

**Submission of 2004 and 2005 U.S. Fishery Statistics
For the Western and Central Pacific Ocean
To the Western and Central Pacific Fisheries Commission¹**

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This is the second submission of annual fishery statistics by the National Oceanic and Atmospheric Administration (NOAA), National Marine Fisheries Service (NMFS), Pacific Islands Fisheries Science Center (PIFSC) to the Western and Central Pacific Fisheries Commission (WCPFC). The submission consists of provisional 2005 data for U.S. fisheries targeting tuna and tuna-like species in 2005, and updated data for 2004, unless otherwise indicated.

To more effectively and efficiently compile annual statistics by the overlapping areas of authority (or interest) of the WCPFC, the Inter-American Tropical Tuna Commission, and the International Scientific Committee for Tuna and Tuna-like Species in the North Pacific Ocean, the PIFSC undertook a complete revision of its data processing procedures. Part of this undertaking involved compiling the statistics according to the WCPFC Statistical Area as defined by the Scientific Committee's Statistics Specialist Working Group (WCPFC/SC1/2005/ MEETING REPORT, ANNEX VIII, paragraph 8 of Recommendation SC1-ST-1). While significant progress was made on this undertaking, the task is not yet complete.

Preparation of these statistics involved cooperation of staff from the PIFSC in Honolulu, Hawaii, and the Southwest Fisheries Science Center (SWFSC) in La Jolla, California. PIFSC staff included Frederick Dowdell, Diosdado Gonzales, Craig Graham, Russell Ito, Karen Sender, and Penglong Tao. SWFSC staff included John Childers, Al Coan, and Jim Kinane.

Three categories of fishery data are provided: 1) Category I -- annual catch estimates by fishing fleets (distant-water troll, longline, pole-and-line, purse seine, and small scale troll and handline), 2) Category II -- catch and effort (logbook) aggregated data for longline and distant-water troll, and 3) Category III -- size (length or weight) data for key species and fisheries. The methods used in compiling the three categories of fishery statistics and other specifics are described below. All statistics were compiled by year the catch was landed (2004 and 2005) regardless of the year the fishing gear was set.

¹ PIFSC Data Report DR-06-006. Issued 27 July 2006.

Category I: Annual Catch Statistics

The estimates of annual catches for landing years 2001-2005 were compiled from a number of sources: 1) American Samoa Department of Marine and Wildlife Resources offshore creel survey; 2) Guam Division of Aquatic and Wildlife Resources offshore creel survey and commercial landings data; 3) Hawaii Division of Aquatic Resources (HDAR) Commercial Marine Dealer data and federal longline logbook data (for Hawaii-based boats); 4) State of California landings and logbook data, federal High Seas Compliance Act logbook data, and some Hawaii logbook data submitted in California (for California-based longline boats); and 5) Northern Mariana Islands Division of Fish and Wildlife Commercial Purchase data. Therefore, the U.S. annual catch statistics are a mixture of estimated total catches (American Samoa and Guam) and estimated landings (Hawaii and Northern Mariana Islands).

For the Hawaii longline fleet, the final estimate of annual landed weight for each species was taken to be the larger of the estimated landed weight based on the dealer data alone and the estimated landed weight derived as the product of number of fish kept (logbook data) and mean whole fish weight (dealer data). In using the dealer data, landed weights by species were compiled by combining the sold and unsold categories. The HDAR has recently improved the coverage and quality of the market data. Thus, we believe these data represent nearly a complete coverage of landings. Landed fish are weighed to the nearest half pound. If fish were landed in processed form (e.g., gilled and gutted), conversion factors were used to estimate their whole weight. Landed weights were summed and then converted to metric tons. For the combined logbook data, reported catches in numbers of fish kept, by species, were summed for those longline sets with begin set location occurring in the WCPO. Begin set location was used because it is the only location data field that is available for the entire Hawaii logbook time series and because it is the most common location used in the other logbook data sets. The summed catch in numbers was then converted to weight of the retained catch using average whole weights computed from the dealer data for those vessel-trips with all sets exclusively in the WCPO (using all location data, i.e., begin and end set as well as begin and end haul, when available).

The logbook estimates are generally the larger of the two estimates of landings because logbooks include catches that are kept but may not reach the market. However, the estimates of landings based on logbook data do not include logbook information on discarded catch, because a procedure for estimating the average weight of discarded fish has not been developed. For some species, particularly marlins that are often misidentified in the logbook data, the estimates of landings based solely on dealer data are commonly larger than estimates involving logbook data. Also, recreational catches are not included in the total annual estimates for Hawaii or the Northern Mariana Islands but are included for American Samoa and Guam, where such data are collected by survey.

Category II: Catch and Effort (Logbook) Statistics

Three longline data sets were used for landing years 2004 and 2005, all with catches in number of fish by species, effort in sets and hooks, and location. United Nations Food and Agriculture 3-alpha species codes were used to identify species. The largest data set used derives from the mandatory submission of the NMFS Western Pacific Longline Fishing Log by Hawaii-based fishers. A rigorous quality control process is followed, including a quick review conducted with the provider when the logs are picked up from the vessels, later a visual inspection of the logs, and finally a computer-based error checking algorithm. The second largest data set used derives from a similar program for American Samoa-based vessel. These data are collected by the American Samoa Department of Marine and Wildlife Resources for NMFS. A third data set is derived from the mandatory submission of High Seas Fisheries Compliance Act logbooks by West Coast (mostly California)-based longline vessel operators. For 2003 data submitted last year, an additional data set was used. This fourth data set consists of a few Western Pacific logbooks submitted by operators of boats that departed Hawaii but landed on the West Coast.

All three longline data sets were merged into a single logbook data set. These combined logbook data, therefore, represent the entire operations of the American Samoa, California and Hawaii-based fleets, not just the operations taking place in the WCPO. While only those fishing trip records with landing year 2004 or 2005 were selected for compilation, as mentioned above, the data were aggregated by the begin set year and month. In addition, the data were aggregated by so-called 5x5 blocks of longitude and latitude. For example, one such block would be from -180° to $< -175^{\circ}$ W longitude and 0° to $< 5^{\circ}$ N latitude. Southern latitudes are negative. Thus, the data within each of the three data sets were aggregated by, in the vernacular, 5x5xMon, within begin set year. The four data sets were then merged into a single data set.

Since 1995, U.S. distant-water troll vessels fishing on the high seas have been required to submit federal High Seas Compliance Act logbooks, and since 2005, all troll vessels on the U.S. West Coast have been required to submit logbooks. The catch and effort data for distant-water troll fishing were summarized by 1° longitude x 1° latitude x month strata within each year, according to the international standard for surface fisheries. The 2004 data have not changed from the submission last year. In 2005, logs were received from 69% of the trips made. For the distant-water troll fleet based in American Samoa, neither updated 2004 data nor provisional 2005 data are available for submission.

To meet the data confidentiality requirements in NOAA Administrative Order 216-100, a 3-boat filter was applied to each 5x5xMon or 1x1xMon block of summarized data, i.e., data in blocks with fewer than 3 boats fishing were excluded.. A simple summary of the impacts of this filtering is included for the longline logbook data. A comparable summary is not available for the distant-water troll data.

Category III: Size Composition Statistics

Size data for Hawaii longline landings (whole weight to the nearest half pound converted to kilograms) were compiled from the State of Hawaii Division of Aquatic Resources (HDAR) Commercial Marine Dealer data from vessel-trips with landing year 2005. This was done by selecting only those vessel-trips which had been identified as occurring exclusively in the WCPO on the basis of Hawaii logbook records of the locations at start of set, end of set, start of haul, and end of haul. When fish were landed in processed form (e.g., gilled and gutted), conversion factors were used to estimate the whole weight. Weight intervals vary from 1 kg to 5 kg depending on the size range of each species. Size frequency statistics for Hawaii were compiled for albacore, bigeye tuna, yellowfin tuna, and swordfish. While the PIFSC has collaborated with HDAR in improving the dealer reporting system, PIFSC has no control over the quality of these data.

Size frequency statistics for American Samoa longline landings were similarly compiled for albacore and yellowfin tuna. While some size data are available for Guam and the Northern Mariana Islands, the sample sizes are too small for dissemination. Size composition data are not available for the distant-water troll fleets landing on the U.S. West Coast or in American Samoa.

Names of Data Files Provided

Category I:	Annual Catches and Vessels	US WCPO Catches & Vessels 2001-2005.xls
Category II:	Logbook:	US LL 2004-05 5x5xM.xls US LL 2004-05 5x5xM_Rule3Est.xls US Troll 2004-05 1x1xM.xls
Category III:	Size Composition:	US Amer Samoa LL Size Data 2005.xls US Hawaii LL size Data 2005.xls