Southwest Fisheries Science Center
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FISHERY STATISTICS OF THE WESTERN PACIFIC

VOLUME XII

Territory of American Samoa (1995)

Commonwealth of the Northern Mariana Islands (1995)

Territory of Guam (1995)

State of Hawaii (1995)

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

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PREFACE

In recent years, the demand for data and information concerning marine fisheries has greatly increased. To help meet these increased needs in the central and western Pacific areas, the National Marine Fisheries Service's Southwest Fisheries Center initiated the Western Pacific Fishery Information Network (WPACFIN), which assists Pacific island fisheries agencies in upgrading their data collecting, processing, and reporting capabilities. Several agencies are participating in this program: the National Marine Fisheries Service's Southwest Fisheries 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 eleventh volume in the series "Fishery Statistics of the Western Pacific" and contains summaries of commercial and creel survey fishery landings data for 1995 for American Samoa, the Commonwealth of the Northern Mariana Islands, Guam, and Hawaii. The first ten volumes contain similar reports for these areas from 1979 through 1993. However, volumes nine through twelve are different from the earlier volumes in that the Guam chapter contains only commercial landings data; no creel survey data were available from the Division of Aquatic and Wildlife Resources.

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BACKGROUND

This report has been compiled by governmental fisheries agencies of several islands in the central and western Pacific area in a cooperative and continuing effort to improve the availability and dissemination of fisheries information. The data contained herein have been collected, computerized, edited, and processed by agencies participating in the Western Pacific Fishery Information Network (WPacFIN, 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 and DFW were supplied on floppy diskettes in established WPacFIN data base formats, whereas data on the Guam commercial fisheries were collected on forms provided to fish wholesalers by WPacFIN through DAWR. Data for Hawaii were provided by HDAR on floppy diskettes or via a dial-in telecommunications link. Once data from all agencies were put into the proper format on the central WPacFIN computer and appropriate edit and verification procedures completed, summary reports and files were produced using software developed specifically for this purpose. Graphs were produced using commercially available software.

PROGRESS

In 1981, when WPacFIN began assisting agencies in improving their data collecting and processing systems, only the State of Hawaii had computerized processing. By mid-1982, fisheries offices in American Samoa, Guam, and the CNMI had implemented computerized processing on microcomputers supplied by WPacFIN. Since that time, these agencies have made many significant improvements to their data collecting systems and have established sound automated data processing systems. Most agencies can now provide fishery statistics to WPacFIN within 45 days of the date of collection. The HDAR 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.

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 data are based on voluntary monthly reporting of fish buyers using government-provided invoices, Guam's data are from WPacFIN-sponsored voluntary reporting by major commercial dealers, and American Samoa's data are based on creel survey sampling of participation and interviews of fishermen and a data expansion program. Each system has advantages and disadvantages, and the user should be aware of them when comparing or interpreting data.

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

CONTENTS

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

Definitions

In addition to the description of the systems and the

monthly and annual reports, each section contains graphs of some of the summary fishery statistics of particular interest or importance to participating WPacFIN agencies. For purposes of graphical presentation of the data, several categories have been defined for each island's fisheries. Because of differences in reporting systems and capabilities among the islands, species contained within each category may vary, but all categories are documented in each island's section. Overlap exists among some of the categories used for different graphs. Categories used in the graphs include the following:

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

2. Pelagic Management Unit Species (PMUS) - The Magnuson Fishery Conservation and Management Act of 1976 was amended in 1992 to place tunas under U.S. jurisdiction for management. The Fishery Management Plan for Pacific Pelagic Species was amended to reflect this change 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. In Hawaii bigeye tuna are also of major importance in recent years.

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

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

Graphics

A minimum of four types of graphs are provided with each island's data. The chapter for American Samoa has an additional

type of graph on catch and effort from creel survey data. Type I graphs present summary charts of the major species and species groups for 1995. Type II graphs are seasonality plots for the major species or species groups, showing the average weight landed during each month for all years combined. Type III graphs are based on annual summary statistics and help visualize the variability among years. Type IV graphs are plots of monthly landings of some of the major commercially important species and document fluctuations in landings of these species over the entire time series. Type V graphs are based on creel survey data and include plots of catch and effort by fishing method plus a combination of several of the types I-IV graphs.

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

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

II. Plots of average monthly landings for:

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

III. Graphs of annual summary statistics for:

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

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

- A. Wahoo - All four areas
- B. Mahimahi - All four areas
- C. Blue marlin - All four areas
- D. Black marlin - Hawaii
- E. Striped marlin - Hawaii
- F. Sailfish - American Samoa, Guam, and Hawaii

G. Shortbill spearfish - Guam and Hawaii
H. Swordfish - Hawaii
I. Skipjack tuna - All four areas
J. Yellowfin tuna - All four areas
K. Opakapaka - Hawaii
L. Onaga - American Samoa and Hawaii
M. Uku - Hawaii
N. Ehu - American Samoa and Hawaii
O. Emperors - CNMI and Guam
P. Grouper - CNMI and Guam

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

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

AMERICAN SAMOA 1995 FISHERY STATISTICS

Compiled by

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

March 1997

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II.1

AMERICAN SAMOA 1995 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, located in Pago Pago on Tutuila, has been collecting commercial fisheries data from the local fleet on Tutuila since the early 1970's and from the Manu'a Islands since 1983. Most data collected over the years have been from the commercial fleet, but beginning in October 1985, DMWR's data collection programs were modified to include data on recreational and subsistence fisheries as well.

The domestic fisheries of American Samoa are typically small boat, one-day fisheries. Although one larger domestic longliner operated for a few years, the majority of the fleet is composed of two types of 28- to 29-foot outboard engine powered catamarans called alias and manta cats. During 1995, 47 boats were sampled, 37 from Tutuila and 10 from the Manu'a Islands. Fishing is mostly done by trolling and bottom fishing methods, although fishery of domestic longlining from these small alias began during 1995. The majority of the catch is sold locally. During 1995, on average, trips on boats from Tutuila had three-man crews, fished 12 hours, and caught a little over 180 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 steps the user through a series of processes that summarize creel survey data to produce catch and effort expansion and species composition files and reports. Typically 1 month of data is processed at a time, although the system allows for processing broader time increments of data. The data expansion system was modified in 1992 to improve the estimates generated by the system by pooling interview data for the time period in calculating mean catch rates for each fishing method.

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

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

reports contained in this document. On a quarterly basis, copies of the DMWR data bases are sent to the Honolulu Laboratory for updating the central WPacFIN files.

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

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

2. If no price information is available for the same species and same month, the annual weighted average price for tha

3. If no price information is available for a species for the

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

DATA REPORTING SYSTEM

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

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

Estimated total landings reports are provided separately for Tutuila and Manu'a. Monthly and annual estimated total landings reports are provided for the Manu'a Islands. Two types of total landings reports are included from the creel survey data expansion system for Tutuila: catch and effort expansion reports and species composition reports. These reports were produced by using the expansion and species composition files as input to report generating programs developed by WPacFIN. The programs reorganize, format, and summarize data from the expansion files to improve the presentation of data and reduce the amount of space required to report the important statistics. Monthly and annual estimated total landings reports for 1995 include the expansion summary of catch and effort statistics by fishing method and the summary species composition reports for all methods combined.

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

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

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

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

I. Pelagic Management Unit Species (PMUS)

Although the Magnuson Fishery Conservation and Management Act of 1976 was amended in 1992 to include tunas in the Pacific PMUS (PPMUS), this report series will continue to specify 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

B. Bottom Fish (cont.)

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)
Pink goatfish
Inshore groupers (unclassified)
Triggerfish
Butterflyfish

C. Reef Fish (cont.)

Porcupinefish
Inshore snappers (unclassified)

D. Other

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

INTERPRETATION OF STATISTICS

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

Table II.1.1

American Samoa 1995 Estimated Commercial Landings

Species	Pounds	Value	$/lb
Jacks (misc)	1,095	2,071	1.89
Black jack	1,512	2,659	1.76
Trevally	93	168	1.81
Amberjack	96	120	1.25
Barracudas	2,508	4,136	1.65
Large barracuda	975	1,707	1.75
Small barracuda	23	44	1.90
Sharks	623	1,059	1.70
Bottomfish (Assorted)	1,741	3,175	1.82
Groupers (misc)	585	1,079	1.84
Peacock grouper	467	816	1.75
Flagtail grouper	15	34	2.25
Tomato grouper	857	1,583	1.85
Blacktip grouper	86	153	1.78
Yellowspot grouper	32	60	1.90
Spotted grouper	93	177	1.90
Giant grouper	11	17	1.50
Lunartail grouper	2,265	4,278	1.89
Blue lined snapper	3,956	7,396	1.87
Rufous snapper	5	8	1.54
Onespot snapper	32	55	1.70
Twinspot/red snapper	116	215	1.85
Humpback snapper	1,252	2,294	1.83
Brown jobfish	217	412	1.90
Gray jobfish	2,621	5,052	1.93
Pristipomoides/Etelis	144	269	1.87
Hawaiian opakapaka	45	68	1.50
Opakapaka	685	1,197	1.75
Gindai (flower snap)	352	582	1.65
Yellowtail snapper	81	152	1.87
Lehi (silverjaw)	681	1,148	1.69
Onaga (longtail snapper)	2,706	5,645	2.09
Ehu (squirrelfish snap.)	3,390	7,392	2.18
Stone's snapper	76	145	1.90
Emperors (misc)	2,061	3,604	1.75
Longnose emperor	1,317	2,263	1.72
Ambon emperor	91	169	1.86
Orangespot emperor	90	172	1.90
Redgill emperor	1,031	1,513	1.47
Oilfish	112	202	1.80
Rudderfish	50	72	1.43
Squirrelfish	450	812	1.81
Bigeye squirrelfish	467	850	1.82
Goatfish	25	45	1.80
Triggerfish	10	15	1.50
Troll fish	21	21	1.00
Mahimahi (dolphin)	11,018	24,112	2.19

Table II.1.1 (Cont.)

Species	Pounds	Value	$/lb
Blue marlin	25,120	24,968	0.99
Sailfish	5,841	7,488	1.28
Rainbow runner	2,381	4,538	1.91
Wahoo	12,013	18,908	1.57
Tunas	336	464	1.38
Skipjack tuna	176,136	135,276	0.77
Dogtooth tuna	1,289	2,515	1.95
Albacore	54,902	95,780	1.74
Yellowfin tuna	56,985	74,022	1.30
Bigeye tuna	5,171	5,272	1.02
Kawakawa	379	308	0.81
** TOTAL **	386,733	458,751	1.19

Table II.1.2

American Samoa January 1995 Estimated Commercial Landings

Species	Pounds	Value	$/lb
Barracudas	25	31	1.25
Large barracuda	600	1,050	1.75
Lunartail grouper	109	207	1.90
Longnose emperor	191	355	1.86
Mahimahi (dolphin)	1,925	4,196	2.18
Blue marlin	250	248	0.99
Wahoo	95	142	1.49
Skipjack tuna	9,727	8,044	0.83
Dogtooth tuna	20	20	1.00
Yellowfin tuna	3,057	3,106	1.02
** SUBTOTAL **	15,999	17,398	1.09

Table II.1.3

American Samoa February 1995 Estimated Commercial Landings

Species	Pounds	Value	$/lb
Jacks (misc)	96	180	1.88
Barracudas	102	128	1.25
Large barracuda	169	296	1.75
Small barracuda	12	24	1.90
Bottomfish (Assorted)	929	1,672	1.80
Groupers (misc)	19	34	1.81
Peacock grouper	62	118	1.90
Spotted grouper	93	177	1.90
Lunartail grouper	338	641	1.90
Blue lined snapper	347	645	1.86
Humpback snapper	77	147	1.90
Brown jobfish	217	412	1.90
Gray jobfish	644	1,224	1.90
Stone's snapper	50	94	1.90
Longnose emperor	592	1,100	1.86
Redgill emperor	341	634	1.86
Squirrelfish	139	254	1.82
Mahimahi (dolphin)	756	1,648	2.18
Blue marlin	1,713	1,696	0.99
Rainbow runner	133	252	1.90
Wahoo	1,133	1,773	1.57
Skipjack tuna	10,832	9,034	0.83
Dogtooth tuna	239	478	2.00
Yellowfin tuna	2,140	2,217	1.04
Kawakawa	278	228	0.82
** SUBTOTAL **	21,448	25,104	1.17

Table II.1.4

American Samoa March 1995 Estimated Commercial Landings

Species	Pounds	Value	$/lb
Jacks (misc)	30	60	2.00
Black jack	37	75	2.00
Barracudas	187	285	1.53
Large barracuda	206	361	1.75
Groupers (misc)	200	356	1.78
Peacock grouper	119	233	1.96
Tomato grouper	126	246	1.95
Lunartail grouper	249	451	1.82
Blue lined snapper	235	442	1.88
Twinspot/red snapper	66	129	1.95
Humpback snapper	59	113	1.90
Gray jobfish	413	785	1.90
Pristipomoides/Etelis	63	119	1.88
Gindai (flower snap)	25	50	2.00
Lehi (silverjaw)	15	23	1.50
Onaga (longtail snapper)	81	162	2.00
Ehu (squirrelfish snap.)	183	401	2.19
Emperors (misc)	242	450	1.86
Ambon emperor	91	169	1.86
Redgill emperor	52	96	1.86
Squirrelfish	51	92	1.82
Troll fish	21	21	1.00
Mahimahi (dolphin)	1,232	2,648	2.15
Blue marlin	7,750	7,672	0.99
Sailfish	1,578	2,067	1.31
Rainbow runner	309	602	1.95
Wahoo	5,343	8,297	1.55
Skipjack tuna	10,383	8,604	0.83
Dogtooth tuna	729	1,459	2.00
Yellowfin tuna	14,052	14,223	1.01
Kawakawa	50	41	0.82
** SUBTOTAL **	44,176	50,733	1.15

Table II.1.5

American Samoa April 1995 Estimated Commercial Landings

Species	Pounds	Value	$/lb
Jacks (misc)	15	23	1.50
Black jack	506	1,012	2.00
Trevally	55	104	1.88
Barracudas	62	96	1.55
Bottomfish (Assorted)	31	56	1.80
Groupers (misc)	15	23	1.50
Peacock grouper	10	18	1.80
Tomato grouper	62	93	1.50
Yellowspot grouper	32	60	1.90
Giant grouper	11	17	1.50
Lunartail grouper	231	428	1.85
Blue lined snapper	301	541	1.80
Twinspot/red snapper	50	86	1.72
Humpback snapper	548	1,040	1.90
Gray jobfish	170	329	1.94
Pristipomoides/Etelis	35	53	1.50
Opakapaka	56	106	1.89
Gindai (flower snap)	86	141	1.64
Lehi (silverjaw)	114	194	1.71
Onaga (longtail snapper)	399	815	2.04
Ehu (squirrelfish snap.)	1,108	2,666	2.41
Emperors (misc)	144	257	1.78
Orangespot emperor	72	136	1.90
Redgill emperor	48	88	1.86
Rudderfish	25	38	1.50
Squirrelfish	5	8	1.50
Goatfish	15	23	1.50
Triggerfish	10	15	1.50
Mahimahi (dolphin)	140	306	2.18
Blue marlin	3,063	3,032	0.99
Sailfish	231	303	1.31
Rainbow runner	1,212	2,302	1.90
Wahoo	868	1,439	1.66
Tunas	59	81	1.38
Skipjack tuna	6,936	6,059	0.87
Dogtooth tuna	161	299	1.85
Yellowfin tuna	7,322	7,602	1.04
Kawakawa	28	23	0.82
** SUBTOTAL **	24,235	29,908	1.23

Table II.1.6

American Samoa May 1995 Estimated Commercial Landings

Species	Pounds	Value	$/lb
Jacks (misc)	20	45	2.25
Black jack	235	470	2.00
Barracudas	80	128	1.59
Bottomfish (Assorted)	191	380	1.99
Groupers (misc)	136	259	1.91
Peacock grouper	49	91	1.84
Flagtail grouper	15	34	2.25
Tomato grouper	142	268	1.89
Lunartail grouper	539	1,050	1.95
Blue lined snapper	755	1,415	1.88
Onespot snapper	6	10	1.70
Humpback snapper	168	323	1.92
Gray jobfish	107	217	2.03
Opakapaka	54	112	2.09
Gindai (flower snap)	37	61	1.64
Lehi (silverjaw)	15	23	1.50
Onaga (longtail snapper)	282	635	2.25
Ehu (squirrelfish snap.)	690	1,380	2.00
Emperors (misc)	370	687	1.86
Longnose emperor	31	57	1.86
Redgill emperor	103	191	1.86
Squirrelfish	23	42	1.82
Bigeye squirrelfish	467	850	1.82
Mahimahi (dolphin)	1,311	2,859	2.18
Blue marlin	2,827	2,798	0.99
Rainbow runner	127	242	1.90
Wahoo	1,171	1,833	1.56
Skipjack tuna	11,868	10,089	0.85
Yellowfin tuna	5,183	5,413	1.04
** SUBTOTAL **	27,001	31,960	1.18

Table II.1.7

American Samoa June 1995 Estimated Commercial Landings

Species	Pounds	Value	$/lb
Jacks (misc)	60	90	1.50
Black jack	12	24	2.00
Barracudas	908	1,578	1.74
Bottomfish (Assorted)	556	1,000	1.80
Peacock grouper	30	45	1.50
Tomato grouper	74	111	1.50
Lunartail grouper	50	75	1.50
Blue lined snapper	35	53	1.50
Gray jobfish	115	222	1.92
Opakapaka	30	45	1.50
Gindai (flower snap)	65	98	1.50
Lehi (silverjaw)	135	231	1.72
Onaga (longtail snapper)	184	276	1.50
Ehu (squirrelfish snap.)	72	152	2.11
Rudderfish	16	24	1.50
Mahimahi (dolphin)	327	713	2.18
Blue marlin	2,192	2,170	0.99
Sailfish	988	1,294	1.31
Rainbow runner	21	42	2.00
Wahoo	768	1,171	1.52
Tunas	151	208	1.38
Skipjack tuna	19,920	16,844	0.85
Yellowfin tuna	4,308	4,685	1.09
Bigeye tuna	2,958	4,586	1.55
** SUBTOTAL **	33,974	35,735	1.05

Table II.1.8

American Samoa July 1995 Estimated Commercial Landings

Species	Pounds	Value	$/lb
Barracudas	106	172	1.62
Tomato grouper	9	17	1.86
Lunartail grouper	21	37	1.74
Gray jobfish	11	23	2.11
Gindai (flower snap)	21	34	1.64
Lehi (silverjaw)	12	18	1.50
Onaga (longtail snapper)	44	92	2.08
Ehu (squirrelfish snap.)	35	74	2.11
Mahimahi (dolphin)	2,597	5,662	2.18
Blue marlin	1,807	1,789	0.99
Rainbow runner	117	222	1.90
Wahoo	332	519	1.57
Tunas	127	175	1.38
Skipjack tuna	9,929	8,225	0.83
Albacore	186	304	1.63
Yellowfin tuna	1,344	1,400	1.04
** SUBTOTAL **	16,698	18,762	1.12

Table II.1.9

American Samoa August 1995 Estimated Commercial Landings

Species	Pounds	Value	$/lb
Jacks (misc)	50	113	2.25
Black jack	9	18	2.00
Barracudas	55	69	1.25
Sharks	265	451	1.70
Bottomfish (Assorted)	10	23	2.25
Groupers (misc)	20	45	2.25
Tomato grouper	73	149	2.04
Blacktip grouper	10	15	1.50
Lunartail grouper	37	83	2.25
Blue lined snapper	350	655	1.87
Humpback snapper	15	23	1.50
Gray jobfish	47	106	2.25
Pristipomoides/Etelis	15	34	2.25
Gindai (flower snap)	28	46	1.64
Lehi (silverjaw)	12	18	1.50
Onaga (longtail snapper)	149	410	2.75
Ehu (squirrelfish snap.)	55	116	2.11
Emperors (misc)	86	162	1.89
Goatfish	10	23	2.25
Mahimahi (dolphin)	940	2,048	2.18
Blue marlin	554	549	0.99
Sailfish	238	311	1.31
Rainbow runner	93	176	1.90
Wahoo	1,181	1,852	1.57
Skipjack tuna	16,258	13,608	0.84
Dogtooth tuna	63	126	2.00
Albacore	873	1,423	1.63
Yellowfin tuna	2,181	2,334	1.07
** SUBTOTAL **	23,677	24,983	1.06

Table II.1.10

American Samoa September 1995 Estimated Commercial Landings

Species	Pounds	Value	$/lb
Jacks (misc)	102	212	2.08
Trevally	27	50	1.88
Barracudas	222	368	1.66
Sharks	358	608	1.70
Groupers (misc)	64	128	2.02
Peacock grouper	29	55	1.90
Tomato grouper	50	113	2.25
Lunartail grouper	124	244	1.98
Blue lined snapper	422	803	1.90
Gray jobfish	85	191	2.25
Hawaiian opakapaka	15	23	1.50
Gindai (flower snap)	30	45	1.50
Lehi (silverjaw)	50	75	1.50
Onaga (longtail snapper)	904	1,809	2.00
Ehu (squirrelfish snap.)	125	293	2.34
Emperors (misc)	429	798	1.86
Mahimahi (dolphin)	89	195	2.18
Sailfish	981	1,285	1.31
Rainbow runner	20	38	1.90
Wahoo	217	323	1.49
Skipjack tuna	26,356	20,003	0.76
Albacore	1,438	2,344	1.63
Yellowfin tuna	1,512	1,734	1.15
Kawakawa	6	5	0.82
** SUBTOTAL **	33,654	31,742	0.94

Table II.1.11

American Samoa October 1995 Estimated Commercial Landings

Species	Pounds	Value	$/lb
Jacks (misc)	220	475	2.16
Barracudas	86	86	1.00
Tomato grouper	30	55	1.83
Lunartail grouper	20	37	1.85
Blue lined snapper	70	158	2.25
Humpback snapper	30	68	2.25
Gray jobfish	80	180	2.25
Pristipomoides/Etelis	15	34	2.25
Hawaiian opakapaka	30	45	1.50
Yellowtail snapper	50	98	1.95
Lehi (silverjaw)	110	165	1.50
Onaga (longtail snapper)	80	180	2.25
Emperors (misc)	20	45	2.25
Mahimahi (dolphin)	951	2,150	2.26
Blue marlin	775	782	1.01
Sailfish	486	593	1.22
Rainbow runner	94	179	1.90
Wahoo	449	791	1.76
Skipjack tuna	23,715	12,554	0.53
Albacore	10,091	17,659	1.75
Yellowfin tuna	2,855	5,634	1.97
Bigeye tuna	814	252	0.31
Kawakawa	5	3	0.55
** SUBTOTAL **	41,078	42,221	1.03

Table II.1.12

American Samoa November 1995 Estimated Commercial Landings

Species	Pounds	Value	$/lb
Jacks (misc)	281	494	1.76
Black jack	170	314	1.85
Barracudas	419	747	1.78
Groupers (misc)	42	73	1.75
Peacock grouper	72	107	1.48
Tomato grouper	88	161	1.84
Blacktip grouper	40	69	1.75
Lunartail grouper	190	361	1.90
Blue lined snapper	772	1,443	1.87
Humpback snapper	68	118	1.75
Gray jobfish	468	869	1.86
Pristipomoides/Etelis	16	30	1.90
Opakapaka	153	261	1.71
Yellowtail snapper	31	55	1.75
Lehi (silverjaw)	64	111	1.75
Onaga (longtail snapper)	172	387	2.25
Ehu (squirrelfish snap.)	194	388	2.00
Emperors (misc)	120	190	1.58
Longnose emperor	261	389	1.49
Redgill emperor	193	198	1.03
Oilfish	112	202	1.80
Rudderfish	9	11	1.13
Squirrelfish	212	381	1.80
Mahimahi (dolphin)	744	1,681	2.26
Blue marlin	2,317	2,340	1.01
Sailfish	1,339	1,634	1.22
Wahoo	322	567	1.76
Skipjack tuna	21,201	14,777	0.70
Dogtooth tuna	9	17	1.76
Albacore	17,619	30,833	1.75
Yellowfin tuna	8,351	16,498	1.98
Bigeye tuna	1,398	433	0.31
** SUBTOTAL **	57,445	76,138	1.33

Table II.1.13

American Samoa December 1995 Estimated Commercial Landings

Species	Pounds	Value	$/lb
Jacks (misc)	221	380	1.72
Black jack	543	747	1.37
Trevally	11	13	1.25
Amberjack	96	120	1.25
Barracudas	256	448	1.75
Small barracuda	11	21	1.90
Bottomfish (Assorted)	24	44	1.82
Groupers (misc)	91	163	1.79
Peacock grouper	95	149	1.56
Tomato grouper	203	371	1.83
Blacktip grouper	36	68	1.90
Lunartail grouper	358	664	1.86
Blue lined snapper	669	1,241	1.86
Rufous snapper	5	8	1.54
Onespot snapper	27	45	1.70
Humpback snapper	286	461	1.61
Gray jobfish	482	906	1.88
Opakapaka	392	673	1.72
Gindai (flower snap)	60	107	1.77
Lehi (silverjaw)	155	290	1.87
Onaga (longtail snapper)	410	881	2.15
Ehu (squirrelfish snap.)	928	1,923	2.07
Stone's snapper	27	51	1.90
Emperors (misc)	651	1,016	1.56
Longnose emperor	243	362	1.49
Orangespot emperor	19	36	1.90
Redgill emperor	296	305	1.03
Squirrelfish	20	35	1.75
Mahimahi (dolphin)	6	8	1.25
Blue marlin	1,873	1,891	1.01
Rainbow runner	255	482	1.89
Wahoo	133	201	1.51
Skipjack tuna	9,011	7,436	0.83
Dogtooth tuna	67	118	1.76
Albacore	24,696	43,217	1.75
Yellowfin tuna	4,679	9,177	1.96
Kawakawa	12	9	0.72
** SUBTOTAL **	47,347	74,066	1.56
** TOTAL **	386,733	458,751	1.19

Table II.2.1

American Samoa 1995 Manu'a Estimated Commercial Landings

Species	Pounds	Value	$/lb
Jacks (misc)	251	424	1.69
Black jack	1,144	1,978	1.73
Trevally	93	168	1.81
Amberjack	96	120	1.25
Barracudas	1,817	3,180	1.75
Large barracuda	975	1,707	1.75
Small barracuda	23	44	1.90
Sharks	623	1,059	1.70
Bottomfish (Assorted)	1,651	2,972	1.80
Groupers (misc)	389	701	1.80
Peacock grouper	352	609	1.73
Yellowspot grouper	32	60	1.90
Spotted grouper	93	177	1.90
Lunartail grouper	1,488	2,828	1.90
Blue lined snapper	2,928	5,477	1.87
Rufous snapper	5	8	1.54
Onespot snapper	32	55	1.70
Twinspot/red snapper	91	177	1.95
Humpback snapper	1,089	1,993	1.83
Brown jobfish	217	412	1.90
Gray jobfish	1,893	3,597	1.90
Pristipomoides/Etelis	53	104	1.95
Opakapaka	575	997	1.74
Gindai (flower snap)	9	18	1.90
Lehi (silverjaw)	172	334	1.94
Onaga (longtail snapper)	1,374	2,789	2.03
Ehu (squirrelfish snap.)	1,283	2,935	2.29
Stone's snapper	76	145	1.90
Emperors (misc)	1,970	3,438	1.74
Longnose emperor	1,317	2,263	1.72
Ambon emperor	91	169	1.86
Orangespot emperor	90	172	1.90
Redgill emperor	1,031	1,513	1.47
Oilfish	112	202	1.80
Squirrelfish	352	642	1.82
Bigeye squirrelfish	467	850	1.82
Mahimahi (dolphin)	10,972	24,055	2.19
Blue marlin	24,290	24,142	0.99
Sailfish	5,841	7,488	1.28
Rainbow runner	2,184	4,149	1.90
Wahoo	10,983	17,351	1.58
Tunas	336	464	1.38
Skipjack tuna	160,603	119,389	0.74
Dogtooth tuna	1,235	2,455	1.99
Albacore	54,902	95,780	1.74
Yellowfin tuna	49,648	64,852	1.31
Bigeye tuna	5,171	5,272	1.02

Table II.2.1 (Cont.)

Kawakawa	353	289	0.82
** TOTAL **	350,776	410,002	1.17

Table II.2.2

American Samoa January 1995 Manu'a Estimated Commercial Landings

Species	Pounds	Value	$/lb
Large barracuda	600	1,050	1.75
Lunartail grouper	109	207	1.90
Longnose emperor	191	355	1.86
Mahimahi (dolphin)	1,925	4,196	2.18
Skipjack tuna	9,352	7,669	0.82
Yellowfin tuna	2,864	2,864	1.00
** SUBTOTAL **	15,041	16,341	1.09

Table II.2.3

American Samoa February 1995 Manu'a Estimated Commercial Landings

Species	Pounds	Value	$/lb
Jacks (misc)	96	180	1.88
Large barracuda	169	296	1.75
Small barracuda	12	24	1.90
Bottomfish (Assorted)	929	1,672	1.80
Groupers (misc)	19	34	1.81
Peacock grouper	62	118	1.90
Spotted grouper	93	177	1.90
Lunartail grouper	338	641	1.90
Blue lined snapper	347	645	1.86
Humpback snapper	77	147	1.90
Brown jobfish	217	412	1.90
Gray jobfish	644	1,224	1.90
Stone's snapper	50	94	1.90
Longnose emperor	592	1,100	1.86
Redgill emperor	341	634	1.86
Squirrelfish	139	254	1.82
Mahimahi (dolphin)	756	1,648	2.18
Blue marlin	1,513	1,498	0.99
Rainbow runner	133	252	1.90
Wahoo	1,073	1,684	1.57
Skipjack tuna	9,987	8,189	0.82
Dogtooth tuna	239	478	2.00
Yellowfin tuna	1,830	1,830	1.00
Kawakawa	278	228	0.82
** SUBTOTAL **	19,931	23,457	1.18

Table II.2.4

American Samoa March 1995 Manu'a Estimated Commercial Landings

Species	Pounds	Value	$/lb
Black jack	34	69	2.00
Barracudas	103	180	1.75
Large barracuda	206	361	1.75
Groupers (misc)	180	326	1.81
Peacock grouper	99	188	1.90
Lunartail grouper	183	347	1.90
Blue lined snapper	150	278	1.86
Twinspot/red snapper	66	129	1.95
Humpback snapper	59	113	1.90
Gray jobfish	371	705	1.90
Pristipomoides/Etelis	53	104	1.95
Ehu (squirrelfish snap.)	103	241	2.34
Emperors (misc)	242	450	1.86
Ambon emperor	91	169	1.86
Redgill emperor	52	96	1.86
Squirrelfish	51	92	1.82
Mahimahi (dolphin)	1,192	2,598	2.18
Blue marlin	7,750	7,672	0.99
Sailfish	1,578	2,067	1.31
Rainbow runner	155	294	1.90
Wahoo	5,037	7,908	1.57
Skipjack tuna	9,882	8,103	0.82
Dogtooth tuna	729	1,459	2.00
Yellowfin tuna	13,366	13,366	1.00
Kawakawa	47	39	0.82
** SUBTOTAL **	41,778	47,354	1.13

Table II.2.5

American Samoa April 1995 Manu'a Estimated Commercial Landings

Species	Pounds	Value	$/lb
Black jack	463	926	2.00
Trevally	55	104	1.88
Barracudas	37	65	1.75
Bottomfish (Assorted)	31	56	1.80
Yellowspot grouper	32	60	1.90
Lunartail grouper	158	301	1.90
Blue lined snapper	251	466	1.86
Twinspot/red snapper	25	48	1.95
Humpback snapper	548	1,040	1.90
Gray jobfish	140	265	1.90
Opakapaka	56	106	1.89
Lehi (silverjaw)	47	94	2.00
Onaga (longtail snapper)	191	382	2.00
Ehu (squirrelfish snap.)	656	1,536	2.34
Emperors (misc)	114	212	1.86
Orangespot emperor	72	136	1.90
Redgill emperor	48	88	1.86
Mahimahi (dolphin)	140	306	2.18
Blue marlin	3,063	3,032	0.99
Sailfish	231	303	1.31
Rainbow runner	1,212	2,302	1.90
Wahoo	804	1,263	1.57
Tunas	59	81	1.38
Skipjack tuna	4,872	3,995	0.82
Dogtooth tuna	137	275	2.00
Yellowfin tuna	6,204	6,204	1.00
Kawakawa	28	23	0.82
** SUBTOTAL **	19,673	23,670	1.20

Table II.2.6

American Samoa May 1995 Manu'a Estimated Commercial Landings

Species	Pounds	Value	$/lb
Black jack	222	444	2.00
Barracudas	55	97	1.75
Bottomfish (Assorted)	111	200	1.80
Groupers (misc)	106	191	1.81
Peacock grouper	19	37	1.90
Lunartail grouper	466	886	1.90
Blue lined snapper	725	1,348	1.86
Onespot snapper	6	10	1.70
Humpback snapper	158	301	1.90
Gray jobfish	66	125	1.90
Opakapaka	24	45	1.89
Emperors (misc)	370	687	1.86
Longnose emperor	31	57	1.86
Redgill emperor	103	191	1.86
Squirrelfish	23	42	1.82
Bigeye squirrelfish	467	850	1.82
Mahimahi (dolphin)	1,311	2,859	2.18
Blue marlin	2,827	2,798	0.99
Rainbow runner	127	242	1.90
Wahoo	1,088	1,709	1.57
Skipjack tuna	9,883	8,104	0.82
Yellowfin tuna	4,263	4,263	1.00
** SUBTOTAL **	22,450	25,484	1.14

Table II.2.7

American Samoa June 1995 Manu'a Estimated Commercial Landings

Species	Pounds	Value	$/lb
Barracudas	888	1,553	1.75
Bottomfish (Assorted)	556	1,000	1.80
Gray jobfish	103	197	1.90
Lehi (silverjaw)	59	117	2.00
Mahimahi (dolphin)	327	713	2.18
Blue marlin	1,992	1,972	0.99
Sailfish	988	1,294	1.31
Wahoo	659	1,035	1.57
Tunas	151	208	1.38
Skipjack tuna	17,093	14,017	0.82
Yellowfin tuna	2,799	2,799	1.00
Bigeye tuna	2,958	4,586	1.55
** SUBTOTAL **	28,572	29,489	1.03

Table II.2.8

American Samoa July 1995 Manu'a Estimated Commercial Landings

Species	Pounds	Value	$/lb
Barracudas	78	137	1.75
Mahimahi (dolphin)	2,597	5,662	2.18
Blue marlin	1,807	1,789	0.99
Rainbow runner	117	222	1.90
Wahoo	312	490	1.57
Tunas	127	175	1.38
Skipjack tuna	9,467	7,763	0.82
Albacore	186	304	1.63
Yellowfin tuna	1,120	1,120	1.00
** SUBTOTAL **	15,811	17,661	1.12

Table II.2.9

American Samoa August 1995 Manu'a Estimated Commercial Landings

Species	Pounds	Value	$/lb
Sharks	265	451	1.70
Blue lined snapper	285	531	1.86
Emperors (misc)	61	113	1.86
Mahimahi (dolphin)	940	2,048	2.18
Blue marlin	554	549	0.99
Sailfish	238	311	1.31
Rainbow runner	93	176	1.90
Wahoo	1,150	1,806	1.57
Skipjack tuna	14,723	12,073	0.82
Dogtooth tuna	63	126	2.00
Albacore	873	1,423	1.63
Yellowfin tuna	1,568	1,568	1.00
** SUBTOTAL **	20,813	21,176	1.02

Table II.2.10

American Samoa September 1995 Manu'a Estimated Commercial Landings

Species	Pounds	Value	$/lb
Jacks (misc)	47	88	1.88
Trevally	27	50	1.88
Barracudas	182	318	1.75
Sharks	358	608	1.70
Groupers (misc)	34	61	1.81
Peacock grouper	29	55	1.90
Lunartail grouper	54	102	1.90
Blue lined snapper	377	702	1.86
Onaga (longtail snapper)	904	1,809	2.00
Ehu (squirrelfish snap.)	125	293	2.34
Emperors (misc)	429	798	1.86
Mahimahi (dolphin)	89	195	2.18
Sailfish	981	1,285	1.31
Rainbow runner	20	38	1.90
Wahoo	208	310	1.49
Skipjack tuna	25,320	18,892	0.75
Albacore	1,438	2,344	1.63
Yellowfin tuna	954	1,036	1.09
** SUBTOTAL **	31,575	28,984	0.92

Table II.2.11

American Samoa October 1995 Manu'a Estimated Commercial Landings

Species	Pounds	Value	$/lb
Mahimahi (dolphin)	951	2,150	2.26
Blue marlin	595	601	1.01
Sailfish	486	593	1.22
Rainbow runner	94	179	1.90
Wahoo	403	710	1.76
Skipjack tuna	22,996	11,835	0.51
Albacore	10,091	17,659	1.75
Yellowfin tuna	2,646	5,372	2.03
Bigeye tuna	814	252	0.31
** SUBTOTAL **	39,078	39,352	1.01

Table II.2.12

American Samoa November 1995 Manu'a Estimated Commercial Landings

Species	Pounds	Value	$/lb
Jacks (misc)	52	75	1.43
Barracudas	313	548	1.75
Peacock grouper	72	107	1.48
Lunartail grouper	76	145	1.90
Blue lined snapper	444	844	1.90
Gray jobfish	225	427	1.90
Opakapaka	153	261	1.71
Emperors (misc)	104	162	1.56
Longnose emperor	261	389	1.49
Redgill emperor	193	198	1.03
Oilfish	112	202	1.80
Squirrelfish	139	254	1.83
Mahimahi (dolphin)	744	1,681	2.26
Blue marlin	2,317	2,340	1.01
Sailfish	1,339	1,634	1.22
Wahoo	248	437	1.76
Skipjack tuna	19,870	13,166	0.66
Albacore	17,619	30,833	1.75
Yellowfin tuna	7,768	15,769	2.03
Bigeye tuna	1,398	433	0.31
** SUBTOTAL **	53,447	69,906	1.31

Table II.2.13

American Samoa December 1995 Manu'a Estimated Commercial Landings

Species	Pounds	Value	$/lb
Jacks (misc)	56	80	1.43
Black jack	425	540	1.27
Trevally	11	13	1.25
Amberjack	96	120	1.25
Barracudas	161	282	1.75
Small barracuda	11	21	1.90
Bottomfish (Assorted)	24	44	1.82
Groupers (misc)	51	90	1.76
Peacock grouper	70	104	1.48
Lunartail grouper	105	200	1.90
Blue lined snapper	349	663	1.90
Rufous snapper	5	8	1.54
Onespot snapper	27	45	1.70
Humpback snapper	246	391	1.59
Gray jobfish	345	655	1.90
Opakapaka	342	586	1.71
Gindai (flower snap)	9	18	1.90
Lehi (silverjaw)	67	123	1.84
Onaga (longtail snapper)	278	598	2.15
Ehu (squirrelfish snap.)	399	865	2.17
Stone's snapper	27	51	1.90
Emperors (misc)	651	1,016	1.56
Longnose emperor	243	362	1.49
Orangespot emperor	19	36	1.90
Redgill emperor	296	305	1.03
Blue marlin	1,873	1,891	1.01
Rainbow runner	233	443	1.90
Skipjack tuna	7,158	5,583	0.78
Dogtooth tuna	67	118	1.76
Albacore	24,696	43,217	1.75
Yellowfin tuna	4,266	8,661	2.03
** SUBTOTAL **	42,606	67,129	1.58
** TOTAL **	350,776	410,002	1.17

Figure II.1.1

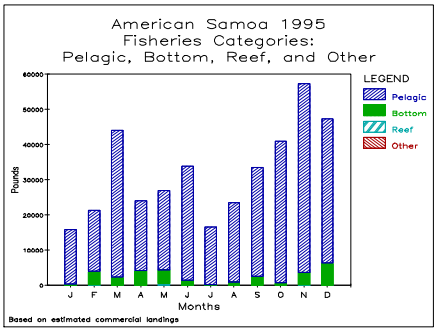

American Samoa 1995
Fisheries Categories:
Pelagic, Bottom, Reef, and Other
LEGEND
Pelagic
Bottom
Reef
Other
Pounds
60000
50000
40000
30000
20000
10000
0
J F M A M J J A S O N D
Months
Based on estimated commercial landings

Figure II.1.2

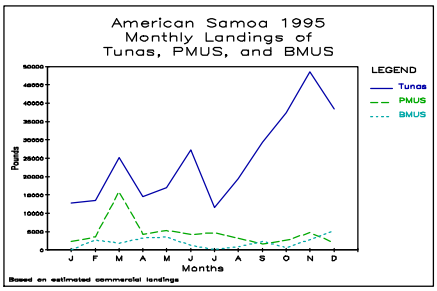

American Samoa 1995
Monthly Landings of
Tunas, PMUS, and BMUS
LEGEND
Tunas
PMUS
BMUS
Pounds
J F M A M J J A S O N D
Months
Based on estimated commercial landings

Figure II.1.3

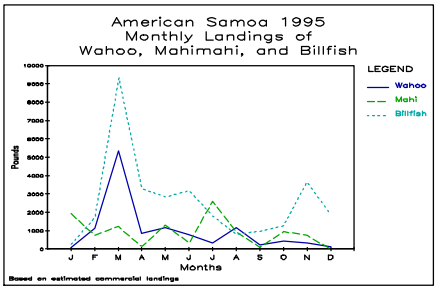

American Samoa 1995
Monthly Landings of
Wahoo, Mahimahi, and Billfish
LEGEND
Wahoo
Mahi
Billfish
Pounds
10000
9000
8000
7000
6000
5000
4000
3000
2000
1000
0
J F M A M J J A S O N D
Months
Based on estimated commercial landings

Figure II.1.4

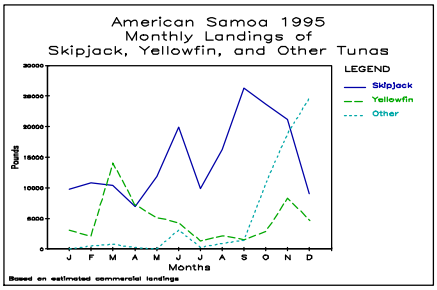

American Samoa 1995
Monthly Landings of
Skipjack, Yellowfin, and Other Tunas
LEGEND
Skipjack
Yellowfin
Other
Pounds
30000
25000
20000
15000
10000
5000
0
J F M A M J J A S O N D
Months
Based on estimated commercial landings

Figure II.2.1

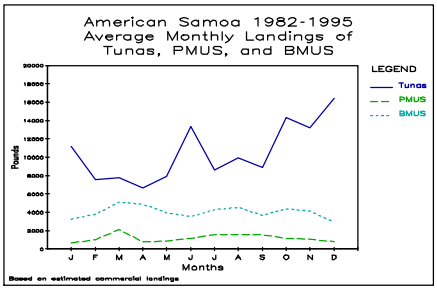

American Samoa 1982-1995
Average Monthly Landings of
Tunas, PMUS, and BMUS
LEGEND
Tunas
PMUS
BMUS
Pounds
20000
18000
16000
14000
12000
10000
8000
6000
4000
2000
0
J F M A M J J A S O N D
Months
Based on estimated commercial landings

Figure II.2.2

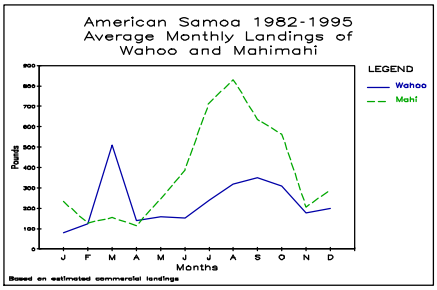

American Samoa 1982-1995
Average Monthly Landings of
Wahoo and Mahimahi
LEGEND
Wahoo
Mahi
Pounds
0
100
200
300
400
500
600
700
800
900
J F M A M J J A S O N D
Months
Based on estimated commercial landings

Figure II.2.3

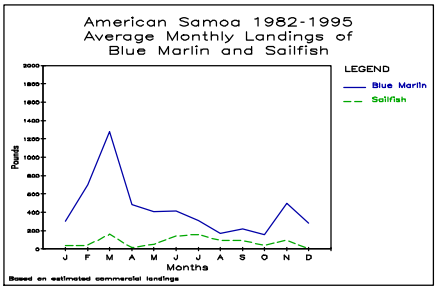

American Samoa 1982-1995
Average Monthly Landings of
Blue Marlin and Sailfish
LEGEND
Blue Marlin
Sailfish
Pounds
2000
1800
1600
1400
1200
1000
800
600
400
200
0
J F M A M J J A S O N D
Months
Based on estimated commercial landings

Figure II.2.4

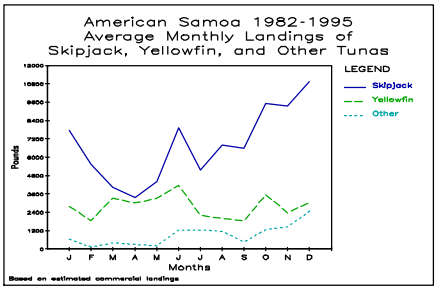

American Samoa 1982-1995
Average Monthly Landings of
Skipjack, Yellowfin, and Other Tunas
LEGEND
Skipjack
Yellowfin
Other
Pounds
J F M A M J J A S O N D
Months
Based on estimated commercial landings

Figure II.2.5

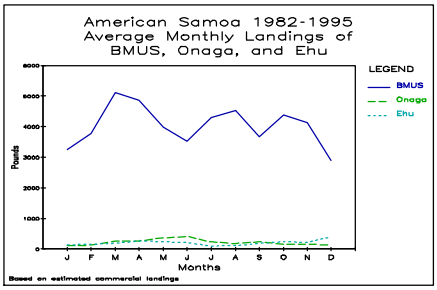

American Samoa 1982-1995
Average Monthly Landings of
BMUS, Onaga, and Ehu
LEGEND
BMUS
Onaga
Ehu
Pounds
6000
5000
4000
3000
2000
1000
0
J F M A M J J A S O N D
Months
Based on estimated commercial landings

Figure II.3.1

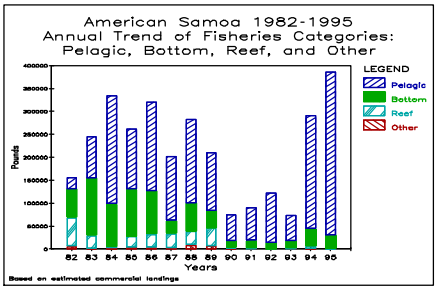

American Samoa 1982-1995
Annual Trend of Fisheries Categories:
Pelagic, Bottom, Reef, and Other
LEGEND
Pelagic
Bottom
Reef
Other
Pounds
400000
350000
300000
250000
200000
150000
100000
50000
0
82 83 84 85 86 87 88 89 90 91 92 93 94 95
Years
Based on estimated commercial landings

Figure II.3.2

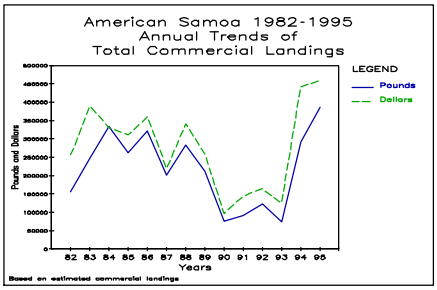

American Samoa 1982-1995
Annual Trends of
Total Commercial Landings
LEGEND
Pounds
Dollars
Pounds and Dollars
500000
450000
400000
350000
300000
250000
200000
150000
100000
50000
0
82 83 84 85 86 87 88 89 90 91 92 93 94 95
Years
Based on estimated commercial landings

Figure II.3.3

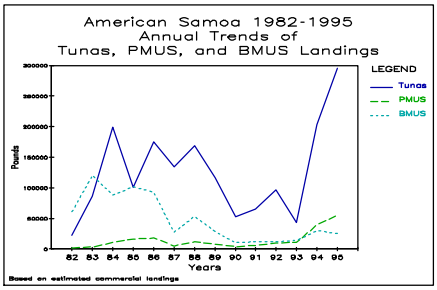

American Samoa 1982-1995
Annual Trends of
Tunas, PMUS, and BMUS Landings
LEGEND
Tunas
PMUS
BMUS
Pounds
300000
250000
200000
150000
100000
50000
0
82 83 84 85 86 87 88 89 90 91 92 93 94 95
Years
Based on estimated commercial landings

Figure II.3.4

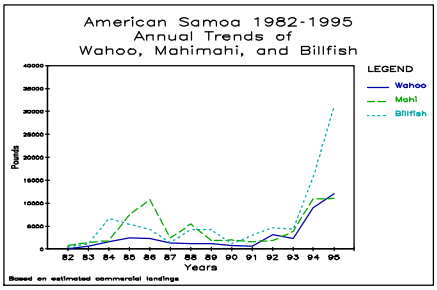

American Samoa 1982-1995
Annual Trends of
Wahoo, Mahimahi, and Billfish
LEGEND
Wahoo
Mahi
Billfish
Pounds
40000
35000
30000
25000
20000
15000
10000
5000
0
82 83 84 85 86 87 88 89 90 91 92 93 94 95
Years
Based on estimated commercial landings

Figure II.3.5

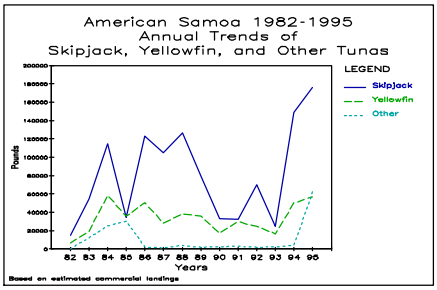

American Samoa 1982-1995
Annual Trends of
Skipjack, Yellowfin, and Other Tunas
LEGEND
Skipjack
Yellowfin
Other
Pounds
200000
180000
160000
140000
120000
100000
80000
60000
40000
20000
0
82 83 84 85 86 87 88 89 90 91 92 93 94 95
Years
Based on estimated commercial landings

Figure II.4.1

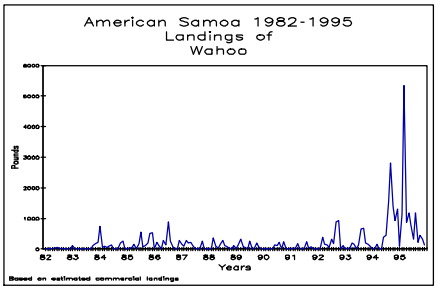

American Samoa 1982-1995
Landings of
Wahoo
Pounds
Years
82 83 84 85 86 87 88 89 90 91 92 93 94 95
Based on estimated commercial landings

Figure II.4.2

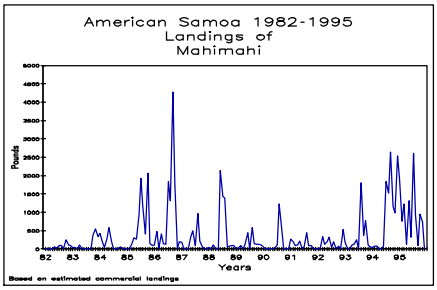

American Samoa 1982-1995
Landings of
Mahimahi
Pounds
5000
4500
4000
3500
3000
2500
2000
1500
1000
500
0
82 83 84 85 86 87 88 89 90 91 92 93 94 95
Years
Based on estimated commercial landings

Figure II.4.3

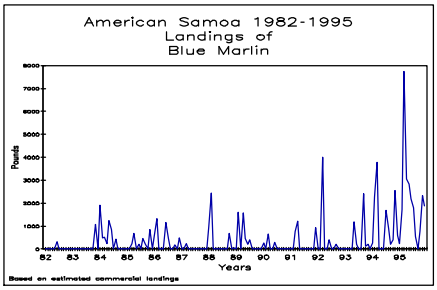

American Samoa 1982-1995
Landings of
Blue Marlin
Pounds
Years
82 83 84 85 86 87 88 89 90 91 92 93 94 95
Based on estimated commercial landings

Figure II.4.4

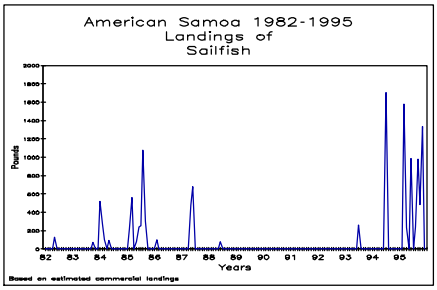

American Samoa 1982-1995
Landings of
Sailfish
Pounds
2000
1800
1600
1400
1200
1000
800
600
400
200
0
82 83 84 85 86 87 88 89 90 91 92 93 94 95
Years
Based on estimated commercial landings

Figure II.4.5

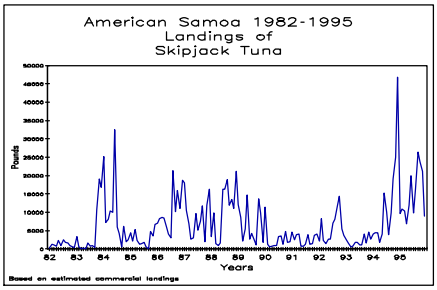

American Samoa 1982-1995
Landings of
Skipjack Tuna
Pounds
50000
45000
40000
35000
30000
25000
20000
15000
10000
5000
0
82 83 84 85 86 87 88 89 90 91 92 93 94 95
Years
Based on estimated commercial landings

Figure II.4.6

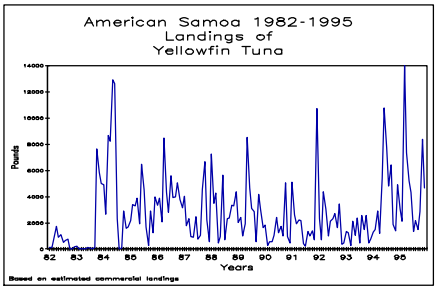

American Samoa 1982-1995
Landings of
Yellowfin Tuna
Pounds
14000
12000
10000
8000
6000
4000
2000
0
82 83 84 85 86 87 88 89 90 91 92 93 94 95
Years
Based on estimated commercial landings

Figure II.4.7

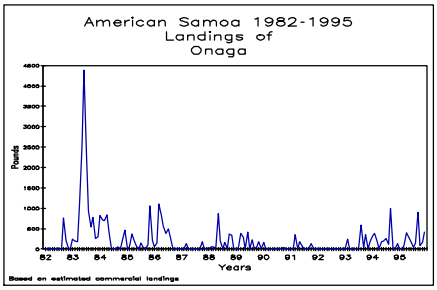

American Samoa 1982-1995
Landings of
Onaga
Pounds
4500
4000
3500
3000
2500
2000
1500
1000
500
0
82 83 84 85 86 87 88 89 90 91 92 93 94 95
Years
Based on estimated commercial landings

Figure II.4.8

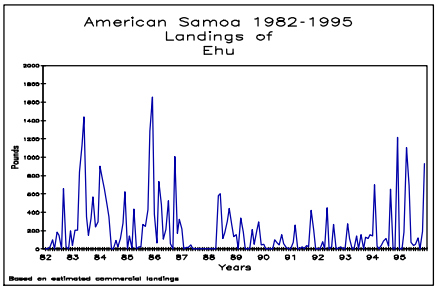

American Samoa 1982-1995
Landings of
Ehu
Pounds
2000
1800
1600
1400
1200
1000
800
600
400
200
0
82 83 84 85 86 87 88 89 90 91 92 93 94 95
Years
Based on estimated commercial landings

Table II.3.1

Tutuila 1995 Annual Offshore Creel Survey
Summary Expansion Report

Based on 248 Weekdays and 117 Weekend/Holidays

	TROLL	BOTTOM	BTM/TRL MIX	LONGLINE	TOTAL
Number of Days Sampled	136	136	136	136	136
Total Number of Interviews	249	23	25	34	331
Number of Interviews with Hours	249	23	25	34	331
Number of Interviews with Fishers	249	23	25	34	331
Estimated Trips on Survey Days	498	48	50	72	669
Average Trips per Day	3.7(13)	0.4(9)	0.4(12)	0.5(8)	4.9(10)
Average Hours per Trip	8.6(4)	16.2(8)	18.2(12)	9.9(10)	10.0(8)
Average Fishers per Trip	2.8(3)	2.5(6)	2.4(6)	3.0(7)	2.8(4)
Average Catch per Trip	194.2(8)	123.7(17)	159.6(24)	407.7(20)	208.6(15)
Average Catch per Hour	22.5(8)	7.6(19)	8.8(26)	41.4(22)	20.8(16)
Expanded Number of Trips	1340(5)	128(4)	135(5)	189(4)	1791(4)
Expanded Boat Hours Fished	11587(6)	2033(9)	2475(10)	1853(8)	17949(4)
Expanded Number of Fishers	3725(3)	314(6)	330(5)	566(6)	4935(3)
Expanded Fisher Hours	20526(10)	3562(14)	4402(15)	4463(12)	32954(7)
Expanded Catch (based on trips)	262806(7)	15425(14)	21363(16)	77786(18)	377380(6)
Expanded Catch (based on hours)	262943(8)	15422(17)	21365(19)	77814(20)	377544(7)

Gear	Catch	CV	Boat Hrs	CV	Boat Trips	CV	Prsn Hrs	CV	Prsn Cnt	CV	C/TRIP	CV
TROLL	262805.8	7	11587.1	6	1339.6	5	20526.4	10	3725.2	3	194.2	8
BOTTOM	15424.8	14	2033.4	9	127.6	4	3562.3	14	314.5	6	123.7	17
BTM/TRL MIX	21362.7	16	2475.0	10	135.1	5	4401.7	15	329.5	5	159.6	24
LONGLINE	77786.3	18	1853.3	8	189.3	4	4463.4	12	565.8	6	407.7	20
Total:	377379.7	6	17948.8	4	1791.5	4	32953.8	7	4935.0	3	885.2	11

Table II.3.2

Tutuila 1995 Annual
Offshore Creel Survey Species Composition

Common Name	Total all gears	% all gears	% this trolling gear		% this bottom gear		% this other gear	
Jacks (misc)	533.5	0.14	0.0	0.00	410.9	2.66	122.7	0.12
Black jack	1341.3	0.36	0.0	0.00	652.8	4.23	688.5	0.69
Trevally (C.caeruleop.	86.4	0.02	0.0	0.00	40.5	0.26	45.9	0.05
Amberjack	104.2	0.03	0.0	0.00	104.2	0.68	0.0	0.00
Barracudas	1053.0	0.28	419.3	0.16	86.8	0.56	546.8	0.55
Large barracuda	458.7	0.12	205.2	0.08	133.1	0.86	120.5	0.12
Small barracuda	23.1	0.00	0.0	0.00	11.6	0.08	11.5	0.01
Sharks	6833.8	1.81	3006.9	1.14	578.7	3.75	3248.3	3.28
Bottomfish (Assorted)	1398.6	0.37	0.0	0.00	1398.6	9.07	0.0	0.00
Groupers (misc)	434.1	0.12	0.0	0.00	213.9	1.39	220.2	0.22
Peacock grouper	446.9	0.12	0.0	0.00	130.5	0.85	316.4	0.32
Yellowspot grouper	23.2	0.00	0.0	0.00	23.2	0.15	0.0	0.00
Spotted grouper	86.8	0.02	0.0	0.00	86.8	0.56	0.0	0.00
Lunartail grouper	1636.0	0.43	0.0	0.00	850.6	5.51	785.3	0.79
Blue lined snapper	3062.3	0.81	0.0	0.00	1323.0	8.58	1739.4	1.75
Rufous snapper	5.8	0.00	0.0	0.00	0.0	0.00	5.8	0.01
Onespot snapper	50.0	0.01	0.0	0.00	50.0	0.32	0.0	0.00
Twinspot/red snapper	156.1	0.04	0.0	0.00	0.0	0.00	156.1	0.16
Humpback snapper	1345.9	0.36	0.0	0.00	1307.4	8.48	38.5	0.04
Brown jobfish	202.6	0.05	0.0	0.00	202.6	1.31	0.0	0.00
Gray jobfish	2181.2	0.58	71.8	0.03	978.8	6.35	1130.7	1.14
Pristipomoides/Etelis	170.8	0.05	0.0	0.00	170.8	1.11	0.0	0.00
Yelloweye opakapaka(P.	654.6	0.17	0.0	0.00	454.6	2.95	200.0	0.20
Gindai (flower snap)	10.2	0.00	0.0	0.00	10.2	0.07	0.0	0.00
Lehi (silverjaw)	182.4	0.05	0.0	0.00	182.4	1.18	0.0	0.00
Onaga (longtail snappe	1579.2	0.42	0.0	0.00	1161.0	7.53	418.2	0.42
Ehu (squirrelfish snap	1208.8	0.32	0.0	0.00	888.2	5.76	320.6	0.32
Stone's snapper	75.2	0.02	0.0	0.00	75.2	0.49	0.0	0.00
Emperors (misc)	2501.7	0.66	0.0	0.00	1162.0	7.53	1339.7	1.35
Longnose emperor	1258.3	0.33	0.0	0.00	687.6	4.46	570.7	0.58
Ambon emperor	115.4	0.03	0.0	0.00	0.0	0.00	115.4	0.12
Orangespot emperor	128.0	0.03	0.0	0.00	128.0	0.83	0.0	0.00
Redgill emperor	1452.6	0.38	0.0	0.00	1029.6	6.67	423.0	0.43
Oilfish	192.6	0.05	0.0	0.00	57.9	0.38	134.7	0.14
Squirrelfish	326.2	0.09	0.0	0.00	222.6	1.44	103.6	0.10
Bigeye squirrelfish	338.4	0.09	0.0	0.00	0.0	0.00	338.4	0.34
Dolphin (mahimahi)	10335.7	2.74	8883.8	3.38	0.0	0.00	1452.0	1.46
Blue marlin	25611.0	6.79	18288.3	6.96	0.0	0.00	7322.8	7.39
Sailfish	6397.4	1.70	3140.1	1.19	0.0	0.00	3257.3	3.29
Rainbow runner	2408.1	0.64	1011.2	0.38	199.7	1.29	1197.3	1.21
Wahoo	13773.2	3.65	11714.9	4.46	133.4	0.86	1925.0	1.94
Tunas	349.6	0.09	149.2	0.06	0.0	0.00	200.4	0.20
Skipjack tuna	169839.9	45.00	164097.1	62.44	0.0	0.00	5742.8	5.79
Dogtooth tuna	1505.0	0.40	980.1	0.37	278.3	1.80	246.6	0.25
Albacore	56025.2	14.85	0.0	0.00	0.0	0.00	56025.2	56.51
Yellowfin tuna	56746.1	15.04	50535.8	19.23	0.0	0.00	6210.3	6.26
Bigeye tuna	2369.2	0.63	0.0	0.00	0.0	0.00	2369.2	2.39
Kawakawa	362.6	0.10	302.4	0.12	0.0	0.00	60.2	0.06
Total all species:	377380.9	100.00	262806.1	69.64	15425.5	4.09	99150.0	26.27

Table II.4.I

Tutuila January 1995
Offshore Creel Survey Expansion Summary

Gear	Catch	CV	Boat Hrs	CV	Boat Trips	CV	Prsn Hrs	CV	Prsn Cnt	CV	C/TRIP	CV
TROLL	16960.6	33	1057.6	33	119.6	26	1200.1	90	333.6	9	142.1	28
BOTTOM	899.9	14	65.6	14	6.2	13	210.5	15	19.9	13	145.1	7
Total:	17860.5	31	1123.2	32	125.8	25	1410.7	77	353.5	8	287.3	14

Table II.4.2

Tutuila February 1995
Offshore Creel Survey Expansion Summary

Gear	Catch	CV	Boat Hrs	CV	Boat Trips	CV	Prsn Hrs	CV	Prsn Cnt	CV	C/TRIP	CV
TROLL	16150.9	25	1237.1	17	123.8	13	2147.8	33	366.2	9	127.0	30
BOTTOM	4911.8	15	520.3	14	31.0	10	1248.7	17	74.3	15	158.6	10
Total:	21062.7	20	1757.4	13	154.8	11	3396.6	22	440.6	8	285.6	15

Table II.4.3

Tutuila March 1995
Offshore Creel Survey Expansion Summary

Gear	Catch	CV	Boat Hrs	CV	Boat Trips	CV	Prsn Hrs	CV	Prsn Cnt	CV	C/TRIP	CV
TROLL	40856.9	16	1712.4	11	183.6	9	3461.3	17	545.0	8	222.1	17
BOTTOM	615.8	63	227.1	42	14.0	9	410.0	63	35.6	17	49.3	88
BTM/TRL MIX	3105.4	16	669.8	22	24.6	9	1468.0	28	61.8	13	126.1	14
LONGLINE	2255.6	19	52.3	12	5.3	11	155.4	13	15.7	12	426.4	16
Total:	46833.7	14	2661.5	9	227.5	8	5494.6	14	658.2	7	823.8	11

Table II.4.4

Tutuila April 1995
Offshore Creel Survey Expansion Summary

Gear	Catch	CV	Boat Hrs	CV	Boat Trips	CV	Prsn Hrs	CV	Prsn Cnt	CV	C/TRIP	CV
TROLL	13219.3	24	887.9	18	110.5	16	855.4	58	334.4	10	111.7	24
BOTTOM	2221.0	23	442.8	22	22.1	19	732.6	40	58.3	22	124.5	12
BTM/TRL MIX	6016.3	54	546.5	19	25.1	18	950.4	36	67.3	19	263.7	57
Total:	21456.6	21	1877.2	11	157.7	12	2538.4	26	460.0	8	499.9	31

Table II.4.5

Tutuila May 1995
Offshore Creel Survey Expansion Summary

Gear	Catch	CV	Boat Hrs	CV	Boat Trips	CV	Prsn Hrs	CV	Prsn Cnt	CV	C/TRIP	CV
TROLL	19472.6	22	1599.9	15	156.1	14	2590.1	23	372.5	11	134.3	21
BOTTOM	1285.7	29	342.6	30	18.5	15	586.1	35	37.8	14	83.5	53
BTM/TRL MIX	2151.6	24	357.8	18	23.8	14	554.4	24	47.5	11	80.2	47
Total:	22909.9	19	2300.2	12	198.3	11	3730.6	17	457.7	9	298.0	21

Table II.4.6

Tutuila June 1995
Offshore Creel Survey Expansion Summary

Gear	Catch	CV	Boat Hrs	CV	Boat Trips	CV	Prsn Hrs	CV	Prsn Cnt	CV	C/TRIP	CV
TROLL	23311.5	33	896.6	27	112.1	23	1948.9	31	273.0	22	223.2	41
BOTTOM	638.6	80	46.6	80	4.4	80	149.4	80	14.1	80	145.1	7
BTM/TRL MIX	1593.5	25	120.5	26	9.0	24	351.9	26	26.3	24	176.7	8
LONGLINE	3846.0	29	89.2	25	9.0	24	265.0	25	26.8	24	426.4	16

Total:	29389.6	27	1152.9	22	134.5	20	2715.1	23	340.2	18	971.3	12

Table II.4.7

Tutuila July 1995
Offshore Creel Survey Expansion Summary

Gear	Catch	CV	Boat Hrs	CV	Boat Trips	CV	Prsn Hrs	CV	Prsn Cnt	CV	C/TRIP	CV
TROLL	15354.0	27	1453.9	22	129.1	22	2995.3	31	367.1	22	119.3	20
LONGLINE	1582.7	31	122.5	30	9.8	30	367.5	30	29.4	30	161.5	7
Total:	16936.7	25	1576.4	21	138.9	20	3362.8	28	396.5	20	280.8	9

Table II.4.8

Tutuila August 1995
Offshore Creel Survey Expansion Summary

Gear	Catch	CV	Boat Hrs	CV	Boat Trips	CV	Prsn Hrs	CV	Prsn Cnt	CV	C/TRIP	CV
TROLL	17874.7	25	756.4	20	103.2	17	1640.4	26	284.5	14	173.5	22
BOTTOM	600.9	19	43.8	19	4.1	18	140.6	20	13.3	19	145.1	7
BTM/TRL MIX	731.4	20	55.3	21	4.1	18	161.5	21	12.1	19	176.7	8
LONGLINE	4219.1	33	174.4	37	16.4	22	119.1	**	40.8	8	258.5	29
Total:	23426.1	20	1029.9	16	127.9	14	2061.7	24	350.7	11	753.8	12

Table II.4.9

Tutuila September 1995
Offshore Creel Survey Expansion Summary

Gear	Catch	CV	Boat Hrs	CV	Boat Trips	CV	Prsn Hrs	CV	Prsn Cnt	CV	C/TRIP	CV
TROLL	26260.5	19	546.2	15	84.7	14	1108.5	21	222.8	9	310.0	18
BOTTOM	638.6	13	46.6	13	4.4	11	149.4	13	14.1	11	145.1	7
BTM/TRL MIX	1708.5	31	145.1	35	13.4	11	290.2	35	26.8	11	127.5	29
LONGLINE	3462.8	19	202.5	16	18.0	11	506.3	26	45.0	23	192.4	16
Total:	32070.4	16	940.4	11	120.5	10	2054.3	14	308.7	7	775.0	10

Table II.4.10

Tutuila October 1995
Offshore Creel Survey Expansion Summary

Gear	Catch	CV	Boat Hrs	CV	Boat Trips	CV	Prsn Hrs	CV	Prsn Cnt	CV	C/TRIP	CV
TROLL	24545.3	21	470.8	21	65.9	10	965.9	29	172.2	10	370.3	27
BTM/TRL MIX	812.6	40	61.5	40	4.6	39	179.4	41	13.4	39	176.7	8
LONGLINE	15191.9	26	577.2	18	55.2	12	1198.7	30	165.1	12	274.1	32
Total:	40549.8	16	1109.5	13	125.7	8	2343.9	20	350.7	7	821.0	16

Table II.4.11

Tutuila November 1995
Offshore Creel Survey Expansion Summary

Gear	Catch	CV	Boat Hrs	CV	Boat Trips	CV	Prsn Hrs	CV	Prsn Cnt	CV	C/TRIP	CV
TROLL	27312.0	24	539.2	30	71.5	14	1033.6	41	182.3	10	381.9	24
BTM/TRL MIX	2751.0	59	262.0	38	13.1	33	330.0	83	32.8	11	210.0	62
LONGLINE	23472.8	18	282.2	17	45.7	13	684.5	23	130.4	12	513.6	14
Total:	53535.8	15	1083.4	18	130.3	10	2048.1	26	345.5	7	1105.5	16

Table II.4.12

Tutuila December 1995
Offshore Creel Survey Expansion Summary

Gear	Catch	CV	Boat Hrs	CV	Boat Trips	CV	Prsn Hrs	CV	Prsn Cnt	CV	C/TRIP	CV
TROLL	10549.4	34	243.1	20	37.4	11	658.8	24	101.4	17	282.1	32
BOTTOM	3512.4	33	278.2	18	21.4	11	556.4	18	42.8	11	164.1	31
BTM/TRL MIX	1976.4	32	199.8	17	10.8	11	499.5	27	27.0	23	183.0	30
LONGLINE	26568.1	27	251.5	18	21.4	11	880.1	20	74.9	14	1241.5	24
Total:	42606.3	19	972.6	9	91.0	6	2594.8	11	246.1	9	1870.7	17

Table II.5.1

Tutuila January 1995
Offshore Creel Survey Species Composition

Common Name	Total all gears	% all gears	% this trolling gear	% this trolling gear	% this bottom gear	% this bottom gear	% this other gear	% this other gear
Large barracuda	599.9	3.36	0.0	0.00	599.9	66.66	0.0	0.00
Sharks	464.7	2.60	464.7	2.74	0.0	0.00	0.0	0.00
Lunartail grouper	109.1	0.61	0.0	0.00	109.1	12.12	0.0	0.00
Longnose emperor	190.9	1.07	0.0	0.00	190.9	21.21	0.0	0.00
Dolphin (mahimahi)	2428.3	13.60	2428.3	14.32	0.0	0.00	0.0	0.00
Wahoo	348.5	1.95	348.5	2.05	0.0	0.00	0.0	0.00
Skipjack tuna	10297.0	57.65	10297.0	60.71	0.0	0.00	0.0	0.00
Yellowfin tuna	3422.1	19.16	3422.1	20.18	0.0	0.00	0.0	0.00
Total all species:	17860.5	100.00	16960.6	94.96	899.9	5.04	0.0	0.00

Table II.5.2

Tutuila February 1995
Offshore Creel Survey Species Composition

Common Name	Total all gears	% all gears	% this trolling gear	% this trolling gear	% this bottom gear	% this bottom gear	% this other gear	% this other gear
Jacks (misc)	374.7	1.78	0.0	0.00	374.7	7.63	0.0	0.00
Large barracuda	169.2	0.80	94.8	0.59	74.3	1.51	0.0	0.00
Small barracuda	12.4	0.06	0.0	0.00	12.4	0.25	0.0	0.00
Sharks	619.4	2.94	0.0	0.00	619.4	12.61	0.0	0.00
Bottomfish (Assorted)	929.1	4.41	0.0	0.00	929.1	18.92	0.0	0.00
Groupers (misc)	18.6	0.09	0.0	0.00	18.6	0.38	0.0	0.00
Peacock grouper	61.9	0.29	0.0	0.00	61.9	1.26	0.0	0.00
Spotted grouper	92.9	0.44	0.0	0.00	92.9	1.89	0.0	0.00
Lunartail grouper	337.6	1.60	0.0	0.00	337.6	6.87	0.0	0.00
Blue lined snapper	346.9	1.65	0.0	0.00	346.9	7.06	0.0	0.00
Humpback snapper	77.4	0.37	0.0	0.00	77.4	1.58	0.0	0.00
Brown jobfish	216.8	1.03	0.0	0.00	216.8	4.41	0.0	0.00
Gray jobfish	643.9	3.06	77.2	0.48	566.7	11.54	0.0	0.00
Stone's snapper	49.6	0.24	0.0	0.00	49.6	1.01	0.0	0.00
Longnose emperor	591.5	2.81	0.0	0.00	591.5	12.04	0.0	0.00
Redgill emperor	340.7	1.62	0.0	0.00	340.7	6.94	0.0	0.00
Oilfish	61.9	0.29	0.0	0.00	61.9	1.26	0.0	0.00
Squirrelfish	139.4	0.66	0.0	0.00	139.4	2.84	0.0	0.00
Dolphin (mahimahi)	882.3	4.19	882.3	5.46	0.0	0.00	0.0	0.00
Blue marlin	1513.0	7.18	1513.0	9.37	0.0	0.00	0.0	0.00
Rainbow runner	132.7	0.63	132.7	0.82	0.0	0.00	0.0	0.00
Wahoo	1072.6	5.09	1072.6	6.64	0.0	0.00	0.0	0.00
Skipjack tuna	10031.7	47.63	10031.7	62.11	0.0	0.00	0.0	0.00
Dogtooth tuna	238.8	1.13	238.8	1.48	0.0	0.00	0.0	0.00
Yellowfin tuna	1829.8	8.69	1829.8	11.33	0.0	0.00	0.0	0.00
Kawakawa	277.9	1.32	277.9	1.72	0.0	0.00	0.0	0.00
Total all species:	21062.7	100.00	16150.8	76.68	4911.8	23.32	0.0	0.00

Table II.5.3

Tutuila March 1995
Offshore Creel Survey Species Composition

Common Name	Total all gears	% all gears	% this trolling gear		% this bottom gear		% this other gear	
Black jack	34.4	0.07	0.0	0.00	0.0	0.00	34.4	0.64
Barracudas	102.8	0.22	102.8	0.25	0.0	0.00	0.0	0.00
Large barracuda	205.9	0.44	94.9	0.23	0.0	0.00	111.1	2.07
Sharks	396.9	0.85	396.9	0.97	0.0	0.00	0.0	0.00
Groupers (misc)	180.0	0.38	0.0	0.00	74.2	12.05	105.8	1.97
Peacock grouper	99.1	0.21	0.0	0.00	0.0	0.00	99.1	1.85
Lunartail grouper	182.6	0.39	0.0	0.00	21.2	3.44	161.4	3.01
Blue lined snapper	160.3	0.34	0.0	0.00	149.7	24.31	10.6	0.20
Twinspot/red snapper	108.4	0.23	0.0	0.00	0.0	0.00	108.4	2.02
Humpback snapper	59.4	0.13	0.0	0.00	29.1	4.72	30.3	0.57
Gray jobfish	370.9	0.79	0.0	0.00	53.3	8.65	317.6	5.92
Pristipomoides/Etelis	53.3	0.11	0.0	0.00	53.3	8.65	0.0	0.00
Ehu (squirrelfish snap	103.2	0.22	0.0	0.00	0.0	0.00	103.2	1.92
Emperors (misc)	281.8	0.60	0.0	0.00	136.3	22.13	145.5	2.71
Ambon emperor	90.9	0.19	0.0	0.00	0.0	0.00	90.9	1.70
Redgill emperor	51.9	0.11	0.0	0.00	51.9	8.43	0.0	0.00
Squirrelfish	50.7	0.11	0.0	0.00	5.3	0.86	45.4	0.85
Dolphin (mahimahi)	1266.0	2.70	1128.4	2.76	0.0	0.00	137.5	2.56
Blue marlin	8281.8	17.68	6026.2	14.75	0.0	0.00	2255.6	42.07
Sailfish	1920.9	4.10	1920.9	4.70	0.0	0.00	0.0	0.00
Rainbow runner	155.0	0.33	0.0	0.00	0.0	0.00	155.0	2.89
Wahoo	5611.7	11.98	5570.0	13.63	41.6	6.75	0.0	0.00
Skipjack tuna	10280.4	21.95	9285.8	22.73	0.0	0.00	994.6	18.55
Dogtooth tuna	729.3	1.56	501.8	1.23	0.0	0.00	227.5	4.24
Yellowfin tuna	16009.3	34.18	15829.4	38.74	0.0	0.00	179.9	3.36
Kawakawa	47.3	0.10	0.0	0.00	0.0	0.00	47.3	0.88
Total all species:	46834.2	100.00	40857.1	87.24	615.9	1.32	5361.1	11.45

Table II.5.4

Tutuila April 1995
Offshore Creel Survey Species Composition

Common Name	Total all gears	% all gears	% this trolling gear		% this bottom gear		% this other gear	
Black jack	463.0	2.16	0.0	0.00	148.8	6.70	314.2	5.22
Trevally (C.caeruleop.	55.4	0.26	0.0	0.00	55.4	2.49	0.0	0.00
Barracudas	37.0	0.17	0.0	0.00	0.0	0.00	37.0	0.61
Sharks	86.3	0.40	86.3	0.65	0.0	0.00	0.0	0.00
Bottomfish (Assorted)	31.2	0.15	0.0	0.00	31.2	1.40	0.0	0.00
Yellowspot grouper	31.7	0.15	0.0	0.00	31.7	1.43	0.0	0.00
Lunartail grouper	158.2	0.74	0.0	0.00	89.2	4.02	69.1	1.15
Blue lined snapper	250.6	1.17	0.0	0.00	190.1	8.56	60.5	1.01
Twinspot/red snapper	24.7	0.12	0.0	0.00	0.0	0.00	24.7	0.41
Humpback snapper	547.6	2.55	0.0	0.00	547.6	24.65	0.0	0.00
Gray jobfish	139.7	0.65	0.0	0.00	0.0	0.00	139.7	2.32
Yelloweye opakapaka(P.	56.2	0.26	0.0	0.00	56.2	2.53	0.0	0.00
Lehi (silverjaw)	46.8	0.22	0.0	0.00	46.8	2.11	0.0	0.00
Onaga (longtail snappe	191.1	0.89	0.0	0.00	141.8	6.38	49.3	0.82
Ehu (squirrelfish snap	656.5	3.06	0.0	0.00	625.7	28.17	30.8	0.51
Emperors (misc)	113.7	0.53	0.0	0.00	0.0	0.00	113.7	1.89
Orangespot emperor	71.8	0.33	0.0	0.00	71.8	3.23	0.0	0.00
Redgill emperor	47.5	0.22	0.0	0.00	47.5	2.14	0.0	0.00
Dolphin (mahimahi)	289.8	1.35	203.5	1.54	0.0	0.00	86.3	1.43
Blue marlin	3479.0	16.21	2601.2	19.68	0.0	0.00	877.8	14.59
Sailfish	231.2	1.08	231.2	1.75	0.0	0.00	0.0	0.00
Rainbow runner	1211.8	5.65	0.0	0.00	0.0	0.00	1211.8	20.14
Wahoo	872.3	4.07	371.6	2.81	0.0	0.00	500.7	8.32
Tunas	58.5	0.27	0.0	0.00	0.0	0.00	58.5	0.97
Skipjack tuna	5233.0	24.39	3685.9	27.88	0.0	0.00	1547.0	25.71
Dogtooth tuna	137.3	0.64	0.0	0.00	137.3	6.18	0.0	0.00
Yellowfin tuna	6907.1	32.19	6011.7	45.48	0.0	0.00	895.4	14.88
Kawakawa	27.8	0.13	27.8	0.21	0.0	0.00	0.0	0.00
Total all species:	21456.8	100.00	13219.2	61.61	2221.1	10.35	6016.5	28.04

Table II.5.5

Tutuila May 1995
Offshore Creel Survey Species Composition

Common Name	Total all gears	% all gears	% this trolling gear		% this bottom gear		% this other gear	
Black jack	221.8	0.97	0.0	0.00	0.0	0.00	221.8	10.31
Barracudas	55.4	0.24	55.4	0.28	0.0	0.00	0.0	0.00
Bottomfish (Assorted)	110.9	0.48	0.0	0.00	110.9	8.62	0.0	0.00
Groupers (misc)	105.6	0.46	0.0	0.00	79.2	6.16	26.4	1.23
Peacock grouper	19.3	0.08	0.0	0.00	19.3	1.50	0.0	0.00
Lunartail grouper	466.1	2.03	0.0	0.00	307.7	23.93	158.4	7.36
Blue lined snapper	724.6	3.16	0.0	0.00	249.4	19.40	475.2	22.08
Onespot snapper	5.6	0.02	0.0	0.00	5.6	0.44	0.0	0.00
Humpback snapper	158.4	0.69	0.0	0.00	158.4	12.32	0.0	0.00
Gray jobfish	65.6	0.29	0.0	0.00	40.5	3.15	25.1	1.17
Yelloweye opakapaka(P.	23.8	0.10	0.0	0.00	0.0	0.00	23.8	1.11
Emperors (misc)	369.6	1.61	0.0	0.00	158.4	12.32	211.2	9.82
Longnose emperor	30.5	0.13	0.0	0.00	30.5	2.37	0.0	0.00
Redgill emperor	102.8	0.45	0.0	0.00	102.8	8.00	0.0	0.00
Squirrelfish	23.1	0.10	0.0	0.00	23.1	1.80	0.0	0.00
Bigeye squirrelfish	467.3	2.04	0.0	0.00	0.0	0.00	467.3	21.72
Dolphin (mahimahi)	1351.1	5.90	1299.6	6.67	0.0	0.00	51.5	2.39
Blue marlin	2826.6	12.34	2826.6	14.52	0.0	0.00	0.0	0.00
Rainbow runner	182.8	0.80	182.8	0.94	0.0	0.00	0.0	0.00
Wahoo	1088.4	4.75	1088.4	5.59	0.0	0.00	0.0	0.00
Skipjack tuna	10152.7	44.32	9661.7	49.62	0.0	0.00	491.0	22.82
Yellowfin tuna	4358.1	19.02	4358.1	22.38	0.0	0.00	0.0	0.00
Total all species:	22910.1	100.00	19472.6	85.00	1285.8	5.61	2151.7	9.39

Table II.5.6

Tutuila June 1995
Offshore Creel Survey Species Composition

Common Name	Total all gears	% all gears	% this trolling gear		% this bottom gear		% this other gear	
Barracudas	887.6	3.02	0.0	0.00	0.0	0.00	887.6	16.32
Sharks	691.4	2.35	691.4	2.97	0.0	0.00	0.0	0.00
Bottomfish (Assorted)	555.8	1.89	0.0	0.00	555.8	87.02	0.0	0.00
Gray jobfish	103.5	0.35	0.0	0.00	24.2	3.79	79.3	1.46
Lehi (silverjaw)	58.7	0.20	0.0	0.00	58.7	9.19	0.0	0.00
Dolphin (mahimahi)	327.0	1.11	327.0	1.40	0.0	0.00	0.0	0.00
Blue marlin	1992.0	6.78	1992.0	8.55	0.0	0.00	0.0	0.00
Sailfish	987.8	3.36	987.8	4.24	0.0	0.00	0.0	0.00
Wahoo	659.0	2.24	444.9	1.91	0.0	0.00	214.1	3.94
Tunas	150.6	0.51	0.0	0.00	0.0	0.00	150.6	2.77
Skipjack tuna	17219.2	58.59	16069.7	68.93	0.0	0.00	1149.5	21.13
Yellowfin tuna	2798.6	9.52	2798.6	12.01	0.0	0.00	0.0	0.00
Bigeye tuna	2958.5	10.07	0.0	0.00	0.0	0.00	2958.5	54.39
Total all species:	29389.7	100.00	23311.4	79.32	638.7	2.17	5439.6	18.51

Table II.5.7

Tutuila July 1995
Offshore Creel Survey Species Composition

Common Name	Total all gears	% all gears	% this trolling gear		% this bottom gear		% this other gear	
Barracudas	78.0	0.46	78.0	0.51	0.0	0.00	0.0	0.00
Dolphin (mahimahi)	2787.5	16.46	2787.5	18.15	0.0	0.00	0.0	0.00
Blue marlin	1807.2	10.67	1072.2	6.98	0.0	0.00	735.0	46.44
Rainbow runner	438.7	2.59	438.7	2.86	0.0	0.00	0.0	0.00
Wahoo	311.9	1.84	311.9	2.03	0.0	0.00	0.0	0.00
Tunas	126.7	0.75	126.7	0.83	0.0	0.00	0.0	0.00
Skipjack tuna	9905.4	58.48	9905.4	64.51	0.0	0.00	0.0	0.00
Albacore	186.2	1.10	0.0	0.00	0.0	0.00	186.2	11.76
Yellowfin tuna	1295.1	7.65	633.6	4.13	0.0	0.00	661.5	41.80
Total all species:	16936.7	100.00	15354.0	90.66	0.0	0.00	1582.7	9.34

Table II.5.8

Tutuila August 1995
Offshore Creel Survey Species Composition

Common Name	Total all gears	% all gears	% this trolling gear		% this bottom gear		% this other gear	
Sharks	1912.6	8.38	923.9	5.17	0.0	0.00	988.7	19.97
Blue lined snapper	285.4	1.25	0.0	0.00	0.0	0.00	285.4	5.76
Emperors (misc)	60.7	0.27	0.0	0.00	0.0	0.00	60.7	1.23
Dolphin (mahimahi)	939.6	4.12	761.4	4.26	0.0	0.00	178.2	3.60
Blue marlin	554.4	2.43	0.0	0.00	0.0	0.00	554.4	11.20
Sailfish	237.6	1.04	0.0	0.00	0.0	0.00	237.6	4.80
Rainbow runner	92.5	0.41	92.5	0.52	0.0	0.00	0.0	0.00
Wahoo	1150.4	5.04	817.8	4.58	0.0	0.00	332.6	6.72
Skipjack tuna	15088.1	66.10	14802.7	82.81	0.0	0.00	285.4	5.76
Dogtooth tuna	63.1	0.28	63.1	0.35	0.0	0.00	0.0	0.00
Albacore	873.1	3.83	0.0	0.00	0.0	0.00	873.1	17.64
Yellowfin tuna	1567.9	6.87	413.4	2.31	0.0	0.00	1154.5	23.32
Total all species:	22825.4	100.00	17874.8	78.31	0.0	0.00	4950.6	21.69

Table II.5.9

Tutuila September 1995
Offshore Creel Survey Species Composition

Common Name	Total all gears	% all gears	% this trolling gear		% this bottom gear		% this other gear	
Jacks (misc)	46.9	0.15	0.0	0.00	0.0	0.00	46.9	0.91
Trevally (C.caeruleop.	26.8	0.08	0.0	0.00	0.0	0.00	26.8	0.52
Barracudas	182.0	0.57	38.0	0.14	0.0	0.00	144.0	2.78
Sharks	852.8	2.66	357.8	1.36	0.0	0.00	495.0	9.57
Groupers (misc)	33.5	0.10	0.0	0.00	0.0	0.00	33.5	0.65
Peacock grouper	29.0	0.09	0.0	0.00	0.0	0.00	29.0	0.56
Lunartail grouper	53.6	0.17	0.0	0.00	0.0	0.00	53.6	1.04
Blue lined snapper	377.4	1.18	0.0	0.00	0.0	0.00	377.4	7.30
Onaga (longtail snappe	904.4	2.82	0.0	0.00	638.6	100.00	265.8	5.14
Ehu (squirrelfish snap	125.1	0.39	0.0	0.00	0.0	0.00	125.1	2.42
Emperors (misc)	428.8	1.34	0.0	0.00	0.0	0.00	428.8	8.29
Dolphin (mahimahi)	89.4	0.28	89.4	0.34	0.0	0.00	0.0	0.00
Sailfish	981.0	3.06	0.0	0.00	0.0	0.00	981.0	18.97
Rainbow runner	20.1	0.06	20.1	0.08	0.0	0.00	0.0	0.00
Wahoo	207.8	0.65	207.8	0.79	0.0	0.00	0.0	0.00
Skipjack tuna	25319.8	78.95	24863.2	94.68	0.0	0.00	456.6	8.83
Albacore	1437.8	4.48	0.0	0.00	0.0	0.00	1437.8	27.80
Yellowfin tuna	954.2	2.98	684.2	2.61	0.0	0.00	270.0	5.22
Total all species:	32070.4	100.00	26260.5	81.88	638.6	1.99	5171.3	16.12

Table II.5.10

Tutuila October 1995
Offshore Creel Survey Species Composition

Common Name	Total all gears	% all gears	% this trolling gear		% this bottom gear		% this other gear	
Sharks	1196.0	2.95	0.0	0.00	0.0	0.00	1196.0	7.47
Dolphin (mahimahi)	951.3	2.35	381.4	1.55	0.0	0.00	569.9	3.56
Blue marlin	594.7	1.47	0.0	0.00	0.0	0.00	594.7	3.72
Sailfish	486.2	1.20	0.0	0.00	0.0	0.00	486.2	3.04
Rainbow runner	94.3	0.23	0.0	0.00	0.0	0.00	94.3	0.59
Wahoo	403.5	1.00	0.0	0.00	0.0	0.00	403.5	2.52
Skipjack tuna	23272.0	57.39	23272.0	94.81	0.0	0.00	0.0	0.00
Albacore	10090.8	24.89	0.0	0.00	0.0	0.00	10090.8	63.05
Yellowfin tuna	2646.4	6.53	891.7	3.63	0.0	0.00	1754.7	10.96
Bigeye tuna	814.5	2.01	0.0	0.00	0.0	0.00	814.5	5.09
Total all species:	40549.7	100.00	24545.1	60.53	0.0	0.00	16004.6	39.47

Table II.5.11

Tutuila November 1995
Offshore Creel Survey Species Composition

Common Name	Total all gears	% all gears	% this trolling gear		% this bottom gear		% this other gear	
Jacks (misc)	52.2	0.10	0.0	0.00	0.0	0.00	52.2	0.20
Barracudas	313.2	0.59	143.2	0.52	0.0	0.00	170.0	0.65
Sharks	88.3	0.16	0.0	0.00	0.0	0.00	88.3	0.34
Peacock grouper	72.3	0.14	0.0	0.00	0.0	0.00	72.3	0.28
Lunartail grouper	76.3	0.14	0.0	0.00	0.0	0.00	76.3	0.29
Blue lined snapper	444.3	0.83	0.0	0.00	0.0	0.00	444.3	1.69
Gray jobfish	224.8	0.42	0.0	0.00	0.0	0.00	224.8	0.86
Yelloweye opakapaka(P.	152.6	0.29	0.0	0.00	0.0	0.00	152.6	0.58
Emperors (misc)	104.0	0.19	0.0	0.00	0.0	0.00	104.0	0.40
Longnose emperor	261.0	0.49	0.0	0.00	0.0	0.00	261.0	1.00
Redgill emperor	192.7	0.36	0.0	0.00	0.0	0.00	192.7	0.73
Oilfish	112.4	0.21	0.0	0.00	0.0	0.00	112.4	0.43
Squirrelfish	138.6	0.26	0.0	0.00	0.0	0.00	138.6	0.53
Dolphin (mahimahi)	743.7	1.39	338.7	1.24	0.0	0.00	405.0	1.54
Blue marlin	2316.7	4.33	716.2	2.62	0.0	0.00	1600.6	6.10
Sailfish	1339.4	2.50	0.0	0.00	0.0	0.00	1339.4	5.11
Wahoo	248.3	0.46	0.0	0.00	0.0	0.00	248.3	0.95
Skipjack tuna	19870.0	37.12	19870.0	72.75	0.0	0.00	0.0	0.00
Albacore	17619.0	32.91	0.0	0.00	0.0	0.00	17619.0	67.19
Yellowfin tuna	7768.1	14.51	6244.0	22.86	0.0	0.00	1524.1	5.81
Bigeye tuna	1398.1	2.61	0.0	0.00	0.0	0.00	1398.1	5.33
Total all species:	53536.0	100.00	27312.1	51.02	0.0	0.00	26224.0	48.98

Table II.5.12

Tutuila December 1995
Offshore Creel Survey Species Composition

Common Name	Total all gears	% all gears	% this trolling gear		% this bottom gear		% this other gear	
Jacks (misc)	56.2	0.13	0.0	0.00	56.2	1.60	0.0	0.00
Black jack	425.4	1.00	0.0	0.00	425.4	12.11	0.0	0.00
Trevally (C.caeruleop.	10.8	0.03	0.0	0.00	0.0	0.00	10.8	0.04
Amberjack	96.3	0.23	0.0	0.00	96.3	2.74	0.0	0.00
Barracudas	161.3	0.38	0.0	0.00	80.3	2.29	81.0	0.28
Small barracuda	10.8	0.03	0.0	0.00	0.0	0.00	10.8	0.04
Bottomfish (Assorted)	24.1	0.06	0.0	0.00	24.1	0.69	0.0	0.00
Groupers (misc)	50.9	0.12	0.0	0.00	37.4	1.06	13.5	0.05
Peacock grouper	70.2	0.16	0.0	0.00	0.0	0.00	70.2	0.25
Lunartail grouper	105.1	0.25	0.0	0.00	24.1	0.69	81.0	0.28
Blue lined snapper	348.8	0.82	0.0	0.00	235.4	6.70	113.4	0.40
Rufous snapper	5.4	0.01	0.0	0.00	0.0	0.00	5.4	0.02
Onespot snapper	26.8	0.06	0.0	0.00	26.8	0.76	0.0	0.00
Humpback snapper	246.1	0.58	0.0	0.00	246.1	7.01	0.0	0.00
Gray jobfish	344.7	0.81	0.0	0.00	101.7	2.90	243.0	0.85
Yelloweye opakapaka(P.	342.4	0.80	0.0	0.00	342.4	9.75	0.0	0.00
Gindai (flower snap)	9.4	0.02	0.0	0.00	9.4	0.27	0.0	0.00
Lehi (silverjaw)	66.9	0.16	0.0	0.00	66.9	1.90	0.0	0.00
Onaga (longtail snappe	278.2	0.65	0.0	0.00	278.2	7.92	0.0	0.00
Ehu (squirrelfish snap	398.6	0.94	0.0	0.00	398.6	11.35	0.0	0.00
Stone's snapper	26.8	0.06	0.0	0.00	26.8	0.76	0.0	0.00
Emperors (misc)	651.4	1.53	0.0	0.00	651.4	18.54	0.0	0.00
Longnose emperor	243.0	0.57	0.0	0.00	0.0	0.00	243.0	0.85
Orangespot emperor	18.7	0.04	0.0	0.00	18.7	0.53	0.0	0.00
Redgill emperor	295.9	0.69	0.0	0.00	115.0	3.27	180.9	0.63
Blue marlin	1872.5	4.39	0.0	0.00	0.0	0.00	1872.5	6.56
Rainbow runner	233.2	0.55	0.0	0.00	184.6	5.26	48.6	0.17
Skipjack tuna	7157.9	16.80	6283.1	59.56	0.0	0.00	874.8	3.06
Dogtooth tuna	66.9	0.16	0.0	0.00	66.9	1.90	0.0	0.00
Albacore	24695.6	57.96	0.0	0.00	0.0	0.00	24695.6	86.52
Yellowfin tuna	4266.3	10.01	4266.3	40.44	0.0	0.00	0.0	0.00
Total all species:	42606.6	100.00	10549.4	24.76	3512.7	8.24	28544.5	67.00

Figure II.5.1

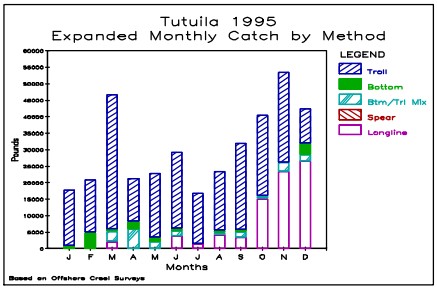

Tutuila 1995
Expanded Monthly Catch by Method
LEGEND
Troll
Bottom
Btm/Trl Mix
Spear
Longline
Pounds
Months
J F M A M J J A S O N D
Based on Offshore Creel Surveys

Figure II.5.2

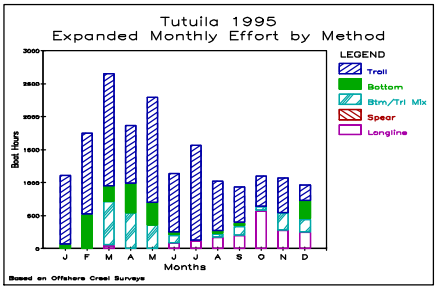
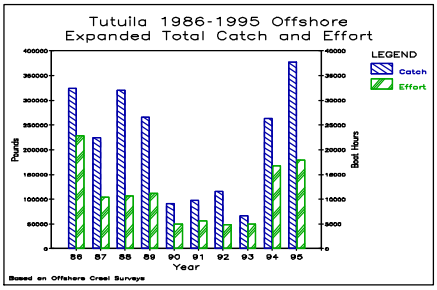

Tutuila 1995
Expanded Monthly Effort by Method
LEGEND
Troll
Bottom
Btm/Trl Mix
Spear
Longline
Boat Hours
3000
2500
2000
1500
1000
500
0
J F M A M J J A S O N D
Months
Based on Offshore Creel Surveys

Figure II.5.3


Tutuila 1986-1995 Offshore
Expanded Total Catch and Effort
LEGEND
Catch
Effort
Pounds
Boat Hours
Year
86
87
88
89
90
91
92
93
94
95
Based on Offshore Creel Surveys

COMMONWEALTH OF THE NORTHERN MARIANA ISLANDS
1995 FISHERY STATISTICS

Compiled by

Division of Fish and Wildlife

and the

Western Pacific Fishery Information Network

March 1997

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1995 FISHERY STATISTICS

INTRODUCTION

The Commonwealth of the Northern Mariana Islands (CNMI) comprises a string of islands located at about long. 145^{o} E and extending northward from about lat. 14 to 21^{o} N. All of the 43,000 inhabitants of the CNMI live on the three main islands, 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. In the past few years, there has been a fairly rapid increase in the number of boats in the CNMI, about 70% of which are used in the commercial fisheries. Although trolling is by far the most common fishing method, many boats are also used for bottom fishing and reef fishing activities. Reef fish are an important component of the local diet and are a significant portion of the total commercial catch. Additionally, an increasing amount of reef fish is being imported from other Pacific islands to meet the local demand. In recent years, several larger boats have started fishing more intensively for bottom fish around the islands north of Saipan. The vast majority of the domestic catch is consumed locally, but there have been some exports of fish to Guam and Hawaii.

Beginning in 1983, fishing vessels from several nations began using the Tinian harbor as a port to off-load tuna catches to large transshipment vessels. In 1995, 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 and a potentially important portion of the total landings is unrecorded. Since 1982, DFW has tried to minimize these disadvantages as much as possible by maintaining a close working relationship with dealers, by educating and adding new dealers to their list as they enter the business, and by implementing a creel survey to help estimate total catch, including recreational and subsistence catch.

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

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

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

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

DATA PROCESSING SYSTEM

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

DATA REPORTING SYSTEM

After all editing and quality control activities have been accomplished, monthly and annual summary reports by species are generated. Each of the following reports for 1995 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 1995 Commercial Landings

Species	Pounds	Value	$/lb
Fillets	75	94	1.25
Bigeye scad (atulai)	8,377	21,735	2.59
Jacks	477	1,277	2.68
Mullet	5	11	2.50
Bottom fish	8,623	23,821	2.76
Gindai (flower snap)	892	2,779	3.12
Grouper	2,172	5,851	2.69
Onaga (red snapper)	11,920	50,167	4.21
Opakapaka (pink snp)	815	2,409	2.96
Silver-mouth	417	1,435	3.44
Reef fish	127,361	283,438	2.23
Wrasse	40	85	2.12
Rabbitfish (hitting)	723	1,892	2.62
Emperor (mafute)	3,421	8,362	2.44
Squirrelfish	1,917	4,121	2.15
Parrotfish	1,871	5,084	2.72
Snapper	137	342	2.49
Surgeonfish	1,200	2,373	1.98
Goatfish	1,784	4,023	2.26
Troll fish	2,365	4,456	1.88
Barracuda	153	295	1.93
Dolphin (mahimahi)	18,636	32,547	1.75
Marlin	5,295	8,219	1.55
Sailfish	78	149	1.92
Rainbow runner	544	1,093	2.01
Wahoo	4,555	9,366	2.06
Tunas	369	720	1.95
Skipjack tuna	105,423	186,327	1.77
Dogtooth tuna	6,219	12,983	2.09
Yellowfin tuna	16,824	33,586	2.00
Invertebrates	86	509	5.91
Lobster	1,719	8,486	4.94
Octopus	110	241	2.19
Shrimp (saltwater)	1,619	9,716	6.00
Seaweeds	128	230	1.80
** TOTAL **	336,347	728,219	2.17

Table III.1.2

CNMI January 1995 Commercial Landings

Species	Pounds	Value	$/lb
Fillets	75	94	1.25
Jacks	98	196	2.00
Bottom fish	525	1,312	2.50
Onaga (red snapper)	924	3,897	4.22
Opakapaka (pink snp)	54	178	3.29
Reef fish	4,967	13,584	2.73
Rabbitfish (hitting)	27	68	2.50
Squirrelfish	100	200	2.00
Goatfish	133	299	2.25
Troll fish	469	821	1.75
Barracuda	4	7	1.75
Dolphin (mahimahi)	3,503	5,279	1.51
Rainbow runner	27	53	2.00
Wahoo	321	733	2.28
Skipjack tuna	5,916	10,528	1.78
Dogtooth tuna	546	1,191	2.18
Yellowfin tuna	642	1,331	2.08
Shrimp (saltwater)	361	2,076	5.75
** SUBTOTAL **	18,691	41,844	2.24

Table III.1.3

CNMI February 1995 Commercial Landings

Species	Pounds	Value	$/lb
Jacks	30	74	2.50
Bottom fish	919	2,821	3.07
Gindai (flower snap)	106	265	2.50
Grouper	72	187	2.59
Onaga (red snapper)	2,099	8,475	4.04
Opakapaka (pink snp)	23	76	3.28
Reef fish	14,711	35,125	2.39
Wrasse	40	85	2.12
Rabbitfish (hitting)	150	476	3.18
Surgeonfish	138	248	1.80
Goatfish	51	140	2.75
Troll fish	691	1,037	1.50
Barracuda	5	14	2.75
Dolphin (mahimahi)	2,197	3,767	1.71
Rainbow runner	44	71	1.61
Wahoo	1,471	2,859	1.94
Skipjack tuna	4,578	8,630	1.89
Dogtooth tuna	1,274	2,693	2.11
Yellowfin tuna	395	770	1.95
Lobster	67	302	4.50
Octopus	56	126	2.25
Shrimp (saltwater)	522	3,132	6.00
** SUBTOTAL **	29,638	71,371	2.41

Table III.1.4

CNMI March 1995 Commercial Landings

Species	Pounds	Value	$/lb
Bigeye scad (atulai)	52	156	3.00
Jacks	66	230	3.50
Bottom fish	1,413	3,722	2.63
Grouper	148	490	3.32
Onaga (red snapper)	2,405	9,483	3.94
Opakapaka (pink snp)	45	135	3.00
Reef fish	15,762	38,031	2.41
Rabbitfish (hitting)	34	93	2.77
Emperor (mafute)	20	58	2.89
Parrotfish	95	216	2.29
Surgeonfish	222	400	1.80
Goatfish	550	1,311	2.38
Troll fish	94	220	2.34
Barracuda	16	44	2.75
Dolphin (mahimahi)	2,423	4,387	1.81
Marlin	148	148	1.00
Wahoo	1,273	2,448	1.92
Skipjack tuna	8,420	16,038	1.90
Dogtooth tuna	1,048	2,167	2.07
Yellowfin tuna	2,092	4,432	2.12
Invertebrates	8	16	2.00
Lobster	33	149	4.50
Shrimp (saltwater)	611	3,666	6.00
** SUBTOTAL **	36,975	88,037	2.38

Table III.1.5

CNMI April 1995 Commercial Landings

Species	Pounds	Value	$/lb
Mullet	5	11	2.50
Bottom fish	703	1,861	2.65
Grouper	176	527	3.00
Onaga (red snapper)	376	1,543	4.10
Opakapaka (pink snp)	61	183	3.00
Reef fish	10,968	24,762	2.26
Rabbitfish (hitting)	40	94	2.34
Emperor (mafute)	316	698	2.21
Parrotfish	140	373	2.67
Surgeonfish	190	330	1.74
Goatfish	197	440	2.24
Troll fish	150	318	2.12
Dolphin (mahimahi)	3,365	4,953	1.47
Marlin	35	53	1.50
Wahoo	253	473	1.87
Skipjack tuna	9,900	18,628	1.88
Dogtooth tuna	874	2,024	2.32
Yellowfin tuna	1,664	3,263	1.96
Lobster	66	297	4.50
Shrimp (saltwater)	120	792	6.60
** SUBTOTAL **	29,596	61,624	2.08

Table III.1.6

CNMI May 1995 Commercial Landings

Species	Pounds	Value	$/lb
Bigeye scad (atulai)	381	998	2.62
Jacks	44	97	2.20
Bottom fish	853	2,890	3.39
Gindai (flower snap)	49	135	2.75
Grouper	388	1,022	2.63
Onaga (red snapper)	1,090	4,532	4.16
Opakapaka (pink snp)	87	260	3.00
Reef fish	16,935	38,064	2.25
Rabbitfish (hitting)	174	439	2.52
Emperor (mafute)	1,345	3,288	2.45
Parrotfish	167	459	2.75
Snapper	16	40	2.50
Surgeonfish	8	14	1.80
Goatfish	49	101	2.06
Troll fish	70	175	2.50
Barracuda	30	51	1.69
Dolphin (mahimahi)	2,344	4,262	1.82
Marlin	618	981	1.59
Sailfish	53	99	1.88
Rainbow runner	50	100	2.00
Wahoo	227	488	2.15
Skipjack tuna	9,335	17,089	1.83
Dogtooth tuna	447	912	2.04
Yellowfin tuna	1,430	2,579	1.80
Invertebrates	19	86	4.50
Lobster	124	524	4.23
Octopus	2	4	2.00
Shrimp (saltwater)	5	50	10.00
** SUBTOTAL **	36,338	79,739	2.19

Table III.1.7

CNMI June 1995 Commercial Landings

Species	Pounds	Value	$/lb
Bigeye scad (atulai)	1,199	3,223	2.69
Jacks	92	237	2.59
Bottom fish	785	1,896	2.42
Gindai (flower snap)	105	368	3.50
Grouper	168	420	2.50
Onaga (red snapper)	711	2,886	4.06
Opakapaka (pink snp)	59	177	3.00
Reef fish	9,067	20,228	2.23
Rabbitfish (hitting)	24	67	2.83
Emperor (mafute)	874	1,997	2.29
Squirrelfish	28	35	1.25
Snapper	9	30	3.50
Goatfish	177	363	2.05
Barracuda	44	88	2.00
Dolphin (mahimahi)	264	512	1.94
Marlin	759	1,138	1.50
Rainbow runner	35	99	2.82
Skipjack tuna	10,738	17,473	1.63
Dogtooth tuna	67	121	1.81
Yellowfin tuna	1,778	3,315	1.86
Lobster	53	251	4.72
** SUBTOTAL **	27,034	54,924	2.03

Table III.1.8

CNMI July 1995 Commercial Landings

Species	Pounds	Value	$/lb
Bigeye scad (atulai)	1,242	3,246	2.61
Bottom fish	917	2,467	2.69
Grouper	146	299	2.05
Onaga (red snapper)	210	914	4.36
Opakapaka (pink snp)	68	189	2.78
Reef fish	11,462	25,159	2.20
Rabbitfish (hitting)	13	31	2.50
Emperor (mafute)	154	422	2.74
Parrotfish	97	237	2.46
Goatfish	5	11	2.25
Troll fish	199	457	2.30
Barracuda	14	24	1.69
Dolphin (mahimahi)	41	103	2.50
Marlin	512	916	1.79
Rainbow runner	98	239	2.44
Wahoo	102	236	2.32
Skipjack tuna	10,728	18,726	1.75
Dogtooth tuna	155	238	1.54
Yellowfin tuna	2,018	3,744	1.86
Lobster	387	1,973	5.09
Octopus	22	50	2.25
** SUBTOTAL **	28,587	59,680	2.09

Table III.1.9

CNMI August 1995 Commercial Landings

Species	Pounds	Value	$/lb
Bigeye scad (atulai)	1,454	3,913	2.69
Jacks	55	179	3.28
Bottom fish	987	2,720	2.76
Gindai (flower snap)	48	156	3.25
Grouper	165	470	2.85
Onaga (red snapper)	344	1,530	4.45
Opakapaka (pink snp)	208	569	2.73
Reef fish	12,510	26,643	2.13
Rabbitfish (hitting)	28	89	3.25
Emperor (mafute)	400	1,060	2.65
Parrotfish	201	554	2.76
Snapper	20	40	2.00
Goatfish	358	805	2.25
Dolphin (mahimahi)	33	50	1.50
Marlin	790	1,171	1.48
Rainbow runner	36	53	1.47
Wahoo	92	216	2.36
Tunas	160	360	2.25
Skipjack tuna	10,390	17,413	1.68
Dogtooth tuna	112	220	1.96
Yellowfin tuna	1,120	2,507	2.24
Invertebrates	6	36	6.00
Lobster	483	2,563	5.30
Octopus	8	12	1.50
Seaweeds	128	230	1.80
** SUBTOTAL **	30,135	63,557	2.11

Table III.1.10

CNMI September 1995 Commercial Landings

Species	Pounds	Value	$/lb
Bigeye scad (atulai)	663	1,639	2.47
Jacks	49	153	3.15
Bottom fish	887	2,528	2.85
Gindai (flower snap)	347	1,215	3.50
Grouper	184	453	2.46
Onaga (red snapper)	1,035	4,399	4.25
Opakapaka (pink snp)	47	154	3.27
Silver-mouth	66	231	3.50
Reef fish	10,571	20,796	1.97
Rabbitfish (hitting)	19	52	2.75
Emperor (mafute)	136	372	2.73
Squirrelfish	785	1,688	2.15
Parrotfish	205	523	2.55
Snapper	57	154	2.67
Troll fish	228	428	1.88
Barracuda	14	24	1.69
Marlin	904	1,495	1.65
Rainbow runner	43	85	1.99
Wahoo	14	34	2.50
Tunas	33	50	1.50
Skipjack tuna	9,626	16,339	1.70
Dogtooth tuna	289	483	1.67
Yellowfin tuna	1,803	3,376	1.87
Lobster	216	1,041	4.82
** SUBTOTAL **	28,220	57,709	2.04

Table III.1.11

CNMI October 1995 Commercial Landings

Species	Pounds	Value	$/lb
Bigeye scad (atulai)	1,400	3,550	2.54
Jacks	12	30	2.50
Bottom fish	282	732	2.60
Gindai (flower snap)	119	306	2.58
Grouper	557	1,501	2.70
Onaga (red snapper)	641	2,747	4.28
Opakapaka (pink snp)	48	144	3.00
Silver-mouth	300	1,023	3.42
Reef fish	7,658	15,063	1.97
Rabbitfish (hitting)	8	20	2.50
Emperor (mafute)	11	30	2.75
Squirrelfish	604	1,302	2.15
Parrotfish	96	274	2.85
Surgeonfish	243	522	2.15
Goatfish	10	28	2.75
Dolphin (mahimahi)	110	219	2.00
Marlin	516	773	1.50
Sailfish	25	50	2.00
Rainbow runner	119	220	1.85
Wahoo	68	169	2.50
Tunas	8	20	2.50
Skipjack tuna	9,753	16,567	1.70
Dogtooth tuna	1,228	2,575	2.10
Yellowfin tuna	949	2,066	2.18
Lobster	238	1,126	4.74
** SUBTOTAL **	25,000	51,056	2.04

Table III.1.12

CNMI November 1995 Commercial Landings

Species	Pounds	Value	$/lb
Bigeye scad (atulai)	1,850	4,668	2.52
Jacks	16	39	2.50
Bottom fish	122	301	2.48
Gindai (flower snap)	84	234	2.78
Grouper	134	377	2.81
Onaga (red snapper)	896	4,108	4.59
Opakapaka (pink snp)	68	203	3.00
Silver-mouth	24	82	3.50
Reef fish	6,620	13,470	2.03
Rabbitfish (hitting)	35	87	2.50
Emperor (mafute)	116	290	2.50
Squirrelfish	339	744	2.19
Parrotfish	535	1,491	2.79
Snapper	16	40	2.50
Surgeonfish	399	858	2.15
Goatfish	69	155	2.25
Troll fish	313	701	2.24
Barracuda	16	24	1.50
Dolphin (mahimahi)	760	1,647	2.17
Marlin	806	1,230	1.52
Rainbow runner	60	101	1.70
Wahoo	607	1,412	2.33
Tunas	32	64	2.00
Skipjack tuna	8,470	15,167	1.79
Dogtooth tuna	27	55	2.00
Yellowfin tuna	1,499	3,265	2.18
Lobster	20	100	5.00
Octopus	22	50	2.25
** SUBTOTAL **	23,953	50,961	2.13

Table III.1.13

CNMI December 1995 Commercial Landings

Species	Pounds	Value	$/lb
Bigeye scad (atulai)	136	340	2.50
Jacks	18	42	2.41
Bottom fish	231	571	2.47
Gindai (flower snap)	34	102	3.00
Grouper	35	105	3.00
Onaga (red snapper)	1,191	5,654	4.75
Opakapaka (pink snp)	48	144	3.00
Silver-mouth	28	98	3.50
Reef fish	6,130	12,513	2.04
Rabbitfish (hitting)	173	377	2.17
Emperor (mafute)	50	148	2.95
Squirrelfish	61	153	2.50
Parrotfish	336	958	2.85
Snapper	19	38	2.00
Goatfish	185	370	2.00
Troll fish	150	300	2.00
Barracuda	10	20	2.00
Dolphin (mahimahi)	3,598	7,368	2.05
Marlin	208	315	1.51
Rainbow runner	33	71	2.15
Wahoo	130	299	2.31
Tunas	136	227	1.67
Skipjack tuna	7,568	13,730	1.81
Dogtooth tuna	153	306	2.00
Yellowfin tuna	1,434	2,938	2.05
Invertebrates	53	371	7.00
Lobster	32	160	5.00
** SUBTOTAL **	22,179	47,716	2.15
** TOTAL **	336,347	728,219	2.17

Figure III.1.1

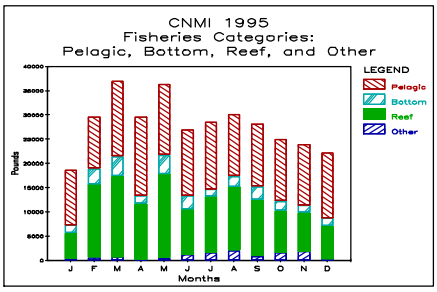


Figure III.1.2

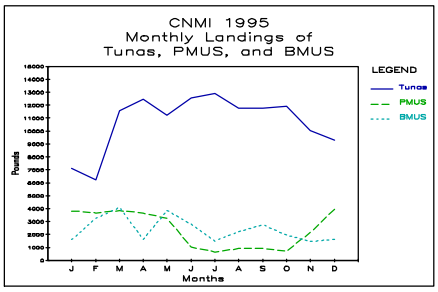


Figure III.1.3

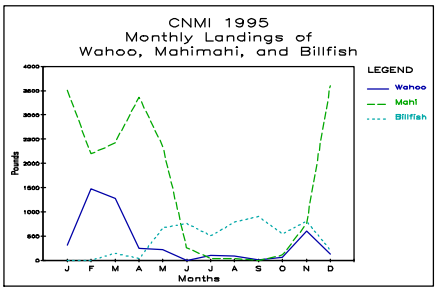


Figure III.1.4

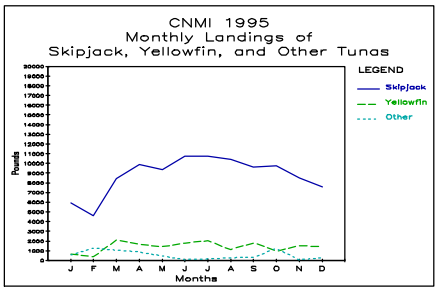


Figure III.2.1

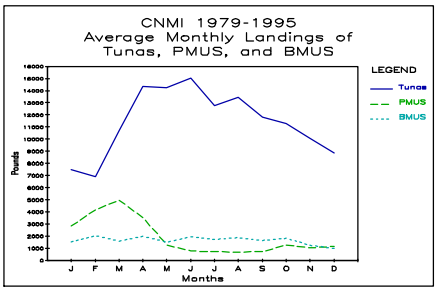
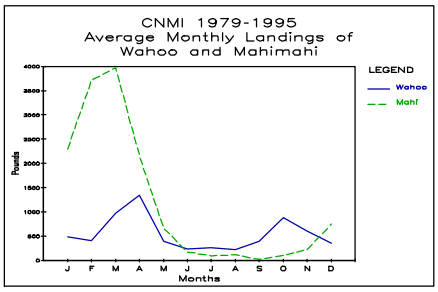


Figure III.2.2



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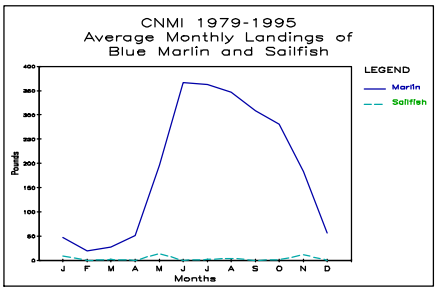

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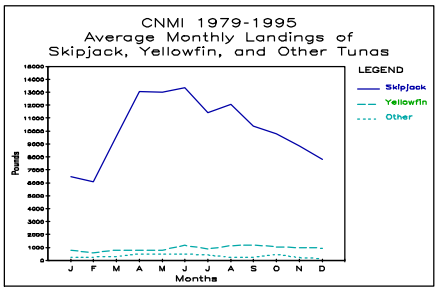

Figure III.2.5

Figure III.3.1

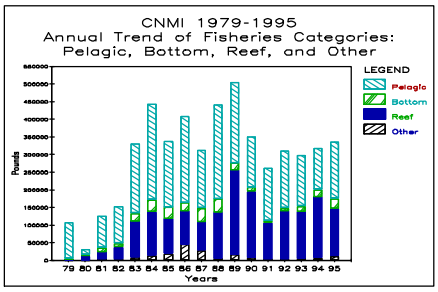

Figure III.3.2

Figure III.3.3

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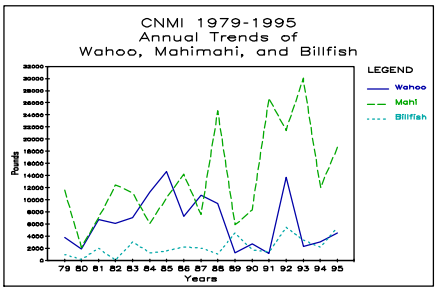

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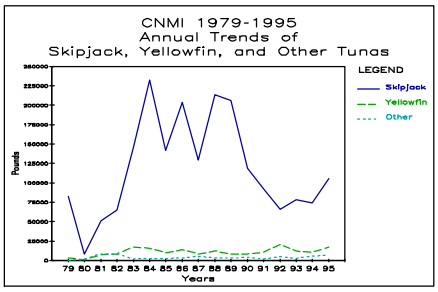

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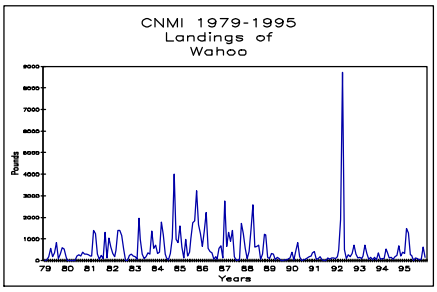

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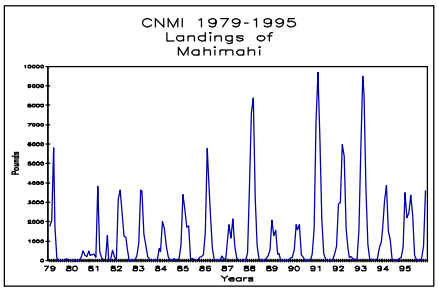

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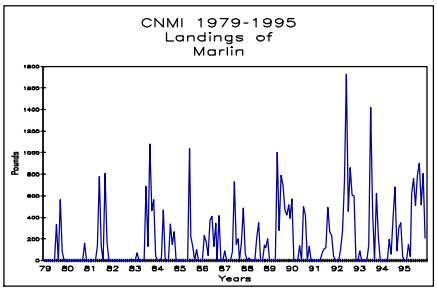

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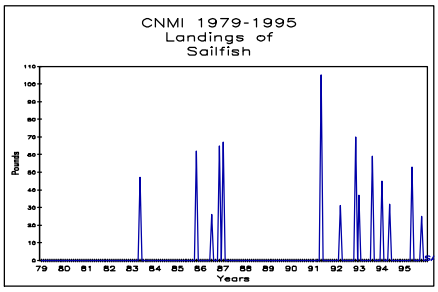

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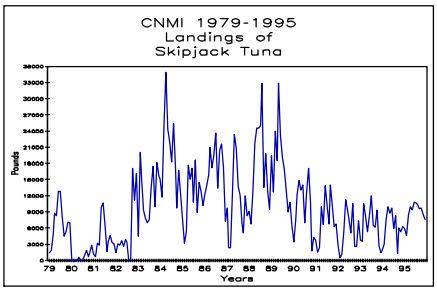

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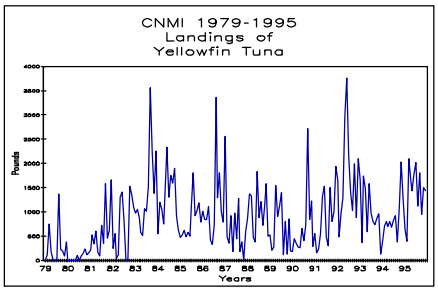

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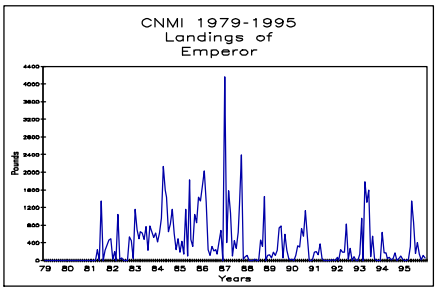

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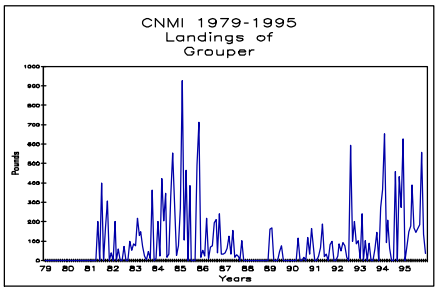

GUAM 1995 FISHERY STATISTICS

Compiled by

Guam Division of Aquatic and Wildlife Resources

and the

Western Pacific Fishery Information Network

March 1997

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IV.1

GUAM 1995 FISHERY STATISTICS

INTRODUCTION

The Territory of Guam (lat. 13.4° N and long. 144.4° E) is the southernmost, largest, and most populous island in the Mariana Archipelago. All of the islands in the chain north of Guam belong to the Commonwealth of the Northern Mariana Islands. Guam is located about 6,000 km (3,700 mi) west-southwest of Honolulu, 2,500 km (1,550 mi) south-southeast of Tokyo, and 2,600 km (1,600 mi) east of Manila. Guam is about 48 km (30 mi) long, varies from 6 to 14 km (4 to 9 mi) wide, and has an estimated land area of 554 km^2 (214 mi^2) and a population of about 133,000.

Fishing activities on Guam can be divided into two basic categories: offshore and inshore fishing. Offshore fishing typically involves small boat (12 to 48 feet), 1 to 2-day trolling and bottom fishing trips that usually originate from one of the three principal harbors located on the west coast and southern tip of the island. In recent years, the sportfishing charter boat industry has increased significantly. Inshore fishing is typically conducted without the use of a boat and consists mostly of nearshore casting, netting, and spearfishing. The Guam Department of Agriculture's Division of Aquatic and Wildlife Resources (DAWR) has been conducting offshore and inshore creel surveys since the early 1970's. Beginning in 1982, DAWR began modifying its data collecting and processing systems to improve estimates of catch and effort by improving sampling techniques and by incorporating the use of microcomputers to expand the survey data. The WPacFIN provided microcomputers and training and worked with DAWR staff and a contractor to redesign the sampling program. Summary statistics from the inshore and offshore creel survey sampling programs have 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 1995 are not available to include in this volume. Sampling has continued without interruption to maintain the continuity of the data base 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. The Guam Fishermen's Coop was established, via some government funding, in Agana in July 1979. The Coop subsequently became the central distribution center for fresh local fish. In 1982, WPacFIN began working with the Coop to improve their invoicing system and obtain data on all fish purchases. A cooperative system was established whereby the Coop would use the forms and coding schemes designed by WPacFIN and would supply copies

of all invoices to WPacFIN for entering into computer format. In return, WPacFIN would provide the Coop with document quality control and computer generated summary statistics. All purchase data back to July 1979 also were coded and computerized.

Data from two other fish wholesalers were collected beginning in 1983 and continued until early 1987 by which time both had left the business. One other major fish wholesaler and several other important retailers who make purchases directly from fishermen have begun operating since then, and are providing data to WPacFIN by using the invoices given to them through DAWR. A law is 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 provided with the consent of the participating dealers.

Data collected on commercial forms include

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

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

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 1995. 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)	Parrotfish
Giant wrasse	Snapper
Rabbitfish	Surgeonfish
Rudderfish	Unicornfish
Squirrelfish	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 1995 are believed to include approximately 60% of the actual commercial landings made on Guam during that year.

Table IV.1.1

Guam 1995 Commercial Landings

Species	Pounds	Value	$/lb
Bigeye scad (atulai)	325	957	2.94
Black jack	44	87	2.00
Jacks	701	1,394	1.99
Mullet	26	57	2.25
Sharks	139	77	0.55
Bottom fish	649	2,294	3.53
Deep bottom	23	92	4.00
Ehu (red snapper)	344	1,365	3.97
Gindai (flower snap)	1,292	5,033	3.90
Grouper	1,098	2,351	2.14
Kalikali (pink snap)	227	756	3.34
Lehi (silverjaw)	367	1,523	4.15
Onaga (red snapper)	651	3,219	4.95
Opakapaka (pink snp)	1,047	4,187	4.00
Uku (gray snapper)	262	517	1.97
Tagafi (red snapper)	130	358	2.75
Amberjack	362	850	2.35
Reef fish	2,284	6,627	2.90
Emperor (mafute)	853	2,419	2.84
Parrotfish	171	412	2.42
Snapper	242	475	1.96
Surgeonfish	31	93	3.00
Unicornfish	58	167	2.88
Troll fish	8	11	1.50
Barracuda	315	459	1.46
Dolphin (mahimahi)	95,587	112,368	1.18
Swordfish	22	17	0.75
Marlin	40,960	31,305	0.76
Spearfish	49	78	1.61
Sailfish	662	849	1.28
Rainbow runner	957	1,268	1.33
Wahoo	32,064	69,059	2.15
Skipjack tuna	30,551	30,835	1.01
Dogtooth tuna	1,808	3,064	1.69
Yellowfin tuna	30,791	73,342	2.38
Lobster	43	138	3.20
Octopus	6	19	3.00
Imported	1,785	8,291	4.65
** TOTAL **	246,926	366,412	1.48

Table IV.1.2

Guam January 1995 Commercial Landings

Species	Pounds	Value	$/lb
Gindai (flower snap)	29	102	3.50
Barracuda	16	23	1.51
Dolphin (mahimahi)	16,384	21,668	1.32
Marlin	962	1,051	1.09
Sailfish	74	147	1.99
Rainbow runner	24	54	2.31
Wahoo	3,285	8,731	2.66
Skipjack tuna	1,212	1,739	1.43
Dogtooth tuna	126	252	2.00
Yellowfin tuna	1,285	3,165	2.46
** SUBTOTAL **	23,395	36,932	1.58

Table IV.1.3

Guam February 1995 Commercial Landings

Species	Pounds	Value	$/lb
Jacks	43	85	2.00
Sharks	53	27	0.50
Bottom fish	37	148	4.00
Ehu (red snapper)	28	112	4.00
Gindai (flower snap)	20	78	4.00
Kalikali (pink snap)	7	25	3.50
Lehi (silverjaw)	144	576	4.00
Onaga (red snapper)	119	593	5.00
Opakapaka (pink snp)	192	769	4.01
Uku (gray snapper)	37	74	2.00
Amberjack	101	253	2.50
Reef fish	130	390	3.00
Emperor (mafute)	36	95	2.68
Unicornfish	36	108	3.00
Troll fish	8	11	1.50
Barracuda	74	103	1.40
Dolphin (mahimahi)	22,572	23,625	1.05
Marlin	533	408	0.76
Spearfish	21	37	1.75
Sailfish	74	110	1.50
Rainbow runner	4	5	1.25
Wahoo	4,574	10,224	2.24
Skipjack tuna	922	1,142	1.24
Dogtooth tuna	216	348	1.61
Yellowfin tuna	1,155	2,825	2.45
** SUBTOTAL **	31,132	42,169	1.35

Table IV.1.4

Guam March 1995 Commercial Landings

Species	Pounds	Value	$/lb
Sharks	5	10	2.00
Gindai (flower snap)	105	420	4.00
Onaga (red snapper)	51	255	5.00
Opakapaka (pink snp)	4	16	4.00
Reef fish	105	314	3.00
Dolphin (mahimahi)	23,530	23,516	1.00
Marlin	466	600	1.29
Sailfish	68	73	1.07
Rainbow runner	19	41	2.14
Wahoo	4,692	8,608	1.83
Skipjack tuna	2,810	3,361	1.20
Dogtooth tuna	169	220	1.30
Yellowfin tuna	2,239	5,532	2.47
** SUBTOTAL **	34,261	42,964	1.25

Table IV.1.5

Guam April 1995 Commercial Landings

Species	Pounds	Value	$/lb
Reef fish	202	606	3.00
Barracuda	4	6	1.50
Dolphin (mahimahi)	17,121	21,180	1.24
Marlin	435	521	1.20
Sailfish	99	131	1.32
Rainbow runner	35	52	1.50
Wahoo	3,436	7,729	2.25
Skipjack tuna	4,966	4,897	0.99
Dogtooth tuna	186	272	1.47
Yellowfin tuna	1,875	4,563	2.43
Octopus	6	19	3.00
Imported	1,703	8,012	4.70
** SUBTOTAL **	30,066	47,988	1.60

Table IV.1.6

Guam May 1995 Commercial Landings

Species	Pounds	Value	$/lb
Jacks	313	618	1.97
Sharks	81	41	0.50
Bottom fish	155	444	2.87
Gindai (flower snap)	39	154	4.00
Grouper	170	340	2.00
Kalikali (pink snap)	10	35	3.50
Lehi (silverjaw)	72	324	4.50
Opakapaka (pink snp)	302	1,208	4.00
Uku (gray snapper)	76	152	2.00
Amberjack	10	20	2.00
Reef fish	372	1,115	3.00
Emperor (mafute)	276	763	2.77
Barracuda	26	39	1.50
Dolphin (mahimahi)	8,730	9,971	1.14
Marlin	4,820	3,924	0.81
Spearfish	28	41	1.50
Sailfish	16	8	0.50
Rainbow runner	311	428	1.38
Wahoo	2,912	6,222	2.14
Skipjack tuna	6,254	5,503	0.88
Dogtooth tuna	236	445	1.89
Yellowfin tuna	4,135	10,312	2.49
** SUBTOTAL **	29,340	42,105	1.44

Table IV.1.7

Guam June 1995 Commercial Landings

Species	Pounds	Value	$/lb
Bigeye scad (atulai)	18	54	3.00
Jacks	152	303	2.00
Mullet	13	26	2.00
Bottom fish	32	115	3.66
Ehu (red snapper)	53	201	3.83
Gindai (flower snap)	77	308	4.00
Grouper	334	668	2.00
Kalikali (pink snap)	18	61	3.50
Lehi (silverjaw)	30	120	4.00
Onaga (red snapper)	166	805	4.85
Opakapaka (pink snp)	129	516	4.00
Uku (gray snapper)	48	78	1.63
Amberjack	14	27	2.00
Reef fish	29	71	2.50
Barracuda	9	12	1.37
Dolphin (mahimahi)	1,719	2,690	1.57
Swordfish	22	17	0.75
Marlin	6,056	3,713	0.61
Rainbow runner	226	228	1.01
Wahoo	647	1,396	2.16
Skipjack tuna	3,461	2,712	0.78
Dogtooth tuna	35	52	1.50
Yellowfin tuna	2,810	6,750	2.40
** SUBTOTAL **	16,092	20,922	1.30

Table IV.1.8

Guam July 1995 Commercial Landings

Species	Pounds	Value	$/lb
Bigeye scad (atulai)	41	122	3.00
Jacks	8	16	2.00
Bottom fish	36	80	2.22
Gindai (flower snap)	362	1,448	4.00
Grouper	243	500	2.06
Kalikali (pink snap)	20	70	3.50
Lehi (silverjaw)	11	53	5.00
Onaga (red snapper)	10	50	5.00
Opakapaka (pink snp)	45	178	4.00
Amberjack	27	53	2.00
Reef fish	512	1,520	2.97
Surgeonfish	31	93	3.00
Barracuda	13	20	1.50
Dolphin (mahimahi)	425	279	0.66
Marlin	8,549	4,932	0.58
Sailfish	90	90	1.00
Rainbow runner	127	151	1.19
Wahoo	880	1,968	2.24
Skipjack tuna	3,591	3,153	0.88
Dogtooth tuna	188	281	1.50
Yellowfin tuna	4,287	9,871	2.30
Lobster	23	58	2.51
Imported	82	279	3.42
** SUBTOTAL **	19,596	25,264	1.29

Table IV.1.9

Guam August 1995 Commercial Landings

Species	Pounds	Value	$/lb
Black jack	18	36	2.00
Jacks	107	214	2.00
Mullet	13	31	2.50
Bottom fish	237	946	4.00
Deep bottom	23	92	4.00
Ehu (red snapper)	180	718	4.00
Gindai (flower snap)	473	1,892	4.00
Grouper	316	778	2.46
Kalikali (pink snap)	108	342	3.18
Lehi (silverjaw)	21	90	4.40
Onaga (red snapper)	51	255	5.00
Opakapaka (pink snp)	53	212	4.00
Uku (gray snapper)	71	142	2.00
Tagafi (red snapper)	130	358	2.75
Amberjack	63	139	2.20
Reef fish	313	747	2.39
Emperor (mafute)	167	500	3.00
Parrotfish	39	117	3.00
Snapper	109	241	2.21
Marlin	4,288	3,319	0.77
Rainbow runner	39	53	1.38
Wahoo	832	2,072	2.49
Skipjack tuna	2,836	2,836	1.00
Dogtooth tuna	260	472	1.81
Yellowfin tuna	3,690	8,714	2.36
Lobster	20	80	4.00
** SUBTOTAL **	14,453	25,394	1.76

Table IV.1.10

Guam September 1995 Commercial Landings

Species	Pounds	Value	$/lb
Bigeye scad (atulai)	116	328	2.84
Black jack	11	21	2.00
Jacks	54	108	2.00
Bottom fish	33	130	4.00
Ehu (red snapper)	47	186	4.00
Gindai (flower snap)	55	183	3.32
Grouper	27	45	1.68
Kalikali (pink snap)	36	122	3.43
Lehi (silverjaw)	46	184	4.00
Onaga (red snapper)	217	1,074	4.96
Uku (gray snapper)	20	51	2.53
Amberjack	24	50	2.08
Reef fish	25	68	2.77
Emperor (mafute)	86	215	2.50
Snapper	123	209	1.70
Unicornfish	22	59	2.67
Barracuda	22	33	1.50
Dolphin (mahimahi)	70	168	2.41
Marlin	4,245	3,790	0.89
Sailfish	45	68	1.50
Rainbow runner	102	148	1.46
Wahoo	1,175	2,746	2.34
Skipjack tuna	1,892	1,846	0.98
Dogtooth tuna	142	252	1.78
Yellowfin tuna	3,552	7,709	2.17
** SUBTOTAL **	12,180	19,791	1.62

Table IV.1.11

Guam October 1995 Commercial Landings

Species	Pounds	Value	$/lb
Bigeye scad (atulai)	33	99	3.00
Black jack	15	30	2.00
Bottom fish	101	351	3.49
Ehu (red snapper)	24	96	4.00
Gindai (flower snap)	133	449	3.38
Kalikali (pink snap)	29	102	3.50
Lehi (silverjaw)	44	176	4.00
Onaga (red snapper)	38	188	5.00
Opakapaka (pink snp)	322	1,288	4.00
Amberjack	124	309	2.50
Reef fish	283	849	3.00
Emperor (mafute)	81	221	2.75
Parrotfish	82	163	2.00
Barracuda	30	44	1.50
Dolphin (mahimahi)	397	969	2.44
Marlin	7,504	6,184	0.82
Sailfish	121	110	0.91
Rainbow runner	17	25	1.50
Wahoo	2,566	5,867	2.29
Skipjack tuna	1,009	1,220	1.21
Dogtooth tuna	68	119	1.74
Yellowfin tuna	2,780	6,647	2.39
** SUBTOTAL **	15,797	25,505	1.61

Table IV.1.12

Guam November 1995 Commercial Landings

Species	Pounds	Value	$/lb
Bigeye scad (atulai)	75	225	3.00
Bottom fish	20	80	4.00
Ehu (red snapper)	13	52	4.00
Reef fish	316	948	3.00
Emperor (mafute)	135	404	3.00
Parrotfish	24	54	2.25
Snapper	10	25	2.50
Barracuda	36	49	1.37
Dolphin (mahimahi)	1,824	3,416	1.87
Marlin	1,502	1,550	1.03
Sailfish	51	77	1.50
Rainbow runner	24	36	1.50
Wahoo	3,365	6,726	2.00
Skipjack tuna	907	1,357	1.50
Dogtooth tuna	55	91	1.67
Yellowfin tuna	1,850	4,501	2.43
** SUBTOTAL **	10,204	19,588	1.92

Table IV.1.13

Guam December 1995 Commercial Landings

Species	Pounds	Value	$/lb
Bigeye scad (atulai)	43	129	3.00
Jacks	25	50	2.00
Grouper	8	20	2.50
Uku (gray snapper)	11	21	2.00
Emperor (mafute)	74	222	3.00
Parrotfish	26	78	3.00
Barracuda	87	131	1.50
Dolphin (mahimahi)	2,816	4,887	1.74
Marlin	1,603	1,313	0.82
Sailfish	24	36	1.50
Rainbow runner	32	47	1.50
Wahoo	3,702	6,772	1.83
Skipjack tuna	695	1,070	1.54
Dogtooth tuna	131	262	2.00
Yellowfin tuna	1,136	2,754	2.42
** SUBTOTAL **	10,411	17,791	1.71
** TOTAL **	246,926	366,412	1.48

Figure IV.1.1

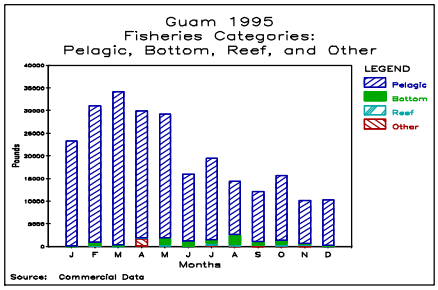

Guam 1995
Fisheries Categories:
Pelagic, Bottom, Reef, and Other
LEGEND
Pelagic
Bottom
Reef
Other
Pounds
40000
35000
30000
25000
20000
15000
10000
5000
0
J F M A M J J A S O N D
Months
Source: Commercial Data

Figure IV.1.2

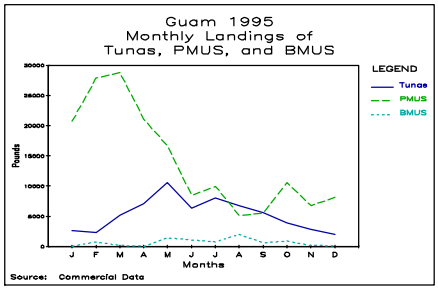

Guam 1995
Monthly Landings of
Tunas, PMUS, and BMUS
LEGEND
Tunas
PMUS
BMUS
Pounds
30000
25000
20000
15000
10000
5000
0
J F M A M J J A S O N D
Months
Source: Commercial Data

Figure IV.1.3

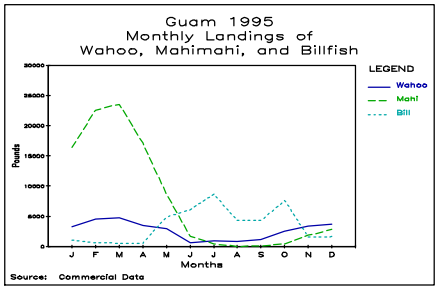

Guam 1995
Monthly Landings of
Wahoo, Mahimahi, and Billfish
LEGEND
Wahoo
Mahi
Bill
Pounds
Months
J F M A M J J A S O N D
Source: Commercial Data

Figure IV.1.4

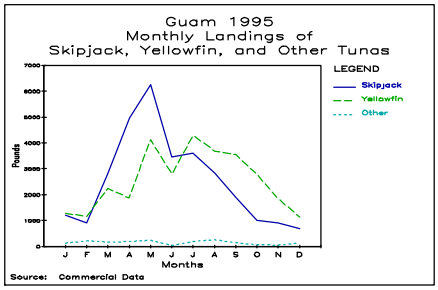

Guam 1995
Monthly Landings of
Skipjack, Yellowfin, and Other Tunas
LEGEND
Skipjack
Yellowfin
Other
Pounds
7000
6000
5000
4000
3000
2000
1000
0
J F M A M J J A S O N D
Months
Source: Commercial Data

Figure IV.2.1

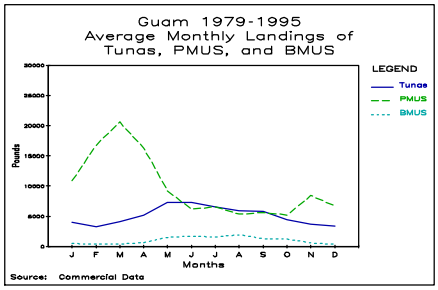

Guam 1979-1995
Average Monthly Landings of
Tunas, PMUS, and BMUS
LEGEND
Tunas
PMUS
BMUS
Pounds
30000
25000
20000
15000
10000
5000
0
J F M A M J J A S O N D
Months
Source: Commercial Data

Figure IV.2.2

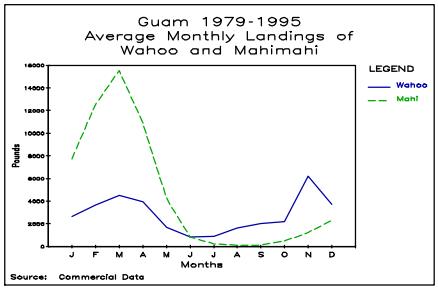

Guam 1979-1995
Average Monthly Landings of
Wahoo and Mahimahi
LEGEND
Wahoo
Mahi
Pounds
Months
J F M A M J J A S O N D
Source: Commercial Data

Figure IV.2.3

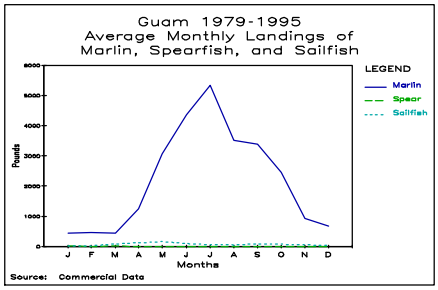

Guam 1979-1995
Average Monthly Landings of
Marlin, Spearfish, and Sailfish
LEGEND
Marlin
Spear
Sailfish
Pounds
6000
5000
4000
3000
2000
1000
0
J F M A M J J A S O N D
Months
Source: Commercial Data

Figure IV.2.4

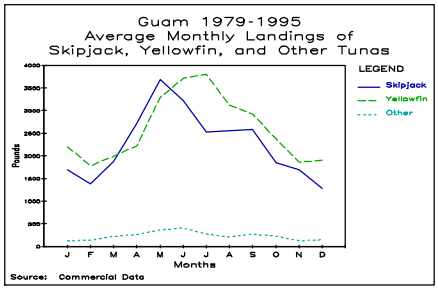

Guam 1979-1995
Average Monthly Landings of
Skipjack, Yellowfin, and Other Tunas
LEGEND
Skipjack
Yellowfin
Other
Pounds
4000
3500
3000
2500
2000
1500
1000
500
0
J F M A M J J A S O N D
Months
Source: Commercial Data

Figure IV.2.5

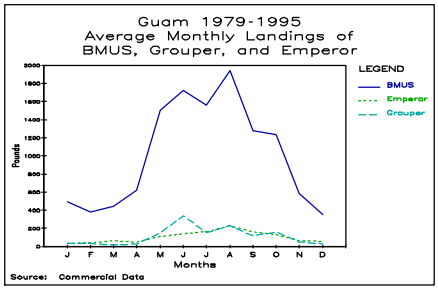

Guam 1979-1995
Average Monthly Landings of
BMUS, Grouper, and Emperor
LEGEND
BMUS
Emperor
Grouper
Pounds
2000
1800
1600
1400
1200
1000
800
600
400
200
0
J F M A M J J A S O N D
Months
Source: Commercial Data

Figure IV.3.1

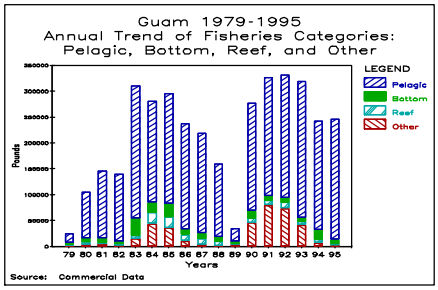

Guam 1979-1995
Annual Trend of Fisheries Categories:
Pelagic, Bottom, Reef, and Other
LEGEND
Pelagic
Bottom
Reef
Other
Pounds
350000
300000
250000
200000
150000
100000
50000
0
79 80 81 82 83 84 85 86 87 88 89 90 91 92 93 94 95
Years
Source: Commercial Data

Figure IV.3.2

Figure IV.3.3

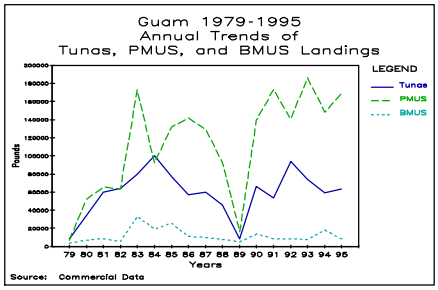

Guam 1979-1995
Annual Trends of
Tunas, PMUS, and BMUS Landings
LEGEND
Tunas
PMUS
BMUS
Pounds
200000
180000
160000
140000
120000
100000
80000
60000
40000
20000
0
79 80 81 82 83 84 85 86 87 88 89 90 91 92 93 94 95
Years
Source: Commercial Data

Figure IV.3.4

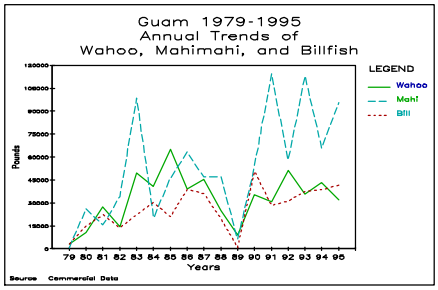

Guam 1979-1995
Annual Trends of
Wahoo, Mahimahi, and Billfish
LEGEND
Wahoo
Mahi
Bill
Pounds
Years
79 80 81 82 83 84 85 86 87 88 89 90 91 92 93 94 95
Source: Commercial Data

Figure IV.3.5

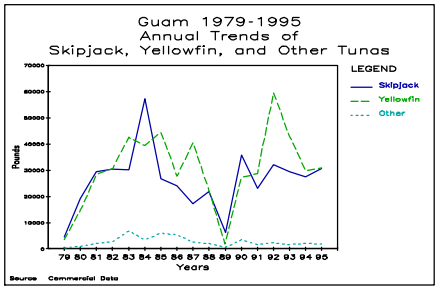

Guam 1979-1995
Annual Trends of
Skipjack, Yellowfin, and Other Tunas
LEGEND
Skipjack
Yellowfin
Other
Pounds
70000
60000
50000
40000
30000
20000
10000
0
79 80 81 82 83 84 85 86 87 88 89 90 91 92 93 94 95
Years
Source: Commercial Data

Figure IV.4.1

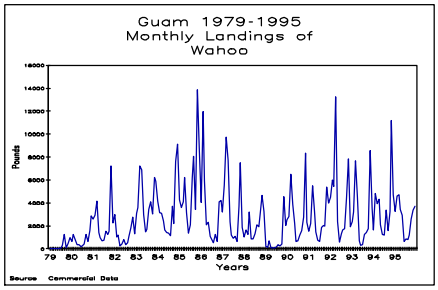

Guam 1979-1995
Monthly Landings of
Wahoo
Pounds
0
2000
4000
6000
8000
10000
12000
14000
16000
79 80 81 82 83 84 85 86 87 88 89 90 91 92 93 94 95
Years
Source: Commercial Data

Figure IV.4.2

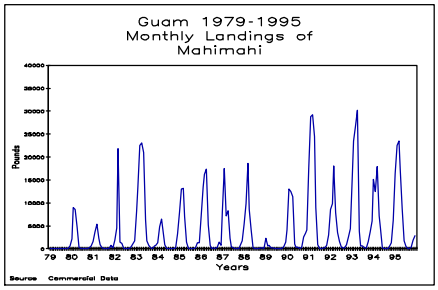

Guam 1979-1995
Monthly Landings of
Mahimahi
Pounds
40000
35000
30000
25000
20000
15000
10000
5000
0
79 80 81 82 83 84 85 86 87 88 89 90 91 92 93 94 95
Years
Source: Commercial Data

Figure IV.4.3

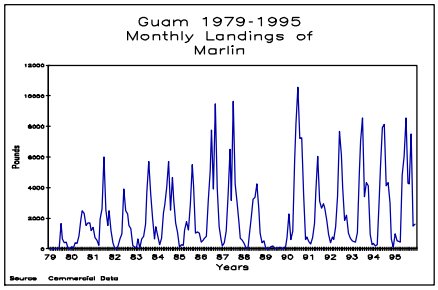

Guam 1979-1995
Monthly Landings of
Marlin
Pounds
12000
10000
8000
6000
4000
2000
0
79 80 81 82 83 84 85 86 87 88 89 90 91 92 93 94 95
Years
Source: Commercial Data

Figure IV.4.4

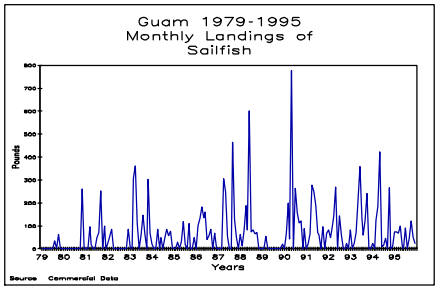

Guam 1979-1995
Monthly Landings of
Sailfish
Pounds
800
700
600
500
400
300
200
100
0
79 80 81 82 83 84 85 86 87 88 89 90 91 92 93 94 95
Years
Source: Commercial Data

Figure IV.4.5

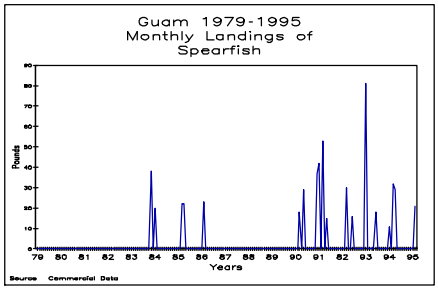

Guam 1979-1995
Monthly Landings of
Spearfish
Pounds
0
10
20
30
40
50
60
70
80
90
79 80 81 82 83 84 85 86 87 88 89 90 91 82 93 94 95
Years
Source: Commercial Data

Figure IV.4.6

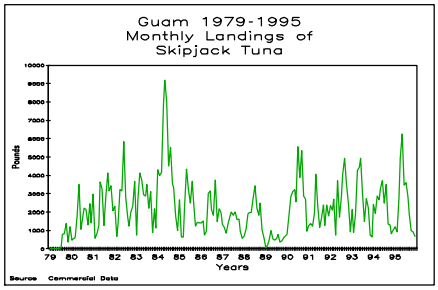

Guam 1979-1995
Monthly Landings of
Skipjack Tuna
Pounds
10000
9000
8000
7000
6000
5000
4000
3000
2000
1000
0
79 80 81 82 83 84 85 86 87 88 89 90 91 92 93 94 95
Years
Source: Commercial Data

Figure IV.4.7

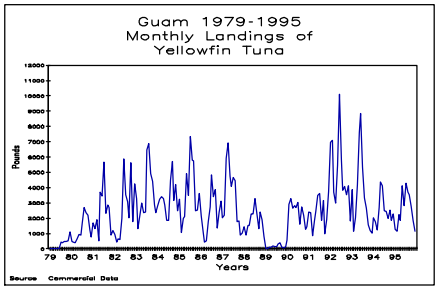

Guam 1979-1995
Monthly Landings of
Yellowfin Tuna
Pounds
Years
79 80 81 82 83 84 85 86 87 88 89 90 91 92 93 94 95
Source: Commercial Data

Figure IV.4.8

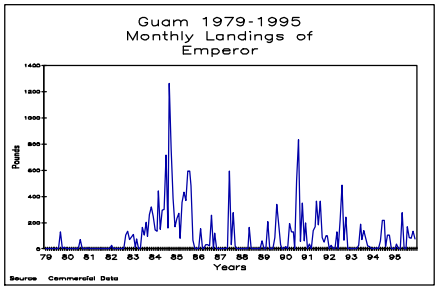
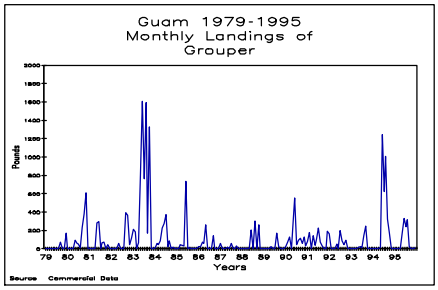

Guam 1979-1995
Monthly Landings of
Emperor
Pounds
1400
1200
1000
800
600
400
200
0
79 80 81 82 83 84 85 86 87 88 89 90 91 92 93 94 95
Years
Source: Commercial Data

Figure IV.4.9


Guam 1979-1995
Monthly Landings of
Grouper
Pounds
2000
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
Years
Source: Commercial Data

STATE OF HAWAII 1995 FISHERY STATISTICS

Compiled by

Division of Aquatic Resources

and the

Western Pacific Fishery Information Network

March 1997

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LIST OF HAWAII SUMMARY TABLES

LIST OF HAWAII FIGURES

LIST OF HAWAII FIGURES (cont.)

STATE OF HAWAII 1995 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 1995, over 78% of the State's recorded commercial catch was landed on Oahu, about 15% on Hawaii, 3% 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 over 40 years.

The fisheries of the State of Hawaii are quite diverse and vary from hand harvesting algae to large vessel fisheries, such as longlining and lobster fishing. The major fisheries include tuna fishing using several methods, 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 1995, there were about 3,600 licensed commercial fishermen required to submit monthly reports to DAR. Substantial subsistence and recreational fisheries, which are primarily small boat, one-day fisheries, also exist. Summary data provided in this document were created from licensed commercial fishermen reports processed by DAR as of May 1996, 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 including the C-4 Aku Catch Report for the pole-and-line or bait-boat fishery for skipjack tuna, the C-5 Flagline Catch Report for the longline fishery for tunas and other pelagic species, and the Pond Operator's Monthly Fish Report for operators of saltwater fish ponds. All of the forms request basic catch and revenue information by species, plus additional fishery-specific information such as effort and bait.

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

Some of the advantages of a mandatory fisherman-reporting system are its relative efficiency, low cost, the potential for excellent percent coverage, and the amount of information that can be collected directly from the fishermen. The major disadvantage is that it places the responsibility for accurate data recording and timely data submission on the fishermen. The assumption is made, therefore, that the data submitted by the fishermen are complete and accurate. The DAR is continuing its efforts to improve the quality of data and decrease the time delays in receiving and processing the data. No real measurement is available for what percent of the total commercial catch is actually reported to DAR, but estimates have ranged from about 10% to over 99%, depending on the species and fishery. The overall percent coverage was probably over 80% in 1995.

DATA PROCESSING SYSTEM

When the various data reporting forms are received by DAR, they undergo a series of coding and editing procedures before being sent out for keypunching. Forms that fail the initial editing by DAR staff are returned to the fishermen for correction and resubmission. Notices are sent to fishermen who fall more than a few months behind in the submission of their reports. Once the data are keypunched, computer generated reports are used

by DAR staff to verify and correct errors in the database. When the database is considered to be reasonably complete and error free, it is ready for production of a variety of summary catch reports.

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

DATA REPORTING SYSTEM

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

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

Four graphs of monthly landings are presented for 1995, and 26 trend and seasonality graphs, based on 1979-95 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 1995 Annual Commercial Landings

Species	Pounds	Value	$/lb
Miscellaneous	6,234	11,843	1.90
Sharks	81,029	79,290	0.98
Rays	30	47	1.55
Eels	1,081	1,341	1.24
Alfonsin	17	54	3.17
Bigeye scad (akule)	535,962	897,475	1.67
Mackerel scad	318,006	535,347	1.68
Leatherback	632	988	1.56
Ten pounder	1,175	1,363	1.16
Bonefish	7,368	7,966	1.08
Herring/sardine	12	10	0.85
Milkfish	1,584	2,303	1.45
Flying fish	1	2	1.80
Needlefish	385	368	0.96
Halfbeaks	26	65	2.50
Threadfin	425	2,226	5.24
Mullet	6,135	16,560	2.70
Pomfret	84,966	135,251	1.59
Snake mackerel	205	192	0.93
Jacks (misc)	46,822	94,343	2.01
Amberjack	521	672	1.29
Blue crevally	2,604	4,285	1.65
Pig-lipped ulua	51,716	89,401	1.73
Dobe ulua	85	164	1.93
Paapaa ulua	4,850	8,593	1.77
White ulua	7,378	9,178	1.24
Black ulua	1,072	1,866	1.74
Giant sea bass	68,276	210,816	3.09
Blue spot grouper	163	330	2.03
Snappers	3,542	10,388	2.93
Blue lined snapper	66,469	61,495	0.93
Ehu (red snapper)	37,276	149,972	4.02
Gindai (flower snapper)	6,334	19,041	3.01
Kalekale (pink snapper)	22,275	59,922	2.69
Lehi (silverjaw)	13,545	41,124	3.04
Onaga (red snapper)	121,166	622,570	5.14
Opakapaka (pink snapper)	267,517	1,030,691	3.85
Uku (gray snapper)	133,845	370,082	2.77
Porgy	2,981	7,144	2.40
Reef jacks	128	396	3.09
Squirrelfish	53,725	163,790	3.05
Trumpetfish	135	178	1.32
Scorpionfish	4,493	17,995	4.01
Mountain bass	6,008	14,327	2.38
Bigeyes	3,662	9,023	2.46

Table V.1.1 (Cont.)

Species	Pounds	Value	$/lb
Cardinalfish	52	90	1.74
Goatfish	49,245	147,547	3.00
Rudderfish	9,568	9,175	0.96
Damselfish	2,372	4,611	1.94
Hawkfish	839	1,569	1.87
Tilapia	8,383	7,885	0.94
Wrasse	6,774	19,019	2.81
Parrotfish	38,823	80,853	2.08
Surgeon/tangs	80,773	108,421	1.34
Flounders	80	100	1.25
Triggerfish	116	75	0.65
Filefish	325	418	1.29
Pufferfish	41	92	2.24
Rainbow runner	4,299	6,078	1.41
Mahimahi (dolphin)	876,279	1,716,150	1.96
Barracudas	24,427	25,458	1.04
Wahoo	574,438	1,253,291	2.18
Japanese mackerel	91	167	1.84
Tunas	22,031	223,694	10.15
Skipjack tuna	1,656,492	2,049,756	1.24
Yellowfin tuna	4,658,938	10,531,437	2.26
Albacore	2,783,208	2,732,489	0.98
Bigeye tuna	4,027,053	13,436,669	3.34
Kawakawa	9,714	10,402	1.07
Frigate tuna	331	546	1.65
Billfish	4,090	6,873	1.68
Broadbill swordfish	3,726,777	12,217,710	3.28
Blue marlin	1,253,039	1,010,362	0.81
Black marlin	43,548	118,389	2.72
Striped marlin	1,375,659	1,251,422	0.91
Shortnose spearfish	288,756	228,353	0.79
Sailfish	17,115	14,265	0.83
Ocean sunfish	28	3	0.10
Ocean moonfish	518,012	508,715	0.98
Spiny lobster	22,700	317,866	14.00
Slipper lobster	2,123	23,142	10.90
Crabs	36,264	155,741	4.29
Shrimp (freshwater)	430	2,145	4.99
Shrimp (saltwater)	63,777	318,150	4.99
Octopus	13,718	42,780	3.12
Squid	7,885	16,405	2.08
Limpets (saltwater)	11,011	49,792	4.52
Precious corals	5,912	122,765	20.77
Sea cucumbers	51	462	9.06
Algae	15,475	54,016	3.49
Surgeon/tangs	56	22	0.55
** TOTAL **	24,212,979	53,515,851	2.21

Table V.1.2

Hawaii 1995 Annual Commercial Landings (not sold)

Species	Pounds
Miscellaneous	509
Sharks	36,731
Rays	5
Eels	103
Bigeye scad (akule)	50,622
Mackerel scad	27,006
Leatherback	81
Ten pounder	59
Bonefish	306
Milkfish	16
Needlefish	62
Halfbeaks	330
Threadfin	127
Mullet	416
Pomfret	482
Snake mackerel	606
Jacks (misc)	7,328
Amberjack	15,071
Blue crevally	571
Pig-lipped ulua	315
Paapaa ulua	312
White ulua	501
Black ulua	77
Giant sea bass	1,140
Blue spot grouper	109
Snappers	136
Blue lined snapper	4,550
Ehu (red snapper)	2,530
Gindai (flower snapper)	329
Kalekale (pink snapper)	2,624
Lehi (silverjaw)	944
Onaga (red snapper)	3,858
Opakapaka (pink snapper)	9,475
Uku (gray snapper)	2,610
Porgy	68
Reef jacks	57
Squirrelfish	3,850
Scorpionfish	456
Mountain bass	694
Bigeyes	370
Cardinalfish	2
Goatfish	6,617
Rudderfish	511
Damselfish	28
Hawkfish	26

Table V.1.2 (Cont.)

Species	Pounds
Tilapia	368
Wrasse	1,032
Parrotfish	2,204
Surgeon/tangs	7,096
Triggerfish	70
Filefish	15
Rainbow runner	640
Mahimahi (dolphin)	66,328
Barracudas	1,867
Wahoo	57,730
Tunas	158
Skipjack tuna	84,266
Yellowfin tuna	171,872
Albacore	141,696
Bigeye tuna	38,603
Kawakawa	4,369
Frigate tuna	208
Broadbill swordfish	31,611
Blue marlin	135,863
Black marlin	1,409
Striped marlin	50,370
Shortnose spearfish	17,279
Sailfish	1,004
Ocean sunfish	18
Ocean moonfish	618
Spiny lobster	1,355
Slipper lobster	214
Crabs	5,851
Shrimp (freshwater)	5
Shrimp (saltwater)	6,960
Octopus	6,202
Squid	1,818
Limpets (saltwater)	2,073
Precious corals	105
Algae	707
** TOTAL **	1,024,604

Table V.1.3

Hawaii January 1995 Commercial Landings

Species	Pounds	Value	$/lb
Miscellaneous	775	2,000	2.58
Sharks	6,586	6,446	0.98
Eels	167	202	1.21
Bigeye scad (akule)	75,407	114,197	1.51
Mackerel scad	13,590	26,747	1.97
Leatherback	60	112	1.86
Ten pounder	17	19	1.13
Bonefish	414	448	1.08
Milkfish	269	471	1.75
Needlefish	33	33	1.01
Threadfin	50	276	5.53
Mullet	72	190	2.63
Pomfret	5,732	9,976	1.74
Snake mackerel	27	14	0.50
Jacks (misc)	4,393	8,050	1.83
Amberjack	286	379	1.33
Blue crevally	384	568	1.48
Pig-lipped ulua	8,018	16,399	2.05
Paapaa ulua	536	1,036	1.93
White ulua	1,312	2,259	1.72
Black ulua	31	60	1.95
Giant sea bass	5,239	21,257	4.06
Blue spot grouper	6	15	2.50
Snappers	157	429	2.73
Blue lined snapper	4,770	4,117	0.86
Ehu (red snapper)	4,552	15,677	3.44
Gindai (flower snapper)	618	1,795	2.91
Kalekale (pink snapper)	2,326	5,528	2.38
Lehi (silverjaw)	2,457	6,999	2.85
Onaga (red snapper)	15,678	68,650	4.38
Opakapaka (pink snapper)	46,575	168,512	3.62
Uku (gray snapper)	17,027	45,151	2.65
Porgy	127	331	2.60
Squirrelfish	2,727	8,521	3.12
Trumpetfish	18	20	1.13
Scorpionfish	366	1,454	3.97
Mountain bass	293	873	2.98
Bigeyes	376	762	2.03
Goatfish	5,473	18,033	3.29
Rudderfish	527	692	1.31
Damselfish	50	77	1.54
Hawkfish	62	120	1.94

Table V.1.3 (Cont.)

Species	Pounds	Value	$/lb
Tilapia	131	357	2.72
Wrasse	879	3,620	4.12
Parrotfish	4,410	9,128	2.07
Surgeon/tangs	6,535	8,695	1.33
Triggerfish	11	16	1.43
Filefish	24	46	1.90
Rainbow runner	374	613	1.64
Mahimahi (dolphin)	69,250	90,110	1.30
Barracudas	591	654	1.11
Wahoo	10,154	33,654	3.31
Tunas	368	2,495	6.78
Skipjack tuna	104,803	99,806	0.95
Yellowfin tuna	277,436	624,648	2.25
Albacore	56,987	80,388	1.41
Bigeye tuna	415,868	1,551,870	3.73
Kawakawa	2,600	2,628	1.01
Frigate tuna	225	374	1.66
Broadbill swordfish	286,193	988,901	3.46
Blue marlin	11,958	12,558	1.05
Black marlin	388	1,513	3.90
Striped marlin	61,411	97,696	1.59
Shortnose spearfish	56,030	32,383	0.58
Sailfish	2,779	1,767	0.64
Ocean sunfish	9	1	0.10
Ocean moonfish	31,119	45,793	1.47
Spiny lobster	325	2,591	7.97
Slipper lobster	7	39	5.54
Crabs	2,445	10,765	4.40
Shrimp (freshwater)	45	225	5.00
Shrimp (saltwater)	644	3,800	5.90
Octopus	256	708	2.76
Limpets (saltwater)	1,159	5,303	4.58
Precious corals	315	6,300	20.00
Algae	2,567	8,236	3.21
** SUBTOTAL **	1,635,879	4,286,572	2.62

Table V.1.4

Hawaii February 1995 Commercial Landings

Species	Pounds	Value	$/lb
Miscellaneous	692	1,165	1.68
Sharks	8,114	8,825	1.09
Eels	68	103	1.52
Bigeye scad (akule)	37,125	67,393	1.82
Mackerel scad	9,595	19,490	2.03
Leatherback	33	59	1.80
Ten pounder	141	158	1.12
Bonefish	394	585	1.48
Herring/sardine	8	9	1.06
Milkfish	241	403	1.67
Needlefish	36	40	1.12
Halfbeaks	12	30	2.50
Threadfin	45	165	3.68
Mullet	187	489	2.61
Pomfret	8,624	15,535	1.80
Jacks (misc)	3,383	7,042	2.08
Amberjack	57	85	1.50
Blue crevally	238	345	1.45
Pig-lipped ulua	5,203	10,351	1.99
Dobe ulua	67	117	1.75
Paapaa ulua	791	1,531	1.94
White ulua	105	156	1.49
Black ulua	23	53	2.30
Giant sea bass	8,003	21,466	2.68
Blue spot grouper	1	5	5.00
Snappers	399	1,011	2.54
Blue lined snapper	5,966	5,483	0.92
Ehu (red snapper)	4,031	13,610	3.38
Gindai (flower snapper)	495	1,371	2.77
Kalekale (pink snapper)	2,424	6,348	2.62
Lehi (silverjaw)	2,896	8,951	3.09
Onaga (red snapper)	15,079	73,226	4.86
Opakapaka (pink snapper)	38,591	133,477	3.46
Uku (gray snapper)	12,026	35,179	2.93
Porgy	191	517	2.71
Squirrelfish	2,845	9,430	3.31
Trumpetfish	9	10	1.06
Scorpionfish	493	1,903	3.86
Mountain bass	513	1,178	2.30
Bigeyes	395	1,029	2.60
Cardinalfish	2	3	1.25
Goatfish	5,613	17,236	3.07

Table V.1.4 (Cont.)

Species	Pounds	Value	$/lb
Rudderfish	560	637	1.14
Damselfish	140	293	2.09
Hawkfish	105	208	1.98
Tilapia	151	321	2.12
Wrasse	689	1,386	2.01
Parrotfish	4,964	10,457	2.11
Surgeon/tangs	7,358	9,489	1.29
Flounders	4	4	1.10
Triggerfish	7	1	0.09
Filefish	49	84	1.71
Pufferfish	41	92	2.24
Rainbow runner	295	420	1.42
Mahimahi (dolphin)	79,851	137,090	1.72
Barracudas	1,693	2,241	1.32
Wahoo	32,370	86,024	2.66
Tunas	1,631	9,583	5.88
Skipjack tuna	78,938	96,398	1.22
Yellowfin tuna	254,864	618,760	2.43
Albacore	49,609	89,740	1.81
Bigeye tuna	468,795	1,775,094	3.79
Kawakawa	1,148	1,428	1.24
Frigate tuna	67	109	1.63
Broadbill swordfish	310,488	1,117,476	3.60
Blue marlin	14,660	22,544	1.54
Striped marlin	66,040	126,066	1.91
Shortnose spearfish	51,363	54,507	1.06
Sailfish	3,397	3,234	0.95
Ocean sunfish	19	2	0.10
Ocean moonfish	41,303	62,242	1.51
Spiny lobster	157	978	6.23
Slipper lobster	15	104	6.93
Crabs	1,894	8,426	4.45
Shrimp (freshwater)	25	125	5.00
Shrimp (saltwater)	563	2,762	4.90
Octopus	741	2,199	2.97
Squid	14	24	1.70
Limpets (saltwater)	1,042	4,699	4.51
Precious corals	540	10,800	20.00
Algae	2,402	7,653	3.19
** SUBTOTAL **	1,653,146	4,729,262	2.86

Table V.1.5

Hawaii March 1995 Commercial Landings

Species	Pounds	Value	$/lb
Miscellaneous	287	481	1.68
Sharks	10,594	11,488	1.08
Eels	147	220	1.50
Bigeye scad (akule)	90,395	146,260	1.62
Mackerel scad	12,215	24,026	1.97
Leatherback	43	67	1.55
Ten pounder	310	365	1.18
Bonefish	131	150	1.14
Herring/sardine	4	2	0.44
Milkfish	75	116	1.54
Needlefish	34	39	1.14
Threadfin	103	497	4.83
Mullet	1,111	2,950	2.66
Pomfret	8,846	14,772	1.67
Snake mackerel	30	30	1.00
Jacks (misc)	2,490	4,461	1.79
Amberjack	38	30	0.79
Blue crevally	196	313	1.60
Pig-lipped ulua	8,933	14,031	1.57
Paapaa ulua	832	1,644	1.98
White ulua	1,487	1,612	1.08
Black ulua	72	153	2.12
Giant sea bass	4,881	15,313	3.14
Snappers	359	1,024	2.85
Blue lined snapper	9,634	9,170	0.95
Ehu (red snapper)	2,984	12,127	4.06
Gindai (flower snapper)	633	1,923	3.04
Kalekale (pink snapper)	2,245	5,606	2.50
Lehi (silverjaw)	1,458	4,426	3.04
Onaga (red snapper)	11,945	45,684	3.82
Opakapaka (pink snapper)	27,628	89,977	3.26
Uku (gray snapper)	9,457	23,790	2.52
Porgy	139	368	2.65
Reef jacks	44	143	3.25
Squirrelfish	3,143	10,338	3.29
Trumpetfish	61	94	1.54
Scorpionfish	439	1,674	3.81
Mountain bass	1,658	2,968	1.79
Bigeyes	290	694	2.39
Goatfish	5,070	12,148	2.40
Rudderfish	1,143	1,060	0.93
Damselfish	168	301	1.79

Table V.1.5 (Cont.)

Species	Pounds	Value	$/lb
Hawkfish	79	121	1.53
Tilapia	91	273	3.00
Wrasse	471	1,318	2.80
Parrotfish	3,754	7,941	2.12
Surgeon/tangs	4,963	6,721	1.35
Triggerfish	1	1	1.00
Filefish	39	73	1.87
Rainbow runner	142	223	1.57
Mahimahi (dolphin)	131,859	204,856	1.55
Barracudas	2,204	2,491	1.13
Wahoo	62,122	139,857	2.25
Tunas	1,730	29,904	17.29
Skipjack tuna	57,615	77,461	1.34
Yellowfin tuna	402,336	1,092,872	2.72
Albacore	93,392	145,868	1.56
Bigeye tuna	452,154	1,808,449	4.00
Kawakawa	1,748	1,639	0.94
Frigate tuna	3	3	1.05
Broadbill swordfish	539,016	1,880,176	3.49
Blue marlin	34,645	44,372	1.28
Black marlin	586	263	0.45
Striped marlin	81,944	141,245	1.72
Shortnose spearfish	36,555	35,984	0.98
Sailfish	3,110	3,361	1.08
Ocean moonfish	34,637	48,750	1.41
Spiny lobster	434	3,166	7.29
Slipper lobster	86	615	7.15
Crabs	1,936	8,325	4.30
Shrimp (freshwater)	20	100	5.00
Shrimp (saltwater)	2,678	16,159	6.03
Octopus	653	1,855	2.84
Limpets (saltwater)	488	2,261	4.63
Precious corals	1,305	26,100	20.00
Sea cucumbers	26	208	8.00
Algae	2,822	6,681	2.37
** SUBTOTAL **	2,177,396	6,202,227	2.85

Table V.1.6

Hawaii April 1995 Commercial Landings

Species	Pounds	Value	$/lb
Miscellaneous	188	145	0.77
Sharks	3,542	4,427	1.25
Eels	179	197	1.10
Bigeye scad (akule)	50,197	90,090	1.79
Mackerel scad	15,061	31,849	2.11
Leatherback	49	48	0.99
Ten pounder	115	136	1.18
Bonefish	74	111	1.51
Milkfish	241	391	1.62
Flying fish	1	2	1.80
Needlefish	3	3	1.00
Threadfin	42	172	4.09
Mullet	227	572	2.52
Pomfret	9,573	13,818	1.44
Snake mackerel	148	148	1.00
Jacks (misc)	2,130	3,532	1.66
Amberjack	61	45	0.73
Blue crevally	142	260	1.83
Pig-lipped ulua	3,797	5,983	1.58
Paapaa ulua	768	1,141	1.49
White ulua	94	113	1.20
Black ulua	134	254	1.90
Giant sea bass	8,045	19,158	2.38
Blue spot grouper	14	21	1.50
Snappers	228	687	3.01
Blue lined snapper	5,765	5,318	0.92
Ehu (red snapper)	2,684	11,519	4.29
Gindai (flower snapper)	392	1,491	3.80
Kalekale (pink snapper)	1,255	4,462	3.56
Lehi (silverjaw)	749	2,282	3.05
Onaga (red snapper)	6,310	31,917	5.06
Opakapaka (pink snapper)	22,824	100,938	4.42
Uku (gray snapper)	10,675	33,904	3.18
Porgy	189	433	2.29
Squirrelfish	3,459	10,986	3.18
Trumpetfish	31	31	1.00
Scorpionfish	336	1,445	4.30
Mountain bass	351	794	2.26
Bigeyes	316	702	2.22
Cardinalfish	12	36	3.00
Goatfish	4,398	11,694	2.66
Rudderfish	362	424	1.17

Table V.1.6 (Cont.)

Species	Pounds	Value	$/lb
Damselfish	260	463	1.78
Hawkfish	83	158	1.91
Tilapia	113	339	3.00
Wrasse	318	640	2.01
Parrotfish	3,285	6,885	2.10
Surgeon/tangs	7,624	10,232	1.34
Flounders	5	6	1.25
Triggerfish	12	18	1.50
Filefish	59	115	1.94
Rainbow runner	64	116	1.82
Mahimahi (dolphin)	134,249	225,275	1.68
Barracudas	2,653	2,737	1.03
Wahoo	82,639	166,156	2.01
Tunas	538	7,796	14.49
Skipjack tuna	95,301	143,581	1.51
Yellowfin tuna	273,093	762,236	2.79
Albacore	111,183	182,756	1.64
Bigeye tuna	319,208	1,116,973	3.50
Kawakawa	386	494	1.28
Frigate tuna	1	2	2.45
Broadbill swordfish	604,543	1,799,934	2.98
Blue marlin	67,338	80,045	1.19
Black marlin	2,335	3,667	1.57
Striped marlin	80,068	121,364	1.52
Shortnose spearfish	12,573	14,104	1.12
Sailfish	526	690	1.31
Ocean moonfish	22,030	31,690	1.44
Spiny lobster	292	2,353	8.06
Slipper lobster	31	206	6.64
Crabs	5,339	22,738	4.26
Shrimp (freshwater)	30	150	5.00
Shrimp (saltwater)	1,407	7,389	5.25
Octopus	802	3,513	4.38
Squid	185	231	1.25
Limpets (saltwater)	867	3,803	4.39
Precious corals	950	19,000	20.00
Sea cucumbers	3	26	8.67
Algae	2,756	7,535	2.73
** SUBTOTAL **	1,988,310	5,137,096	2.58

Table V.1.7

Hawaii May 1995 Commercial Landings

Species	Pounds	Value	$/lb
Miscellaneous	423	1,313	3.10
Sharks	12,053	18,013	1.49
Eels	191	184	0.96
Alfonsin	9	28	3.10
Bigeye scad (akule)	88,412	139,523	1.58
Mackerel scad	19,531	41,768	2.14
Leatherback	26	27	1.04
Ten pounder	141	189	1.34
Bonefish	475	455	0.96
Milkfish	106	165	1.56
Needlefish	3	3	1.00
Threadfin	68	390	5.74
Mullet	1,097	2,918	2.66
Pomfret	12,277	16,035	1.31
Jacks (misc)	2,401	3,726	1.55
Amberjack	4	6	1.50
Blue crevally	399	516	1.29
Pig-lipped ulua	1,978	2,863	1.45
Dobe ulua	17	45	2.62
Paapaa ulua	184	324	1.76
White ulua	286	236	0.83
Black ulua	162	236	1.45
Giant sea bass	4,162	14,298	3.44
Blue spot grouper	9	21	2.35
Snappers	818	2,789	3.41
Blue lined snapper	4,385	3,906	0.89
Ehu (red snapper)	2,192	9,762	4.45
Gindai (flower snapper)	510	1,445	2.83
Kalekale (pink snapper)	712	2,089	2.93
Lehi (silverjaw)	420	1,308	3.11
Onaga (red snapper)	6,899	43,798	6.35
Opakapaka (pink snapper)	17,471	71,582	4.10
Uku (gray snapper)	21,165	56,514	2.67
Porgy	241	393	1.63
Squirrelfish	4,170	13,578	3.26
Trumpetfish	2	3	1.50
Scorpionfish	378	1,501	3.97
Mountain bass	410	971	2.37
Bigeyes	512	1,338	2.61
Goatfish	3,707	10,807	2.92
Rudderfish	427	484	1.13
Damselfish	320	641	2.00

Table V.1.7 (Cont.)

Species	Pounds	Value	$/lb
Hawkfish	87	159	1.83
Tilapia	128	369	2.88
Wrasse	341	798	2.34
Parrotfish	2,906	6,127	2.11
Surgeon/tangs	7,802	10,272	1.32
Triggerfish	22	24	1.09
Filefish	50	39	0.79
Rainbow runner	150	373	2.48
Mahimahi (dolphin)	93,008	165,031	1.77
Barracudas	2,631	1,787	0.68
Wahoo	79,924	131,357	1.64
Tunas	4,094	11,547	2.82
Skipjack tuna	157,023	195,257	1.24
Yellowfin tuna	355,331	729,677	2.05
Albacore	111,977	106,845	0.95
Bigeye tuna	439,279	1,291,514	2.94
Kawakawa	1,234	888	0.72
Broadbill swordfish	523,167	1,553,750	2.97
Blue marlin	111,079	91,390	0.82
Black marlin	3,587	3,394	0.95
Striped marlin	156,601	137,657	0.88
Shortnose spearfish	27,786	19,135	0.69
Sailfish	635	560	0.88
Ocean moonfish	69,120	51,076	0.74
Crabs	163	789	4.84
Shrimp (freshwater)	40	200	5.00
Shrimp (saltwater)	3,080	15,340	4.98
Octopus	469	1,418	3.02
Squid	220	694	3.15
Limpets (saltwater)	1,550	6,779	4.37
Algae	1,991	6,320	3.17
** SUBTOTAL **	2,364,628	5,006,757	2.12

Table V.1.8

Hawaii June 1995 Commercial Landings

Species	Pounds	Value	$/lb
Miscellaneous	774	2,517	3.25
Sharks	5,085	3,978	0.78
Eels	99	94	0.95
Bigeye scad (akule)	83,470	130,530	1.56
Mackerel scad	14,666	31,417	2.14
Leatherback	17	23	1.32
Ten pounder	20	20	0.98
Bonefish	266	305	1.15
Milkfish	26	39	1.50
Needlefish	11	16	1.43
Threadfin	2	12	6.00
Mullet	212	468	2.21
Pomfret	6,725	8,373	1.24
Jacks (misc)	5,182	11,493	2.22
Amberjack	22	33	1.50
Blue crevally	280	479	1.71
Pig-lipped ulua	7,622	9,977	1.31
Paapaa ulua	574	938	1.63
White ulua	777	728	0.94
Black ulua	83	123	1.48
Giant sea bass	6,205	20,520	3.31
Blue spot grouper	36	71	1.97
Snappers	289	1,049	3.63
Blue lined snapper	3,764	3,287	0.87
Ehu (red snapper)	3,137	11,296	3.60
Gindai (flower snapper)	1,000	2,130	2.13
Kalekale (pink snapper)	1,504	4,643	3.09
Lehi (silverjaw)	293	823	2.81
Onaga (red snapper)	4,589	29,660	6.46
Opakapaka (pink snapper)	10,345	44,862	4.34
Uku (gray snapper)	21,590	42,168	1.95
Porgy	305	694	2.28
Reef jacks	8	24	3.00
Squirrelfish	5,034	15,912	3.16
Scorpionfish	404	1,710	4.23
Mountain bass	891	2,401	2.69
Bigeyes	354	1,078	3.05
Cardinalfish	6	9	1.50
Goatfish	3,514	11,603	3.30
Rudderfish	1,081	653	0.60
Damselfish	259	486	1.87
Hawkfish	77	150	1.95

Table V.1.8 (Cont.)

Species	Pounds	Value	$/lb
Tilapia	58	174	3.00
Wrasse	319	426	1.34
Parrotfish	2,934	6,161	2.10
Surgeon/tangs	5,861	7,381	1.26
Flounders	7	11	1.54
Triggerfish	5	1	0.15
Filefish	21	34	1.60
Rainbow runner	221	314	1.42
Mahimahi (dolphin)	47,588	112,215	2.36
Barracudas	3,744	2,792	0.75
Wahoo	70,803	127,826	1.81
Tunas	535	407	0.76
Skipjack tuna	184,398	160,696	0.87
Yellowfin tuna	600,211	1,191,472	1.99
Albacore	830,651	674,045	0.81
Bigeye tuna	268,658	667,311	2.48
Kawakawa	404	453	1.12
Billfish	670	2,156	3.22
Broadbill swordfish	477,875	1,717,731	3.59
Blue marlin	153,909	107,967	0.70
Black marlin	2,716	1,926	0.71
Striped marlin	152,300	99,319	0.65
Shortnose spearfish	28,491	18,053	0.63
Sailfish	796	368	0.46
Ocean moonfish	51,677	35,046	0.68
Crabs	1,353	5,246	3.88
Shrimp (freshwater)	25	150	6.00
Shrimp (saltwater)	6,407	32,604	5.09
Octopus	482	1,476	3.06
Squid	259	997	3.85
Limpets (saltwater)	1,343	6,664	4.96
Precious corals	360	7,200	20.00
Algae	415	2,458	5.92
** SUBTOTAL **	3,086,094	5,387,866	1.75

Table V.1.9

Hawaii July 1995 Commercial Landings

Species	Pounds	Value	$/lb
Miscellaneous	308	642	2.08
Sharks	3,001	2,745	0.91
Eels	26	25	0.95
Bigeye scad (akule)	20,014	40,724	2.03
Mackerel scad	15,020	32,547	2.17
Leatherback	14	19	1.33
Ten pounder	78	92	1.18
Bonefish	2,427	2,481	1.02
Milkfish	42	53	1.26
Mullet	149	384	2.57
Pomfret	4,459	7,471	1.68
Jacks (misc)	7,146	16,901	2.37
Blue crevally	269	703	2.62
Pig-lipped ulua	3,261	4,322	1.33
Paapaa ulua	165	203	1.23
White ulua	277	492	1.78
Giant sea bass	3,748	12,971	3.46
Blue spot grouper	23	37	1.60
Snappers	138	400	2.90
Blue lined snapper	6,300	5,798	0.92
Ehu (red snapper)	1,858	8,323	4.48
Gindai (flower snapper)	224	804	3.59
Kalekale (pink snapper)	819	3,079	3.76
Lehi (silverjaw)	354	1,117	3.16
Onaga (red snapper)	5,632	34,824	6.18
Opakapaka (pink snapper)	14,142	60,714	4.29
Uku (gray snapper)	9,979	28,060	2.81
Porgy	268	606	2.26
Reef jacks	8	25	3.13
Squirrelfish	5,007	14,980	2.99
Trumpetfish	7	14	2.00
Scorpionfish	241	921	3.82
Mountain bass	433	1,380	3.19
Bigeyes	157	414	2.64
Cardinalfish	19	31	1.64
Goatfish	2,751	8,732	3.17
Rudderfish	1,326	1,099	0.83
Damselfish	115	193	1.68
Hawkfish	50	92	1.84
Tilapia	126	551	4.38
Wrasse	420	1,183	2.82
Parrotfish	1,564	3,570	2.28

Table V.1.9 (Cont.)

Species	Pounds	Value	$/lb
Surgeon/tangs	6,121	7,797	1.27
Flounders	14	17	1.24
Triggerfish	2	0	0.23
Filefish	10	5	0.50
Rainbow runner	66	76	1.15
Mahimahi (dolphin)	41,225	111,942	2.72
Barracudas	3,466	2,177	0.63
Wahoo	51,179	100,127	1.96
Tunas	583	1,081	1.85
Skipjack tuna	187,320	226,719	1.21
Yellowfin tuna	818,474	1,609,807	1.97
Albacore	443,411	373,485	0.84
Bigeye tuna	98,872	218,523	2.21
Kawakawa	170	140	0.83
Broadbill swordfish	321,448	1,125,745	3.50
Blue marlin	211,051	140,736	0.67
Black marlin	1,600	1,425	0.89
Striped marlin	41,825	36,722	0.88
Shortnose spearfish	11,464	11,577	1.01
Sailfish	473	354	0.75
Ocean moonfish	29,478	29,557	1.00
Crabs	2,895	10,979	3.79
Shrimp (freshwater)	40	200	5.00
Shrimp (saltwater)	8,371	45,973	5.49
Octopus	1,190	4,303	3.62
Squid	1,536	3,601	2.34
Limpets (saltwater)	700	2,880	4.11
Precious corals	450	9,000	20.00
Algae	436	2,895	6.64
Surgeon/tangs	56	22	0.39
** SUBTOTAL **	2,396,291	4,377,583	1.83

Table V.1.10

Hawaii August 1995 Commercial Landings

Species	Pounds	Value	$/lb
Miscellaneous	1,077	1,323	1.23
Sharks	2,564	2,645	1.03
Rays	30	47	1.55
Eels	25	48	1.91
Bigeye scad (akule)	18,118	34,719	1.92
Mackerel scad	18,850	41,496	2.20
Leatherback	34	41	1.22
Ten pounder	60	71	1.19
Bonefish	474	496	1.05
Milkfish	247	214	0.87
Needlefish	21	14	0.67
Threadfin	2	11	5.25
Mullet	222	652	2.94
Pomfret	2,962	7,415	2.50
Jacks (misc)	3,992	7,444	1.86
Amberjack	30	68	2.25
Blue crevally	56	108	1.93
Pig-lipped ulua	3,656	9,855	2.70
Paapaa ulua	167	276	1.65
White ulua	328	704	2.15
Black ulua	28	62	2.21
Giant sea bass	5,731	21,024	3.67
Blue spot grouper	35	68	1.94
Snappers	221	587	2.66
Blue lined snapper	4,281	3,990	0.93
Ehu (red snapper)	2,022	11,110	5.49
Gindai (flower snapper)	365	1,369	3.75
Kalekale (pink snapper)	913	4,041	4.43
Lehi (silverjaw)	122	329	2.70
Onaga (red snapper)	5,401	39,282	7.27
Opakapaka (pink snapper)	6,503	33,836	5.20
Uku (gray snapper)	13,264	52,859	3.99
Porgy	129	301	2.33
Reef jacks	34	114	3.35
Squirrelfish	6,385	19,782	3.10
Trumpetfish	2	2	0.85
Scorpionfish	325	1,426	4.39
Mountain bass	343	1,116	3.25
Bigeyes	120	286	2.39
Cardinalfish	7	11	1.50
Goatfish	3,220	10,133	3.15
Rudderfish	834	832	1.00

Table V.1.10 (Cont.)

Species	Pounds	Value	$/lb
Damselfish	172	350	2.04
Hawkfish	54	112	2.08
Tilapia	1,587	1,211	0.76
Wrasse	455	1,223	2.69
Parrotfish	3,040	6,719	2.21
Surgeon/tangs	6,866	9,660	1.41
Flounders	14	16	1.17
Filefish	6	8	1.37
Rainbow runner	271	382	1.41
Mahimahi (dolphin)	46,886	144,812	3.09
Barracudas	3,184	4,510	1.42
Wahoo	36,629	99,915	2.73
Tunas	158	457	2.89
Skipjack tuna	131,037	212,130	1.62
Yellowfin tuna	568,055	1,338,936	2.36
Albacore	227,334	316,404	1.39
Bigeye tuna	95,034	249,726	2.63
Kawakawa	561	842	1.50
Frigate tuna	1	2	1.80
Broadbill swordfish	113,200	341,546	3.02
Blue marlin	162,713	164,295	1.01
Black marlin	3,075	3,688	1.20
Striped marlin	20,596	32,670	1.59
Shortnose spearfish	5,450	7,886	1.45
Sailfish	829	948	1.14
Ocean moonfish	19,591	30,218	1.54
Crabs	2,387	8,427	3.53
Shrimp (freshwater)	55	275	5.00
Shrimp (saltwater)	12,081	58,844	4.87
Octopus	1,785	6,193	3.47
Squid	1,561	3,863	2.47
Limpets (saltwater)	827	4,295	5.19
Precious corals	630	12,600	20.00
Algae	545	2,981	5.47
** SUBTOTAL **	1,569,869	3,376,354	2.15

Table V.1.11

Hawaii September 1995 Commercial Landings

Species	Pounds	Value	$/lb
Miscellaneous	641	718	1.12
Sharks	3,764	2,558	0.68
Eels	65	116	1.78
Alfonsin	6	20	3.30
Bigeye scad (akule)	15,887	29,899	1.88
Mackerel scad	44,795	77,960	1.74
Leatherback	65	104	1.60
Ten pounder	88	104	1.19
Bonefish	132	136	1.03
Milkfish	166	248	1.49
Needlefish	151	121	0.80
Threadfin	17	104	6.09
Mullet	1,470	4,261	2.90
Pomfret	3,351	7,028	2.10
Jacks (misc)	4,389	8,182	1.86
Blue crevally	371	566	1.52
Pig-lipped ulua	2,030	3,785	1.86
Paapaa ulua	157	376	2.39
White ulua	684	686	1.00
Black ulua	215	558	2.60
Giant sea bass	8,818	22,812	2.59
Blue spot grouper	4	9	2.19
Snappers	382	1,069	2.80
Blue lined snapper	8,749	8,592	0.98
Ehu (red snapper)	3,495	14,857	4.25
Gindai (flower snapper)	666	2,488	3.74
Kalekale (pink snapper)	2,212	6,081	2.75
Lehi (silverjaw)	995	3,533	3.55
Onaga (red snapper)	6,217	40,685	6.54
Opakapaka (pink snapper)	18,359	72,377	3.94
Uku (gray snapper)	7,285	19,609	2.69
Porgy	370	955	2.58
Reef jacks	6	17	2.75
Squirrelfish	7,688	21,747	2.83
Trumpetfish	2	2	0.90
Scorpionfish	585	2,242	3.83
Mountain bass	282	686	2.43
Bigeyes	232	595	2.56
Cardinalfish	1	0	0.25
Goatfish	3,812	12,723	3.34
Rudderfish	961	1,080	1.12
Damselfish	308	590	1.92

Table V.1.11 (Cont.)

Species	Pounds	Value	$/lb
Hawkfish	80	125	1.56
Tilapia	1,144	862	0.75
Wrasse	1,069	2,637	2.47
Parrotfish	4,423	8,732	1.97
Surgeon/tangs	6,601	8,997	1.36
Flounders	7	8	1.18
Triggerfish	34	11	0.31
Filefish	46	10	0.23
Rainbow runner	247	357	1.44
Mahimahi (dolphin)	40,106	109,140	2.72
Barracudas	985	1,883	1.91
Wahoo	38,362	99,049	2.58
Tunas	1,369	3,968	2.90
Skipjack tuna	141,856	222,380	1.57
Yellowfin tuna	259,284	607,400	2.34
Albacore	180,546	215,844	1.20
Bigeye tuna	124,910	387,904	3.11
Kawakawa	486	664	1.37
Frigate tuna	29	49	1.70
Billfish	1,913	3,080	1.61
Broadbill swordfish	113,101	303,391	2.68
Blue marlin	105,763	108,664	1.03
Black marlin	2,325	3,191	1.37
Striped marlin	70,973	61,146	0.86
Shortnose spearfish	6,209	7,255	1.17
Sailfish	1,182	1,198	1.01
Ocean moonfish	27,004	38,053	1.41
Spiny lobster	1,107	8,141	7.35
Slipper lobster	161	1,589	9.87
Crabs	7,351	30,831	4.19
Shrimp (saltwater)	8,374	39,757	4.75
Octopus	2,125	6,079	2.86
Squid	1,152	2,240	1.94
Limpets (saltwater)	1,177	5,305	4.51
Precious corals	365	8,450	23.15
Algae	479	2,526	5.27
** SUBTOTAL **	1,302,218	2,671,193	2.05

Table V.1.12

Hawaii October 1995 Commercial Landings

Species	Pounds	Value	$/lb
Miscellaneous	337	346	1.03
Sharks	4,780	3,404	0.71
Eels	78	106	1.36
Bigeye scad (akule)	13,819	27,741	2.01
Mackerel scad	67,421	96,837	1.44
Leatherback	98	151	1.54
Ten pounder	76	64	0.84
Bonefish	569	659	1.16
Milkfish	90	113	1.26
Needlefish	35	38	1.07
Threadfin	43	257	5.98
Mullet	156	430	2.76
Pomfret	6,082	11,753	1.93
Jacks (misc)	3,260	7,543	2.31
Blue crevally	9	11	1.23
Pig-lipped ulua	1,994	3,355	1.68
Paapaa ulua	270	462	1.71
White ulua	358	479	1.34
Black ulua	44	84	1.91
Giant sea bass	3,868	14,472	3.74
Snappers	195	561	2.88
Blue lined snapper	4,642	4,073	0.88
Ehu (red snapper)	1,537	6,430	4.18
Gindai (flower snapper)	396	1,331	3.36
Kalekale (pink snapper)	1,554	4,221	2.72
Lehi (silverjaw)	475	1,553	3.27
Onaga (red snapper)	9,232	52,772	5.72
Opakapaka (pink snapper)	10,709	50,430	4.71
Uku (gray snapper)	2,235	7,278	3.26
Porgy	745	1,931	2.59
Squirrelfish	3,447	10,396	3.02
Scorpionfish	190	849	4.47
Mountain bass	129	419	3.25
Bigeyes	369	816	2.21
Goatfish	3,938	13,216	3.36
Rudderfish	836	882	1.05
Damselfish	322	693	2.15
Hawkfish	61	117	1.92
Tilapia	1,772	1,228	0.69
Wrasse	517	1,678	3.25
Parrotfish	3,140	6,639	2.11
Surgeon/tangs	9,588	13,723	1.43

Table V.1.12 (Cont.)

Species	Pounds	Value	$/lb
Flounders	10	12	1.20
Triggerfish	10	1	0.10
Rainbow runner	522	740	1.42
Mahimahi (dolphin)	83,158	158,631	1.91
Barracudas	518	965	1.86
Wahoo	37,365	90,313	2.42
Japanese mackerel	55	113	2.05
Tunas	170	192	1.13
Skipjack tuna	176,990	205,111	1.16
Yellowfin tuna	284,723	675,133	2.37
Albacore	299,421	239,046	0.80
Bigeye tuna	396,567	1,089,200	2.75
Kawakawa	275	396	1.44
Frigate tuna	5	6	1.20
Broadbill swordfish	61,963	163,835	2.64
Blue marlin	147,341	89,606	0.61
Black marlin	3,581	3,666	1.02
Striped marlin	210,608	122,919	0.58
Shortnose spearfish	10,617	7,680	0.72
Sailfish	1,696	998	0.59
Ocean moonfish	70,572	54,162	0.77
Spiny lobster	19,058	289,421	15.19
Slipper lobster	1,580	18,182	11.51
Crabs	3,133	14,427	4.60
Shrimp (freshwater)	60	270	4.50
Shrimp (saltwater)	3,727	17,501	4.70
Octopus	2,524	7,269	2.88
Squid	897	1,894	2.11
Limpets (saltwater)	749	3,290	4.39
Precious corals	180	4,050	22.50
Sea cucumbers	22	228	10.36
Algae	276	1,754	6.35
** SUBTOTAL **	1,977,789	3,610,547	1.83

Table V.1.13

Hawaii November 1995 Commercial Landings

Species	Pounds	Value	$/lb
Miscellaneous	358	473	1.32
Sharks	5,831	3,707	0.64
Eels	36	48	1.34
Bigeye scad (akule)	21,419	35,665	1.67
Mackerel scad	49,918	61,606	1.23
Leatherback	102	168	1.64
Ten pounder	35	35	1.01
Bonefish	1,406	1,507	1.07
Milkfish	26	30	1.16
Needlefish	30	30	0.98
Halfbeaks	14	35	2.50
Threadfin	34	269	7.92
Mullet	1,165	3,027	2.60
Pomfret	7,166	9,289	1.30
Jacks (misc)	3,495	6,423	1.84
Amberjack	23	26	1.13
Blue crevally	122	268	2.20
Pig-lipped ulua	2,205	4,107	1.86
Paapaa ulua	245	364	1.48
White ulua	937	902	0.96
Black ulua	266	262	0.98
Giant sea bass	3,259	9,620	2.95
Blue spot grouper	16	33	2.06
Snappers	163	348	2.14
Blue lined snapper	3,369	3,178	0.94
Ehu (red snapper)	2,719	9,257	3.40
Gindai (flower snapper)	377	865	2.29
Kalekale (pink snapper)	2,216	4,286	1.93
Lehi (silverjaw)	977	3,177	3.25
Onaga (red snapper)	17,434	68,802	3.95
Opakapaka (pink snapper)	21,311	81,258	3.81
Uku (gray snapper)	4,144	11,417	2.76
Porgy	125	304	2.43
Squirrelfish	3,668	10,437	2.85
Trumpetfish	3	3	0.83
Scorpionfish	227	838	3.69
Mountain bass	235	497	2.11
Bigeyes	226	565	2.50
Goatfish	3,814	9,903	2.60
Rudderfish	625	654	1.05
Damselfish	117	234	2.00
Hawkfish	45	90	1.99

Table V.1.13 (Cont.)

Species	Pounds	Value	$/lb
Tilapia	1,621	1,177	0.73
Wrasse	759	2,400	3.16
Parrotfish	2,385	4,766	2.00
Surgeon/tangs	6,198	8,199	1.32
Flounders	4	4	1.00
Triggerfish	12	3	0.28
Filefish	21	5	0.23
Rainbow runner	1,086	1,359	1.25
Mahimahi (dolphin)	67,206	138,028	2.05
Barracudas	910	1,197	1.32
Wahoo	35,319	84,806	2.40
Tunas	2,889	30,698	10.63
Skipjack tuna	221,593	215,255	0.97
Yellowfin tuna	250,059	562,222	2.25
Albacore	246,161	170,955	0.69
Bigeye tuna	370,533	1,029,795	2.78
Kawakawa	304	374	1.23
Billfish	1,507	1,637	1.09
Broadbill swordfish	85,559	273,850	3.20
Blue marlin	127,093	77,312	0.61
Black marlin	1,708	1,514	0.89
Striped marlin	169,656	103,246	0.61
Shortnose spearfish	16,354	8,006	0.49
Sailfish	1,207	587	0.49
Ocean moonfish	71,337	37,284	0.52
Spiny lobster	514	4,324	8.41
Slipper lobster	114	1,127	9.89
Crabs	2,873	13,391	4.66
Shrimp (freshwater)	50	250	5.00
Shrimp (saltwater)	8,623	39,888	4.63
Octopus	1,558	4,456	2.86
Squid	1,280	1,762	1.38
Limpets (saltwater)	661	2,666	4.03
Precious corals	547	12,740	23.29
Algae	358	2,130	5.95
** SUBTOTAL **	1,857,962	3,181,423	1.71

Table V.1.14

Hawaii December 1995 Commercial Landings

Species	Pounds	Value	$/lb
Miscellaneous	374	722	1.93
Sharks	15,115	11,053	0.73
Alfonsin	2	6	3.10
Bigeye scad (akule)	21,699	40,733	1.88
Mackerel scad	37,344	49,605	1.33
Leatherback	91	170	1.87
Ten pounder	94	109	1.16
Bonefish	606	634	1.05
Milkfish	55	60	1.10
Needlefish	28	32	1.14
Threadfin	19	73	3.84
Mullet	67	221	3.29
Pomfret	9,169	13,785	1.50
Jacks (misc)	4,561	9,547	2.09
Blue crevally	138	146	1.06
Pig-lipped ulua	3,019	4,372	1.45
Dobe ulua	1	2	2.25
Paapaa ulua	161	297	1.85
White ulua	733	809	1.10
Black ulua	14	21	1.50
Giant sea bass	6,317	17,905	2.83
Blue spot grouper	19	51	2.70
Snappers	193	434	2.25
Blue lined snapper	4,844	4,583	0.95
Ehu (red snapper)	6,065	26,003	4.29
Gindai (flower snapper)	658	2,029	3.08
Kalekale (pink snapper)	4,095	9,538	2.33
Lehi (silverjaw)	2,349	6,627	2.82
Onaga (red snapper)	16,750	93,271	5.57
Opakapaka (pink snapper)	33,059	122,726	3.71
Uku (gray snapper)	4,998	14,151	2.83
Porgy	152	311	2.05
Reef jacks	28	74	2.63
Squirrelfish	6,152	17,683	2.87
Scorpionfish	509	2,033	3.99
Mountain bass	470	1,045	2.22
Bigeyes	315	745	2.37
Cardinalfish	5	1	0.20
Goatfish	3,935	11,317	2.88
Rudderfish	886	680	0.77
Damselfish	141	291	2.07
Hawkfish	56	116	2.07

Table V.1.14 (Cont.)

Species	Pounds	Value	$/lb
Tilapia	1,461	1,024	0.70
Wrasse	537	1,710	3.18
Parrotfish	2,018	3,727	1.85
Surgeon/tangs	5,256	7,255	1.38
Flounders	15	20	1.36
Rainbow runner	861	1,106	1.28
Mahimahi (dolphin)	41,893	119,020	2.84
Barracudas	1,848	2,026	1.10
Wahoo	37,572	94,207	2.51
Japanese mackerel	36	55	1.51
Tunas	7,966	125,565	15.76
Skipjack tuna	119,618	194,962	1.63
Yellowfin tuna	315,072	718,275	2.28
Albacore	132,536	137,114	1.03
Bigeye tuna	577,175	2,250,311	3.90
Kawakawa	398	456	1.14
Broadbill swordfish	290,224	951,374	3.28
Blue marlin	105,489	70,873	0.67
Black marlin	21,647	94,143	4.35
Striped marlin	263,637	171,374	0.65
Shortnose spearfish	25,864	11,783	0.46
Sailfish	485	202	0.42
Ocean moonfish	50,144	44,845	0.89
Spiny lobster	813	6,893	8.48
Slipper lobster	129	1,281	9.93
Crabs	4,495	21,398	4.76
Shrimp (freshwater)	40	200	5.00
Shrimp (saltwater)	7,822	38,132	4.87
Octopus	1,133	3,312	2.92
Squid	781	1,099	1.41
Limpets (saltwater)	448	1,845	4.12
Precious corals	270	6,525	24.17
Algae	428	2,848	6.65
** SUBTOTAL **	2,203,397	5,548,970	2.52
** TOTAL **	24,212,923	53,515,829	2.21

Figure V.1.1

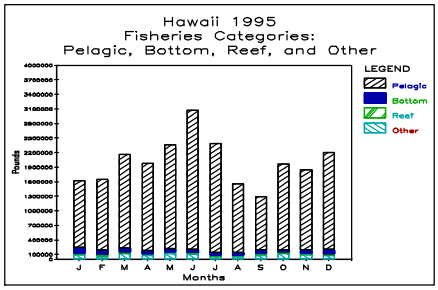

Hawaii 1995
Fisheries Categories:
Pelagic, Bottom, Reef, and Other
LEGEND
Pelagic
Bottom
Reef
Other
Pounds
Months
J
F
M
A
M
J
J
A
S
O
N
D

Figure V.1.2

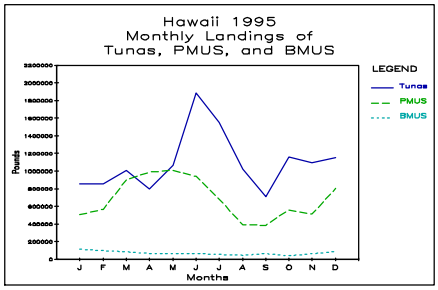

Hawaii 1995
Monthly Landings of
Tunas, PMUS, and BMUS
LEGEND
Tunas
PMUS
BMUS
Pounds
J F M A M J J A S O N D
Months

Figure V.1.3

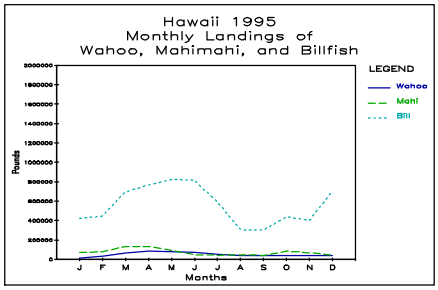

Hawaii 1995
Monthly Landings of
Wahoo, Mahimahi, and Billfish
LEGEND
Wahoo
Mahi
Bill
Pounds
Months
J F M A M J J A S O N D

Figure V.1.4

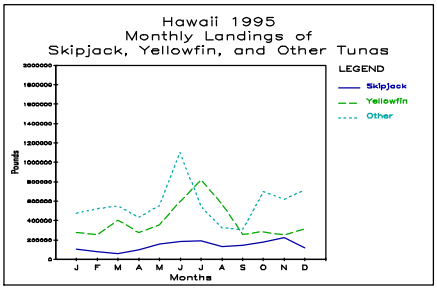

Hawaii 1995
Monthly Landings of
Skipjack, Yellowfin, and Other Tunas
LEGEND
Skipjack
Yellowfin
Other
Pounds
J F M A M J J A S O N D
Months

Figure V.2.1

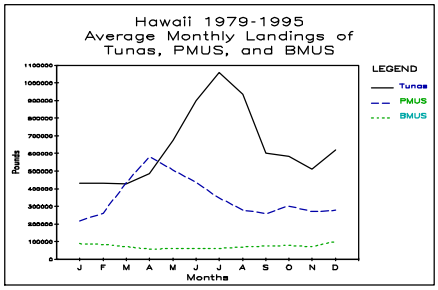

Hawaii 1979-1995
Average Monthly Landings of
Tunas, PMUS, and BMUS
LEGEND
Tunas
PMUS
BMUS
Pounds
J F M A M J J A S O N D
Months

Figure V.2.2

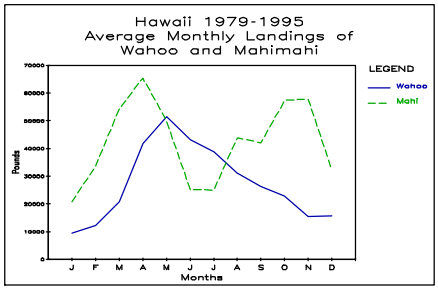

Hawaii 1979-1995
Average Monthly Landings of
Wahoo and Mahimahi
LEGEND
Wahoo
Mahi
Pounds
70000
60000
50000
40000
30000
20000
10000
0
J F M A M J J A S O N D
Months

Figure V.2.3

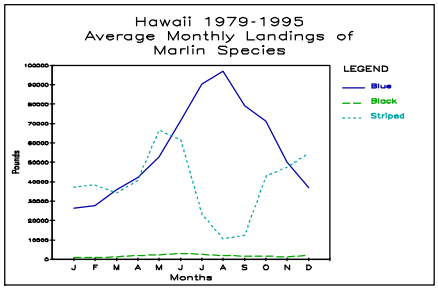

Hawaii 1979-1995
Average Monthly Landings of
Marlin Species
LEGEND
Blue
Black
Striped
Pounds
J F M A M J J A S O N D
Months

Figure V.2.4

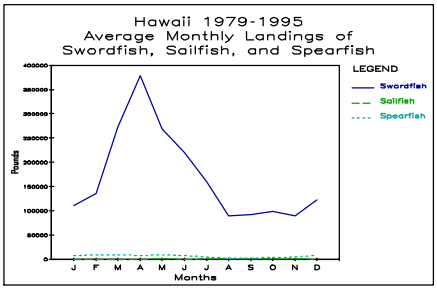

Hawaii 1979-1995
Average Monthly Landings of
Swordfish, Sailfish, and Spearfish
LEGEND
Swordfish
Sailfish
Spearfish
Pounds
J F M A M J J A S O N D
Months

Figure V.2.5

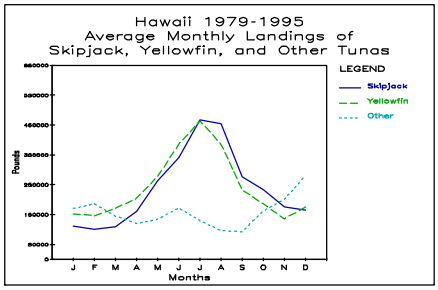

Hawaii 1979-1995
Average Monthly Landings of
Skipjack, Yellowfin, and Other Tunas
LEGEND
Skipjack
Yellowfin
Other
Pounds
J F M A M J J A S O N D
Months

Figure V.2.6

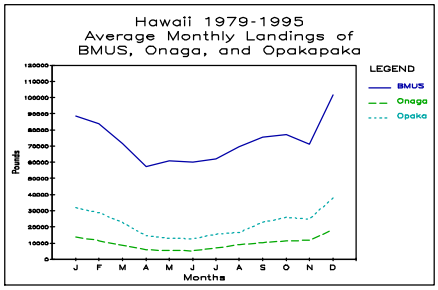

Hawaii 1979-1995
Average Monthly Landings of
BMUS, Onaga, and Opakapaka
LEGEND
BMUS
Onaga
Opaka
Pounds
Months
J F M A M J J A S O N D

Figure V.2.7

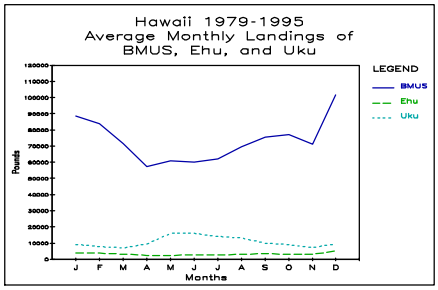

Hawaii 1979-1995
Average Monthly Landings of
BMUS, Ehu, and Uku
LEGEND
BMUS
Ehu
Uku
Pounds
Months
J F M A M J J A S O N D

Figure V.3.1

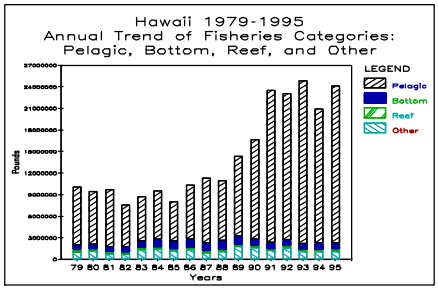

Hawaii 1979-1995
Annual Trend of Fisheries Categories:
Pelagic, Bottom, Reef, and Other
LEGEND
Pelagic
Bottom
Reef
Other
Pounds
Years
79 80 81 82 83 84 85 86 87 88 89 90 91 92 93 94 95

Figure V.3.2

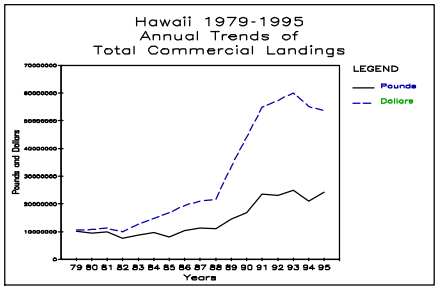

Hawaii 1979-1995
Annual Trends of
Total Commercial Landings
LEGEND
Pounds
Dollars
Pounds and Dollars
79 80 81 82 83 84 85 86 87 88 89 90 91 92 93 94 95
Years

Figure V.3.3

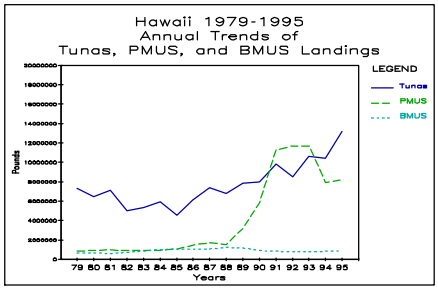

Hawaii 1979-1995
Annual Trends of
Tunas, PMUS, and BMUS Landings
LEGEND
Tunas
PMUS
BMUS
Pounds
79 80 81 82 83 84 85 86 87 88 89 90 91 92 93 94 95
Years

Figure V.3.4

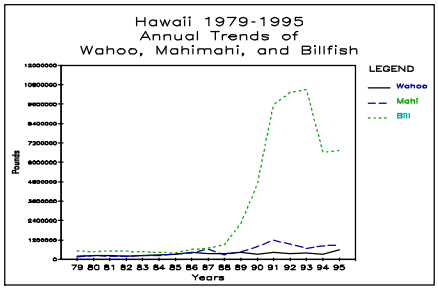

Hawaii 1979-1995
Annual Trends of
Wahoo, Mahimahi, and Billfish
LEGEND
Wahoo
Mahi
Bill
Pounds
Years
79 80 81 82 83 84 85 86 87 88 89 90 91 92 93 94 95

Figure V.3.5

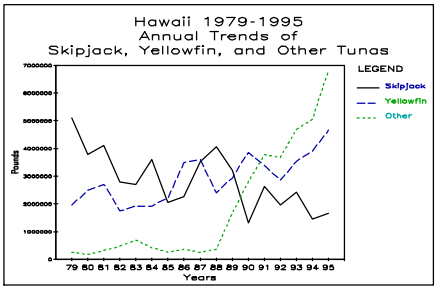

Hawaii 1979-1995
Annual Trends of
Skipjack, Yellowfin, and Other Tunas
LEGEND
Skipjack
Yellowfin
Other
Pounds
7000000
6000000
5000000
4000000
3000000
2000000
1000000
0
79 80 81 82 83 84 85 86 87 88 89 90 91 92 93 94 95
Years

Figure V.4.1

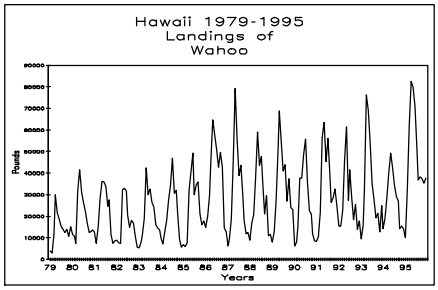

Hawaii 1979-1995
Landings of
Wahoo
Pounds
Years
79 80 81 82 83 84 85 86 87 88 89 90 91 92 93 94 95

Figure V.4.2

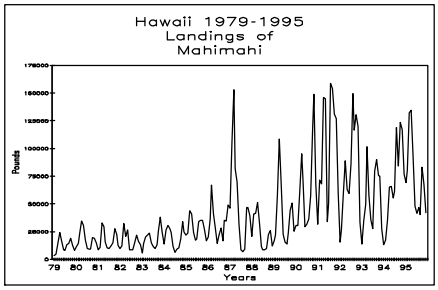

Hawaii 1979-1995
Landings of
Mahimahi
Pounds
Years
79 80 81 82 83 84 85 86 87 88 89 90 91 92 93 94 95

Figure V.4.3

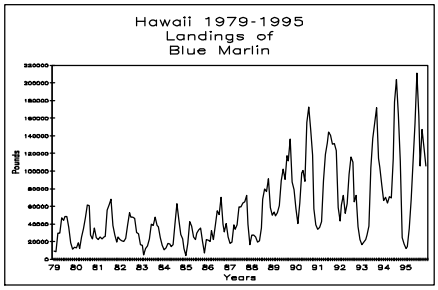

Hawaii 1979-1995
Landings of
Blue Marlin
Pounds
Years
79 80 81 82 83 84 85 86 87 88 89 90 91 92 93 94 95

Figure V.4.4

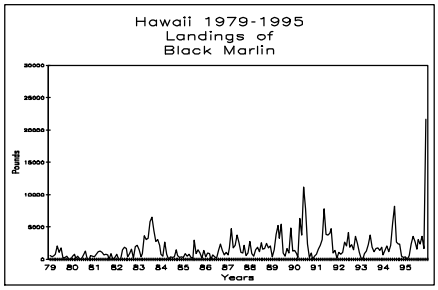

Hawaii 1979-1995
Landings of
Black Marlin
Pounds
30000
25000
20000
15000
10000
5000
0
79 80 81 82 83 84 85 86 87 88 89 90 91 92 93 94 95
Years

Figure V.4.5

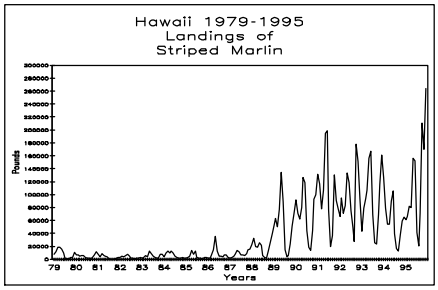

Hawaii 1979-1995
Landings of
Striped Marlin
Pounds
Years
79 80 81 82 83 84 85 86 87 88 89 90 91 92 93 94 95

Figure V.4.6

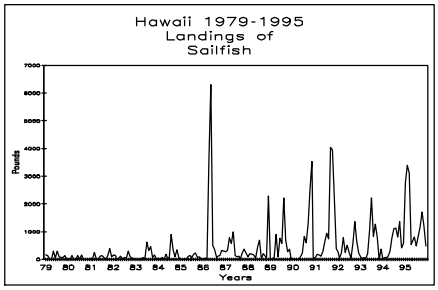

Hawaii 1979-1995
Landings of
Sailfish
Pounds
7000
6000
5000
4000
3000
2000
1000
0
79 80 81 82 83 84 85 86 87 88 89 90 91 92 93 94 95
Years

Figure V.4.7

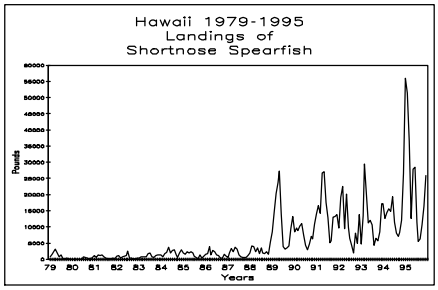

Hawaii 1979-1995
Landings of
Shortnose Spearfish
Pounds
Years
79 80 81 82 83 84 85 86 87 88 89 90 91 92 93 94 95

Figure V.4.8

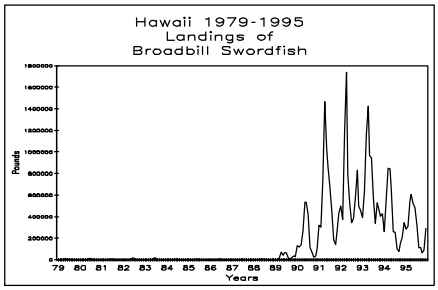

Hawaii 1979-1995
Landings of
Broadbill Swordfish
Pounds
79 80 81 82 83 84 85 86 87 88 89 90 91 92 93 94 95
Years

Figure V.4.9

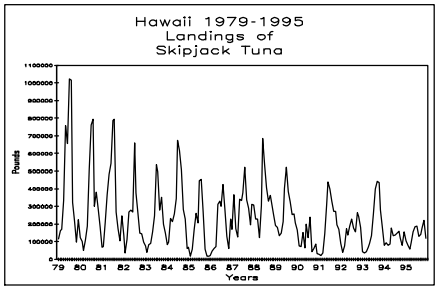

Hawaii 1979-1995
Landings of
Skipjack Tuna
Pounds
1100000
1000000
900000
800000
700000
600000
500000
400000
300000
200000
100000
0
79 80 81 82 83 84 85 86 87 88 89 90 91 92 93 94 95
Years

Figure V.4.10

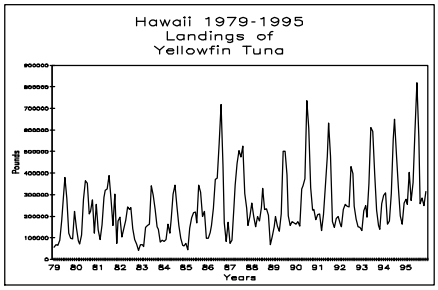

Hawaii 1979-1995
Landings of
Yellowfin Tuna
Pounds
0
100000
200000
300000
400000
500000
600000
700000
800000
900000
79 80 81 82 83 84 85 86 87 88 89 90 91 92 93 94 95
Years

Figure V.4.11

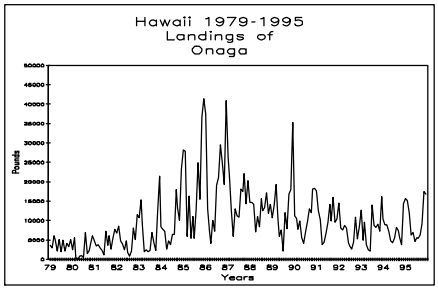

Hawaii 1979-1995
Landings of
Onaga
Pounds
Years
79 80 81 82 83 84 85 86 87 88 89 90 91 92 93 94 95

Figure V.4.12

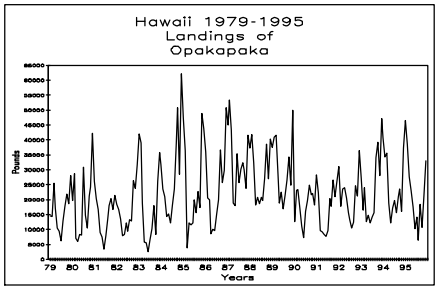

Hawaii 1979-1995
Landings of
Opakapaka
Pounds
79 80 81 82 83 84 85 86 87 88 89 90 91 92 93 94 95
Years

Figure V.4.13

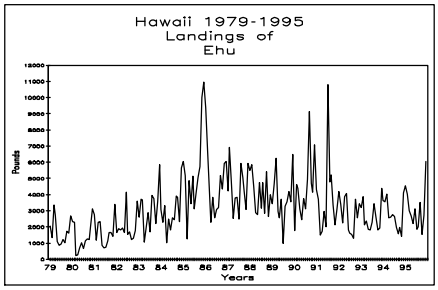
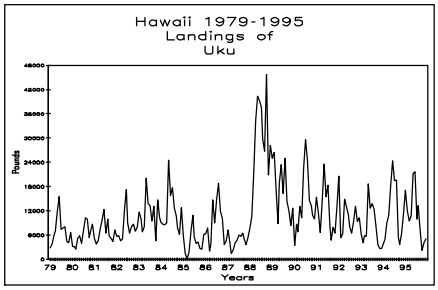

Hawaii 1979-1995
Landings of
Ehu
Pounds
Years
79 80 81 82 83 84 85 86 87 88 89 90 91 92 93 94 95

Figure V.4.14


Hawaii 1979-1995
Landings of
Uku
Pounds
79 80 81 82 83 84 85 86 87 88 89 90 91 92 93 94 95
Years