

PACIFIC ISLANDS FISHERIES SCIENCE CENTER



Fishery Statistics of the Western Pacific

Volume 32

Territory of American Samoa (2015)

Commonwealth of the Northern Mariana Islands (2015)

Territory of Guam (2015)

State of Hawai'i (2015)

Compiled by

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About this report

Pacific Islands Fisheries Science Center Administrative Reports are issued to disseminate scientific and technical information to marine resource managers, scientists, and the public. Their contents cover a range of topics, including biological and economic research, stock assessment, trends in fisheries, and other subjects. Administrative Reports typically have not been reviewed outside the Center. As such, they are considered informal publications. The material presented in Administrative Reports may later be published in the formal scientific literature after more rigorous verification, editing, and peer review.

It should be noted that these data summaries were produced by July 2016, using the best available data and methods standardized across the region over decades. These methods are constantly being improved and changes may also occur when data are received after normal deadlines. Since 2017, WPacFIN has provided access to the best available summary fisheries data for the region via the [WPacFIN Data Portal](#). This report is being published, despite delays, to finalize the record of the available time series prior to implementation of the data portal.

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ACKNOWLEDGEMENTS

The data in this report were collected and shared with the Western Pacific Fisheries Information Network by our fisheries agency partners in Hawai'i, Guam, the Commonwealth of the Northern Mariana Islands, and American Samoa (page 2). Fishers who cooperate with these agencies' data collection efforts have also contributed to this report, as have fish dealers (vendors or markets) that purchase directly from fishers and provide data to the agencies (or directly to WPacFIN). We greatly appreciate their collaboration, without which this report would not be possible.

INTRODUCTION: BACKGROUND INFORMATION

There is a worldwide demand for marine fisheries data to ensure their sustainable harvest and management, as well as to inform the public. To help meet these needs in the central and western US Pacific islands, in the early 1980s the National Oceanographic and Atmospheric Administration (NOAA), National Marine Fisheries Service's (NMFS or NOAA Fisheries) Southwest Fisheries Science Center (SWFSC) Honolulu Laboratory initiated the Western Pacific Fisheries Information Network (WPacFIN). In April 2003, NOAA Fisheries created a new Pacific Islands Region (PIR), comprised of the Pacific Islands Fisheries Science Center (PIFSC, formerly SWFSC's Honolulu Laboratory), the Pacific Islands Regional Office (PIRO, formerly Southwest Regional Office's Pacific Islands Area Office), and the insular areas they serve. The reorganization placed this statistical report under affiliation with PIFSC. For more information about the PIR, please go to <https://www.noaa.gov/regional-collaboration-network/regions-pacific-islands>.

WPacFIN is a partnership of fisheries agencies (primary data providers) from across the PIR, whose goal is to improve access to and dissemination of fisheries information. As a NMFS Fisheries Information Network (FIN¹), WPacFIN Central:

- provides a centralized data warehouse (housed at PIFSC in Honolulu)
- assists its data partners with compiling and managing their fisheries data collections
- maintains a historical data archive
- facilitates data sharing for stock assessment and management, and
- helps with data processing and summarization to meet federal and insular fisheries requirements

In 1981, when WPacFIN began assisting PIR fisheries agencies with improving their data collection and processing systems, only our Hawai'i partners had computerized data processing. By mid-1982, fisheries offices in American Samoa, Guam, and the Commonwealth of the Northern Mariana Islands (CNMI) were using WPacFIN-supplied computers to process data.

¹ Regional FINs vary in their partners and data contributors. For a summary of US regional Fishery Information Systems, and links to its FINs, including for the Pacific Islands Region see <https://www.fisheries.noaa.gov/national/commercial-fishing/fisheries-information-system-program>. A summary of WPacFIN and its data partners can be found at: <https://apps-pifsc.fisheries.noaa.gov/wpacfin/partners.php>.

Since then, computer and internet technology has become widely available and the agencies have made significant improvements in their data collection methods, establishing various automated data processing systems with support from WPacFIN Central. By 2015, WPacFIN was providing grants to its agency partners, which they used to purchase appropriate IT equipment. WPacFIN provided database applications development and configuration support.

In 1985, WPacFIN partner agencies agreed to produce a combined document that would report each island's major commercial fisheries statistics (Fisheries Statistics of the Western Pacific, or FSWP). WPacFIN Central, under the PIFSC Fisheries Research and Monitoring Division (FRMD), Insular Fisheries Monitoring Program (IFMP), coordinates, produces and distributes the FSWP document as part of the PIFSC Administrative Report Series. Each partner agency supplies the data required to produce the tables and graphs (or "charts") for its respective section.

WPacFIN PARTNER AGENCIES

WPacFIN participating agencies include the following **primary data providers** and clients, listed below with their acronyms used throughout this report:

American Samoa	Department of Marine and Wildlife Resources (DMWR)
	NOAA Pacific Islands Regional Office (PIRO), Fisheries Monitoring Field Office (AS-FMFO) and Observer Program (AS-OP) , American Samoa
Commonwealth of the Northern Mariana Islands (CNMI)	Department of Lands and Natural Resources, Division of Fish and Wildlife (DFW)
Guam	Department of Agriculture, Division of Aquatic and Wildlife Resources (DAWR)
	Bureau of Statistics and Plans (BSP)
Hawai'i	Department of Land and Natural Resources, Division of Aquatic Resources (DAR)
	NOAA Pacific Islands Fisheries Science Center (PIFSC), Fisheries Research and Monitoring Division (FRMD), International Fisheries Program (IFP) and Ecosystem Sciences Division (ESD) Ocean Synthesis and Human Dimensions Program (OSHD, Economics)
	NOAA Pacific Islands Regional Office (PIRO)
	Joint Institute for Marine and Atmospheric Research (JIMAR) ²
	Western Pacific Regional Fisheries Management Council (the Council)

More information and links to each data provider's website can be found under "Partners" on the WPacFIN Data Portal (<https://apps-pifsc.fisheries.noaa.gov/wpacfin/partners.php>) and

² In October 2021, JIMAR was renamed the Cooperative Institute for Marine and Atmospheric Research (CIMAR). For more information, see CIMAR's website: <https://www.soest.hawaii.edu/cimar/>

cited in relevant sections of this report. These primary data providers (and a few JIMAR staff) collect, digitize, conduct quality control, edit and otherwise process data from each insular area. There is a summary of relevant agency data collections under “Data Sources and Caveats” (p.4).

With support from PIFSC Information Technology Services (ITS), WPacFIN established Secure File Transfer Protocols (SFTP) for each insular agency. In Hawai‘i, the Department of Accounting and General Services (DAGS) and the Hawaii Information Consortium (HIC), also support networking, fileserver maintenance, and online data applications for the DAR office. Once the agencies complete appropriate editing, adjustment, and validation procedures, they send the data via SFTP to WPacFIN Central, where our staff produces the summary tables and charts provided in this report using freeware and commercially available database applications we develop and tailor to this purpose.

THE TRANSITION TO ONLINE FISHERIES STATISTICS OF THE WESTERN PACIFIC

From 1985 through 2013, this report evolved from a printed (hardcopy) document, distributed manually, to a Portable Document Format (PDF), circulated via email and the internet. In this 32nd volume of Fisheries Statistics of the Western Pacific (FSWP), it is again time to update its format to make the report more readily shareable and useful to WPacFIN partners and the public. Accordingly, with this volume WPacFIN will begin producing the report as a series of downloadable tables (“spreadsheets”) and figures (“charts” or “graphs”), available via our website, with a brief introduction to their content and interpretation.

As with previous volumes, this report contains summaries of 2015 estimated commercial seafood purchases (see Data Sources and Caveats) for American Samoa, the Commonwealth of the Northern Mariana Islands, Guam, and Hawai‘i. This introductory section applies to all four insular areas. The report also has four downloadable sections, one for each state/territory or commonwealth³. Each section provides annual and monthly estimated commercial landings data by species and/or higher taxonomic group, based on species groupings defined across the whole series (see p. 10). Following this section with background information, definitions, and caveats that apply to the whole report, the user may choose to download the entire set of tables and figures for the PIR or only the section(s) for the insular area(s) that interest you. Tables and figures are downloadable as a PDF and/or spreadsheet (Excel workbook).

³ Annual and monthly charts or Comma Separated Value (CSV) spreadsheet file naming conventions are distinguishable by a one-letter abbreviation for each insular area as follows: American Samoa (A), Commonwealth of the Northern Mariana Islands (C), Guam (G) and Hawaii (H)

DATA SOURCES AND CAVEATS

General Information

Data collection, compilation, and processing systems vary greatly among Pacific island fisheries agencies. Although a considerable effort has been made to standardize data systems over the years, many unique aspects remain, resulting from differences in local requirements, resources, technical capabilities, and other factors. Each insular data collection system has strengths and weaknesses the reader should be aware of when comparing or interpreting data across species groups, fishing methods and areas. As a result, this interpretation and comparison requires recognition of several caveats.

Referenced throughout this report as “estimated commercial landings”, the data summaries in this report represent the estimated weight and first-point-of-purchase (wholesale) value of locally caught fish and seafood bought directly from fishers by commercial “vendors” (also referred to as “fish dealers” or “markets”). The data for the territories are adjusted to an estimated 100% of commercial sales, based on either: a) fishing surveys (to estimate the total number of commercial or part-commercial fishing trips), or b) a poll of major seafood vendors and/or survey by commercial purchase data collectors, used to estimate the percentage of sales captured by commercial data collections. A brief description of the data sources used to produce these estimates follows Table 1, which provides a summary of the differences and common elements of data collection systems across insular areas.

Table 1. Data collections systems used to estimate 2015 annual commercial seafood purchases by insular area

Data Collection System	American Samoa	CNMI	Guam	Hawai'i
Voluntary Commercial Invoices (<i>Agency collects government-provided invoices from vendors. Compliance is voluntary or no systematic compliance assurance mechanisms in place.</i>)		■	■	
Mandatory Commercial Invoices (<i>Agency collects government-provided invoices from vendors legally required to fill them out. Systematic compliance monitoring and follow up mechanisms in place.</i>)	■			
Mandatory Dealer-reported Monthly Purchases (<i>Agency conducts compliance monitoring and follow up</i>)				■
Federal Longline Logbooks (<i>Federally required and monitored reporting by longline vessel captains.</i>)	■			■
Boat-based Creel Surveys (<i>Estimated annual trips, percent sold and/or price/lb data used to adjust commercial vendor estimates.</i>)	■	■		
Dealer Poll (<i>Cooperating dealers help estimate percent of reef, bottom & pelagic purchases monitored annually.</i>)			■	
Agency/Contractor Market Surveys (<i>Agency staff and contractors help estimate percentage of commercial purchases included annually.</i>)		■	■	
Mandatory Commercial Fisher-reports (<i>Mandatory reporting by licensed commercial fishers, with systematic compliance monitoring, enforcement and civil penalty system. Fisher-reported sales cross-referenced with follow-up on dealer-reported data.</i>)				■
Sampling at Cannery or Markets	■	■	■	
Other weight or price sampling surveys	■			

FSWP has been providing “estimated commercial landings” (purchases) for decades. It should be noted that, although creel surveys are done throughout the PIR, the data presented in FSWP are generally not derived from either fisher-reported (catch reports/logbooks) or fisher-interview (creel survey) data. They are commercial purchase estimates, based on dealer-reported data or vendor/dealer surveys. In some cases, these estimates are adjusted using commercial fisher-reported (Hawai‘i) or creel survey data (Guam, CNMI, and American Samoa). Previous volumes in this series included descriptions of all insular data collections, some of which are used for other purposes (such as stock assessment). Beginning with this FSWP online series, we will only describe data sets actually used to produce the current year’s estimate. We encourage the reader to refer to prior reports for in-depth information about all the types of fishery-dependent data collected and contributed by WPacFIN partners. WPacFIN metadata are also included in the NMFS data catalogue (InPort), which is available online (<https://inport.nmfs.noaa.gov/inport>; keyword “WPacFIN”).

As stated in previous volumes of the FSWP, WPacFIN and its agency partners have been continually improving data collection and processing systems for each insular area. These improvements often result in updates to estimates of total and commercial landings, so the data in this volume may not align exactly with data in previous volumes of this series. Typically, when upgrades have been made to data processing systems (such as changes in expansion algorithms and monitoring for the creel and commercial landings data), the entire time series of data is reprocessed using the new algorithms in an effort to ensure that apparent trends in fisheries data would not result solely from changing methodology. Additionally, some historic data collections have been discontinued, become obsolete, or responsibility may have been transferred to another WPacFIN partner that processes the data somewhat differently.

Rather than keeping track of all this information in a statistical report, a description of current data collections and processing methods affiliated with WPacFIN will be included in each agency’s systems requirements planning documents (created before any new data systems are developed) and referenced in data reports. Significant changes or updates affecting the whole time series will be published as a separate data report. Adhering to a policy of implementing only planned and documented changes will help limit shifts in data trends, making it easier to interpret changes in annual landings estimates. In an effort to make documentation of data summary protocols increasingly transparent and accessible, data processing algorithms will be published online and via PIFSC administrative and program review reports.

The following sections provide a brief description of data sources used to produce the estimated commercial landings for each insular area. Please refer to prior volumes in this series for historical summaries of each area’s fisheries, demographics, and data collections.

American Samoa

American Samoa commercial landings estimates are based on the integration of data from the DMWR's boat-based creel surveys for non-federal fisheries, mandatory federal longline logbook data, a limited size-frequency sampling program for the longline fishery (conducted at the cannery), and data from a mandatory commercial purchase reporting system for locally caught seafood.

1. **Commercial Purchase Program**—The primary data source for commercial purchases in American Samoa is the mandatory purchase receipt system, monitored by DMWR staff for fish businesses on Tutuila. In September 1990, a Commercial Purchase Program was implemented, whereby all businesses besides the canneries that buy fish directly from fishers are required by law to submit a copy of their purchase receipts to DMWR. DMWR issues uniquely numbered receipt books to all fish markets, stores, hotels, and restaurants that resell fish, either whole or prepared. It should be noted that this is not necessarily a “trip ticket” (as it had been referred to in past reports) since the fisher or his representative may sell to multiple businesses (generating multiple receipts) or may sell, trade, or give seafood to others (which would go undetected by the Commercial Purchase Program). In many cases, the most valuable seafood is given to the community (chiefs, church, village, etc.). An image of the commercial purchases data form, which collects locally caught and imported seafood purchase data by species, gear and seller (generally the fisherman) is no longer available online. A general description is found on the U.S. Data.gov website at <https://catalog.data.gov/dataset/american-samoa-commercial-purchases>, and a detailed listing of its data fields can be found in the NMFS metadata catalog at <https://www.fisheries.noaa.gov/inport/item/63476>
2. **Federal Longline Logbook Program**—All longline fishing vessels that are part of the limited entry fishery in American Samoa (and Hawai'i) are required to submit a federal logbook which includes set-level catch and effort data by species. Data are collected by PIFSC IFP, with liaison support from PIRO AS-OP (see primary data providers p.2) and the PIFSC Science Operations Division's Technical Services Program, American Samoa Field Office. The data collection forms, permits, and instructions can be referenced at <https://www.fisheries.noaa.gov/pacific-islands/resources-fishing/pacific-islands-fishing-permits>. These reports of the number caught by species are integrated with information from cannery, dockside, and market surveys to estimate the weight and value of commercial longline landings.
3. **Boat-based Creel Surveys**—DMWR staff conducts access-point creel surveys of small boat fishing activity at boat ramps on Tutuila, Aunu'u, and in the Manu'a Islands (Tau, Ofu, and Olosega). Because the Manu'a Islands have very few fishing boats (4 during 2015) and fishing activity is limited, creel surveys on those islands keep track of all boat-based fishing trips and catch (more accurately a “creel census”). On Tutuila and nearby Aunu'u which are larger, more populated, and have many more

fishing vessels (24 during 2015), the data are collected via periodic surveys and used to estimate annual trips and catch per unit effort (CPUE per trip) by fishing method. These data are multiplied (mean catch/trip by method, times estimated trips = catch) and serially summed over all sampling strata (weekday/weekend-holiday, boat ramps, gears, etc.), creating an “expanded” estimate of landings. The calculations were completed using a data expansion algorithm developed by WPacFIN staff and documented by Bak Hospital (2015). The data collection elements and forms are referenced in previous FSWP volumes, and data fields are itemized in the NMFS metadata catalog at <https://www.fisheries.noaa.gov/inport/item/5612>.

4. **Cannery/Dockside Sampling Programs**—Prior to 2015, length-frequency sampling data were collected by the PIRO AS-FMFO for tunas and important pelagic species from longline and purse seine vessels offloading at canneries in Pago Pago. Although this program was discontinued in 2015, a summary of historical data collected over the previous 10 years was used as a proxy, along with data collected via dockside interviews by PIFSC OSHD Economics Program (Dr. Minling Pan) with support from the PIRO Observer Program (AS-OP).

The estimated weight and value of American Samoa longline landings are derived from combined cannery and onboard (observer) sampling data programs (conducted by AS-FMFO and AS-OP) and from boat-based creel and market surveys (conducted by DMWR staff and PIFSC biosampling contractors). During 2015, commercial purchase reports were collected by DMWR staff and Council contractors.

CNMI

Commercial landings estimates for the CNMI are based on voluntary reporting of the amount of fish, invertebrates, and algae purchased directly from fishers by seafood buyers (Commercial Purchase Program). Seafood not locally caught is “flagged” as imported. The CNMI is moving towards mandatory reporting, but measures to implement this recent requirement are not yet in place.

These reports are collected by DFW staff using government-provided invoices and entered in a database developed for them by WPacFIN. As in American Samoa, CNMI fishers often sell to multiple vendors, so the forms are not actually “trip tickets” (as they have at times been referenced). It should be noted that a fair amount of seafood is sold door-to-door, at the roadside, or purchased by hotels and restaurants. Therefore, DFW staff and PIFSC contractors periodically check fish sales across the Islands of Saipan, Tinian, and Rota. Information from DFW and PIFSC surveys of fish vendors, including data from a PIFSC FRMD market survey (the Commercial Fisheries Biosampling Program) are all taken into consideration by WPacFIN in estimating the proportion of total CNMI seafood sales included in the Commercial Purchase Program used to develop an adjustment factor for total landings estimates.

Guam

Commercial landings estimates for Guam are based on voluntary reporting of fish, invertebrates, and marine algae purchased directly from fishers by local seafood buyers/vendors (Commercial Purchase Data). WPacFIN staff collaborate with seafood vendors on Guam to collect the data. Notably, the Guam Fishermen's Cooperative Association (GFCA) has assisted with this data collection for decades. During 2015, additional commercial purchase data were collected from small vendors on Guam, some of which popped up and went out of business during a single year. This work was mainly conducted by Council contractors using the same invoices (provided by DAWR). WPacFIN staff performed data entry and database support to ensure the contractors' data were also included and used to estimate the percentage of locally caught seafood detected by the Commercial Purchase Program. GFCA and contractors participated in developing factors for adjusting detected sales of reef/inshore, bottomfish, and pelagic sales. Guam is currently the only territory where separate adjustment factors have been developed for each of these distinct local fisheries.

Hawai'i

Hawai'i's estimated commercial landings data summaries are based on mandatory monthly reporting to DAR by marine fish dealers that purchase locally caught seafood. The dealer reports are cross-referenced with reports (also mandatory) from licensed commercial fishers, using software developed by WPacFIN to identify discrepancies between the catch reported as purchased by dealers versus sold by fishers. For information reporting requirements, regulations, and administrative rules, see the DAR website (<https://dlnr.hawaii.gov/dar/>).

The Hawai'i longline estimates come from federal longline logbook data reported to and processed by (PIFSC-IFP). Logbook data provide the number kept by species (and location), which is integrated with DAR fish dealer data to get estimated trip-level weight and value sold. Detailed descriptions of longline data collection and data processing are on the PIFSC website (<https://www.fisheries.noaa.gov/region/pacific-islands> under "[Monitoring and Researching Fisheries for Sustainability in the Pacific Islands](#)").

Cultural and demographic context

The reader should also be aware that species assemblages vary among island areas, as do cultural preferences, principal fishing techniques, and gears. Insular demography and fisheries also change over time, and cultural changes have gradually taken place throughout history. Sometimes new fishing methods evolve quickly in a given area. The changing population, economy, and weather of each island area are also relevant to the interpretation of the relative value and importance of its fisheries in a given year.

The first 31 volumes of FSWP will remain available online as a reference to historical differences in demography, culture, and local agencies that comprise the insular areas supported by the WPacFIN fisheries data warehouse. However, once the major differences were described, those sections of the report series had become repetitive, yet increasingly difficult to update. Although WPacFIN will not continue to provide a lengthy description of local

changes in insular fisheries, demography, and industry as part of this publication, this information is increasingly available on the agencies' own websites, in other areas of the internet, as well as in other PIFSC and Council publications. To avoid redundancy, links to important information affecting insular fisheries in the PIR will be provided on PIFSC/NOAA's website, such as:

- major changes in fisheries economics and development;
- changes in data collection, analysis, and processing systems;
- regulatory changes in fisheries; and
- other impacts affecting fisheries (such as tsunami and severe weather events).

Separating this information (and the research required to collect it) from the production of fisheries statistical summaries will allow WPacFIN to better serve its clients by providing more timely annual reporting of fisheries data. Updates to local information on fisheries can be posted online at any time. It is our intention to produce the first FSWP online versions this year, for 2015 and 2016. A fully online 2017 edition of FSWP will follow once the data are complete (generally July or August).

Hereafter, this series will be updated annually on the web. Non-confidential user queries for the entire historical time series will also be available on the WPacFIN Data Portal, with annual updates. The timing of updates is linked to the timeliness and completeness of monthly SFTP data transmittals across the region and may vary for different insular areas. Although ideally the previous year's data would be complete within the first quarter of each calendar year, that has not typically been true, and other publications (e.g., "Fisheries of the U.S."), are published before landings data are complete, particularly for the territories. FSWP will be published when the data are considered as complete as possible and may be slightly delayed by our awareness of local issues affecting data collection, data entry, staffing, and other critical elements.

DEFINITION OF SPECIES CATEGORIES

In addition to a description of the fisheries monitoring systems and monthly and annual reports, each section contains graphs (charts) of statistical summaries of particular interest or importance to participating WPacFIN agencies. Important species (or higher taxonomic categories) have been defined for each insular area's fisheries. Because of differences in the resolution of species identification across local monitoring systems and sectors of the fishing industry, the species within each category vary somewhat between the islands. There is also a degree of overlap between some of the categories used for different graphs. For example, the category "bottomfish" includes some, but not all of the snappers, jacks (or trevallies), and groupers. Bottomfish species are reported separately during creel surveys, but they are often grouped in reports from the markets. The definition of species groupings is under review, with an eye toward making these breakdowns more comparable across the region.

Some of the species (or groups) included in this report have been reassigned to different management categories over the years. For example, the Magnuson Fishery Conservation and Management Act of 1976 was amended in 1992 to include tunas in the Pelagic Management Unit Species (PMUS) category. However, this FSWP volume will maintain the original species categorizations from previous volumes for comparative purposes. As such, tunas are kept in a separate category.

Categories used in the graphs (or charts) include:

1. Fisheries Categories—These combine species of similar ecological habitat, specifically pelagic, bottomfish (benthic or demersal deep slope species), reef fishes, and "other." The category "other" includes species or groups that generally traverse these ecological zones (e.g., some sharks or jacks), as well as species not typically included in these groups in the Pacific Islands (e.g., species that are estuarine in continental ecosystems, such as mullet or milkfish).
2. Pelagic Management Unit Species (PMUS)—The Magnuson Fishery Conservation and Management Act of 1976 was amended in 1992 to place tunas under U.S. jurisdiction for management. The Fishery Management Plan for Pacific Pelagic Species was amended to reflect this change. However, this report series has continued to treat tunas as a separate category for the sake of continuity. Therefore, the PMUS category in this document includes only billfishes, wahoo, mahimahi, and pelagic sharks.
3. Bottomfish Management Unit Species (BMUS)—Defined as the species of initial importance in the Pacific Island's Fishery Management Plan for bottomfish and seamount ground fish fisheries, including the major deep-water snappers, groupers, emperors, and certain jacks.
4. Tunas—Any of fifteen species across five genera of the tribe *Thunnini*. All tunas are oceanic in habitat, most are worldwide in distribution. This does not include other scombrids, such as wahoo and "dogtooth tuna" (see species tables for scientific names). Historically in the Pacific Islands, this group had been comprised

predominantly of skipjack and yellowfin tuna. However, with the growth of longline fishing in Hawai'i and of both purse seine and longline and fishing in American Samoa, bigeye and albacore tuna have become much more predominant in landings.

5. Other Scombrids—This group includes species that comprise a very small portion of the catch, unidentified tunas, and apparent misidentifications.
6. Billfishes—This group is a combination of blue, striped, and black marlins; sailfishes; spearfishes; and swordfish species.

DEFINITIONS OF FIGURES AND TABLES

Four types of graphs (or charts) are provided with each island's data, as follows:

- The first is a chart of the major species or groups, showing the estimated commercial catch for each month of the year.
- The second is a seasonality plot for the major species or groups, showing the average weight landed during each month for all years for which there are data.
- The third is a time series plot of annual summary statistics, to illustrate the year-to-year variability.
- The fourth type of plot shows monthly landings of some of the major commercially important species or groups, and documents monthly fluctuations in landings of these species over the entire time series (all years for which there are data).

In addition to these compiled monthly and annual group summaries, for the first time this 32nd volume of FSWP also includes monthly and annual summaries of estimated landings by lowest available taxon (e.g., species, genus, family). These tables include the scientific and local common names for each taxon, as well as estimated sold revenue, price per pound, and two common international species codes from the Integrated Taxonomic Information System ([ITIS](#)) and the World Register of Marine Species ([WoRMS](#)). To see the most current data, please visit the [WPacFIN Data Portal](#).

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