	2.01
Sharks	9,776	7,276	0.74
Eels	44	21	0.48
Bigeye scad (akule)	106,206	131,858	1.24
Mackerel scad	18,502	30,637	1.66
Leatherback	7	9	1.25
Ten pounder	262	209	0.80
Bonefish	510	564	1.11
Milkfish	111	170	1.53
Flying fish	10	4	0.38
Needlefish	29	28	0.97
Threadfin	36	142	3.94
Mullet	753	2,011	2.67
Pomfret	3,095	7,389	2.39
Snake mackerel	11,624	10,734	0.92
Jacks (misc)	6,979	9,348	1.34
Amberjack	100	58	0.58
Blue crevally	1,534	1,627	1.06
Pig-lipped ulua	7,704	9,366	1.22
Paapaa ulua	347	501	1.45
White ulua	1,687	3,004	1.78
Giant sea bass	4,713	14,127	3.00
Blue spot grouper	100	256	2.56
Snappers	518	1,933	3.73
Blue lined snapper	5,624	3,812	0.68
Ehu (red snapper)	4,063	13,834	3.40
Gindai (flower snapper)	610	1,669	2.74
Kalekale (pink snapper)	2,076	3,999	1.93
Lehi (silverjaw)	956	2,744	2.87
Onaga (red snapper)	8,042	38,627	4.80
Opakapaka (pink snapper)	20,447	73,896	3.61
Uku (gray snapper)	12,901	34,194	2.65
Porgy	362	905	2.50
Reef jacks	43	129	3.00
Squirrelfish	4,478	13,503	3.02
Trumpetfish	5	6	1.14
Scorpionfish	593	2,056	3.47
Mountain bass	1,281	2,302	1.80
Bigeyes	496	1,041	2.10
Cardinalfish	6	4	0.69
Goatfish	4,794	12,123	2.53
Rudderfish	2,818	2,388	0.85

Table V.1.7 (Cont.)

Species	Pounds	Value	$/lb
Damselfish	499	938	1.88
Hawkfish	128	236	1.85
Tilapia	2,725	1,709	0.63
Wrasse	1,013	2,093	2.07
Parrotfish	4,283	7,777	1.82
Surgeon/tangs	9,658	10,786	1.12
Flounders	6	4	0.72
Triggerfish	25	6	0.23
Filefish	60	127	2.12
Rainbow runner	735	886	1.21
Mahimahi (dolphin)	63,058	113,472	1.80
Barracudas	2,047	2,356	1.15
Wahoo	61,311	117,818	1.92
Tunas	383	114	0.30
Skipjack tuna	137,885	181,978	1.32
Yellowfin tuna	246,355	488,333	1.98
Albacore	52,543	52,645	1.00
Bigeye tuna	166,216	564,932	3.40
Kawakawa	2,879	3,531	1.23
Frigate tuna	156	176	1.13
Broadbill swordfish	791,317	2,278,238	2.88
Blue marlin	62,685	58,277	0.93
Black marlin	2,076	2,052	0.99
Striped marlin	133,416	155,272	1.16
Shortnose spearfish	20,141	17,081	0.85
Sailfish	253	248	0.98
Ocean moonfish	9,901	12,744	1.29
Spiny lobster	361	2,510	6.95
Crabs	706	3,082	4.37
Shrimp (saltwater)	1,055	4,329	4.10
Octopus	328	978	2.98
Squid	36	53	1.48
Limpets (saltwater)	1,682	5,931	3.53
Sea cucumbers	26	182	7.00
Algae	1,175	2,093	1.78
** SUBTOTAL **	2,022,500	4,533,768	2.24

Table V.1.8

Hawaii June 1992 Commercial Landings

Species	Pounds	Value	$/lb
Miscellaneous	1,249	2,107	1.69
Sharks	7,581	5,568	0.73
Rays	7	14	2.00
Eels	1	2	2.00
Bigeye scad (akule)	48,453	70,605	1.46
Mackerel scad	22,290	35,446	1.59
Leatherback	22	32	1.46
Ten pounder	68	61	0.90
Bonefish	537	581	1.08
Milkfish	186	326	1.75
Flying fish	4	3	0.75
Needlefish	17	13	0.75
Halfbeaks	26	84	3.21
Threadfin	7	31	4.44
Mullet	1,307	3,694	2.83
Pomfret	3,323	5,734	1.73
Snake mackerel	11,198	12,554	1.12
Jacks (misc)	6,272	8,537	1.36
Blue crevally	522	782	1.50
Pig-lipped ulua	4,750	6,872	1.45
Dobe ulua	9	9	0.94
Paapaa ulua	163	236	1.45
White ulua	1,104	1,395	1.26
Giant sea bass	3,007	10,086	3.35
Blue spot grouper	53	96	1.81
Snappers	211	869	4.12
Blue lined snapper	4,749	3,810	0.80
Ehu (red snapper)	1,830	7,110	3.89
Gindai (flower snapper)	362	860	2.38
Kalekale (pink snapper)	1,242	3,118	2.51
Lehi (silverjaw)	297	787	2.65
Onaga (red snapper)	4,222	24,241	5.74
Opakapaka (pink snapper)	15,675	58,483	3.73
Uku (gray snapper)	10,834	31,589	2.92
Porgy	198	499	2.52
Squirrelfish	2,476	6,912	2.79
Trumpetfish	3	2	0.71
Scorpionfish	331	1,125	3.40
Mountain bass	436	1,101	2.53
Bigeyes	413	927	2.24
Cardinalfish	1	1	1.14

Table V.1.8 (Cont.)

Species	Pounds	Value	$/lb
Goatfish	3,029	6,118	2.02
Rudderfish	1,400	1,093	0.78
Damselfish	211	397	1.88
Hawkfish	141	255	1.81
Tilapia	2,896	1,816	0.63
Wrasse	433	898	2.07
Parrotfish	2,279	4,097	1.80
Surgeon/tangs	6,446	7,010	1.09
Flounders	14	10	0.70
Filefish	24	48	2.00
Rainbow runner	223	337	1.51
Mahimahi (dolphin)	59,067	100,676	1.70
Barracudas	1,694	1,331	0.79
Wahoo	27,281	74,497	2.73
Tunas	26	52	2.00
Skipjack tuna	188,784	251,346	1.33
Yellowfin tuna	243,718	539,849	2.22
Albacore	45,920	58,124	1.27
Bigeye tuna	244,122	792,906	3.25
Kawakawa	1,221	1,504	1.23
Frigate tuna	83	109	1.32
Broadbill swordfish	518,862	1,746,816	3.37
Blue marlin	96,535	83,419	0.86
Black marlin	4,146	4,430	1.07
Striped marlin	118,404	109,356	0.92
Shortnose spearfish	9,853	8,780	0.89
Sailfish	492	453	0.92
Ocean moonfish	15,848	16,477	1.04
Crabs	724	3,211	4.44
Shrimp (saltwater)	413	1,653	4.00
Octopus	599	1,662	2.77
Squid	11	25	2.25
Limpets (saltwater)	639	2,393	3.75
Sea cucumbers	58	409	7.06
Algae	1,442	2,481	1.72
** SUBTOTAL **	1,752,474	4,130,340	2.36

Table V.1.9

Hawaii July 1992 Commercial Landings

Species	Pounds	Value	$/lb
Miscellaneous	983	1,714	1.74
Sharks	7,342	4,745	0.65
Eels	13	12	0.92
Alfonsin	10	22	2.24
Bigeye scad (akule)	79,290	124,291	1.57
Mackerel scad	32,132	47,619	1.48
Leatherback	35	38	1.08
Ten pounder	72	69	0.96
Bonefish	1,208	979	0.81
Milkfish	350	607	1.73
Needlefish	17	19	1.13
Threadfin	43	71	1.65
Mullet	265	810	3.06
Pomfret	3,558	6,226	1.75
Snake mackerel	9,077	13,639	1.50
Jacks (misc)	5,244	9,704	1.85
Amberjack	19	29	1.50
Blue crevally	235	334	1.42
Pig-lipped ulua	3,712	6,372	1.72
Paapaa ulua	7	21	3.00
White ulua	178	185	1.04
Black ulua	109	219	2.01
Giant sea bass	5,639	17,612	3.12
Blue spot grouper	43	150	3.49
Snappers	253	1,057	4.18
Blue lined snapper	4,443	2,736	0.62
Ehu (red snapper)	1,599	6,920	4.33
Gindai (flower snapper)	439	1,276	2.91
Kalekale (pink snapper)	1,125	2,911	2.59
Lehi (silverjaw)	355	934	2.63
Onaga (red snapper)	3,445	22,556	6.55
Opakapaka (pink snapper)	13,279	55,586	4.19
Uku (gray snapper)	8,080	25,793	3.19
Porgy	178	429	2.41
Reef jacks	20	59	2.93
Squirrelfish	3,428	9,984	2.91
Trumpetfish	5	8	1.59
Scorpionfish	399	1,578	3.95
Mountain bass	275	821	2.98
Bigeyes	395	878	2.22
Cardinalfish	1	1	1.00

Table V.1.9 (Cont.)

Species	Pounds	Value	$/lb
Goatfish	2,227	5,966	2.68
Rudderfish	465	378	0.81
Damselfish	244	386	1.58
Hawkfish	184	363	1.97
Tilapia	1,236	765	0.62
Wrasse	680	1,314	1.93
Parrotfish	2,534	5,018	1.98
Surgeon/tangs	7,197	8,119	1.13
Flounders	7	6	0.82
Triggerfish	12	3	0.24
Filefish	17	36	2.13
Rainbow runner	295	448	1.52
Mahimahi (dolphin)	85,603	128,585	1.50
Barracudas	1,876	1,663	0.89
Wahoo	41,522	97,984	2.36
Skipjack tuna	228,145	346,728	1.52
Yellowfin tuna	429,965	822,514	1.91
Albacore	42,181	46,081	1.09
Bigeye tuna	240,554	582,920	2.42
Kawakawa	863	939	1.09
Frigate tuna	115	144	1.26
Broadbill swordfish	344,530	1,318,657	3.83
Blue marlin	115,713	85,910	0.74
Black marlin	1,878	1,585	0.84
Striped marlin	74,819	66,612	0.89
Shortnose spearfish	6,585	9,838	1.49
Sailfish	255	332	1.30
Ocean moonfish	16,743	17,339	1.04
Spiny lobster	11,540	151,644	13.14
Slipper lobster	2,121	18,367	8.66
Crabs	816	3,576	4.38
Shrimp (saltwater)	555	2,223	4.01
Octopus	819	2,135	2.61
Squid	65	81	1.25
Limpets (saltwater)	492	1,811	3.68
Precious corals	588	11,760	20.00
Sea cucumbers	59	413	7.00
Algae	1,539	3,153	2.05
** SUBTOTAL **	1,852,339	4,114,809	2.22

Table V.1.10

Hawaii August 1992 Commercial Landings

Species	Pounds	Value	$/lb
Miscellaneous	1,219	1,863	1.53
Sharks	9,843	7,342	0.75
Eels	18	5	0.28
Bigeye scad (akule)	70,811	108,102	1.53
Mackerel scad	44,690	61,276	1.37
Leatherback	37	44	1.18
Ten pounder	145	128	0.88
Bonefish	2,104	1,741	0.83
Milkfish	344	600	1.74
Needlefish	4	3	0.75
Threadfin	17	59	3.44
Mullet	315	929	2.95
Pomfret	1,595	4,012	2.52
Snake mackerel	12,050	19,312	1.60
Jacks (misc)	4,336	6,684	1.54
Blue crevally	134	294	2.20
Pig-lipped ulua	4,974	9,556	1.92
Paapaa ulua	62	94	1.52
White ulua	28	47	1.68
Giant sea bass	3,953	12,744	3.22
Blue spot grouper	78	176	2.25
Snappers	326	1,365	4.19
Blue lined snapper	3,380	3,053	0.90
Ehu (red snapper)	1,551	7,616	4.91
Gindai (flower snapper)	271	879	3.24
Kalekale (pink snapper)	1,112	3,198	2.88
Lehi (silverjaw)	289	1,041	3.60
Onaga (red snapper)	2,590	18,466	7.13
Opakapaka (pink snapper)	10,507	49,143	4.68
Uku (gray snapper)	6,441	26,263	4.08
Porgy	228	532	2.33
Reef jacks	57	166	2.92
Squirrelfish	2,841	7,976	2.81
Trumpetfish	2	1	0.60
Scorpionfish	195	711	3.65
Mountain bass	155	456	2.94
Bigeyes	260	564	2.17
Cardinalfish	5	5	0.90
Goatfish	3,820	8,900	2.33
Rudderfish	1,215	894	0.74
Damselfish	201	343	1.71

Table V.1.10 (Cont.)

Species	Pounds	Value	$/lb
Hawkfish	294	730	2.48
Tilapia	1,840	1,200	0.65
Wrasse	373	672	1.80
Parrotfish	1,487	3,063	2.06
Surgeon/tangs	5,314	6,196	1.17
Flounders	15	20	1.36
Filefish	5	15	3.05
Rainbow runner	175	262	1.50
Mahimahi (dolphin)	149,553	210,418	1.41
Barracudas	1,953	2,055	1.05
Wahoo	29,017	88,745	3.06
Tunas	5	2	0.33
Skipjack tuna	176,252	258,677	1.47
Yellowfin tuna	397,425	798,938	2.01
Albacore	109,133	107,066	0.98
Bigeye tuna	105,518	306,013	2.90
Kawakawa	703	1,017	1.45
Frigate tuna	95	112	1.18
Broadbill swordfish	386,648	1,195,910	3.09
Blue marlin	109,987	90,361	0.82
Black marlin	2,227	2,059	0.92
Striped marlin	49,105	58,422	1.19
Shortnose spearfish	4,270	6,274	1.47
Sailfish	52	74	1.42
Ocean moonfish	11,784	15,267	1.30
Spiny lobster	29,587	404,824	13.68
Slipper lobster	13,467	122,876	9.12
Crabs	1,311	5,210	3.97
Shrimp (saltwater)	3,448	14,328	4.16
Octopus	2,123	5,762	2.71
Squid	235	682	2.90
Limpets (saltwater)	395	1,571	3.98
Sea cucumbers	14	98	7.00
Algae	907	1,743	1.92
** SUBTOTAL **	1,786,920	4,077,242	2.28

Table V.1.11

Hawaii September 1992 Commercial Landings

Species	Pounds	Value	$/lb
Miscellaneous	909	1,624	1.79
Sharks	4,083	3,866	0.95
Eels	30	38	1.25
Bigeye scad (akule)	54,613	79,888	1.46
Mackerel scad	41,857	57,842	1.38
Leatherback	38	39	1.04
Ten pounder	211	181	0.86
Bonefish	455	519	1.14
Milkfish	373	614	1.65
Needlefish	7	4	0.50
Halfbeaks	43	86	2.00
Threadfin	245	1,256	5.13
Mullet	348	1,073	3.08
Pomfret	1,234	3,385	2.74
Snake mackerel	3,825	7,908	2.07
Jacks (misc)	1,520	2,859	1.88
Amberjack	101	25	0.25
Blue crevally	107	205	1.92
Pig-lipped ulua	3,358	7,626	2.27
Paapaa ulua	130	248	1.90
White ulua	1,160	1,791	1.54
Giant sea bass	3,087	9,935	3.22
Blue spot grouper	91	250	2.75
Snappers	318	1,405	4.42
Blue lined snapper	4,841	3,691	0.76
Ehu (red snapper)	1,281	6,201	4.84
Gindai (flower snapper)	194	664	3.42
Kalekale (pink snapper)	773	2,188	2.83
Lehi (silverjaw)	682	2,141	3.14
Onaga (red snapper)	4,513	28,040	6.21
Opakapaka (pink snapper)	12,368	58,467	4.73
Uku (gray snapper)	9,374	33,590	3.58
Porgy	249	515	2.07
Reef jacks	18	53	2.92
Squirrelfish	3,810	10,824	2.84
Trumpetfish	3	2	0.78
Scorpionfish	327	1,149	3.51
Mountain bass	257	824	3.21
Bigeyes	473	1,167	2.47
Goatfish	4,874	10,584	2.17
Rudderfish	292	275	0.94

Table V.1.11 (Cont.)

Species	Pounds	Value	$/lb
Damselfish	256	428	1.67
Hawkfish	92	176	1.91
Tilapia	2,925	1,812	0.62
Wrasse	552	1,381	2.50
Parrotfish	1,700	3,194	1.88
Surgeon/tangs	3,015	3,888	1.29
Flounders	9	8	0.93
Triggerfish	3	0	0.10
Filefish	8	17	2.14
Rainbow runner	832	1,093	1.31
Mahimahi (dolphin)	116,822	214,833	1.84
Barracudas	1,296	2,162	1.67
Wahoo	18,373	58,191	3.17
Tunas	18,444	65,987	3.58
Skipjack tuna	154,359	229,884	1.49
Yellowfin tuna	244,807	520,035	2.12
Albacore	16,002	33,250	2.08
Bigeye tuna	64,145	231,082	3.60
Kawakawa	878	1,162	1.32
Frigate tuna	8	10	1.24
Broadbill swordfish	585,601	1,743,566	2.98
Blue marlin	65,088	89,343	1.37
Black marlin	1,418	2,216	1.56
Striped marlin	27,880	56,590	2.03
Shortnose spearfish	1,897	3,248	1.71
Sailfish	580	624	1.08
Ocean moonfish	10,504	14,369	1.37
Spiny lobster	6,000	81,322	13.55
Slipper lobster	5,039	40,287	7.99
Crabs	6,487	25,817	3.98
Shrimp (saltwater)	933	5,252	5.63
Octopus	2,623	6,652	2.54
Squid	190	308	1.62
Limpets (saltwater)	405	1,620	4.00
Algae	776	1,706	2.20
** SUBTOTAL **	1,522,419	3,784,553	2.49

Table V.1.12

Hawaii October 1992 Commercial Landings

Species	Pounds	Value	$/lb
Miscellaneous	772	1,314	1.70
Sharks	3,208	2,616	0.82
Eels	63	72	1.14
Bigeye scad (akule)	22,687	42,880	1.89
Mackerel scad	43,606	62,253	1.43
Leatherback	57	65	1.14
Ten pounder	192	161	0.84
Bonefish	278	280	1.01
Milkfish	419	714	1.70
Needlefish	4	3	0.81
Threadfin	253	1,235	4.88
Mullet	149	448	3.01
Pomfret	5,369	9,921	1.85
Snake mackerel	4,202	7,600	1.81
Jacks (misc)	1,951	3,945	2.02
Amberjack	78	117	1.50
Blue crevally	53	127	2.39
Pig-lipped ulua	2,972	5,242	1.76
Dobe ulua	5	2	0.30
Paapaa ulua	774	1,708	2.21
White ulua	5,871	6,021	1.03
Giant sea bass	10,055	20,102	2.00
Blue spot grouper	124	312	2.52
Snappers	184	558	3.03
Blue lined snapper	5,678	3,592	0.63
Ehu (red snapper)	3,704	12,231	3.30
Gindai (flower snapper)	507	1,356	2.68
Kalekale (pink snapper)	2,342	4,736	2.02
Lehi (silverjaw)	1,821	5,062	2.78
Onaga (red snapper)	10,793	52,022	4.82
Opakapaka (pink snapper)	24,607	97,016	3.94
Uku (gray snapper)	13,132	40,704	3.10
Porgy	333	709	2.13
Reef jacks	1	2	2.00
Squirrelfish	4,878	13,439	2.76
Trumpetfish	1	0	0.20
Scorpionfish	349	1,385	3.97
Mountain bass	169	523	3.09
Bigeyes	681	1,498	2.20
Cardinalfish	9	3	0.30
Goatfish	4,930	12,179	2.47

Table V.1.12 (Cont.)

Species	Pounds	Value	$/lb
Rudderfish	257	303	1.18
Damselfish	111	180	1.62
Hawkfish	87	143	1.64
Tilapia	3,250	1,915	0.59
Wrasse	1,024	2,750	2.69
Parrotfish	2,274	4,221	1.86
Surgeon/tangs	3,430	4,173	1.22
Flounders	8	6	0.69
Triggerfish	36	3	0.08
Filefish	17	35	2.04
Rainbow runner	1,405	1,485	1.06
Mahimahi (dolphin)	130,207	237,898	1.83
Barracudas	1,627	2,203	1.35
Wahoo	25,443	80,380	3.16
Tunas	210	420	2.00
Skipjack tuna	265,167	329,851	1.24
Yellowfin tuna	185,662	309,093	1.66
Albacore	87,894	99,980	1.14
Bigeye tuna	234,643	790,227	3.37
Kawakawa	1,030	1,017	0.99
Broadbill swordfish	828,211	1,870,949	2.26
Blue marlin	72,327	69,188	0.96
Black marlin	3,533	4,271	1.21
Striped marlin	177,580	134,353	0.76
Shortnose spearfish	8,045	6,688	0.83
Sailfish	1,350	959	0.71
Ocean moonfish	49,963	38,326	0.77
Spiny lobster	39,078	526,948	13.48
Slipper lobster	16,283	136,549	8.39
Crabs	8,840	34,759	3.93
Shrimp (saltwater)	3,664	17,389	4.75
Octopus	3,247	8,264	2.55
Squid	67	169	2.52
Limpets (saltwater)	384	1,556	4.05
Sea cucumbers	1	3	2.75
Algae	850	2,589	3.05
** SUBTOTAL **	2,334,466	5,133,395	2.20

Table V.1.13

Hawaii November 1992 Commercial Landings

Species	Pounds	Value	$/lb
Miscellaneous	898	1,838	2.05
Sharks	7,960	5,233	0.66
Eels	27	23	0.83
Bigeye scad (akule)	39,359	66,602	1.69
Mackerel scad	25,587	39,745	1.55
Leatherback	34	33	0.98
Ten pounder	182	153	0.84
Bonefish	283	315	1.11
Milkfish	182	318	1.75
Threadfin	174	793	4.56
Mullet	3,044	8,397	2.76
Pomfret	4,694	7,977	1.70
Snake mackerel	9,518	11,869	1.25
Jacks (misc)	3,933	7,480	1.90
Amberjack	75	113	1.50
Blue crevally	30	24	0.81
Pig-lipped ulua	5,366	6,502	1.21
Paapaa ulua	1,056	2,011	1.90
White ulua	1,515	1,781	1.18
Giant sea bass	4,784	12,394	2.59
Blue spot grouper	68	137	2.01
Snappers	100	300	3.00
Blue lined snapper	3,157	1,906	0.60
Ehu (red snapper)	2,565	10,180	3.97
Gindai (flower snapper)	474	1,307	2.76
Kalekale (pink snapper)	1,513	3,604	2.38
Lehi (silverjaw)	1,335	4,057	3.04
Onaga (red snapper)	5,299	29,507	5.57
Opakapaka (pink snapper)	21,186	93,541	4.42
Uku (gray snapper)	9,380	31,913	3.40
Porgy	221	560	2.53
Reef jacks	51	138	2.70
Squirrelfish	3,540	10,172	2.87
Scorpionfish	161	546	3.39
Mountain bass	227	523	2.30
Bigeyes	882	1,853	2.10
Goatfish	5,081	12,413	2.44
Rudderfish	203	239	1.18
Damselfish	204	298	1.46
Hawkfish	31	53	1.72
Tilapia	1,520	1,318	0.87
Wrasse	556	1,106	1.99

Table V.1.13 (Cont.)

Species	Pounds	Value	$/lb
Parrotfish	1,298	2,602	2.00
Surgeon/tangs	4,694	5,502	1.17
Flounders	4	3	0.69
Triggerfish	2	1	0.25
Filefish	8	18	2.19
Rainbow runner	451	619	1.37
Mahimahi (dolphin)	120,143	204,430	1.70
Barracudas	1,359	1,895	1.39
Wahoo	13,918	41,583	2.99
Tunas	2,970	21,200	7.14
Skipjack tuna	243,128	284,983	1.17
Yellowfin tuna	152,579	270,387	1.77
Albacore	105,165	67,500	0.64
Bigeye tuna	417,258	1,125,916	2.70
Kawakawa	907	1,090	1.20
Frigate tuna	29	33	1.15
Broadbill swordfish	498,390	1,374,481	2.76
Blue marlin	36,691	32,359	0.88
Black marlin	2,476	2,535	1.02
Striped marlin	151,434	129,376	0.85
Shortnose spearfish	4,926	3,934	0.80
Sailfish	635	565	0.89
Ocean moonfish	36,956	28,208	0.76
Spiny lobster	2,688	35,017	13.03
Slipper lobster	1,901	15,518	8.16
Crabs	6,807	27,340	4.02
Shrimp (saltwater)	3,065	12,689	4.14
Octopus	1,824	4,569	2.50
Limpets (saltwater)	446	1,881	4.22
Sea cucumbers	15	105	7.00
Algae	875	2,885	3.30
** SUBTOTAL **	1,979,497	4,078,491	2.06

Table V.1.14

Hawaii December 1992 Commercial Landings

Species	Pounds	Value	$/lb
Miscellaneous	738	1,703	2.31
Sharks	10,299	6,834	0.66
Eels	28	50	1.80
Alfonsin	5	15	3.00
Bigeye scad (akule)	39,911	72,474	1.82
Mackerel scad	22,214	36,607	1.65
Leatherback	40	24	0.61
Ten pounder	122	104	0.86
Bonefish	177	193	1.09
Milkfish	185	277	1.50
Threadfin	76	186	2.44
Mullet	40	111	2.79
Pomfret	8,671	13,433	1.55
Snake mackerel	6,868	6,294	0.92
Jacks (misc)	3,421	6,657	1.95
Amberjack	276	397	1.44
Blue crevally	104	181	1.74
Pig-lipped ulua	5,049	7,648	1.51
Dobe ulua	1	4	4.00
Paapaa ulua	994	1,721	1.73
White ulua	222	338	1.52
Black ulua	44	55	1.24
Giant sea bass	5,335	14,379	2.70
Blue spot grouper	167	363	2.18
Snappers	145	574	3.96
Blue lined snapper	5,660	4,078	0.72
Ehu (red snapper)	3,455	15,972	4.62
Gindai (flower snapper)	423	1,371	3.24
Kalekale (pink snapper)	3,276	7,814	2.39
Lehi (silverjaw)	1,944	5,673	2.92
Onaga (red snapper)	8,355	51,397	6.15
Opakapaka (pink snapper)	36,385	150,648	4.14
Uku (gray snapper)	10,305	33,843	3.28
Porgy	477	1,349	2.83
Reef jacks	2	6	3.00
Squirrelfish	2,317	6,806	2.94
Trumpetfish	17	15	0.90
Scorpionfish	331	1,421	4.29
Mountain bass	259	589	2.27
Bigeyes	556	1,105	1.99
Goatfish	6,154	14,648	2.38

Table V.1.14 (Cont.)

Species	Pounds	Value	$/lb
Rudderfish	535	530	0.99
Damselfish	267	439	1.65
Hawkfish	41	66	1.62
Tilapia	3,100	2,172	0.70
Wrasse	597	1,652	2.77
Parrotfish	1,762	3,047	1.73
Surgeon/tangs	4,125	5,083	1.23
Flounders	8	8	1.04
Filefish	13	39	2.98
Rainbow runner	152	229	1.51
Mahimahi (dolphin)	33,235	79,305	2.39
Barracudas	791	793	1.00
Wahoo	17,713	50,928	2.88
Tunas	1,878	15,136	8.06
Skipjack tuna	180,527	259,530	1.44
Yellowfin tuna	147,587	330,915	2.24
Albacore	107,178	99,809	0.93
Bigeye tuna	456,320	2,028,374	4.45
Kawakawa	3,113	4,753	1.53
Frigate tuna	165	207	1.26
Broadbill swordfish	458,305	1,433,704	3.13
Blue marlin	22,630	32,412	1.43
Black marlin	1,043	1,519	1.46
Striped marlin	92,596	183,556	1.98
Shortnose spearfish	13,726	14,644	1.07
Sailfish	231	286	1.24
Ocean moonfish	37,550	32,134	0.86
Spiny lobster	951	11,625	12.22
Slipper lobster	197	1,602	8.13
Crabs	5,817	27,474	4.72
Shrimp (saltwater)	3,464	15,372	4.44
Octopus	854	2,429	2.84
Limpets (saltwater)	479	2,064	4.31
Precious corals	330	6,600	20.00
Sea cucumbers	6	54	9.00
Algae	1,058	2,888	2.73
** SUBTOTAL **	1,783,392	5,118,736	2.87
** TOTAL **	23,093,965	57,201,111	2.48

Figure V.1.1

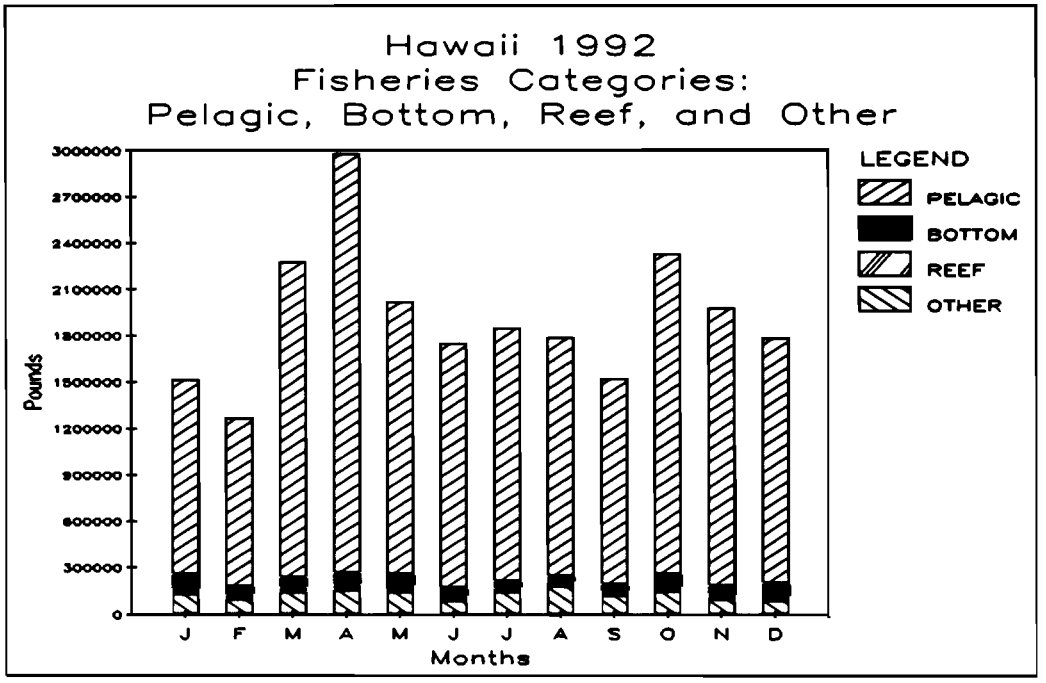


Figure V.1.2

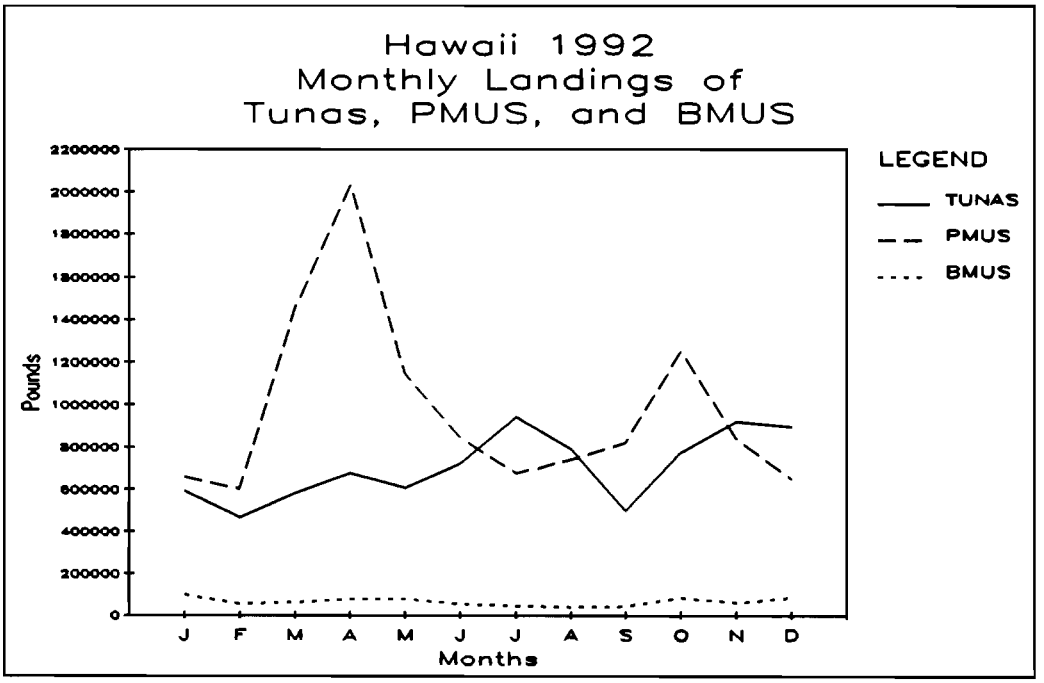


Figure V.1.3

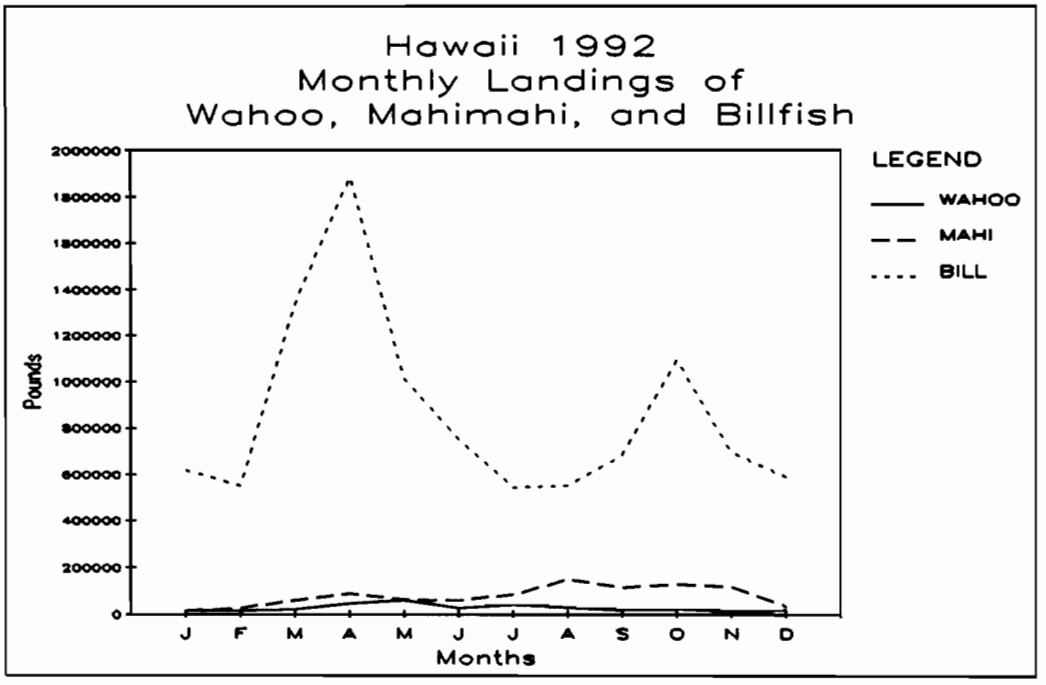


Figure V.1.4

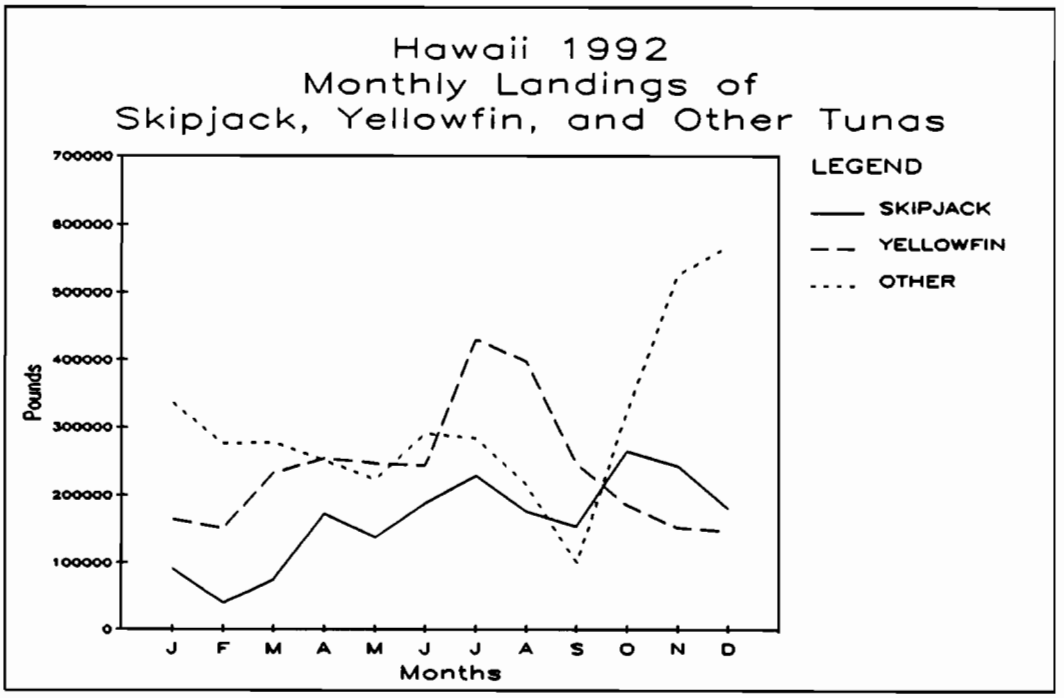


Figure V.2.1

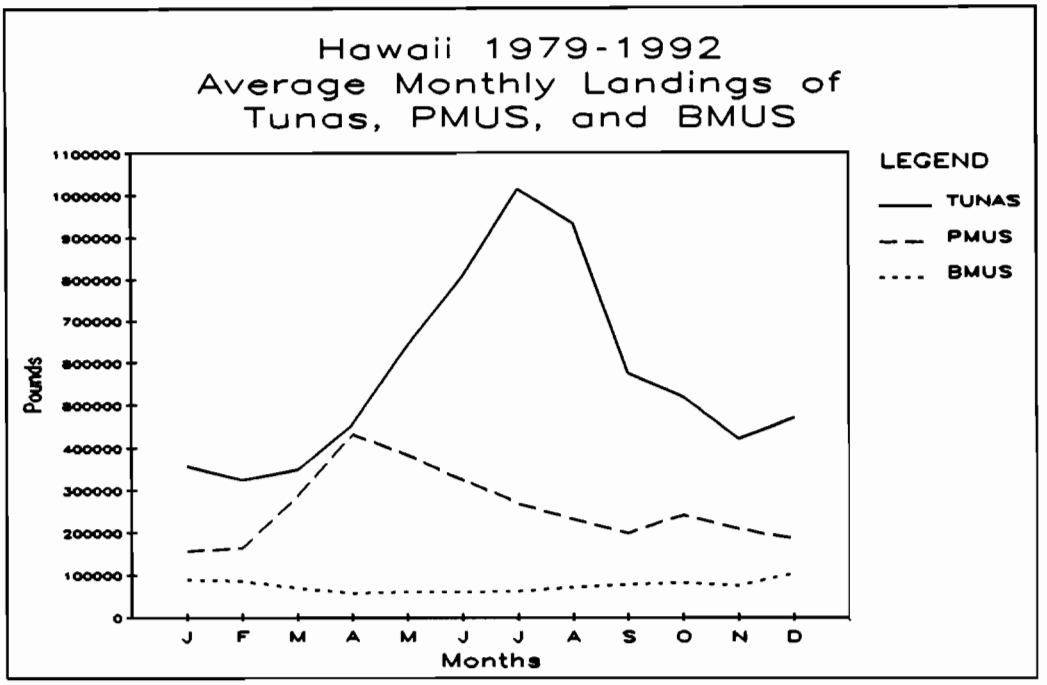


Figure V.2.2

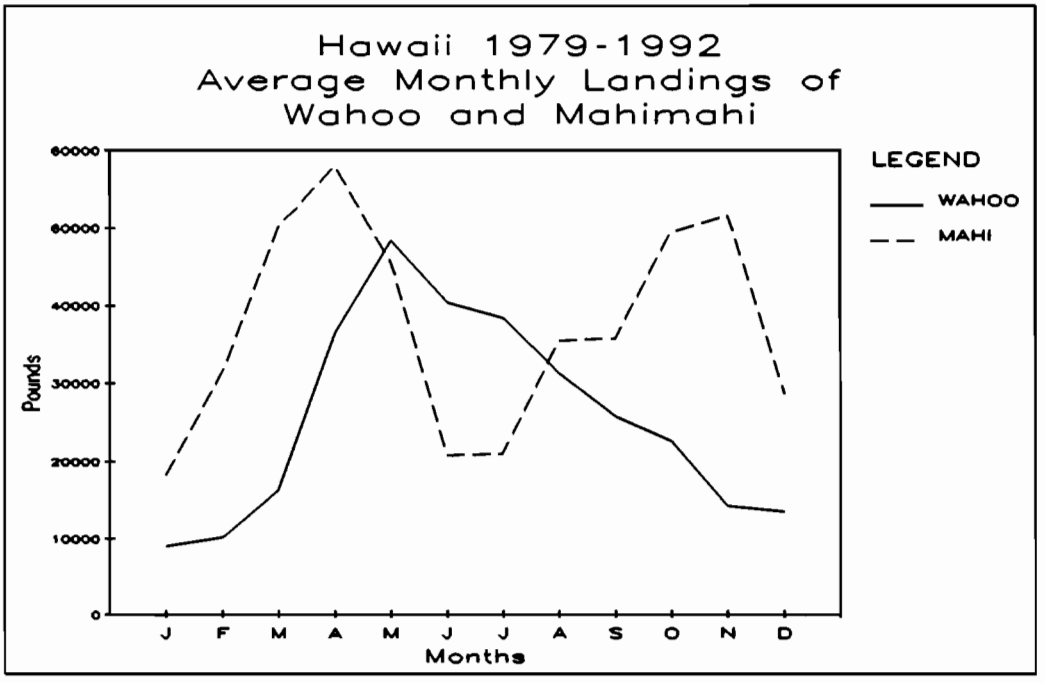


Figure V.2.3

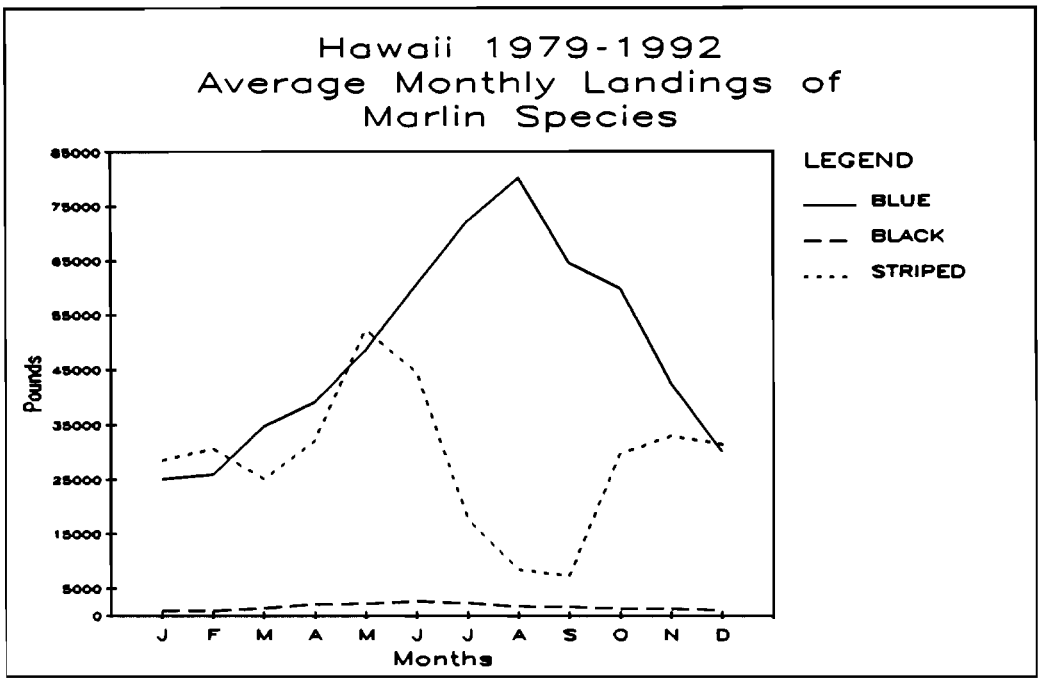


Figure V.2.4

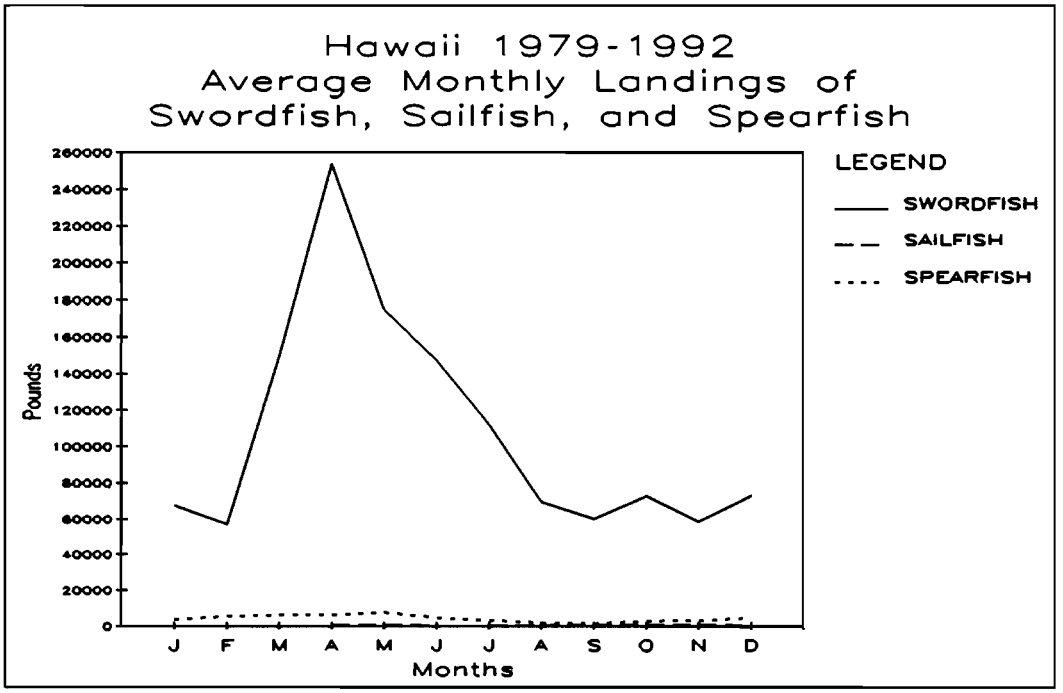
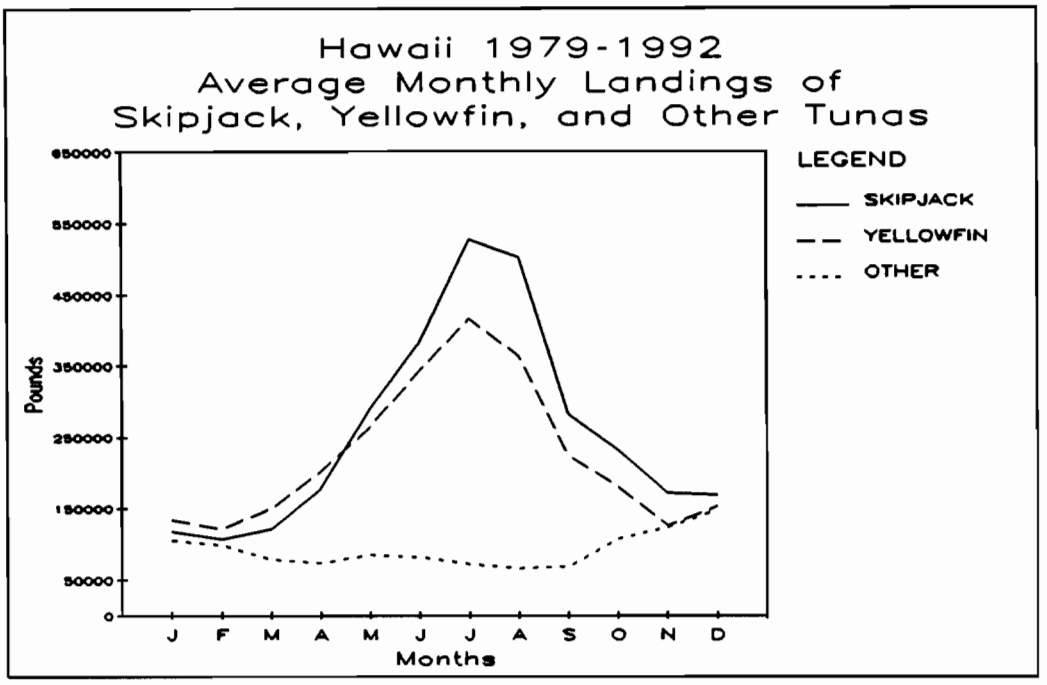


Figure V.2.5



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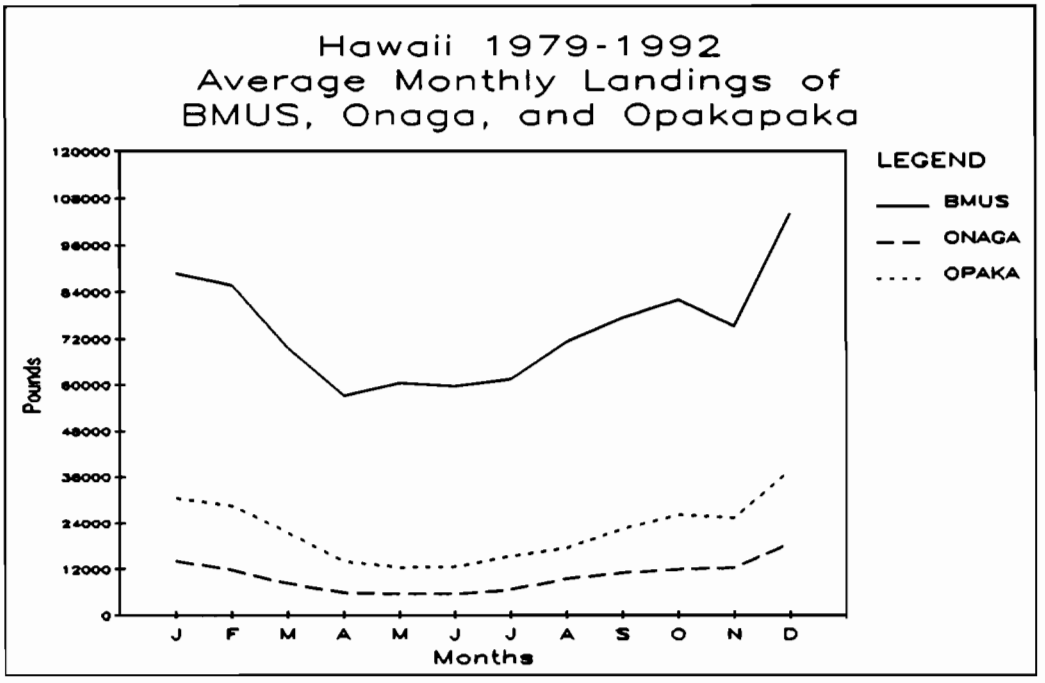

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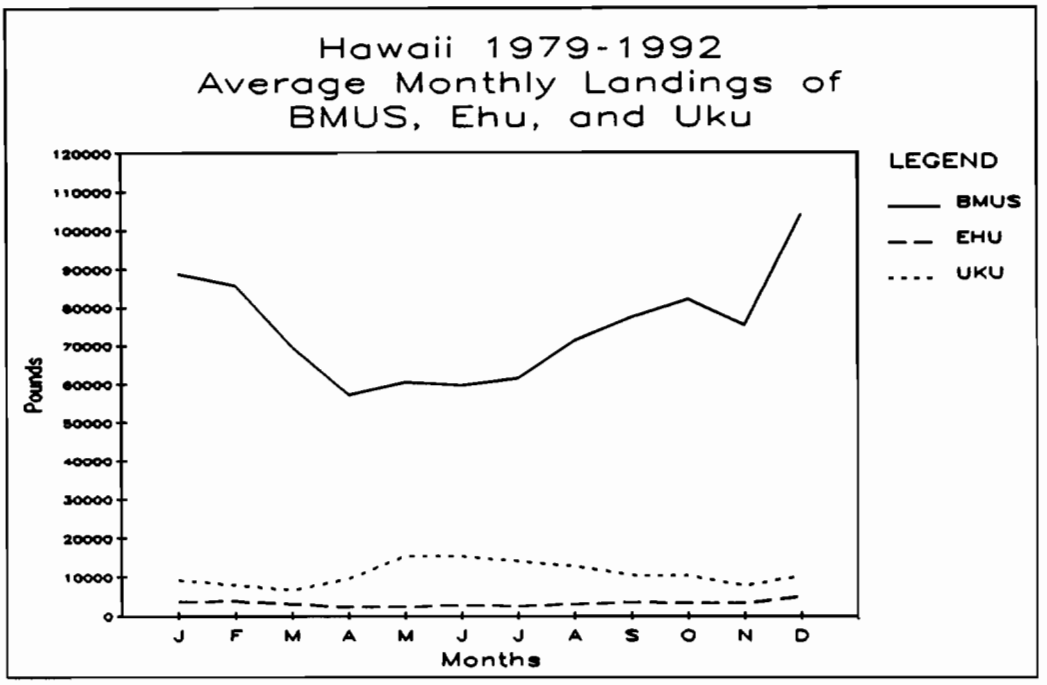


Figure V.3.1

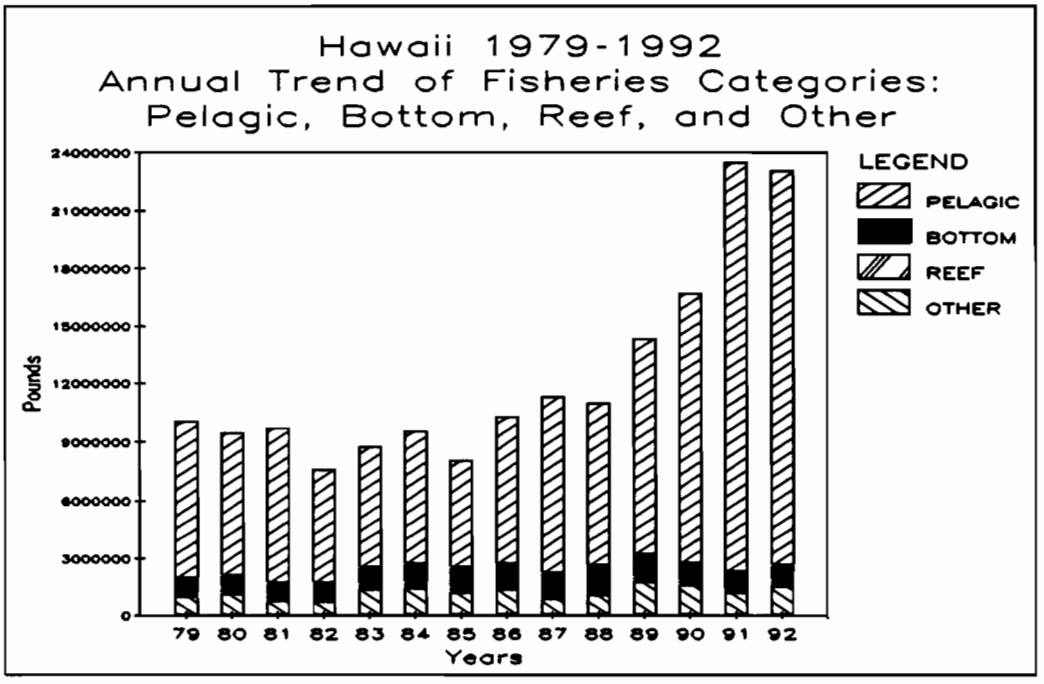


Figure V.3.2

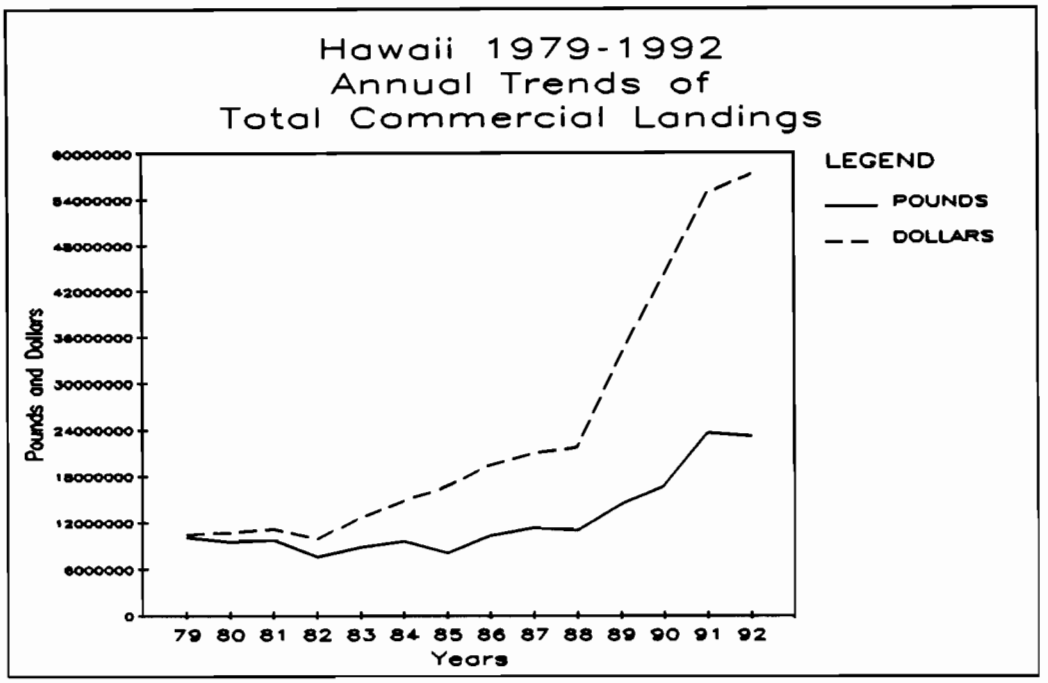


Figure V.3.3

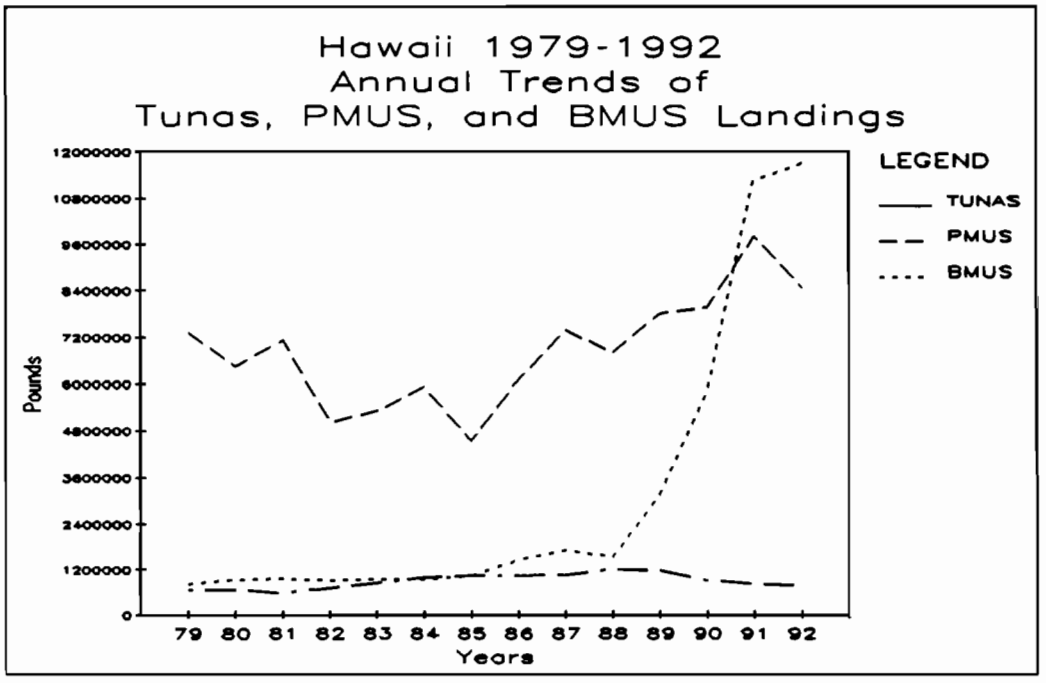
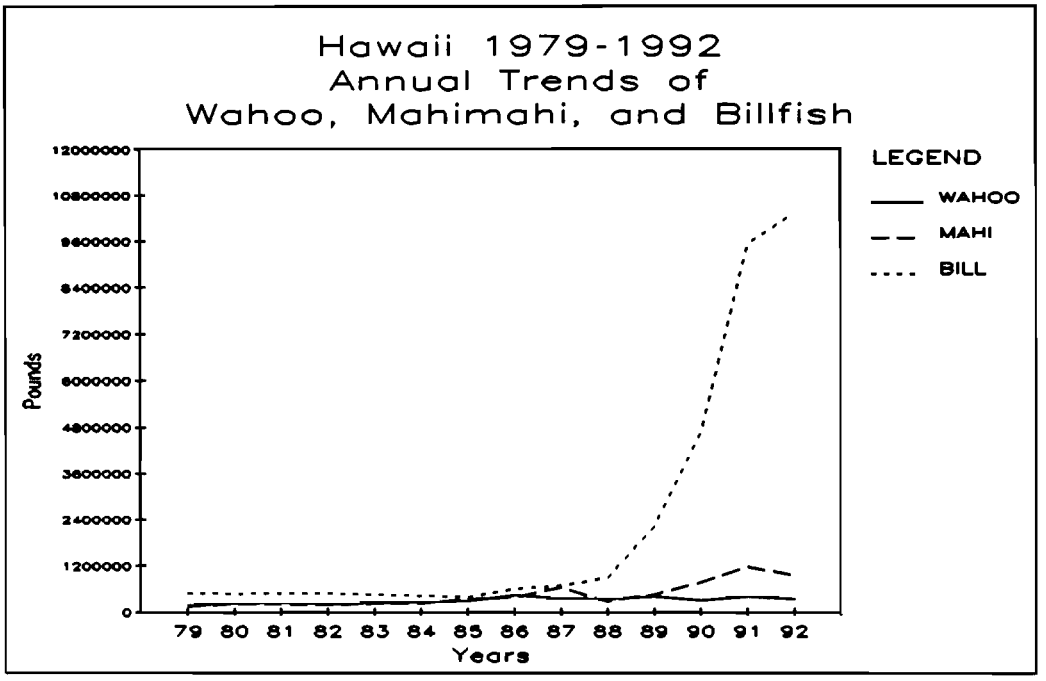


Figure V.3.4



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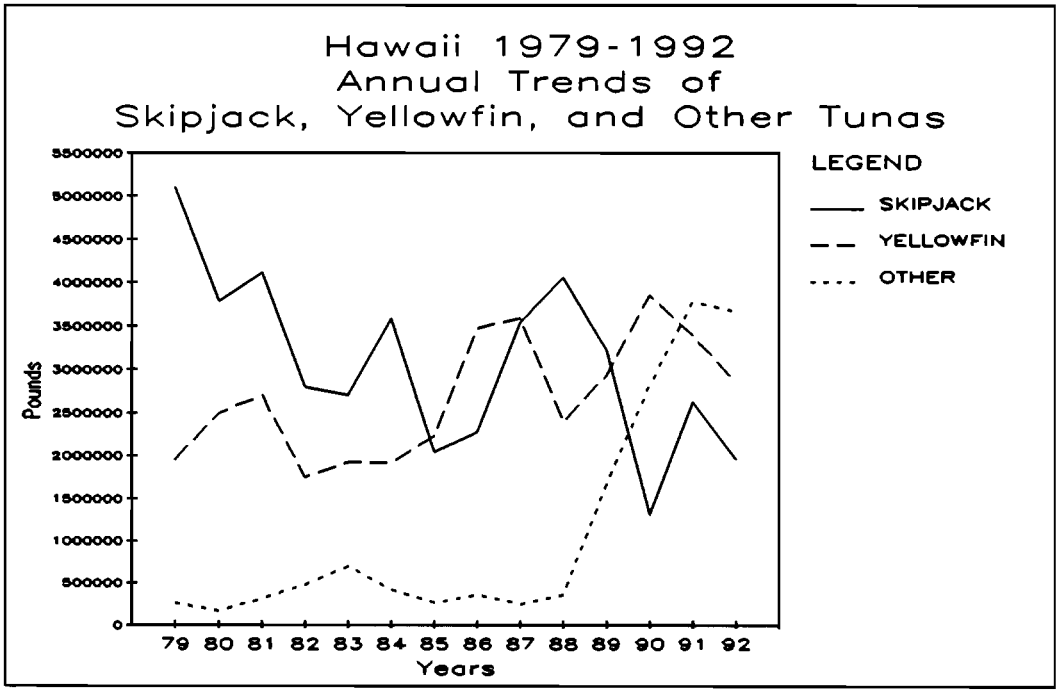
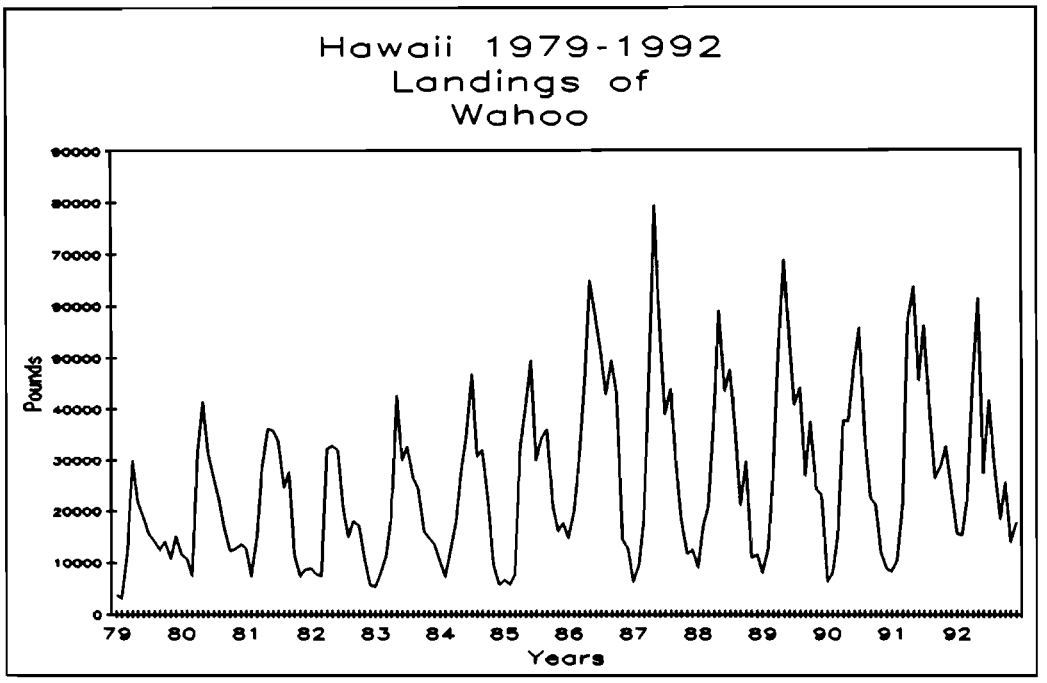


Figure V.4.1



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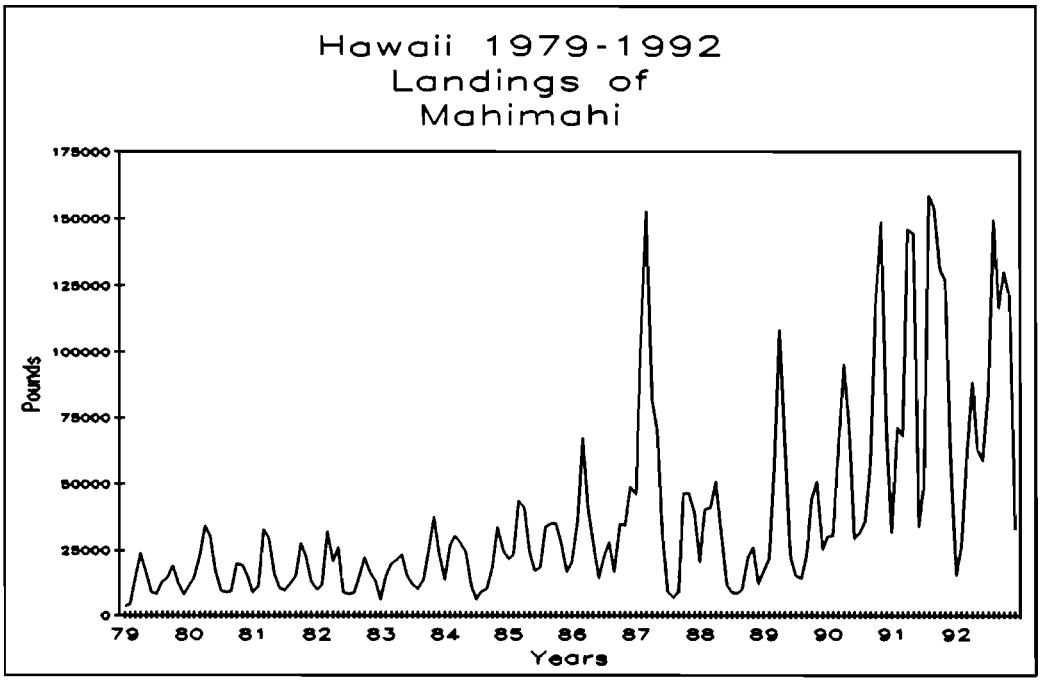

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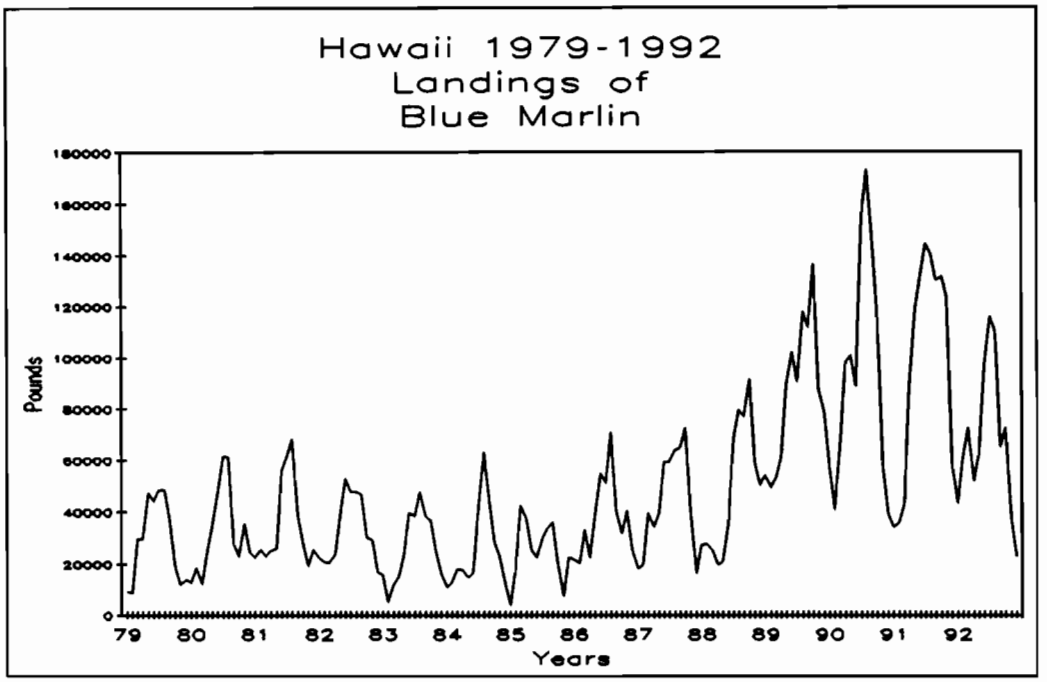

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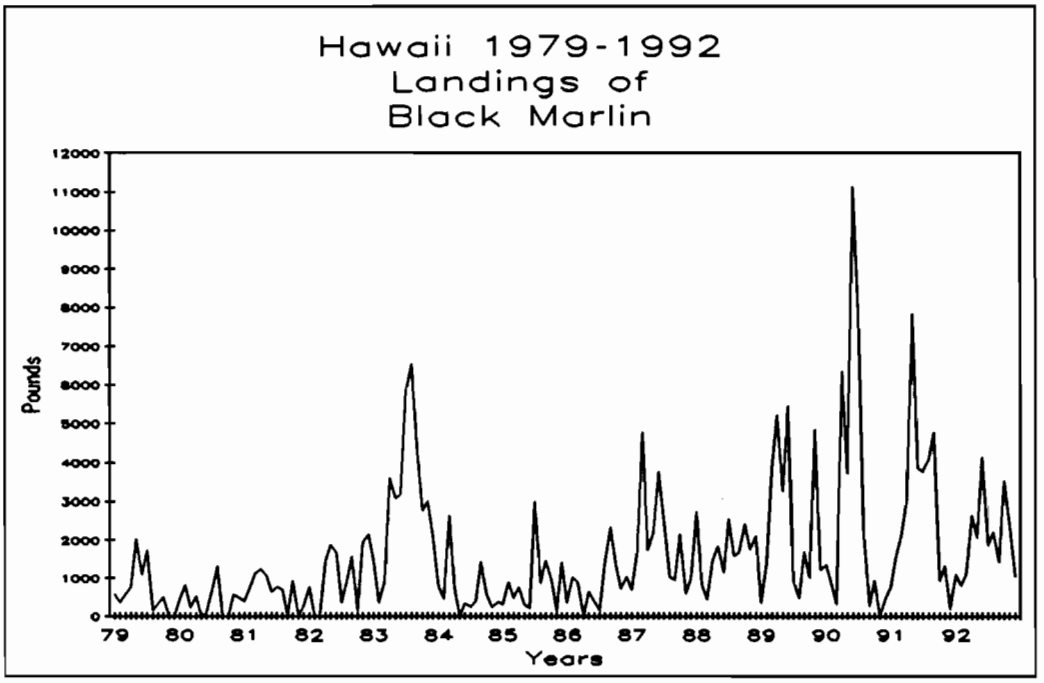

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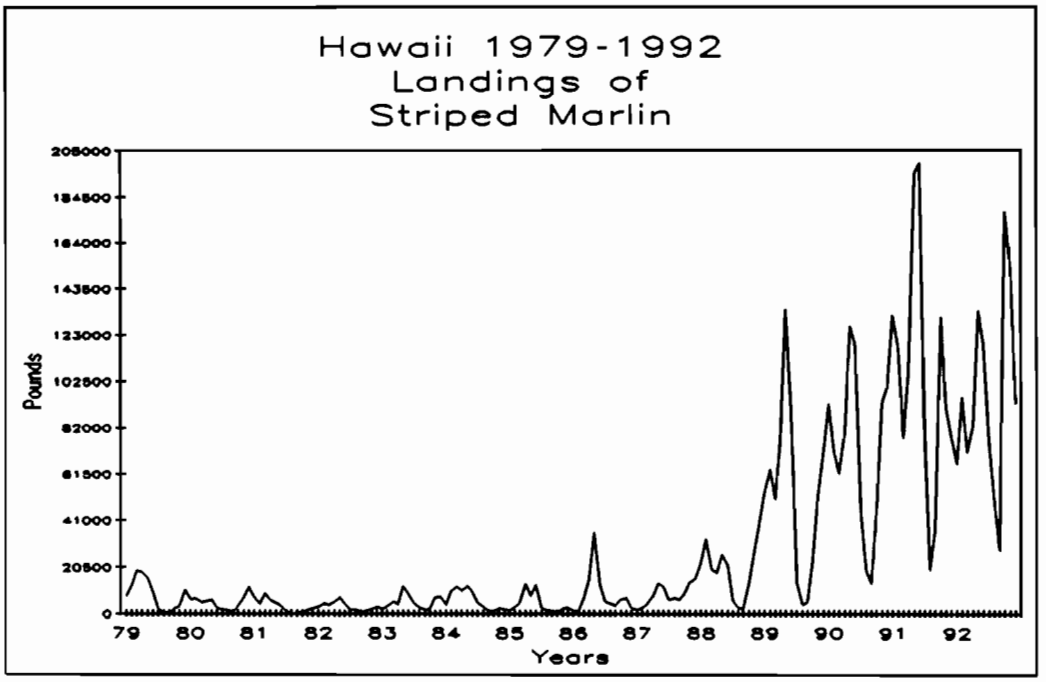

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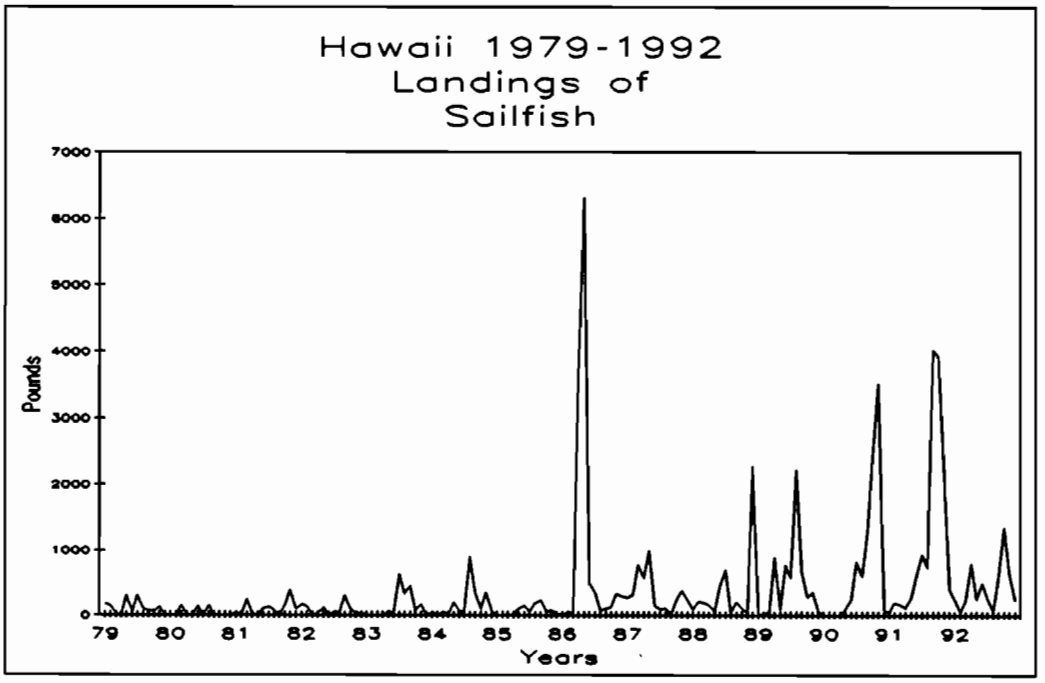

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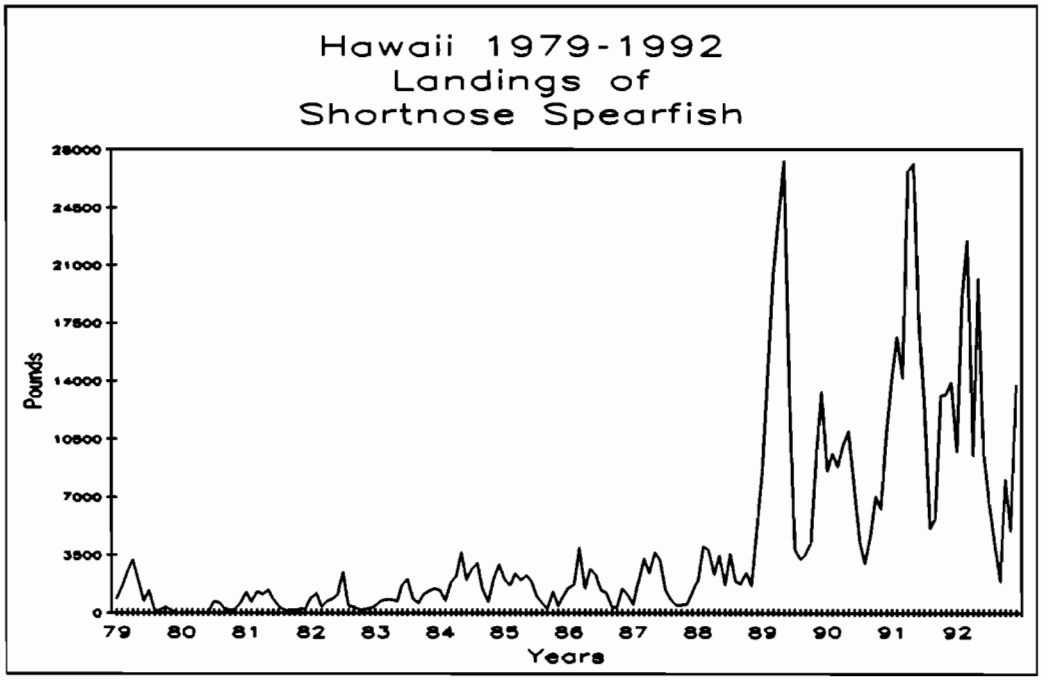

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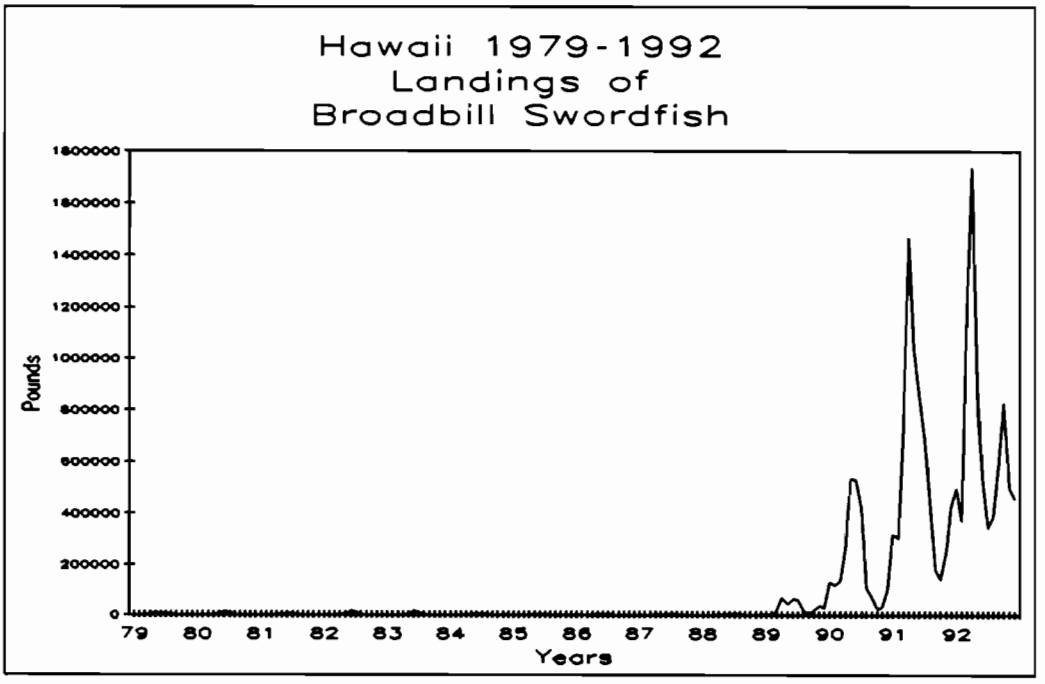

Figure V.4.9

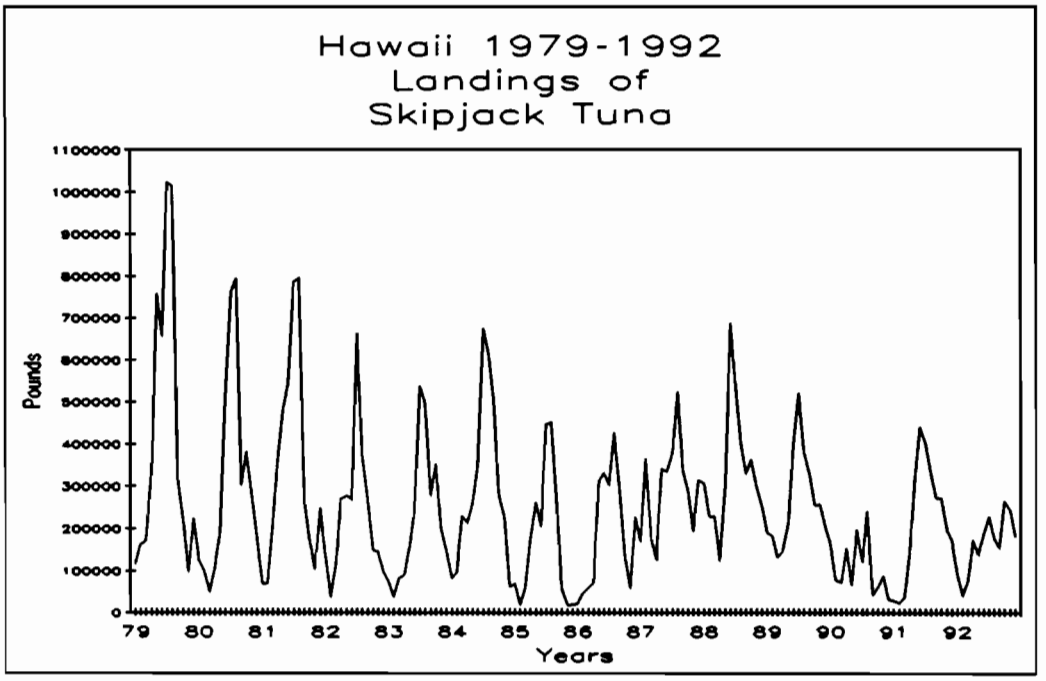

Figure V.4.10

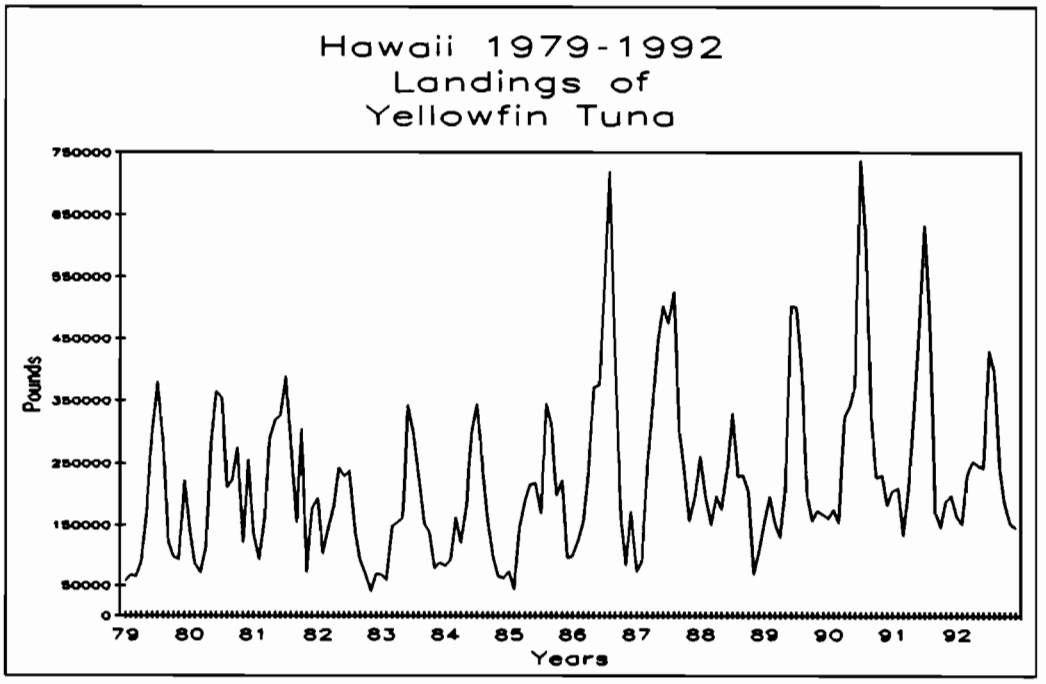

Figure V.4.11

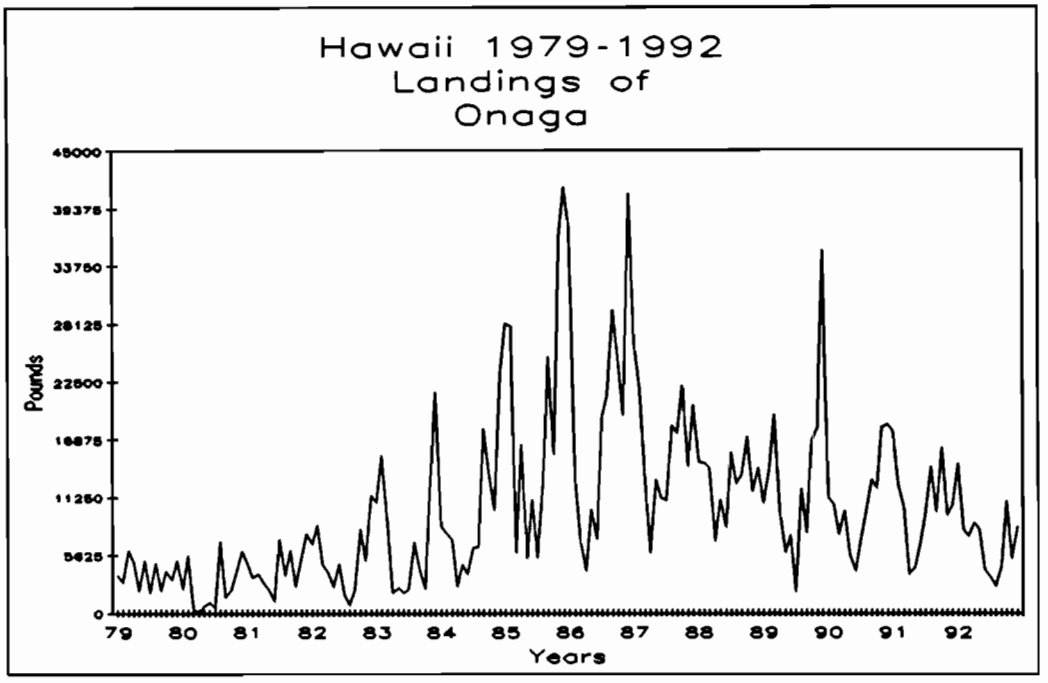

Figure V.4.12

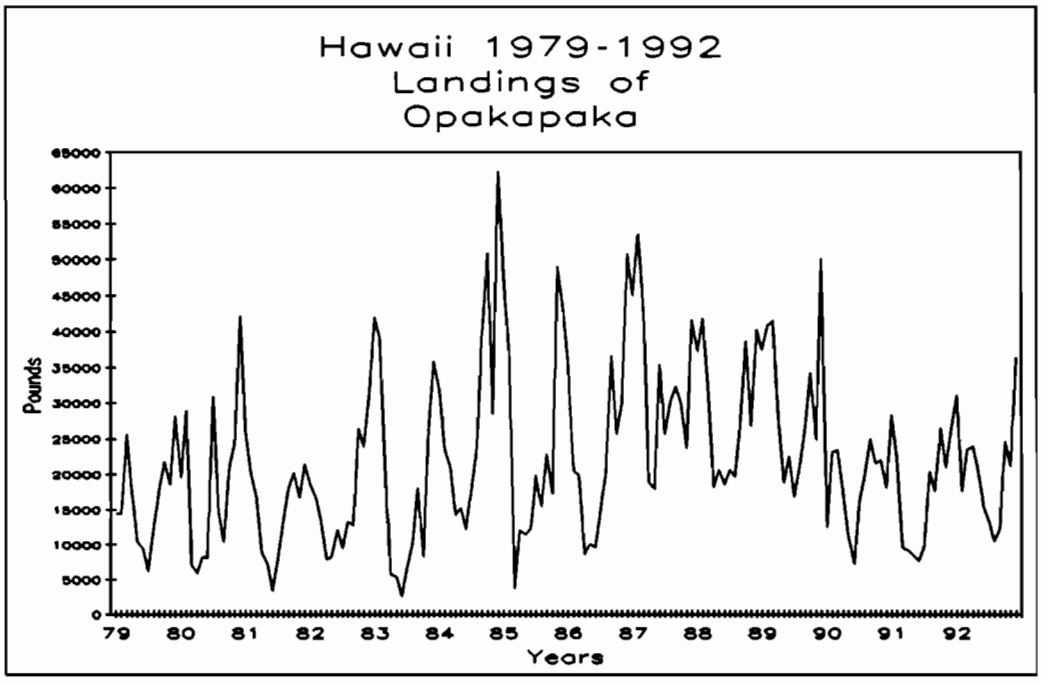

Figure V.4.13

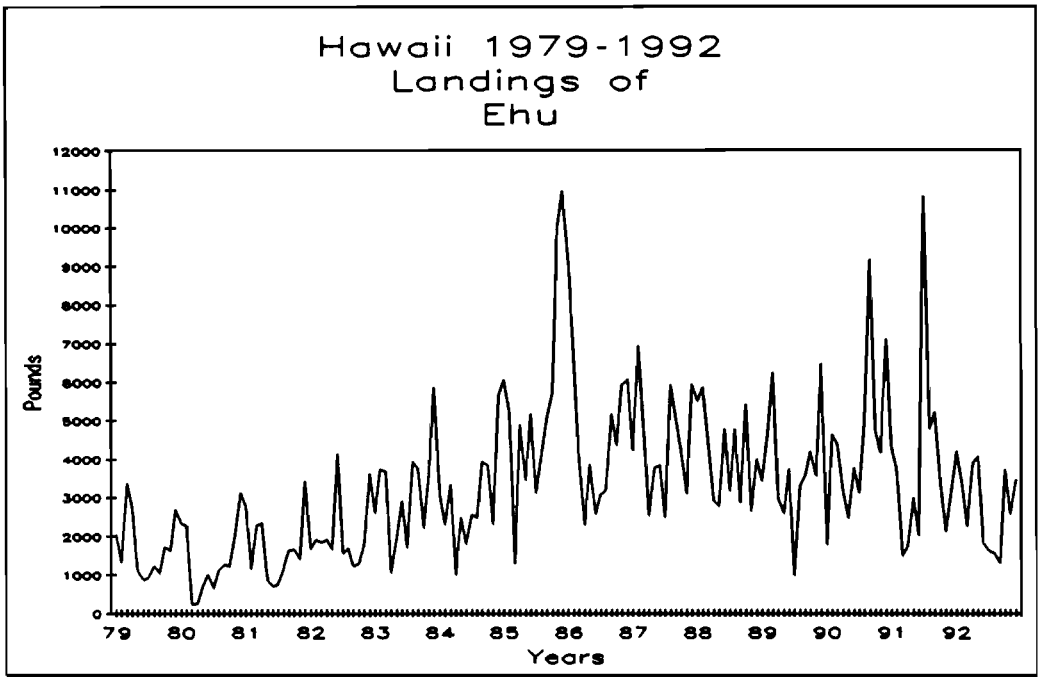

Figure V.4.14