

**Submission of 2010-2011 U.S. Fishery Statistics  
for the Western and Central Pacific Ocean and Other Areas  
to the Western and Central Pacific Fisheries Commission<sup>1</sup>**

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This is the eighth submission of annual U.S. and Territorial fishery statistics by the NOAA's National Marine Fisheries Service (NMFS)<sup>2</sup> to the Western and Central Pacific Fisheries Commission (WCPFC). The submission consists of preliminary 2011 fisheries data for highly migratory species (HMS) in the Pacific Ocean, and updated data for 2010, unless otherwise indicated. Annual catch and effort estimates are included for U.S. fisheries, including the Participating Territories of American Samoa and Guam, as well as the Commonwealth of the Northern Mariana Islands.

The U.S. annual fishery statistics submitted with this report (Table 1) were derived from data provided by Federal, State and Territorial fishery agencies in the following areas:

1. Hawaii:
  - a. Division of Aquatic Resources (HDAR) Commercial Fisherman's Catch Reports (catch data)
  - b. HDAR Commercial Marine Dealer Reports (landings and size composition data)
  - c. NMFS federal longline logbook (catch and effort data)
  
2. California, Oregon, Washington:
  - a. Pacific Fisheries Information Network (PacFIN) landings data from U.S. Pacific coast States
  - b. NMFS federal Pacific albacore logbook [ and landing receipts ]
  - c. NMFS federal longline logbook (catch and effort data)
  - d. U.S. South Pacific Tuna Treaty purse seine logbook [and cannery landings data]
  
3. American Samoa:
  - a. Department of Marine and Wildlife Resources (DMWR) boat-based offshore creel surveys (catch, effort, and size composition data)
  - b. NMFS American Samoa longline logbook (catch and effort data)
  - c. NMFS cannery sampling program (size composition data)
  - d. DMWR commercial landings (commercial sales receipts)

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<sup>1</sup> PIFSC Data Report DR-12-007. Issued 5 June 2012.

<sup>2</sup> Prepared in collaboration with the NOAA Fisheries Service Southwest Fisheries Science Center.

4. Guam:
  - a. Division of Aquatic and Wildlife Resources (DAWR) offshore creel surveys (catch and effort data)
  - b. DAWR commercial landings data (commercial sales receipts, dealer invoices)
5. Commonwealth of the Northern Mariana Islands (CNMI):
  - a. Division of Fish and Wildlife (DFW) commercial landings data (commercial sales receipts, dealer invoices);
  - b. DFW offshore creel surveys (catch and effort data)

Therefore, the U.S. fishery statistics submitted are nominally a compilation of estimated catches and landings based on a number of fishery data sources. Estimated annual catches (Category I data) are based on kept catch only; however, for longline fishery catch and effort (Category II data), the reported aggregate catch includes numbers of discards.

The principal U.S. fisheries for HMS are the purse seine fishery that targets skipjack tuna (*Katsuwonus pelamis*), yellowfin tuna (*Thunnus albacares*), and bigeye tuna (*T. obesus*); the pelagic longline fishery for large tunas and swordfish (*Xiphias gladius*); the albacore troll fishery targeting albacore (*T. alalunga*); the tropical troll and handline fisheries targeting various tunas, marlins, and other pelagic species; and the tropical pole-and-line fishery for skipjack tuna. The U.S. purse seine, pelagic longline, and albacore troll fisheries are large-scale fisheries operating on the high seas and in the national zones of the U.S. and various Pacific Island countries. The tropical pole-and-line, tropical troll, and handline fisheries are small-scale fisheries operating primarily in near shore waters within the U.S. and Territorial EEZ.

In reports submitted prior to 2008, the high seas troll fishery for albacore was termed the “distant water” troll fishery. Since then it has been termed the “albacore” troll fishery. The fishery operates in temperate waters, mostly in the eastern Pacific near the fleet’s home ports along the U.S. west coast. It catches almost exclusively albacore and is distinguished from the tropical troll fishery which uses tropical island-based small vessels and catches almost no albacore.

In reports submitted prior to 2008, tropical troll fishing, handline fishing, and tropical pole-and-line fishing were combined into a small-scale fisheries category since they comprise a very small fraction of U.S. production. And in some earlier reports, only tropical troll fishing and handline fishing were combined into a small-scale fisheries category. In data submissions from 2008 and onward, fishery catch and vessel count statistics have been listed separately for tropical troll, handline, and tropical pole-and-line fishing.

Three categories of fishery data (Table 1) are provided: 1) Category I -- annual catch estimates by species, and numbers of active vessels by vessel size class, in each fishing fleet (purse seine, longline, albacore troll, tropical troll, handline, skipjack pole-and-line, and albacore pole-and-line), 2) Category II -- catch (in number and weight of fish) and effort data in aggregated form for longline, and albacore troll (including albacore pole-and-line) fisheries, and 3) Category III – size (length or weight) composition data for key species caught by the longline, tropical troll, handline, and albacore troll (including albacore pole-and-line) fisheries. The methods used in compiling the three categories of fishery statistics are described below.

## Category I: Statistics on Annual Catch and Active Vessels

Catch as estimated whole weight (in metric tons) of fish landed, by species and fishery, as well as numbers of active vessels by fishery, were summed in the WCPFC Statistical Area (<http://www.wcpfc.int/doc/scientific-data-be-provided-commission-revised-wcpfc4-2007>), and in the Pacific Ocean north of the Equator. They are provided for the five-year period of 2007-2011 for convenient reference. Estimates for 2011 are considered preliminary, based on database entries as of March 15, 2012 [database “freeze date”]. Estimates for 2010 are updated, and estimates for prior years remain unchanged from last year’s data submission except for noted corrections.

Catch estimates were provided for tunas (albacore, bigeye, Pacific bluefin, skipjack, yellowfin, and others), billfishes (black marlin, blue marlin, sailfish, spearfish, striped marlin, and others), sharks (blue, mako, thresher, and others), and other pelagic fish (mahimahi, moonfish, oilfish, pomfrets, wahoo, and others). United Nations Food and Agriculture Organization 3-alpha species codes are used as species labels. Number of active vessels was provided by gear type, and by gross registered ton categories for purse seine, longline, albacore troll, and tropical pole-and-line vessels.

### **Longline**

U.S. longline fishery statistics are provided for the western and central Pacific Ocean (WCPFC Statistical Area), American Samoa in the North Pacific Ocean, American Samoa in the South Pacific Ocean, Pacific Ocean north of the Equator, and Eastern Pacific Ocean. The Eastern Pacific Ocean is considered to be east of the 150° meridian of west longitude, and for 2007-2011 is also further divided into catches by vessels greater than 24 meters in length and less than or equal to 24 meters.

NMFS logbook data from Hawaii-based and California-based longline fisheries are combined and provided to represent the U.S.-based longline fishery. Catches for the American Samoa longline fishery (NMFS longline logbook data) are tabulated separately. No tabulation is provided for the small longline fishery based in Guam, as the entire fishery consisted of less than three participants in 2007-2011. Note that because the California-based fishery consisted of a single vessel in 2005-2011, and reported in combination with the Hawaii-based catches, neither fishery can be reported separately without revealing fisheries-confidential data (by difference).

Retained catches were assigned to the fisheries of the United States, American Samoa, Guam or the CNMI based on the port of landing, the types of permits registered to the vessel, and starting November 19, 2011, whether the vessel was included in an arrangement under Sec. 113(a) of the Consolidated and Further Continuing Appropriations Act, 2012 (Pub. L. 112-55, 125 Stat. 552 *et seq.*; CFCAA). Specifically, if a fish was landed in one of the three territories (provided it was not caught in the portion of the EEZ surrounding the Hawaiian Archipelago and it was landed by a vessel permitted under the Pelagics FEP or the West Coast HMS FMP), it was assigned to the fishery of that territory; if the fish was landed by a vessel with an American Samoa Longline Limited Access permit (provided it was not caught in the portion of the EEZ surrounding the Hawaiian Archipelago and it was landed by a vessel permitted under the Pelagics FEP or the West Coast HMS FMP), the fish was assigned to the fishery of American

Samoa; and if, after November 19, the vessel landing the fish was included in a valid arrangement under Sec. 113(a) of the CFCAA and the arrangement provided for the fish to be assigned to the fishery of one of the three territories, the fish was assigned to the fishery of that territory. Otherwise, the fish was assigned to the fishery of the United States.

For the Hawaii-based component of the U.S. longline fishery statistics, final estimates of landed weight for each species were derived as the product of number of fish kept (as reported in logbook data) and mean whole fish weight estimated from HDAR Commercial Marine Dealer Reports (landings and size composition data). For each species, mean weights were estimated separately by month of landing for the deep-set ( $\geq 15$  hooks between floats) sector and the shallow-set ( $< 15$  hooks between floats) sector of the Hawaii-based longline fishery, as long as weights were available from at least 20 fish of that species within the sector-month category of interest. If fewer than 20 fish were available in a sector-month category, the species-specific annual average, average across sectors, or other proxy mean weight was applied. Mean weights of bigeye tuna for each fishery sector were estimated in the WCPFC Statistical Area and the EPO separately. Procedures for estimating bigeye tuna weights separately by region were developed to better monitor cumulative landings in relation to catch limits.

Although mean weights were computed by fishery sector when sufficient data were available, the Category I longline statistics in this report are reported for both sectors combined, not separately for deep-set and shallow-set sectors. However, Category II data described below are segregated by deep- and shallow-set fishery sectors.

For the American Samoa-based longline fishery statistics, estimates of landed weight were derived similarly from NMFS American Samoa cannery sampling data; and for the California-based component of the U.S. longline fishery statistics, estimates of landed weight were derived from other mean weight estimates (e.g., from PacFIN).

## **Purse Seine**

Purse seine fishery statistics for the WCPFC Statistical Area are compiled from U.S. South Pacific Tuna Treaty regional purse seine logbook (RPL) data and cannery landings data. Catch estimates are primarily provided for skipjack tuna, yellowfin tuna, and bigeye tuna. Catch estimates for 2011 are based on vessel unloading data reported by fishing captains, and cannery landings reports where available.

## **Albacore Troll**

Albacore troll fishery statistics are provided separately for the WCPFC Statistical Area and the Pacific Ocean north of the Equator since the range of the fishery in the North Pacific Ocean extends into both the western and central Pacific Ocean and the eastern Pacific Ocean. For the albacore troll fishery in the South Pacific, data are provided by fishing season (July of year  $x$  through June of year  $x+1$ ). This U.S. fishery operates only from November through April. Albacore troll fishery statistics are also provided for the Eastern Pacific Ocean (east of  $130^\circ$  W. longitude), and in the area of overlap between the WCPFC and IATTC statistical areas.

Statistics on number of fish caught are compiled from NMFS Pacific albacore logbook data, and then converted to total catch in weight by applying estimates of mean weight. Mean weight estimates are derived from landings data obtained from the PacFIN database system, cannery reports from American Samoa, and reports provided by industry and foreign fisheries agencies pertaining to other localities where U.S. albacore troll vessels may unload their catches. Because size data for 2009 were not available, Category I weight estimates for these fisheries in 2009 were based on 2008 average weights.

## **Other U.S. Fisheries**

Tropical troll catch statistics for the WCPFC Statistical Area are based on fishermen's catch data and market landings data from Hawaii, Guam, CNMI, and American Samoa. Offshore creel survey data are also used for Guam, CNMI, and American Samoa.

Handline catch statistics are based on fishermen's catch data and market landings data, and are presented separately for the main Hawaiian Islands and offshore Hawaii.

Recreational catches are not included in the total annual catch estimates for Hawaii or CNMI but are included for American Samoa and Guam, where such data are collected through offshore creel surveys.

## Category II: Catch and Effort (Logbook) Statistics

Aggregated catch and effort statistics by species and fishery were compiled for 2010-2011 in the WCPFC Statistical Area and in the Eastern Pacific Ocean (IATTC-N) east of the 150° meridian of west longitude.

## **Longline**

NMFS longline logbook data from U.S.-based (Hawaii and California) and American Samoa-based fisheries are combined into a single data set to calculate aggregated statistics by each month and 5° latitude x 5° longitude block (5° square). Longline data include weight of catches for tunas, billfishes, and other pelagic species, nominal effort in numbers of boats, sets, and hooks, and average number of hooks per float. Data are provided for U.S.-based and American Samoa-based fisheries (Hawaii = HI, California combined with Hawaii = CH, American Samoa = AS), and stratified by number of hooks between floats (D = deep-set or >= 15 hooks per float, S = shallow-set or < 15 hooks per float). United Nations Food and Agriculture Organization 3-alpha species codes are used as species labels.

To meet domestic and WCPFC fisheries data confidentiality requirements, a 3-boat filter was applied to each 5° square x month stratum of summarized data. Data in strata with fewer than 3 boats fishing were further aggregated into annual intervals and larger areas of the Pacific Ocean (termed "quads" in the CAT II longline data files). A simple summary of the results of this data merging or suppression is included in each worksheet of Category II data.

These large areas termed "quads" coincide with RFMO jurisdictions and are labeled WCPFC-N (westward from 150° W and north of the equator), WCPFC-S (westward from 150°

W and south of the equator), and IATTC-N (east of 150° W and north of the equator). There were no U.S. longline fisheries operating east of 150° W and south of the equator in 2008-2011. And there were no U.S. fisheries operating in the area of overlap between the WCPFC and IATTC statistical areas, with the exception of the albacore troll fishery in the South Pacific.

Data from the single longliner operating out of California in the eastern Pacific Ocean in 2008-2011 are included in annual quad summaries, combined with data from Hawaii-based vessels in the same quad (fishery = CH).

## **Albacore Troll**

NMFS albacore troll logbook data are used to calculate aggregated catch and effort statistics by month and 1° square block for the North Pacific and South Pacific troll fishery. Albacore troll data include number of albacore caught and effort in numbers of vessels and days fished. These aggregated data also included albacore pole-and-line catch and effort statistics since 2009.

To meet domestic and WCPFC fisheries data confidentiality requirements, a 3-boat filter was applied to each 1° square x month stratum of summarized data. Data in strata with fewer than 3 boats fishing were suppressed. A simple summary of the impacts of this data suppression is included in each worksheet of Category II albacore troll data.

The summarized data provided for the WCPFC area were for the South Pacific albacore troll fishery only, as fishing in the North Pacific in the WCPFC area was conducted by fewer than three vessels.

### Category III: Size Composition Statistics

Size composition statistics by species and fisheries were compiled in the WCPFC Statistical Area for 2010-2011.

## **Longline**

For the Hawaii longline fishery, individual fish weights (whole weight to the nearest half pound converted to kilograms) are provided for bigeye and yellowfin tuna, albacore, blue and striped marlin, and swordfish. The size data are compiled from the HDAR Commercial Marine Dealer Reports database by linking records from that database with those in the NMFS logbook database for each longline trip, taking into consideration dates of landing and matching commercial marine license numbers in the two data sources. Size data are provided by year, quarter, month, and longline set depth (deep-set = D, shallow-set = S).

For the American Samoa longline fishery, individual fork lengths (to the nearest cm) were measured by the NMFS port sampling program for bigeye tuna, yellowfin tuna, and albacore. A maximum of 50 fish were measured from each longline vessel off-loading at the canneries in American Samoa. Fork length data are provided by year and month.

For the California-based longline fishery, there is no port sampling for size composition data.

The Category I and II estimated longline catch weights are estimated for the month of catch using the average weight from the Category III data for the month of landing of those catches. For this reason and because 100% matching is not possible, the summed Category III weight data will not match the estimated weight of the catch provided in Category I and II. Monthly means of these average weights by set depth were used to estimate the weights of catches (numbers of fish by set depth) based on landing date for the Category I and II data (above). When fish were landed in processed form (e.g., gilled and gutted), conversion factors were used to estimate the whole weight.

### **Purse Seine**

Size composition statistics by species are collected by NMFS samplers in American Samoa and submitted to FFA and the Commission's data provider directly on a quarterly basis.

### **Hawaii Tropical Troll and Handline Fisheries**

For Hawaii tropical troll and handline fisheries, individual fish weights (whole weight to the nearest half pound converted to kilograms) are provided for yellowfin tuna, skipjack, blue marlin and striped marlin for 2010-2011. The size data are compiled from the HDAR Commercial Marine Dealer Reports database and are provided by year and month. These data are not separated between tropical troll and handline fisheries. Troll and handline operations cannot be distinguished by license numbers, which may represent both types of fishing.

The requirement to submit size data by area has not been met by the data submitted on the longline, tropical troll, and handline fisheries. The available HDAR dealer data do not identify area of catch.

### **Albacore Troll**

Individual albacore fork length measurements (to the nearest cm) for the albacore troll fishery in the North Pacific (2008-2010) and for the albacore pole and line fishery in the North Pacific (2008-2010) were taken by port samplers (trained scientific technicians) as vessels unloaded in California, Washington, and Oregon ports and in Pago Pago, American Samoa. These measurements are grouped by month and area; and are all from the Eastern Pacific Ocean, north of the Equator.

For the albacore troll fishery in the South Pacific, there was no port sampling in 2007-2010.

Table 1. Names and contents of data files provided.

Data Category	Contents	File Name
Category I:	Estimated Annual Catches and Numbers of Active Vessels	
	For: Longline Purse Seine Albacore Troll Tropical Troll Tropical Handline Tropical Pole-and-line	CAT_I_WCPFC_US_2007-2011_april27.xls
Category II:	Aggregated catch and effort (non-confidential strata only)	
	Longline: From U.S.-based and American Samoa-based fleets, separated by deep- and shallow-sets	CAT_II_WCPFC_US 2007-2011_LLnc.csv
	Albacore Troll (including Albacore Pole-and-line)	CAT_II_WCPFC_US_2007-2011_AlbTroll_SWFSC_april20.xls

Data Category	Contents	File Name
Category III:	Size Composition:	
	Longline:  Am. Samoa Port Sampling (lengths)	CAT_III_AM_SAM_LL_ALB-BET-YFT_2010_20April.xlsx CAT_III_AM_SAM_LL_ALB-BET-YFT_2011_20April.xls
	Longline:  Hawaii State Division of Aquatic Resources Dealer Data (weights) - inferred to be from deep-set or shallow-set longline landings	CAT_III_HI_LL_BET_2010Q1.csv CAT_III_HI_LL_BET_2010Q2.csv CAT_III_HI_LL_BET_2010Q3.csv CAT_III_HI_LL_BET_2010Q4.csv CAT_III_HI_LL_BET_2011Q1.csv CAT_III_HI_LL_BET_2011Q2.csv CAT_III_HI_LL_BET_2011Q3.csv CAT_III_HI_LL_BET_2011Q4.csv CAT_III_HI_LL_YFT-ALB-BUM-MLS-SWO_2010.csv CAT_III_HI_LL_YFT-ALB-BUM-MLS-SWO_2011.csv
	Tropical Troll and Handline:  Hawaii State Division of Aquatic Resources Dealer Data (weights) inferred to be from non-longline landings	CAT_III_HI_T-HL_SKJ-YFT_2010.xlsx CAT_III_HI_T-HL_BUM-MLS_2010.xlsx CAT_III_HI_T-HL_SKJ-YFT_2011_20April.xlsx CAT_III_HI_T-HL_BUM-MLS_2011_20April.xlsx
Metadata Document:	This Data Report	DR-12-007.pdf