Southwest Fisheries Science Center
Administrative Report H-98-04

FISHERY STATISTICS OF THE WESTERN PACIFIC

VOLUME XIII

Territory of American Samoa (1996)

Commonwealth of the Northern Mariana Islands (1996)

Territory of Guam (1996)

State of Hawaii (1996)

Compiled By

David C. Hamm, Nathan T. S. Chan,
and Michael M. C. Quach

Honolulu Laboratory
Southwest Fisheries Science Center
National Marine Fisheries Service, NOAA
2570 Dole Street, Honolulu, Hawaii 96822-2396

April 1998

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 Science Center and its Honolulu Laboratory, and the Southwest Region and its Pacific Area 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 thirteenth volume in the series "Fishery Statistics of the Western Pacific" and contains 1996 summaries of commercial landings and 1996 creel survey landings data for American Samoa, and 1996 commercial landings data for the Commonwealth of the Northern Mariana Islands, Guam, and Hawaii. As with previous volumes, this volume is divided into sections, one each for the major island areas.

CONTENTS

LIST OF AMERICAN SAMOA SUMMARY TABLES

LIST OF AMERICAN SAMOA SUMMARY TABLES (cont.)

LIST OF AMERICAN SAMOA SUMMARY TABLES (cont.)

LIST OF CNMI SUMMARY TABLES

LIST OF GUAM SUMMARY TABLES

LIST OF GUAM SUMMARY TABLES (cont.)

LIST OF HAWAII SUMMARY TABLES

LIST OF AMERICAN SAMOA FIGURES

LIST OF AMERICAN SAMOA FIGURES (cont.)

LIST OF CNMI FIGURES

LIST OF CNMI FIGURES (cont.)

LIST OF GUAM FIGURES

LIST OF GUAM FIGURES (cont.)

LIST OF HAWAII FIGURES

LIST OF HAWAII FIGURES (cont.)

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, previously referenced as 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 Science Center's (SWFSC) 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, DAWR, and DFW were supplied on floppy diskettes in established WPacFIN data base formats, whereas data for Hawaii were provided by HDAR 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 by WPacFIN staff 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 also has 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 improved its procedures for editing, updating, and processing Hawaii's data. The biggest problems still facing HDAR in improving their data systems are reducing delinquency of fishermen reporting and implementing a validation system to ensure that what gets reported by fishermen is accurate. Efforts are currently underway to develop and implement such a system.

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 commercial landings data are based on mandatory monthly reporting by licensed commercial fishermen; CNMI's and Guam's data are based on voluntary reporting of major fish buyers using government-provided "trip-ticket" invoices; 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 and the acronym PPMUS was created to refer to a new group which includes the tunas. However, this report series will continue to treat the tunas as a separate category for graphical purposes and use the PMUS acronym. 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. With the recent growth of longline fisheries in Hawaii and American Samoa, bigeye and albacore tuna have also become more important.

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 1996. 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 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 1996 FISHERY STATISTICS

Compiled by

American Samoa

Department of Marine and Wildlife Resources

and the

Western Pacific Fishery Information Network

April 1998

CONTENTS

LIST OF AMERICAN SAMOA SUMMARY TABLES

LIST OF AMERICAN SAMOA SUMMARY TABLES (cont.)

LIST OF AMERICAN SAMOA SUMMARY TABLES (cont.)

LIST OF AMERICAN SAMOA FIGURES

LIST OF AMERICAN SAMOA FIGURES (cont.)

AMERICAN SAMOA 1996 FISHERY STATISTICS

INTRODUCTION

American Samoa (lat. 14° S, long. 170° W) is composed of the major island of Tutuila, where over 80% of the total population of approximately 47,000 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; the uninhabited Rose Atoll, some 290 km (180 miles) east of Tutuila; and the sparsely populated Swain's Island about 350 km (220 miles) north of Tutuila. The American Samoa Department of Marine and Wildlife Resources (DMWR), formerly the Office of Marine Resources, is located in Pago Pago on Tutuila, and 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. The majority of the fleet is still composed of 28- to 29-foot outboard engine powered catamarans called alias or manta cats, but an increasing number of larger vessels are beginning to be used because of a newly developing longline fishery. This has resulted in a significantly increased catch in certain pelagic species. During 1996, 47 boats were sampled, 38 from Tutuila and 9 from the Manu'a Islands. Traditionally, fishing was mostly done by trolling and bottom fishing methods, but a fishery of domestic longlining from these small alias began during 1995 and became a dominant fishery during 1996. The majority of the catch is sold locally. During 1996, on average, trips on boats from Tutuila had three-man crews, fished 8 hours, and caught a little over 230 pounds of fish, whereas boats from the Manu'as also fished three-man crews, but only fished for 5 hours and caught about 120 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 takes 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 CPUE's 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 monthly mean 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 is being made and by using daily participation counts to estimate effort. Therefore, the new expansion algorithms implemented in 1992 calculate the monthly mean CPUE for each fishing method in the same way the daily measurements were previously calculated (the sum of the catch divided by the sum of the effort); however they also use all the 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 database 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 1996 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 of 1976 was amended in 1992 to include tunas in the PMUS (PPMUS), this report series will continue to tunas as a separate category from the PPMUS. The PMUS category includes:

Mahimahi (dolphin)
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

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

Snappers (unclassified)
Bluelined snapper
Gray jobfish (uku)
Deepwater bottom fish (unclassified)
Yellow opakapaka
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
- 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)

C. Reef Fish (cont.)
   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.

Table II.1.1

American Samoa 1996 Estimated Commercial Landings

Species	Pounds	Value	$/lb
Jacks	3,118	5,862	1.88
Barracudas	3,997	6,539	1.64
Bottomfish (Assorted)	1,716	3,261	1.90
Groupers (misc)	829	1,564	1.89
Peacock grouper	377	704	1.87
Tomato grouper	258	510	1.98
Blacktip grouper	107	211	1.98
Yellowspot grouper	19	36	1.85
Smalltooth grouper	15	29	1.90
Lunartail grouper	1,374	2,624	1.91
Bottom Handline Snappers	14	21	1.50
Blue lined snapper	3,551	6,671	1.88
Onespot snapper	210	367	1.75
Twinspot/red snapper	98	195	2.00
Humpback snapper	875	1,666	1.90
Gray jobfish	3,472	6,617	1.91
Hawaiian opakapaka	183	329	1.79
Opakapaka	1,197	2,345	1.96
Gindai (flower snap)	461	911	1.98
Lehi (silverjaw)	3,403	6,803	2.00
Onaga (longtail snapper)	3,639	7,583	2.08
Ehu (squirrelfish snap.)	2,761	5,772	2.09
Stone's snapper	232	464	2.00
Emperors (misc)	3,567	6,798	1.91
Longnose emperor	3,149	5,884	1.87
Ambon emperor	866	1,637	1.89
Orangespot emperor	1,340	2,480	1.85
Redgill emperor	1,707	3,159	1.85
Rudderfish	212	212	1.00
Yellowfin surgeonfish	19	35	1.89
Squirrelfish	719	1,331	1.85
Wrasse	51	97	1.89
Mahimahi (dolphin)	11,498	22,812	1.98
Swordfish	1,332	2,664	2.00
Blue marlin	30,041	33,955	1.13
Sailfish	4,251	4,251	1.00
Rainbow runner	1,218	1,388	1.14
Wahoo	10,858	11,209	1.03
Skipjack tuna	68,457	68,457	1.00
Dogtooth tuna	5,932	11,092	1.87
Albacore	232,461	257,435	1.11
Yellowfin tuna	91,245	179,305	1.97
Bigeye tuna	10,005	20,009	2.00
Kawakawa	76	56	0.73
** TOTAL **	510,908	695,352	1.36

Table II.1.2

American Samoa January 1996 Estimated Commercial Landings

Species	Pounds	Value	$/lb
Jacks (misc)	376	707	1.88
Black jack	224	426	1.90
Trevally	75	144	1.93
Barracudas	589	1,072	1.82
Peacock grouper	144	266	1.85
Yellowspot grouper	19	36	1.85
Lunartail grouper	214	401	1.87
Blue lined snapper	115	218	1.89
Humpback snapper	43	81	1.90
Gray jobfish	1,019	1,936	1.90
Gindai (flower snap)	27	51	1.90
Lehi (silverjaw)	107	203	1.90
Onaga (longtail snapper)	347	693	2.00
Ehu (squirrelfish snap.)	764	1,704	2.23
Emperors (misc)	805	1,537	1.91
Longnose emperor	680	1,279	1.88
Orangespot emperor	19	36	1.85
Redgill emperor	645	1,193	1.85
Squirrelfish	173	317	1.83
Wrasse	51	97	1.89
Mahimahi (dolphin)	650	1,299	2.00
Blue marlin	2,455	2,700	1.10
Sailfish	343	343	1.00
Rainbow runner	236	236	1.00
Wahoo	1,068	1,072	1.00
Skipjack tuna	16,901	16,901	1.00
Dogtooth tuna	113	216	1.90
Albacore	36,819	36,819	1.00
Yellowfin tuna	8,305	16,436	1.98
Bigeye tuna	4,273	8,546	2.00
** SUBTOTAL **	77,598	96,962	1.25

Table II.1.3

American Samoa February 1996 Estimated Commercial Landings

Species	Pounds	Value	$/lb
Jacks (misc)	80	152	1.90
Black jack	175	309	1.76
Barracudas	38	72	1.90
Groupers (misc)	65	124	1.89
Peacock grouper	11	22	2.00
Tomato grouper	65	124	1.90
Blacktip grouper	38	72	1.90
Lunartail grouper	43	86	1.99
Blue lined snapper	105	199	1.90
Humpback snapper	29	55	1.90
Gray jobfish	182	340	1.87
Gindai (flower snap)	71	124	1.75
Lehi (silverjaw)	35	61	1.75
Onaga (longtail snapper)	411	850	2.07
Ehu (squirrelfish snap.)	342	715	2.09
Emperors (misc)	204	390	1.91
Redgill emperor	329	608	1.85
Rudderfish	212	212	1.00
Mahimahi (dolphin)	107	214	2.00
Blue marlin	5,205	5,726	1.10
Sailfish	404	404	1.00
Rainbow runner	367	433	1.18
Wahoo	9	11	1.25
Skipjack tuna	8,320	8,320	1.00
Dogtooth tuna	10	15	1.47
Albacore	13,801	15,938	1.15
Yellowfin tuna	3,183	6,228	1.96
** SUBTOTAL **	33,843	41,804	1.24

Table II.1.4

American Samoa March 1996 Estimated Commercial Landings

Species	Pounds	Value	$/lb
Jacks (misc)	30	56	1.88
Barracudas	225	380	1.69
Groupers (misc)	68	128	1.89
Lunartail grouper	57	107	1.87
Blue lined snapper	254	483	1.90
Humpback snapper	96	183	1.90
Gray jobfish	395	751	1.90
Opakapaka	9	17	2.00
Lehi (silverjaw)	680	1,360	2.00
Onaga (longtail snapper)	184	400	2.17
Emperors (misc)	165	313	1.90
Longnose emperor	348	662	1.90
Redgill emperor	270	514	1.90
Yellowfin surgeonfish	19	35	1.89
Mahimahi (dolphin)	472	945	2.00
Blue marlin	4,060	4,466	1.10
Rainbow runner	195	281	1.44
Wahoo	9	11	1.25
Skipjack tuna	5,292	5,292	1.00
Dogtooth tuna	164	311	1.90
Albacore	7,537	8,713	1.16
Yellowfin tuna	7,854	15,136	1.93
** SUBTOTAL **	28,383	40,542	1.43

Table II.1.5

American Samoa April 1996 Estimated Commercial Landings

Species	Pounds	Value	$/lb
Barracudas	343	470	1.37
Bottomfish (Assorted)	1,495	2,840	1.90
Lunartail grouper	26	49	1.87
Blue lined snapper	91	172	1.89
Gray jobfish	134	255	1.90
Longnose emperor	65	122	1.88
Mahimahi (dolphin)	154	308	2.00
Blue marlin	930	1,023	1.10
Sailfish	476	476	1.00
Wahoo	1,488	1,489	1.00
Skipjack tuna	1,223	1,223	1.00
Dogtooth tuna	24	45	1.90
Albacore	3,749	4,094	1.09
Yellowfin tuna	4,265	8,424	1.98
** SUBTOTAL **	14,462	20,991	1.45

Table II.1.6

American Samoa May 1996 Estimated Commercial Landings

Species	Pounds	Value	$/lb
Jacks (misc)	273	513	1.88
Black jack	84	157	1.87
Barracudas	232	422	1.82
Bottomfish (Assorted)	136	259	1.90
Groupers (misc)	51	97	1.89
Peacock grouper	116	215	1.85
Tomato grouper	11	22	1.98
Lunartail grouper	234	442	1.89
Blue lined snapper	365	690	1.89
Onespot snapper	61	107	1.75
Humpback snapper	426	810	1.90
Gray jobfish	520	989	1.90
Gindai (flower snap)	26	51	1.97
Lehi (silverjaw)	130	259	2.00
Onaga (longtail snapper)	151	307	2.03
Ehu (squirrelfish snap.)	178	361	2.03
Stone's snapper	9	18	2.00
Emperors (misc)	934	1,785	1.91
Longnose emperor	563	1,058	1.88
Ambon emperor	682	1,289	1.89
Squirrelfish	75	137	1.83
Mahimahi (dolphin)	1,520	3,039	2.00
Blue marlin	3,181	3,499	1.10
Sailfish	546	546	1.00
Rainbow runner	171	171	1.00
Wahoo	16	20	1.25
Skipjack tuna	7,453	7,453	1.00
Albacore	2,755	3,472	1.26
Yellowfin tuna	14,268	28,440	1.99
Bigeye tuna	382	764	2.00
** SUBTOTAL **	35,548	57,389	1.61

Table II.1.7

American Samoa June 1996 Estimated Commercial Landings

Species	Pounds	Value	$/lb
Black jack	60	90	1.50
Trevally	71	137	1.93
Barracudas	313	508	1.62
Bottomfish (Assorted)	85	161	1.90
Groupers (misc)	38	73	1.92
Tomato grouper	4	8	1.98
Blacktip grouper	15	29	1.95
Lunartail grouper	80	156	1.94
Blue lined snapper	304	579	1.91
Humpback snapper	68	129	1.90
Gray jobfish	209	400	1.91
Opakapaka	20	30	1.50
Gindai (flower snap)	35	69	1.97
Onaga (longtail snapper)	119	242	2.03
Ehu (squirrelfish snap.)	126	256	2.03
Stone's snapper	55	110	2.00
Emperors (misc)	196	373	1.91
Mahimahi (dolphin)	554	1,108	2.00
Blue marlin	2,997	3,297	1.10
Sailfish	937	937	1.00
Rainbow runner	83	94	1.14
Wahoo	393	396	1.01
Skipjack tuna	4,982	4,982	1.00
Dogtooth tuna	34	60	1.75
Albacore	957	957	1.00
Yellowfin tuna	11,188	22,242	1.99
Bigeye tuna	626	1,252	2.00
** SUBTOTAL **	24,549	38,675	1.58

Table II.1.8

American Samoa July 1996 Estimated Commercial Landings

Species	Pounds	Value	$/lb
Black jack	96	189	1.96
Barracudas	517	789	1.53
Groupers (misc)	143	272	1.90
Tomato grouper	16	32	2.00
Lunartail grouper	60	116	1.95
Blue lined snapper	143	272	1.90
Onespot snapper	133	233	1.75
Humpback snapper	153	291	1.90
Gray jobfish	206	392	1.91
Gindai (flower snap)	37	74	2.00
Lehi (silverjaw)	263	527	2.00
Onaga (longtail snapper)	231	475	2.05
Ehu (squirrelfish snap.)	138	276	2.00
Stone's snapper	25	50	2.00
Emperors (misc)	503	956	1.90
Longnose emperor	59	111	1.88
Orangespot emperor	39	73	1.85
Redgill emperor	79	146	1.85
Squirrelfish	20	36	1.83
Mahimahi (dolphin)	2,433	4,769	1.96
Blue marlin	1,230	1,353	1.10
Sailfish	566	566	1.00
Wahoo	997	1,007	1.01
Skipjack tuna	2,817	2,817	1.00
Dogtooth tuna	75	129	1.72
Albacore	11,529	11,529	1.00
Yellowfin tuna	8,119	15,988	1.97
Bigeye tuna	2,214	4,427	2.00
** SUBTOTAL **	32,842	47,895	1.46

Table II.1.9

American Samoa August 1996 Estimated Commercial Landings

Species	Pounds	Value	$/lb
Jacks (misc)	30	57	1.90
Black jack	52	104	2.00
Barracudas	156	195	1.25
Peacock grouper	9	18	2.00
Tomato grouper	35	67	1.91
Blacktip grouper	20	38	1.90
Smalltooth grouper	15	29	1.90
Lunartail grouper	64	122	1.91
Blue lined snapper	60	114	1.90
Gray jobfish	92	163	1.77
Hawaiian opakapaka	40	60	1.50
Opakapaka	30	45	1.50
Gindai (flower snap)	28	56	2.00
Lehi (silverjaw)	9	18	2.00
Onaga (longtail snapper)	123	246	2.00
Ehu (squirrelfish snap.)	145	290	2.00
Stone's snapper	19	38	2.00
Emperors (misc)	30	57	1.90
Mahimahi (dolphin)	1,043	1,999	1.92
Blue marlin	823	1,606	1.95
Rainbow runner	15	19	1.25
Wahoo	339	432	1.27
Skipjack tuna	3,298	3,298	1.00
Dogtooth tuna	200	250	1.25
Albacore	4,182	4,182	1.00
Yellowfin tuna	3,082	5,333	1.73
Bigeye tuna	1,489	2,978	2.00
Kawakawa	5	4	0.73
** SUBTOTAL **	15,433	21,815	1.41

Table II.1.10

American Samoa September 1996 Estimated Commercial Landings

Species	Pounds	Value	$/lb
Jacks (misc)	84	164	1.95
Black jack	173	283	1.63
Barracudas	213	348	1.63
Groupers (misc)	24	47	1.95
Tomato grouper	33	64	1.96
Blacktip grouper	6	12	2.00
Lunartail grouper	72	142	1.96
Blue lined snapper	48	94	1.95
Gray jobfish	55	108	1.95
Hawaiian opakapaka	36	54	1.50
Opakapaka	414	804	1.94
Gindai (flower snap)	57	113	2.00
Lehi (silverjaw)	78	157	2.00
Onaga (longtail snapper)	237	475	2.00
Ehu (squirrelfish snap.)	171	342	2.00
Emperors (misc)	36	70	1.95
Mahimahi (dolphin)	599	1,199	2.00
Blue marlin	4,081	4,489	1.10
Rainbow runner	12	15	1.25
Wahoo	531	571	1.08
Skipjack tuna	3,196	3,196	1.00
Dogtooth tuna	121	225	1.86
Albacore	21,420	21,420	1.00
Yellowfin tuna	5,967	11,726	1.97
Bigeye tuna	311	621	2.00
** SUBTOTAL **	37,977	46,740	1.23

Table II.1.11

American Samoa October 1996 Estimated Commercial Landings

Species	Pounds	Value	$/lb
Jacks (misc)	291	547	1.88
Black jack	148	327	2.21
Barracudas	370	614	1.66
Groupers (misc)	147	279	1.89
Peacock grouper	85	160	1.87
Tomato grouper	39	84	2.16
Blacktip grouper	28	60	2.14
Lunartail grouper	409	782	1.91
Blue lined snapper	217	412	1.90
Onespot snapper	15	27	1.75
Twinspot/red snapper	23	45	2.00
Humpback snapper	24	47	1.92
Gray jobfish	417	816	1.96
Hawaiian opakapaka	72	143	2.00
Opakapaka	59	119	2.00
Gindai (flower snap)	68	147	2.16
Lehi (silverjaw)	253	522	2.07
Onaga (longtail snapper)	287	614	2.14
Ehu (squirrelfish snap.)	333	703	2.11
Emperors (misc)	238	455	1.91
Longnose emperor	16	31	1.88
Ambon emperor	184	348	1.89
Redgill emperor	115	212	1.85
Squirrelfish	59	110	1.86
Saber squirrelfish	8	16	2.00
Bigeye squirrelfish	3	6	2.00
Mahimahi (dolphin)	2,261	4,522	2.00
Blue marlin	2,208	2,639	1.20
Sailfish	130	130	1.00
Rainbow runner	98	98	1.00
Wahoo	768	773	1.01
Skipjack tuna	6,491	6,491	1.00
Dogtooth tuna	72	108	1.50
Albacore	34,020	40,484	1.19
Yellowfin tuna	2,632	5,117	1.94
Kawakawa	71	52	0.73
** SUBTOTAL **	52,662	68,040	1.29

Table II.1.12

American Samoa November 1996 Estimated Commercial Landings

Species	Pounds	Value	$/lb
Jacks (misc)	57	108	1.90
Black jack	92	184	2.00
Amberjack	82	164	2.00
Barracudas	828	1,444	1.74
Groupers (misc)	22	42	1.90
Peacock grouper	12	24	2.00
Tomato grouper	27	54	2.00
Lunartail grouper	66	127	1.94
Blue lined snapper	238	456	1.91
Twinspot/red snapper	53	107	2.00
Humpback snapper	18	34	1.90
Gray jobfish	199	383	1.92
Hawaiian opakapaka	36	71	2.00
Opakapaka	223	446	2.00
Gindai (flower snap)	39	78	2.00
Lehi (silverjaw)	309	617	2.00
Onaga (longtail snapper)	164	328	2.00
Ehu (squirrelfish snap.)	247	494	2.00
Emperors (misc)	425	816	1.92
Redgill emperor	270	486	1.80
Squirrelfish	39	70	1.80
Mahimahi (dolphin)	778	1,556	2.00
Swordfish	1,332	2,664	2.00
Blue marlin	2,871	3,158	1.10
Sailfish	850	850	1.00
Rainbow runner	42	42	1.00
Wahoo	2,016	2,016	1.00
Skipjack tuna	1,843	1,843	1.00
Dogtooth tuna	77	148	1.92
Albacore	47,501	56,817	1.20
Yellowfin tuna	5,782	11,518	1.99
Bigeye tuna	710	1,421	2.00
** SUBTOTAL **	67,247	88,566	1.32

Table II.1.13

American Samoa December 1996 Estimated Commercial Landings

Species	Pounds	Value	$/lb
Jacks (misc)	424	765	1.80
Black jack	140	280	2.00
Barracudas	172	223	1.30
Groupers (misc)	271	504	1.86
Tomato grouper	28	56	2.00
Lunartail grouper	48	96	2.00
Bottom Handline Snappers	14	21	1.50
Blue lined snapper	1,609	2,982	1.85
Twinspot/red snapper	22	43	2.00
Humpback snapper	18	36	2.00
Gray jobfish	44	85	1.94
Opakapaka	442	884	2.00
Gindai (flower snap)	74	148	2.00
Lehi (silverjaw)	1,540	3,080	2.00
Onaga (longtail snapper)	1,385	2,954	2.13
Ehu (squirrelfish snap.)	316	632	2.00
Stone's snapper	124	248	2.00
Emperors (misc)	30	45	1.50
Longnose emperor	1,417	2,621	1.85
Orangespot emperor	1,282	2,371	1.85
Squirrelfish	322	599	1.86
Saber squirrelfish	20	40	2.00
Mahimahi (dolphin)	927	1,855	2.00
Wahoo	3,224	3,412	1.06
Skipjack tuna	6,639	6,639	1.00
Dogtooth tuna	5,042	9,585	1.90
Albacore	48,190	53,009	1.10
Yellowfin tuna	16,600	32,716	1.97
** SUBTOTAL **	90,364	125,930	1.39
** TOTAL **	510,908	695,352	1.36

Table II.2.1

American Samoa 1996 Manu'a Estimated Commercial Landings

Species	Pounds	Value	$/lb
Jacks (misc)	1,324	2,480	1.87
Black jack	276	525	1.90
Trevally	146	281	1.93
Amberjack	82	164	2.00
Barracudas	2,389	4,342	1.82
Bottomfish (Assorted)	1,716	3,261	1.90
Groupers (misc)	746	1,402	1.88
Peacock grouper	331	612	1.85
Yellowspot grouper	19	36	1.85
Lunartail grouper	923	1,725	1.87
Blue lined snapper	3,292	6,169	1.87
Onespot snapper	210	367	1.75
Twinspot/red snapper	98	195	2.00
Humpback snapper	851	1,618	1.90
Gray jobfish	3,006	5,713	1.90
Hawaiian opakapaka	107	214	2.00
Opakapaka	1,099	2,198	2.00
Lehi (silverjaw)	2,804	5,607	2.00
Onaga (longtail snapper)	1,508	3,273	2.17
Ehu (squirrelfish snap.)	681	1,561	2.29
Emperors (misc)	3,440	6,567	1.91
Longnose emperor	3,149	5,884	1.87
Ambon emperor	866	1,637	1.89
Orangespot emperor	1,340	2,480	1.85
Redgill emperor	1,707	3,159	1.85
Yellowfin surgeonfish	19	35	1.89
Squirrelfish	654	1,201	1.84
Wrasse	51	97	1.89
Mahimahi (dolphin)	11,111	22,222	2.00
Swordfish	1,332	2,664	2.00
Blue marlin	29,391	32,330	1.10
Sailfish	4,251	4,251	1.00
Rainbow runner	830	830	1.00
Wahoo	9,830	9,830	1.00
Skipjack tuna	54,302	54,302	1.00
Dogtooth tuna	5,453	10,361	1.90
Albacore	232,461	257,435	1.11
Yellowfin tuna	86,746	173,492	2.00
Bigeye tuna	10,005	20,009	2.00
Kawakawa	71	52	0.73
** TOTAL **	478,618	650,581	1.36

Table II.2.2

American Samoa January 1996 Manu’a Estimated Commercial Landings

Species	Pounds	Value	$/lb
Jacks (misc)	322	606	1.88
Black jack	224	426	1.90
Trevally	75	144	1.93
Barracudas	589	1,072	1.82
Peacock grouper	144	266	1.85
Yellowspot grouper	19	36	1.85
Lunartail grouper	214	401	1.87
Blue lined snapper	115	218	1.89
Humpback snapper	43	81	1.90
Gray jobfish	999	1,898	1.90
Ehu (squirrelfish snap.)	604	1,384	2.29
Emperors (misc)	805	1,537	1.91
Longnose emperor	680	1,279	1.88
Orangespot emperor	19	36	1.85
Redgill emperor	645	1,193	1.85
Squirrelfish	173	317	1.83
Wrasse	51	97	1.89
Mahimahi (dolphin)	650	1,299	2.00
Blue marlin	2,455	2,700	1.10
Sailfish	343	343	1.00
Rainbow runner	236	236	1.00
Wahoo	1,054	1,054	1.00
Skipjack tuna	15,901	15,901	1.00
Dogtooth tuna	113	216	1.90
Albacore	36,819	36,819	1.00
Yellowfin tuna	8,057	16,114	2.00
Bigeye tuna	4,273	8,546	2.00
** SUBTOTAL **	75,622	94,216	1.25

Table II.2.3

American Samoa February 1996 Manu’a Estimated Commercial Landings

Species	Pounds	Value	$/lb
Black jack	12	24	1.90
Groupers (misc)	50	95	1.89
Blue lined snapper	45	85	1.89
Humpback snapper	29	55	1.90
Gray jobfish	112	213	1.90
Onaga (longtail snapper)	167	362	2.17
Ehu (squirrelfish snap.)	77	177	2.29
Emperors (misc)	204	390	1.91
Redgill emperor	329	608	1.85
Mahimahi (dolphin)	107	214	2.00
Blue marlin	5,205	5,726	1.10
Sailfish	404	404	1.00
Rainbow runner	216	216	1.00
Skipjack tuna	7,053	7,053	1.00
Albacore	13,801	15,938	1.15
Yellowfin tuna	2,998	5,997	2.00
** SUBTOTAL **	30,811	37,557	1.22

Table II.2.4

American Samoa March 1996 Manu’a Estimated Commercial Landings

Species	Pounds	Value	$/lb
Jacks (misc)	30	56	1.88
Barracudas	160	291	1.82
Groupers (misc)	68	128	1.89
Lunartail grouper	57	107	1.87
Blue lined snapper	254	483	1.90
Humpback snapper	96	183	1.90
Gray jobfish	395	751	1.90
Opakapaka	9	17	2.00
Lehi (silverjaw)	680	1,360	2.00
Onaga (longtail snapper)	184	400	2.17
Emperors (misc)	165	313	1.90
Longnose emperor	348	662	1.90
Redgill emperor	270	514	1.90
Yellowfin surgeonfish	19	35	1.89
Mahimahi (dolphin)	472	945	2.00
Blue marlin	4,060	4,466	1.10
Skipjack tuna	4,094	4,094	1.00
Dogtooth tuna	164	311	1.90
Albacore	7,537	8,713	1.16
Yellowfin tuna	7,090	14,181	2.00
** SUBTOTAL **	26,152	38,008	1.45

Table II.2.5

American Samoa April 1996 Manu’a Estimated Commercial Landings

Species	Pounds	Value	$/lb
Bottomfish (Assorted)	1,495	2,840	1.90
Lunartail grouper	26	49	1.87
Blue lined snapper	91	172	1.89
Gray jobfish	134	255	1.90
Longnose emperor	65	122	1.88
Mahimahi (dolphin)	154	308	2.00
Blue marlin	930	1,023	1.10
Sailfish	476	476	1.00
Wahoo	1,481	1,481	1.00
Skipjack tuna	225	225	1.00
Dogtooth tuna	24	45	1.90
Albacore	3,749	4,094	1.09
Yellowfin tuna	4,114	8,228	2.00
** SUBTOTAL **	12,963	19,318	1.49

Table II.2.6

American Samoa May 1996 Manu’a Estimated Commercial Landings

Species	Pounds	Value	$/lb
Jacks (misc)	273	513	1.88
Barracudas	232	422	1.82
Bottomfish (Assorted)	136	259	1.90
Groupers (misc)	51	97	1.89
Peacock grouper	116	215	1.85
Lunartail grouper	201	376	1.87
Blue lined snapper	365	690	1.89
Onespot snapper	61	107	1.75
Humpback snapper	426	810	1.90
Gray jobfish	498	946	1.90
Lehi (silverjaw)	96	191	2.00
Emperors (misc)	934	1,785	1.91
Longnose emperor	563	1,058	1.88
Ambon emperor	682	1,289	1.89
Squirrelfish	75	137	1.83
Mahimahi (dolphin)	1,520	3,039	2.00
Blue marlin	3,181	3,499	1.10
Sailfish	546	546	1.00
Rainbow runner	171	171	1.00
Skipjack tuna	6,905	6,905	1.00
Albacore	2,755	3,472	1.26
Yellowfin tuna	14,131	28,262	2.00
Bigeye tuna	382	764	2.00
** SUBTOTAL **	34,299	55,551	1.62

Table II.2.7

American Samoa June 1996 Manu’a Estimated Commercial Landings

Species	Pounds	Value	$/lb
Trevally	71	137	1.93
Barracudas	96	183	1.90
Bottomfish (Assorted)	85	161	1.90
Groupers (misc)	18	34	1.89
Lunartail grouper	13	25	1.87
Blue lined snapper	264	501	1.90
Humpback snapper	68	129	1.90
Gray jobfish	160	304	1.90
Emperors (misc)	166	315	1.90
Mahimahi (dolphin)	554	1,108	2.00
Blue marlin	2,997	3,297	1.10
Sailfish	937	937	1.00
Rainbow runner	68	68	1.00
Wahoo	384	384	1.00
Skipjack tuna	4,100	4,100	1.00
Albacore	957	957	1.00
Yellowfin tuna	11,011	22,021	2.00
Bigeye tuna	626	1,252	2.00
** SUBTOTAL **	22,575	35,914	1.59

Table II.2.8

American Samoa July 1996 Manu’a Estimated Commercial Landings

Species	Pounds	Value	$/lb
Black jack	39	75	1.90
Barracudas	251	457	1.82
Groupers (misc)	143	272	1.90
Lunartail grouper	30	56	1.90
Blue lined snapper	143	272	1.90
Onespot snapper	133	233	1.75
Humpback snapper	153	291	1.90
Gray jobfish	188	356	1.90
Lehi (silverjaw)	207	415	2.00
Onaga (longtail snapper)	74	161	2.17
Emperors (misc)	503	956	1.90
Longnose emperor	59	111	1.88
Orangespot emperor	39	73	1.85
Redgill emperor	79	146	1.85
Squirrelfish	20	36	1.83
Mahimahi (dolphin)	2,303	4,606	2.00
Blue marlin	1,230	1,353	1.10
Sailfish	566	566	1.00
Wahoo	957	957	1.00
Skipjack tuna	2,010	2,010	1.00
Albacore	11,529	11,529	1.00
Yellowfin tuna	7,784	15,569	2.00
Bigeye tuna	2,214	4,427	2.00
** SUBTOTAL **	30,655	44,928	1.47

Table II.2.9

American Samoa August 1996 Manu’a Estimated Commercial Landings

Species	Pounds	Value	$/lb
Mahimahi (dolphin)	786	1,572	2.00
Blue marlin	323	356	1.10
Skipjack tuna	2,199	2,199	1.00
Albacore	4,182	4,182	1.00
Yellowfin tuna	1,974	3,948	2.00
Bigeye tuna	1,489	2,978	2.00
** SUBTOTAL **	10,953	15,234	1.39

Table II.2.10

American Samoa September 1996 Manua Estimated Commercial Landings

Species	Pounds	Value	$/lb
Barracudas	111	202	1.82
Opakapaka	366	731	2.00
Mahimahi (dolphin)	599	1,199	2.00
Blue marlin	4,081	4,489	1.10
Wahoo	369	369	1.00
Skipjack tuna	1,839	1,839	1.00
Dogtooth tuna	110	209	1.90
Albacore	21,420	21,420	1.00
Yellowfin tuna	5,691	11,381	2.00
Bigeye tuna	311	621	2.00
** SUBTOTAL **	34,897	42,462	1.22

Table II.2.11

American Samoa October 1996 Manu’a Estimated Commercial Landings

Species	Pounds	Value	$/lb
Jacks (misc)	291	547	1.88
Barracudas	242	441	1.82
Groupers (misc)	141	267	1.89
Peacock grouper	71	132	1.85
Lunartail grouper	353	661	1.87
Blue lined snapper	206	390	1.89
Onespot snapper	15	27	1.75
Twinspot/red snapper	23	45	2.00
Humpback snapper	18	35	1.90
Gray jobfish	351	667	1.90
Hawaiian opakapaka	72	143	2.00
Opakapaka	59	119	2.00
Lehi (silverjaw)	156	311	2.00
Emperors (misc)	238	455	1.91
Longnose emperor	16	31	1.88
Ambon emperor	184	348	1.89
Redgill emperor	115	212	1.85
Squirrelfish	49	90	1.83
Mahimahi (dolphin)	2,261	4,522	2.00
Blue marlin	2,058	2,264	1.10
Sailfish	130	130	1.00
Rainbow runner	98	98	1.00
Wahoo	750	750	1.00
Skipjack tuna	4,614	4,614	1.00
Albacore	34,020	40,484	1.19
Yellowfin tuna	2,437	4,873	2.00
Kawakawa	71	52	0.73
** SUBTOTAL **	49,042	62,709	1.28

Table II.2.12

American Samoa November 1996 Manu’a Estimated Commercial Landings

Species	Pounds	Value	$/lb
Jacks (misc)	57	108	1.90
Amberjack	82	164	2.00
Barracudas	708	1,274	1.80
Groupers (misc)	22	42	1.90
Lunartail grouper	28	51	1.85
Blue lined snapper	228	436	1.91
Twinspot/red snapper	53	107	2.00
Humpback snapper	18	34	1.90
Gray jobfish	169	323	1.91
Hawaiian opakapaka	36	71	2.00
Opakapaka	223	446	2.00
Lehi (silverjaw)	276	551	2.00
Emperors (misc)	425	816	1.92
Redgill emperor	270	486	1.80
Squirrelfish	39	70	1.80
Mahimahi (dolphin)	778	1,556	2.00
Swordfish	1,332	2,664	2.00
Blue marlin	2,871	3,158	1.10
Sailfish	850	850	1.00
Rainbow runner	42	42	1.00
Wahoo	1,987	1,987	1.00
Skipjack tuna	921	921	1.00
Dogtooth tuna	60	114	1.90
Albacore	47,501	56,817	1.20
Yellowfin tuna	5,505	11,009	2.00
Bigeye tuna	710	1,421	2.00
** SUBTOTAL **	65,190	85,518	1.31

Table II.2.13

American Samoa December 1996 Manu’a Estimated Commercial Landings

Species	Pounds	Value	$/lb
Jacks (misc)	352	651	1.85
Groupers (misc)	253	468	1.85
Blue lined snapper	1,579	2,922	1.85
Twinspot/red snapper	22	43	2.00
Opakapaka	442	884	2.00
Lehi (silverjaw)	1,390	2,780	2.00
Onaga (longtail snapper)	1,083	2,350	2.17
Longnose emperor	1,417	2,621	1.85
Orangespot emperor	1,282	2,371	1.85
Squirrelfish	298	551	1.85
Mahimahi (dolphin)	927	1,855	2.00
Wahoo	2,848	2,848	1.00
Skipjack tuna	4,439	4,439	1.00
Dogtooth tuna	4,982	9,465	1.90
Albacore	48,190	53,009	1.10
Yellowfin tuna	15,954	31,909	2.00
** SUBTOTAL **	85,458	119,167	1.39
** TOTAL **	478,618	650,581	1.36

Figure II.1.1

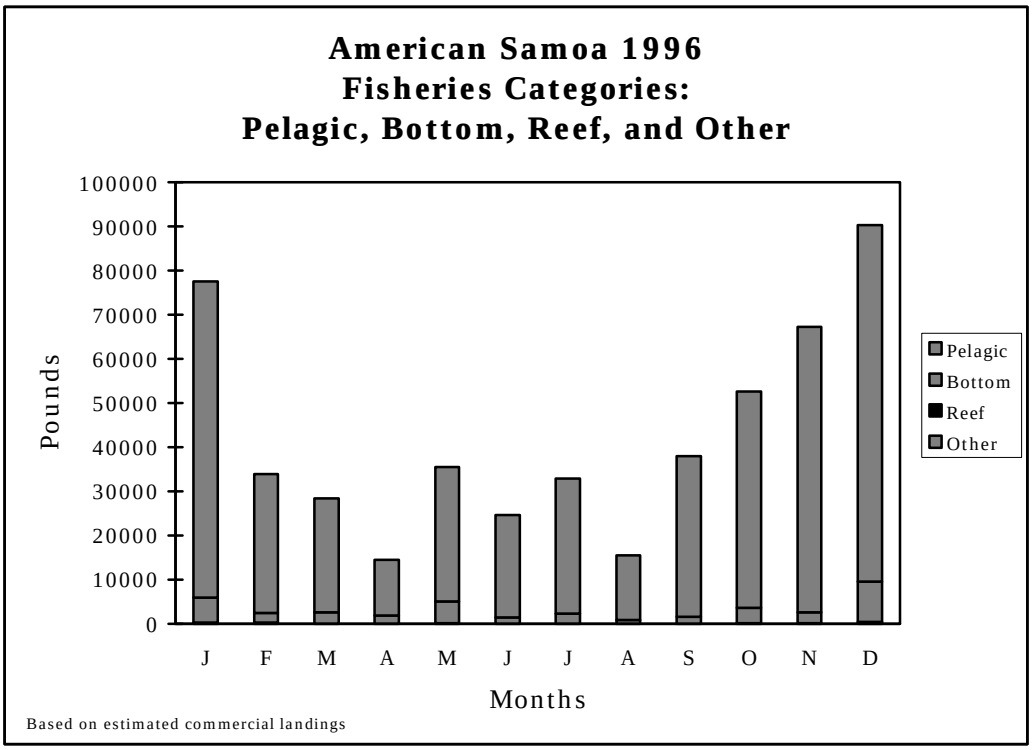


Figure II.1.2

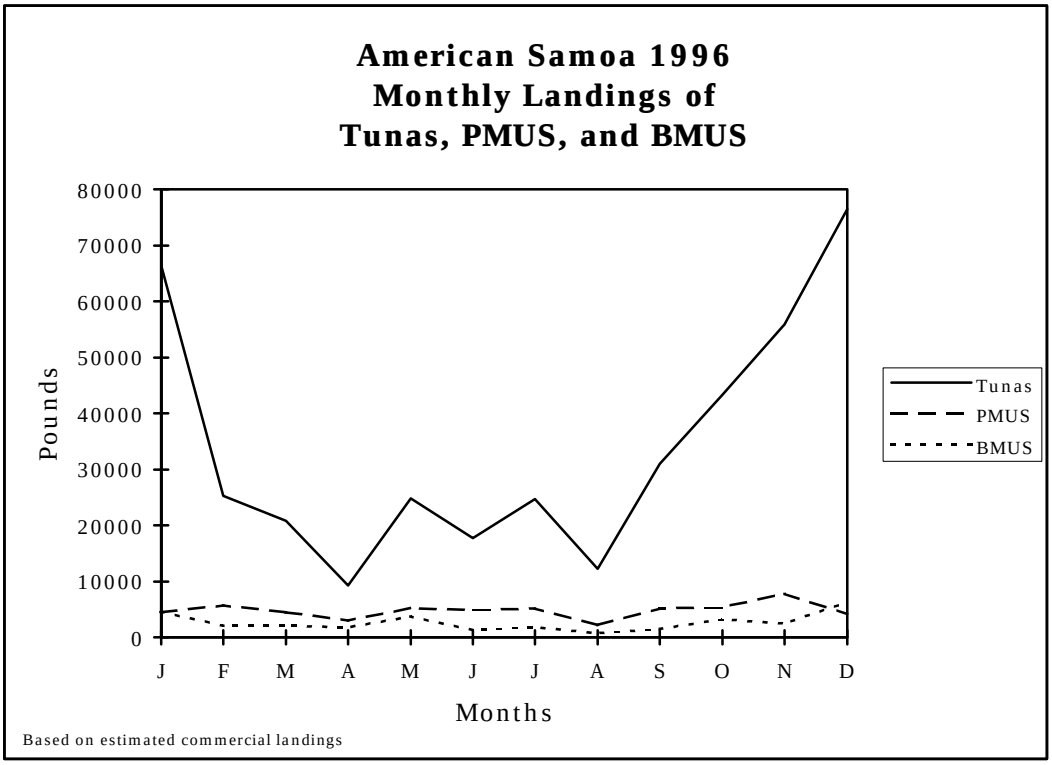


Figure II.1.3

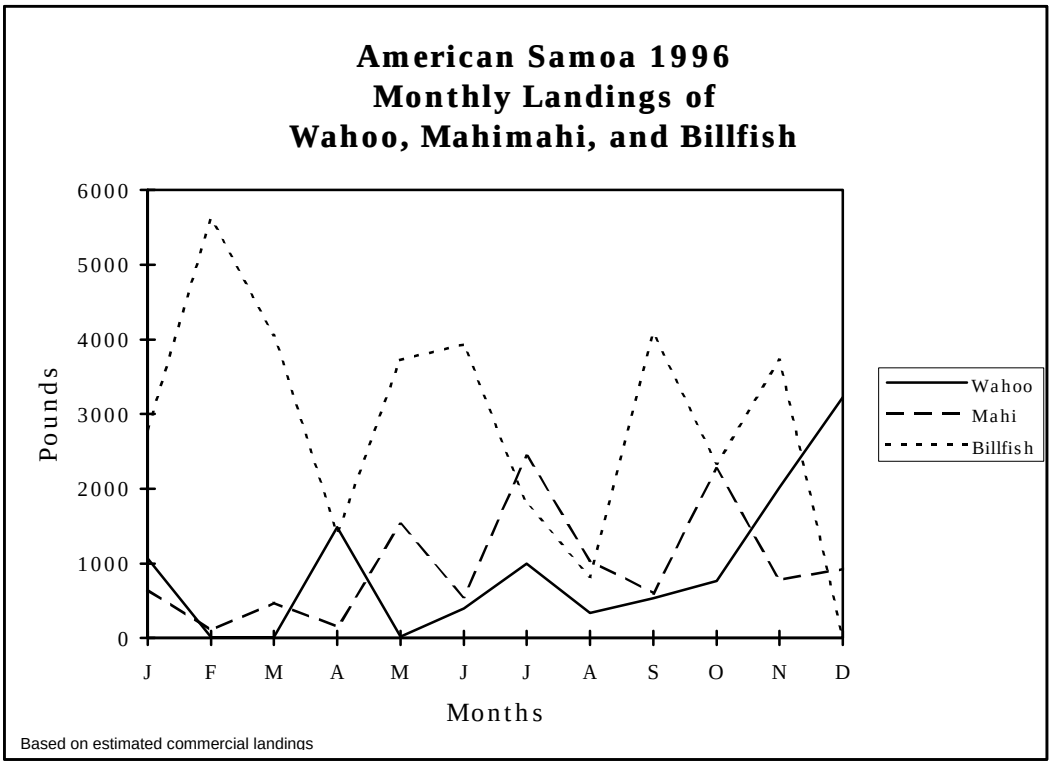


Figure II.1.4

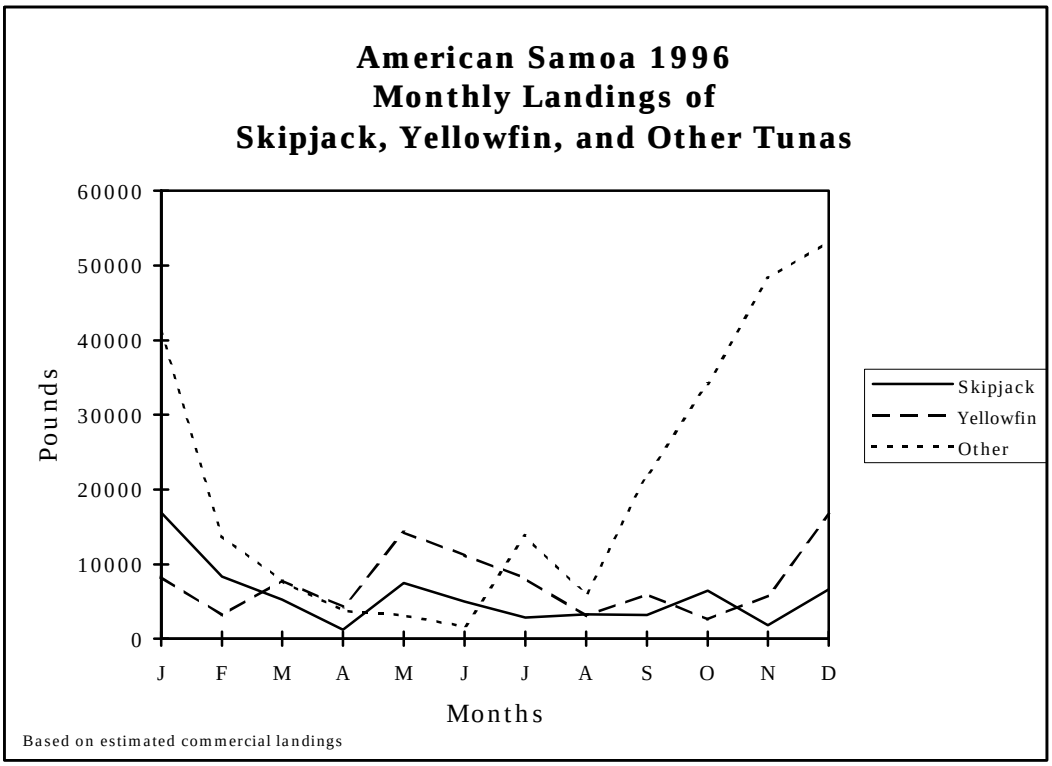


Figure II.2.1

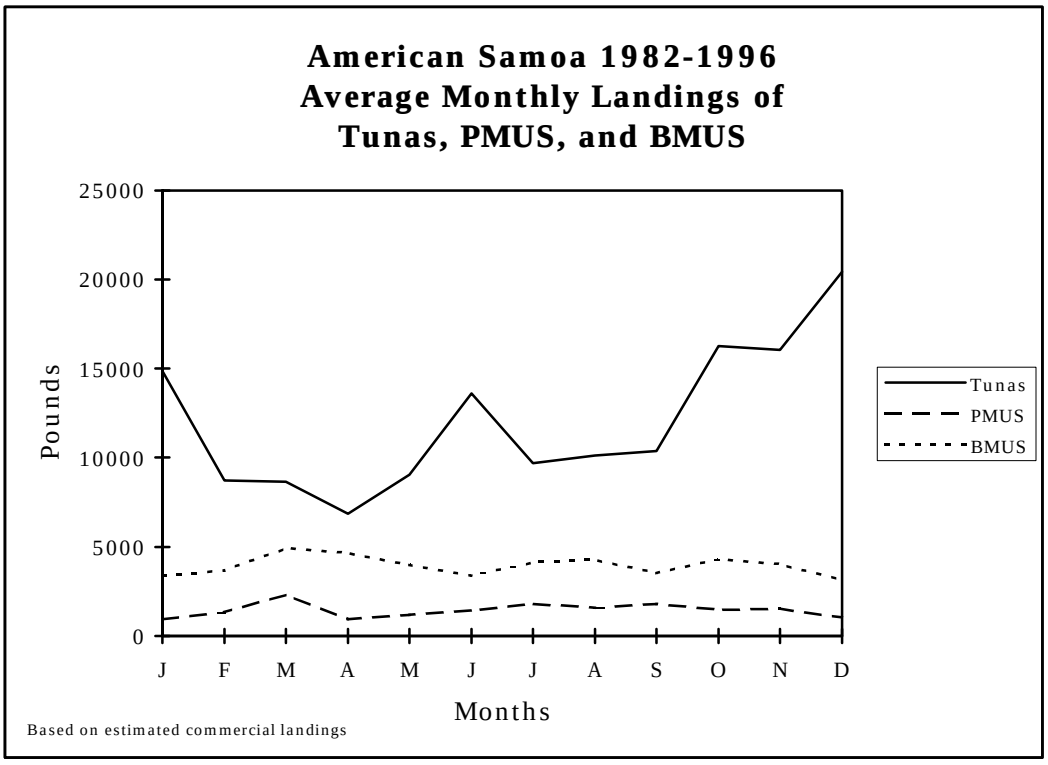


Figure II.2.2

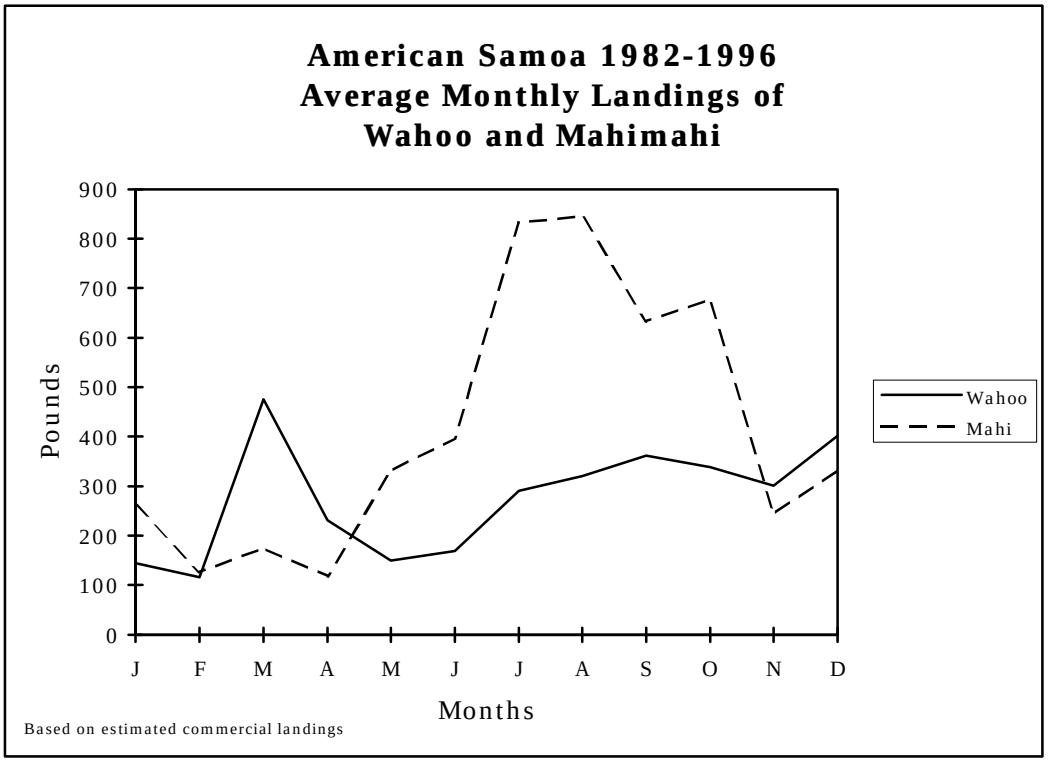


Figure II.2.3

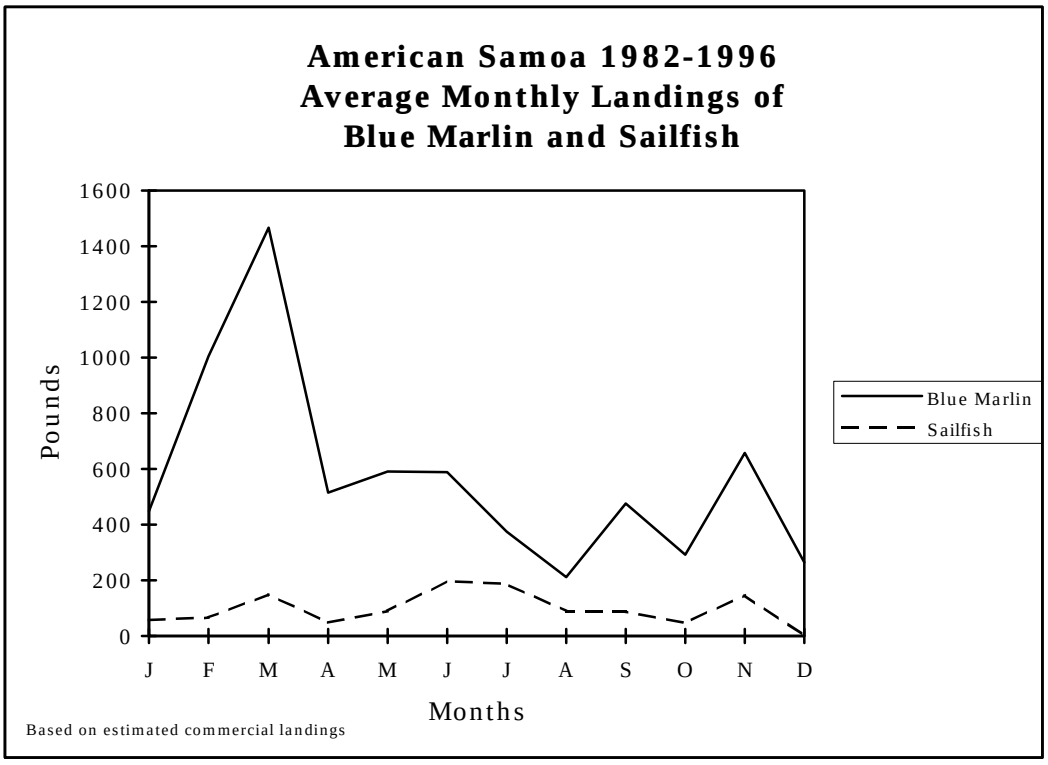


Figure II.2.4

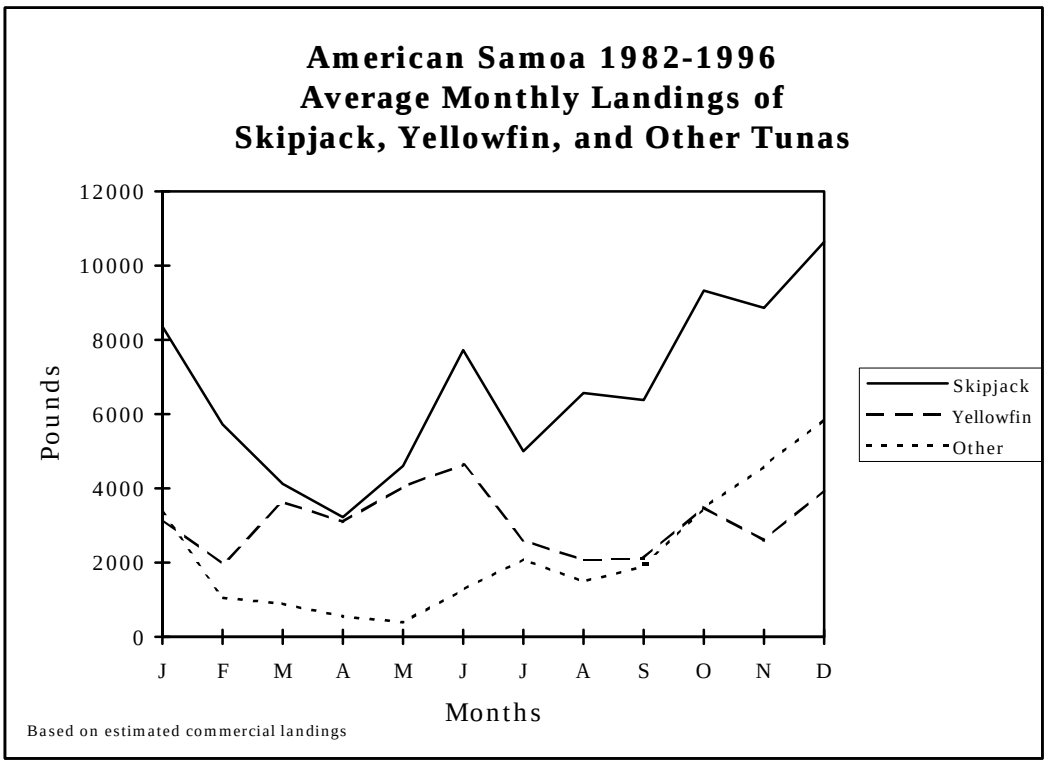


Figure II.2.5

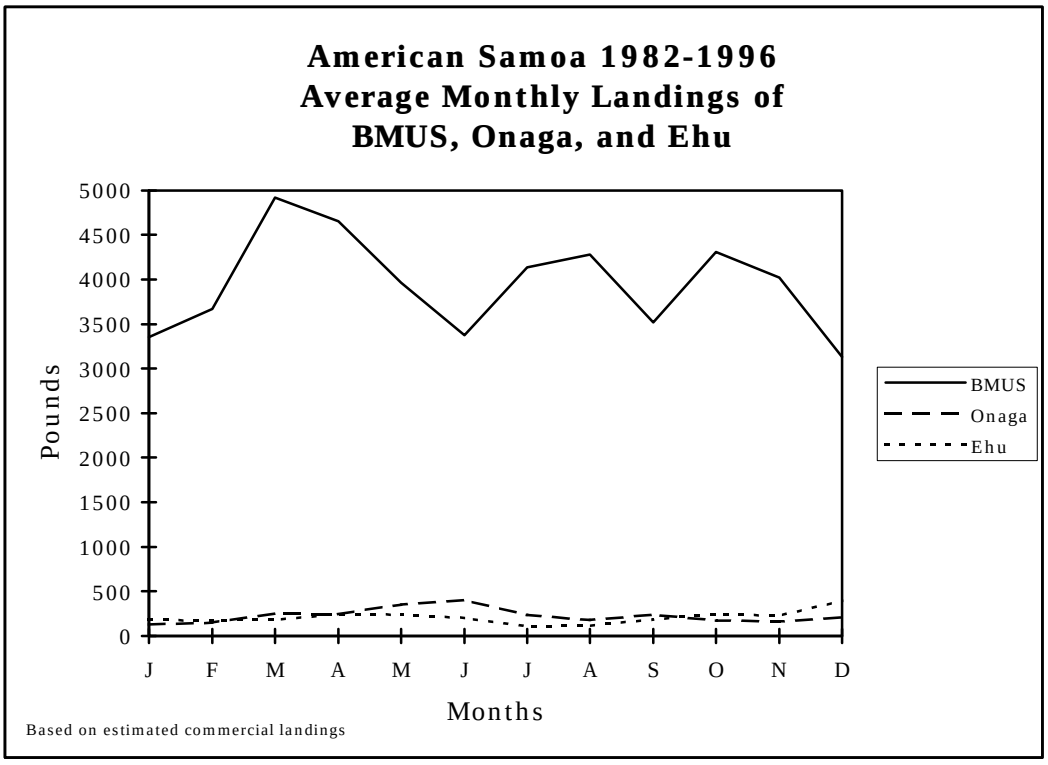


Figure II.3.1

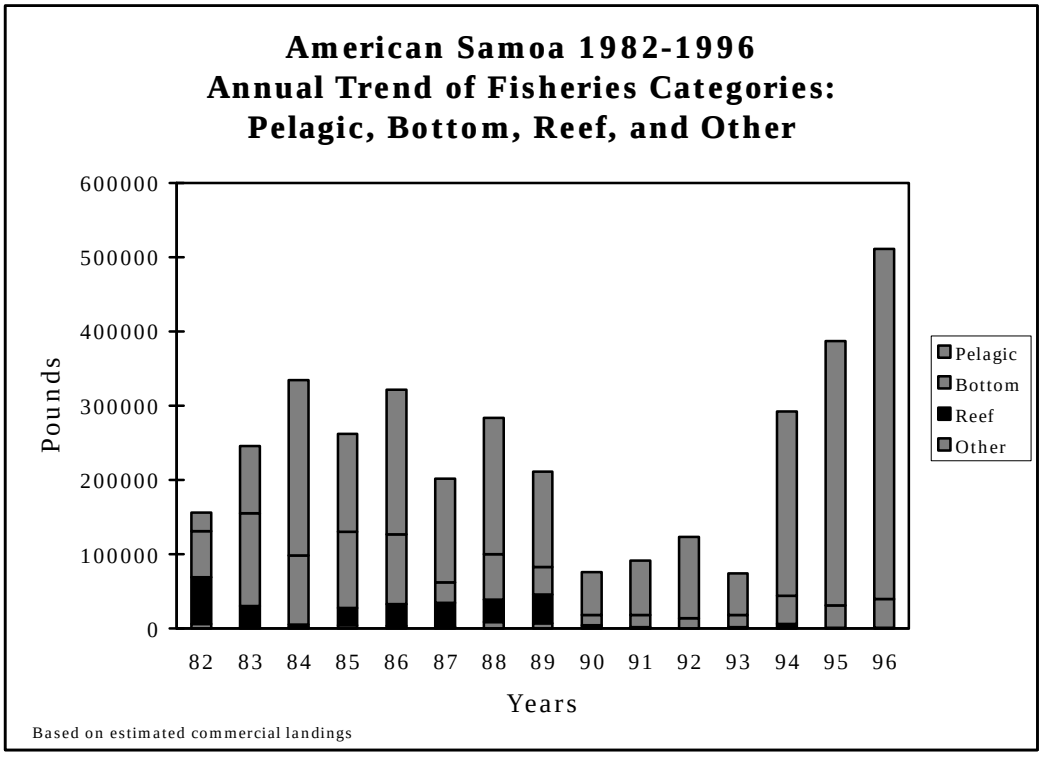


Figure II.3.2

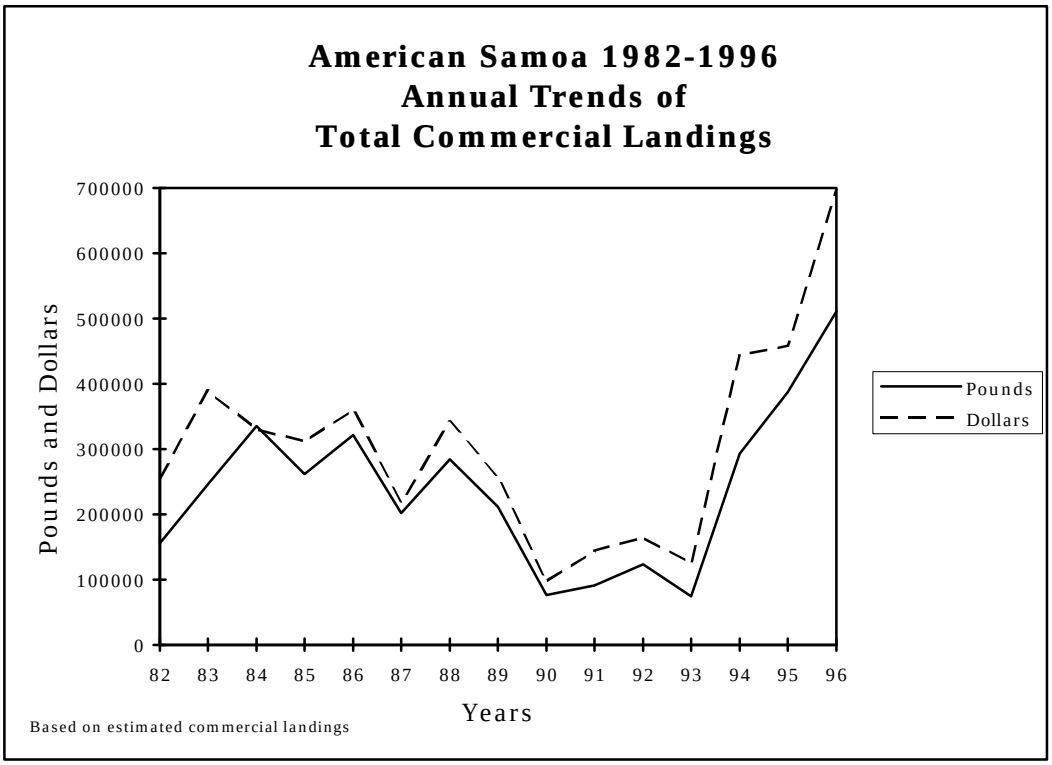


Figure II.3.3

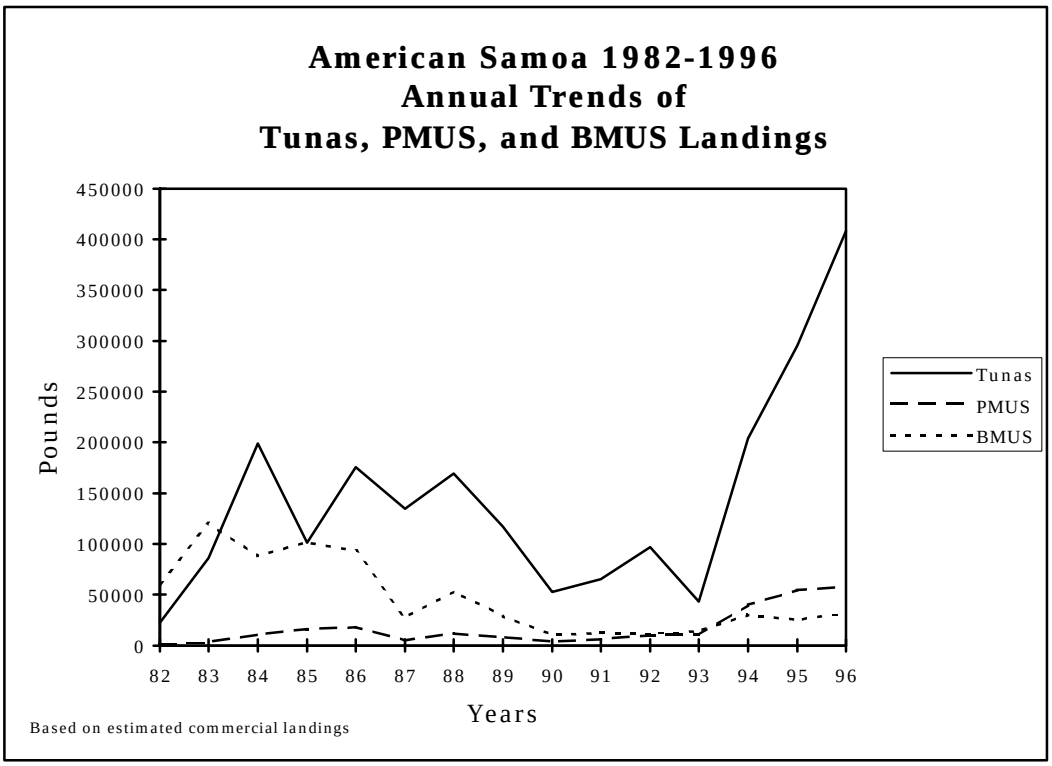


Figure II.3.4

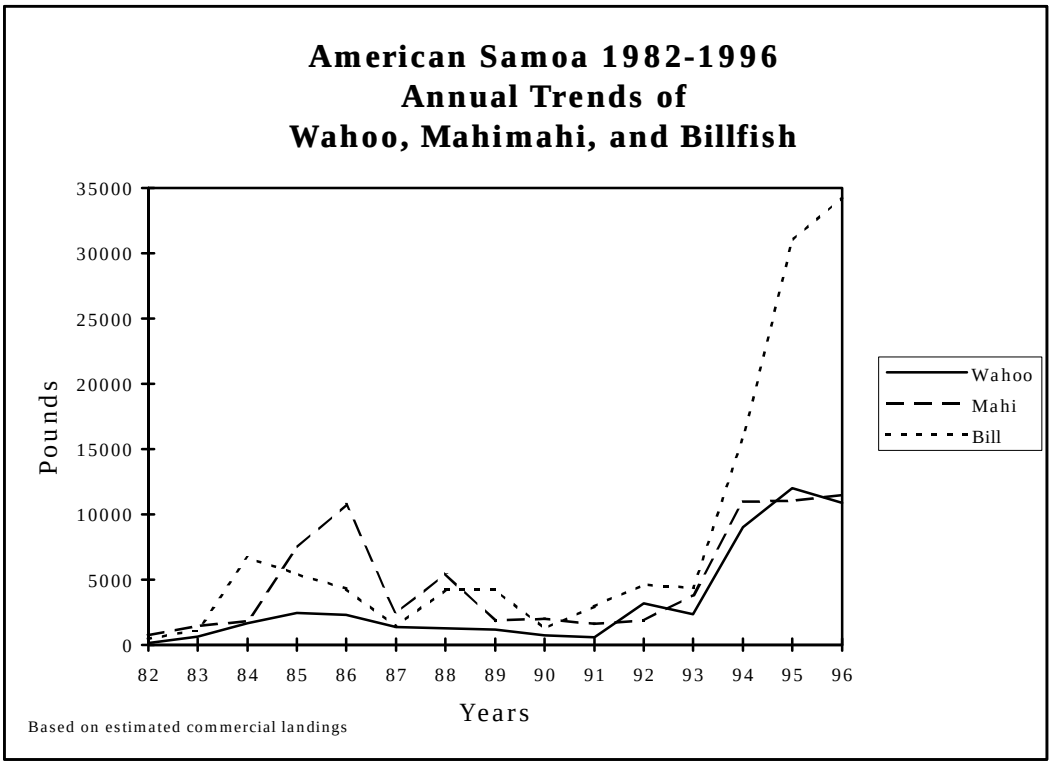


Figure II.3.5

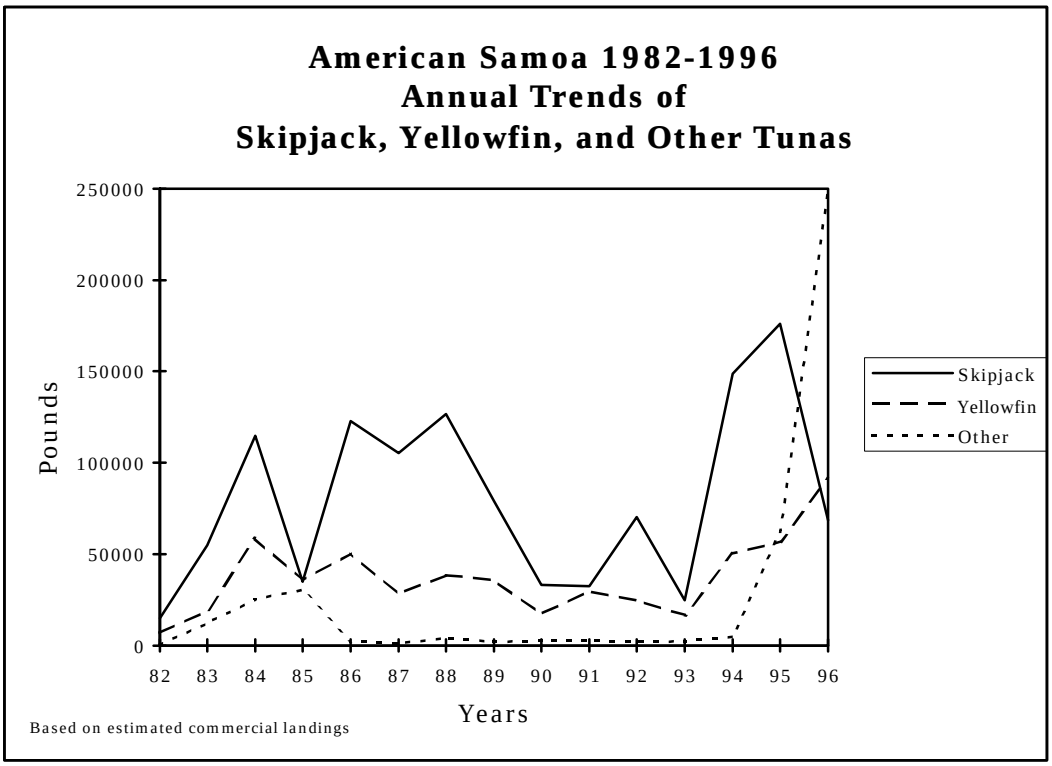


Figure II.4.1

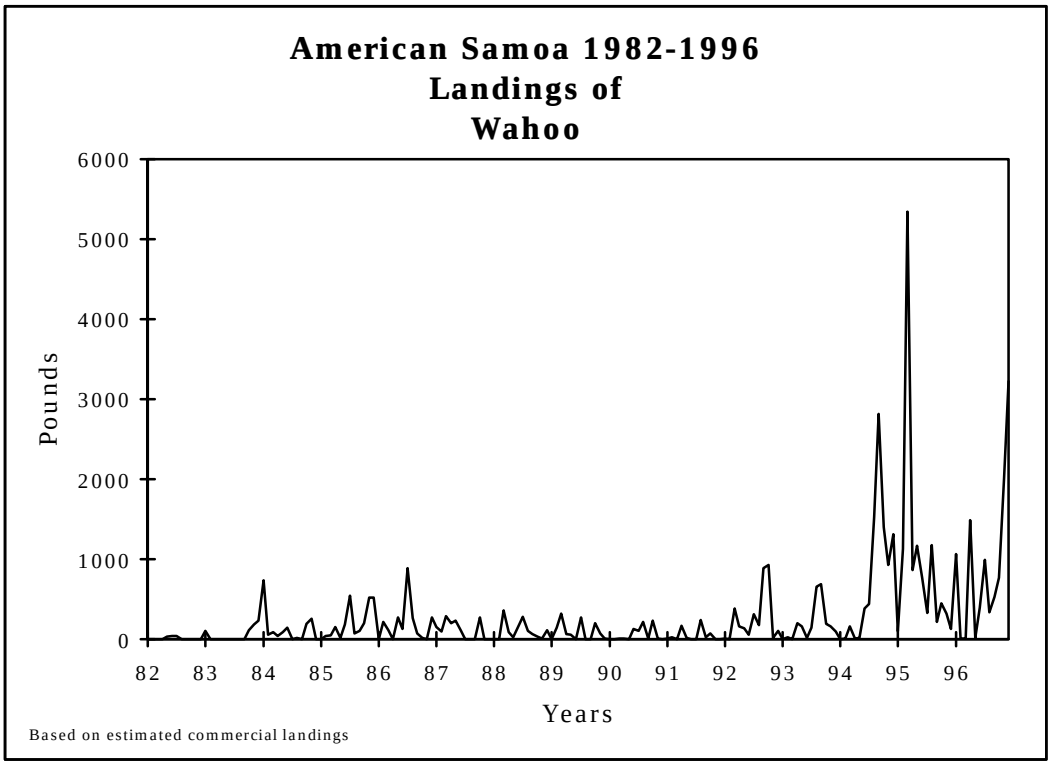


Figure II.4.2

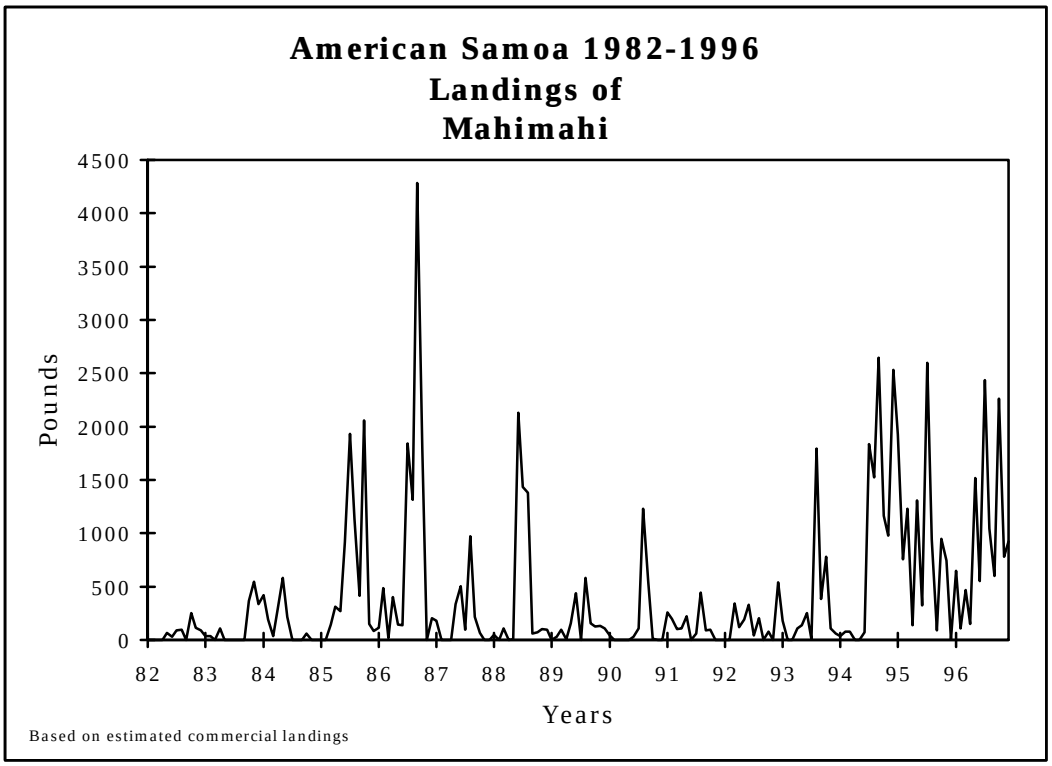


Figure II.4.3

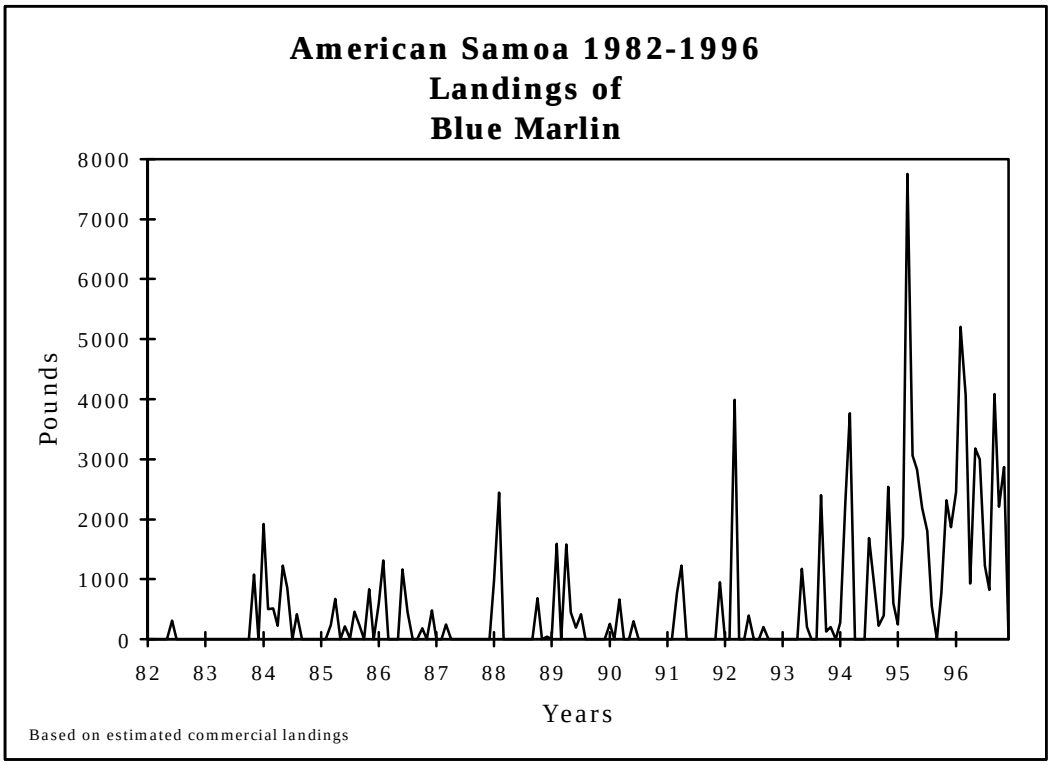


Figure II.4.4

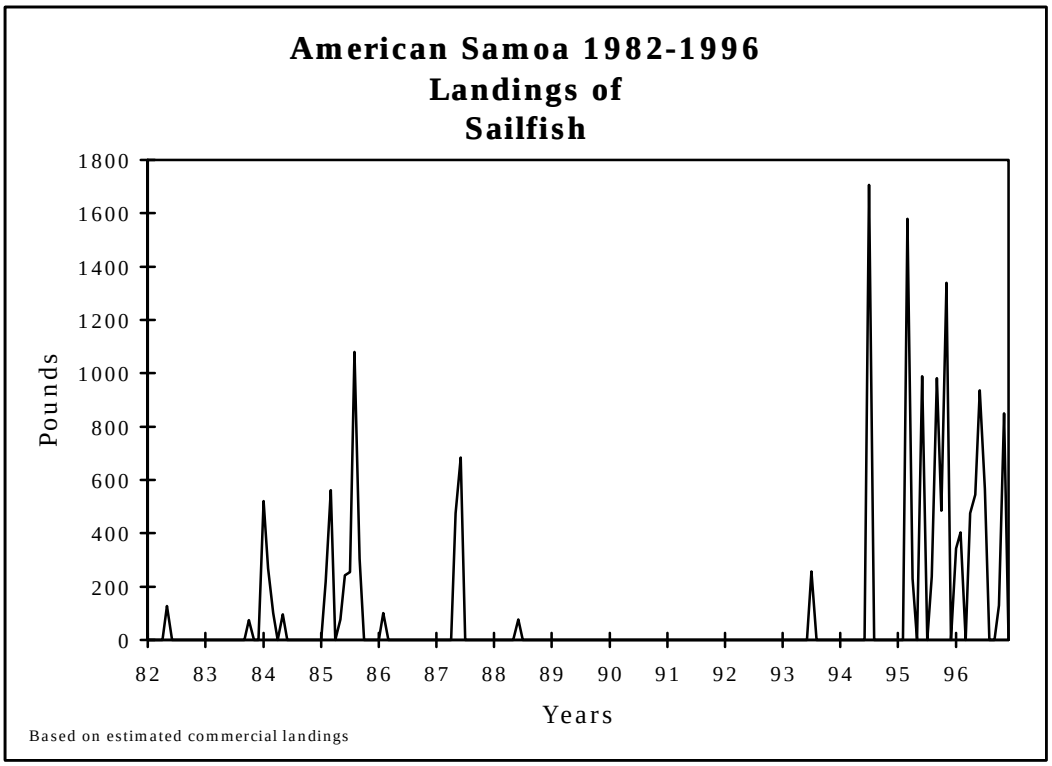


Figure II.4.5

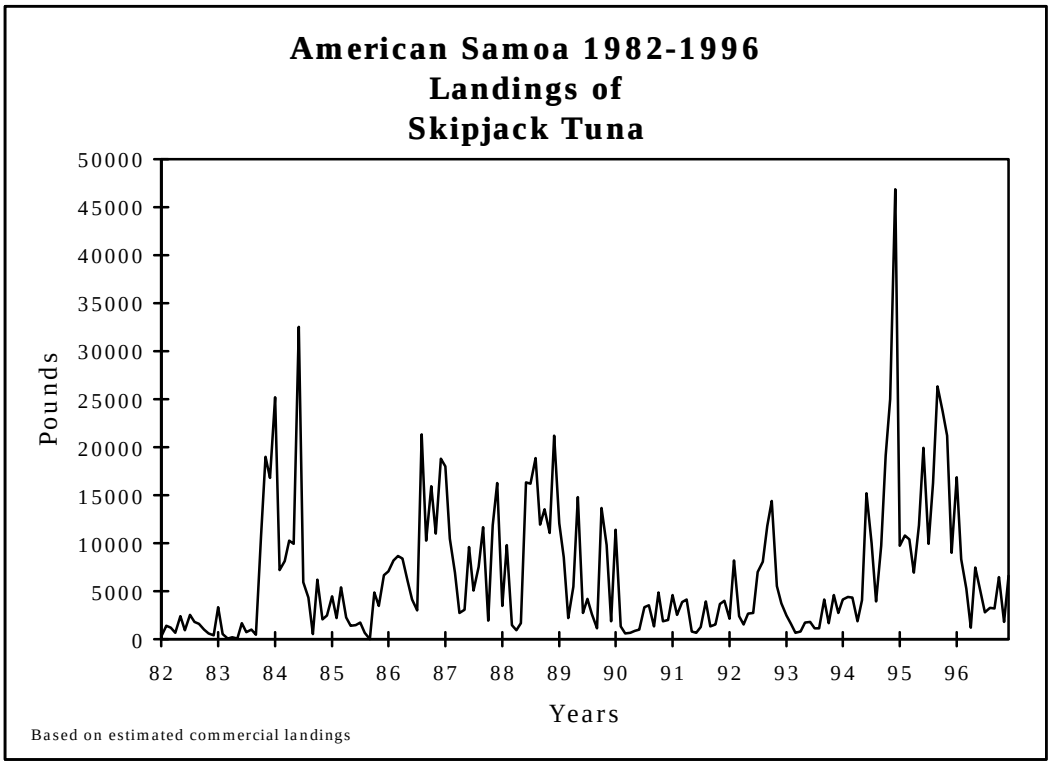


Figure II.4.6

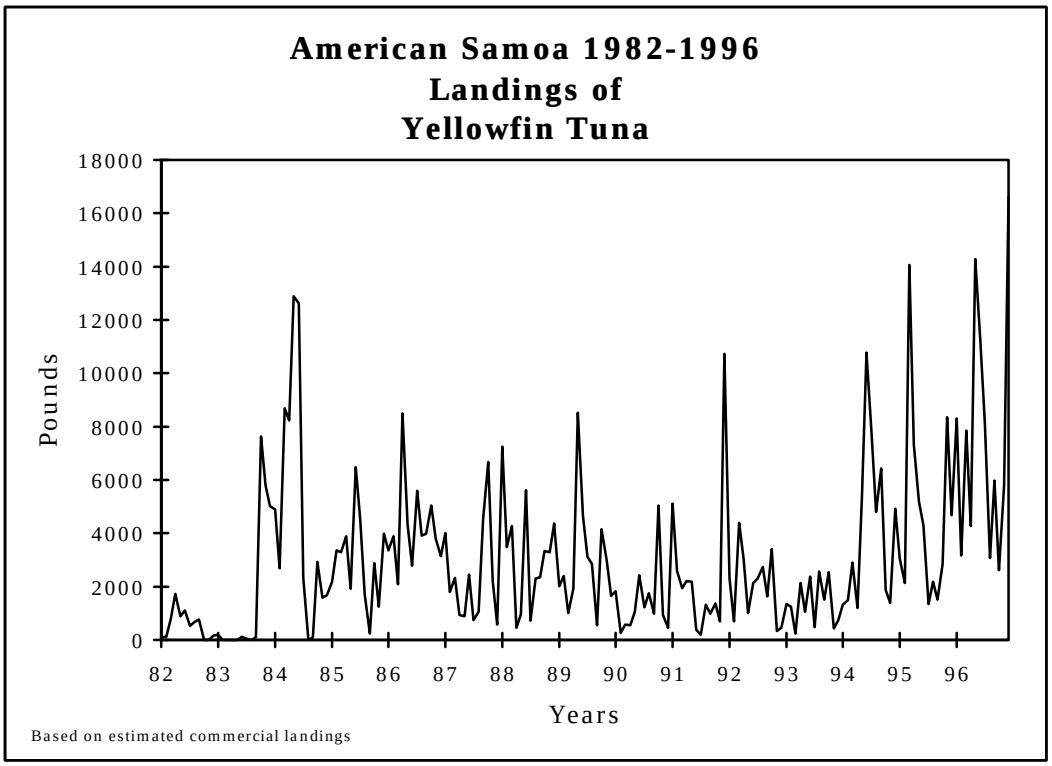


Figure II.4.7

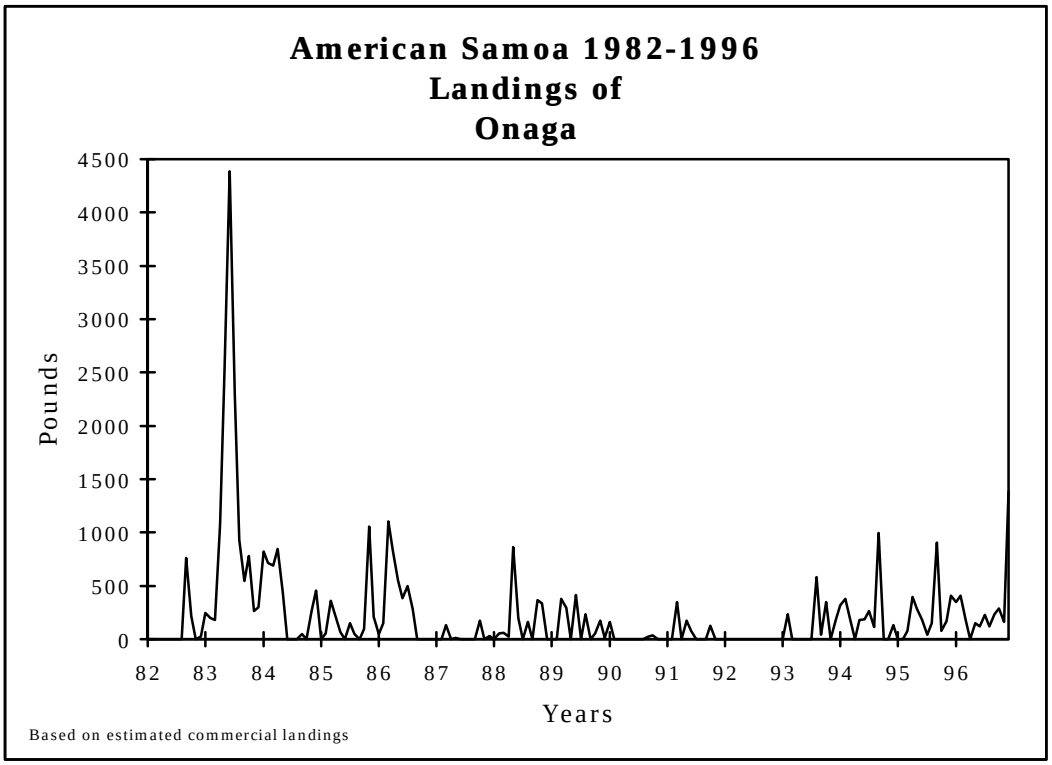


Figure II.4.8

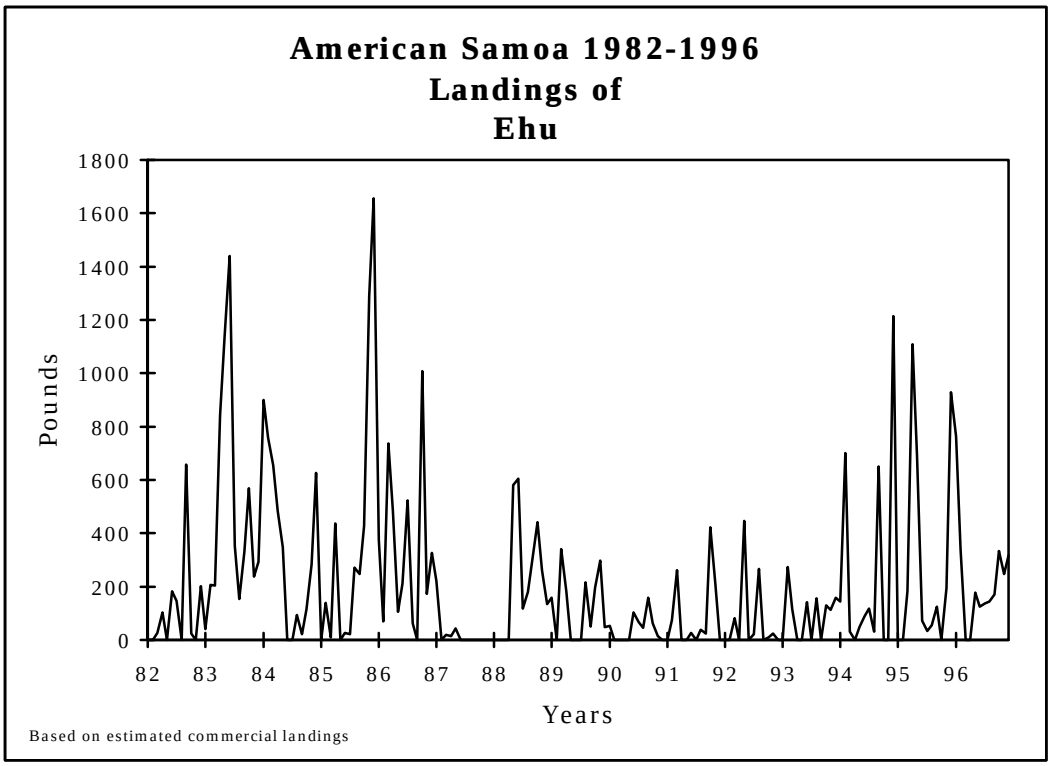


Table II.3.1

Tutuila 1996 Annual Offshore Creel Survey
Summary Expansion Report

Based on 248 Weekdays and 118 Weekend/Holidays

	TROLL	BOTTOM	BTM/TRL MIX	LONGLINE	TOTAL
Number of Days Sampled	91	91	91	91	91
Total Number of Interviews	123	27	7	134	291
Number of Interviews with Hours	123	27	7	134	291
Number of Interviews with Fishers	123	27	7	134	291
Estimated Trips on Survey Days	213	47	12	232	503
Average Trips per Day	2.3(5)	0.5(5)	0.1(5)	2.6(5)	5.5(3)
Average Hours per Trip	5.4(5)	10.2(11)	20.0(8)	9.5(7)	8.1(8)
Average Fishers per Trip	2.8(5)	2.6(7)	2.3(12)	3.2(1)	3.0(4)
Average Catch per Trip	158.2(8)	152.3(9)	305.6(19)	409.0(7)	276.7(9)
Average Catch per Hour	29.2(7)	15.0(10)	15.3(16)	43.3(9)	34.3(9)
Expanded Number of Trips	580(5)	126(5)	32(5)	632(5)	1371(3)
Expanded Boat Hours Fished	3151(7)	1289(12)	645(9)	5983(8)	11067(5)
Expanded Number of Fishers	1631(7)	333(9)	74(13)	2030(5)	4067(4)
Expanded Fisher Hours	8855(8)	3390(14)	1477(15)	19204(8)	32925(6)
Expanded Catch (based on trips)	91789(9)	19264(10)	9854(20)	258645(9)	379552(6)
Expanded Catch (based on hours)	91856(10)	19268(16)	9853(18)	258743(12)	379719(9)

Gear	Catch	CV	Boat Hrs	CV	Boat Trips	CV	Prsn Hrs	CV	Prsn Cnt	CV	C/TRIP
TROLL	132890.5	8	4645.9	6	812.8	5	8854.7	12	2404.8	5	164.1
BOTTOM	22279.8	10	1542.7	11	163.1	5	3389.6	16	438.4	7	134.8
BTM/TRL MIX	14534.0	18	793.5	8	48.8	5	1476.6	18	123.4	8	297.5
LONGLINE	315232.6	8	7234.7	7	763.4	5	19203.8	9	2472.7	4	413.4
Total:	484936.8	6	14216.7	4	1788.0	3	32924.7	6	5439.3	3	1009.9

Table II.3.2

Tutuila 1996 Annual
Offshore Creel Survey Species Composition

Common Name	Total all gears	% all gears	trolling	% this gear	bottom	% this gear	other	% this gear
Jacks (misc)	1069.6	0.22	0.0	0.00	448.8	2.01	620.7	0.19
Black jack	301.7	0.06	0.0	0.00	301.7	1.35	0.0	0.00
Trevally (C.caeruleop.	114.6	0.02	0.0	0.00	114.6	0.51	0.0	0.00
Amberjack	107.7	0.02	0.0	0.00	107.7	0.48	0.0	0.00
Barracudas	2846.2	0.59	416.2	0.31	398.2	1.79	2031.9	0.62
Sharks	11878.8	2.45	1604.5	1.21	1967.5	8.83	8306.9	2.52
Eagle ray	51.7	0.01	0.0	0.00	0.0	0.00	51.7	0.02
Bottomfish (Assorted)	1827.0	0.38	0.0	0.00	1827.0	8.20	0.0	0.00
Groupers (misc)	563.4	0.12	0.0	0.00	563.4	2.53	0.0	0.00
Peacock grouper	303.6	0.06	0.0	0.00	46.7	0.21	257.0	0.08
Yellowspot grouper	21.0	0.00	0.0	0.00	21.0	0.09	0.0	0.00
Lunartail grouper	1029.7	0.21	0.0	0.00	758.1	3.40	271.6	0.08
Blue lined snapper	2211.5	0.46	0.0	0.00	1859.2	8.34	352.4	0.11
Onespot snapper	186.3	0.04	0.0	0.00	186.3	0.84	0.0	0.00
Twinspot/red snapper	192.2	0.04	0.0	0.00	171.1	0.77	21.1	0.01
Humpback snapper	770.8	0.16	0.0	0.00	747.7	3.36	23.1	0.01
Gray jobfish	3095.9	0.64	0.0	0.00	2005.6	9.00	1090.3	0.33
Hawaiian opakapaka	128.9	0.03	0.0	0.00	128.9	0.58	0.0	0.00
Yelloweye opakapaka(P.	502.6	0.10	0.0	0.00	459.5	2.06	43.0	0.01
Lehi (silverjaw)	1873.7	0.39	0.0	0.00	1873.7	8.41	0.0	0.00
Onaga (longtail snappe	770.8	0.16	0.0	0.00	770.8	3.46	0.0	0.00
Ehu (squirrelfish snap	767.3	0.16	0.0	0.00	214.6	0.96	552.7	0.17
Emperors (misc)	3446.6	0.71	0.0	0.00	3347.6	15.02	99.0	0.03
Longnose emperor	2217.3	0.46	0.0	0.00	1040.0	4.67	1177.4	0.36
Ambon emperor	679.3	0.14	0.0	0.00	679.3	3.05	0.0	0.00
Orangespot emperor	347.1	0.07	0.0	0.00	347.1	1.56	0.0	0.00
Redgill emperor	1915.3	0.39	0.0	0.00	1325.8	5.95	589.6	0.18
Yellowfin surgeonfish	14.2	0.00	0.0	0.00	14.2	0.06	0.0	0.00
Squirrelfish	418.6	0.09	0.0	0.00	156.1	0.70	262.5	0.08
Wrasse	56.3	0.01	0.0	0.00	56.3	0.25	0.0	0.00
Troll fish	1166.5	0.24	0.0	0.00	0.0	0.00	1166.5	0.35
Dolphin (mahimahi)	13591.7	2.80	7469.0	5.62	0.0	0.00	6122.7	1.86
Swordfish	614.0	0.13	0.0	0.00	0.0	0.00	614.0	0.19
Blue marlin	38159.3	7.87	13134.4	9.88	0.0	0.00	25024.9	7.59
Sailfish	5553.6	1.15	2217.1	1.67	0.0	0.00	3336.5	1.01
Rainbow runner	726.9	0.15	333.0	0.25	154.5	0.69	239.5	0.07
Wahoo	9509.4	1.96	4692.9	3.53	0.0	0.00	4816.5	1.46
Skipjack tuna	59353.4	12.24	55575.7	41.82	0.0	0.00	3777.8	1.15
Dogtooth tuna	1749.9	0.36	422.6	0.32	187.4	0.84	1139.9	0.35
Albacore	225938.7	46.59	0.0	0.00	0.0	0.00	225938.7	68.51
Yellowfin tuna	78683.2	16.23	46976.9	35.35	0.0	0.00	31706.3	9.61
Bigeye tuna	10064.6	2.08	0.0	0.00	0.0	0.00	10064.6	3.05
Kawakawa	117.3	0.02	49.6	0.04	0.0	0.00	67.7	0.02
Total all species:	484938.2	100.00	132891.9	27.40	22280.4	4.59	329766.5	68.00

Table II.4.1

Tutuila January 1996
Offshore Creel Survey Expansion Summary

Gear	Catch	CV	Boat Hrs	CV	Boat Trips	CV	Prsn Hrs
	CV	Prsn Cnt	CV	C/TRIP	CV		
TROLL	23188.5	21	722.4	15	109.9	12	1762.7
	24	357.1	11	219.2	18		
BOTTOM	1880.9	11	121.7	15	12.8	7	324.9
	20	34.2	14	146.8	9		
BTM/TRL MIX	6428.8	16	333.8	12	15.8	11	741.1
	19	42.5	12	404.1	15		
LONGLINE	46042.4	24	899.2	31	70.3	8	2788.4
	33	231.1	8	668.3	35		
Total:	77540.5	16	2077.2	15	208.8	7	5617.1
	18	664.9	6	1438.4	17		

Table II.4.2

Tutuila February 1996
Offshore Creel Survey Expansion Summary

Gear	Catch	CV	Boat Hrs	CV	Boat Trips	CV	Prsn Hrs
	CV	Prsn Cnt	CV	C/TRIP	CV		
TROLL	14013.2	34	702.9	29	122.7	25	1698.1
	41	421.0	24	105.0	30		
BOTTOM	1157.3	26	115.7	22	17.3	20	185.8
	56	51.8	21	62.2	17		
LONGLINE	22062.6	39	632.6	29	56.0	27	1911.6
	38	197.7	30	417.6	64		
Total:	37233.0	26	1451.2	19	196.0	17	3795.5
	27	670.5	18	584.8	46		

Table II.4.3

Tutuila March 1996
Offshore Creel Survey Expansion Summary

Gear	Catch	CV	Boat Hrs	CV	Boat Trips	CV	Prsn Hrs
	CV	Prsn Cnt	CV	C/TRIP	CV		
TROLL	11755.0	26	391.1	18	66.6	16	889.1
	22	164.4	19	176.6	21		
BOTTOM	4498.2	26	320.8	28	27.1	16	698.3
	40	71.8	16	178.5	26		
BTM/TRL MIX	629.4	55	85.5	31	9.5	18	56.7
	91	14.3	17	66.3	71		
LONGLINE	13606.2	22	494.8	18	56.9	15	1108.2
	27	188.1	13	240.4	20		
Total:	30488.8	15	1292.2	11	160.1	9	2752.2
	17	438.5	9	661.8	14		

Table II.4.4

Tutuila April 1996
Offshore Creel Survey Expansion Summary

Gear	Catch	CV	Boat Hrs	CV	Boat Trips	CV	Prsn Hrs	CV	Prsn Cnt	CV	C/TRIP	CV
TROLL	6639.0	36	247.8	15	40.2	10	698.1	39	148.4	30	151.3	38
BOTTOM	1811.3	26	160.3	37	13.0	10	373.5	40	30.3	18	139.3	24
LONGLINE	4513.1	20	270.2	18	31.6	10	637.9	23	90.4	10	128.1	24
Total:	12963.3	20	678.3	13	84.8	6	1709.5	20	269.1	17	418.7	18

Table II.4.5

Tutuila May 1996
Offshore Creel Survey Expansion Summary

Gear	Catch	CV	Boat Hrs	CV	Boat Trips	CV	Prsn Hrs	CV	Prsn Cnt	CV	C/TRIP	CV
TROLL	19391.4	30	542.7	20	93.3	16	1417.9	31	325.5	10	203.2	30
BOTTOM	4044.3	16	392.3	21	27.3	10	980.7	29	68.2	23	148.3	13
BTM/TRL MIX	4190.9	45	300.1	11	13.6	10	750.2	23	34.1	23	307.3	44
LONGLINE	10270.9	85	436.5	76	13.6	10	1527.7	78	47.7	18	753.0	84
Total:	37897.5	28	1671.5	22	147.9	10	4676.5	28	475.5	8	1411.7	46

Table II.4.6

Tutuila June 1996

Offshore Creel Survey Expansion Summary

Gear	Catch	CV	Boat Hrs	CV	Boat Trips	CV	Prsn Hrs	CV	Prsn Cnt	CV	C/TRIP
TROLL	20659.7	22	634.3	17	75.5	12	867.4	32	184.6	10	277.0
BOTTOM	885.2	50	100.1	38	8.7	12	193.2	73	26.1	24	101.8
LONGLINE	2747.7	15	183.8	22	11.8	13	261.1	59	40.4	9	231.1
Total:	24292.5	19	918.2	13	96.0	10	1321.7	26	251.1	8	609.8

Table II.4.7

Tutuila July 1996
Offshore Creel Survey Expansion Summary

Gear	Catch	CV	Boat Hrs	CV	Boat Trips	CV	Prsn Hrs	CV	Prsn Cnt	CV	C/TRIP
TROLL	12270.9	24	412.8	20	75.4	18	498.4	56	187.9	12	158.0
BOTTOM	1826.0	21	113.5	34	9.9	15	340.5	34	29.6	15	185.0
LONGLINE	23990.4	24	361.4	16	45.5	16	774.2	22	131.8	12	528.7
Total:	38087.3	17	887.7	12	130.8	12	1613.2	21	349.3	8	871.7

Table II.4.8

Tutuila August 1996
Offshore Creel Survey Expansion Summary

Gear	Catch	CV	Boat Hrs	CV	Boat Trips	CV	Prsn Hrs	CV	Prsn Cnt	CV	C/TRIP
TROLL	5464.4	33	243.0	33	32.9	23	224.2	74	60.5	14	159.7
LONGLINE	6241.0	39	126.7	17	15.8	17	380.2	17	47.5	17	394.0
Total:	11705.3	26	369.8	23	48.7	16	604.4	29	108.0	11	553.7

Table II.4.9

Tutuila September 1996
Offshore Creel Survey Expansion Summary

Gear	Catch	CV	Boat Hrs	CV	Boat Trips	CV	Prsn Hrs	CV	Prsn Cnt	CV	C/TRIP
TROLL	2592.9	48	133.3	26	40.5	22	325.7	33	120.4	23	67.3
BOTTOM	365.7	39	24.2	39	2.8	39	73.0	39	8.5	39	130.6
LONGLINE	31938.5	29	604.9	22	68.8	21	1325.2	34	232.0	16	451.9

25

Total:	34897.1	27	762.4	18	112.1	15	1723.9	27	360.9	13	649.8

20

-

Table II.4.10

Tutuila October 1996
Offshore Creel Survey Expansion Summary

Gear	Catch	CV	Boat Hrs	CV	Boat Trips	CV	Prsn Hrs	CV	Prsn Cnt	CV	C/TRIP
TROLL	5583.9	31	179.2	12	48.8	7	537.7	19	146.5	16	114.3
BOTTOM	1916.1	31	94.1	27	20.5	7	282.4	40	61.4	29	93.7
BTM/TRL MIX	1003.0	13	45.2	13	4.2	7	137.4	14	12.7	9	240.0
LONGLINE	42574.3	16	684.6	7	85.6	7	2218.2	8	277.3	8	497.5
Total:	51077.3	13	1003.2	6	159.1	4	3175.7	7	497.9	7	945.4

Table II.4.11

Tutuila November 1996
Offshore Creel Survey Expansion Summary

Gear	Catch	CV	Boat Hrs	CV	Boat Trips	CV	Prsn Hrs	CV	Prsn Cnt	CV	C/TRIP
TROLL	6641.1	32	269.6	17	67.4	16	364.1	45	200.5	4	100.7
BOTTOM	1937.5	23	106.7	18	14.2	6	240.0	28	32.0	22	136.3
LONGLINE	62587.6	16	1328.3	13	147.2	10	2768.8	21	469.6	4	404.5
Total:	71166.1	14	1704.5	10	228.8	8	3372.9	18	702.1	3	641.5

Table II.4.12

Tutuila December 1996
Offshore Creel Survey Expansion Summary

Gear	Catch	CV	Boat Hrs	CV	Boat Trips	CV	Prsn Hrs	CV	Prsn Cnt	CV	C/TRIP
TROLL	12406.2	55	298.0	14	71.6	6	293.7	49	179.0	8	159.1

BOTTOM	7896.9	3	234.7	8	56 36.1	0	469.3	8	72.2	0	218.8
BTM/TRL MIX	15616.9	8	361.0	0	3 36.1	0	1444.0	0	144.4	0	432.6
LONGLINE	52512.4	34	1261.9	11	8 138.2	8	2957.4	18	468.3	8	292.0
Total:	88432.2	22	2155.5	7	48 282.0	4	5164.4	10	863.8	5	1102.4

15

-

Table II.5.1

Tutuila January 1996
Offshore Creel Survey Species Composition

Common Name	Total all gears	% all gears	trolling	% this gear	bottom	% this gear	other	% this gear
Jacks (misc)	322.4	0.42	0.0	0.00	53.4	2.84	269.0	0.51
Black jack	224.2	0.29	0.0	0.00	224.2	11.92	0.0	0.00
Trevally (C.caeruleop.	74.7	0.10	0.0	0.00	74.7	3.97	0.0	0.00
Barracudas	589.3	0.76	0.0	0.00	47.0	2.50	542.3	1.03
Sharks	1262.7	1.63	342.7	1.48	0.0	0.00	920.0	1.75
Peacock grouper	143.5	0.19	0.0	0.00	0.0	0.00	143.5	0.27
Yellowspot grouper	19.2	0.02	0.0	0.00	19.2	1.02	0.0	0.00
Lunartail grouper	214.3	0.28	0.0	0.00	102.5	5.45	111.8	0.21
Blue lined snapper	115.3	0.15	0.0	0.00	32.0	1.70	83.3	0.16
Humpback snapper	42.7	0.06	0.0	0.00	42.7	2.27	0.0	0.00
Gray jobfish	998.8	1.29	0.0	0.00	179.3	9.53	819.5	1.56
Ehu (squirrelfish snap	604.2	0.78	0.0	0.00	91.8	4.88	512.4	0.98
Emperors (misc)	804.9	1.04	0.0	0.00	804.9	42.79	0.0	0.00
Longnose emperor	680.2	0.88	0.0	0.00	0.0	0.00	680.2	1.30
Orangespot emperor	19.2	0.02	0.0	0.00	19.2	1.02	0.0	0.00
Redgill emperor	644.7	0.83	0.0	0.00	119.6	6.36	525.2	1.00
Squirrelfish	172.9	0.22	0.0	0.00	0.0	0.00	172.9	0.33
Wrasse	51.2	0.07	0.0	0.00	51.2	2.72	0.0	0.00
Troll fish	428.2	0.55	0.0	0.00	0.0	0.00	428.2	0.82
Dolphin (mahimahi)	649.5	0.84	649.5	2.80	0.0	0.00	0.0	0.00
Blue marlin	2454.6	3.17	1233.8	5.32	0.0	0.00	1220.8	2.33
Sailfish	342.8	0.44	0.0	0.00	0.0	0.00	342.8	0.65
Rainbow runner	235.9	0.30	54.4	0.23	19.2	1.02	162.3	0.31
Wahoo	1053.9	1.36	458.5	1.98	0.0	0.00	595.4	1.13
Skipjack tuna	16128.4	20.80	14447.8	62.31	0.0	0.00	1680.7	3.20
Dogtooth tuna	113.5	0.15	113.5	0.49	0.0	0.00	0.0	0.00
Albacore	36818.9	47.48	0.0	0.00	0.0	0.00	36818.9	70.17
Yellowfin tuna	8056.7	10.39	5888.4	25.39	0.0	0.00	2168.3	4.13
Bigeye tuna	4273.3	5.51	0.0	0.00	0.0	0.00	4273.3	8.14
Total all species:	77540.1	100.00	23188.6	29.91	1880.9	2.43	52470.8	67.67

Table II.5.2

Tutuila February 1996
Offshore Creel Survey Species Composition

Common Name	Total all gears	% all gears	trolling	% this gear	bottom	% this gear	other	% this gear
Jacks (misc)	20.7	0.06	0.0	0.00	20.7	1.79	0.0	0.00
Black jack	12.4	0.03	0.0	0.00	12.4	1.07	0.0	0.00
Barracudas	279.1	0.75	0.0	0.00	0.0	0.00	279.1	1.27
Sharks	1035.1	2.78	0.0	0.00	0.0	0.00	1035.1	4.69
Eagle ray	99.1	0.27	0.0	0.00	0.0	0.00	99.1	0.45
Groupers (misc)	50.4	0.14	0.0	0.00	50.4	4.35	0.0	0.00
Lunartail grouper	42.8	0.11	0.0	0.00	42.8	3.70	0.0	0.00
Blue lined snapper	52.0	0.14	0.0	0.00	52.0	4.49	0.0	0.00
Humpback snapper	40.2	0.11	0.0	0.00	40.2	3.47	0.0	0.00
Gray jobfish	112.0	0.30	0.0	0.00	112.0	9.68	0.0	0.00
Onaga (longtail snappe	167.0	0.45	0.0	0.00	167.0	14.43	0.0	0.00
Ehu (squirrelfish snap	77.3	0.21	0.0	0.00	77.3	6.68	0.0	0.00
Emperors (misc)	254.0	0.68	0.0	0.00	254.0	21.95	0.0	0.00
Redgill emperor	328.6	0.88	0.0	0.00	328.6	28.39	0.0	0.00
Dolphin (mahimahi)	107.1	0.29	107.1	0.76	0.0	0.00	0.0	0.00
Blue marlin	6014.9	16.15	809.8	5.78	0.0	0.00	5205.1	23.59
Sailfish	404.1	1.09	404.1	2.88	0.0	0.00	0.0	0.00
Rainbow runner	215.5	0.58	215.5	1.54	0.0	0.00	0.0	0.00
Skipjack tuna	9881.5	26.54	9881.5	70.52	0.0	0.00	0.0	0.00
Albacore	13905.6	37.35	0.0	0.00	0.0	0.00	13905.6	63.03
Yellowfin tuna	4039.9	10.85	2500.9	17.85	0.0	0.00	1538.9	6.98
Kawakawa	94.3	0.25	94.3	0.67	0.0	0.00	0.0	0.00
Total all species:	37233.6	100.00	14013.2	37.64	1157.4	3.11	22062.9	59.26

Table II.5.3

Tutuila March 1996
Offshore Creel Survey Species Composition

Common Name	Total all gears	% all gears	trolling	% this gear	bottom	% this gear	other	% this gear
Jacks (misc)	104.0	0.35	0.0	0.00	29.4	0.65	74.6	0.52
Barracudas	235.5	0.80	0.0	0.00	147.4	3.28	88.0	0.62
Sharks	1457.9	4.92	0.0	0.00	1457.9	32.41	0.0	0.00
Groupers (misc)	67.5	0.23	0.0	0.00	67.5	1.50	0.0	0.00
Peacock grouper	21.4	0.07	0.0	0.00	21.4	0.48	0.0	0.00
Lunartail grouper	102.9	0.35	0.0	0.00	75.9	1.69	27.0	0.19
Blue lined snapper	254.1	0.86	0.0	0.00	192.5	4.28	61.6	0.43
Twinspot/red snapper	74.1	0.25	0.0	0.00	65.5	1.46	8.6	0.06
Humpback snapper	96.3	0.33	0.0	0.00	83.9	1.87	12.3	0.09
Gray jobfish	419.3	1.42	0.0	0.00	382.4	8.50	36.9	0.26
Yelloweye opakapaka(P.	8.6	0.03	0.0	0.00	0.0	0.00	8.6	0.06
Lehi (silverjaw)	680.0	2.30	0.0	0.00	680.0	15.12	0.0	0.00
Onaga (longtail snappe	184.3	0.62	0.0	0.00	184.3	4.10	0.0	0.00
Emperors (misc)	164.6	0.56	0.0	0.00	164.6	3.66	0.0	0.00
Longnose emperor	779.3	2.63	0.0	0.00	504.9	11.22	274.3	1.93
Redgill emperor	270.3	0.91	0.0	0.00	258.0	5.74	12.3	0.09
Yellowfin surgeonfish	18.7	0.06	0.0	0.00	18.7	0.42	0.0	0.00
Dolphin (mahimahi)	472.5	1.60	314.8	2.89	0.0	0.00	157.7	1.11
Blue marlin	5123.1	17.30	1514.6	13.93	0.0	0.00	3608.5	25.35
Skipjack tuna	4228.8	14.28	4182.0	38.46	0.0	0.00	46.8	0.33
Dogtooth tuna	163.8	0.55	0.0	0.00	163.8	3.64	0.0	0.00
Albacore	7536.6	25.45	0.0	0.00	0.0	0.00	7536.6	52.94
Yellowfin tuna	7090.2	23.95	4862.6	44.72	0.0	0.00	2227.6	15.65
Kawakawa	54.0	0.18	0.0	0.00	0.0	0.00	54.0	0.38
Total all species:	29607.8	100.00	10874.0	36.73	4498.1	15.19	14235.4	48.08

Table II.5.4

Tutuila April 1996
Offshore Creel Survey Species Composition

Common Name	Total all gears	% all gears	trolling	% this gear	bottom	% this gear	other	% this gear
Bottomfish (Assorted)	1495.0	11.53	0.0	0.00	1495.0	82.54	0.0	0.00
Lunartail grouper	26.0	0.20	0.0	0.00	26.0	1.44	0.0	0.00
Blue lined snapper	91.0	0.70	0.0	0.00	91.0	5.02	0.0	0.00
Gray jobfish	134.3	1.04	0.0	0.00	134.3	7.41	0.0	0.00
Longnose emperor	65.0	0.50	0.0	0.00	65.0	3.59	0.0	0.00
Dolphin (mahimahi)	154.0	1.19	83.1	1.25	0.0	0.00	70.9	1.57
Blue marlin	929.9	7.17	929.9	14.01	0.0	0.00	0.0	0.00
Sailfish	475.8	3.67	475.8	7.17	0.0	0.00	0.0	0.00
Wahoo	1480.6	11.42	1480.6	22.30	0.0	0.00	0.0	0.00
Skipjack tuna	225.2	1.74	225.2	3.39	0.0	0.00	0.0	0.00
Dogtooth tuna	23.8	0.18	23.8	0.36	0.0	0.00	0.0	0.00
Albacore	3748.8	28.92	0.0	0.00	0.0	0.00	3748.8	83.07
Yellowfin tuna	4113.9	31.73	3420.6	51.52	0.0	0.00	693.3	15.36
Total all species:	12963.3	100.00	6639.0	51.21	1811.3	13.97	4513.0	34.81

Table II.5.5

Tutuila May 1996
Offshore Creel Survey Species Composition

Common Name	Total all gears	% all gears	trolling	% this gear	bottom	% this gear	other	% this gear
Jacks (misc)	272.8	0.72	0.0	0.00	126.2	3.12	146.6	1.01
Barracudas	231.9	0.61	122.8	0.63	109.1	2.70	0.0	0.00
Sharks	1254.9	3.31	0.0	0.00	436.5	10.79	818.4	5.66
Bottomfish (Assorted)	136.4	0.36	0.0	0.00	136.4	3.37	0.0	0.00
Groupers (misc)	51.2	0.14	0.0	0.00	51.2	1.27	0.0	0.00
Peacock grouper	116.0	0.31	0.0	0.00	44.3	1.10	71.6	0.50
Lunartail grouper	201.2	0.53	0.0	0.00	40.9	1.01	160.3	1.11
Blue lined snapper	364.9	0.96	0.0	0.00	228.5	5.65	136.4	0.94
Onespot snapper	61.4	0.16	0.0	0.00	61.4	1.52	0.0	0.00
Humpback snapper	426.3	1.12	0.0	0.00	426.3	10.54	0.0	0.00
Gray jobfish	497.9	1.31	0.0	0.00	388.7	9.61	109.1	0.75
Lehi (silverjaw)	95.5	0.25	0.0	0.00	95.5	2.36	0.0	0.00
Emperors (misc)	934.4	2.47	0.0	0.00	934.4	23.10	0.0	0.00
Longnose emperor	562.6	1.48	0.0	0.00	112.5	2.78	450.1	3.11
Ambon emperor	682.0	1.80	0.0	0.00	682.0	16.86	0.0	0.00
Squirrelfish	75.0	0.20	0.0	0.00	0.0	0.00	75.0	0.52
Dolphin (mahimahi)	1519.6	4.01	435.2	2.24	0.0	0.00	1084.4	7.50
Blue marlin	5524.2	14.58	5524.2	28.49	0.0	0.00	0.0	0.00
Sailfish	545.6	1.44	0.0	0.00	0.0	0.00	545.6	3.77
Rainbow runner	170.5	0.45	0.0	0.00	170.5	4.22	0.0	0.00
Skipjack tuna	6905.2	18.22	4879.7	25.16	0.0	0.00	2025.5	14.01
Albacore	2755.3	7.27	0.0	0.00	0.0	0.00	2755.3	19.05
Yellowfin tuna	14131.1	37.29	8429.6	43.47	0.0	0.00	5701.6	39.43
Bigeye tuna	381.9	1.01	0.0	0.00	0.0	0.00	381.9	2.64
Total all species:	37897.8	100.00	19391.5	51.17	4044.4	10.67	14461.8	38.16

Table II.5.6

Tutuila June 1996
Offshore Creel Survey Species Composition

Common Name	Total all gears	% all gears	trolling	% this gear	bottom	% this gear	other	% this gear
Trevally (C.caeruleop.	71.1	0.29	0.0	0.00	71.1	8.03	0.0	0.00
Barracudas	96.3	0.40	55.6	0.27	40.7	4.60	0.0	0.00
Sharks	1449.5	5.97	1449.5	7.02	0.0	0.00	0.0	0.00
Bottomfish (Assorted)	84.8	0.35	0.0	0.00	84.8	9.58	0.0	0.00
Groupers (misc)	17.8	0.07	0.0	0.00	17.8	2.01	0.0	0.00
Lunartail grouper	13.3	0.05	0.0	0.00	13.3	1.50	0.0	0.00
Blue lined snapper	263.9	1.09	0.0	0.00	263.9	29.81	0.0	0.00
Humpback snapper	67.8	0.28	0.0	0.00	67.8	7.66	0.0	0.00
Gray jobfish	160.1	0.66	0.0	0.00	160.1	18.09	0.0	0.00
Emperors (misc)	165.7	0.68	0.0	0.00	165.7	18.72	0.0	0.00
Dolphin (mahimahi)	553.8	2.28	553.8	2.68	0.0	0.00	0.0	0.00
Blue marlin	2997.3	12.34	2997.3	14.51	0.0	0.00	0.0	0.00
Sailfish	936.6	3.86	936.6	4.53	0.0	0.00	0.0	0.00
Rainbow runner	68.0	0.28	68.0	0.33	0.0	0.00	0.0	0.00
Wahoo	384.3	1.58	384.3	1.86	0.0	0.00	0.0	0.00
Skipjack tuna	4367.9	17.98	4367.9	21.14	0.0	0.00	0.0	0.00
Albacore	957.4	3.94	0.0	0.00	0.0	0.00	957.4	34.84
Yellowfin tuna	11010.6	45.33	9846.6	47.66	0.0	0.00	1164.1	42.37
Bigeye tuna	626.2	2.58	0.0	0.00	0.0	0.00	626.2	22.79
Total all species:	24292.4	100.00	20659.6	85.05	885.2	3.64	2747.7	11.31

Table II.5.7

Tutuila July 1996
Offshore Creel Survey Species Composition

Common Name	Total all gears	% all gears	trolling	% this gear	bottom	% this gear	other	% this gear
Black jack	39.5	0.10	0.0	0.00	39.5	2.16	0.0	0.00
Barracudas	251.1	0.66	0.0	0.00	14.8	0.81	236.2	0.98
Sharks	5293.0	13.90	0.0	0.00	0.0	0.00	5293.0	22.06
Groupers (misc)	143.1	0.38	0.0	0.00	143.1	7.84	0.0	0.00
Lunartail grouper	29.6	0.08	0.0	0.00	29.6	1.62	0.0	0.00
Blue lined snapper	143.1	0.38	0.0	0.00	143.1	7.84	0.0	0.00
Onespot snapper	133.2	0.35	0.0	0.00	133.2	7.30	0.0	0.00
Humpback snapper	153.0	0.40	0.0	0.00	153.0	8.38	0.0	0.00
Gray jobfish	187.5	0.49	0.0	0.00	187.5	10.27	0.0	0.00
Lehi (silverjaw)	207.3	0.54	0.0	0.00	207.3	11.35	0.0	0.00
Onaga (longtail snappe	74.0	0.19	0.0	0.00	74.0	4.05	0.0	0.00
Emperors (misc)	503.4	1.32	0.0	0.00	503.4	27.57	0.0	0.00
Longnose emperor	59.2	0.16	0.0	0.00	59.2	3.24	0.0	0.00
Orangespot emperor	39.5	0.10	0.0	0.00	39.5	2.16	0.0	0.00
Redgill emperor	79.0	0.21	0.0	0.00	79.0	4.33	0.0	0.00
Squirrelfish	19.7	0.05	0.0	0.00	19.7	1.08	0.0	0.00
Dolphin (mahimahi)	3081.2	8.09	2923.7	23.83	0.0	0.00	157.5	0.66
Blue marlin	1230.0	3.23	0.0	0.00	0.0	0.00	1230.0	5.13
Sailfish	1197.2	3.14	631.4	5.15	0.0	0.00	565.8	2.36
Wahoo	1602.3	4.21	1425.1	11.61	0.0	0.00	177.2	0.74
Skipjack tuna	2054.7	5.39	2054.7	16.74	0.0	0.00	0.0	0.00
Albacore	11529.5	30.27	0.0	0.00	0.0	0.00	11529.5	48.06
Yellowfin tuna	7823.9	20.54	5236.0	42.67	0.0	0.00	2587.9	10.79
Bigeye tuna	2213.5	5.81	0.0	0.00	0.0	0.00	2213.5	9.23
Total all species:	38087.5	100.00	12270.9	32.22	1825.9	4.79	23990.6	62.99

Table II.5.8

Tutuila August 1996
Offshore Creel Survey Species Composition

Common Name	Total all gears	% all gears	trolling	% this gear	bottom	% this gear	other	% this gear
Dolphin (mahimahi)	785.8	6.71	785.8	14.38	0.0	0.00	0.0	0.00
Blue marlin	323.2	2.76	323.2	5.91	0.0	0.00	0.0	0.00
Skipjack tuna	2951.7	25.22	2951.7	54.02	0.0	0.00	0.0	0.00
Albacore	4181.8	35.73	0.0	0.00	0.0	0.00	4181.8	67.01
Yellowfin tuna	1974.0	16.86	1403.7	25.69	0.0	0.00	570.2	9.14
Bigeye tuna	1489.0	12.72	0.0	0.00	0.0	0.00	1489.0	23.86
Total all species:	11705.5	100.00	5464.4	46.68	0.0	0.00	6241.0	53.32

Table II.5.9

Tutuila September 1996
Offshore Creel Survey Species Composition

Common Name	Total all gears	% all gears	trolling	% this gear	bottom	% this gear	other	% this gear
Barracudas	111.0	0.32	0.0	0.00	0.0	0.00	111.0	0.35
Yelloweye opakapaka(P.	365.7	1.05	0.0	0.00	365.7	100.00	0.0	0.00
Dolphin (mahimahi)	599.4	1.72	82.5	3.18	0.0	0.00	516.9	1.62
Blue marlin	4080.7	11.69	0.0	0.00	0.0	0.00	4080.7	12.78
Wahoo	369.4	1.06	258.6	9.97	0.0	0.00	110.8	0.35
Skipjack tuna	1839.3	5.27	1839.3	70.94	0.0	0.00	0.0	0.00
Dogtooth tuna	110.0	0.32	110.0	4.24	0.0	0.00	0.0	0.00
Albacore	21420.4	61.38	0.0	0.00	0.0	0.00	21420.4	67.07
Yellowfin tuna	5690.7	16.31	302.5	11.67	0.0	0.00	5388.2	16.87
Bigeye tuna	310.6	0.89	0.0	0.00	0.0	0.00	310.6	0.97
Total all species:	34897.2	100.00	2592.9	7.43	365.7	1.05	31938.6	91.52

Table II.5.10

Tutuila October 1996
Offshore Creel Survey Species Composition

Common Name	Total all gears	% all gears	trolling	% this gear	bottom	% this gear	other	% this gear
Jacks (misc)	290.7	0.57	0.0	0.00	100.3	5.23	190.5	0.44
Barracudas	242.5	0.47	0.0	0.00	14.3	0.75	228.2	0.52
Sharks	774.4	1.52	0.0	0.00	0.0	0.00	774.4	1.78
Groupers (misc)	165.7	0.32	0.0	0.00	165.7	8.65	0.0	0.00
Peacock grouper	71.4	0.14	0.0	0.00	0.0	0.00	71.4	0.16
Lunartail grouper	382.0	0.75	0.0	0.00	331.4	17.30	50.6	0.12
Blue lined snapper	274.0	0.54	0.0	0.00	202.6	10.57	71.4	0.16
Onespot snapper	15.4	0.03	0.0	0.00	15.4	0.80	0.0	0.00
Twinspot/red snapper	22.5	0.04	0.0	0.00	22.5	1.17	0.0	0.00
Humpback snapper	18.4	0.04	0.0	0.00	18.4	0.96	0.0	0.00
Gray jobfish	351.2	0.69	0.0	0.00	261.9	13.67	89.3	0.20
Hawaiian opakapaka	71.6	0.14	0.0	0.00	71.6	3.74	0.0	0.00
Yelloweye opakapaka(P.	59.3	0.12	0.0	0.00	59.3	3.09	0.0	0.00
Lehi (silverjaw)	155.5	0.30	0.0	0.00	155.5	8.12	0.0	0.00
Emperors (misc)	238.5	0.47	0.0	0.00	110.5	5.77	128.0	0.29
Longnose emperor	16.4	0.03	0.0	0.00	16.4	0.86	0.0	0.00
Ambon emperor	184.1	0.36	0.0	0.00	184.1	9.61	0.0	0.00
Redgill emperor	155.5	0.30	0.0	0.00	155.5	8.12	0.0	0.00
Squirrelfish	49.1	0.10	0.0	0.00	16.4	0.86	32.7	0.08
Dolphin (mahimahi)	2261.2	4.43	423.3	7.58	0.0	0.00	1837.9	4.22
Blue marlin	2058.0	4.03	0.0	0.00	0.0	0.00	2058.0	4.72
Sailfish	130.3	0.26	0.0	0.00	0.0	0.00	130.3	0.30
Rainbow runner	97.7	0.19	0.0	0.00	14.3	0.75	83.3	0.19
Wahoo	749.7	1.47	0.0	0.00	0.0	0.00	749.7	1.72
Skipjack tuna	5305.6	10.39	5010.0	89.72	0.0	0.00	295.6	0.68
Albacore	34020.3	66.61	0.0	0.00	0.0	0.00	34020.3	78.07
Yellowfin tuna	2844.3	5.57	150.6	2.70	0.0	0.00	2693.7	6.18
Kawakawa	71.4	0.14	0.0	0.00	0.0	0.00	71.4	0.16
Total all species:	51076.7	100.00	5583.9	10.93	1916.1	3.75	43576.7	85.32

Table II.5.11

Tutuila November 1996
Offshore Creel Survey Species Composition

Common Name	Total all gears	% all gears	trolling	% this gear	bottom	% this gear	other	% this gear
Jacks (misc)	56.9	0.08	0.0	0.00	56.9	2.94	0.0	0.00
Amberjack	81.8	0.11	0.0	0.00	81.8	4.22	0.0	0.00
Barracudas	831.6	1.17	274.8	4.14	12.4	0.64	544.4	0.87
Groupers (misc)	22.2	0.03	0.0	0.00	22.2	1.15	0.0	0.00
Lunartail grouper	27.6	0.04	0.0	0.00	27.6	1.42	0.0	0.00
Blue lined snapper	228.4	0.32	0.0	0.00	228.4	11.79	0.0	0.00
Twinspot/red snapper	53.3	0.07	0.0	0.00	53.3	2.75	0.0	0.00
Humpback snapper	17.8	0.03	0.0	0.00	17.8	0.92	0.0	0.00
Gray jobfish	168.9	0.24	0.0	0.00	168.9	8.72	0.0	0.00
Hawaiian opakapaka	35.6	0.05	0.0	0.00	35.6	1.84	0.0	0.00
Yelloweye opakapaka(P.	223.1	0.31	0.0	0.00	223.1	11.51	0.0	0.00
Lehi (silverjaw)	275.5	0.39	0.0	0.00	275.5	14.22	0.0	0.00
Emperors (misc)	424.8	0.60	0.0	0.00	424.8	21.92	0.0	0.00
Redgill emperor	270.2	0.38	0.0	0.00	270.2	13.95	0.0	0.00
Squirrelfish	39.1	0.05	0.0	0.00	39.1	2.02	0.0	0.00
Troll fish	184.3	0.26	0.0	0.00	0.0	0.00	184.3	0.29
Dolphin (mahimahi)	1050.6	1.48	42.5	0.64	0.0	0.00	1008.1	1.61
Swordfish	1332.1	1.87	0.0	0.00	0.0	0.00	1332.1	2.13
Blue marlin	4947.2	6.95	1332.1	20.06	0.0	0.00	3615.1	5.78
Sailfish	1081.0	1.52	0.0	0.00	0.0	0.00	1081.0	1.73
Rainbow runner	42.5	0.06	42.5	0.64	0.0	0.00	0.0	0.00
Wahoo	2470.3	3.47	439.0	6.61	0.0	0.00	2031.3	3.25
Skipjack tuna	2839.0	3.99	2402.4	36.17	0.0	0.00	436.6	0.70
Dogtooth tuna	60.2	0.08	60.2	0.91	0.0	0.00	0.0	0.00
Albacore	47656.6	66.96	0.0	0.00	0.0	0.00	47656.6	76.14
Yellowfin tuna	6035.6	8.48	2047.7	30.83	0.0	0.00	3987.9	6.37
Bigeye tuna	710.4	1.00	0.0	0.00	0.0	0.00	710.4	1.14
Total all species:	71166.6	100.00	6641.2	9.33	1937.6	2.72	62587.8	87.95

Table II.5.12

Tutuila December 1996
Offshore Creel Survey Species Composition

Common Name	Total all gears	% all gears	trolling	% this gear	bottom	% this gear	other	% this gear
Jacks (misc)	352.0	0.40	0.0	0.00	270.8	3.43	81.2	0.12
Groupers (misc)	252.7	0.29	0.0	0.00	252.7	3.20	0.0	0.00
Blue lined snapper	1579.4	1.79	0.0	0.00	1579.4	20.00	0.0	0.00
Twinspot/red snapper	21.7	0.02	0.0	0.00	0.0	0.00	21.7	0.03
Yelloweye opakapaka(P.	442.2	0.50	0.0	0.00	324.9	4.11	117.3	0.17
Lehi (silverjaw)	1389.9	1.57	0.0	0.00	1389.9	17.60	0.0	0.00
Onaga (longtail snappe	1083.0	1.22	0.0	0.00	1083.0	13.71	0.0	0.00
Longnose emperor	1416.9	1.60	0.0	0.00	1416.9	17.94	0.0	0.00
Orangespot emperor	1281.6	1.45	0.0	0.00	1281.6	16.23	0.0	0.00
Squirrelfish	297.8	0.34	0.0	0.00	297.8	3.77	0.0	0.00
Troll fish	421.6	0.48	0.0	0.00	0.0	0.00	421.6	0.62
Dolphin (mahimahi)	1333.4	1.51	405.9	3.27	0.0	0.00	927.5	1.36
Blue marlin	1349.1	1.53	0.0	0.00	0.0	0.00	1349.1	1.98
Sailfish	421.6	0.48	0.0	0.00	0.0	0.00	421.6	0.62
Wahoo	2847.9	3.22	0.0	0.00	0.0	0.00	2847.9	4.18
Skipjack tuna	4815.3	5.45	4815.3	38.81	0.0	0.00	0.0	0.00
Dogtooth tuna	4981.8	5.63	0.0	0.00	0.0	0.00	4981.8	7.31
Albacore	48190.3	54.49	0.0	0.00	0.0	0.00	48190.3	70.73
Yellowfin tuna	15954.5	18.04	7184.9	57.91	0.0	0.00	8769.6	12.87
Total all species:	88432.7	100.00	12406.1	14.03	7897.0	8.93	68129.6	77.04

Figure II.5.1

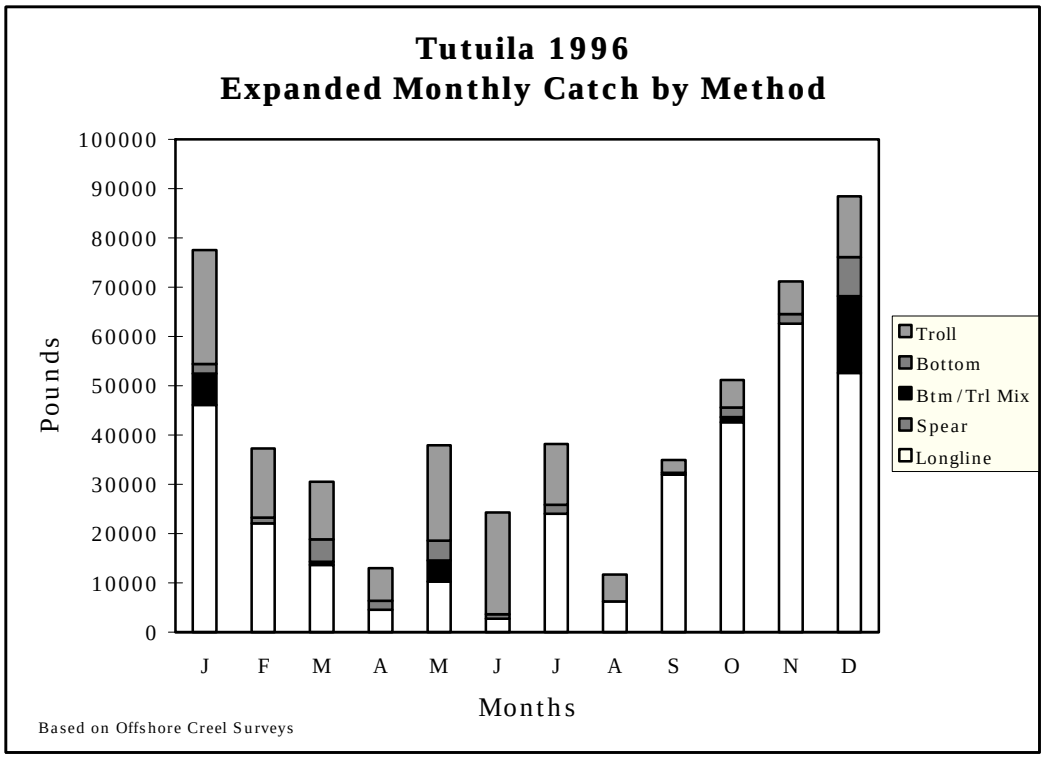


Figure II.5.2

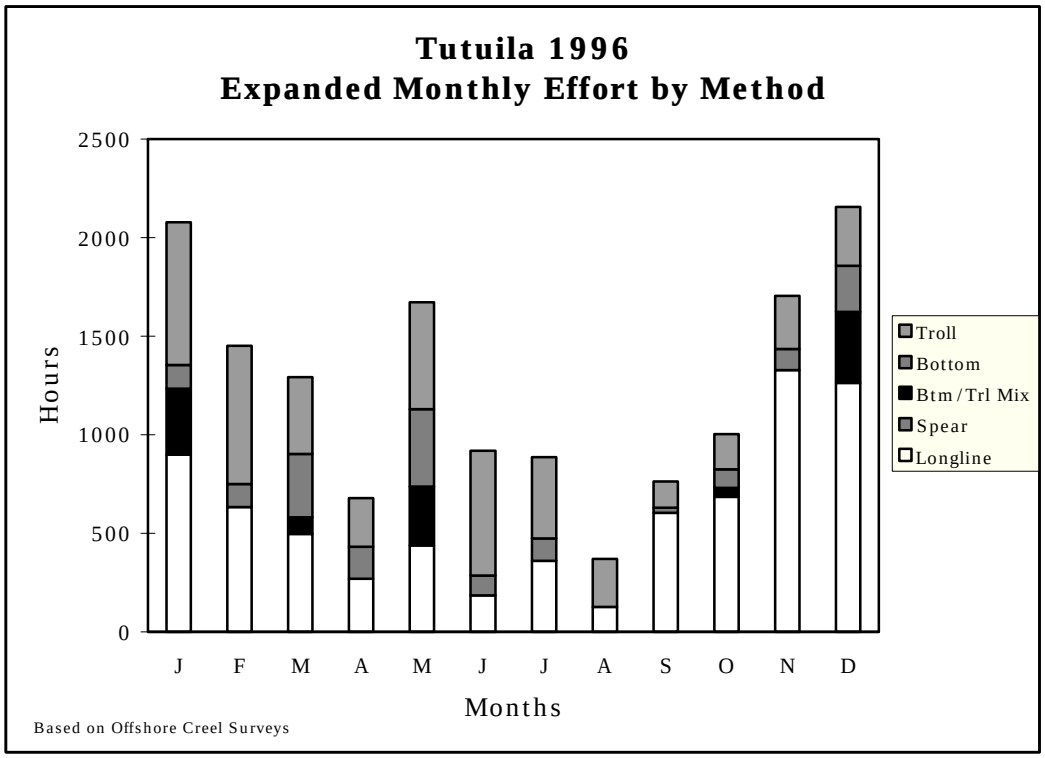
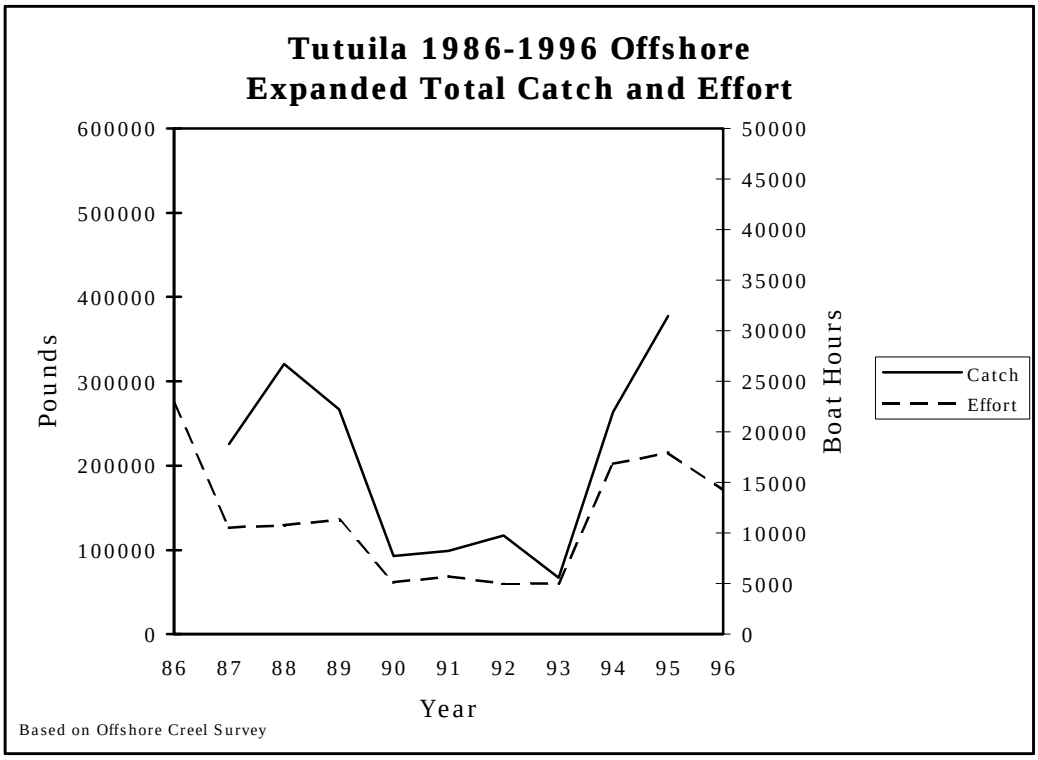


Figure II.5.3


Tutuila 1986-1996 Offshore
Expanded Total Catch and Effort
Pounds
600000
500000
400000
300000
200000
100000
0
Boat Hours
50000
45000
40000
35000
30000
25000
20000
15000
10000
5000
0
86
87
88
89
90
91
92
93
94
95
96
Year
Catch
Effort
Based on Offshore Creel Survey

COMMONWEALTH OF THE NORTHERN MARIANA ISLANDS
1996 FISHERY STATISTICS

Compiled by

Division of Fish and Wildlife

and the

Western Pacific Fishery Information Network

April 1998

CONTENTS

LIST OF CNMI SUMMARY TABLES

LIST OF CNMI FIGURES

COMMONWEALTH OF THE NORTHERN MARIANA ISLANDS
1996 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. All of the 43,000 inhabitants of the CNMI live on the three main islands of Saipan, Rota, and Tinian, with the vast majority living on Saipan. 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 and the small charter fleet is also increasing. 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, Hawaii, and most recently Japan.

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 1996, transshipments out of Tinian totaled nearly 20,000 metric tons, of which 27% were made by 5 U.S. registered purse seiners, with the remainder made by Taiwanese vessels.

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 two-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; therefore, 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 from the fishermen for each commercial purchase of fish includes the following:

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

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 1996 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 specify tunas as a separate category from the PPMUS. The PMUS category in this report includes:

Mahimahi (dolphin)
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)
Kalekale (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 III.1.1

CNMI 1996 Commercial Landings

Species	Pounds	Value	$/lb.
Bigeye scad (atulai)	3,200	8,591	2.69
Jacks	1,357	3,764	2.77
Mullet	137	341	2.50
Bottom fish	6,277	16,307	2.60
Gindai (flower snap)	2,762	9,204	3.33
Grouper	9,906	28,618	2.89
Onaga (red snapper)	15,274	67,002	4.39
Opakapaka (pink snp)	5,256	15,907	3.03
Silver-mouth	2,543	10,056	3.95
Reef fish	86,664	184,313	2.13
Wrasse	313	713	2.28
Rabbitfish (hitting)	1,061	2,937	2.77
Rudderfish (guilli)	1,498	3,744	2.50
Emperorfish	9,592	25,850	2.69
Squirrelfish	7,649	14,167	1.85
Parrotfish	5,141	13,167	2.56
Snapper	122	310	2.55
Surgeonfish	1,426	3,508	2.46
Surgeonfish	1,148	2,862	2.49
Unicornfish	3,193	7,981	2.50
Goatfish	21,300	39,375	1.85
Troll fish	3,633	6,107	1.68
Barracuda	234	433	1.85
Mahimahi (dolphin)	28,524	54,439	1.91
Marlin	6,874	13,138	1.91
Sailfish	545	1,089	2.00
Rainbow runner	885	2,303	2.60
Wahoo	8,626	20,086	2.33
Tunas	2,558	4,608	1.80
Skipjack tuna	132,155	243,697	1.84
Dogtooth tuna	10,519	22,694	2.16
Yellowfin tuna	30,410	62,967	2.07
Invertebrates	119	595	5.00
Lobster	3,064	13,911	4.54
Octopus	144	751	5.23
** TOTAL **	414,106	905,534	2.19

Table III.1.2

CNMI January 1996 Commercial Landings

Species	Pounds	Value	$/lb.
Jacks	17	45	2.75
Bottom fish	358	889	2.48
Onaga (red snapper)	507	2,138	4.22
Opakapaka (pink snp)	89	279	3.13
Silver-mouth	27	95	3.50
Reef fish	4,295	9,523	2.22
Rabbitfish (hitting)	97	246	2.55
Parrotfish	154	446	2.90
Goatfish	9	25	2.75
Troll fish	25	69	2.75
Mahimahi (dolphin)	6,278	12,004	1.91
Marlin	93	140	1.50
Sailfish	104	208	2.00
Rainbow runner	94	152	1.62
Wahoo	383	770	2.01
Tunas	212	370	1.74
Skipjack tuna	9,368	17,117	1.83
Dogtooth tuna	527	1,025	1.94
Yellowfin tuna	1,693	3,527	2.08
** SUBTOTAL **	24,328	49,067	2.02

Table III.1.3

CNMI February 1996 Commercial Landings

Species	Pounds	Value	$/lb.
Bottom fish	456	1,170	2.57
Grouper	167	416	2.50
Onaga (red snapper)	815	3,869	4.75
Opakapaka (pink snp)	87	258	2.98
Silver-mouth	32	112	3.50
Reef fish	5,684	11,982	2.11
Rabbitfish (hitting)	154	441	2.86
Emperorfish	265	719	2.71
Squirrelfish	15	38	2.50
Parrotfish	355	977	2.75
Unicornfish	151	376	2.50
Goatfish	153	383	2.50
Troll fish	66	158	2.39
Barracuda	24	36	1.50
Mahimahi (dolphin)	11,381	21,452	1.88
Sailfish	139	278	2.00
Rainbow runner	24	56	2.31
Wahoo	642	1,440	2.24
Tunas	139	249	1.79
Skipjack tuna	4,140	8,074	1.95
Dogtooth tuna	337	742	2.20
Yellowfin tuna	1,712	3,168	1.85
** SUBTOTAL **	26,936	56,392	2.09

Table III.1.4

CNMI March 1996 Commercial Landings

Species	Pounds	Value	$/lb.
Jacks	46	160	3.50
Bottom fish	302	763	2.53
Gindai (flower snap)	340	1,160	3.41
Grouper	460	1,364	2.97
Onaga (red snapper)	504	2,244	4.45
Opakapaka (pink snp)	392	1,244	3.18
Silver-mouth	62	273	4.40
Reef fish	6,822	13,836	2.03
Rabbitfish (hitting)	6	15	2.50
Emperorfish	1,568	5,319	3.39
Squirrelfish	10	25	2.50
Parrotfish	409	962	2.35
Snapper	79	190	2.40
Surgeonfish	48	119	2.50
Surgeonfish	14	35	2.50
Unicornfish	171	428	2.50
Goatfish	208	485	2.34
Barracuda	38	67	1.75
Mahimahi (dolphin)	5,784	10,722	1.85
Marlin	84	177	2.10
Rainbow runner	25	59	2.36
Wahoo	1,586	3,757	2.37
Tunas	221	387	1.75
Skipjack tuna	11,228	20,823	1.85
Dogtooth tuna	1,395	3,114	2.23
Yellowfin tuna	2,830	5,565	1.97
** SUBTOTAL **	34,629	73,289	2.12

Table III.1.5

CNMI April 1996 Commercial Landings

Species	Pounds	Value	$/lb.
Jacks	48	144	3.00
Mullet	56	139	2.50
Bottom fish	501	1,214	2.42
Gindai (flower snap)	825	2,759	3.34
Grouper	2,263	6,654	2.94
Onaga (red snapper)	1,793	7,566	4.22
Opakapaka (pink snp)	624	2,014	3.23
Silver-mouth	291	1,129	3.88
Reef fish	8,151	16,610	2.04
Rudderfish (guilli)	71	178	2.50
Emperorfish	320	1,050	3.28
Squirrelfish	29	73	2.50
Parrotfish	232	616	2.65
Snapper	10	28	2.75
Surgeonfish	72	180	2.50
Surgeonfish	90	225	2.50
Unicornfish	190	474	2.50
Goatfish	87	216	2.50
Troll fish	316	570	1.81
Mahimahi (dolphin)	1,834	3,204	1.75
Marlin	172	301	1.75
Sailfish	45	79	1.75
Rainbow runner	43	95	2.22
Wahoo	862	2,141	2.49
Skipjack tuna	12,760	21,784	1.71
Dogtooth tuna	772	1,823	2.36
Yellowfin tuna	1,700	3,627	2.13
Lobster	100	700	7.00
** SUBTOTAL **	34,255	75,591	2.21

Table III.1.6

CNMI May 1996 Commercial Landings

Species	Pounds	Value	$/lb.
Jacks	159	494	3.10
Mullet	40	99	2.50
Bottom fish	919	2,429	2.64
Gindai (flower snap)	621	2,130	3.43
Grouper	2,603	7,349	2.82
Onaga (red snapper)	3,141	13,841	4.41
Opakapaka (pink snp)	1,258	3,913	3.11
Silver-mouth	405	1,552	3.83
Reef fish	6,622	13,842	2.09
Wrasse	193	445	2.30
Rabbitfish (hitting)	4	14	3.50
Rudderfish (guilli)	258	645	2.50
Emperorfish	148	487	3.29
Squirrelfish	24	60	2.50
Parrotfish	435	1,148	2.64
Surgeonfish	105	261	2.50
Surgeonfish	169	423	2.50
Unicornfish	326	814	2.50
Goatfish	70	174	2.50
Troll fish	107	266	2.50
Barracuda	23	58	2.50
Mahimahi (dolphin)	116	251	2.16
Marlin	343	560	1.63
Rainbow runner	75	204	2.72
Wahoo	688	1,699	2.47
Skipjack tuna	14,456	24,358	1.68
Dogtooth tuna	2,084	4,703	2.26
Yellowfin tuna	3,179	6,836	2.15
** SUBTOTAL **	38,567	89,051	2.31

Table III.1.7

CNMI June 1996 Commercial Landings

Species	Pounds	Value	$/lb.
Bigeye scad (atulai)	226	590	2.61
Jacks	192	583	3.04
Mullet	30	74	2.50
Bottom fish	584	1,482	2.54
Gindai (flower snap)	415	1,451	3.50
Grouper	1,073	3,102	2.89
Onaga (red snapper)	234	1,053	4.50
Opakapaka (pink snp)	507	1,524	3.00
Silver-mouth	544	2,147	3.95
Reef fish	10,813	22,494	2.08
Rudderfish (guilli)	278	696	2.50
Emperorfish	207	542	2.62
Squirrelfish	561	1,081	1.93
Parrotfish	413	1,049	2.54
Surgeonfish	244	586	2.41
Surgeonfish	72	180	2.50
Unicornfish	393	983	2.50
Goatfish	2,435	4,398	1.81
Troll fish	133	211	1.58
Mahimahi (dolphin)	52	113	2.20
Marlin	1,235	2,170	1.76
Sailfish	14	25	1.75
Rainbow runner	66	198	2.98
Wahoo	107	240	2.26
Tunas	98	245	2.50
Skipjack tuna	11,226	19,672	1.75
Dogtooth tuna	809	1,651	2.04
Yellowfin tuna	1,611	3,915	2.43
Invertebrates	101	505	5.00
Lobster	1,065	5,063	4.75
Octopus	27	68	2.50
** SUBTOTAL **	35,763	78,089	2.18

Table III.1.8

CNMI July 1996 Commercial Landings

Species	Pounds	Value	$/lb.
Bigeye scad (atulai)	551	1,532	2.78
Jacks	314	856	2.73
Mullet	12	30	2.50
Bottom fish	1,380	3,648	2.64
Gindai (flower snap)	81	225	2.78
Grouper	199	648	3.25
Onaga (red snapper)	91	375	4.14
Opakapaka (pink snp)	844	2,522	2.99
Silver-mouth	560	2,133	3.81
Reef fish	9,131	19,526	2.14
Wrasse	28	84	3.00
Rabbitfish (hitting)	22	54	2.50
Rudderfish (guilli)	144	360	2.50
Emperorfish	428	1,147	2.68
Squirrelfish	193	414	2.14
Parrotfish	834	2,149	2.58
Surgeonfish	335	810	2.42
Surgeonfish	76	190	2.50
Unicornfish	493	1,231	2.50
Goatfish	3,391	6,173	1.82
Troll fish	2,619	4,022	1.54
Barracuda	7	12	1.75
Mahimahi (dolphin)	29	73	2.53
Marlin	869	1,350	1.55
Rainbow runner	138	300	2.18
Wahoo	276	619	2.24
Skipjack tuna	15,796	29,464	1.87
Dogtooth tuna	1,339	2,673	2.00
Yellowfin tuna	3,962	7,892	1.99
Lobster	681	3,199	4.70
Octopus	98	637	6.50
** SUBTOTAL **	44,916	94,347	2.10

Table III.1.9

CNMI August 1996 Commercial Landings

Species	Pounds	Value	$/lb.
Bigeye scad (atulai)	1,361	3,563	2.62
Jacks	118	304	2.59
Bottom fish	929	2,467	2.66
Gindai (flower snap)	222	653	2.94
Grouper	715	1,941	2.71
Onaga (red snapper)	2,185	9,416	4.31
Opakapaka (pink snp)	883	2,400	2.72
Silver-mouth	150	547	3.65
Reef fish	10,182	22,085	2.17
Wrasse	92	184	2.00
Rabbitfish (hitting)	20	61	3.03
Rudderfish (guilli)	167	416	2.50
Emperorfish	2,086	4,982	2.39
Squirrelfish	129	299	2.31
Parrotfish	656	1,633	2.49
Surgeonfish	253	631	2.50
Surgeonfish	210	517	2.47
Unicornfish	707	1,768	2.50
Goatfish	4,114	7,473	1.82
Troll fish	17	43	2.50
Barracuda	4	7	1.75
Mahimahi (dolphin)	124	293	2.36
Marlin	1,915	4,939	2.58
Sailfish	48	120	2.50
Rainbow runner	35	83	2.37
Wahoo	565	1,256	2.22
Tunas	247	563	2.28
Skipjack tuna	13,035	24,696	1.89
Dogtooth tuna	1,156	2,431	2.10
Yellowfin tuna	4,055	8,274	2.04
Invertebrates	18	90	5.00
Lobster	665	2,733	4.11
** SUBTOTAL **	47,058	106,865	2.27

Table III.1.10

CNMI September 1996 Commercial Landings

Species	Pounds	Value	$/lb.
Bigeye scad (atulai)	617	1,663	2.70
Jacks	61	164	2.70
Bottom fish	202	516	2.55
Gindai (flower snap)	7	25	3.50
Grouper	95	238	2.51
Onaga (red snapper)	53	233	4.40
Opakapaka (pink snp)	128	383	3.00
Reef fish	5,405	12,138	2.25
Rabbitfish (hitting)	9	23	2.50
Rudderfish (guilli)	234	584	2.50
Emperorfish	1,416	3,594	2.54
Squirrelfish	576	1,061	1.84
Parrotfish	354	869	2.46
Surgeonfish	91	226	2.50
Surgeonfish	78	194	2.50
Unicornfish	287	716	2.50
Goatfish	3,234	5,855	1.81
Troll fish	87	226	2.58
Mahimahi (dolphin)	183	380	2.08
Marlin	585	844	1.44
Rainbow runner	77	221	2.87
Wahoo	567	1,145	2.02
Tunas	572	952	1.66
Skipjack tuna	16,018	30,248	1.89
Dogtooth tuna	400	759	1.90
Yellowfin tuna	2,291	4,554	1.99
Lobster	287	1,148	4.00
** SUBTOTAL **	33,909	68,957	2.03

Table III.1.11

CNMI October 1996 Commercial Landings

Species	Pounds	Value	$/lb.
Bigeye scad (atulai)	213	602	2.83
Jacks	372	925	2.49
Bottom fish	326	847	2.60
Gindai (flower snap)	118	372	3.17
Grouper	543	1,440	2.65
Onaga (red snapper)	3,089	13,638	4.42
Opakapaka (pink snp)	216	697	3.23
Silver-mouth	327	1,414	4.33
Reef fish	8,987	19,547	2.18
Rabbitfish (hitting)	79	198	2.50
Rudderfish (guilli)	191	476	2.50
Emperorfish	2,250	5,660	2.52
Squirrelfish	2,775	5,022	1.81
Parrotfish	655	1,674	2.56
Snapper	14	42	3.00
Surgeonfish	163	408	2.50
Surgeonfish	228	570	2.50
Unicornfish	299	746	2.50
Goatfish	2,496	4,625	1.85
Troll fish	159	276	1.74
Barracuda	52	103	1.98
Mahimahi (dolphin)	617	1,424	2.31
Marlin	1,104	1,818	1.65
Sailfish	12	21	1.75
Rainbow runner	108	368	3.42
Wahoo	1,980	4,897	2.47
Tunas	270	464	1.72
Skipjack tuna	14,610	27,191	1.86
Dogtooth tuna	662	1,385	2.09
Yellowfin tuna	4,030	7,408	1.84
Lobster	192	768	4.00
** SUBTOTAL **	47,132	105,026	2.23

Table III.1.12

CNMI November 1996 Commercial Landings

Species	Pounds	Value	$/lb.
Jacks	29	81	2.78
Bottom fish	74	206	2.79
Gindai (flower snap)	39	98	2.50
Grouper	410	1,207	2.94
Onaga (red snapper)	517	2,066	4.00
Opakapaka (pink snp)	150	397	2.65
Silver-mouth	20	88	4.50
Reef fish	5,263	11,469	2.18
Rabbitfish (hitting)	267	686	2.57
Rudderfish (guilli)	56	139	2.50
Emperorfish	569	1,483	2.61
Squirrelfish	1,095	1,987	1.81
Parrotfish	215	556	2.59
Surgeonfish	12	27	2.25
Surgeonfish	48	120	2.50
Unicornfish	41	103	2.50
Goatfish	2,958	5,524	1.87
Troll fish	42	104	2.50
Barracuda	81	142	1.75
Mahimahi (dolphin)	370	805	2.17
Marlin	31	62	2.00
Rainbow runner	109	259	2.37
Wahoo	645	1,353	2.10
Tunas	459	800	1.74
Skipjack tuna	4,533	8,409	1.86
Dogtooth tuna	496	1,123	2.26
Yellowfin tuna	1,671	3,916	2.34
Lobster	75	300	4.00
** SUBTOTAL **	20,271	43,507	2.15

Table III.1.13

CNMI December 1996 Commercial Landings

Species	Pounds	Value	$/lb.
Bigeye scad (atulai)	233	641	2.76
Jacks	3	8	2.50
Bottom fish	246	677	2.75
Gindai (flower snap)	95	333	3.50
Grouper	1,380	4,261	3.09
Onaga (red snapper)	2,348	10,564	4.50
Opakapaka (pink snp)	82	278	3.40
Silver-mouth	126	567	4.50
Reef fish	5,310	11,259	2.12
Rabbitfish (hitting)	404	1,200	2.97
Rudderfish (guilli)	101	251	2.50
Emperorfish	336	867	2.58
Squirrelfish	2,242	4,109	1.83
Parrotfish	431	1,087	2.52
Snapper	19	51	2.75
Surgeonfish	106	261	2.47
Surgeonfish	164	409	2.50
Unicornfish	138	344	2.50
Goatfish	2,149	4,045	1.88
Troll fish	63	164	2.61
Barracuda	5	9	1.75
Mahimahi (dolphin)	1,757	3,719	2.12
Marlin	445	779	1.75
Sailfish	183	359	1.96
Rainbow runner	92	309	3.35
Wahoo	328	769	2.35
Tunas	341	578	1.70
Skipjack tuna	4,984	11,860	2.38
Dogtooth tuna	543	1,264	2.33
Yellowfin tuna	1,676	4,285	2.56
Octopus	19	46	2.50
** SUBTOTAL **	26,343	65,351	2.48
** TOTAL **	414,106	905,534	2.19

Figure III.1.1

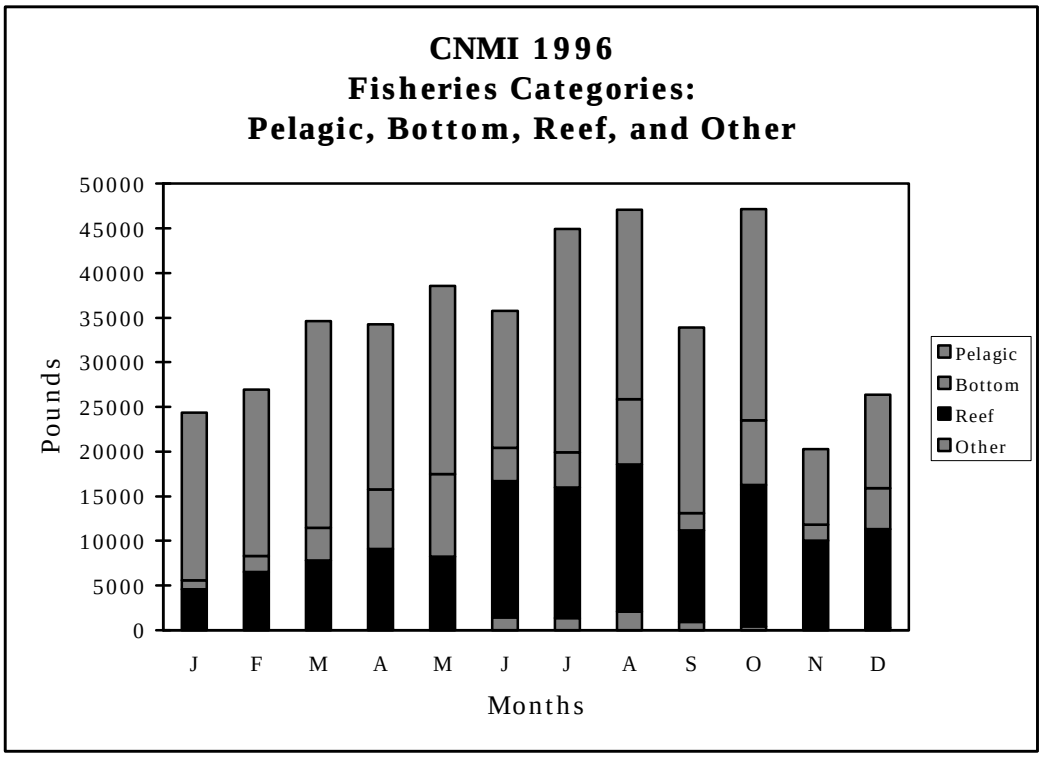


Figure III.1.2

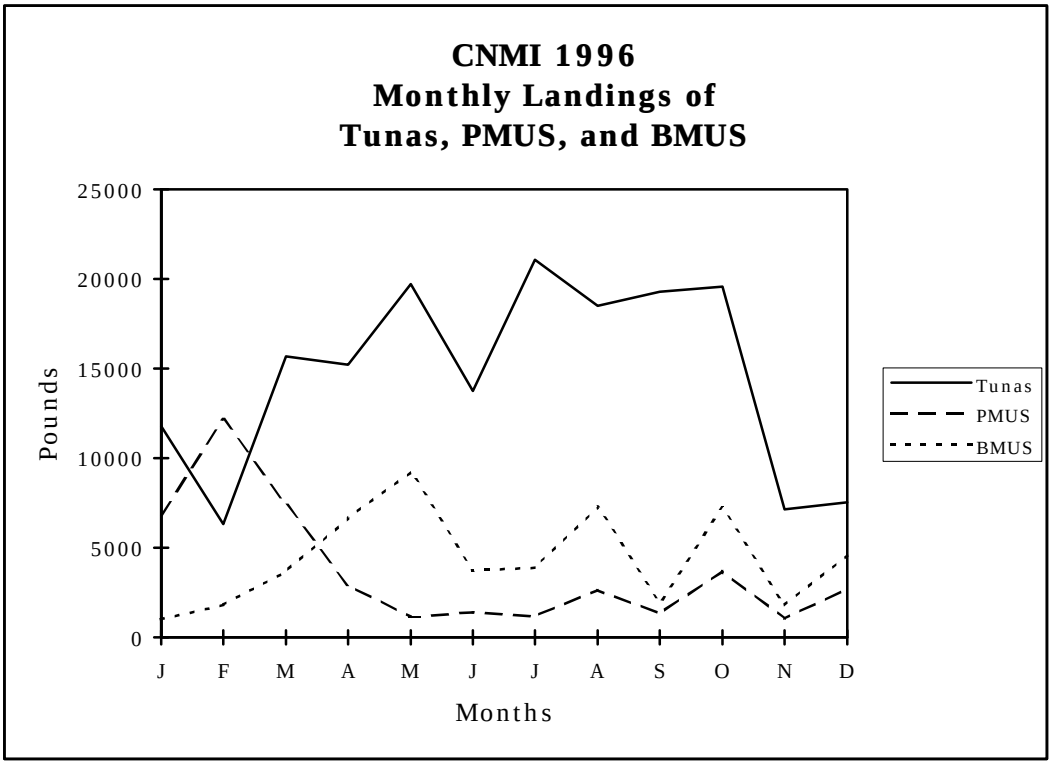


Figure III.1.3

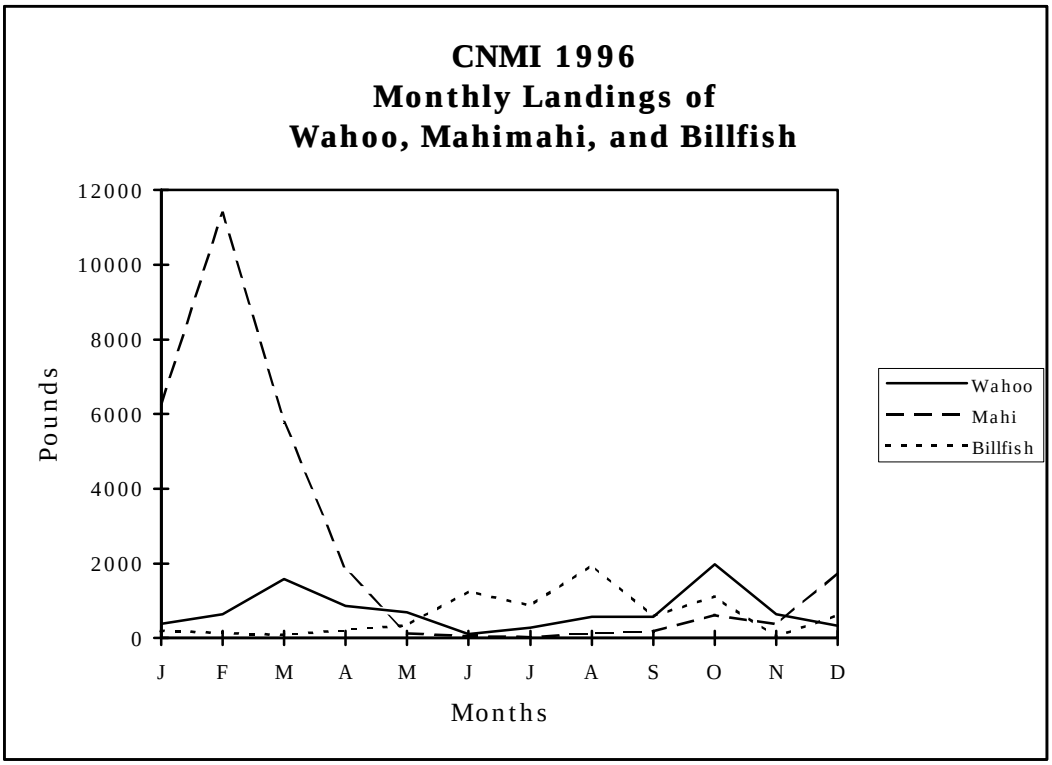


Figure III.1.4

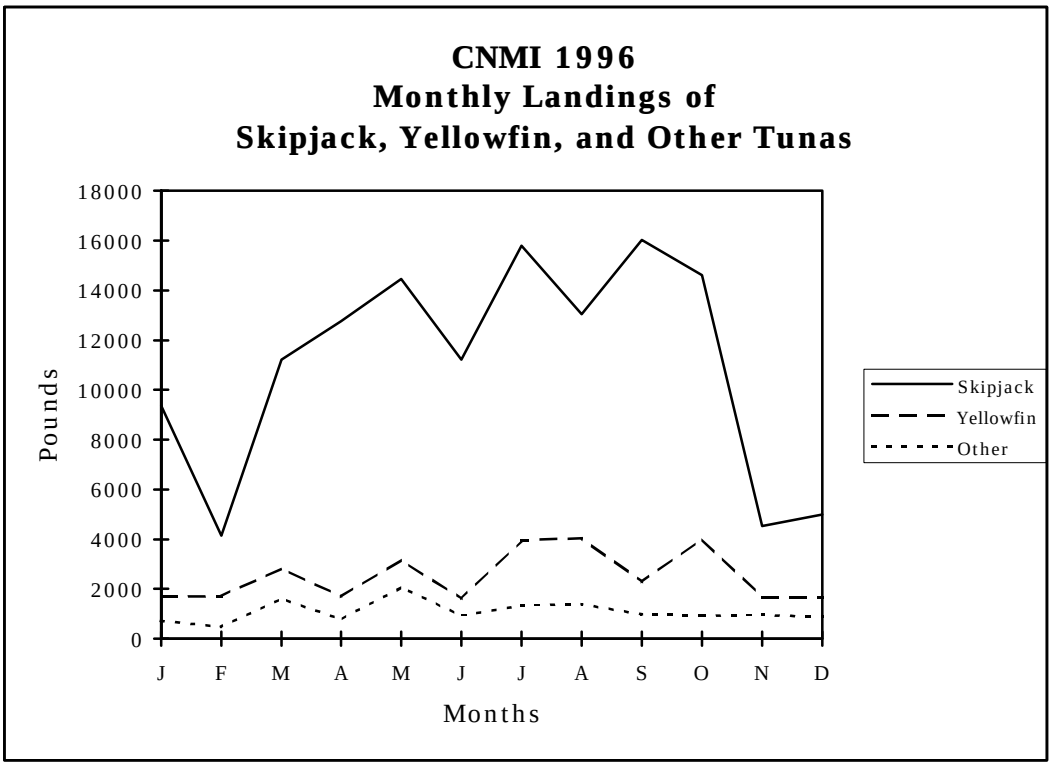


Figure III.2.1

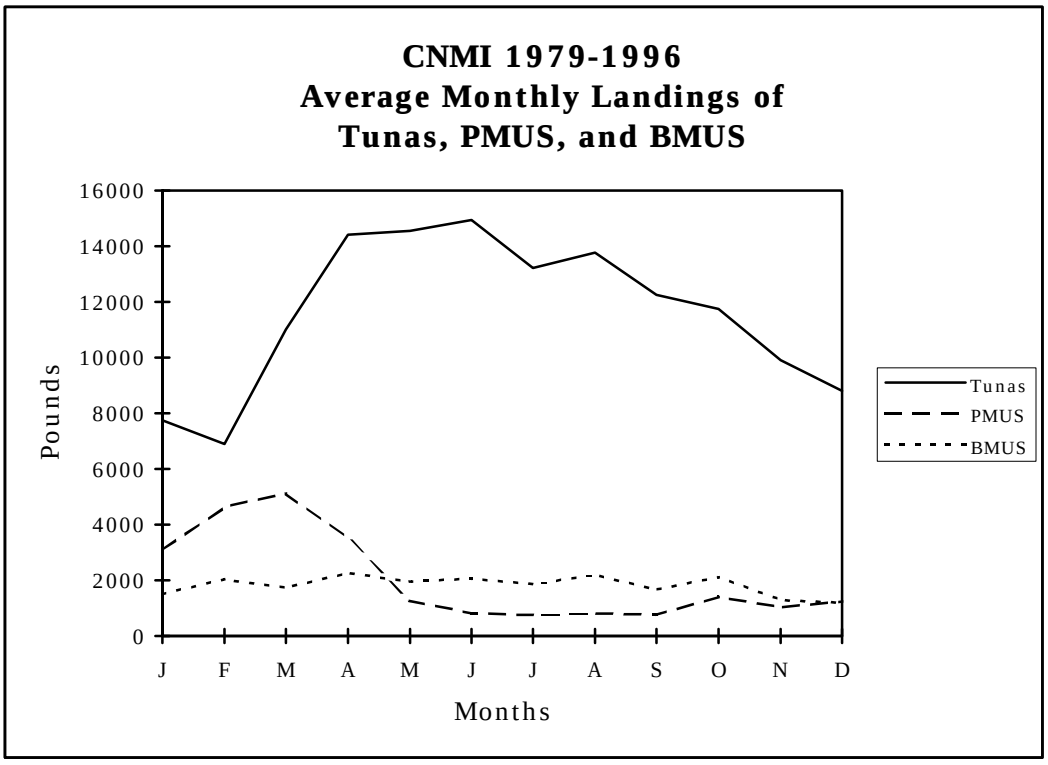


Figure III.2.2

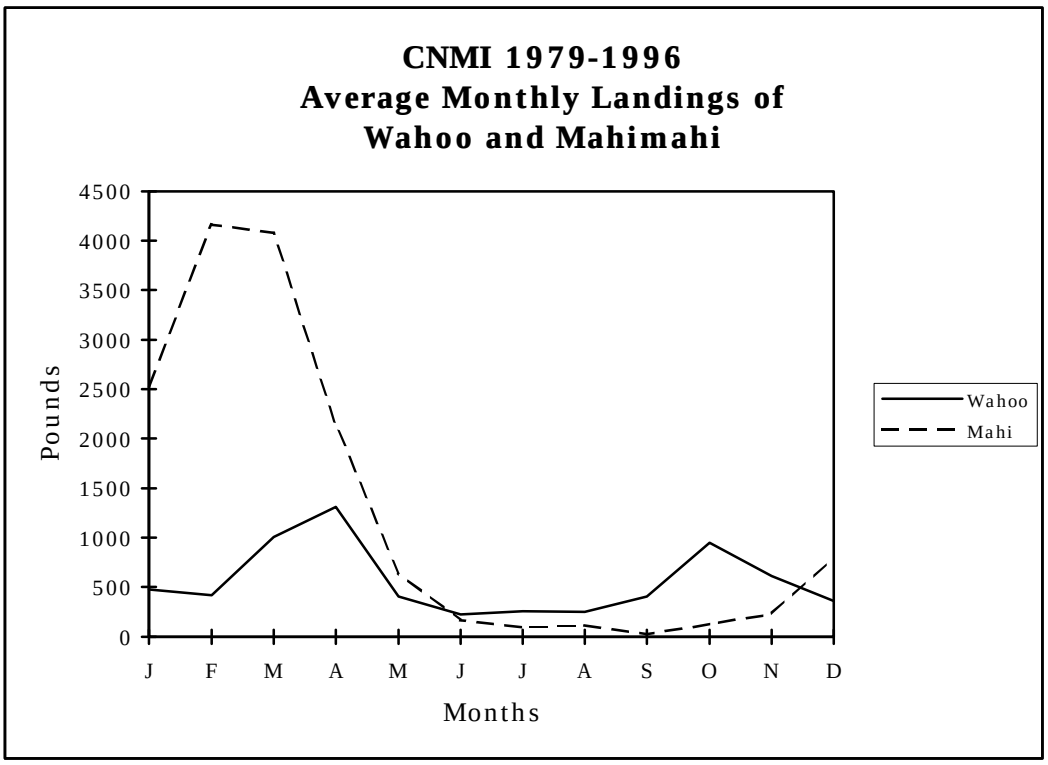


Figure III.2.3

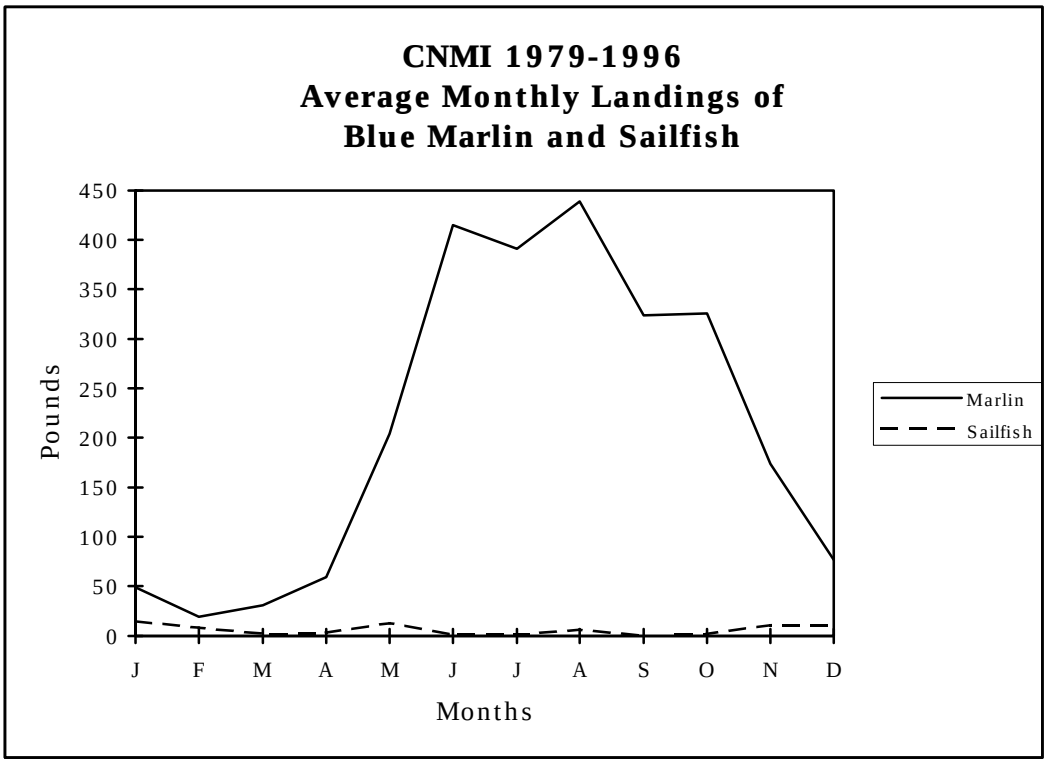


Figure III.2.4

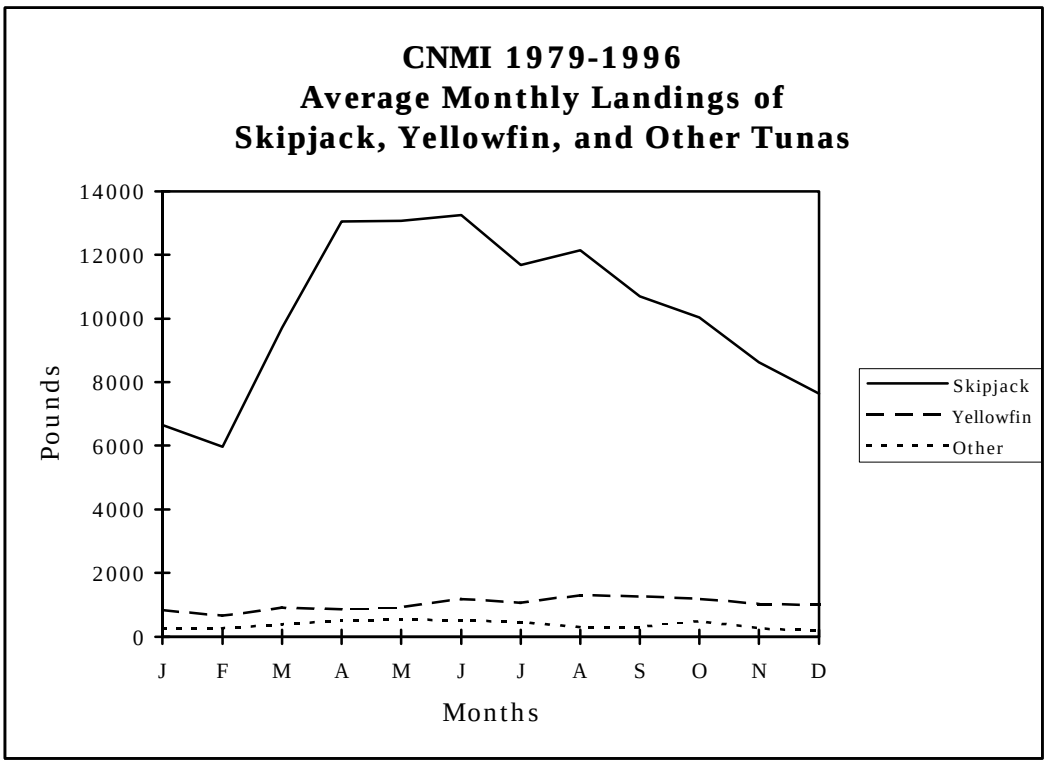


Figure III.2.5

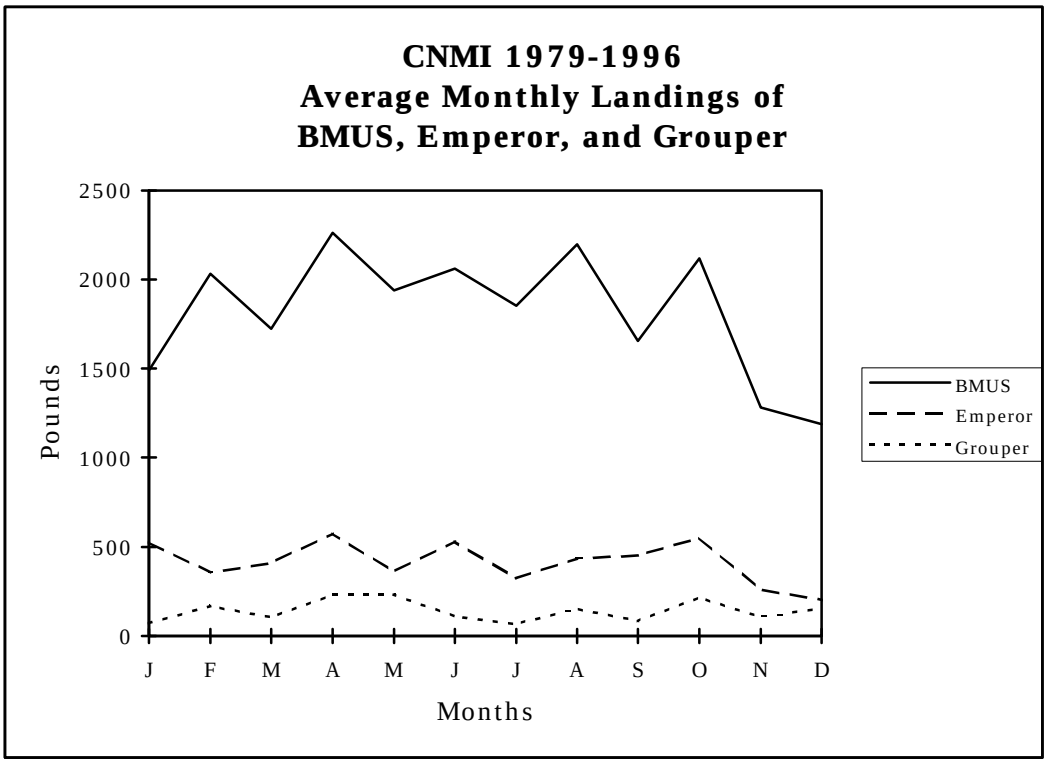


Figure III.3.1

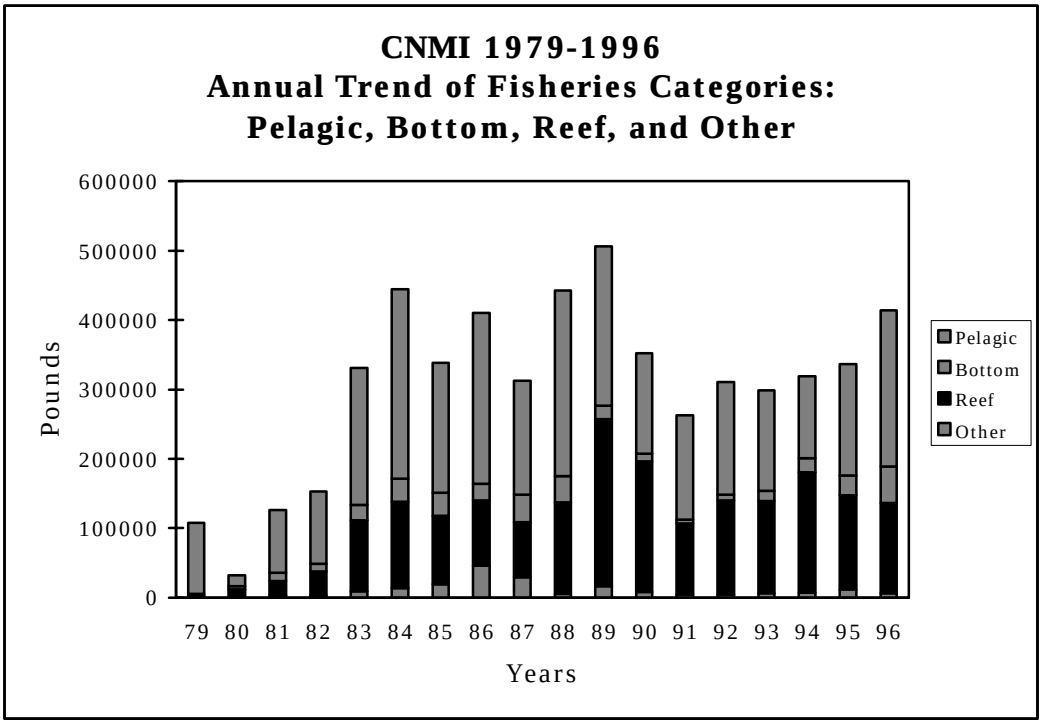


Figure III.3.2

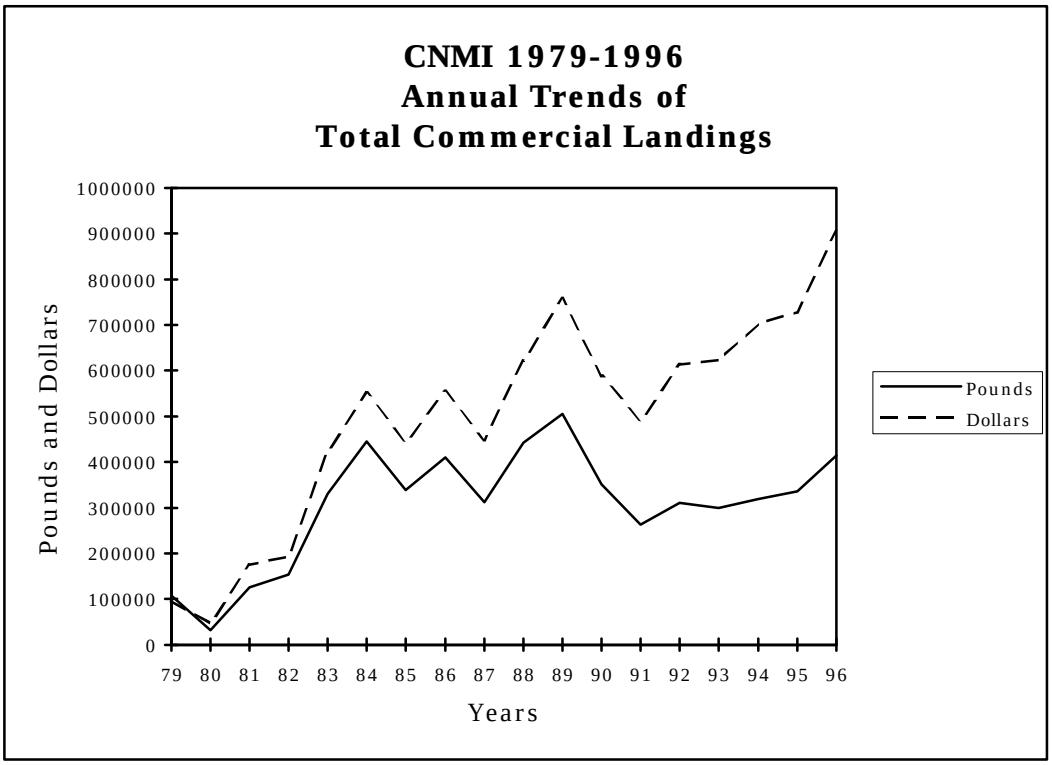


Figure III.3.3

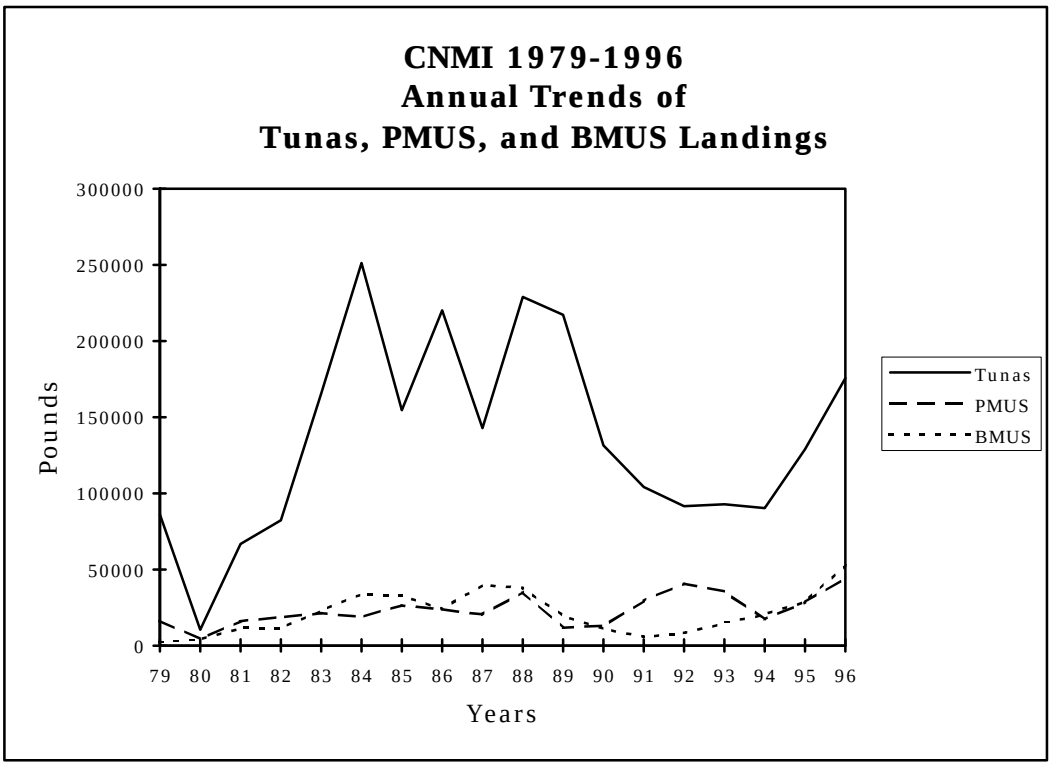


Figure III.3.4

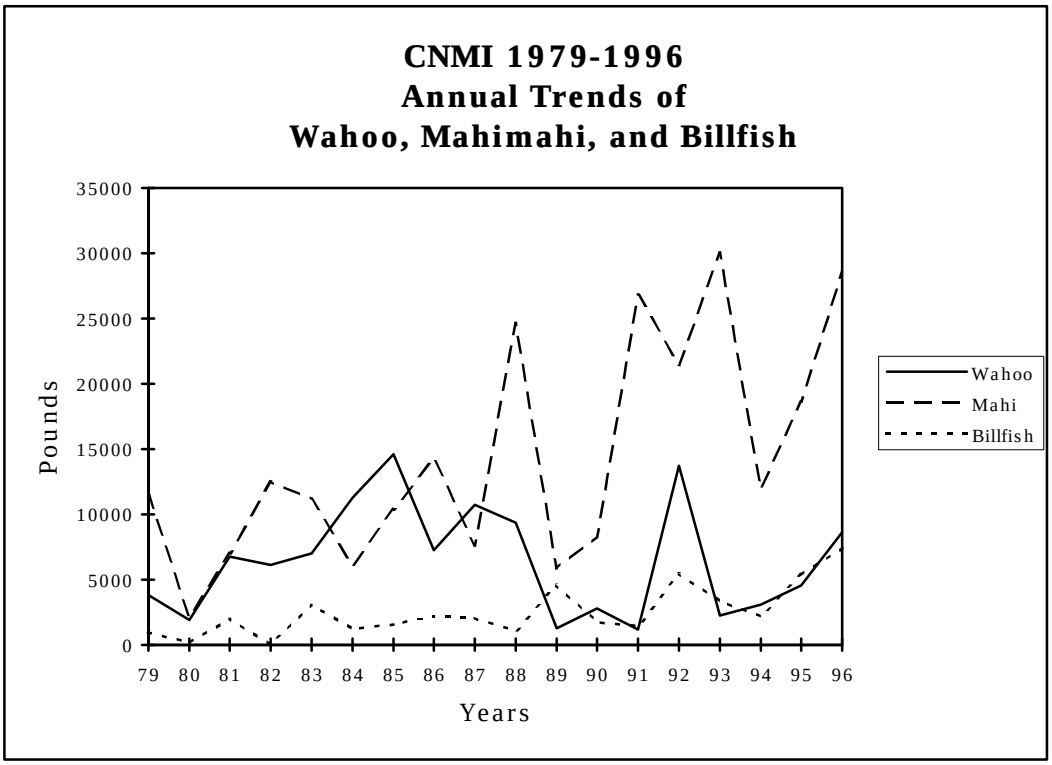


Figure III.3.5

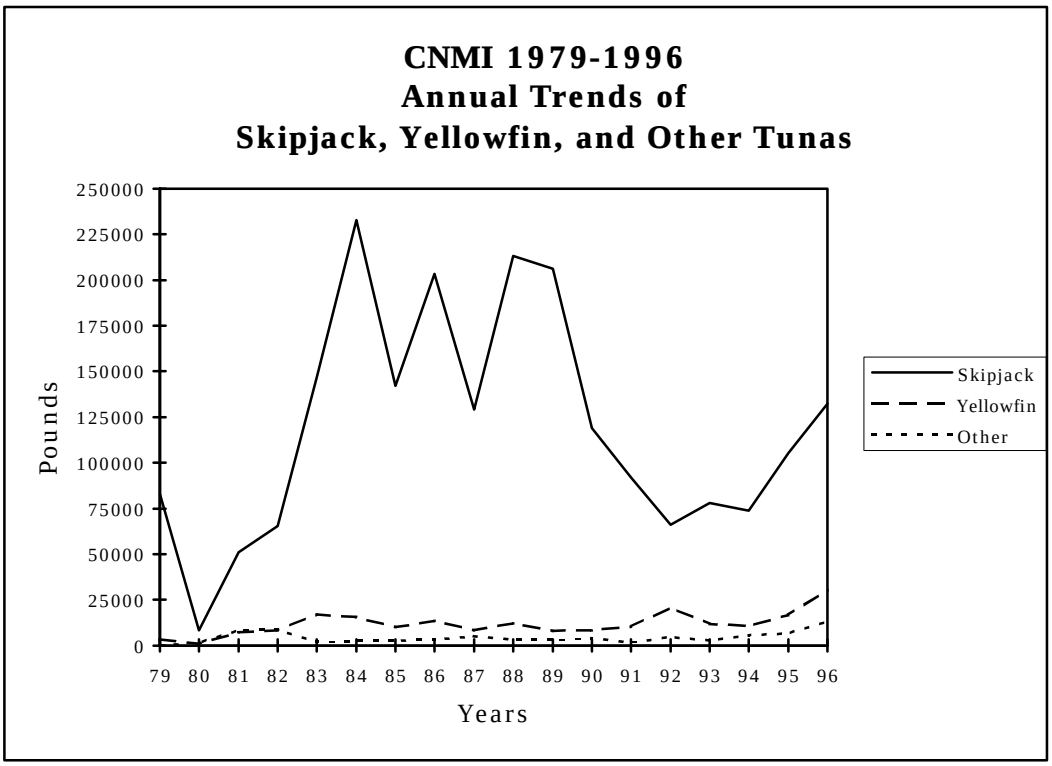


Figure III.4.1

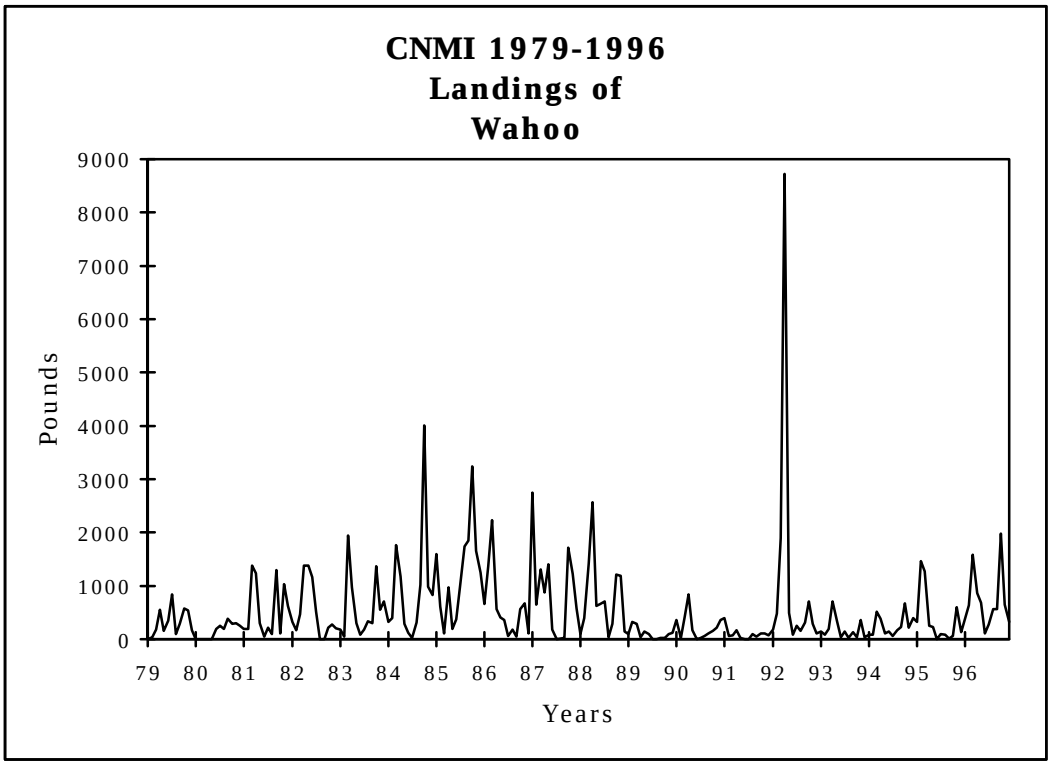


Figure III.4.2

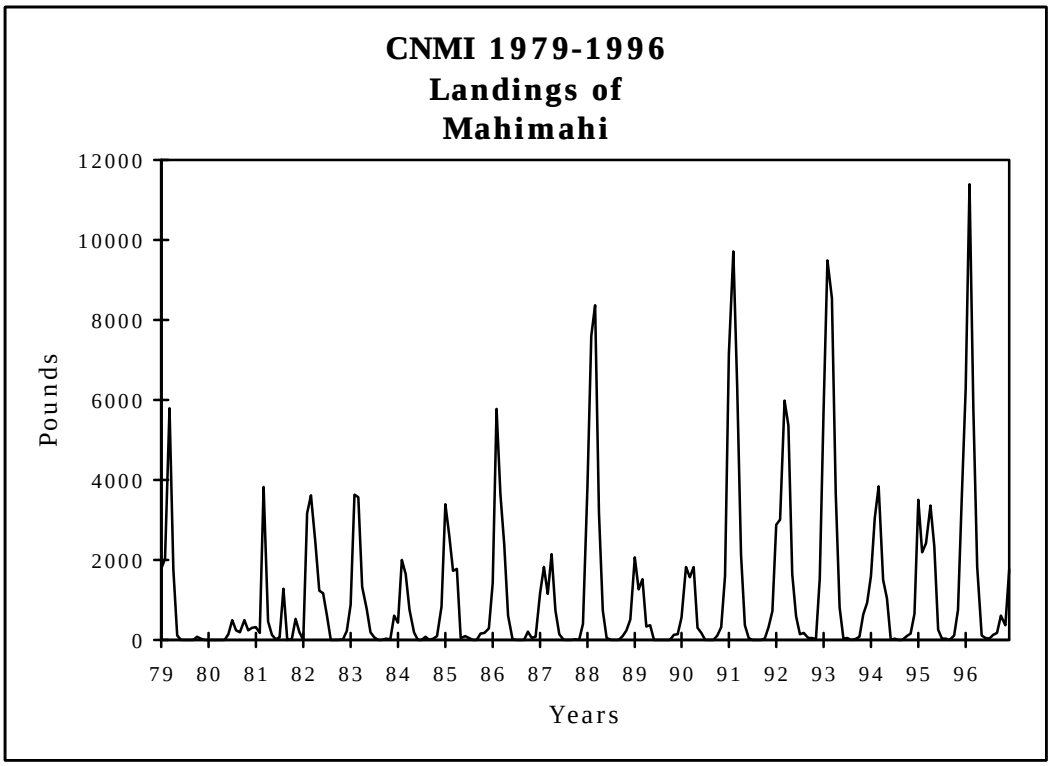


Figure III.4.3

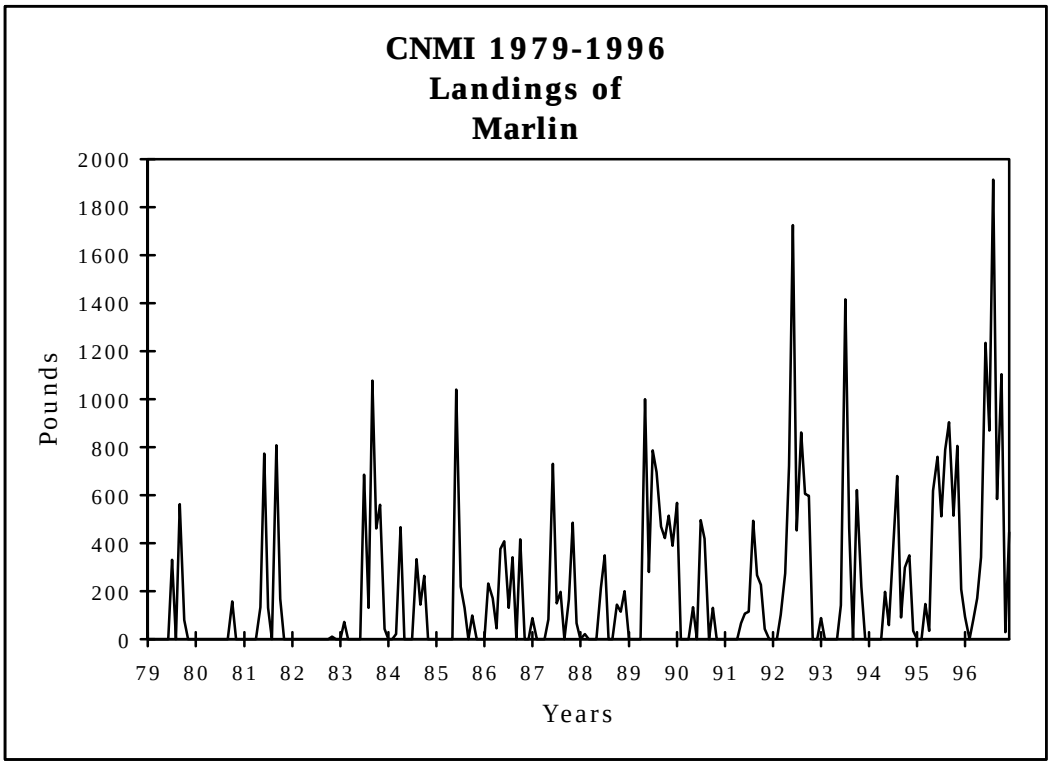


Figure III.4.4

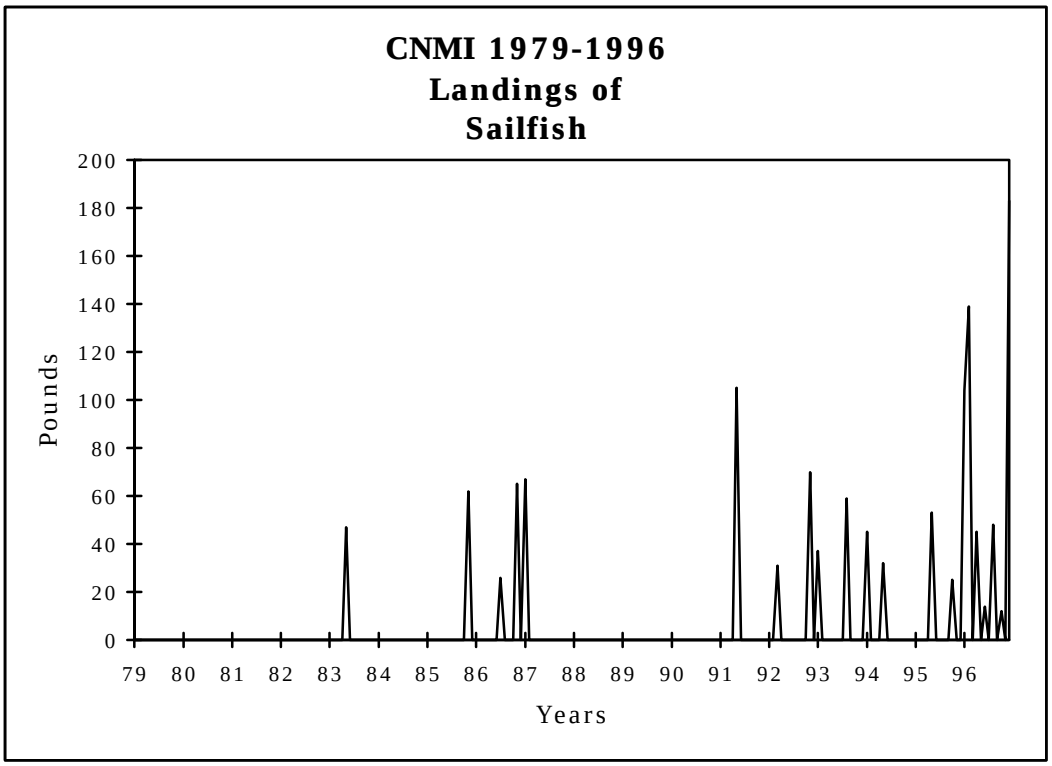


Figure III.4.5

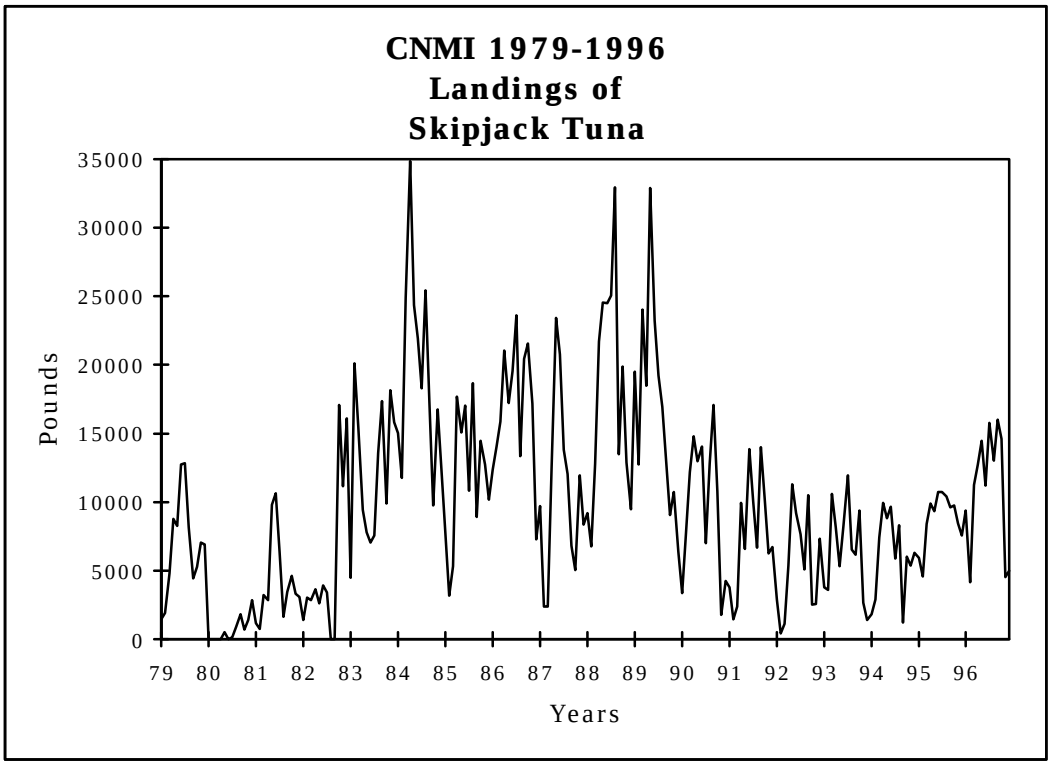


Figure III.4.6

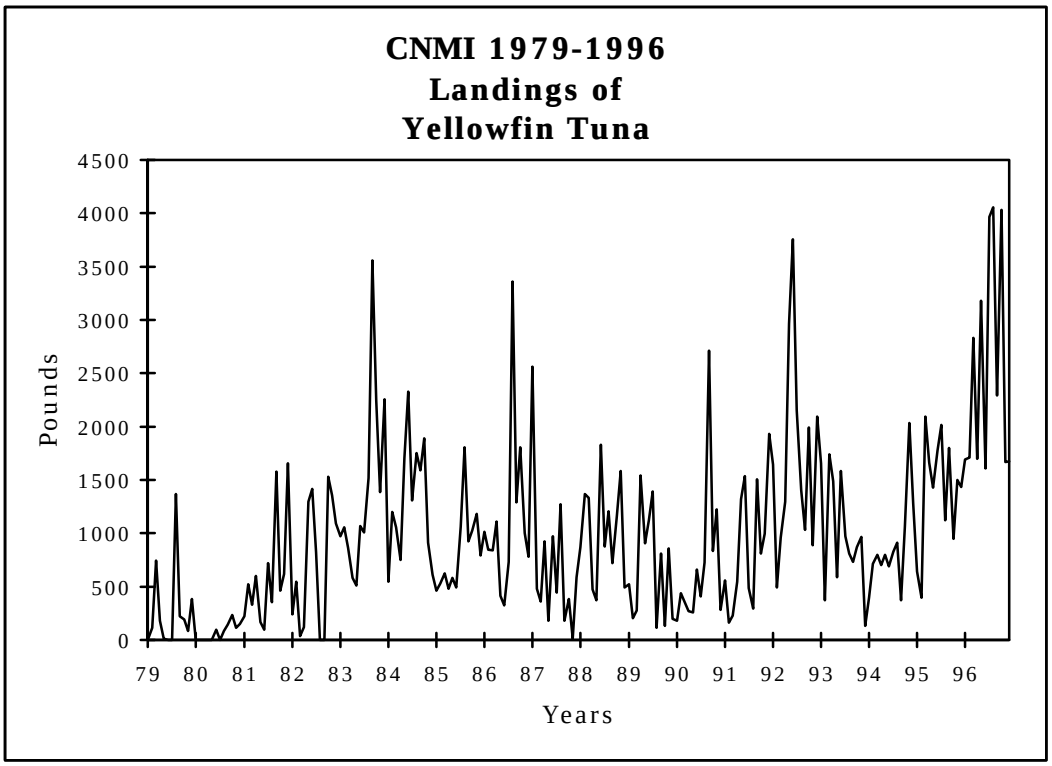


Figure III.4.7

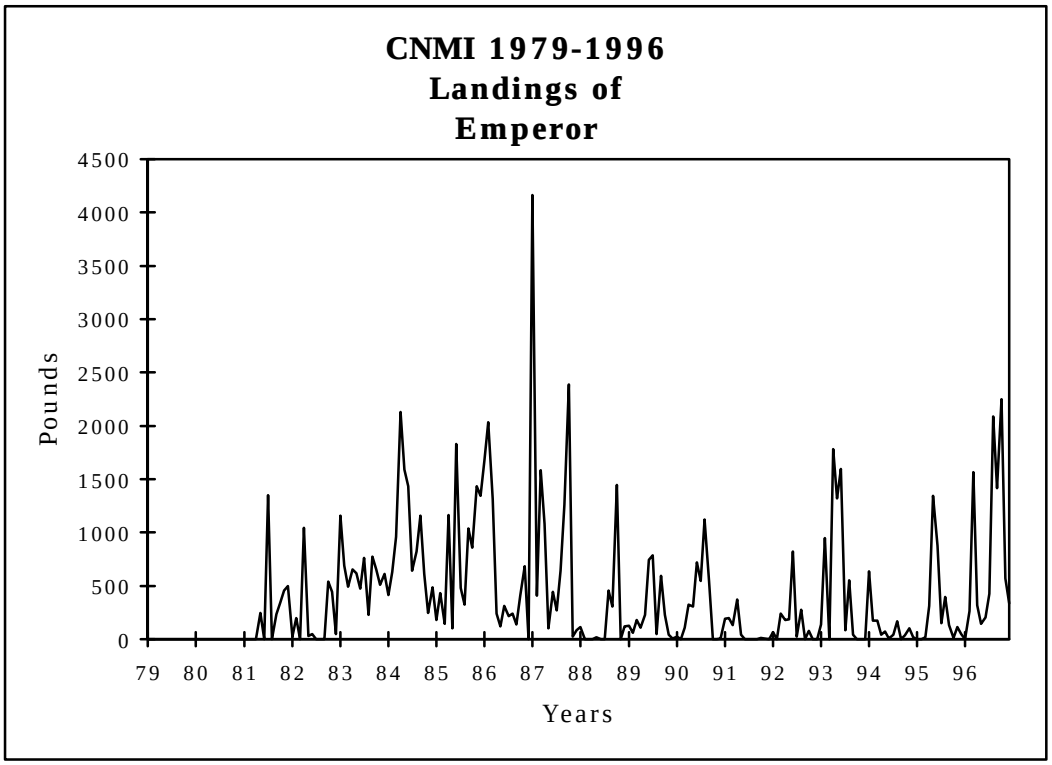
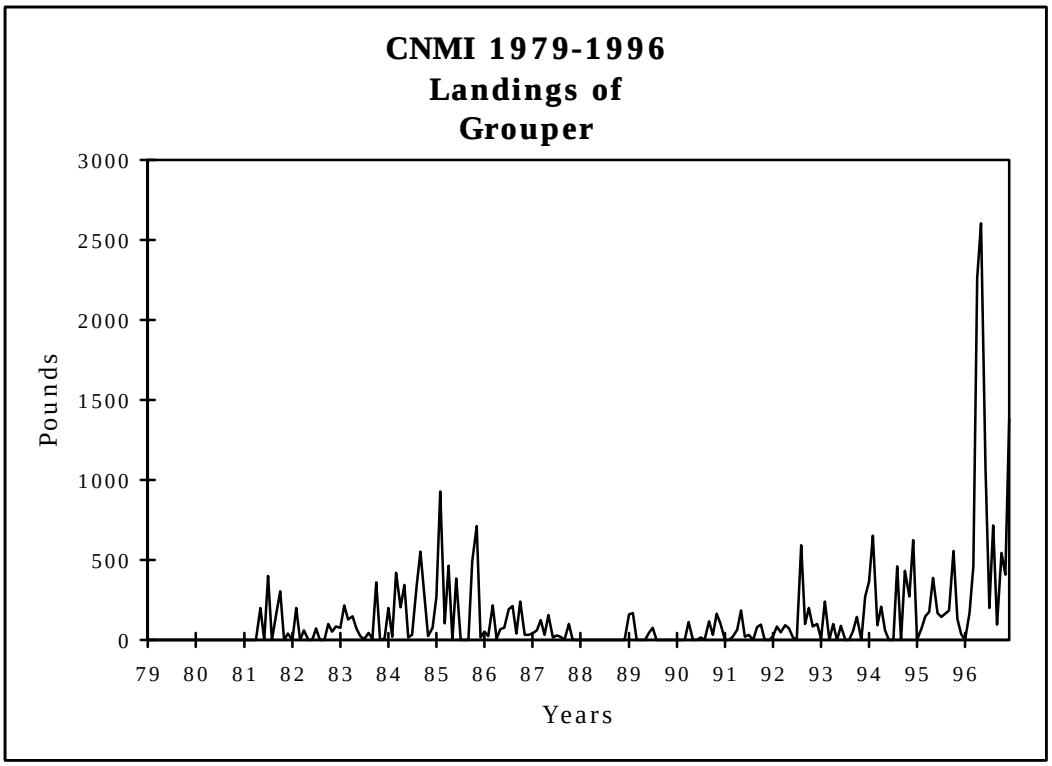


Figure III.4.8



GUAM 1996 FISHERY STATISTICS

Compiled by

Guam Division of Aquatic and Wildlife Resources

and the

Western Pacific Fishery Information Network

April 1998

CONTENTS

LIST OF GUAM SUMMARY TABLES

LIST OF GUAM FIGURES

GUAM 1996 FISHERY STATISTICS

INTRODUCTION

The Territory of Guam (lat. 13.4^{o} N and long. 144.4^{o} 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 133,000.

Fishing activities on Guam can be divided into two basic categories: offshore and inshore fishing. Offshore fishing typically involves small boats (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 been included in most previous volumes of this report series using the original data processing systems provided to DAWR through WPacFIN. However, DAWR is converting its data systems to a new microcomputer environment and survey data for 1996 are not available to include in this volume. Sampling has continued without interruption to maintain the continuity of the database and efforts are on-going to process the backlog of unprocessed data. Summary statistics for the offshore fisheries 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 commercial 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.

COMMERCIAL 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. In July 1979 the Guam Fishermen's Coop was established in Agana via some government funding. 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 were also 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. Since then several other fish wholesalers and retailers who make purchases directly from fishermen have begun operating, and most of them are providing data to WPacFIN by using the invoices given to them by DAWR. A law has been proposed 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 summaries from all participating dealers combined.

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

COMMERCIAL 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. Until 1994 processing of the data

was done at the central WPacFIN office in Honolulu, but since then it has been done by DAWR staff in Guam using a computer and software provided by WPacFIN. 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.

COMMERCIAL 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 1996. 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 specify tunas as a separate category from the PPMUS. The PMUS category in this report includes:

Mahimahi (dolphin)
Marlin (probably all blue but possibly striped or black)
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)
Emperor (mafute)

III. Billfish

Marlin (probably all blue but possibly striped or black)
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. Guam's commercial landings reported in this volume for 1996 are believed to include approximately 75% of the actual commercial landings made on Guam during that year.

Table IV.1.1

Guam 1996 Commercial Landings

Species	Pounds	Value	$/lb
Fillets	631	1,676	2.66
Miscellaneous	75	177	2.37
Bigeye Scad (Atulai)	721	2,292	3.18
Black Jack	135	279	2.07
Jacks	879	1,666	1.90
Sharks	44	37	0.85
Milkfish	33	50	1.50
Bottom Fish	640	1,776	2.78
Ehu (Red Snapper)	14	54	4.00
Gindai (Flower Snap)	246	982	4.00
Grouper	433	1,111	2.57
Kalikali (Pink Snap)	126	411	3.26
Lehi (Silverjaw)	102	383	3.74
Onaga (Red Snapper)	50	279	5.64
Opakapaka (Pink Snp)	204	815	4.00
Uku (Gray Snapper)	572	1,230	2.15
Amberjack	96	234	2.45
Reef Fish	17,839	52,469	2.94
Wrasse	538	1,180	2.20
Rabbitfish	124	341	2.75
Emperor (Mafute)	1,573	4,179	2.66
Parrotfish	1,832	5,013	2.74
Snapper	104	273	2.63
Surgeonfish	59	160	2.74
Unicornfish	1,085	2,897	2.67
Goatfish	50	124	2.50
Troll Fish	736	1,291	1.75
Barracuda	1,113	1,686	1.51
Mahimahi (Dolphin)	58,789	86,127	1.47
Marlin	25,129	24,909	0.99
Spearfish	43	60	1.38
Sailfish	790	794	1.01
Rainbow Runner	1,661	2,644	1.59
Wahoo	32,268	66,086	2.05
Skipjack Tuna	29,188	34,998	1.20
Dogtooth Tuna	1,206	2,081	1.73
Albacore Tuna	1,428	1,627	1.14
Yellowfin Tuna	50,127	71,501	1.43
Bigeye Tuna	1,367	819	0.60
Kawakawa	6	7	1.13
Lobster	136	498	3.66
Octopus	168	446	2.65
Shrimp (Saltwater)	68	544	8.00
Imported	5,443	11,300	2.08
Tilapia (Red)	46	125	2.75
Catfish	40	110	2.75
** TOTAL **	237,949	387,740	1.63

Table IV.1.1

Guam January 1996 Commercial Landings

Species	Pounds	Value	$/lb
Bigeye Scad (Atulai)	160	480	3.00
Grouper	2	8	4.00
Reef Fish	88	242	2.75
Rabbitfish (Hitting)	12	33	2.75
Rabbitfish (Sesjun)	53	146	2.75
Parrotfish	239	665	2.78
Snapper	17	47	2.75
Surgeonfish	18	50	2.75
Unicornfish	217	595	2.75
Troll Fish	100	150	1.50
Barracuda	211	284	1.34
Mahimahi (Dolphin)	10,792	16,501	1.53
Marlin	730	1,093	1.50
Spearfish	20	25	1.25
Rainbow Runner	101	155	1.53
Wahoo	4,279	8,038	1.88
Skipjack Tuna	769	1,194	1.55
Dogtooth Tuna	184	352	1.92
Yellowfin Tuna	1,819	4,570	2.51
Octopus	80	220	2.75
Imported	1,392	2,931	2.11
** SUBTOTAL **	21,282	37,779	1.78

Table IV.1.2

Guam February 1996 Commercial Landings

Species	Pounds	Value	$/lb
Bigeye Scad (Atulai)	69	207	3.00
Lehi (Silverjaw)	4	14	4.00
Reef Fish	63	184	2.94
Rabbitfish (Hitting)	8	22	2.75
Rabbitfish (Sesjun)	33	91	2.75
Parrotfish	152	418	2.75
Snapper	42	116	2.75
Unicornfish	198	545	2.75
Troll Fish	131	240	1.83
Barracuda	265	348	1.32
Mahimahi (Dolphin)	22,171	28,032	1.26
Marlin	491	716	1.46
Rainbow Runner	51	79	1.54
Wahoo	1,809	3,396	1.88
Skipjack Tuna	453	714	1.58
Dogtooth Tuna	109	169	1.55
Yellowfin Tuna	1,612	3,573	2.22
Kawakawa	2	3	1.25
Imported	1,018	2,035	2.00
** SUBTOTAL **	28,678	40,899	1.43

Table IV.1.3

Guam March 1996 Commercial Landings

Species	Pounds	Value	$/lb
Jacks	72	143	2.00
Bottom Fish	2	4	2.00
Onaga (Red Snapper)	18	90	5.00
Reef Fish	731	2,126	2.91
Troll Fish	41	52	1.27
Barracuda	43	66	1.53
Mahimahi (Dolphin)	9,259	12,184	1.32
Marlin	611	804	1.32
Sailfish	46	69	1.50
Rainbow Runner	19	30	1.55
Wahoo	3,414	6,031	1.77
Skipjack Tuna	851	1,369	1.61
Dogtooth Tuna	23	48	2.08
Yellowfin Tuna	2,238	3,629	1.62
Kawakawa	1	1	1.25
** SUBTOTAL **	17,367	26,644	1.53

Table IV.1.4

Guam April 1996 Commercial Landings

Species	Pounds	Value	$/lb
Jacks	102	203	2.00
Bottom Fish	134	534	4.00
Gindai (Flower Snap)	15	60	4.00
Lehi (Silverjaw)	31	131	4.21
Uku (Gray Snapper)	33	65	2.00
Reef Fish	2,309	6,819	2.95
Emperor (Mafute)	119	339	2.85
Parrotfish	105	263	2.50
Barracuda	65	102	1.56
Mahimahi (Dolphin)	4,471	7,282	1.63
Marlin	991	1,041	1.05
Sailfish	109	190	1.75
Rainbow Runner	87	130	1.50
Wahoo	1,470	3,325	2.26
Skipjack Tuna	3,471	4,643	1.34
Dogtooth Tuna	47	93	2.00
Yellowfin Tuna	3,460	5,442	1.57
Imported	282	564	2.00
** SUBTOTAL **	17,297	31,225	1.81

Table IV.1.5

Guam May 1996 Commercial Landings

Species	Pounds	Value	$/lb
Fillets	602	1,656	2.75
Jacks	111	78	0.70
Bottom Fish	62	175	2.81
Gindai (Flower Snap)	168	670	4.00
Grouper	84	219	2.61
Kalikali (Pink Snap)	16	54	3.50
Lehi (Silverjaw)	13	51	4.00
Opakapaka (Pink Snp)	4	16	4.00
Uku (Gray Snapper)	31	61	2.00
Amberjack	35	83	2.36
Reef Fish	758	2,274	3.00
Wrasse	98	196	2.00
Emperor (Mafute)	456	1,162	2.55
Parrotfish	17	51	3.00
Barracuda	82	122	1.50
Mahimahi (Dolphin)	3,417	5,729	1.68
Marlin	2,306	2,726	1.18
Sailfish	435	232	0.53
Rainbow Runner	46	78	1.69
Wahoo	363	847	2.33
Skipjack Tuna	2,830	3,415	1.21
Dogtooth Tuna	24	45	1.85
Yellowfin Tuna	10,367	14,548	1.40
Lobster	15	60	4.00
Imported	1,844	3,687	2.00
** SUBTOTAL **	24,181	38,235	1.58

Table IV.1.6

Guam June 1996 Commercial Landings

Species	Pounds	Value	$/lb
Jacks	7	13	2.00
Milkfish	33	50	1.50
Bottom Fish	199	541	2.73
Uku (Gray Snapper)	15	34	2.25
Amberjack	27	66	2.50
Reef Fish	1,493	4,467	2.99
Wrasse	18	36	2.00
Rabbitfish (Hitting)	12	33	2.75
Rabbitfish (Sesjun)	6	17	2.75
Emperor (Mafute)	48	120	2.50
Parrotfish	333	820	2.46
Snapper	20	44	2.19
Surgeonfish	38	105	2.75
Unicornfish	22	61	2.75
Barracuda	107	161	1.51
Marlin	6,563	5,533	0.84
Rainbow Runner	328	504	1.54
Wahoo	558	1,416	2.54
Skipjack Tuna	4,085	4,161	1.02
Dogtooth Tuna	279	448	1.61
Albacore Tuna	1,428	1,627	1.14
Yellowfin Tuna	9,030	12,868	1.43
Lobster	10	40	4.00
** SUBTOTAL **	24,655	33,164	1.35

Table IV.1.7

Guam July 1996 Commercial Landings

Species	Pounds	Value	$/lb
Bigeye Scad (Atulai)	63	173	2.75
Black Jack	135	279	2.07
Jacks	217	433	2.00
Bottom Fish	214	444	2.08
Gindai (Flower Snap)	5	18	4.00
Grouper	27	61	2.26
Kalikali (Pink Snap)	70	213	3.05
Lehi (Silverjaw)	7	28	4.00
Opakapaka (Pink Snp)	155	621	4.00
Uku (Gray Snapper)	178	359	2.02
Amberjack	20	50	2.50
Reef Fish	2,133	6,288	2.95
Emperor (Mafute)	350	937	2.68
Parrotfish	93	254	2.73
Snapper	8	23	2.88
Unicornfish	61	153	2.50
Barracuda	70	107	1.53
Mahimahi (Dolphin)	125	312	2.50
Marlin	4,264	3,223	0.76
Rainbow Runner	572	882	1.54
Wahoo	920	2,177	2.37
Skipjack Tuna	4,305	4,575	1.06
Dogtooth Tuna	24	41	1.71
Yellowfin Tuna	2,608	4,152	1.59
Lobster	5	18	4.00
** SUBTOTAL **	16,625	25,820	1.55

Table IV.1.8

Guam August 1996 Commercial Landings

Species	Pounds	Value	$/lb
Miscellaneous	28	70	2.50
Jacks	210	444	2.11
Bottom Fish	25	56	2.25
Ehu (Red Snapper)	14	54	4.00
Gindai (Flower Snap)	59	234	4.00
Grouper	204	491	2.41
Kalikali (Pink Snap)	41	145	3.52
Lehi (Silverjaw)	15	60	4.00
Opakapaka (Pink Snp)	45	178	4.00
Uku (Gray Snapper)	192	418	2.18
Amberjack	14	35	2.50
Reef Fish	2,531	7,593	3.00
Emperor (Mafute)	314	827	2.63
Parrotfish	525	1,563	2.98
Snapper	17	44	2.59
Surgeonfish	3	6	2.50
Unicornfish	421	1,087	2.58
Barracuda	72	122	1.70
Mahimahi (Dolphin)	60	133	2.22
Marlin	3,891	3,690	0.95
Sailfish	20	30	1.50
Rainbow Runner	238	360	1.51
Wahoo	3,699	8,271	2.24
Skipjack Tuna	3,649	4,036	1.11
Dogtooth Tuna	130	240	1.85
Yellowfin Tuna	3,493	6,101	1.75
Lobster	67	247	3.72
Octopus	29	80	2.75
** SUBTOTAL **	20,000	36,614	1.83

Table IV.1.9

Guam September 1996 Commercial Landings

Species	Pounds	Value	$/lb
Bigeye Scad (Atulai)	45	158	3.50
Jacks	30	61	2.00
Sharks	5	5	1.00
Grouper	32	82	2.54
Uku (Gray Snapper)	79	177	2.25
Reef Fish	1,944	5,621	2.89
Wrasse	50	113	2.25
Emperor (Mafute)	114	284	2.50
Parrotfish	203	600	2.96
Unicornfish	128	351	2.75
Goatfish	50	124	2.50
Barracuda	12	21	1.75
Mahimahi (Dolphin)	363	819	2.26
Marlin	1,411	1,437	1.02
Sailfish	51	88	1.75
Rainbow Runner	39	69	1.79
Wahoo	1,091	2,490	2.28
Skipjack Tuna	2,004	2,422	1.21
Dogtooth Tuna	16	23	1.41
Yellowfin Tuna	3,264	2,691	0.82
Lobster	29	100	3.50
** SUBTOTAL **	10,956	17,730	1.62

Table IV.1.10

Guam October 1996 Commercial Landings

Species	Pounds	Value	$/lb
Bigeye Scad (Atulai)	244	854	3.50
Jacks	33	82	2.48
Sharks	26	26	1.00
Bottom Fish	6	22	4.00
Grouper	71	213	3.00
Onaga (Red Snapper)	32	189	6.00
Uku (Gray Snapper)	35	90	2.62
Reef Fish	1,945	5,458	2.81
Wrasse	78	176	2.25
Emperor (Mafute)	154	457	2.96
Parrotfish	166	379	2.29
Unicornfish	39	107	2.75
Barracuda	116	219	1.90
Mahimahi (Dolphin)	1,461	2,867	1.96
Marlin	3,099	3,553	1.15
Sailfish	61	91	1.50
Rainbow Runner	69	127	1.86
Wahoo	3,385	7,589	2.24
Skipjack Tuna	2,740	3,270	1.19
Dogtooth Tuna	119	225	1.89
Yellowfin Tuna	7,980	6,598	0.83
Bigeye Tuna	1,367	819	0.60
Lobster	12	33	2.88
Octopus	44	112	2.55
** SUBTOTAL **	23,277	33,557	1.44

Table IV.1.11

Guam November 1996 Commercial Landings

Species	Pounds	Value	$/lb
Fillets	29	20	0.70
Miscellaneous	38	86	2.25
Bigeye Scad (Atulai)	140	420	3.00
Jacks	3	8	2.50
Sharks	14	7	0.50
Grouper	13	37	2.86
Uku (Gray Snapper)	12	27	2.25
Reef Fish	1,798	5,292	2.94
Wrasse	241	541	2.25
Emperor (Mafute)	10	25	2.50
Troll Fish	261	478	1.83
Barracuda	54	101	1.90
Mahimahi (Dolphin)	1,163	2,146	1.85
Marlin	428	560	1.31
Sailfish	35	47	1.36
Rainbow Runner	78	161	2.07
Wahoo	7,196	14,329	1.99
Skipjack Tuna	2,207	2,819	1.28
Dogtooth Tuna	190	298	1.57
Yellowfin Tuna	2,347	3,419	1.46
Octopus	15	34	2.25
** SUBTOTAL **	16,269	30,854	1.90

Table IV.1.12

Guam December 1996 Commercial Landings

Species	Pounds	Value	$/lb
Miscellaneous	9	21	2.50
Jacks	95	201	2.12
Lehi (Silverjaw)	33	99	3.00
Reef Fish	2,048	6,107	2.98
Wrasse	53	119	2.25
Emperor (Mafute)	9	27	3.00
Troll Fish	203	371	1.83
Barracuda	19	34	1.84
Mahimahi (Dolphin)	5,510	10,120	1.84
Marlin	347	533	1.54
Spearfish	23	35	1.50
Sailfish	35	48	1.36
Rainbow Runner	34	72	2.13
Wahoo	4,086	8,177	2.00
Skipjack Tuna	1,825	2,380	1.30
Dogtooth Tuna	63	101	1.60
Yellowfin Tuna	1,908	3,910	2.05
Kawakawa	3	3	1.00
Shrimp (Saltwater)	68	544	8.00
Imported	908	2,083	2.29
Tilapia (Red)	46	125	2.75
Catfish	40	110	2.75
** SUBTOTAL **	17,363	35,220	2.03
** TOTAL **	237,949	387,740	1.63

Figure IV.1.1

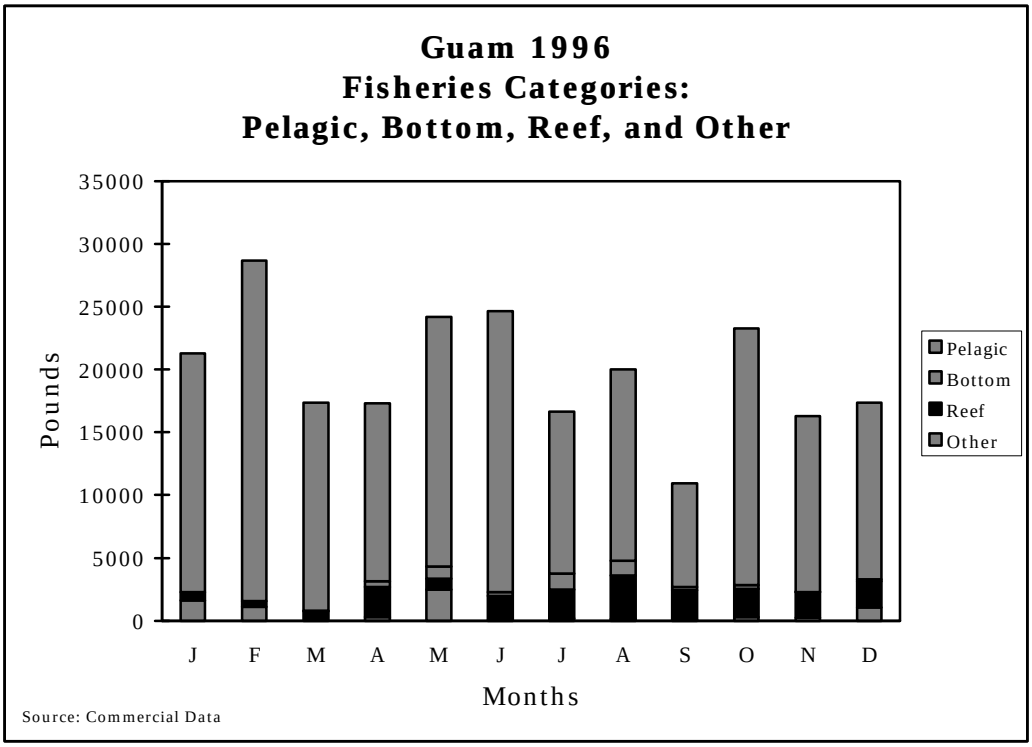


Figure IV.1.2

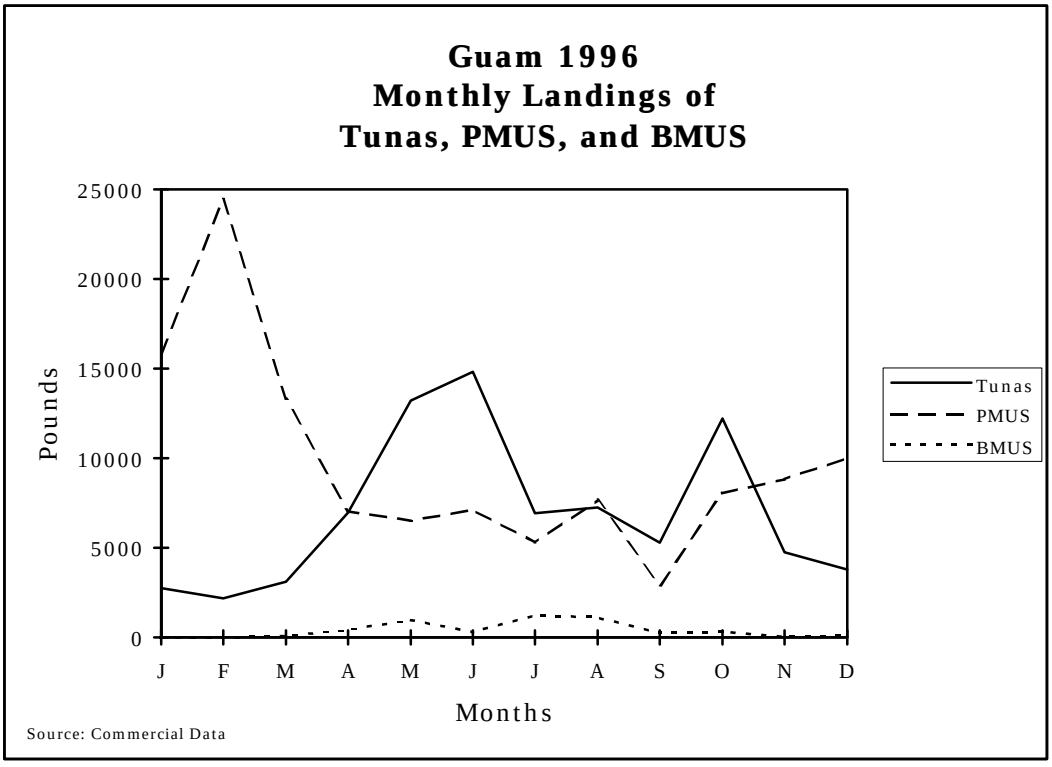


Figure IV.1.3

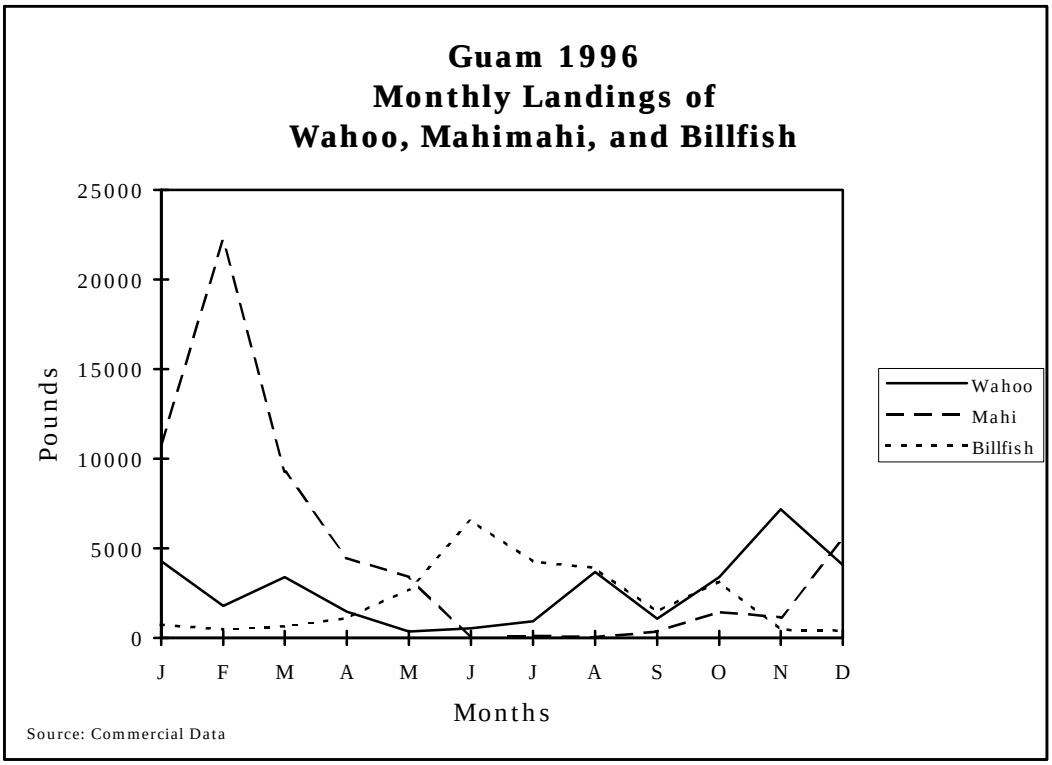


Figure IV.1.4

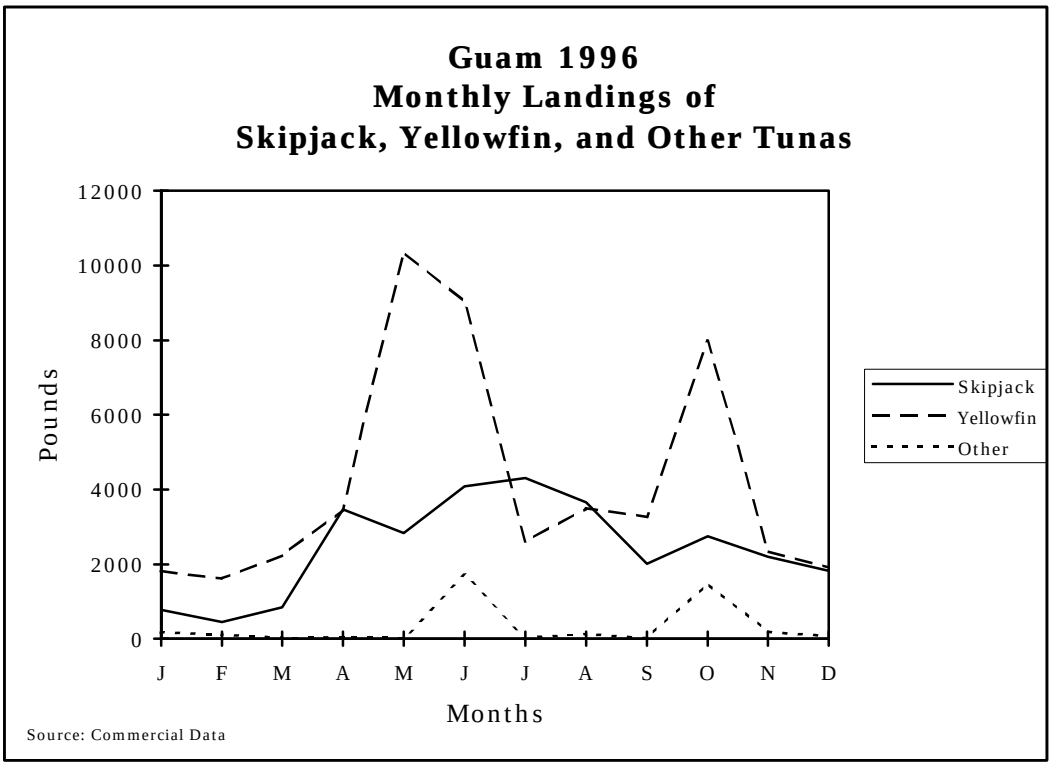


Figure IV.2.1

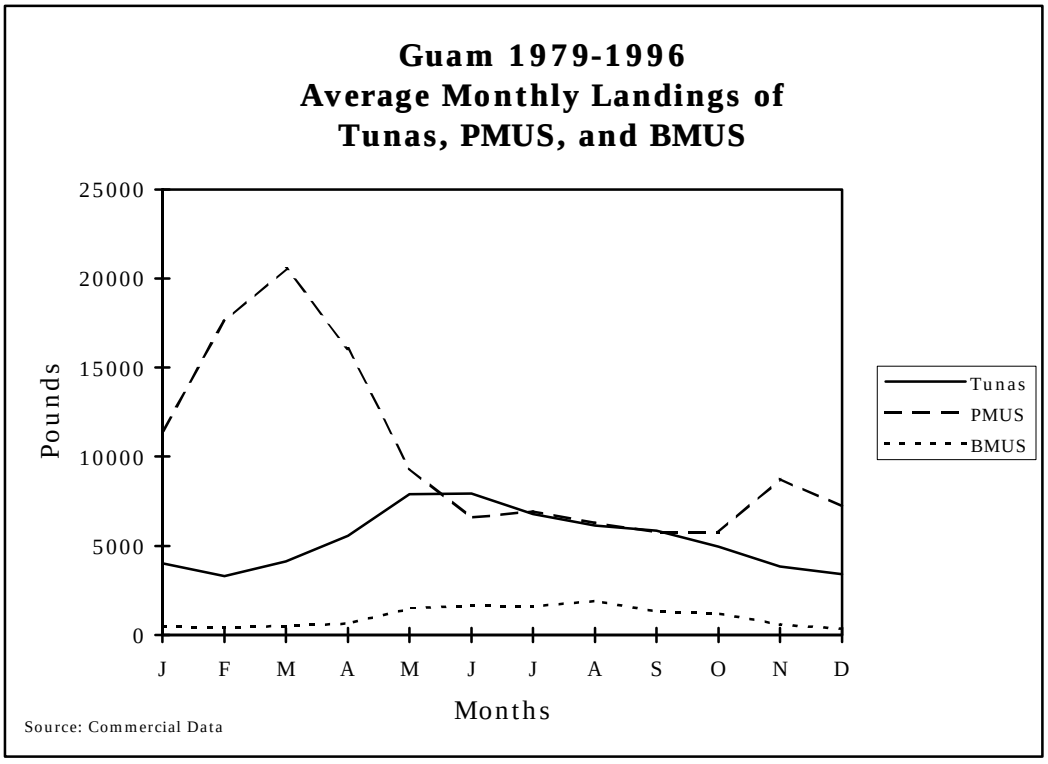


Figure IV.2.2

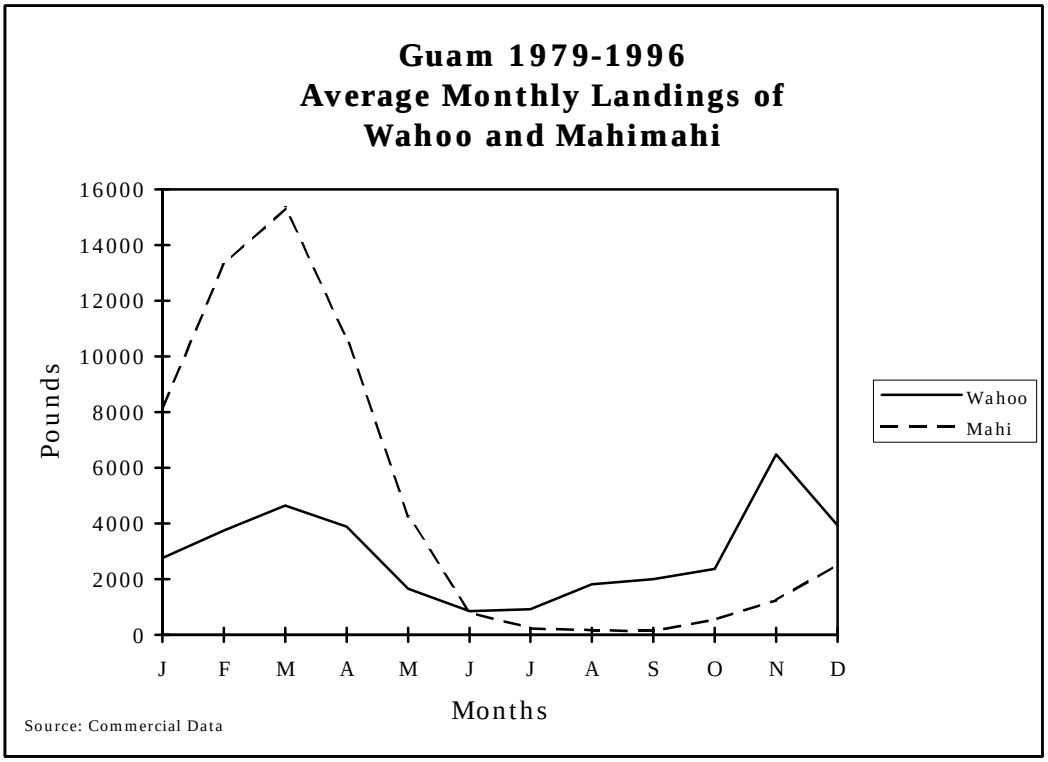


Figure IV.2.3

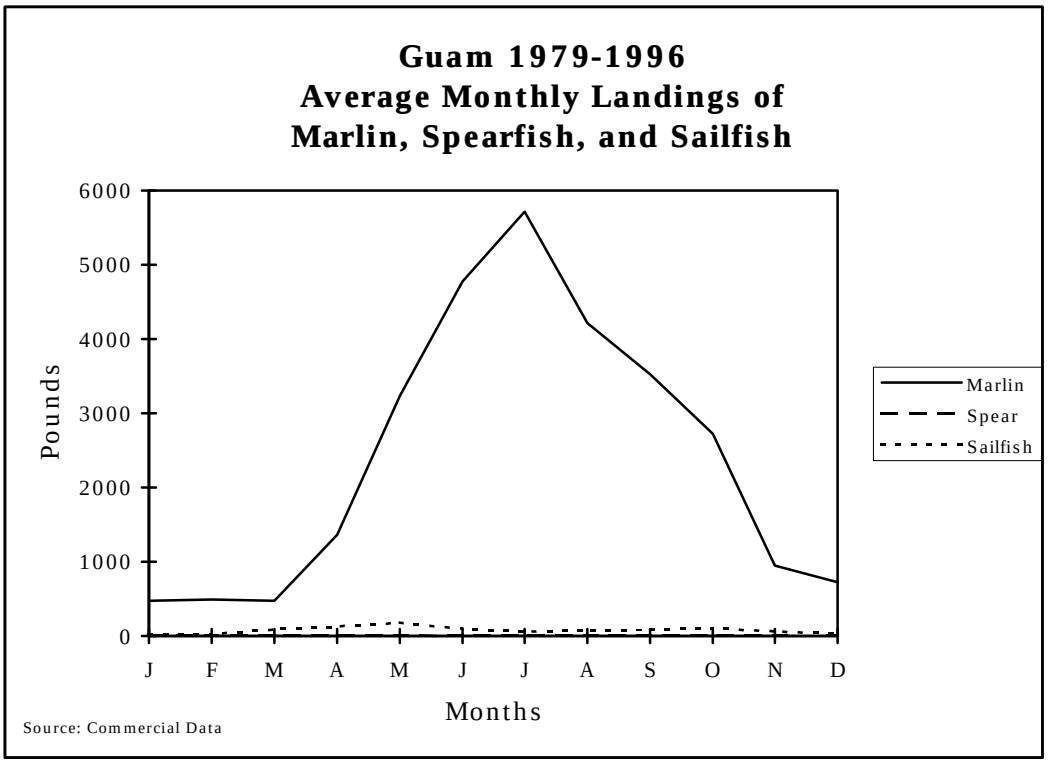


Figure IV.2.4

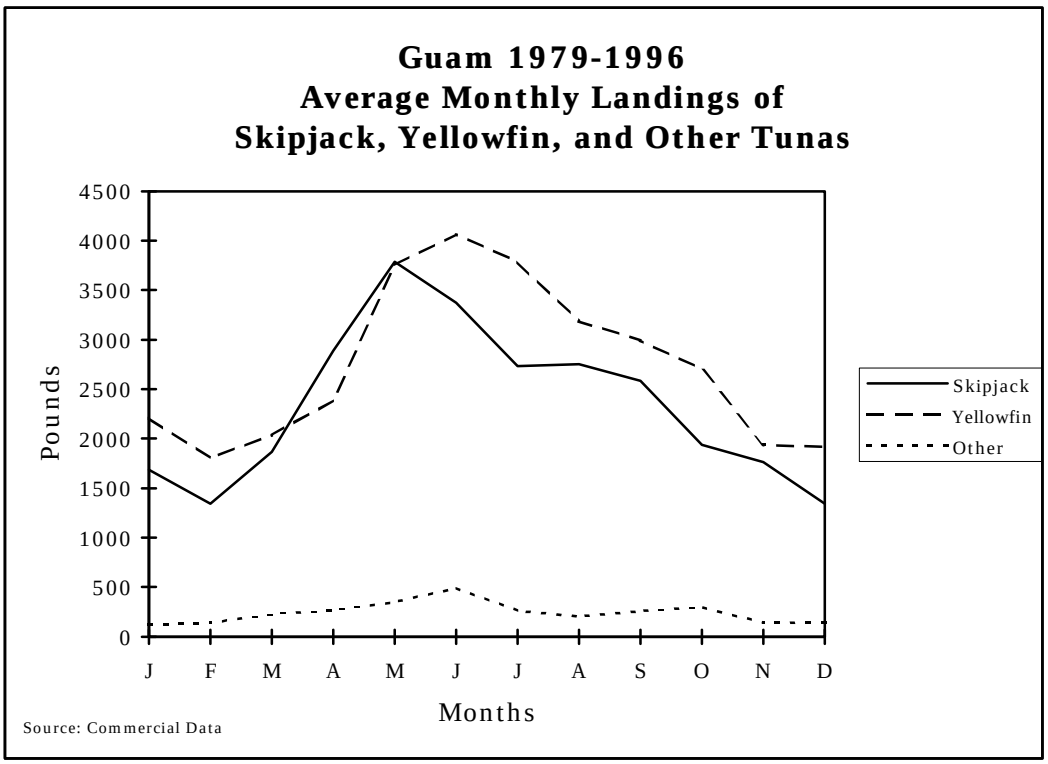


Figure IV.2.5

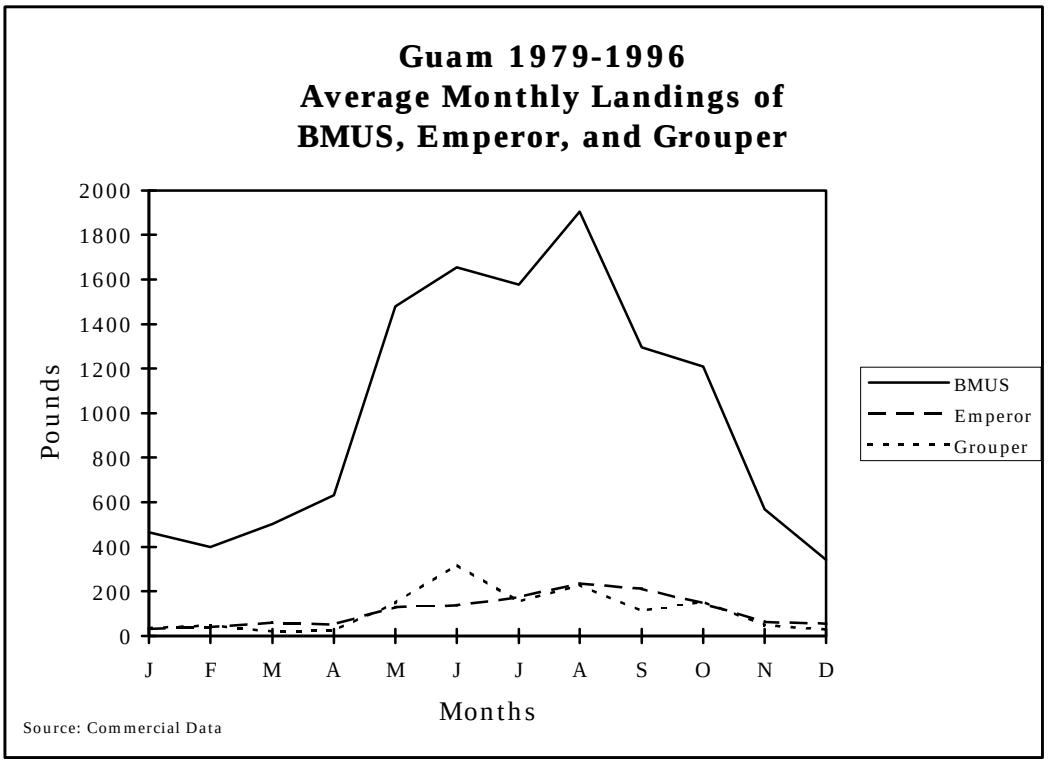


Figure IV.3.1

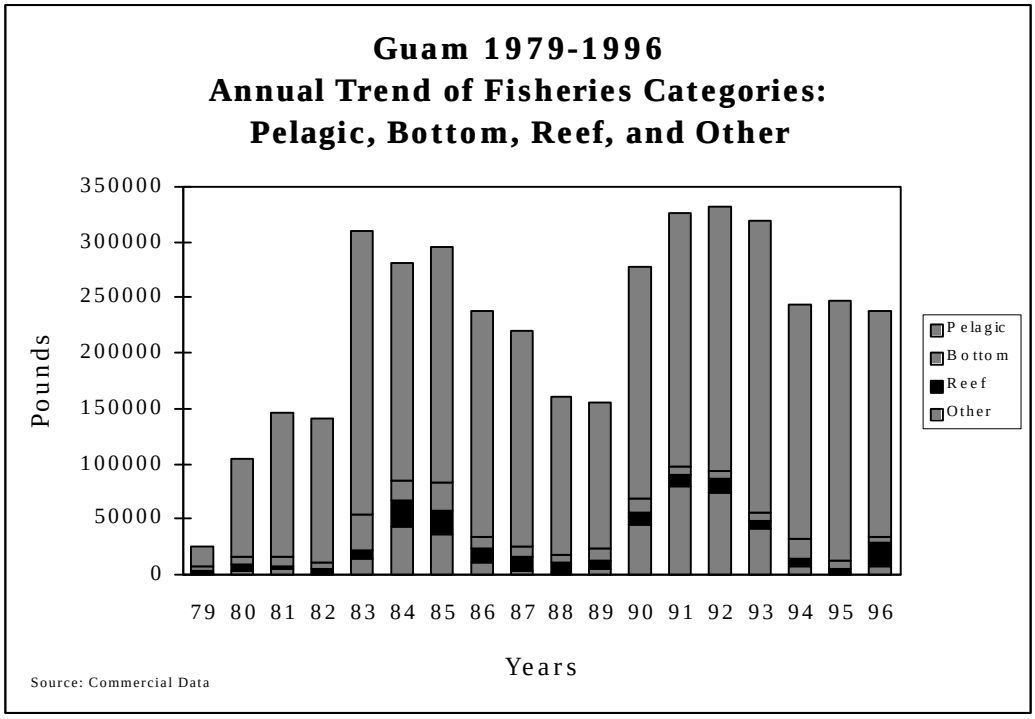


Figure IV.3.2

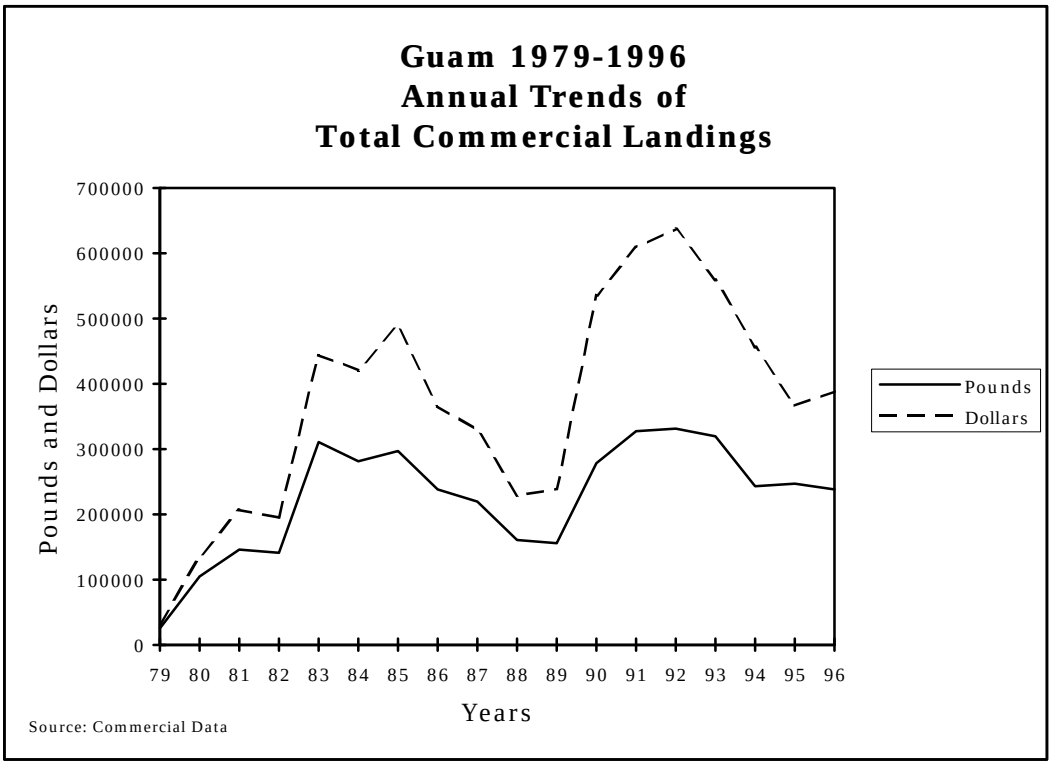


Figure IV.3.3

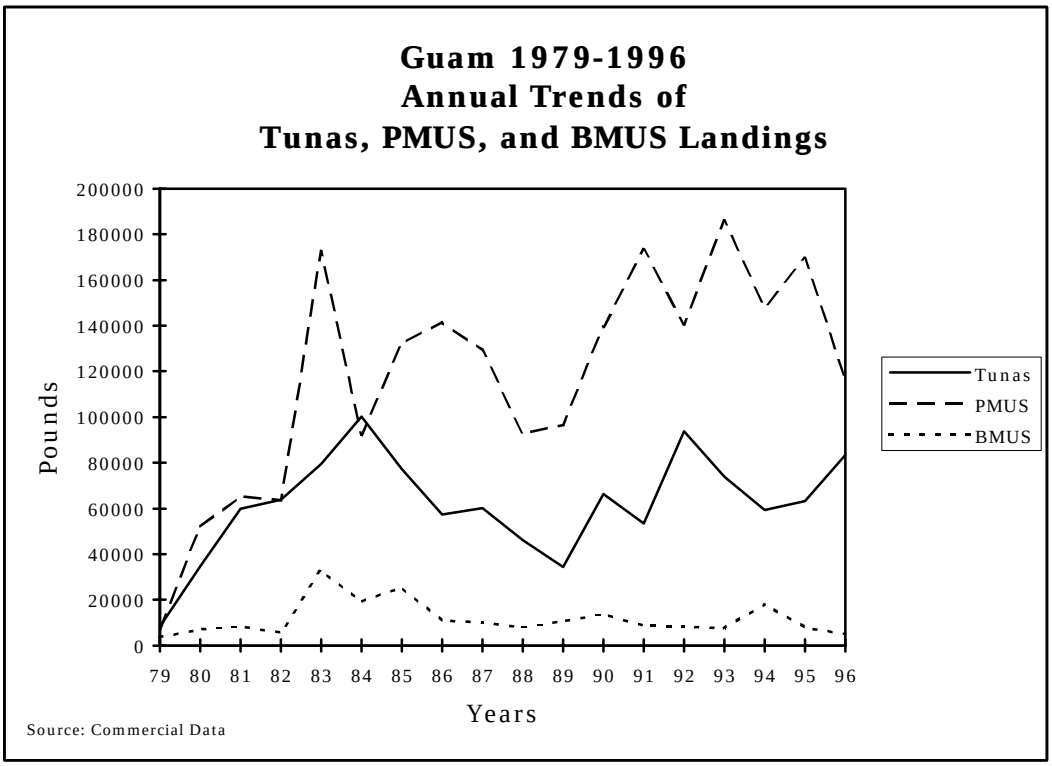


Figure IV.3.4

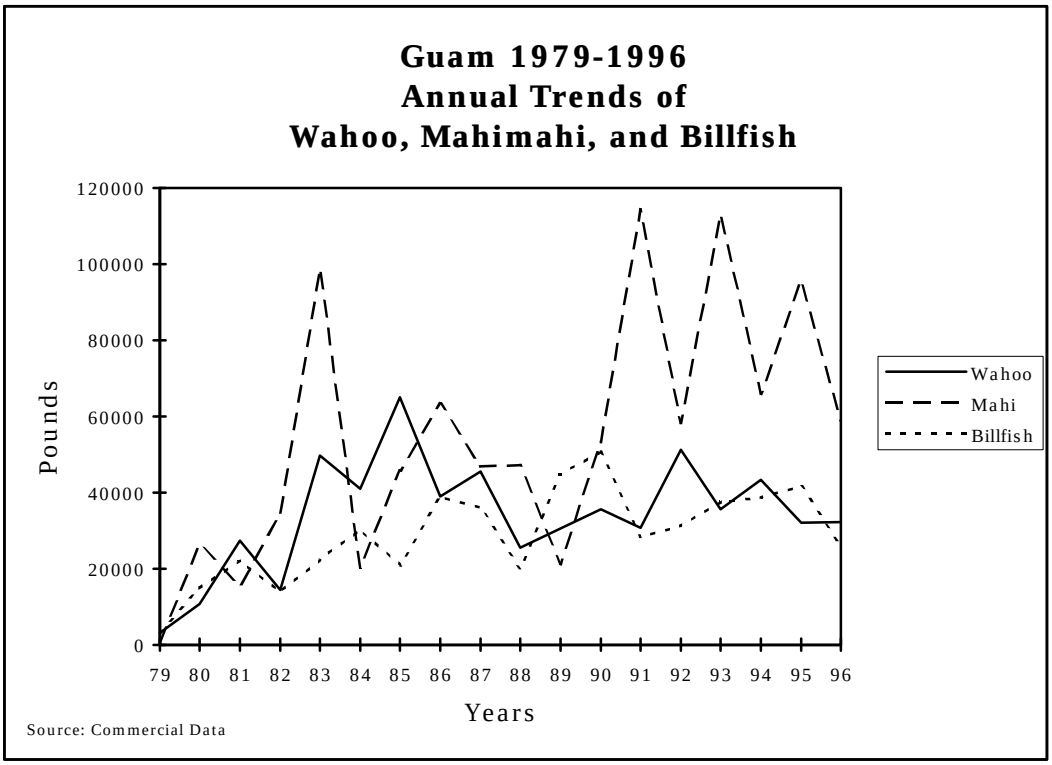


Figure IV.3.5

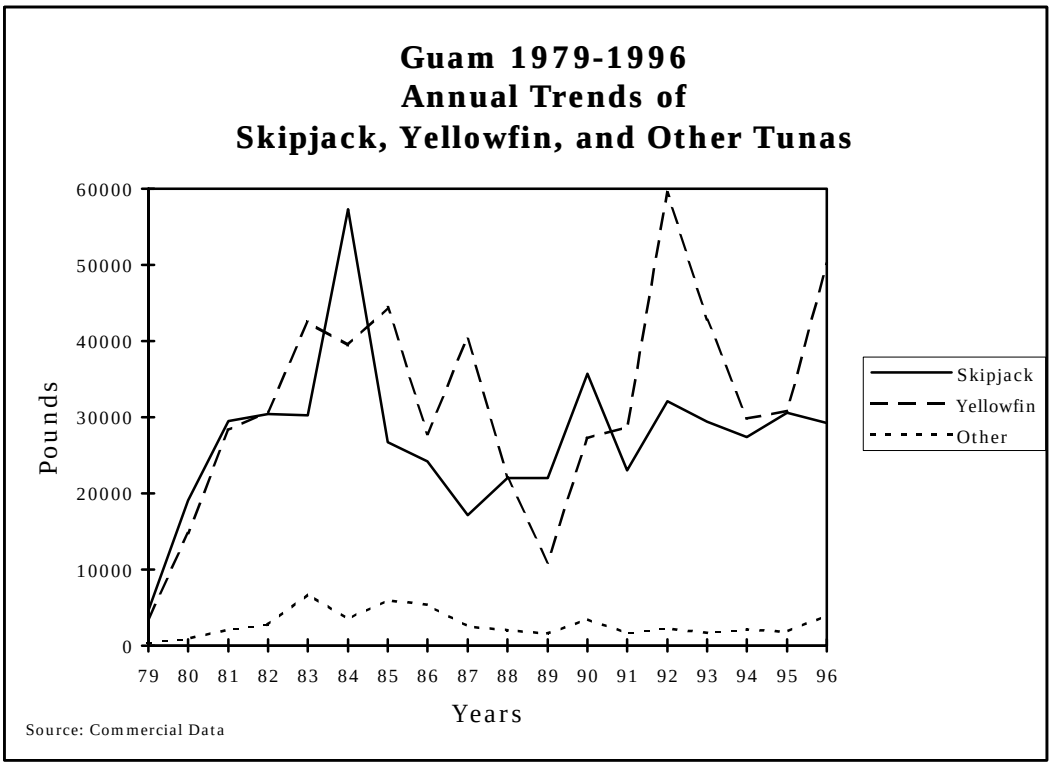


Figure IV.4.1

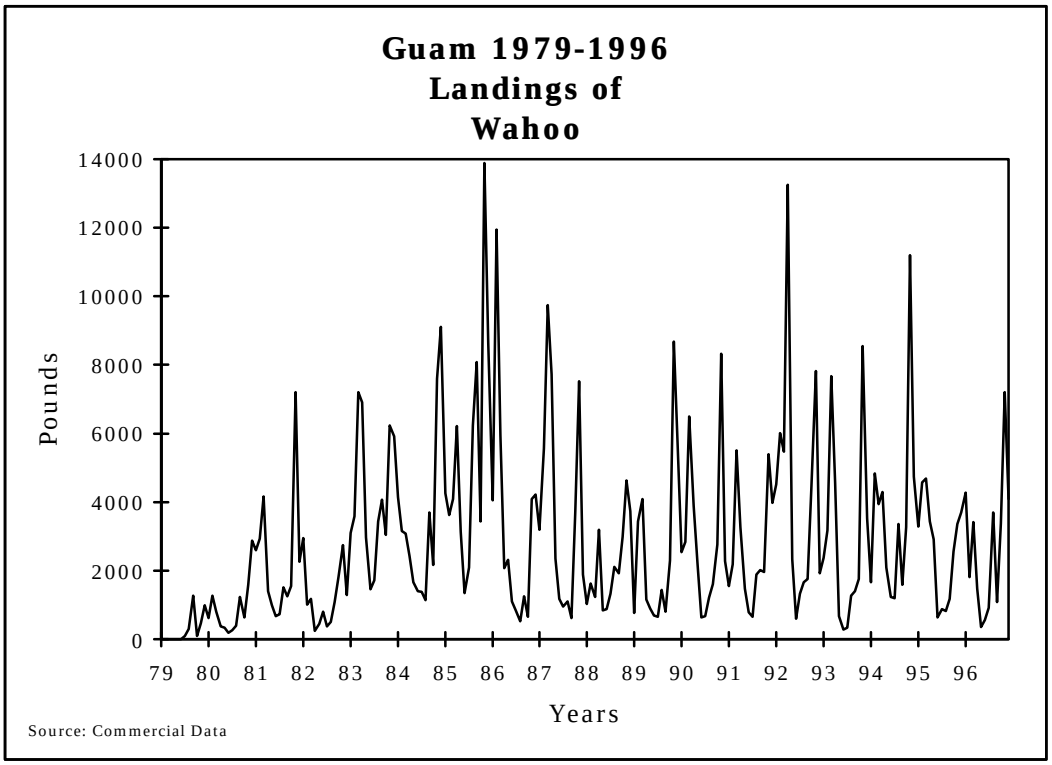


Figure IV.4.2

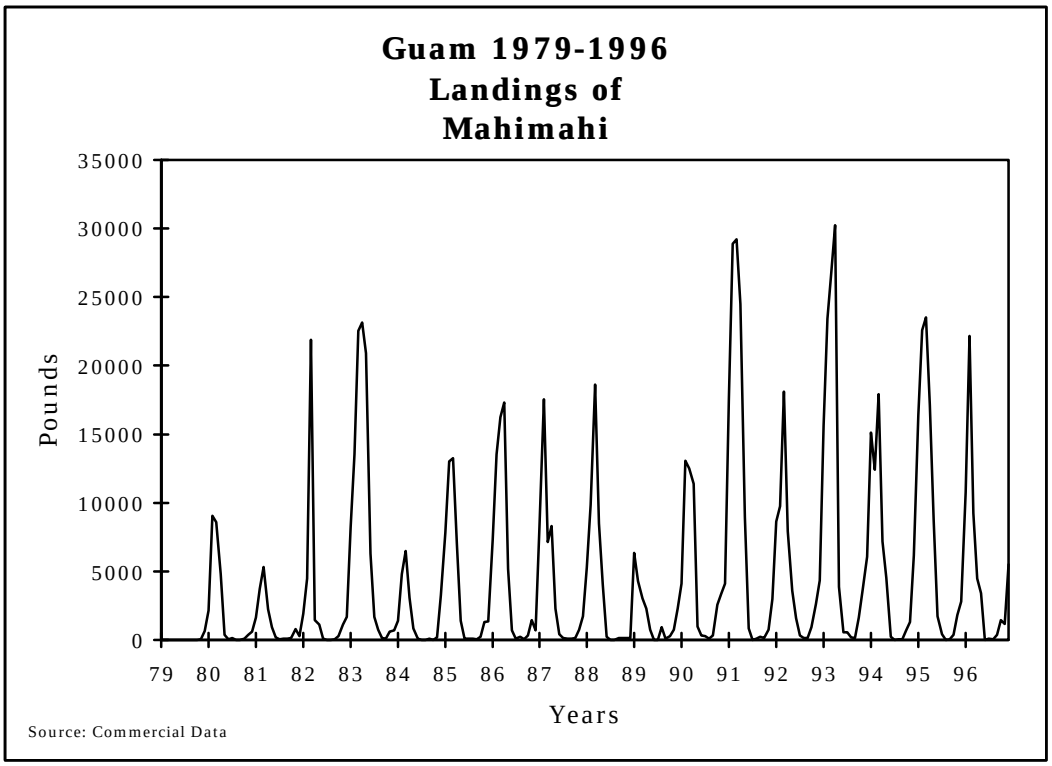


Figure IV.4.3

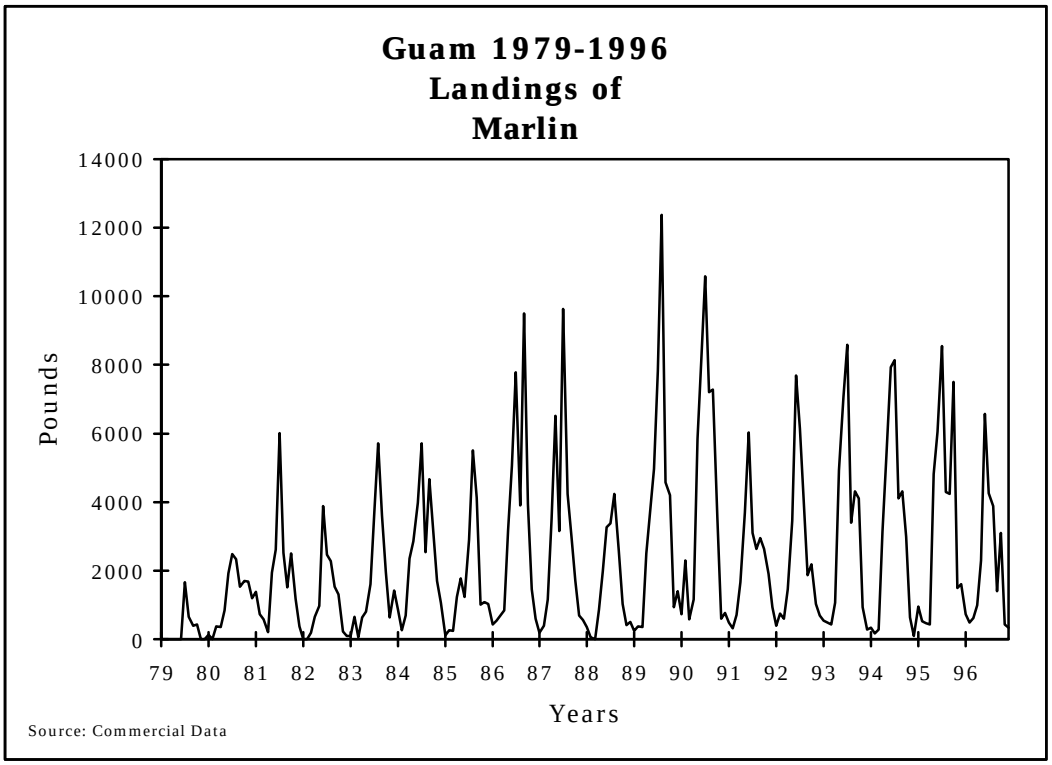


Figure IV.4.4

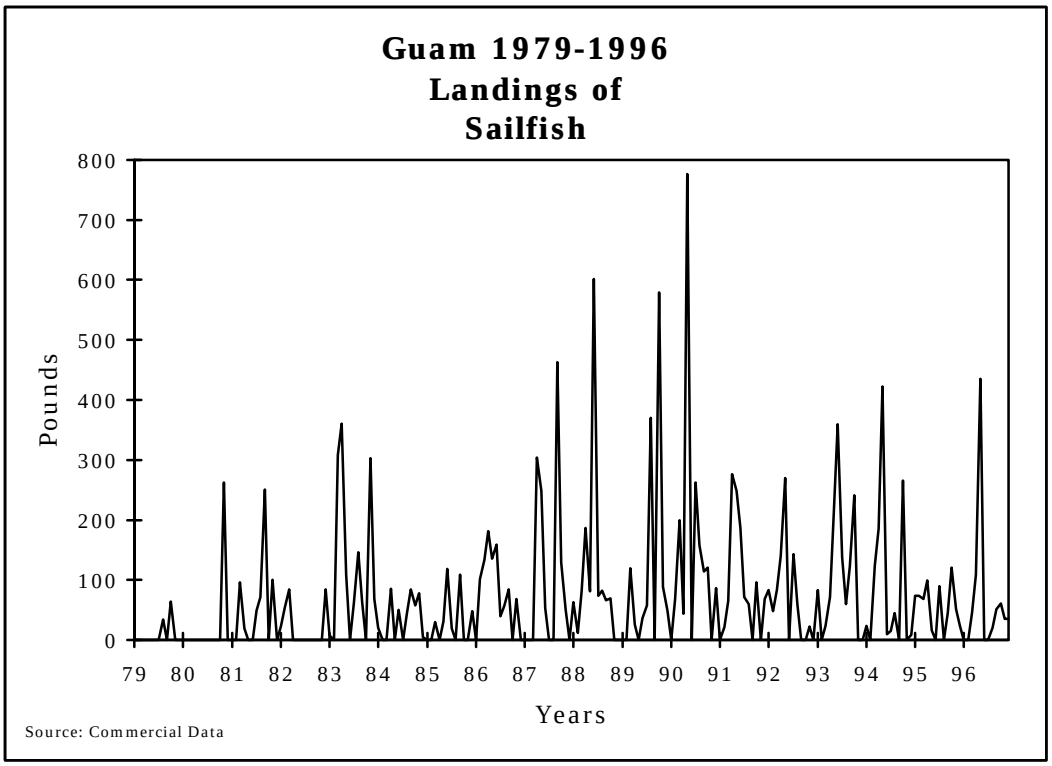


Figure IV.4.5

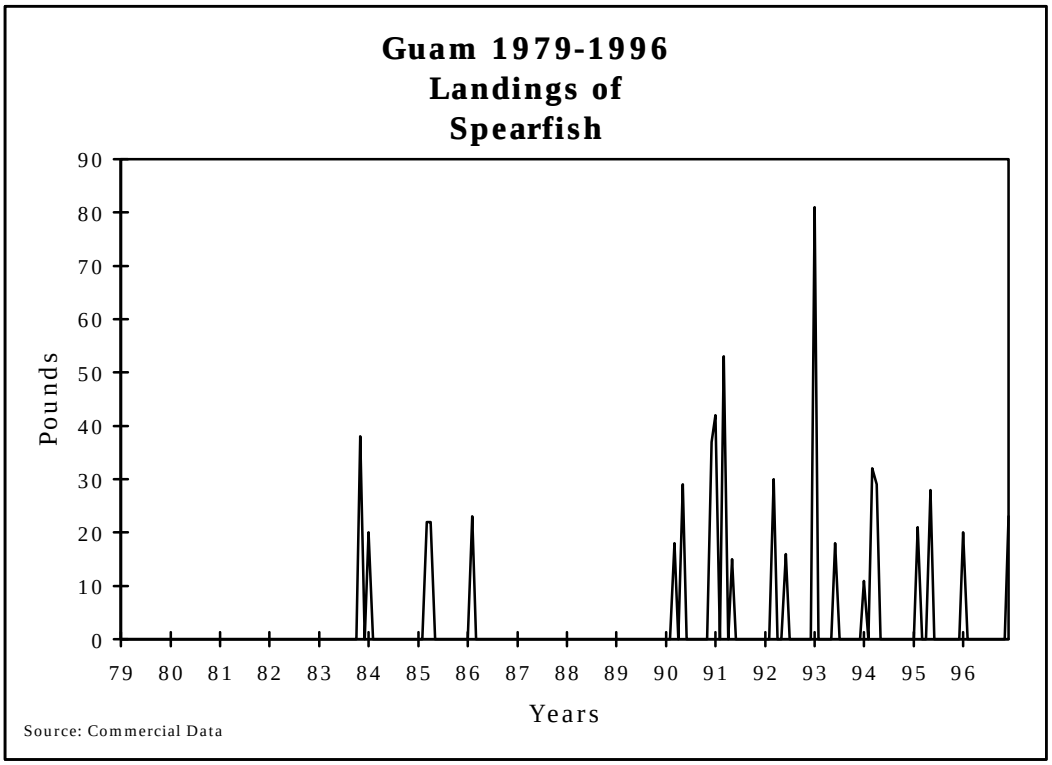


Figure IV.4.6

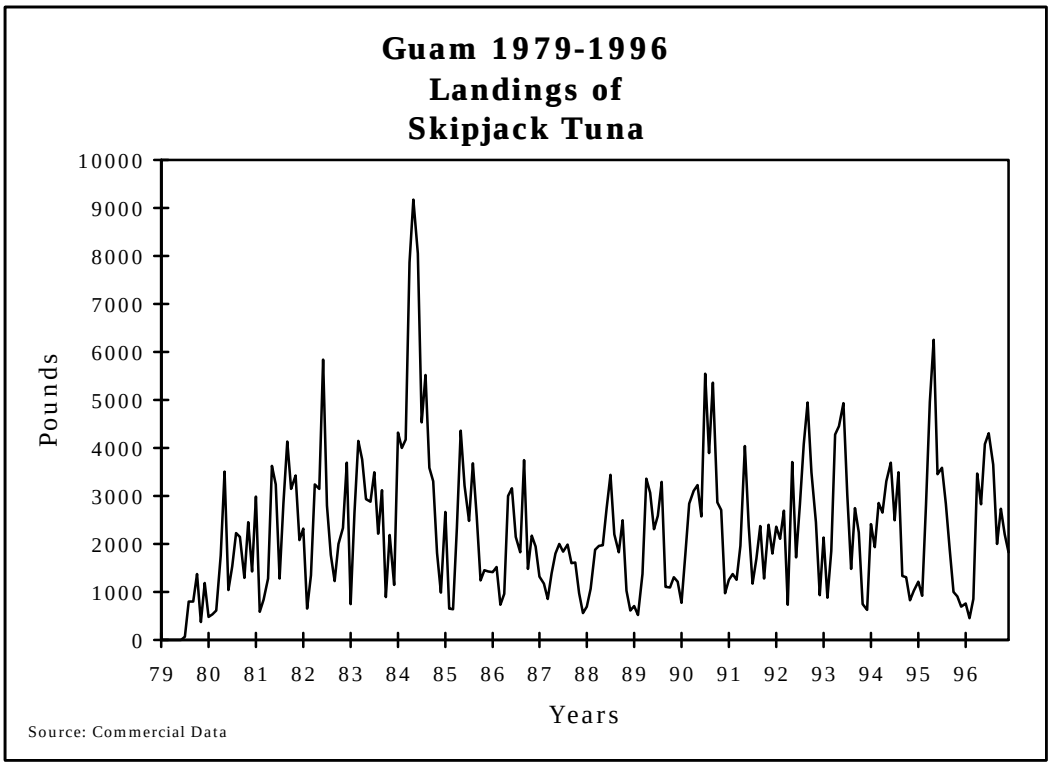


Figure IV.4.7

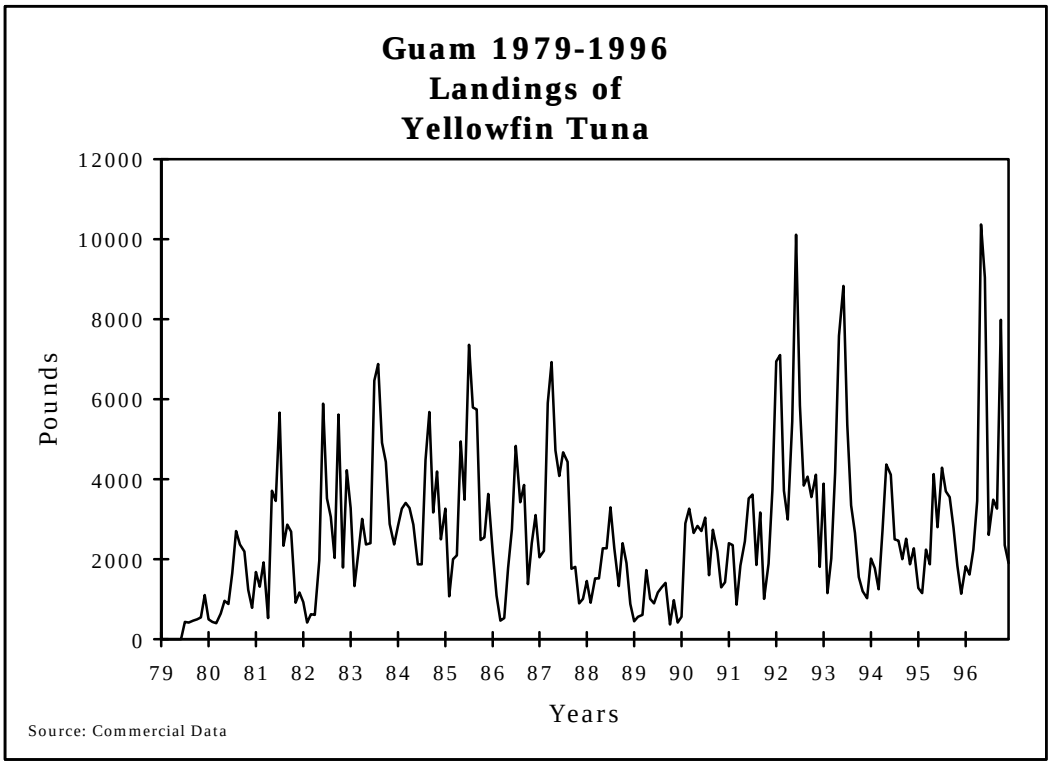


Figure IV.4.8

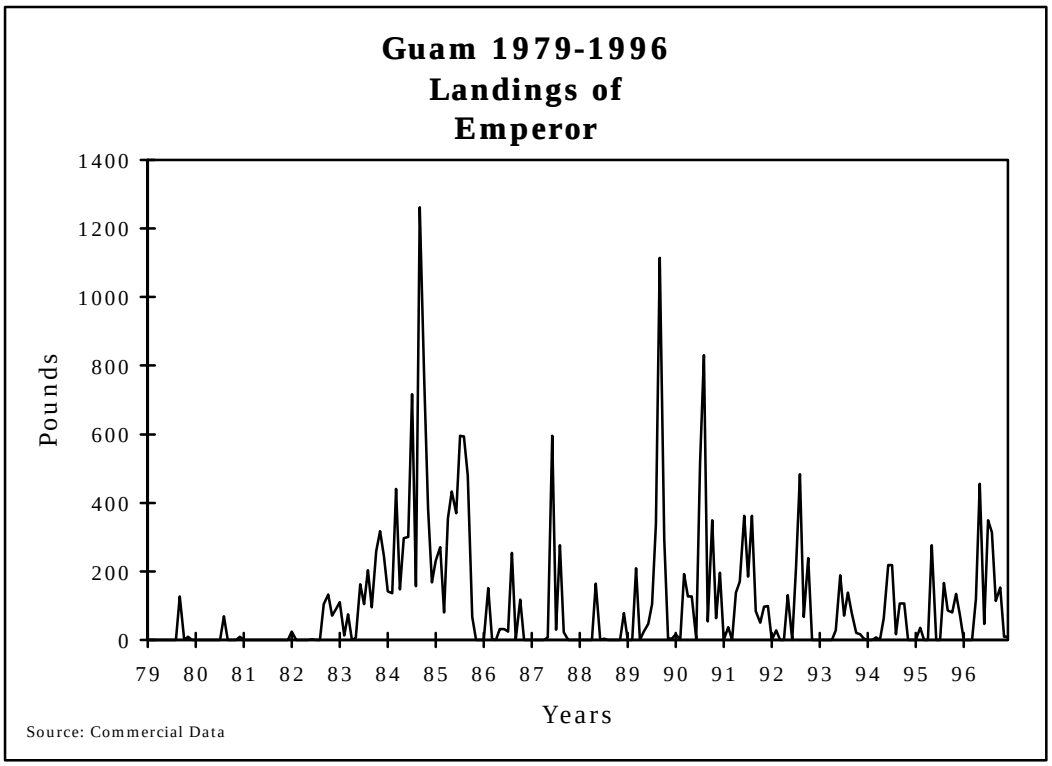
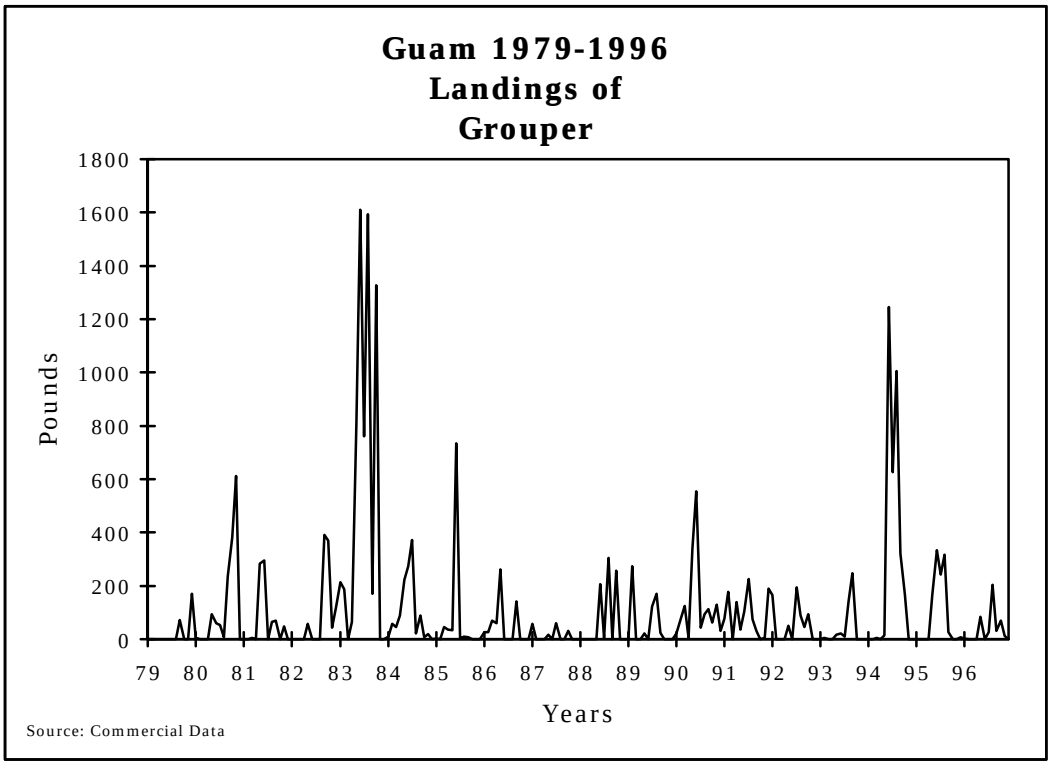


Figure IV.4.9


Guam 1979-1996
Landings of
Grouper
Pounds
1800
1600
1400
1200
1000
800
600
400
200
0
79 80 81 82 83 84 85 86 87 88 89 90 91 92 93 94 95 96
Years
Source: Commercial Data

STATE OF HAWAII 1996 FISHERY STATISTICS

Compiled by

Division of Aquatic Resources

and the

Western Pacific Fishery Information Network

April 1998

CONTENTS

LIST OF HAWAII SUMMARY TABLES

LIST OF HAWAII FIGURES

LIST OF HAWAII FIGURES (cont.)

STATE OF HAWAII 1996 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 over 1 million residents. In 1996, nearly 76% of the State's recorded commercial catch was landed on Oahu, about 17% on Hawaii, 4% on Kauai, and 3% on Maui. The Department of Land and Natural Resources' Division of Aquatic Resources (DAR) has been collecting statistics on the commercial fisheries of Hawaii for nearly 50 years.

The fisheries of the State of Hawaii are quite diverse and vary from hand harvesting algae from shore to large-vessel fisheries, such as longlining and lobster fishing. The major fisheries include tuna fishing using several methods, longlining 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 18,000 vessels in Hawaii, about 90% are pleasure boats, 5% 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 a commercial marine fishing license. In 1996, there were about 4,200 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 1996 data provided in this document were created from licensed commercial fishermen reports processed by DAR as of January 1998, and is believed to represent about 99% of what may eventually be submitted and processed.

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; these include 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, the Albacore Trolling Trip Report, 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 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 1996.

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 or the fisherman may be contacted by telephone to resolve minor problems. 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 have been 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 is a separate annual report 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 1996, and 26 trend and seasonality graphs, based on 1979-96 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 specify tunas as a separate category from the PPMUS. The PMUS category in this report includes:

Mahimahi (dolphin)	Wahoo
Blue marlin	Black marlin
Striped marlin	Shortnose spearfish
Sailfish	Broadbill swordfish
Sharks	Billfish (misc.)

II. Bottomfish Management Unit Species (BMUS)

Deep water jacks (misc.)	Amberjack
Pig-lipped ulua (jack)	White ulua
Giant sea bass	Blue lined snapper
Ehu (red snapper)	Gindai (flower snapper)
Kalekale (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
Shortnose spearfish	Sailfish
Broadbill 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 1996 Commercial Landings

Species	Pounds	Value	$/lb
Miscellaneous	9,333	23,461	2.51
Sharks	54,191	52,577	0.97
Rays	70	106	1.51
Eels	900	743	0.83
Alfonsin	76	225	2.95
Bigeye scad (akule)	549,654	987,815	1.80
Mackerel scad	376,511	571,061	1.52
Leatherback	534	723	1.35
Ten pounder	1,658	2,522	1.52
Bonefish	5,247	7,452	1.42
Milkfish	1,456	1,981	1.36
Flying fish	14	36	2.60
Needlefish	228	191	0.84
Halfbeaks	6	12	2.00
Threadfin	764	3,483	4.56
Mullet	7,217	19,358	2.68
Pomfret	115,367	211,778	1.84
Snake mackerel	1,571	3,532	2.25
Jacks (misc.)	31,310	62,426	1.99
Amberjack	322	436	1.35
Blue crevally	2,773	4,741	1.71
Pig-lipped ulua	47,070	91,234	1.94
Dobe ulua	1,234	2,143	1.74
Paapaa ulua	4,460	9,557	2.14
White ulua	17,304	19,216	1.11
Black ulua	912	2,239	2.45
Giant sea bass	52,589	192,503	3.66
Blue spot grouper	284	700	2.47
Snappers	2,106	6,092	2.89
Blue lined snapper	39,586	35,715	0.90
Ehu (red snapper)	44,121	181,286	4.11
Gindai (flower snapper)	8,579	24,295	2.83
Kalekale (pink snapper)	27,634	80,417	2.91
Lehi (silverjaw)	8,461	25,147	2.97
Onaga (red snapper)	92,386	567,326	6.14
Opakapaka (pink snapper)	208,118	927,483	4.46
Uku (gray snapper)	112,369	302,196	2.69
Porgy	2,579	5,911	2.29
Reef jacks	274	838	3.06
Squirrelfish	47,768	138,936	2.91
Trumpetfish	67	74	1.10
Scorpionfish	4,208	20,007	4.75
Mountain bass	4,271	9,769	2.29
Bigeyes	4,670	11,672	2.50
Cardinalfish	13	17	1.33

Table V.1.1 (Cont.)

Species	Pounds	Value	$/lb
Goatfish	64,051	164,448	2.57
Rudderfish	11,057	10,948	0.99
Damselfish	1,769	3,219	1.82
Hawkfish	594	1,030	1.73
Tilapia	5,958	4,646	0.78
Wrasse	5,932	18,447	3.11
Parrotfish	33,752	72,136	2.14
Surgeon/tangs	85,472	117,814	1.38
Flounders	31	38	1.21
Triggerfish	41	8	0.19
Filefish	2,059	3,630	1.76
Rainbow runner	5,748	7,868	1.37
Mahimahi (dolphin)	738,685	1,702,774	2.31
Barracudas	24,424	23,250	0.95
Wahoo	480,125	1,186,216	2.47
Japanese mackerel	79	162	2.06
Tunas	31,931	355,771	11.14
Skipjack tuna	2,288,254	3,041,304	1.33
Yellowfin tuna	3,598,934	8,935,167	2.48
Albacore	2,510,300	3,100,169	1.23
Bigeye tuna	3,654,490	12,625,793	3.45
Kawakawa	6,572	8,052	1.23
Frigate tuna	172	296	1.72
Billfish	704	330	0.47
Broadbill swordfish	3,499,007	11,542,308	3.30
Blue marlin	1,347,896	1,293,774	0.96
Black marlin	21,190	19,249	0.91
Striped marlin	1,006,893	1,274,180	1.27
Shortnose spearfish	184,944	172,006	0.93
Sailfish	9,552	9,417	0.99
Ocean sunfish	20	9	0.47
Ocean moonfish	619,966	649,036	1.05
Spiny lobster	30,754	473,337	15.39
Slipper lobster	3,429	38,456	11.21
Crabs	28,590	124,309	4.35
Shrimp (freshwater)	470	2,350	5.00
Shrimp (saltwater)	34,470	169,984	4.93
Octopus	14,390	40,784	2.83
Squid	3,833	9,555	2.49
Limpets (saltwater)	10,680	36,945	3.46
Precious corals	1,701	41,325	24.29
Sea cucumbers	115	534	4.64
Algae	38,500	101,569	2.64
** TOTAL **	22,297,799	51,992,072	2.33

Table V.1.2

Hawaii 1996 Commercial Landings (not sold)

Species	Pounds
Miscellaneous	420
Sharks	39,642
Eels	102
Bigeye scad (akule)	29,620
Mackerel scad	27,803
Leatherback	83
Ten pounder	12
Bonefish	440
Herring/sardine	40
Milkfish	40
Flying fish	17
Needlefish	26
Threadfin	65
Mullet	1,211
Pomfret	327
Snake mackerel	280
Jacks (misc.)	6,326
Amberjack	5,439
Blue crevally	904
Pig-lipped ulua	3,864
Dobe ulua	65
Paapaa ulua	583
White ulua	1,592
Black ulua	87
Giant sea bass	3,716
Blue spot grouper	145
Snappers	247
Blue lined snapper	4,619
Ehu (red snapper)	2,920
Gindai (flower snapper)	439
Kalekale (pink snapper)	3,458
Lehi (silverjaw)	598
Onaga (red snapper)	4,459
Opakapaka (pink snapper)	12,061
Uku (gray snapper)	4,147
Porgy	56
Reef jacks	1
Squirrelfish	2,976
Trumpetfish	25
Scorpionfish	339
Mountain bass	220
Bigeyes	448
Cardinalfish	12
Goatfish	4,997
Rudderfish	811

Table V.1.2 (Cont.)

Species	Pounds
Damselfish	38
Hawkfish	37
Tilapia	64
Wrasse	1,348
Parrotfish	2,739
Surgeon/tangs	4,718
Triggerfish	188
Filefish	88
Rainbow runner	1,020
Mahimahi (dolphin)	54,873
Barracudas	2,230
Wahoo	43,627
Tunas	332
Skipjack tuna	93,228
Yellowfin tuna	112,469
Albacore	38,723
Bigeye tuna	18,935
Kawakawa	3,222
Frigate tuna	50
Broadbill swordfish	84,353
Blue marlin	127,594
Black marlin	2,106
Striped marlin	37,554
Shortnose spearfish	10,875
Sailfish	255
Ocean moonfish	729
Spiny lobster	2,213
Slipper lobster	50
Crabs	4,398
Shrimp (freshwater)	95
Shrimp (saltwater)	486
Octopus	5,115
Squid	678
Limpets (saltwater)	1,399
Precious corals	3,164
Sea urchins	30
Sea cucumbers	2
Algae	418
** TOTAL **	825,125

Table V.1.3

Hawaii January 1996 Commercial Landings

Species	Pounds	Value	$/lb
Miscellaneous	481	1,064	2.21
Sharks	3,443	2,901	0.84
Alfonsin	7	20	2.79
Bigeye scad (akule)	46,612	88,542	1.90
Mackerel scad	25,214	38,502	1.53
Leatherback	27	54	1.99
Ten pounder	89	111	1.24
Bonefish	430	590	1.37
Milkfish	77	77	1.00
Needlefish	5	4	0.80
Threadfin	39	238	6.10
Mullet	106	368	3.47
Pomfret	7,154	11,871	1.66
Jacks (misc.)	3,554	8,251	2.32
Amberjack	23	15	0.65
Blue crevally	420	527	1.26
Pig-lipped ulua	2,822	6,176	2.19
Dobe ulua	1,037	1,604	1.55
Paapaa ulua	567	1,221	2.15
White ulua	1,035	1,713	1.66
Black ulua	83	239	2.87
Giant sea bass	5,164	19,856	3.85
Blue spot grouper	72	190	2.64
Snappers	198	530	2.68
Blue lined snapper	2,972	2,653	0.89
Ehu (red snapper)	4,025	14,547	3.61
Gindai (flower snapper)	884	2,426	2.74
Kalekale (pink snapper)	3,231	7,604	2.35
Lehi (silverjaw)	1,800	5,112	2.84
Onaga (red snapper)	14,968	73,553	4.91
Opakapaka (pink snapper)	25,924	104,911	4.05
Uku (gray snapper)	11,192	34,313	3.07
Porgy	307	656	2.14
Squirrelfish	3,295	9,870	3.00
Trumpetfish	8	10	1.27
Scorpionfish	303	1,420	4.69
Mountain bass	569	1,351	2.37
Bigeyes	344	867	2.52
Goatfish	5,615	12,608	2.25
Rudderfish	435	453	1.04
Damselfish	89	162	1.82
Hawkfish	27	46	1.69

Table V.1.3 (Cont.)

Species	Pounds	Value	$/lb
Tilapia	1,516	1,152	0.76
Wrasse	443	959	2.17
Parrotfish	3,675	8,124	2.21
Surgeon/tangs	9,058	13,903	1.53
Flounders	6	9	1.50
Triggerfish	21	2	0.10
Filefish	25	44	1.75
Rainbow runner	753	846	1.12
Mahimahi (dolphin)	40,179	99,140	2.47
Barracudas	1,064	1,295	1.22
Wahoo	25,833	77,315	2.99
Tunas	7,668	124,874	16.29
Skipjack tuna	108,440	157,734	1.45
Yellowfin tuna	298,039	739,077	2.48
Albacore	80,377	83,710	1.04
Bigeye tuna	408,469	1,627,399	3.98
Kawakawa	685	671	0.98
Broadbill swordfish	339,762	1,229,290	3.62
Blue marlin	120,584	86,248	0.72
Black marlin	2,295	2,560	1.12
Striped marlin	168,196	130,659	0.78
Shortnose spearfish	21,193	14,409	0.68
Sailfish	1,136	686	0.60
Ocean moonfish	30,204	41,371	1.37
Spiny lobster	688	6,309	9.17
Slipper lobster	2	11	5.25
Crabs	1,888	9,640	5.11
Shrimp (freshwater)	40	200	5.00
Shrimp (saltwater)	5,868	27,968	4.77
Octopus	730	2,101	2.88
Limpets (saltwater)	494	2,004	4.06
Precious corals	135	3,375	25.00
Sea cucumbers	68	156	2.29
Algae	2,679	7,315	2.73
** SUBTOTAL **	1,856,860	4,957,779	2.67

Table V.1.4

Hawaii February 1996 Commercial Landings

Species	Pounds	Value	$/lb
Miscellaneous	1,178	6,571	5.58
Sharks	3,568	3,183	0.89
Eels	56	43	0.77
Alfonsin	9	38	4.25
Bigeye scad (akule)	14,355	33,006	2.30
Mackerel scad	17,954	32,019	1.78
Leatherback	16	17	1.03
Ten pounder	28	32	1.14
Bonefish	71	85	1.19
Milkfish	231	272	1.18
Threadfin	76	348	4.58
Mullet	97	253	2.61
Pomfret	7,072	13,950	1.97
Snake mackerel	35	60	1.70
Jacks (misc.)	1,227	2,379	1.94
Amberjack	19	29	1.50
Blue crevally	10	21	2.09
Pig-lipped ulua	3,583	6,860	1.91
Paapaa ulua	254	583	2.30
White ulua	441	683	1.55
Black ulua	25	70	2.81
Giant sea bass	2,779	12,965	4.67
Blue spot grouper	44	128	2.91
Snappers	253	692	2.73
Blue lined snapper	3,379	2,962	0.88
Ehu (red snapper)	3,875	17,551	4.53
Gindai (flower snapper)	445	1,348	3.03
Kalekale (pink snapper)	1,786	5,565	3.12
Lehi (silverjaw)	633	1,788	2.83
Onaga (red snapper)	9,714	57,324	5.90
Opakapaka (pink snapper)	14,604	68,074	4.66
Uku (gray snapper)	6,382	18,092	2.83
Porgy	153	373	2.44
Reef jacks	3	10	3.33
Squirrelfish	2,258	6,534	2.89
Scorpionfish	301	1,556	5.17
Mountain bass	530	1,022	1.93
Bigeyes	72	151	2.10
Goatfish	3,798	9,354	2.46
Rudderfish	1,329	1,402	1.05
Damselfish	78	139	1.79
Hawkfish	47	78	1.66

Table V.1.4 (Cont.)

Species	Pounds	Value	$/lb
Wrasse	469	1,159	2.47
Parrotfish	3,012	6,732	2.24
Surgeon/tangs	8,445	12,095	1.43
Filefish	43	73	1.70
Rainbow runner	209	363	1.73
Mahimahi (dolphin)	37,162	110,719	2.98
Barracudas	1,018	985	0.97
Wahoo	16,509	59,998	3.63
Tunas	2,327	38,684	16.62
Skipjack tuna	60,314	110,913	1.84
Yellowfin tuna	226,223	624,227	2.76
Albacore	67,567	119,819	1.77
Bigeye tuna	341,333	1,550,055	4.54
Kawakawa	550	767	1.39
Frigate tuna	7	7	0.93
Broadbill swordfish	291,942	963,699	3.30
Blue marlin	109,658	103,210	0.94
Black marlin	450	469	1.04
Striped marlin	79,070	106,452	1.35
Shortnose spearfish	16,777	17,085	1.02
Sailfish	35	60	1.70
Ocean moonfish	26,807	42,414	1.58
Spiny lobster	370	2,886	7.80
Slipper lobster	9	57	6.28
Crabs	1,483	7,469	5.04
Shrimp (freshwater)	60	300	5.00
Shrimp (saltwater)	3,324	16,113	4.85
Octopus	577	1,560	2.70
Limpets (saltwater)	1,101	3,392	3.08
Precious corals	780	18,300	23.46
Algae	3,435	7,955	2.32
** SUBTOTAL **	1,403,834	4,235,624	3.02

Table V.1.5

Hawaii March 1996 Commercial Landings

Species	Pounds	Value	$/lb
Miscellaneous	796	1,408	1.77
Sharks	10,399	9,449	0.91
Eels	47	47	1.00
Bigeye scad (akule)	34,810	73,680	2.12
Mackerel scad	31,676	55,187	1.74
Leatherback	8	8	0.96
Ten pounder	78	99	1.27
Bonefish	452	555	1.23
Milkfish	80	137	1.71
Needlefish	1	2	1.50
Threadfin	28	115	4.11
Mullet	1,046	2,722	2.60
Pomfret	7,894	18,517	2.35
Snake mackerel	39	78	2.00
Jacks (misc.)	2,729	5,274	1.93
Amberjack	34	35	1.03
Blue crevally	252	456	1.81
Pig-lipped ulua	6,363	12,604	1.98
Paapaa ulua	321	684	2.13
White ulua	1,158	2,777	2.40
Black ulua	169	497	2.94
Giant sea bass	3,198	13,673	4.28
Blue spot grouper	10	30	3.00
Snappers	110	319	2.90
Blue lined snapper	2,091	2,320	1.11
Ehu (red snapper)	3,859	18,510	4.80
Gindai (flower snapper)	418	1,530	3.66
Kalekale (pink snapper)	1,753	6,075	3.47
Lehi (silverjaw)	745	2,265	3.04
Onaga (red snapper)	8,909	50,331	5.65
Opakapaka (pink snapper)	19,936	93,767	4.70
Uku (gray snapper)	3,102	11,132	3.59
Porgy	394	861	2.19
Reef jacks	14	42	3.00
Squirrelfish	3,366	9,255	2.75
Trumpetfish	4	7	1.63
Scorpionfish	571	3,145	5.51
Mountain bass	536	1,277	2.38
Bigeyes	332	829	2.50
Goatfish	4,382	10,985	2.51
Rudderfish	739	794	1.07
Damselfish	117	222	1.90

Table V.1.5 (Cont.)

Species	Pounds	Value	$/lb
Hawkfish	68	104	1.53
Tilapia	1,186	1,000	0.84
Wrasse	544	1,644	3.02
Parrotfish	3,247	7,140	2.20
Surgeon/tangs	9,258	12,981	1.40
Flounders	2	2	1.00
Filefish	258	455	1.76
Rainbow runner	577	985	1.71
Mahimahi (dolphin)	68,607	166,961	2.43
Barracudas	1,975	2,400	1.22
Wahoo	34,685	97,515	2.81
Tunas	3,118	52,970	16.99
Skipjack tuna	71,036	156,794	2.21
Yellowfin tuna	283,739	838,423	2.95
Albacore	161,638	300,725	1.86
Bigeye tuna	313,753	1,445,358	4.61
Kawakawa	401	547	1.36
Frigate tuna	20	44	2.18
Broadbill swordfish	292,071	1,133,613	3.88
Blue marlin	118,697	131,138	1.10
Black marlin	1,221	1,317	1.08
Striped marlin	74,060	127,111	1.72
Shortnose spearfish	18,078	25,101	1.39
Sailfish	617	931	1.51
Ocean moonfish	44,269	65,547	1.48
Spiny lobster	558	4,984	8.93
Slipper lobster	2	24	11.93
Crabs	3,292	13,952	4.24
Shrimp (freshwater)	10	50	5.00
Shrimp (saltwater)	3,065	15,108	4.93
Octopus	680	1,932	2.84
Limpets (saltwater)	1,949	5,209	2.67
Precious corals	225	5,625	25.00
Algae	2,164	6,215	2.87
** SUBTOTAL **	1,668,036	5,035,607	3.02

Table V.1.6

Hawaii April 1996 Commercial Landings

Species	Pounds	Value	$/lb
Miscellaneous	645	1,431	2.22
Sharks	5,325	6,970	1.31
Rays	70	106	1.51
Eels	204	159	0.78
Bigeye scad (akule)	61,438	119,544	1.95
Mackerel scad	27,732	49,040	1.77
Leatherback	35	35	1.01
Ten pounder	135	248	1.84
Bonefish	59	85	1.44
Milkfish	308	398	1.29
Flying fish	11	32	2.90
Needlefish	29	34	1.18
Threadfin	57	212	3.73
Mullet	232	575	2.48
Pomfret	9,562	24,674	2.58
Snake mackerel	46	34	0.74
Jacks (misc.)	1,765	3,240	1.84
Blue crevally	68	115	1.70
Pig-lipped ulua	3,849	7,339	1.91
Dobe ulua	2	4	1.75
Paapaa ulua	399	784	1.97
White ulua	5,506	4,729	0.86
Black ulua	70	115	1.64
Giant sea bass	6,374	19,949	3.13
Blue spot grouper	18	50	2.78
Snappers	335	1,105	3.30
Blue lined snapper	3,137	2,849	0.91
Ehu (red snapper)	3,929	16,744	4.26
Gindai (flower snapper)	470	1,775	3.78
Kalekale (pink snapper)	1,898	6,163	3.25
Lehi (silverjaw)	816	2,469	3.03
Onaga (red snapper)	5,716	36,387	6.37
Opakapaka (pink snapper)	13,583	64,425	4.74
Uku (gray snapper)	4,541	16,023	3.53
Porgy	498	1,157	2.32
Reef jacks	50	104	2.07
Squirrelfish	4,404	13,450	3.05
Scorpionfish	320	1,347	4.21
Mountain bass	457	855	1.87
Bigeyes	348	796	2.29
Cardinalfish	9	14	1.53
Goatfish	5,958	14,454	2.43

Table V.1.6 (Cont.)

Species	Pounds	Value	$/lb
Rudderfish	1,430	1,363	0.95
Damselfish	231	454	1.97
Hawkfish	62	128	2.07
Tilapia	2	1	0.38
Wrasse	437	1,164	2.66
Parrotfish	3,321	6,155	1.85
Surgeon/tangs	7,224	10,116	1.40
Filefish	513	877	1.71
Rainbow runner	164	220	1.34
Mahimahi (dolphin)	123,538	275,990	2.23
Barracudas	2,227	1,999	0.90
Wahoo	53,968	125,272	2.32
Tunas	2,237	27,182	12.15
Skipjack tuna	134,361	207,180	1.54
Yellowfin tuna	184,133	520,254	2.83
Albacore	324,250	444,226	1.37
Bigeye tuna	348,912	1,398,872	4.01
Kawakawa	1,181	1,893	1.60
Frigate tuna	68	136	1.99
Broadbill swordfish	572,244	2,091,216	3.65
Blue marlin	93,465	100,717	1.08
Black marlin	3,055	3,300	1.08
Striped marlin	91,856	133,207	1.45
Shortnose spearfish	20,643	19,217	0.93
Sailfish	74	133	1.80
Ocean moonfish	104,400	75,169	0.72
Spiny lobster	1,069	9,802	9.17
Slipper lobster	9	56	6.22
Crabs	6,699	25,929	3.87
Shrimp (freshwater)	25	125	5.00
Shrimp (saltwater)	2,992	14,486	4.84
Octopus	487	1,355	2.78
Squid	1,070	3,445	3.22
Limpets (saltwater)	974	2,911	2.99
Algae	3,525	9,866	2.80
** SUBTOTAL **	2,261,254	5,934,432	2.62

Table V.1.7

Hawaii May 1996 Commercial Landings

Species	Pounds	Value	$/lb
Miscellaneous	1,063	1,882	1.77
Sharks	3,710	3,604	0.97
Eels	38	32	0.84
Bigeye scad (akule)	124,793	198,469	1.59
Mackerel scad	27,681	44,725	1.62
Leatherback	64	80	1.25
Ten pounder	118	139	1.18
Bonefish	222	183	0.82
Milkfish	152	177	1.16
Flying fish	3	5	1.50
Needlefish	5	7	1.48
Threadfin	183	691	3.78
Mullet	567	1,480	2.61
Pomfret	10,306	15,399	1.49
Snake mackerel	985	2,666	2.71
Jacks (misc.)	4,449	8,475	1.91
Blue crevally	92	90	0.98
Pig-lipped ulua	4,708	9,486	2.01
Dobe ulua	17	17	1.00
Paapaa ulua	214	405	1.89
White ulua	2,291	1,683	0.73
Giant sea bass	4,883	14,657	3.00
Blue spot grouper	9	18	1.99
Snappers	366	915	2.50
Blue lined snapper	4,489	3,717	0.83
Ehu (red snapper)	3,482	13,507	3.88
Gindai (flower snapper)	1,173	2,181	1.86
Kalekale (pink snapper)	1,730	5,020	2.90
Lehi (silverjaw)	288	879	3.05
Onaga (red snapper)	5,739	37,913	6.61
Opakapaka (pink snapper)	14,820	67,161	4.53
Uku (gray snapper)	8,835	29,448	3.33
Porgy	161	370	2.30
Reef jacks	8	23	2.81
Squirrelfish	5,332	15,978	3.00
Trumpetfish	6	8	1.33
Scorpionfish	380	1,541	4.05
Mountain bass	406	943	2.32
Bigeyes	713	1,545	2.17
Goatfish	6,698	16,419	2.45
Rudderfish	1,291	1,404	1.09
Damselfish	249	493	1.98

Table V.1.7 (Cont.)

Species	Pounds	Value	$/lb
Hawkfish	68	67	0.99
Tilapia	467	385	0.82
Wrasse	447	809	1.81
Parrotfish	4,763	9,324	1.96
Surgeon/tangs	7,665	10,514	1.37
Triggerfish	10	1	0.10
Filefish	492	778	1.58
Rainbow runner	387	507	1.31
Mahimahi (dolphin)	72,217	168,833	2.34
Barracudas	4,361	2,034	0.47
Wahoo	79,510	134,280	1.69
Tunas	95	91	0.96
Skipjack tuna	242,128	255,329	1.05
Yellowfin tuna	261,996	673,394	2.57
Albacore	318,457	318,504	1.00
Bigeye tuna	294,058	922,878	3.14
Kawakawa	420	526	1.25
Frigate tuna	5	4	0.70
Broadbill swordfish	513,011	1,783,282	3.48
Blue marlin	97,318	88,584	0.91
Black marlin	2,114	2,572	1.22
Striped marlin	133,583	138,145	1.03
Shortnose spearfish	24,222	14,848	0.61
Sailfish	422	173	0.41
Ocean moonfish	87,513	55,837	0.64
Crabs	171	1,114	6.52
Shrimp (freshwater)	10	50	5.00
Shrimp (saltwater)	3,467	17,286	4.99
Octopus	410	1,227	2.99
Squid	223	613	2.75
Limpets (saltwater)	1,748	5,389	3.08
Sea cucumbers	27	218	8.07
Algae	3,886	10,861	2.80
** SUBTOTAL **	2,398,390	5,122,289	2.14

Table V.1.8

Hawaii June 1996 Commercial Landings

Species	Pounds	Value	$/lb
Miscellaneous	722	2,366	3.28
Sharks	3,140	4,310	1.37
Eels	141	119	0.84
Bigeye scad (akule)	73,254	127,078	1.73
Mackerel scad	30,153	47,553	1.58
Leatherback	46	62	1.34
Ten pounder	255	443	1.74
Bonefish	635	920	1.45
Milkfish	95	105	1.11
Needlefish	21	22	1.03
Halfbeaks	5	10	2.00
Mullet	960	2,438	2.54
Pomfret	16,170	23,827	1.47
Snake mackerel	246	369	1.50
Jacks (misc.)	2,702	5,146	1.90
Amberjack	32	40	1.25
Blue crevally	119	180	1.51
Pig-lipped ulua	3,279	6,760	2.06
Paapaa ulua	207	342	1.65
White ulua	130	181	1.40
Black ulua	140	382	2.73
Giant sea bass	5,915	22,166	3.75
Blue spot grouper	21	29	1.39
Snappers	120	374	3.12
Blue lined snapper	5,306	4,105	0.77
Ehu (red snapper)	3,796	16,742	4.41
Gindai (flower snapper)	991	3,179	3.21
Kalekale (pink snapper)	1,517	5,398	3.56
Lehi (silverjaw)	200	587	2.93
Onaga (red snapper)	4,544	31,425	6.92
Opakapaka (pink snapper)	10,381	52,224	5.03
Uku (gray snapper)	21,302	53,410	2.51
Porgy	90	239	2.66
Squirrelfish	4,183	11,903	2.85
Trumpetfish	5	6	1.26
Scorpionfish	542	1,625	3.00
Mountain bass	135	196	1.45
Bigeyes	517	1,307	2.53
Goatfish	4,788	11,252	2.35
Rudderfish	439	554	1.26
Damselfish	137	231	1.69
Hawkfish	57	89	1.56

Table V.1.8 (Cont.)

Species	Pounds	Value	$/lb
Tilapia	359	267	0.74
Wrasse	265	649	2.45
Parrotfish	1,995	4,381	2.20
Surgeon/tangs	7,792	10,312	1.32
Flounders	4	3	0.81
Filefish	161	306	1.90
Rainbow runner	176	203	1.16
Mahimahi (dolphin)	29,349	97,116	3.31
Barracudas	3,562	2,462	0.69
Wahoo	63,147	140,510	2.23
Tunas	2,757	10,084	3.66
Skipjack tuna	201,504	268,339	1.33
Yellowfin tuna	384,205	913,365	2.38
Albacore	340,257	432,574	1.27
Bigeye tuna	213,913	542,226	2.53
Kawakawa	279	356	1.28
Frigate tuna	61	90	1.47
Broadbill swordfish	280,390	1,008,642	3.60
Blue marlin	117,142	116,867	1.00
Black marlin	1,571	791	0.50
Striped marlin	87,319	114,088	1.31
Shortnose spearfish	15,252	13,198	0.87
Sailfish	923	855	0.93
Ocean moonfish	41,947	55,115	1.31
Crabs	336	1,393	4.15
Shrimp (freshwater)	95	475	5.00
Shrimp (saltwater)	2,028	10,096	4.98
Octopus	653	1,932	2.96
Squid	212	655	3.09
Limpets (saltwater)	957	3,261	3.41
Precious corals	225	5,625	25.00
Algae	2,577	6,337	2.46
** SUBTOTAL **	1,998,851	4,202,270	2.10

Table V.1.9

Hawaii July 1996 Commercial Landings

Species	Pounds	Value	$/lb
Miscellaneous	927	1,669	1.80
Sharks	4,723	4,103	0.87
Eels	55	38	0.69
Bigeye scad (akule)	50,786	82,232	1.62
Mackerel scad	35,755	50,423	1.41
Leatherback	39	48	1.22
Ten pounder	322	440	1.37
Bonefish	259	432	1.67
Milkfish	163	226	1.39
Threadfin	125	700	5.60
Mullet	443	987	2.23
Pomfret	6,851	12,876	1.88
Snake mackerel	152	274	1.80
Jacks (misc.)	2,077	4,483	2.16
Amberjack	10	13	1.25
Blue crevally	245	369	1.51
Pig-lipped ulua	3,030	4,862	1.60
Paapaa ulua	395	1,174	2.97
White ulua	432	533	1.23
Black ulua	25	63	2.50
Giant sea bass	5,427	14,369	2.65
Blue spot grouper	3	7	2.33
Snappers	125	357	2.86
Blue lined snapper	2,238	2,016	0.90
Ehu (red snapper)	3,320	12,412	3.74
Gindai (flower snapper)	939	2,404	2.56
Kalekale (pink snapper)	1,879	6,572	3.50
Lehi (silverjaw)	310	787	2.54
Onaga (red snapper)	4,100	26,941	6.57
Opakapaka (pink snapper)	10,033	45,836	4.57
Uku (gray snapper)	13,417	27,097	2.02
Porgy	289	637	2.20
Squirrelfish	3,430	10,061	2.93
Scorpionfish	211	907	4.30
Mountain bass	602	1,666	2.77
Bigeyes	515	1,442	2.80
Cardinalfish	4	4	0.88
Goatfish	5,004	11,301	2.26
Rudderfish	718	923	1.29
Damselfish	65	128	1.96
Hawkfish	26	49	1.87
Tilapia	1,221	907	0.74

Table V.1.9 (Cont.)

Species	Pounds	Value	$/lb
Wrasse	267	802	3.00
Parrotfish	2,154	5,133	2.38
Surgeon/tangs	5,917	8,030	1.36
Filefish	136	266	1.96
Rainbow runner	328	546	1.67
Mahimahi (dolphin)	38,068	106,610	2.80
Barracudas	2,137	1,883	0.88
Wahoo	55,632	134,602	2.42
Tunas	1,763	6,916	3.92
Skipjack tuna	340,944	330,703	0.97
Yellowfin tuna	614,959	1,318,313	2.14
Albacore	333,124	332,520	1.00
Bigeye tuna	110,623	250,348	2.26
Kawakawa	189	260	1.37
Frigate tuna	10	17	1.68
Broadbill swordfish	299,713	1,111,025	3.71
Blue marlin	177,953	144,025	0.81
Black marlin	6,922	4,986	0.72
Striped marlin	60,436	68,488	1.13
Shortnose spearfish	7,372	7,716	1.05
Sailfish	1,074	1,063	0.99
Ocean moonfish	56,479	45,512	0.81
Spiny lobster	25,191	424,114	16.84
Slipper lobster	2,774	31,002	11.18
Crabs	770	2,774	3.60
Shrimp (freshwater)	20	100	5.00
Shrimp (saltwater)	2,668	12,229	4.58
Octopus	768	2,341	3.05
Squid	135	473	3.50
Limpets (saltwater)	1,266	5,442	4.30
Precious corals	80	2,000	25.00
Algae	2,521	6,936	2.75
** SUBTOTAL **	2,313,083	4,699,944	2.03

Table V.1.10

Hawaii August 1996 Commercial Landings

Species	Pounds	Value	$/lb
Miscellaneous	931	1,682	1.81
Sharks	3,197	5,004	1.57
Eels	99	98	0.99
Alfonsin	57	161	2.82
Bigeye scad (akule)	52,120	88,667	1.70
Mackerel scad	42,752	58,757	1.37
Leatherback	128	179	1.40
Ten pounder	229	334	1.46
Bonefish	1,292	1,721	1.33
Milkfish	101	149	1.48
Needlefish	16	16	1.00
Halfbeaks	1	2	2.00
Mullet	1,739	4,396	2.53
Pomfret	6,901	15,672	2.27
Jacks (misc.)	2,647	5,380	2.03
Amberjack	41	62	1.50
Blue crevally	170	240	1.41
Pig-lipped ulua	1,525	3,756	2.46
Paapaa ulua	281	540	1.92
White ulua	1,888	2,341	1.24
Black ulua	28	32	1.15
Giant sea bass	3,426	13,246	3.87
Blue spot grouper	9	23	2.56
Snappers	232	640	2.76
Blue lined snapper	3,817	3,275	0.86
Ehu (red snapper)	3,898	15,138	3.88
Gindai (flower snapper)	1,053	3,000	2.85
Kalekale (pink snapper)	2,296	7,590	3.31
Lehi (silverjaw)	389	1,173	3.01
Onaga (red snapper)	7,775	47,741	6.14
Opakapaka (pink snapper)	13,346	60,441	4.53
Uku (gray snapper)	13,557	38,240	2.82
Porgy	202	443	2.19
Reef jacks	140	460	3.28
Squirrelfish	5,741	16,148	2.81
Trumpetfish	10	5	0.48
Scorpionfish	348	1,717	4.93
Mountain bass	257	576	2.24
Bigeyes	388	1,076	2.77
Goatfish	7,669	17,581	2.29
Rudderfish	1,288	986	0.77
Damselfish	201	344	1.71

Table V.1.10 (Cont.)

Species	Pounds	Value	$/lb
Hawkfish	71	107	1.50
Tilapia	286	201	0.70
Wrasse	643	2,628	4.09
Parrotfish	3,397	7,786	2.29
Surgeon/tangs	7,780	10,284	1.32
Flounders	2	3	1.50
Filefish	98	186	1.90
Rainbow runner	386	523	1.35
Mahimahi (dolphin)	66,008	145,868	2.21
Barracudas	1,568	2,309	1.47
Wahoo	49,201	132,056	2.68
Japanese mackerel	29	46	1.60
Tunas	30	30	1.00
Skipjack tuna	409,193	438,040	1.07
Yellowfin tuna	525,917	1,105,702	2.10
Albacore	301,356	268,764	0.89
Bigeye tuna	111,974	336,126	3.00
Kawakawa	252	289	1.15
Broadbill swordfish	106,795	345,048	3.23
Blue marlin	171,334	157,851	0.92
Black marlin	1,272	900	0.71
Striped marlin	46,704	61,763	1.32
Shortnose spearfish	6,931	7,755	1.12
Sailfish	1,132	1,247	1.10
Ocean moonfish	28,090	39,842	1.42
Crabs	832	3,134	3.77
Shrimp (freshwater)	45	225	5.00
Shrimp (saltwater)	3,925	20,154	5.13
Octopus	1,127	3,225	2.86
Squid	306	720	2.35
Limpets (saltwater)	692	2,943	4.25
Algae	2,315	6,665	2.88
** SUBTOTAL **	2,031,876	3,521,450	1.73

Table V.1.11

Hawaii September 1996 Commercial Landings

Species	Pounds	Value	$/lb
Miscellaneous	616	1,388	2.25
Sharks	2,382	2,032	0.85
Eels	123	108	0.87
Bigeye scad (akule)	19,278	37,499	1.95
Mackerel scad	40,697	60,100	1.48
Leatherback	50	52	1.03
Ten pounder	159	278	1.75
Bonefish	366	629	1.72
Milkfish	109	176	1.61
Needlefish	151	106	0.70
Threadfin	58	241	4.16
Mullet	135	413	3.06
Pomfret	8,725	18,135	2.08
Jacks (misc.)	2,006	3,911	1.95
Amberjack	33	49	1.48
Blue crevally	306	589	1.92
Pig-lipped ulua	4,757	8,666	1.82
Dobe ulua	6	15	2.52
Paapaa ulua	292	593	2.03
White ulua	544	727	1.34
Black ulua	111	276	2.48
Giant sea bass	3,649	13,989	3.83
Blue spot grouper	19	57	3.00
Snappers	161	584	3.62
Blue lined snapper	3,563	3,158	0.89
Ehu (red snapper)	3,528	12,542	3.55
Gindai (flower snapper)	630	1,806	2.87
Kalekale (pink snapper)	2,943	7,772	2.64
Lehi (silverjaw)	1,111	2,974	2.68
Onaga (red snapper)	7,139	43,760	6.13
Opakapaka (pink snapper)	17,174	69,836	4.07
Uku (gray snapper)	10,502	22,982	2.19
Porgy	127	336	2.65
Reef jacks	59	200	3.39
Squirrelfish	5,554	15,499	2.79
Scorpionfish	308	1,582	5.14
Mountain bass	104	144	1.38
Bigeyes	354	966	2.73
Goatfish	5,628	17,161	3.05
Rudderfish	2,095	1,331	0.64
Damselfish	99	212	2.14
Hawkfish	32	67	2.09

Table V.1.11 (Cont.)

Species	Pounds	Value	$/lb
Tilapia	60	120	2.00
Wrasse	779	2,989	3.84
Parrotfish	2,047	3,980	1.94
Surgeon/tangs	5,575	7,795	1.40
Flounders	5	5	1.08
Triggerfish	7	3	0.46
Filefish	52	99	1.91
Rainbow runner	1,174	1,594	1.36
Mahimahi (dolphin)	65,035	142,660	2.19
Barracudas	1,298	1,891	1.46
Wahoo	29,489	79,465	2.69
Tunas	245	3,553	14.50
Skipjack tuna	201,330	323,426	1.61
Yellowfin tuna	204,949	556,559	2.72
Albacore	121,254	185,964	1.53
Bigeye tuna	152,482	496,563	3.26
Kawakawa	586	964	1.64
Broadbill swordfish	51,884	104,793	2.02
Blue marlin	105,875	123,034	1.16
Striped marlin	32,233	56,799	1.76
Shortnose spearfish	6,530	9,430	1.44
Sailfish	1,381	1,511	1.09
Ocean moonfish	30,229	49,896	1.65
Spiny lobster	1,416	13,188	9.31
Slipper lobster	12	76	6.33
Crabs	5,486	26,008	4.74
Shrimp (freshwater)	30	150	5.00
Shrimp (saltwater)	1,770	9,722	5.49
Octopus	1,438	4,173	2.90
Squid	1,322	2,588	1.96
Limpets (saltwater)	383	1,557	4.06
Algae	1,666	4,212	2.53
** SUBTOTAL **	1,173,705	2,567,707	2.19

Table V.1.12

Hawaii October 1996 Commercial Landings

Species	Pounds	Value	$/lb
Miscellaneous	463	1,200	2.59
Sharks	5,142	4,430	0.86
Eels	95	69	0.73
Bigeye scad (akule)	21,107	41,365	1.96
Mackerel scad	41,109	54,985	1.34
Leatherback	57	94	1.65
Ten pounder	38	67	1.75
Bonefish	331	572	1.73
Milkfish	7	9	1.25
Threadfin	53	239	4.50
Mullet	361	1,100	3.05
Pomfret	11,069	15,354	1.39
Jacks (misc.)	3,050	5,701	1.87
Amberjack	63	95	1.50
Blue crevally	401	648	1.62
Pig-lipped ulua	5,165	7,625	1.48
Dobe ulua	2	3	1.50
Paapaa ulua	513	1,006	1.96
White ulua	3,183	2,801	0.88
Black ulua	43	63	1.45
Giant sea bass	3,618	14,132	3.91
Blue spot grouper	34	89	2.62
Snappers	95	264	2.78
Blue lined snapper	3,014	3,092	1.03
Ehu (red snapper)	2,933	11,392	3.88
Gindai (flower snapper)	647	1,649	2.55
Kalekale (pink snapper)	3,035	7,642	2.52
Lehi (silverjaw)	523	1,612	3.08
Onaga (red snapper)	8,451	50,683	6.00
Opakapaka (pink snapper)	25,358	105,288	4.15
Uku (gray snapper)	10,290	23,811	2.31
Porgy	99	244	2.46
Squirrelfish	5,410	15,800	2.92
Scorpionfish	200	821	4.10
Mountain bass	349	777	2.23
Bigeyes	477	1,197	2.51
Goatfish	4,658	14,480	3.11
Rudderfish	491	680	1.38
Damselfish	70	134	1.91
Hawkfish	83	176	2.12
Tilapia	316	220	0.70
Wrasse	794	2,645	3.33

Table V.1.12 (Cont.)

Species	Pounds	Value	$/lb
Parrotfish	1,942	3,977	2.05
Surgeon/tangs	6,029	7,785	1.29
Flounders	7	7	1.04
Triggerfish	1	1	0.75
Filefish	142	275	1.94
Rainbow runner	762	1,012	1.33
Mahimahi (dolphin)	95,450	179,307	1.88
Barracudas	1,879	2,279	1.21
Wahoo	32,993	90,120	2.73
Japanese mackerel	50	116	2.32
Tunas	6,688	23,052	3.45
Skipjack tuna	234,332	383,560	1.64
Yellowfin tuna	195,778	524,300	2.68
Albacore	214,605	264,793	1.23
Bigeye tuna	256,880	834,186	3.25
Kawakawa	941	814	0.87
Frigate tuna	1	1	0.75
Broadbill swordfish	60,835	175,944	2.89
Blue marlin	118,473	103,015	0.87
Black marlin	874	608	0.70
Striped marlin	80,117	84,506	1.05
Shortnose spearfish	12,419	11,590	0.93
Sailfish	1,163	1,126	0.97
Ocean moonfish	71,509	65,921	0.92
Spiny lobster	444	3,992	8.99
Crabs	3,168	12,927	4.08
Shrimp (freshwater)	50	250	5.00
Shrimp (saltwater)	2,212	11,543	5.22
Octopus	2,223	6,396	2.88
Squid	329	687	2.09
Limpets (saltwater)	300	1,272	4.24
Sea cucumbers	20	160	8.00
Algae	3,706	8,685	2.34
** SUBTOTAL **	1,569,519	3,198,457	2.04

Table V.1.13

Hawaii November 1996 Commercial Landings

Species	Pounds	Value	$/lb
Miscellaneous	622	1,209	1.94
Sharks	4,430	3,092	0.70
Eels	39	28	0.72
Bigeye scad (akule)	21,961	42,784	1.95
Mackerel scad	26,699	38,077	1.43
Leatherback	45	60	1.32
Ten pounder	161	266	1.65
Bonefish	508	860	1.69
Milkfish	63	130	2.06
Threadfin	26	148	5.67
Mullet	1,393	4,230	3.04
Pomfret	10,630	15,788	1.49
Snake mackerel	68	51	0.75
Jacks (misc.)	3,202	6,058	1.89
Amberjack	59	89	1.50
Blue crevally	498	1,081	2.17
Pig-lipped ulua	2,465	4,450	1.81
Paapaa ulua	516	1,030	2.00
White ulua	370	618	1.67
Black ulua	17	26	1.50
Giant sea bass	2,817	12,186	4.33
Blue spot grouper	9	17	1.89
Snappers	49	155	3.16
Blue lined snapper	2,807	2,656	0.95
Ehu (red snapper)	2,536	10,180	4.01
Gindai (flower snapper)	374	1,178	3.15
Kalekale (pink snapper)	2,751	7,574	2.75
Lehi (silverjaw)	670	2,219	3.31
Onaga (red snapper)	6,572	42,336	6.44
Opakapaka (pink snapper)	17,348	72,853	4.20
Uku (gray snapper)	5,460	14,822	2.71
Porgy	77	170	2.21
Squirrelfish	2,869	8,484	2.96
Trumpetfish	7	5	0.70
Scorpionfish	261	1,393	5.34
Mountain bass	182	522	2.87
Bigeyes	456	1,116	2.45
Goatfish	4,111	11,896	2.89
Rudderfish	332	365	1.10
Damselfish	336	538	1.60
Hawkfish	13	28	2.12
Tilapia	433	307	0.71

Table V.1.13 (Cont.)

Species	Pounds	Value	$/lb
Wrasse	433	1,285	2.97
Parrotfish	1,692	3,854	2.28
Surgeon/tangs	6,013	7,421	1.23
Flounders	2	3	1.65
Filefish	37	74	2.00
Rainbow runner	426	610	1.43
Mahimahi (dolphin)	78,747	144,037	1.83
Barracudas	1,871	1,941	1.04
Wahoo	23,205	65,523	2.82
Tunas	1,634	30,477	18.65
Skipjack tuna	121,039	203,790	1.68
Yellowfin tuna	238,225	651,943	2.74
Albacore	153,283	198,978	1.30
Bigeye tuna	430,514	1,222,552	2.84
Kawakawa	760	589	0.77
Billfish	623	249	0.40
Broadbill swordfish	220,916	512,995	2.32
Blue marlin	82,922	90,794	1.09
Black marlin	881	866	0.98
Striped marlin	70,306	96,747	1.38
Shortnose spearfish	14,188	12,294	0.87
Sailfish	1,324	1,177	0.89
Ocean moonfish	55,387	50,582	0.91
Spiny lobster	392	3,209	8.19
Slipper lobster	3	16	5.17
Crabs	1,639	6,537	3.99
Shrimp (freshwater)	45	225	5.00
Shrimp (saltwater)	1,330	6,305	4.74
Octopus	2,661	7,225	2.72
Squid	95	211	2.22
Limpets (saltwater)	423	1,725	4.08
Algae	4,701	12,122	2.58
** SUBTOTAL **	1,639,959	3,647,427	2.22

Table V.1.14

Hawaii December 1996 Commercial Landings

Species	Pounds	Value	$/lb
Miscellaneous	889	1,592	1.79
Sharks	4,732	3,498	0.74
Eels	3	3	0.97
Alfonsin	3	6	2.08
Bigeye scad (akule)	29,140	54,949	1.89
Mackerel scad	29,089	41,694	1.43
Leatherback	19	35	1.84
Ten pounder	46	66	1.44
Bonefish	622	820	1.32
Milkfish	70	125	1.79
Threadfin	119	550	4.62
Mullet	138	397	2.87
Pomfret	13,033	25,715	1.97
Jacks (misc.)	1,902	4,128	2.17
Amberjack	8	12	1.50
Blue crevally	192	426	2.22
Pig-lipped ulua	5,524	12,649	2.29
Dobe ulua	170	500	2.94
Paapaa ulua	501	1,194	2.38
White ulua	326	430	1.32
Black ulua	201	478	2.38
Giant sea bass	5,339	21,317	3.99
Blue spot grouper	36	62	1.72
Snappers	62	158	2.54
Blue lined snapper	2,773	2,910	1.05
Ehu (red snapper)	4,940	22,022	4.46
Gindai (flower snapper)	555	1,819	3.28
Kalekale (pink snapper)	2,815	7,442	2.64
Lehi (silverjaw)	976	3,283	3.36
Onaga (red snapper)	8,759	68,932	7.87
Opakapaka (pink snapper)	25,611	122,667	4.79
Uku (gray snapper)	3,789	12,828	3.39
Porgy	182	426	2.34
Squirrelfish	1,926	5,954	3.09
Trumpetfish	27	33	1.22
Scorpionfish	463	2,954	6.38
Mountain bass	144	440	3.06
Bigeyes	154	380	2.47
Goatfish	5,742	16,957	2.95
Rudderfish	470	692	1.47
Damselfish	97	161	1.66
Hawkfish	40	91	2.28

Table V.1.14 (Cont.)

Species	Pounds	Value	$/lb
Tilapia	112	86	0.77
Wrasse	411	1,713	4.17
Parrotfish	2,507	5,549	2.21
Surgeon/tangs	4,716	6,577	1.39
Flounders	3	4	1.43
Triggerfish	2	1	0.38
Filefish	102	198	1.94
Rainbow runner	406	460	1.13
Mahimahi (dolphin)	24,325	65,534	2.69
Barracudas	1,464	1,771	1.21
Wahoo	15,953	49,562	3.11
Tunas	3,369	37,859	11.24
Skipjack tuna	163,633	205,495	1.26
Yellowfin tuna	180,771	469,609	2.60
Albacore	94,132	149,592	1.59
Bigeye tuna	671,579	1,999,231	2.98
Kawakawa	328	377	1.15
Billfish	81	81	1.00
Broadbill swordfish	469,444	1,082,759	2.31
Blue marlin	34,475	48,289	1.40
Black marlin	535	880	1.64
Striped marlin	83,013	156,214	1.88
Shortnose spearfish	21,339	19,364	0.91
Sailfish	271	455	1.68
Ocean sunfish	20	9	0.47
Ocean moonfish	43,132	61,828	1.43
Spiny lobster	626	4,852	7.75
Slipper lobster	618	7,215	11.67
Crabs	2,826	13,433	4.75
Shrimp (freshwater)	40	200	5.00
Shrimp (saltwater)	1,821	8,974	4.93
Octopus	2,636	7,318	2.78
Squid	141	163	1.16
Limpets (saltwater)	393	1,841	4.69
Precious corals	256	6,400	25.00
Algae	5,325	14,399	2.70
** SUBTOTAL **	1,982,432	4,869,086	2.46
** TOTAL **	22,297,799	51,992,072	2.33

Figure V.1.1

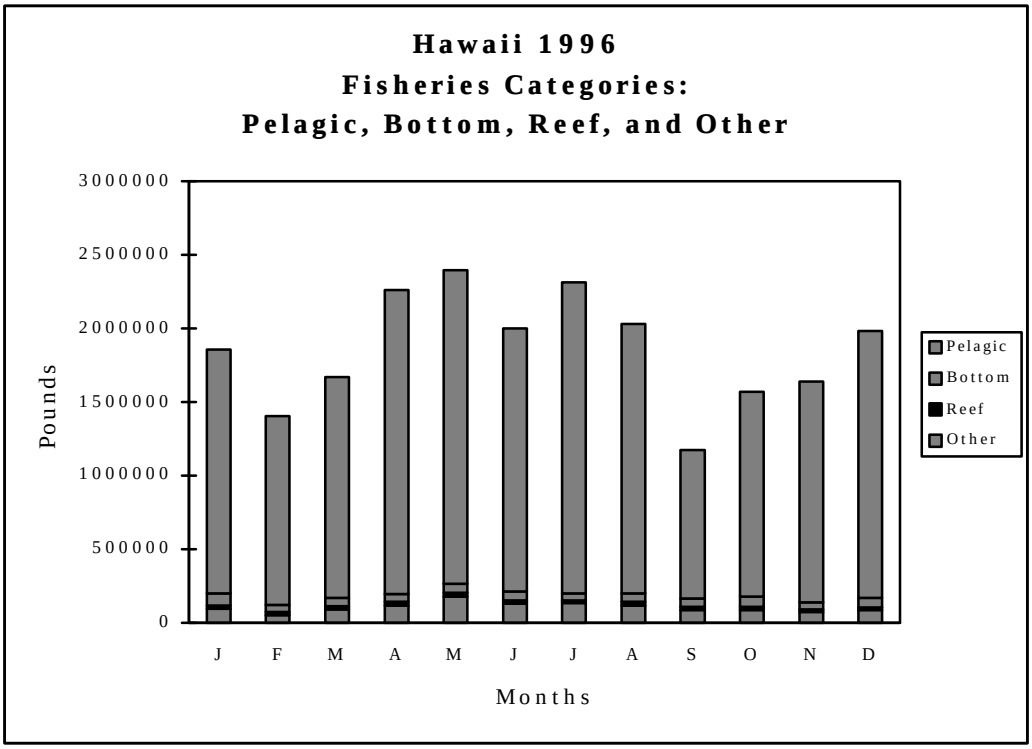


Figure V.1.2

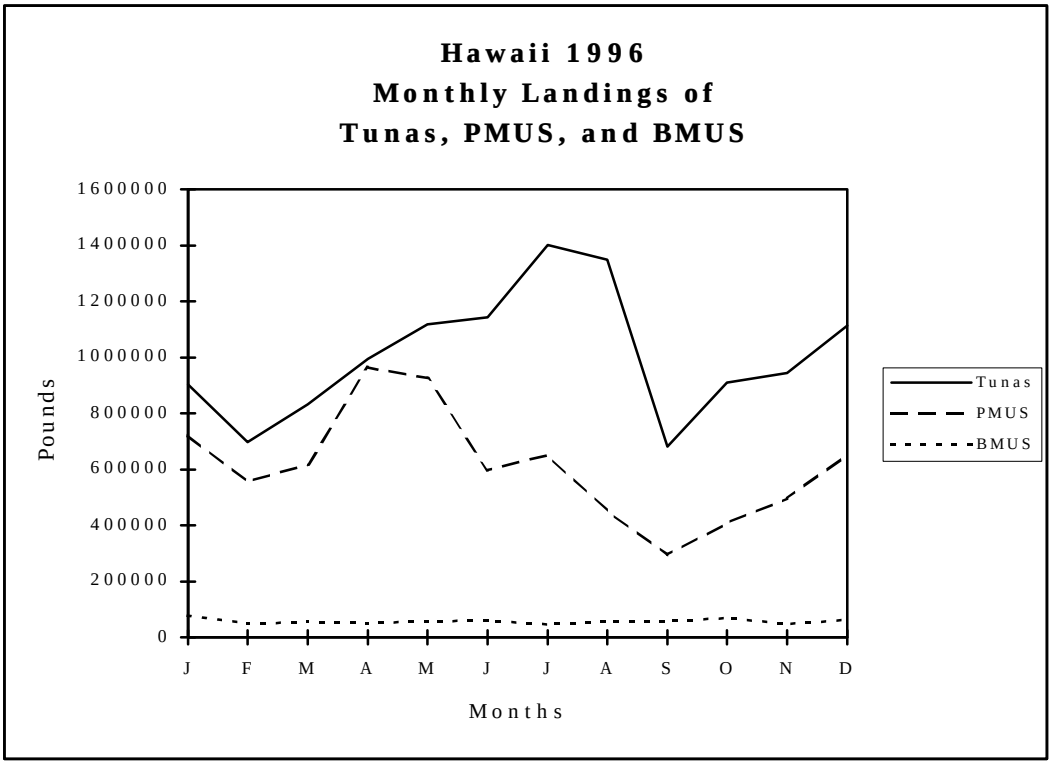


Figure V.1.3

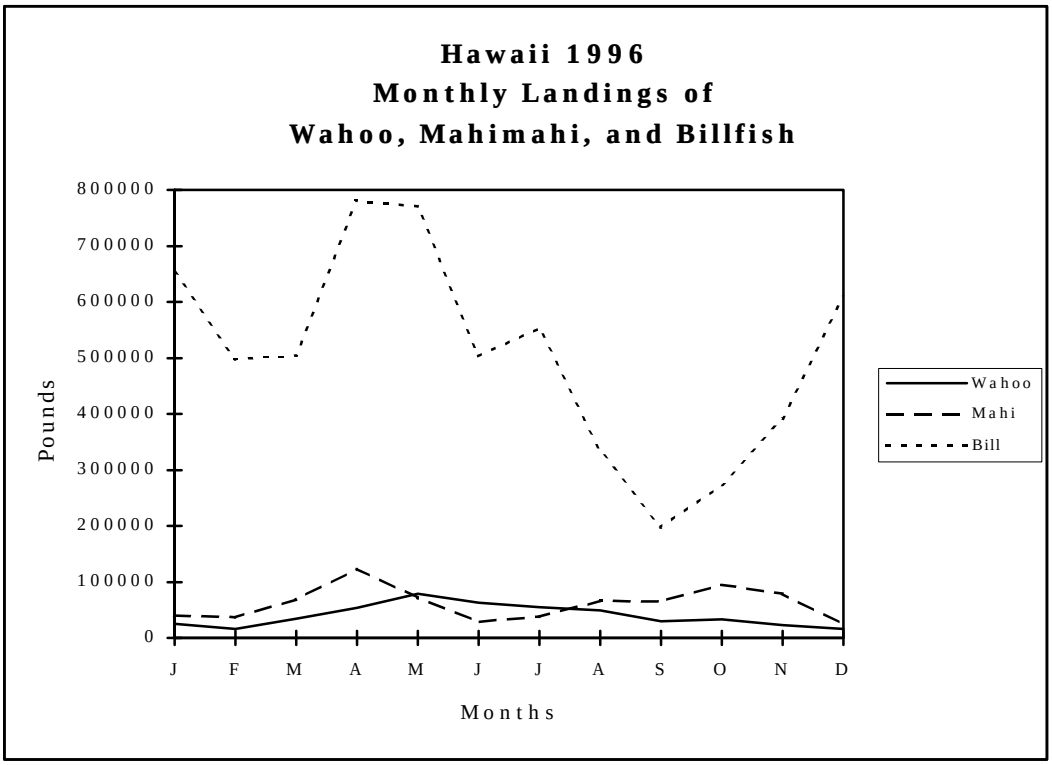


Figure V.1.4

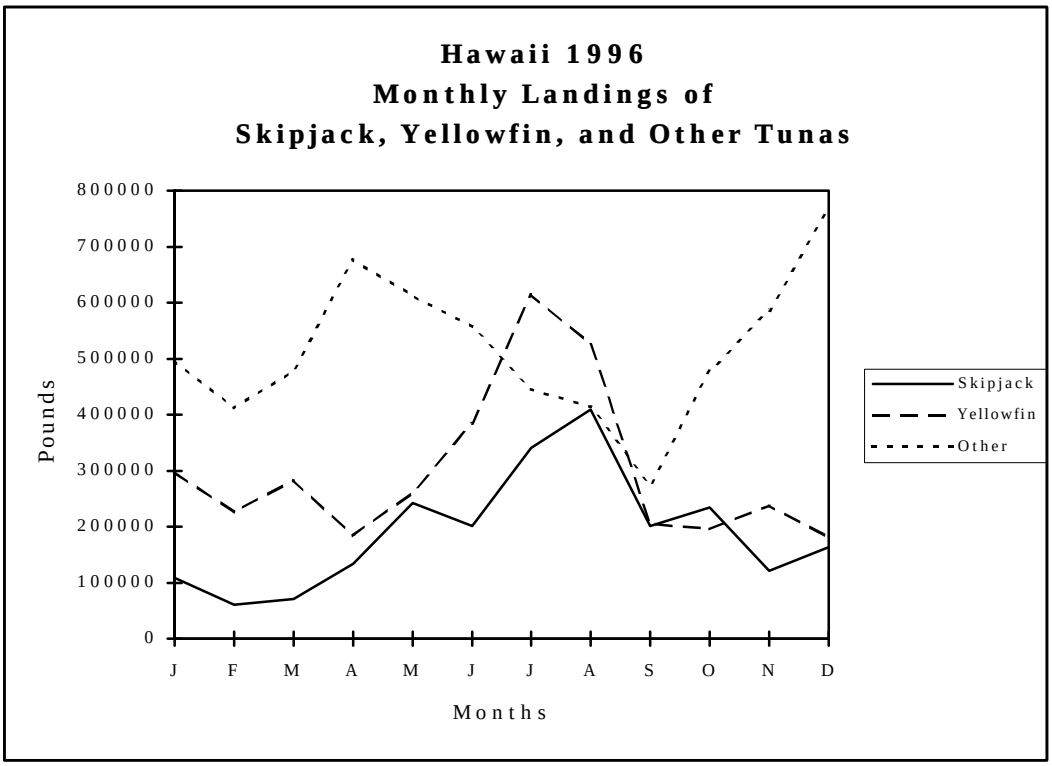


Figure V.2.1

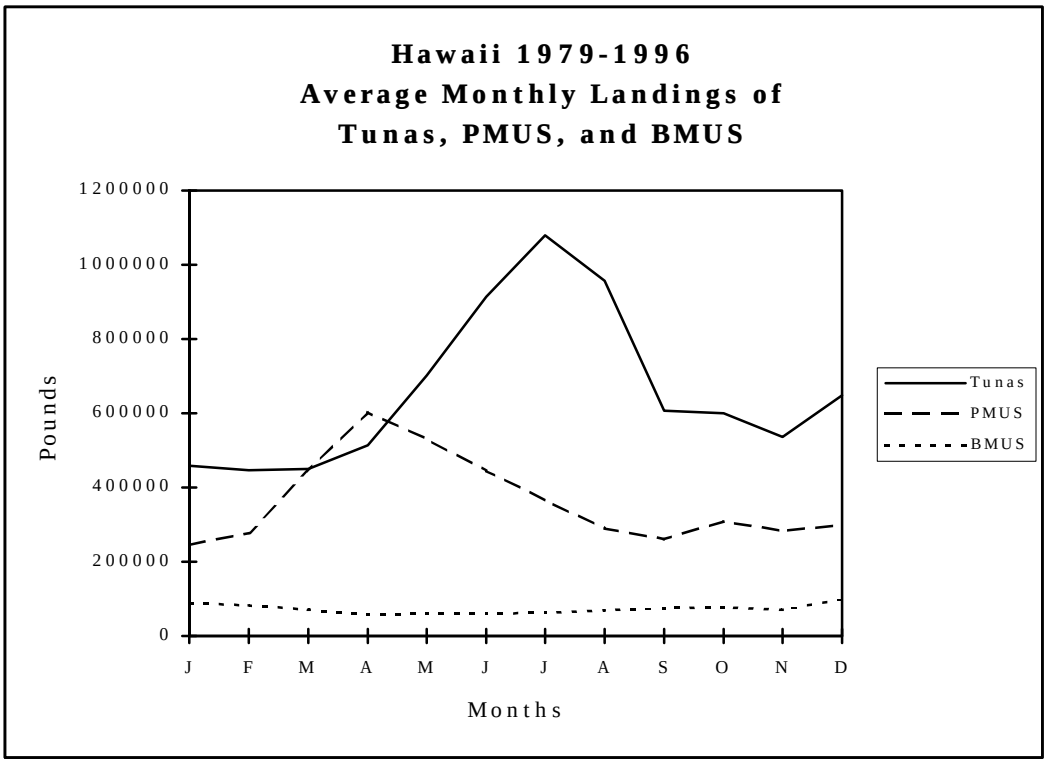


Figure V.2.2

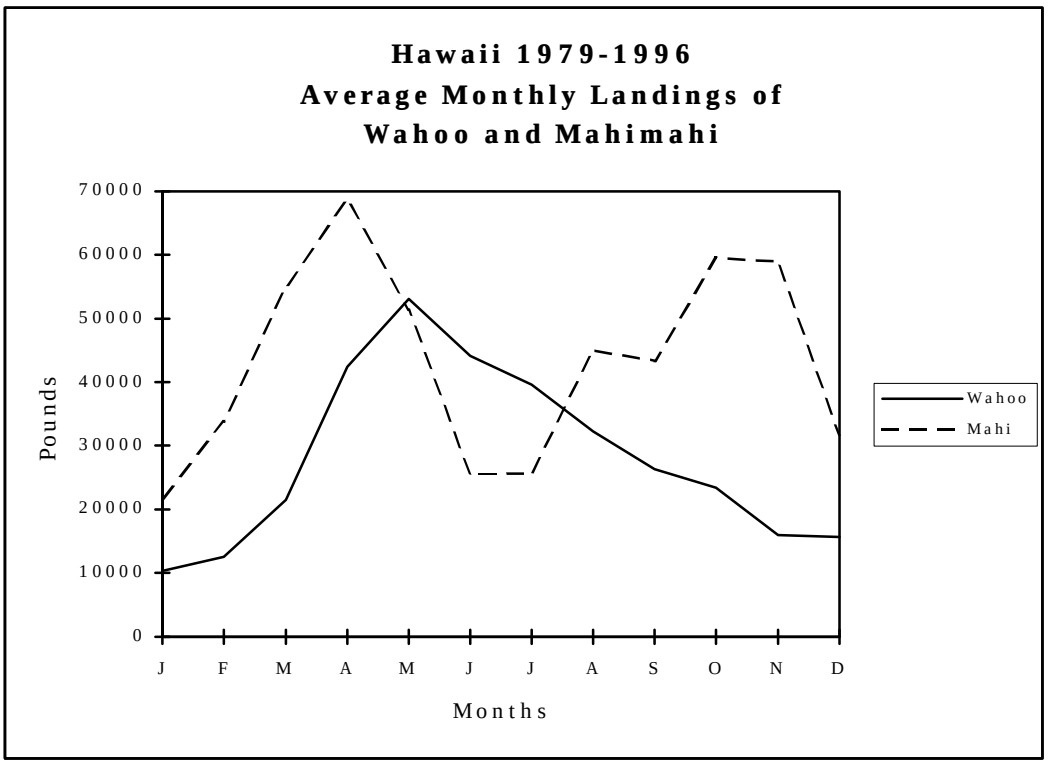


Figure V.2.3

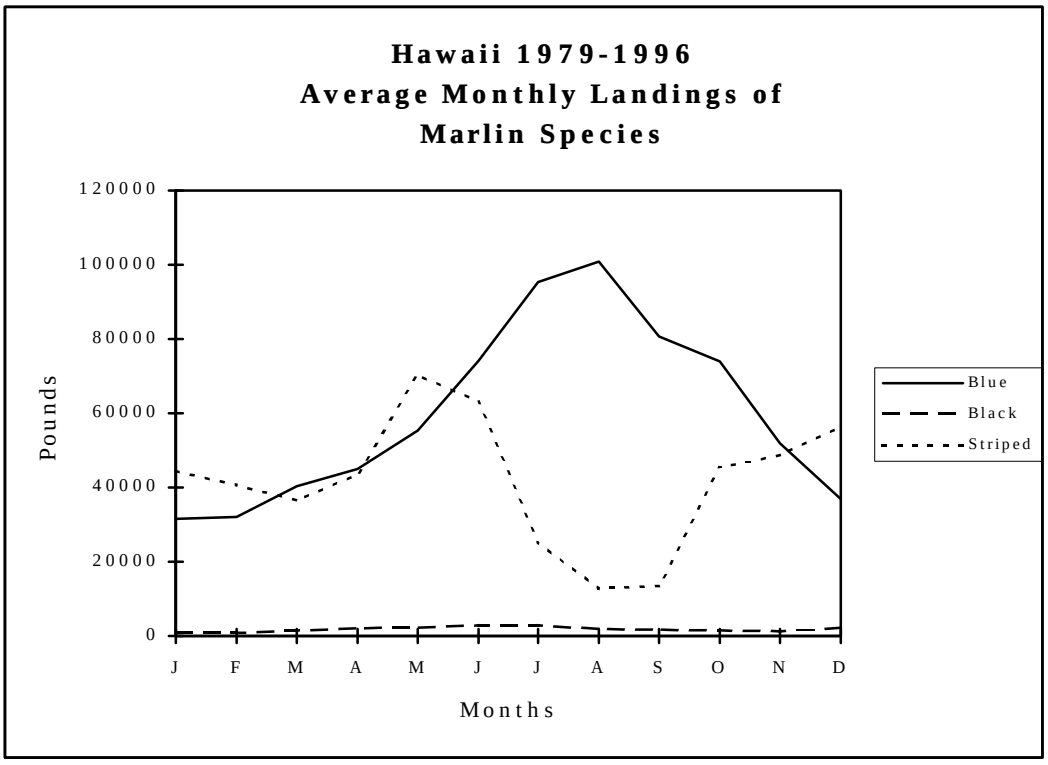


Figure V.2.4

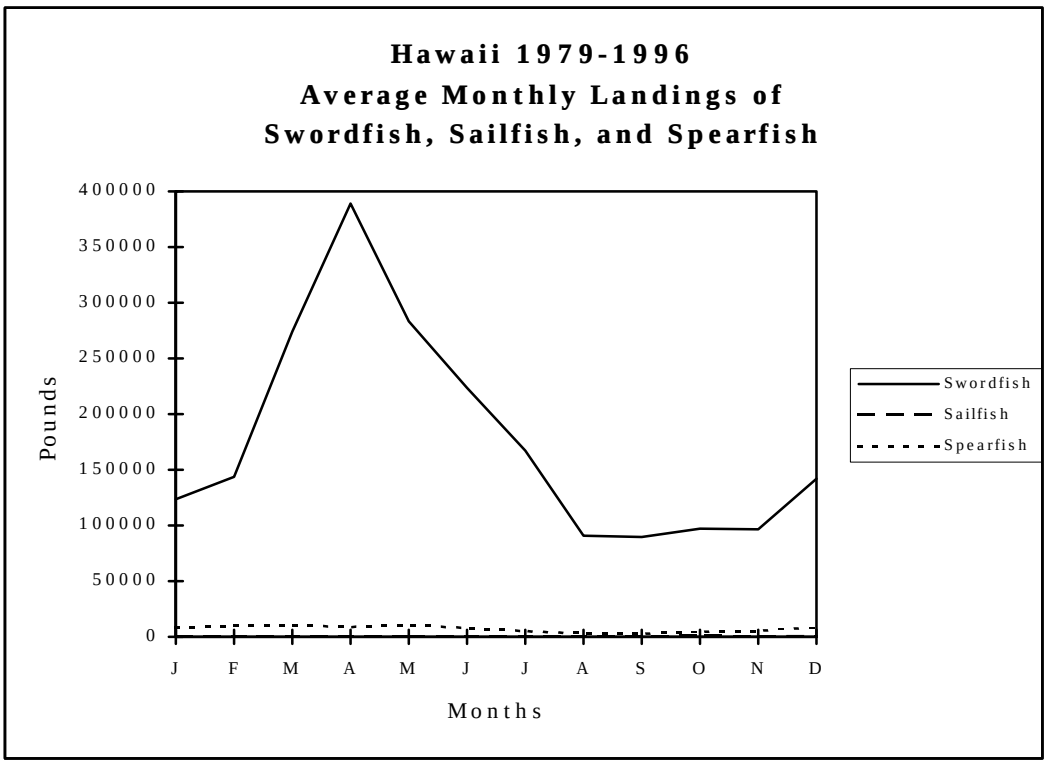


Figure V.2.5

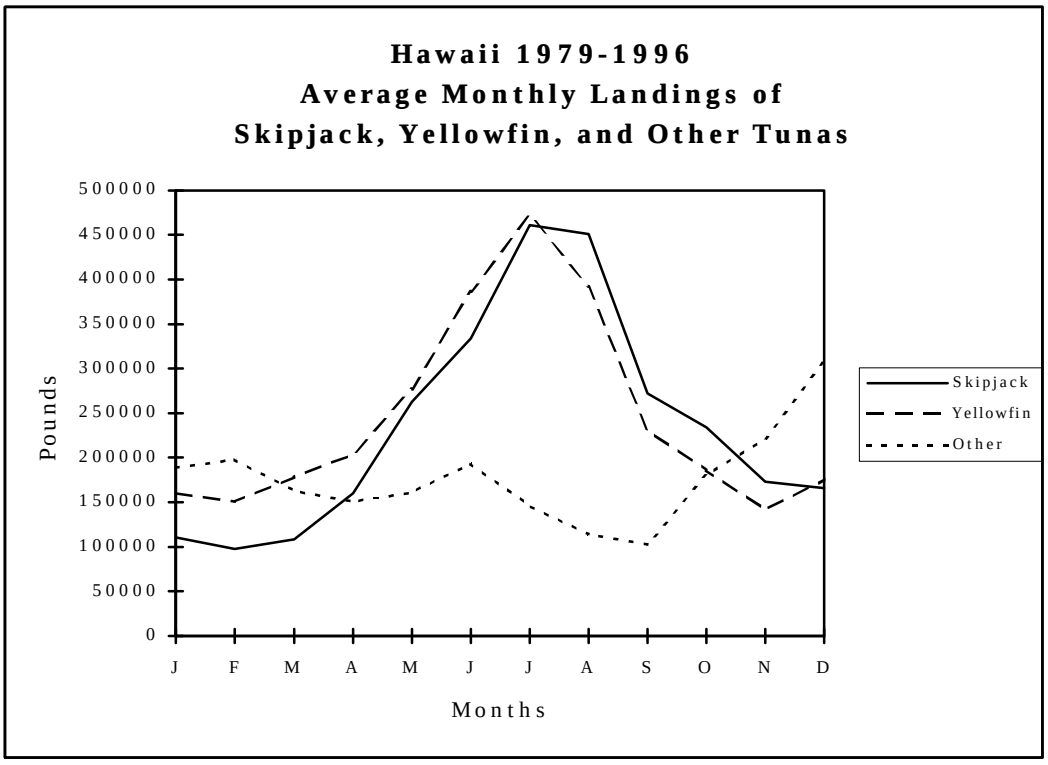


Figure V.2.6

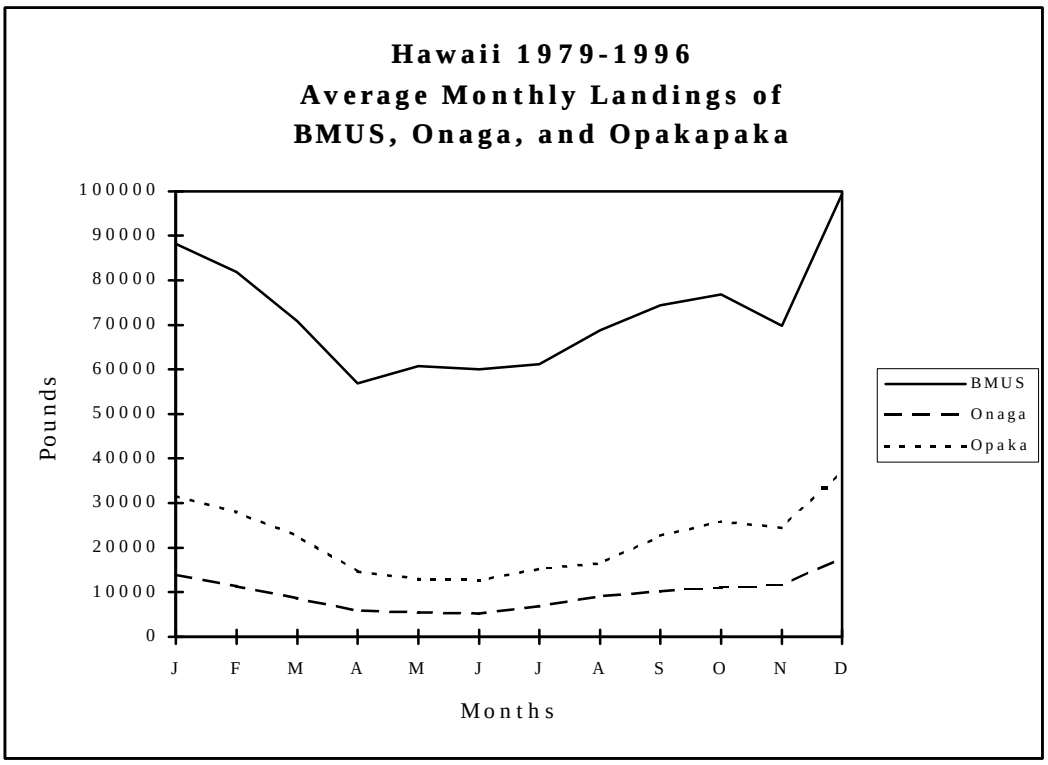


Figure V.2.7

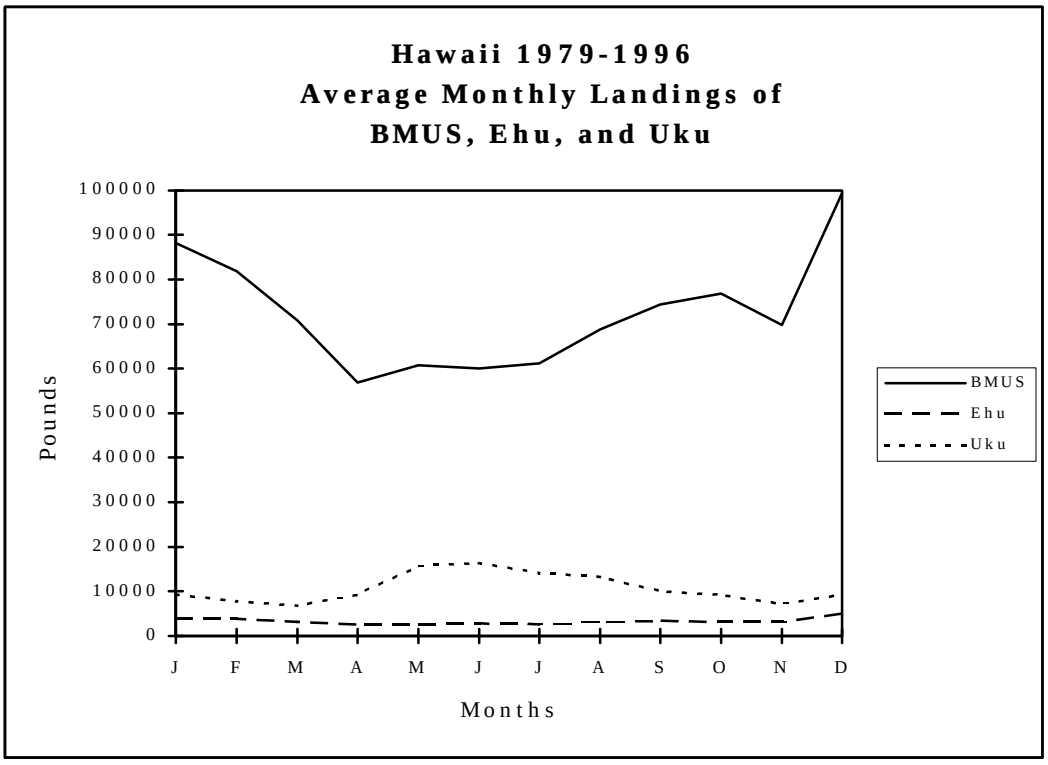


Figure V.3.1

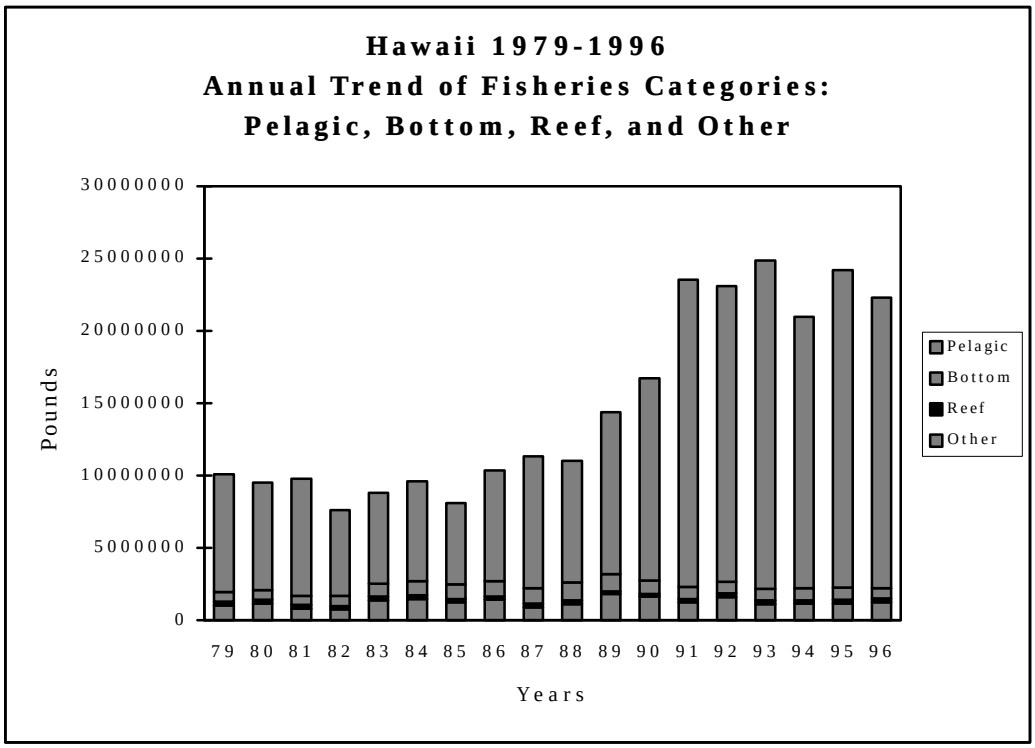


Figure V.3.2

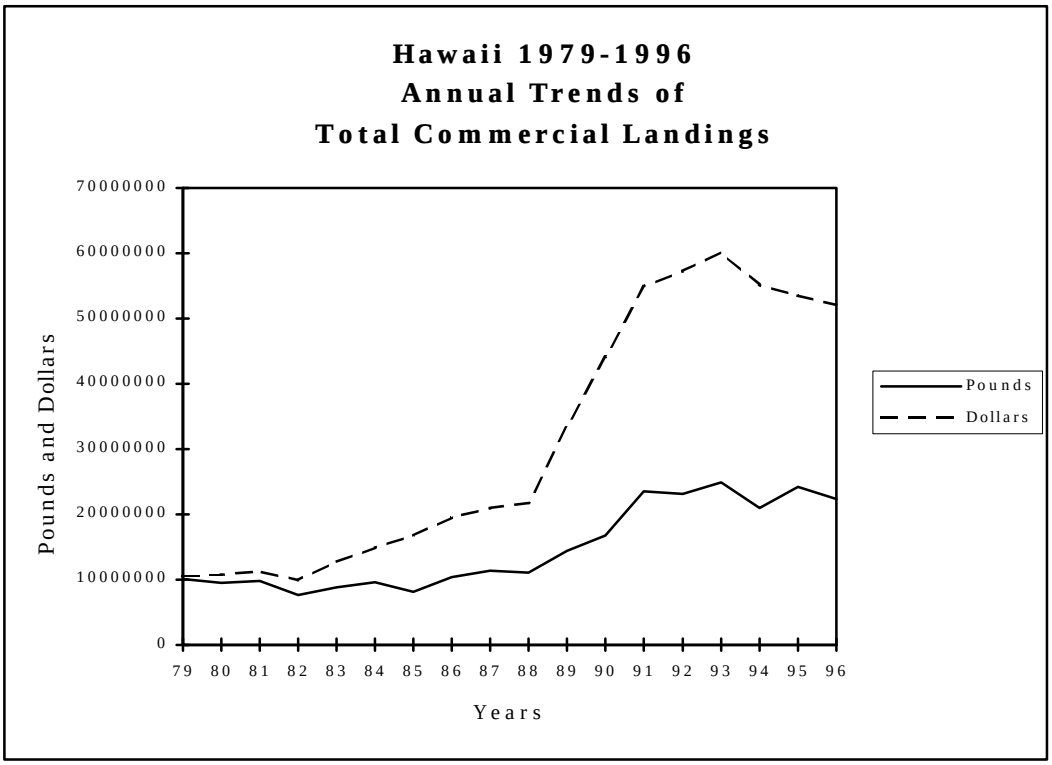


Figure V.3.3

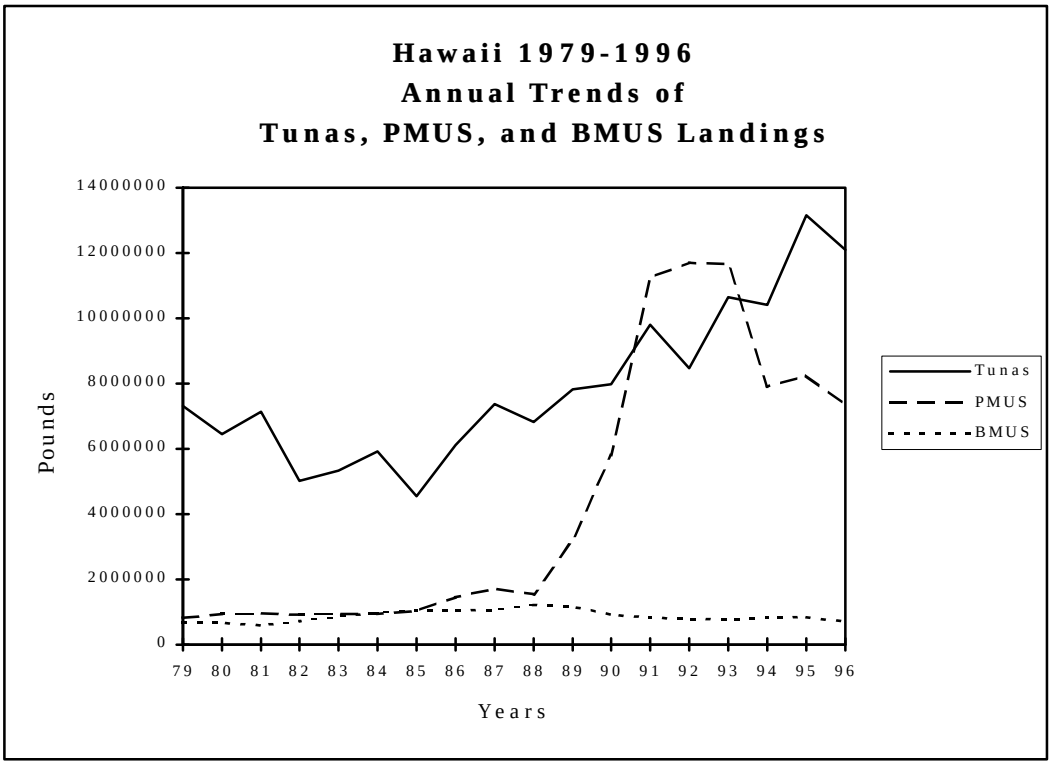


Figure V.3.4

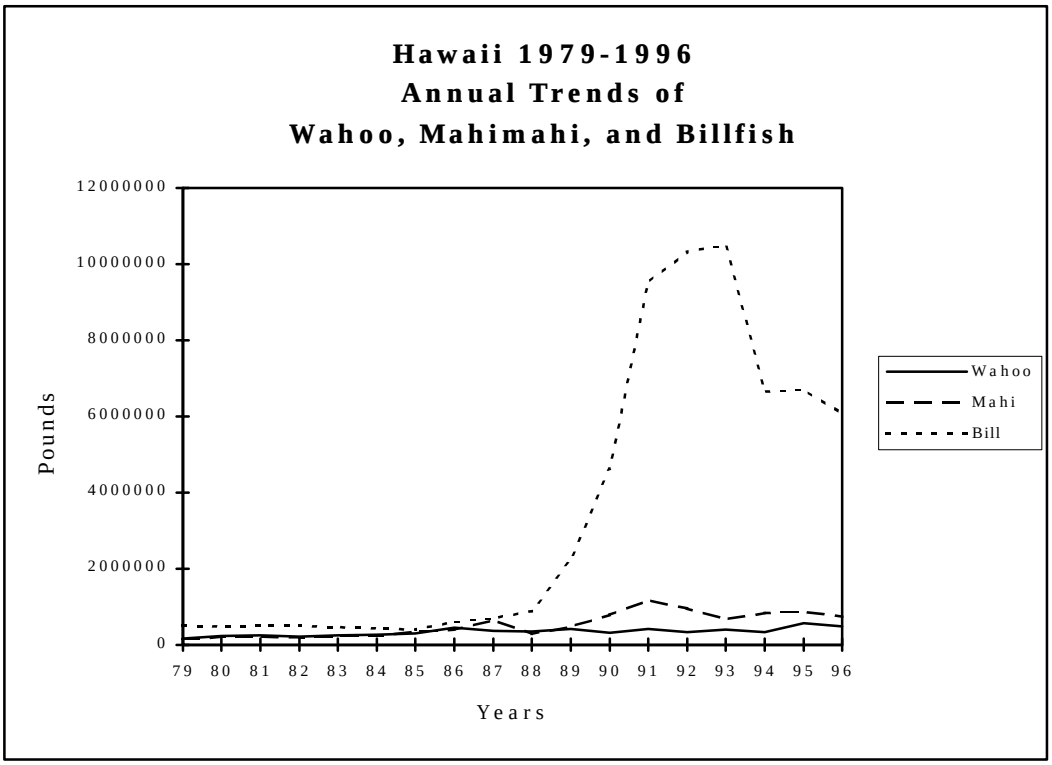


Figure V.3.5

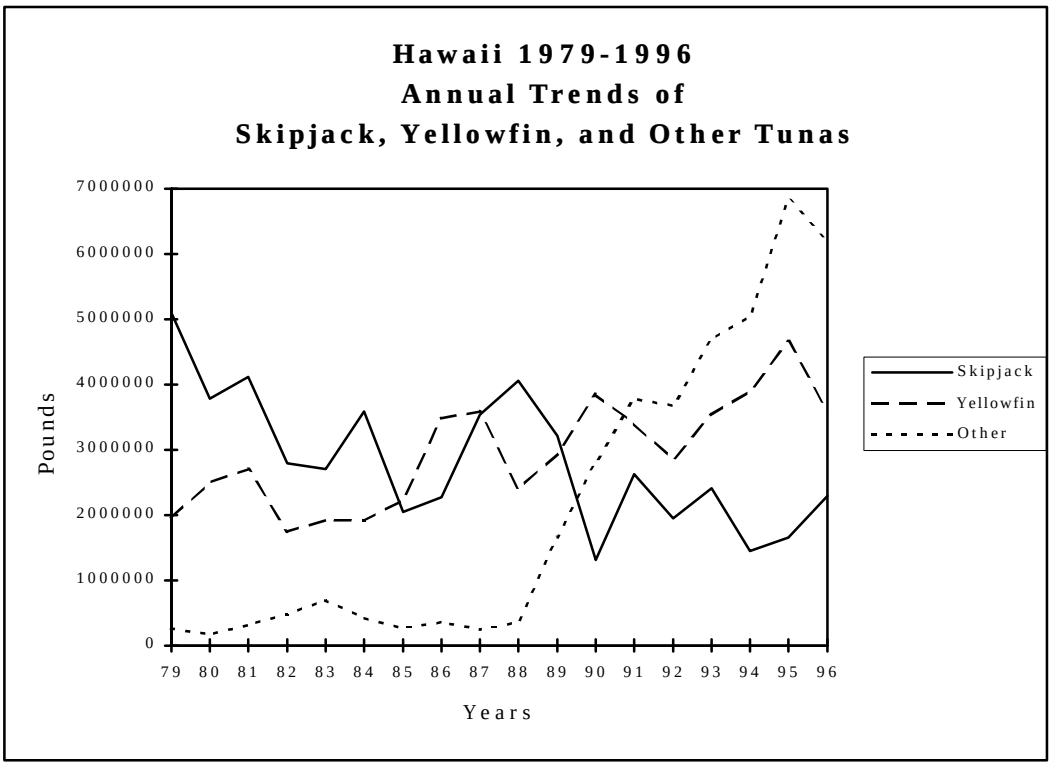


Figure V.4.1

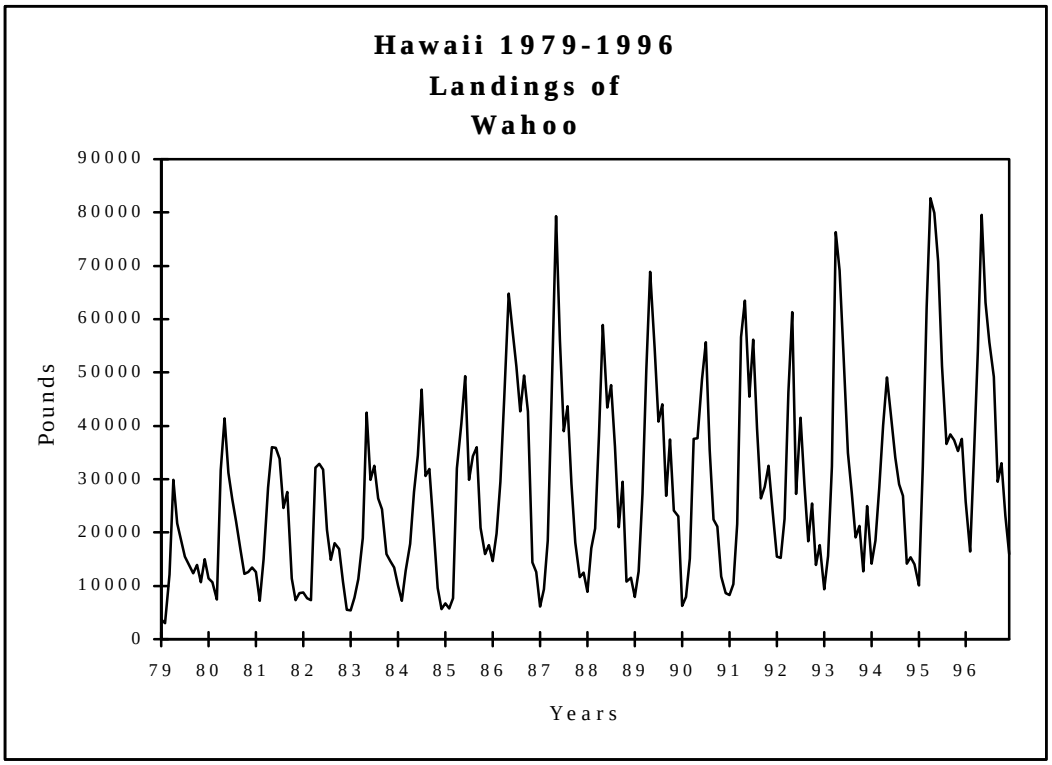


Figure V.4.2

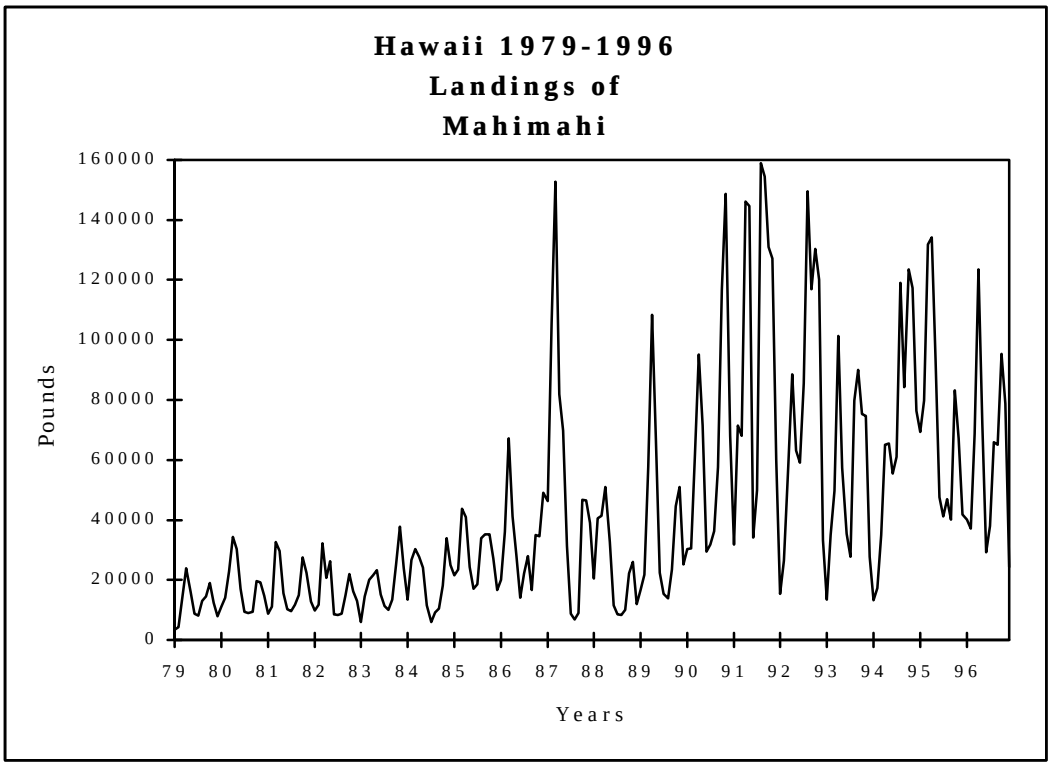


Figure V.4.3

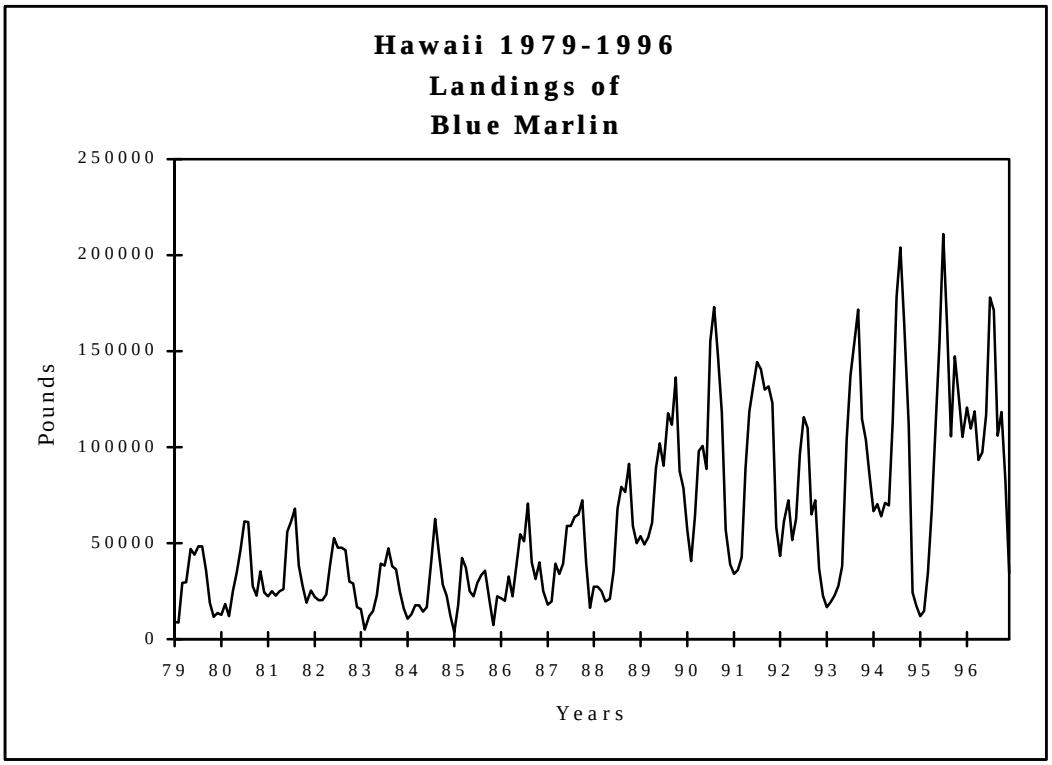


Figure V.4.4

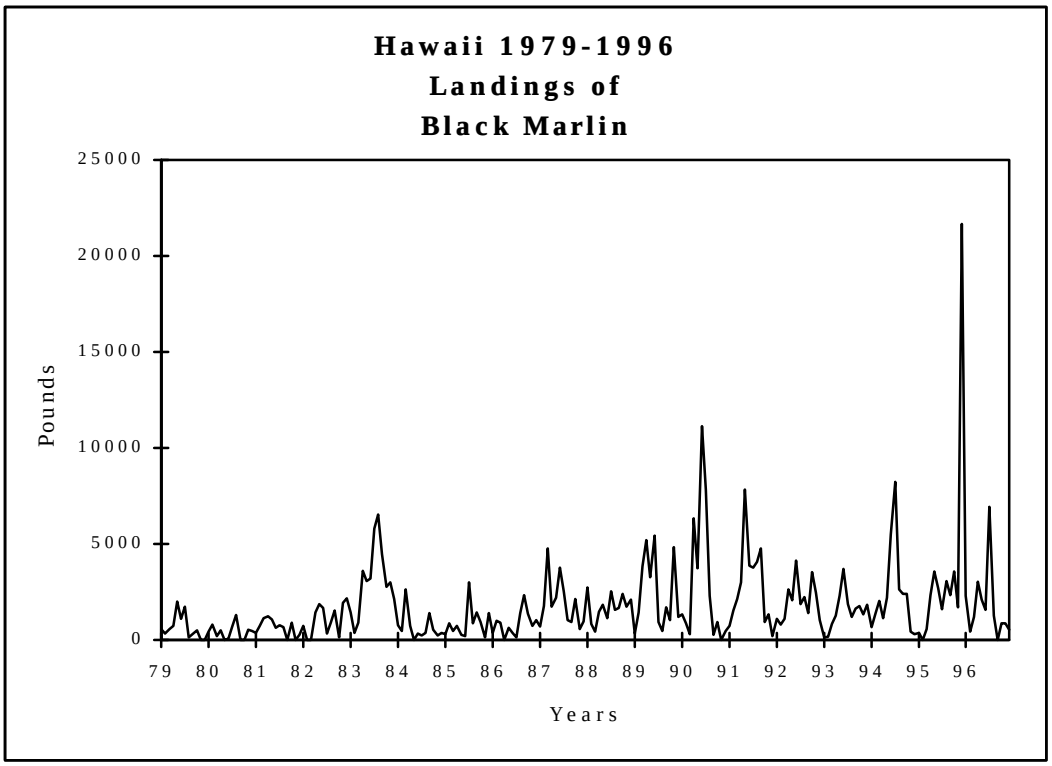


Figure V.4.5

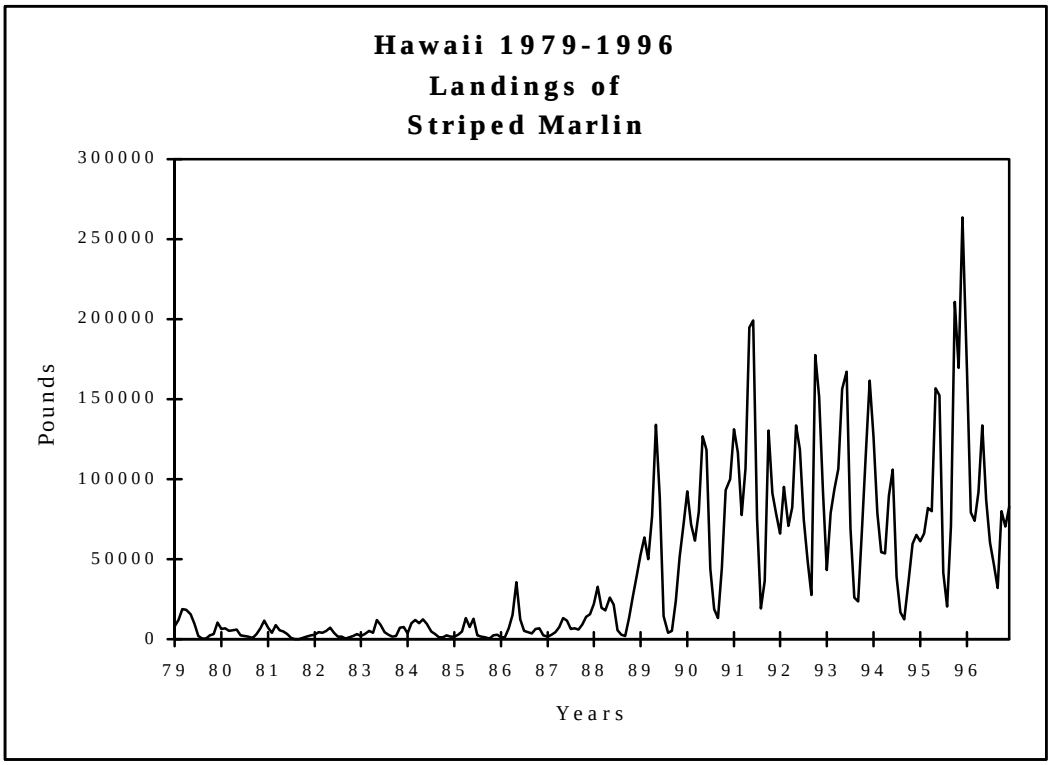


Figure V.4.6

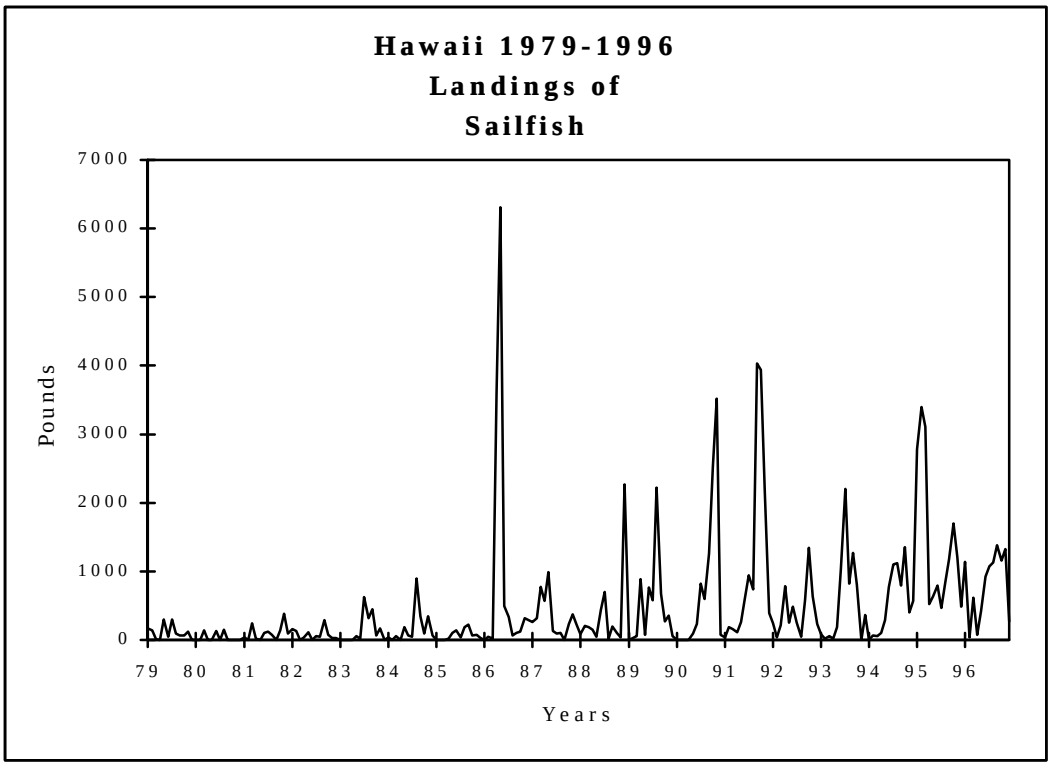


Figure V.4.7

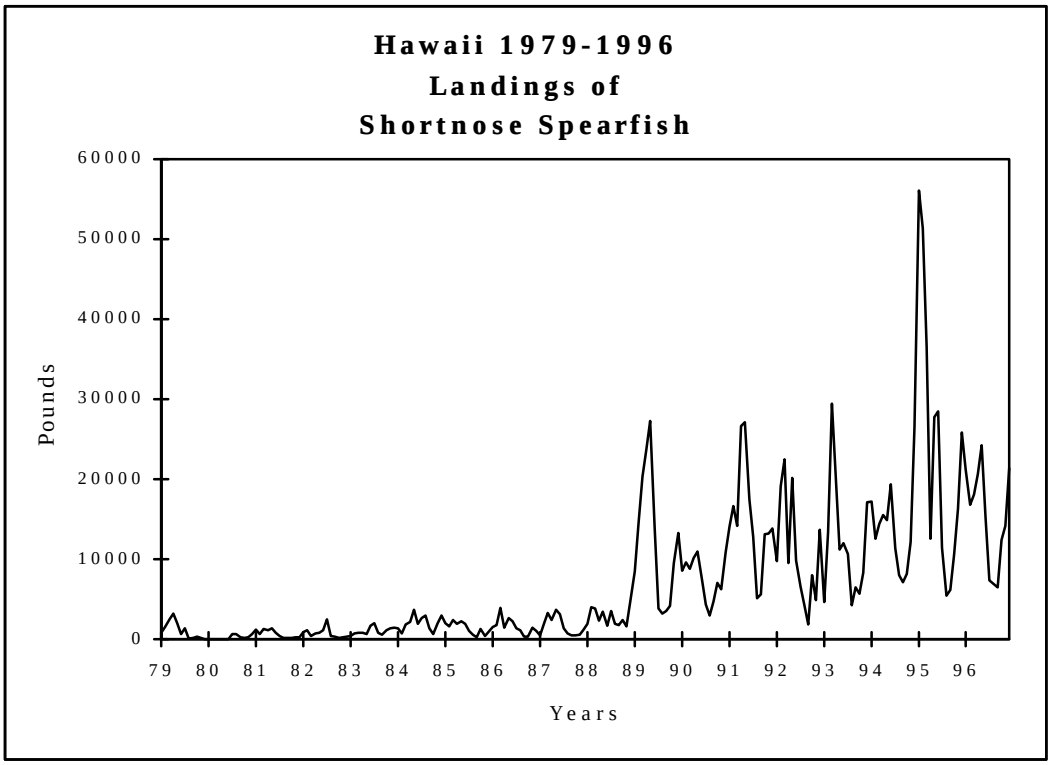


Figure V.4.8

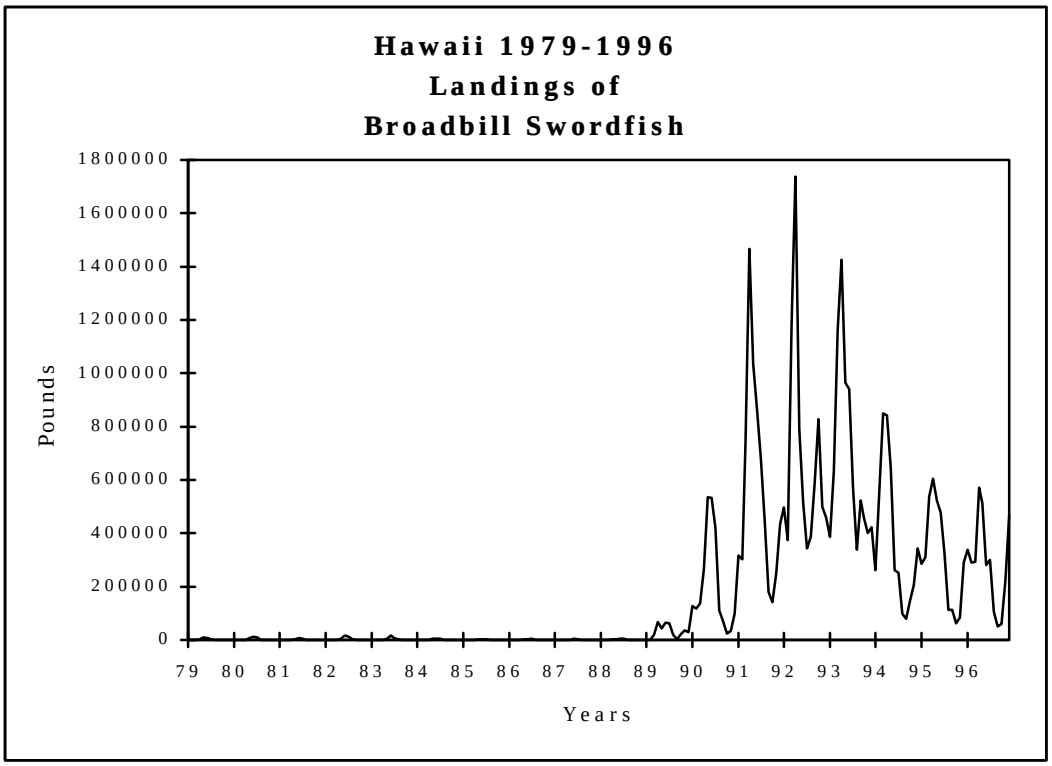


Figure V.4.9

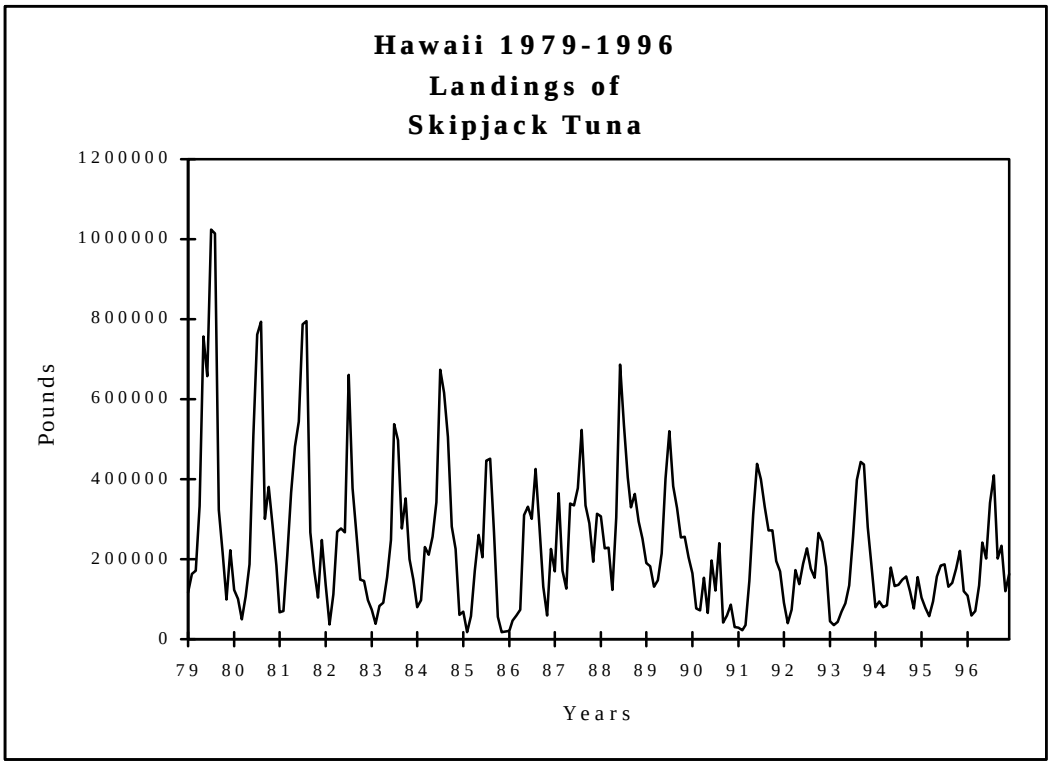


Figure V.4.10

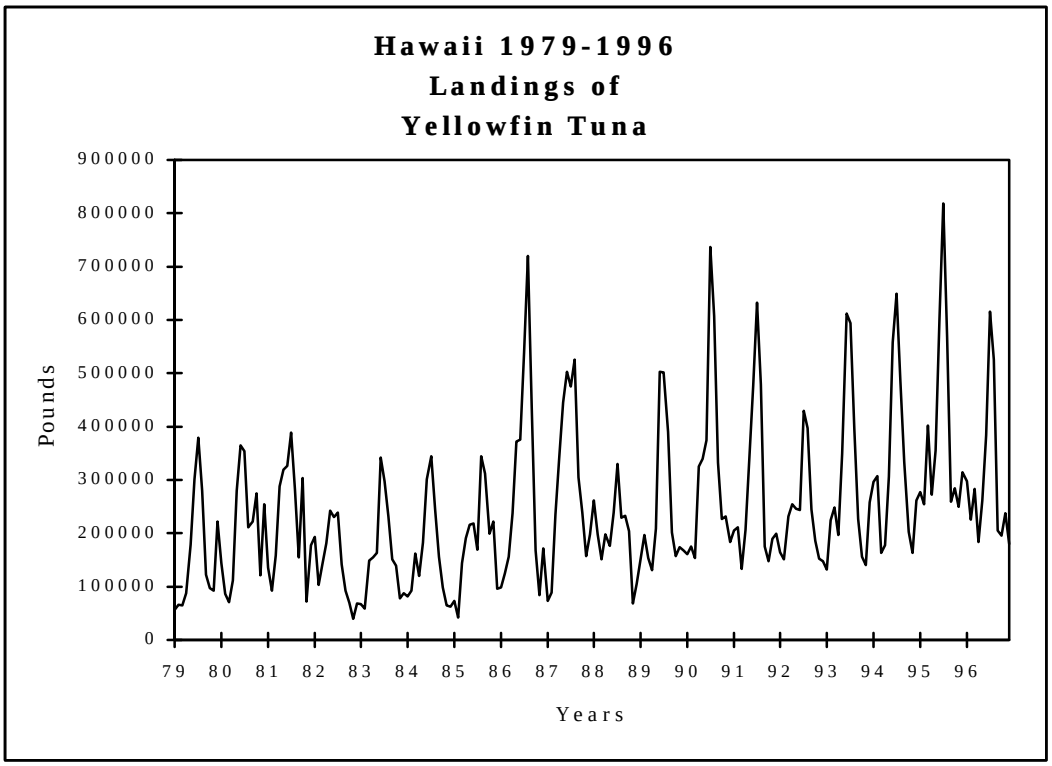


Figure V.4.11

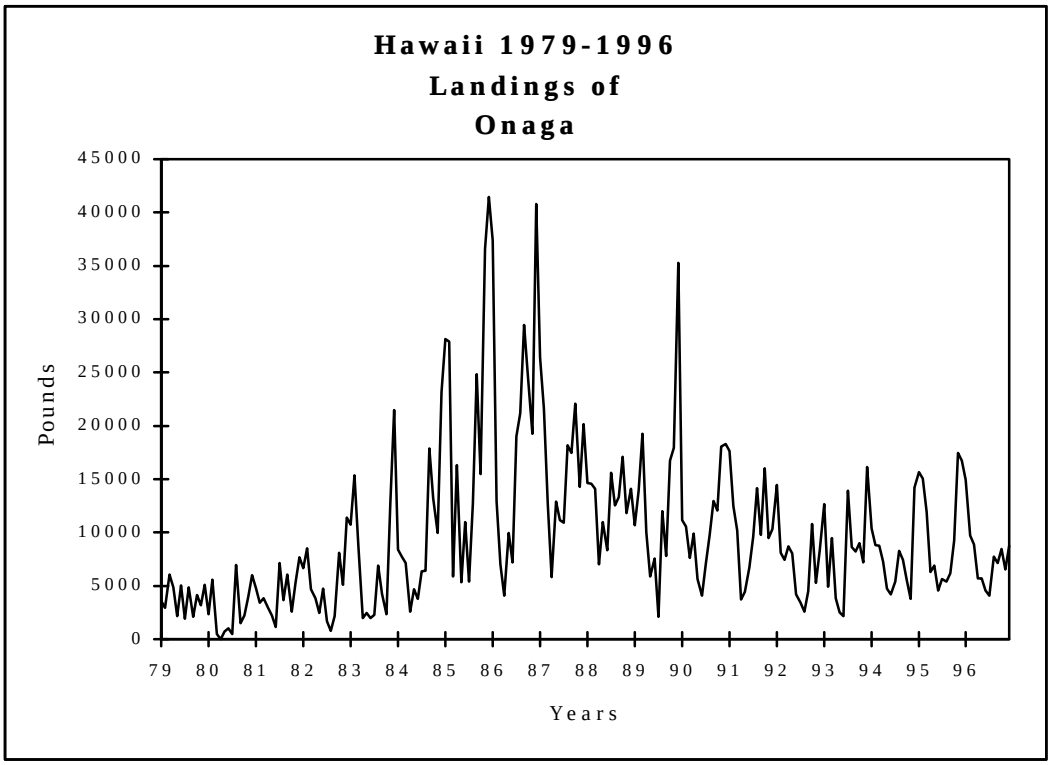


Figure V.4.12

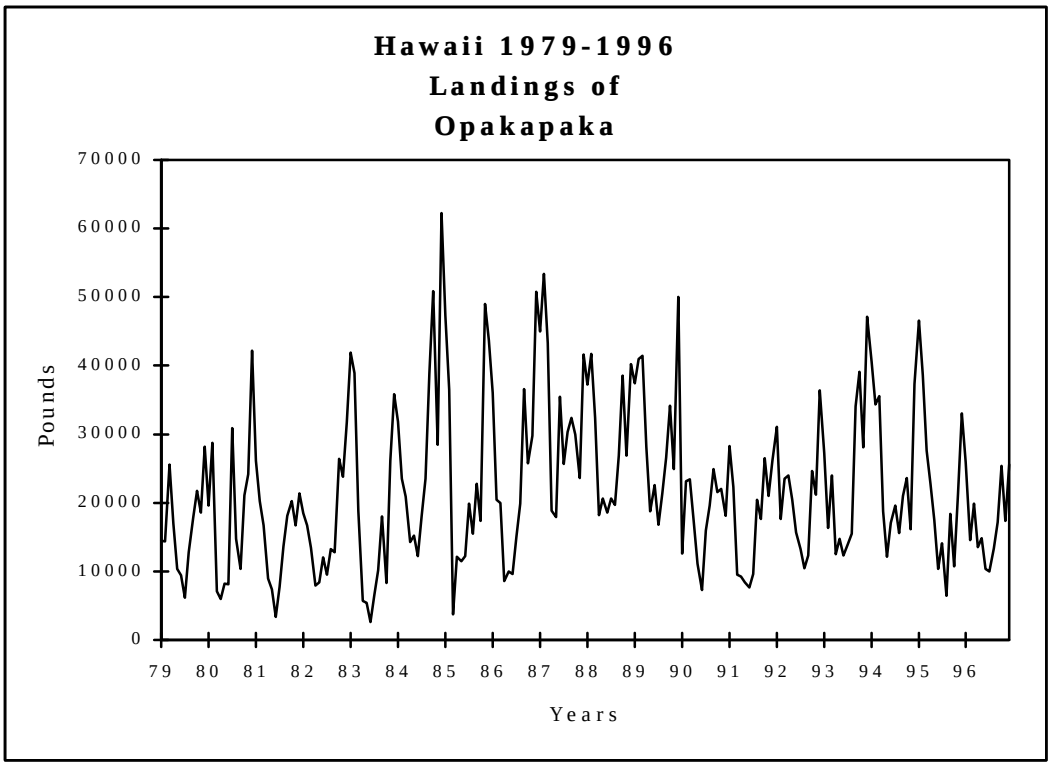


Figure V.4.13

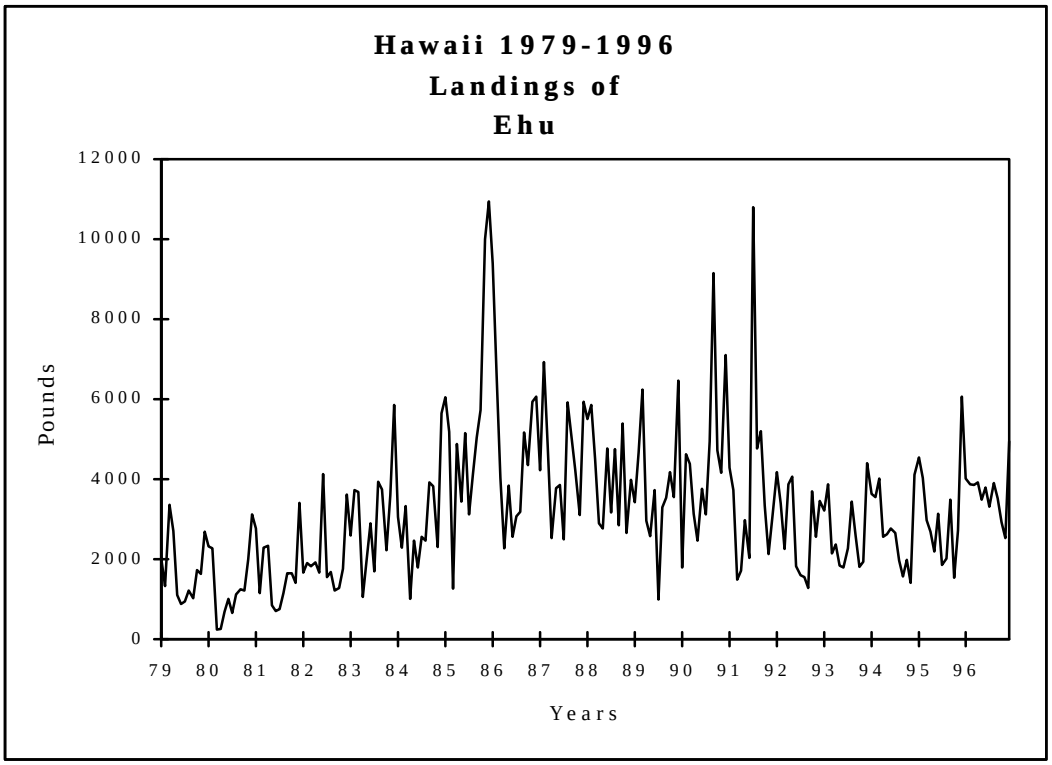


Figure V.4.14