



**SCIENTIFIC COMMITTEE  
SIXTH REGULAR SESSION**

Nuku'alofa, Tonga  
10-19 August 2010

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**SCIENTIFIC DATA AVAILABLE TO THE WESTERN AND CENTRAL PACIFIC  
FISHERIES COMMISSION**

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**WCPFC-SC6-2010/ST WP-1(rev. 3)**

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## 1. INTRODUCTION

Recommendations from the Scientific Committee (SC) entitled “*Scientific Data to be Provided to the Commission*” and “*Standards for the Provision of Operational Catch and Effort Data to the Commission*” (Anon. 2005a, Annex VII) were adopted by the Western and Central Pacific Fisheries Commission (WCPFC) at its second session in December 2005 (Anon. 2005b, par. 25). The “*Standards for the Provision of Operational Catch and Effort Data to the Commission*” have been incorporated as ANNEX 1 of “*Scientific Data to be Provided to the Commission*<sup>1</sup>” which was further refined and subsequently adopted at the Fourth Regular Session of the Commission, Tumon, Guam, USA, 2-7 December 2007. The most recent revision (covering the inclusion of vessel numbers in the provision of aggregate data) was adopted at the Sixth Regular Session of the Commission, Papeete, Tahiti, 7–11 December 2009 (Anon. 2009, par. 188).

As specified in the recommendations for the provision of data, the SPC Oceanic Fisheries Programme (OFP), which has been engaged by the Commission to provide scientific services (including the collection, compilation and dissemination of fisheries data) under Article 13 of the Convention, has compiled annual catch estimates, operational (logsheets or logbooks) catch and effort data, aggregated catch and effort data, and size composition data on behalf of the Commission. In conducting scientific research and analyses in support of the work of the Commission, the OFP has also compiled other types of data, such as reports of unloadings, observer data, port sampling data, tagging data, oceanographic data and various types of biological data.

While the catch and effort data and size composition data currently available are extensive, there are important gaps. The purpose of this paper is to review recent developments concerning the compilation of data by the OFP, on behalf of the Commission, particularly in regard to the important data gaps, and to present information on the coverage of scientific data held by the WCPFC.

A system to review the provisions of scientific data to the WCPFC and highlight data gaps on the Commission’s web site was developed prior to SC4 (refer to <http://www.wcpfc.int/statprov>). This system serves to provide the following functions:

- Provide the WCPFC Secretariat, the Scientific Committee and data managers with a broad indication of the status of data collected and provided to the WCPFC (i.e. identify data gaps);
- Provide CCMs with a concise summary of what data have/have not been provided to the WCPFC, and any deficiencies with the data provided;
- Serve as a reference for WCPFC Secretariat and data managers when following up with CCMs on any outstanding issues with respect to the collection/provision of data to the WCPFC (identify data gaps which may prompt 'data rescues', for example);
- Provide the users (e.g. researchers) with a concise summary of what data are available and inform them of any problems that are apparent in data provided.

CCMs have been encouraged to use this tool to ensure their data provisions have been registered with the Commission and review where data provisions are outstanding.

Detailed quantitative information on the catch and effort data, size composition data, tagging data, unloadings data and observer data held by the OFP is presented in the OFP Data Catalogue, which can be viewed at <http://www.spc.int/oceanfish/Html/Statistics/DataCat/DATACAT.htm>. An indication of the coverage of aggregate catch and effort data, operational logsheets (catch and effort) data, unloadings data, port sampling data and observer data held by the OFP can also be viewed at <http://www.spc.int/oceanfish/Html/Statistics/Coverage/index.asp>. It is expected that these facilities will be enhanced and transferred to the Commission’s web site at some stage in the future.

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<sup>1</sup> Can be viewed at <http://www.wcpfc.int/doc/data-01/scientific-data-be-provided-commission-revised-wcpfc4-wcpfc6>

## 2. RECENT DEVELOPMENTS IN RESOLVING DATA GAPS

Data gaps and other issues related to the provision of data have been reported at SC1 (Williams and Lawson, 2005), SC2 (OFP, 2006), SC3 (OFP, 2007), SC4 (OFP, 2008) and SC5 (OFP, 2009). The following sub-sections summarise some of the major recent developments concerning the data gaps.

### 2.1 *Philippines tuna fishery data*

The breakdown of catch estimates by gear type and the lack of operational logsheet data for the Philippines domestic fisheries are amongst the most significant gaps in the provision of data to the WCPFC. During the past year, the WCPFC Secretariat and the SPC/OFP continued to work with their Philippine counterparts to improve the data available from these fisheries. The establishment of the UNDP/GEF-funded West Pacific East Asia Oceanic Fisheries Management (WPEA-OFP<sup>2</sup>) project in 2010 will support this work over the next three years, with an expectation of a larger, five-year project to follow. Significant developments in resolving data gaps in the Philippines' domestic fisheries over the past year include:

- A study (Itano and Williams, 2009) was undertaken in late 2009 to determine the viability of large bigeye and yellowfin tuna catch estimates determined for the Philippines Region 4B (Palawan), as one of the main contributors in the national annual catch estimates. The study identified several problems in the data collection system (e.g. species identification and bias in sampling due to low coverage) that resulted in a large over-estimation of the bigeye tuna catch. Most of the study's recommendations have now been implemented and, *inter alia*, resulted in the adjustment to the national bigeye tuna catch estimates.
- An Annual Catch Estimates Workshop (Anon, 2010e) was convened and attended by important stakeholders with knowledge and information on the tuna fisheries in the Philippines (government, industry and NGOs). The outcome of this workshop was agreement on more reliable annual catch estimates for the Philippines tuna fisheries and a plan for further improvement in the data collection and estimation processes in the coming years.
- A review of the species composition and size data collected under the National Stock Assessment Project (NSAP) was conducted in a workshop held at BFAR offices in May 2010 (Anon, 2010d). These data provide fundamental information for tuna stock assessments and for the annual catch estimation process, and the workshop identified areas where better information could be provided in the future.
- A cannery database system was developed by SPC/OFP and installed in the offices of the Philippines Bureau of Fisheries and Aquatic Resources (BFAR) in March 2010. This database system caters for the entry of Philippine tuna fishery cannery receipts data submitted to BFAR by all tuna canneries based in the Philippines and produces reports differentiating catches by domestic and foreign fleets, and catches within the EEZ and ex-EEZ (i.e. high seas and other EEZ), which are fundamental input into the annual catch estimation process. BFAR have collected and entered data covering 2008 and 2009 cannery receipts, mainly from purse seine and ringnet vessels.
- The collection of operational logsheet data from the domestic purse seine fishery continues to improve. The data collected and processed for 2008 represents about 70% coverage of activities, and the data collected and processed for 2009 represents about 50% coverage at this stage.

### 2.2 *Indonesian tuna fishery data*

The breakdown of annual catch estimates by gear type and the lack of operational logsheet and size data for the Indonesian domestic fisheries are amongst the most significant gaps in the provision of data to the WCPFC. During the past year, with the assistance provided through the WPEA-OFP project, the WCPFC Secretariat and the SPC/OFP continued to work with their Indonesian counterparts to improve the data available from these fisheries. Significant developments in the past year, include:

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<sup>2</sup> Refer to <http://www.wcpfc.int/doc/2009/wpea-ofm-project-document>; significant co-financing is included with this project in supporting the work in Indonesia, Philippines and Vietnam

- The first Indonesian (WCPFC Area) Annual Catch estimates Review Workshop was held in Jakarta during March 2010 (see Anon, 2010b). This workshop was attended by participants (24) from Directorate General of Capture Fisheries (DGCF), the Research Center for Capture Fisheries (RCCF), port authority departments, fishing associations and the fishing industry. The outcome of this workshop was the production of annual catch estimates by gear and species for 2000–2009 for the Indonesian fisheries, although the estimates excluded catch from archipelagic waters. The workshop participants indicated that more work is required, but acknowledged that this process is very important and is now been established as an annual event which should ultimately result in reliable catch estimates from the Indonesian tuna fisheries in the future.
- The RCCF Database specialist attended a one-week training course at SPC/OFP in February 2010. The training was designed to provide advanced skills in database development for tuna fisheries data and also included a review of the port sampling data collected in Indonesia during 2008 and 2009, with recommendations for improving data collected where problems were identified. The provision of aggregate port sampling data to the WCPFC was one of the main outputs of this training attachment.
- A port sampling training workshop was conducted in Bitung, North Sulawesi during April 2010. This workshop was convened to train twenty new enumerators to be based in Bitung and Kendari ports which will provide a good basis for obtaining size and species composition data from the Indonesian longline, purse seine and pole-and-line fisheries in the next few years.

### 2.3 Vietnamese tuna fishery data

The lack of annual catch estimates and other data for stock assessments for the Vietnamese domestic fisheries is acknowledged to be an important gap in the provision of data to the WCPFC. During the past year the WCPFC Secretariat and the SPC/OFP commenced working with their Vietnamese counterparts to improve the data available from these fisheries. Significant developments in the past year, include:

- A Tuna Data Collection workshop (Anon, 2010c) was convened and attended by important stakeholders with knowledge and information on the tuna fisheries in Vietnam. The main outcome of this workshop was a plan to establish logsheet and port sampling data collection systems for the domestic longline fishery during 2010 which would then be extended to the other gear types in 2011.
- Vietnamese fisheries scientists have yet to participate in the WCPFC meetings and functions, so support through the WPEA was provided in 2010 to attend (i) attachment training in tuna data collection and management at SPC/OFP, and (ii) the Stock Assessment Workshop (SAW) in June 2010 (two scientists).

### 2.4 Number of vessels in the aggregate data

The compilation of public domain catch and effort data has been hampered by the lack of key effort information (number of vessels) in the aggregate data provided by Commission members and co-operating non-members (CCMs). In acknowledging the difficulties in filtering aggregate data in order to adhere to the Commission's rules for the dissemination of public domain data (see Para. 9 in this document), WCPFC6 agreed to the following recommendation put forward by the Ad Hoc Task Group for Data (AHTG–Data) :

*“188. WCPFC6 agreed, as advised by the AHTG–Data and recommended by TCC5, that the Commission amend its Procedures and Standards for Scientific Data to be Provided to the Commission to include in Section 4 (Catch and effort data aggregated by time period and geographic area) the following new paragraph:*

***CCMs are to provide, to the extent possible, the number of individual vessels per stratum and area covered by their operational data with the aggregated catch and effort data they submit to the Commission.”***

CCMs that provide operational logsheet data to the Commission, or the SPC-member countries that provide operational logsheet data to the SPC, are **not** required to provide this additional information since the WCPFC Data Managers (SPC) can undertake the work of filtering out the strata representing the activities of less than 3 vessels in the process of aggregating the operational data.

The status of the provision of “number of individual vessels per stratum” for those CCMs that only provide aggregate data is as follows:

- Chinese Taipei have provided information on the number of vessels per stratum in their provision of 2007, 2008 and 2009 aggregate data for their distant-water (DWLL) and offshore (STLL) longline fleets. This information will therefore allow the production of a public domain version of their aggregate data for these years only but not the entire time series of their aggregate data. A request for clarification was sent to Chinese Taipei in regards to whether the cells representing the activities of “less than 4 vessels” have been removed from their recent data provision or not, noting that the WCPFC rules regarding the filtering of data apply to public domain data dissemination and not data submissions to the WCPFC.
- The USA has filtered their aggregated longline data to remove strata which represent the activities of less than 3 vessels because this is a requirement in their national legislation. The aggregate data they provide to the WCPFC are therefore considered to be in the public domain.
- Japan has yet to provide information on the number of vessels per stratum with their aggregate longline data.
- China has yet to provide information on the number of vessels per stratum with their aggregate longline data.
- Korea has yet to provide information on the number of vessels per stratum with their aggregate longline data.
- Spain has yet to provide information on the number of vessels per stratum with their aggregate longline data.

At this stage, there is insufficient information provided to change the current method of compiling the WCPFC public domain data<sup>3</sup> (see <http://www.wcpfc.int/science-and-scientific-data-functions/public-domain-data>).

### ***2.5 Collection of Observer Spill sampling data***

The collection of paired “spill” and “grab” samples by observers is an important WCPFC project which is fundamental for the estimation of size selectivity bias in grab samples of the purse-seine species and size composition. This project has progressed in the past year with the addition of data collected and processed from thirteen trips. A description of the recently-provided data and an update on the estimation of selectivity bias can be found in Lawson (2010).

### ***2.6 Provision of purse-seine unloading and cannery data***

Over the past year, comprehensive purse-seine landings data have been provided to the WCPFC which have the potential for providing better estimates of the species composition of the purse-seine catch when used in conjunction with data collected from other sources (e.g. observers and logsheets). The catch from Japanese purse seine vessels landing in Japanese ports is separated into species and broad size categories, weighed and the data recorded on a certificate which is authorized by an “auditing” company. The Japanese purse-seine landings data collected during 2009, in accordance with an option for data reporting and provision under CMM 2008-01, were provided to the WCPFC Secretariat on a monthly basis during 2009 (for further information see <http://www.wcpfc.int/doc/wcpfc6-2009ip19/preliminary-report-port-monitoring-unloading-japanese-purse-seiners-and-some-sug>).

In late 2009, the International Seafood Sustainability Foundation (ISSF) requested their participating fishing companies to provide summarized landings data to their respective Tuna Regional Fisheries Management Organisations (RFMOs) to assist in analyses comparing the catches recorded in fishing vessel logbooks and observer records. Since January 2010, ISSF canneries have provided detailed individual vessel landings data

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<sup>3</sup> It is noted that an analysis provided in SC5 ST WP-5 showed that even if the number of vessels per stratum is provided, aggregate catch and effort data for individual flags that have been filtered for less than three vessels will not be accurate. See <http://www.wcpfc.int/doc/st-wp-08/timothy-lawson-and-peter-williams-status-public-domain-catch-and-effort-data-held-west>

on a quarterly basis to the WCPFC. These data potentially provide an excellent basis for cross-checking the purse-seine data collected from other sources.

### 3. STATUS OF DATA GAPS

#### 3.1 *The main data gaps related to Stock assessment of target tunas*

The following are considered the main data gaps in the historical aggregated catch and effort, and size composition data, used in stock assessments for the target tuna species:

##### 3.1.1 Important data gaps from key fleets

###### *Chinese-Taipei domestic (based in Chinese Taipei) offshore (STLL) longline fleet*

- There are no operational (logsheet), aggregated catch and effort, nor size data available for years prior to 2004.

###### *Indonesian tuna fisheries*

- Total catch estimates for the period prior to 1970 are missing.
- Estimates of annual catches have not been stratified by gear type for the period 1991–1999.
- Estimates of annual catches of ‘yellowfin’ covering the period from 1970 to 1999 also include bigeye.
- There is a general lack of operational, aggregated catch and effort, and size composition data.
- The most recent catch estimates for 2000–2009 have been provided for the Indonesian fisheries by gear and species, but exclude archipelagic waters catches. The requirements for submission of scientific data to the WCPFC stipulates that annual catch estimates should cover the WCPFC Convention Statistical Area, which includes the archipelagic waters of Indonesia north of 8°S.
- For the period from 1970 to 1999, large annual catches have been reported for ‘unclassified’ gear types; information is required regarding the gear types included in ‘unclassified’ and the size composition of catches taken by ‘unclassified’ gear types.

*Some of the data gaps listed in previous years have been resolved to some extent over the past 2-3 years through the work of the following initiatives:*

- (i) *the Indonesian/WCPFC Tuna Data Collection Workshops conducted in 2007, 2008 and 2009, reported in previous versions of this paper;*
- (ii) *the establishment of a national logbook data collection system;*
- (iii) *the Indonesian Data Rescue Project (2009), reported in last year’s paper;*
- (iv) *the Indonesian/WCPFC Annual Catch Estimates Workshop conducted in 2010*

###### *Japanese coastal fleets*

- There are no operational or aggregated catch and effort data, nor size composition data, available.

###### *Japanese pole-and-line fleet*

- There are no operational or aggregated catch and effort data, nor size composition data, are available for the period prior to 1972.

###### *Philippines tuna fisheries*

- Total catch estimates for the period prior to 1970 are missing.
- There is a general lack of operational and aggregated catch and effort data.
- Only limited size composition and species composition data are available for the period prior to the National Stock Assessment Programme (NSAP), which commenced in 1997.
- For the period from 1970 to 2007, significant annual catches have been reported for ‘unclassified’ gear types; information is required regarding the gear types included in ‘unclassified’ and the size composition

of catches taken by ‘unclassified’ gear types. The catches of ‘unclassified’ gear types have been mostly allocated to the municipal ‘hook-and-line’ fishery, but catches in some regions appear to be unrealistically high for yellowfin and bigeye tuna.

*Some of the data gaps listed in previous years have been resolved to some extent over the past 2-3 years through the work of the following initiatives:*

- (i) *the Annual Catch Estimates Review Workshops conducted in 2008 and 2010 has helped resolve the issues related to the large “unclassified” gear catches and led to more reliable bigeye tuna catch estimates;*
- (ii) *the establishment of purse-seine logsheet data collection since 2008;*
- (iii) *the ongoing work of the NSAP in providing important size and species composition data;*
- (iv) *a study in late 2009 (Itano and Williams, 2009) which helped resolve issues related to high bigeye tuna catches;*
- (v) *the establishment of data collection from other sources (e.g. cannery receipts) which has contributed to the catch estimation process.*

#### *Vietnamese tuna fisheries*

- There are no annual catch estimates, operational or aggregated catch and effort data, nor size composition data currently available, other than anecdotal information on catches (e.g. Lewis, 2005).

#### 3.1.2 Historical coverage rates

- For several fleets, particularly those of the small Pacific island countries, better estimates of historical coverage rates of logsheet and unloadings data are required to improve annual catch estimates and aggregated catch and effort data. In this regard, the identification and rescue of historical data are required.

#### 3.1.3 Nationality of the catch

- There have been difficulties in certain circumstances in assigning the catch to one national entity or another. While it is acknowledged that catches should normally be assigned to the country of the flag flown by the fishing vessel, there are sometimes circumstances where this may not be appropriate. The Coordinating Working Party on Fishery Statistics (CWP), convened by FAO, has listed some situations in which difficulties in assigning a nationality might exist. The CWP also provides guidelines for how the nationality of the catch may be assigned in certain situations where it might not be appropriate for the nationality of the catch to be equivalent to the flag flown by the fishing vessel (see <http://www.fao.org/fishery/cwp/handbook/C>). In the WCPFC fisheries, there are a number of situations where the assignment of the nationality of the catch is not straightforward, for example:
  - o Foreign-flagged vessels domestically-based in Pacific Island countries, including domestic charter arrangements
  - o Vanuatu-flagged purse seine vessels fishing under the FSM Arrangement under the “home party” of Papua New Guinea
- The consistent assignment of "fishing nation" in all types of scientific data has a number of important implications within the SC and other areas of the Commission’s work. With the establishment earlier this year of a WCPFC Conservation Management Measure (CMM) on chartering procedures for assignment of catch data to national entities are being developed. These procedures are required to ensure that “double-counting” of catch and effort data provided by the flag and chartering entities does not occur.

*A number of coastal states have provided notifications over the past two years that locally-based foreign fleets should be considered as charter vessels and the data assigned to the coastal state. However, several issues remain to be resolved before the data can be re-assigned (from flag-state to coastal-state), in particular, confirmation from the “flag” state that they have removed the data corresponding to the chartered vessels from their aggregate data to ensure “double-counting” does not occur.*

### 3.1.4 Operational catch and effort data

- Coastal states (which are members of the SPC and FFA) collect operational catch and effort data through bilateral access agreements with foreign fleets fishing in their waters; these data are processed and held by the SPC on behalf of the coastal states. Operational catch and effort data are not available outside the EEZs of FFA member countries for Japanese fleets, the Korean distant-water longline fleet, and the Chinese and Chinese Taipei distant-water longline fleets that target bigeye and yellowfin. (Operational catch and effort data for Chinese and Chinese Taipei distant-water longliners targeting albacore are compiled by port samplers in Pago Pago, American Samoa and Levuka, Fiji).
- Operational catch and effort data, together with fine-scale oceanographic data that may affect catch rates, are required for the development of indices of abundance. Operational catch and effort data are also required to determine the spatial distribution of the catch in relation to EEZs, the high seas areas and other management-related areas.

*Progress has been made with the provision of historical operational data over the past two years (See Section 4.3 below and Table 7).*

### 3.1.5 Aggregate catch and effort data

- Certain stock assessments require aggregate catch and effort data that cover the extent of the stock for that species<sup>4</sup>. In the case of bigeye tuna, for example, stock assessments cover the Pacific Ocean and therefore the provision of aggregated longline data is required to cover the Pacific Ocean. In the case of south Pacific Albacore, stock assessments cover the Pacific Ocean, south of the equator. The following lists the vessel nations and years where aggregate longline catch/effort data does not cover the Pacific Ocean :
  - o Chinese distant-water longline fleet for all years;
  - o Chinese Taipei distant-water longline fleet for 2002, 2004-2009;
  - o Korean distant-water longline fleet for 1998–1999;
  - o Japan distant-water longline fleet for 2005–2009.

The requirements for the provision of scientific data to the WCPFC cater for the voluntary submission of data covering the Pacific Ocean:

*“Catch and effort data aggregated by periods of month and areas of 5° longitude and 5° latitude that have been raised to represent the total catch and effort, and unraised longline catch and effort data stratified by the number of hooks between floats and the finest possible resolution of time period and geographic area, covering distant-water longliners may also be provided for the Pacific Ocean east of the eastern boundary of the WCPFC Statistical Area”*

*SC5 considered that this problem could also be resolved through the data exchange MOU with IATTC whereby WCPFC could obtain the balance of the Pacific Ocean data (i.e. EPO data) from IATTC and combine it with the WCPFC data to cover the Pacific Ocean. WCPFC6 (December 2009) subsequently approved the data exchange arrangement with IATTC.*

- In some instances, the aggregated catch and effort data provided to the WCPFC for the most recent year of activities have not been raised and represent low coverage of activities. For example, this is the case with the 2009 aggregate longline data provided by Korea where coverage of aggregate data provided was only 29% of the annual catch estimates – these data are typically not loaded into the WCPFC databases used for the stock assessments due to the low-coverage problem.

*Also, the 2008 aggregate Korean longline data (with adequate coverage) were not provided until June 2010 which delayed the 2010 stock assessments.*

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<sup>4</sup> The provision of distant-water longline data covering the whole Pacific was a change in the guidelines on the Provision on Scientific Data to the Commission that was approved at WCPFC4 in December 2007.

- In some instances, it is not possible to reconcile the aggregate longline catch data with annual catch estimates. For example, this is the case with the aggregated catch/effort data covering the Japanese distant-water longline fleet, where catch is provided in numbers of fish only
- In some instances, the unit of catch provided in the aggregate longline catch data is not suitable for use in stock assessments. For example, the aggregated catch data provided for the distant-water Chinese longline fleet are in units of “kilograms” only, and the stock assessments require the catch to be in “numbers of fish” by species.

*This problem has been rectified in the data provided for recent years (2008–2009), but is still a problem with the Chinese longline data provided for 2003–2007.*

### 3.1.6 Species composition data for purse seiners

- Species composition data collected by observers and port samplers are needed to improve estimates of the catches of yellowfin and bigeye for purse-seine fleets, other than vessels fishing under the United States Treaty, the FSM Arrangement and the domestic PNG fleet.

*This problem is being addressed through (i) the establishment of 100% observer coverage since January 2010, (ii) the WCPFC project on spill sampling, and (iii) initiatives related to the collection of landings data and cannery receipts.*

### 3.1.7 Size composition data for longliners

- Size composition data are not available for Vanuatu and Chinese distant-water longline fleets targeting bigeye and yellowfin in the eastern tropical areas of the WCPFC Statistical Area.

## **3.2 The main data gaps related to Stock assessment of shark species**

The SC5 “... requested SPC-OFP to commence work on preliminary stock assessments for key shark species, and to develop a research plan to support further assessment for consideration at SC6 ...”.

There are a number of data-gap issues with respect to shark catches in the WCPFC Convention Area and these are elaborated in Clarke and Harley, 2010.

## **3.3 The main data gaps related to ecosystem approach to fisheries**

Gaps in data collection/provision, sampling design and research related to the implementation of an ecosystem approach to fisheries include the following:

- The coverage of catch data for non-target species, including species of special interest (marine reptiles, marine mammals, sharks and sea birds), collected by observers needs to be increased for most longline and purse-seine fleets, and particularly the distant-water longline fleets, for which observer coverage has been negligible. Exceptions to the need for increased coverage are the longline fleets of New Zealand, Papua New Guinea and the United States (based in Hawaii), the purse seine fleet of Papua New Guinea and purse seiners fishing under the United States Treaty and the FSM Arrangement. Coverage of the Australian longline fleet has increased in recent years.
- Biological data covering non-target species are lacking; the types of data required include length and weight, length and age at maturity, longevity, growth rate, fecundity, habitat use (vertical and horizontal range), and trophic interactions.
- Other gaps include quality-controlled ocean bathymetry data, especially regarding seamount definitions and locations, oceanographic data products resolving mesoscale features relevant to fisheries, and acoustic data for the validation of models of mid-trophic components of oceanic ecosystems.

#### 4. RECENT PROVISIONS OF SCIENTIFIC DATA TO THE WCPFC

Under the policy for the provision of data to the Commission, annual catch estimates and aggregated catch and effort data must be provided by 30 April 2008 (see “Reporting obligations” at the following web page <http://www.wcpfc.int/statprov>).

##### 4.1 Annual Catch Estimates

Tables 1 and 2 list the dates on which catch estimates for 2008 and 2009, respectively, were provided, and include notes on the data that have been provided, highlighting gaps or problems in the data provided.

Annual catch estimates for 2008 have been provided by all CCMs and CNMs, but yet to be provided by one country (Panama). Annual catch estimates for 2009 have been provided by all CCMs, but have yet to be provided by three CNMs and Panama. For 2008 annual catch estimates, there were 16 out of 24 CCMs (75%) that had provided estimates by the 30 April 2009 deadline, with 19 out of 24 entities (79%) having provided estimates by 15 May 2009. For 2009 annual catch estimates, there were 23 out of 25 CCMs (92%) that had provided estimates by the 30 April 2010 deadline which indicates a clear improvement in the timeliness of the provision of estimates; only two CCMs (Cook Islands and USA) missed the deadline with their provision of 2009 annual catch estimates.

The quality of estimates provided continues to improve with a reduction in the number of notes assigned to the annual catch estimates for 2009 compared to 2008 estimates. Work in the coming year will include:

- Reconciliation of historical Pacific Bluefin annual catch estimates with relevant CCMs;
- Reconciliation of the historical annual number of vessels by size category with each CCM.

##### 4.2 Aggregate Catch/Effort data

Tables 3, 4 and 5 list the dates on which aggregated catch and effort data were provided for 2007, 2008 and 2009, respectively, and include notes on the data that have been provided (see Table 6), highlighting gaps or problems in the data provided. The notes in the right-hand column of each table may refer to instances where the data provided do not satisfy criteria specified in the guidelines for the provision of Scientific Data to the WCPFC.

Pacific Island countries provide operational catch/effort (logsheet) data [which are aggregated by the OFP] on a regular basis and their provisions of aggregate catch/effort data have therefore been flagged as being provided on the deadline (30 April) since they are available at that time. The one exception was the delay in the provision of operational logsheet data for 2009 from Fiji due to a crash with the network server holding their data.

The notable gaps in the provision of 2007, 2008 and 2009 aggregate data include:

- The China longline aggregate data prior to 2008 only cover the WCPO area (the Pacific Ocean west of 150°W) instead of the WCPFC Convention Area
- The 2008 aggregate Korean longline data (with adequate coverage) were not provided until June 2010 which delayed the 2010 stock assessments (as noted in Section 3.1.5 above). 2008 aggregate data for this fleet were provided in 2009, but coverage was only 36%, so could not be used in stock assessments
- The low coverage of data in the 2009 aggregate Korean longline data provision meant that it could not be used in stock assessments
- The late submission of 2009 US aggregate longline data resulted in delays to the 2010 stock assessments. [The aggregate US longline data are incomplete due to US legislation requiring the removal of cells representing the activities of less than three vessels.]

In general, the timeliness of the provision of aggregate catch/effort data has improved in the past few years, and there now remain very few gaps in the data provided for recent years. The quality of aggregate data

provided has also improved with a reduction in the number of notes assigned to the aggregate data for 2009 compared to the 2007 and 2008 estimates.

#### **4.3 Historical operational catch/effort data**

The WCPFC Executive Director sent out a circular on data-related issues to Commission members, cooperating non-members and Participating Territories on March 14, 2008. Concerning the provision of historical data to the WCPFC, the circular requested that -

- *“...in regard to **operational catch and effort data**, please advise me if operational catch and effort data provided to the OFP prior to December 2005 should be considered as also having been provided to the Commission. Unless such authorization is given to me, these data will **not** be considered as having also been provided to the Commission.”*

Since SC5 in August 2009, authorization for the release to the WCPFC of historical operational catch and effort, held by the SPC-OFP on behalf of their member countries, has been received from four CCMs (see Table 7).

Operational purse-seine logsheet data have also been provided by the Philippines (for 2004 activities) and Japan (for 2001–2004 activities) in relation to CMM 2008-01. For Japan, the provision of these data was in accordance with paragraphs 15 and 16 of CMM 2008-01.

#### **4.4 Regional Observer Programme (ROP) data**

The SPC/OFP has been processing observer data on behalf of their member countries for more than 15 years. Continuing this role in respect of the Regional Observer Programme (ROP) data has been identified as one of a number of potential options. Over the past year, the SPC/OFP has employed four dedicated ROP data entry staff<sup>5</sup> to cover the increase in data collected as a result of the CMM 2008-01 requirement for 100% observer coverage in the purse seine fishery as of January 2010.

The definition of an ROP trip and the requirement by CCMs to provide ROP data to the WCPFC Secretariat have been clearly stated in the Convention and in CMM 2007-01. However, there has been a delay in providing the ROP data to the WCPFC due to the following reasons:

- The overwhelming stress on the resources of national and regional observer programmes as a result of the CMM 2008-01 requirement for 100% coverage in the purse-seine fishery has meant that countries have been severely delayed in sending their data to SPC for processing;
- When the backlog of hard-copy observer data are provided in the future, SPC will be under-staffed to keep up with the data entry;
- SPC hold observer data on behalf of their member countries but require authorization to release their ROP-defined data to the WCPFC. Member countries have been formally requested to provide the authorization to release their ROP-defined data to the WCPFC, and the current status of these authorizations is included in Table 8.

Table 9 shows the historical ROP-defined trip data collected and held by SPC, and the ROP data provisions to the WCPFC to date, based on the authorizations listed in Table 8.

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<sup>5</sup> One ROP data entry staff is funded by the WCPFC and three ROP data entry staff are funded by the New Caledonian government.

#### 4.5 *Transmission of scientific data to the WCPFC Secretariat*

The WCPFC scientific data, comprising the historical time series of annual catch estimates, aggregate catch/effort data, size data, and the operational (logsheet) and ROP data (authorized for release) are transmitted using encryption and secure FTP to the WCPFC Secretariat's network server on a regular basis. Over the past twelve months, the latest versions of each data type have been sent to the WCPFC Secretariat in November 2009, April 2010 and July 2010.

In addition to the transmission of these data, the WCPFC Secretariat has been provided with the following services over the past year:

- The WCPFC IT Manager was trained in using the Catch and Effort database Query System (CES), software developed by SPC/OFP, which allows WCPFC staff to extract summarized tables, graphs and maps of the WCPFC annual catch estimates, aggregate catch/effort and operational data;
- The provision of the CES database system with WCPFC data updates in April 2010 and August 2010;
- The provision of the Observer Trip Viewer system (used to extract summarized tables, graphs and maps of the ROP data which have been authorized for release) was provided in June 2010 and August 2010.

### 5. COVERAGE RATES

Figure 1 presents coverage rates since 1970 for operational (logsheet) catch and effort data, port sampling data and observer data for all gear types combined<sup>6</sup>. The coverage rates for logsheet catch and effort data refer to catch and effort data for individual fishing operations (longline sets, pole-and-line days fished or searched, purse-seine sets and troll days fished) that are held by the OFP. Coverage rates for observer data refer to the catch of target tunas that was observed. Coverage rates for port sampling data refer to the catch of target tunas from longline trips that were sampled and the catch of target tunas from purse-seine sets that were sampled.

Figure 2 shows coverage rates for available aggregate and operational catch and effort data by fleet for the longline fishery covering recent years (2000–2009). Figure 3 shows coverage rates for available aggregate and operational catch and effort data by fleet for the purse-seine fishery covering recent years (2000–2009).

Figure 4 shows coverage rates for available size composition data by fleet for the longline fishery covering recent years (2000–2009). Figure 5 shows coverage rates for available size composition data by fleet for the purse-seine fishery covering recent years (2000–2009).

Coverage rates for recent years will increase as additional data are compiled.

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## TABLES

**Table 1. Provision of 2008 annual catches estimates to the WCPFC**

COUNTRY / TERRITORY / ENTITY	GEAR(s)	Date submitted	see NOTES
Australia	LL, PS, PL, HL, TR	30 Apr 2009	
Belize	LL	8 Apr 2009	
Canada	TR	3 Apr 2009	
China	LL, PS	14 Aug 2009	(10)
Cook Islands	LL, TR	1 Jul 2009	
Ecuador	PS	25 Sep 2009	
El Salvador	PS	8 May 2009	(4)
Federated States of Micronesia	LL, PS	30 Apr 2009	
Fiji Islands	LL, PL	1 May 2009	(10)
French Polynesia	LL, PL, OT	30 Apr 2009	
Indonesia	LL, PS, OT	5 Apr 2010	(16)
Japan	PS	1 May 2009	
	LL, PL, TR, OT	30 Apr 2010	
Kiribati	PS, OT	30 Apr 2009	
Republic of Korea	LL, PS	30 Apr 2009	
Marshall Islands	LL, PS	22 Apr 2009	
New Caledonia	LL	24 Apr 2009	(5)
New Zealand	LL, PS, TR, PL	1 May 2009	
Niue	LL	5 May 2009	
Palau	LL, PL	30 Apr 2009	(9)
Panama	PS		
Papua New Guinea	LL, PS	30 Apr 2009	
Philippines	PS, HL, RN, OT	15 Jun 2009	
Samoa	LL	29 Apr 2009	
Senegal	LL	25 Sept 2009	(9)
Solomon Islands	LL, PS, PL	3 May 2009	
Spain	LL	2 Jul 2009	
	PS	9 Jun 2009	
Chinese Taipei	LL, PS	30 Apr 2009	
Tonga	LL	25 Feb 2009	
United States	LL, PS, TR, PL	1 May 2009 9 Oct 2009	
Vanuatu	LL, PS	16 Jul 2009	

## NOTES

- 1 Catches were estimated by the OFP while assisting with the preparation of the national fisheries report.
- 2 Catch estimates were taken from the national fisheries report presented at the meeting of the Scientific Committee.
- 3 Total annual catches were provided by SPECIES, but not broken down by GEAR.
- 4 Total annual catches can be determined by aggregating operational data that were provided on this date.
- 5 Marlin catch estimate not provided to the species level.
- 6 Coverage of data used to determine estimates not provided
- 7 Type(s) of data used to determine estimates not provided
- 8 Methods used to determine estimates not provided
- 9 Fleet(s) inactive for this calendar year
- 10 Breakdown of active vessels by GRT size class not provided
- 11 Swordfish catch estimates only provided
- 12 National legislation (or policy) requires that time/area strata comprising data for less than three vessels can not be disseminated.
- 13 Billfish catch estimates not provided for the longline gear
- 14 Estimates of all main tuna species not provided

**Table 2. Provision of 2009 annual catches estimates to the WCPFC**

COUNTRY / TERRITORY / ENTITY	GEAR(s)	Date submitted	see NOTES
Australia	LL, PS, PL, HL,TR	1 May 2010	
Belize	LL	16 Mar 2010	
Canada	TR	30 Mar 2010	(9)
China	LL, PS	27 Apr 2010	
Cook Islands	LL, TR	2 Jun 2010	
Ecuador	PS		
El Salvador	PS		
Federated States of Micronesia	LL, PS	30 Apr 2010	
Fiji Islands	LL, PL	29 Apr 2010	
French Polynesia	LL, PL, OT	30 Apr 2010	
Indonesia	LL, PS, OT	5 Apr 2010	(16)
Japan	PS	30 Apr 2010	
	LL, PL, TR, OT	30 Apr 2010	
Kiribati	PS, OT	30 Apr 2010	
Republic of Korea	LL, PS	28 Apr 2010	
Marshall Islands	LL, PS	26 Apr 2010	
New Caledonia	LL	28 Apr 2010	(5)
New Zealand	LL, PS, TR, PL	30 Apr 2010	
Niue	LL	28 Apr 2010	
Palau	LL, PL	30 Apr 2010	(9)
Panama	PS		
Papua New Guinea	LL, PS	30 Apr 2010	
Philippines	PS, HL, RN, OT	28 Apr 2010	
Samoa	LL	30 Apr 2010	
Senegal	LL		
Solomon Islands	LL, PS, PL	29 Apr 2010	
Spain	LL	30 Apr 2010	(5)
	PS	30 Apr 2010	
Chinese Taipei	LL, PS	28 Apr 2010	
Tokelau	OT	14 Apr 2010	
Tonga	LL	16 Apr 2010	
United States	LL, PS, TR, PL	11 Jun 2010	
Vanuatu	LL, PS	28 Apr 2010	

**NOTES**

- 1 Catches were estimated by the OFP while assisting with the preparation of the national fisheries report.
- 2 Catch estimates were taken from the national fisheries report presented at the meeting of the Scientific Committee.
- 3 Total annual catches were provided by SPECIES, but not broken down by GEAR.
- 4 Total annual catches can be determined by aggregating operational data that were provided on this date.
- 5 Marlin catch estimate not provided to the species level.
- 6 Coverage of data used to determine estimates not provided
- 7 Type(s) of data used to determine estimates not provided
- 8 Methods used to determine estimates not provided
- 9 Fleet(s) inactive for this calendar year in the WCPFC Convention Area
- 10 Breakdown of active vessels by GRT size class not provided
- 11 Swordfish catch estimates only provided
- 12 National legislation (or policy) requires that time/area strata comprising data for less than three vessels can not be disseminated.
- 13 Billfish catch estimates not provided for the longline gear
- 14 Estimates of all main tuna species not provided
- 15 Provisional estimates provided
- 16 Estimates exclude archipelagic waters catches

Table 3. Provision of 2007 Aggregated catch and effort data to the WCPFC

COUNTRY / ENTITY	GEAR TYPE	Date Submitted	see NOTES
Australia	LL, PL, PS, TR	29 Apr 2008	(17)
Belize	LL	30 Apr 2008	(12)
Canada	TR	24 Apr 2008	(11)
China	LL (DWFN)	10 Jun 2008	(1), (12), (14), (18)
	LL (offshore)	10 Jun 2008	(1), (12), (14) (18)
	PS		
Chinese Taipei	LL (DWFN)	30 Apr 2008	(10), (24)
		22 Aug 2008	
		30 Apr 2009	
28 Apr 2010			
	LL (small)	8 Aug 2008	(13), (23), (24)
	PS	30 Apr 2008	(6), (15)
Cook Islands	LL, TR	30 Apr 2008	(20)
Ecuador	PS		
El Salvador	PS	8 Sep 2008	(17)
Federated States of Micronesia	LL, PS	30 Apr 2008	(20)
Fiji Islands	LL, PL	30 Apr 2008	(20)
French Polynesia	LL	10 Apr 2008	(20)
Indonesia	LL, PS, OT		
Japan	LL	11 May 2009	(2), (10)
		17 Sep 2009	
		30 Apr 2010	
	PL	11 May 2009	
		30 Apr 2010	
	PS	5 Jun 2008	
		30 Apr 2010	
Kiribati	PS	30 Apr 2008	(20)
Marshall Islands	LL, PS	30 Apr 2008	(20)
New Caledonia	LL	18 Mar 2008	(20)
New Zealand	LL, PL, HL, PS	16 Apr 2008	(17)
		1 May 2009	
Niue	LL	30 Apr 2008	(20)
Palau	LL, PL	30 Apr 2008	(20)
Panama	PS		
Papua New Guinea	LL, PS	30 Apr 2008	(20)
Philippines	PS, HL, RN, OT		
Republic of Korea	LL	29 Apr 2008	(12), (18)
		30 Apr 2009	
	PS	29 Apr 2008	(6), (15), (18)
		30 Apr 2009	
Samoa	LL	30 Apr 2008	(20)
Senegal	LL	21 Nov 2008	(12), (17)
Solomon Islands	LL, PS	30 Apr 2008	(20)
	PL		
Spain	LL	11 Dec 2008	(3), (12)
	PS	13 May 2008	
		7 Dec 2008	
Tonga	LL	30 Apr 2008	(20)
United States	LL (American Samoa)	7 Jun 2008	(11)
		9 Oct 2009	
	LL (Haw aii)	7 Jun 2008	(11)
		28 Sep 2008	
			9 Oct 2009
PS (Treaty)	30 Apr 2008	(17)	
TR (North Pacific )	7 Jun 2008	(11)	
	9 Oct 2009		
TR (South Pacific)	7 Jun 2008	(11)	
	9 Oct 2009		
Vanuatu	LL, PS	30 Apr 2008	(20)

**Table 4. Provision of 2008 Aggregated catch and effort data to the WCPFC**

COUNTRY / ENTITY	GEAR TYPE	Date Submitted	see NOTES
Australia	LL, PL, PS, TR	30 Apr 2009	(17)
Belize	LL	8 Apr 2009 28 Apr 2009	
Canada	TR	3 Apr 2009	(21)
China	LL (DWFN)	14 Aug 2009	(12)
	LL (offshore)	14 Aug 2009	(12)
	PS		
Chinese Taipei	LL (DWFN)	30 Apr 2009 28 Apr 2010	(10), (24)
	LL (small)	30 Apr 2009 28 Apr 2010	(13), (23), (24)
	PS	30 Apr 2009	(15)
Cook Islands	LL, TR	30 Apr 2009	(20)
Ecuador	PS		
El Salvador	PS	8 May 2009	(17)
Federated States of Micronesia	LL, PS	30 Apr 2009	(20)
Fiji Islands	LL, PL	30 Apr 2009	(20)
French Polynesia	LL	30 Apr 2009	(20)
Indonesia	LL, PS, OT		
Japan	LL	17 Sep 2009 30 Apr 2010	(2), (10)
	PL	30 Apr 2010	
	PS	11 May 2009 30 Apr 2010	
Kiribati	PS	30 Apr 2009	(20)
Marshall Islands	LL, PS	30 Apr 2009	(20)
New Caledonia	LL	30 Apr 2009	(20)
New Zealand	LL, PL, HL, PS	1 May 2009	(17)
Niue	LL	30 Apr 2009	(20)
Palau	LL, PL	30 Apr 2009	(20)
Panama	PS		
Papua New Guinea	LL, PS	30 Apr 2009	(20)
Philippines	PS, HL	26 Jun 2009	(13), (17)
	RN, OT		
Republic of Korea	LL	22 Jun 2010 30 Apr 2009	(12), (18)
	PS	30 Apr 2009	(6), (15), (18)
Samoa	LL	30 Apr 2009	(20)
Senegal	LL		
Solomon Islands	LL, PS	30 Apr 2009	(20)
	PL	30 Apr 2009	(20)
Spain	LL	24 Jun 2010	(3), (12)
	PS	9 Jun 2009	
Tonga	LL	30 Apr 2009	(20)
United States	LL (American Samoa)	9 Oct 2009	(11)
	LL (Hawaii)	9 Oct 2009	(11)
	PS (Treaty)	30 Apr 2009	(17)
	TR (North Pacific)	9 Oct 2009	(11)
	TR (South Pacific)	9 Oct 2009	(11)
Vanuatu	LL, PS	30 Apr 2009	(20)

Table 5. Provision of 2009 Aggregated catch and effort data to the WCPFC

COUNTRY / ENTITY	GEAR TYPE	Date Submitted	see NOTES
Australia	LL, PL, PS, TR	30 Apr 2010	(17)
Belize	LL	16 Mar 2010	
Canada	TR	30 Mar 2010	(21)
China	LL (DWFN)	27 Apr 2010	
	LL (offshore)	27 Apr 2010 12 Jun 2010	
	PS	12 Jun 2010	(6), (8), (9)
Chinese Taipei	LL (DWFN)	28 Apr 2010	(10), (24)
	LL (small)	28 Apr 2010	(13), (23), (24)
	PS	28 Apr 2010	(15)
Cook Islands	LL, TR	30 Apr 2010	(20)
Ecuador	PS		
El Salvador	PS		
Federated States of Micronesia	LL, PS	30 Apr 2010	(20)
Fiji Islands	LL, PL		
French Polynesia	LL	30 Apr 2010	(20)
Indonesia	LL, PS, OT		
Japan	LL	30 Apr 2010	(2), (10)
	PL	30 Apr 2010	
	PS	30 Apr 2010	
Kiribati	PS	30 Apr 2010	(20)
Marshall Islands	LL, PS	30 Apr 2010	(20)
New Caledonia	LL	30 Apr 2010	(20)
New Zealand	LL, PL, HL, PS	30 Apr 2010	(17)
Niue	LL	30 Apr 2010	(20)
Palau	LL, PL	30 Apr 2010	(20)
Panama	PS		
Papua New Guinea	LL, PS	30 Apr 2010	(20)
Philippines	PS, HL	22 May 2010	(13), (17)
	RN, OT		
Republic of Korea	LL	28 Apr 2010	(12), (13), (18)
	PS	28 Apr 2010	(6), (15), (18)
Samoa	LL	30 Apr 2010	(20)
Senegal	LL		
Solomon Islands	LL, PS	30 Apr 2010	(20)
	PL	30 Apr 2010	(20)
Spain	LL	30 Jul 2010	(3), (12)
	PS	30 Apr 2010	
Tonga	LL	30 Apr 2010	(20)
United States	LL (American Samoa)	11 Jun 2010	(11)
	LL (Haw aii)	11 Jun 2010	(11)
	PS (Treaty)	30 Apr 2009	(17)
	TR (North Pacific )		
	TR (South Pacific)		
Vanuatu	LL, PS	30 Apr 2010	(20)

**Table 6. Notes on the provision of aggregated catch and effort data to the WCPFC**

## NOTES

- 1 The catch data are in units of weight (kgs or metric tonnes) only, rather than both numbers of fish and weight.
- 2 The catch data are in units of numbers of fish only, rather than both numbers of fish and kilograms.
- 3 The catch data are for swordfish only.
- 4 The unit of effort is "days on which a set was made", rather than "days fished or searched".
- 5 The unit of effort is "sets" rather than "days fished or searched".
- 6 The catch/effort data are not stratified by the required categories of school association
- 7 The units of effort are unknown, or non-standard
- 8 No effort data provided
- 9 The data are aggregated by 5°x5° instead of 1°x1°
- 10 Unraised data stratified by 5°x5°, month and hooks between floats were also provided
- 11 National legislation (or policy) requires that time/area strata comprising data for less than three vessels can not be disseminated.
- 12 The 5°x5° month Longline catch and effort data are not stratified by "Hooks between Floats"
- 13 Coverage of data provided is less than 50%
- 14 No breakdown of Billfish species catch provided
- 15 The estimation of bigeye in the reported yellow fin-plus-bigeye catch has not been undertaken in these data
- 16 The spatial aggregation is non-standard (must be 5°x5° for Longline; 1°x1° for surface fisheries)
- 17 Aggregate data not provided, but have been generated from annual catch estimates and/or operational data submitted to the WCPFC.
- 18 Data have not been "raised" to represent total catch and effort
- 19 Species composition of main tuna species catch does correspond to annual catch estimates
- 20 Aggregate data not provided, but have been generated from annual catch estimates and operational data made available to the SPC by their member countries.
- 21 This fleet was inactive in the WCPFC Convention Area.
- 22 Distant-water longline fleet data do not cover the entire Pacific Ocean (required for stock assessments of certain species)
- 23 Represents a combination of data provided by the flag state (for domestically-based vessels) and coastal states
- 24 Vessel numbers per Month and Area provided. Data with cells representing 3 vessels or less have not been provided.

Table 7. Provision of historical operational catch/effort data to the WCPFC

ENTITY	Flag State Data (Convention Area)			Coastal State Data (EEZ only)		NOTES
	GEAR(s)	Date of Notification	Provided by	GEAR(s) / FLEET(s)	Date of Notification	
Australia	LL, PL, PS, TR	16 Apr 2008	SPC-OFF	ALL	16 Apr 2008	SPC authorised to release
Belize	LL		No		Not Applicable	
Canada	TR		No		Not Applicable	
China	LL, PS		No			
Cook Islands	LL	10 Jun 2009	SPC-OFF			SPC authorised to release
Ecuador	PS		No		Not Applicable	
El Salvador	PS		No		Not Applicable	
Federated States of Micronesia	LL, PS	13 Jan 2010	SPC-OFF			SPC authorised to release
Fiji Islands	LL, PL	22 Jun 2009	SPC-OFF			SPC authorised to release
French Polynesia	LL, PL, TR	1 Jul 2010	SPC-OFF			SPC authorised to release
Indonesia	LL, PS, OT		No		Not Applicable	
Japan	PS	17 Apr 2009	Japan (Partial)		Not Applicable	(1) [2001-2004 only]
Japan	LL, PL		No		Not Applicable	
Kiribati	PS, LL		No			
Republic of Korea	LL, PS		No		Not Applicable	
Marshall Islands	LL, PS	9 Jul 2009	SPC-OFF			SPC authorised to release
Nauru	LL	19 Aug 2009	SPC-OFF	ALL	19 Aug 2009	SPC authorised to release
New Caledonia	LL		No			
New Zealand	LL, PL, HL, PS	20 March 2008	SPC-OFF	ALL	20 March 2008	SPC authorised to release
Niue	LL	3 Sep 2009	SPC-OFF			SPC authorised to release
Palau	LL, PL		No			
Panama	PS		No		Not Applicable	
Papua New Guinea	LL, PS		No			
Philippines	PS	01 Dec 2008	Philippines (Partial)		Not Applicable	(1) [2004 only]
	HL, RN, OT		No		Not Applicable	
Samoa	LL		No			
Senegal	LL		No		Not Applicable	
Solomon Islands	LL, PS, PL		No			
Spain	LL		No		Not Applicable	
	PS		No		Not Applicable	
Chinese Taipei	LL, PS		No		Not Applicable	
Tonga	LL		No			
United States	LL, TR, PL		No		Not Applicable	
United States	PS	30 Apr 2008	FFA / SPC-OFF		Not Applicable	US Multilateral treaty only (since 1988)
Vanuatu	LL, PS	22 Dec 2008	SPC-OFF			SPC authorised to release

## NOTES

1 Flag state data provided in accordance with paragraph 15 and 16 of Conservation and Management Measure for Bigeye and Yellow fin Tuna in the Western and Central Pacific Ocean (CMM2008-1).

**Table 8. Status of ROP data provisions to the WCPFC**

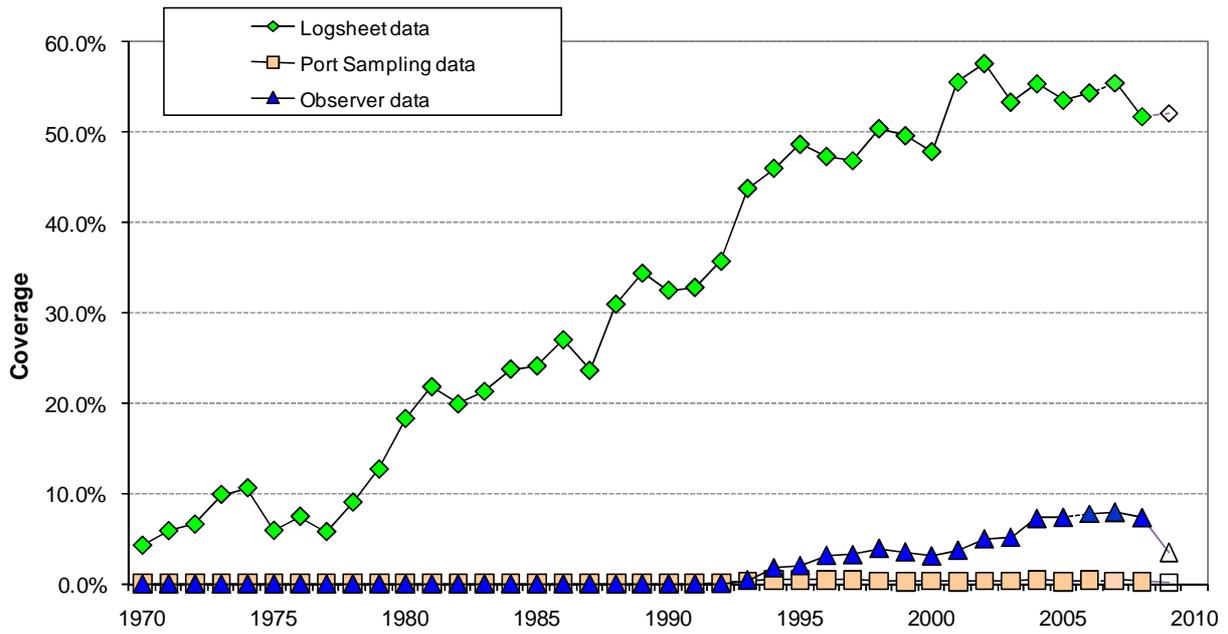
OBSERVER PROGRAMME	ROP Data Provisions			NOTES
	GEAR(s) covered	Date of Notification	Provided by	
Australia	LL		—	
China	LL, PS		—	
Cook Islands	LL		—	
Federated States of Micronesia	LL, PS	17 Jun 2010	SPC/OFP	Provided on behalf of FSM (NORMA)
Fiji Islands	LL, PL		—	
French Polynesia	LL, PL, TR		—	
Indonesia	LL, PS		—	
Japan	PS		—	
Japan	LL, PL		—	
Kiribati	PS, LL		—	
Republic of Korea	LL, PS		—	
Marshall Islands	LL, PS		—	
Nauru	LL, PS	7 Jul 2010	SPC/OFP	Provided on behalf of Nauru Fisheries
New Caledonia	LL		—	
New Zealand	LL	1 Jan 2009	MAF/NZ	Provided with annual data submission
New Zealand	PS		—	
Niue	LL		—	
Palau	LL, PL		—	
Papua New Guinea	LL, PS	2 Jun 2010	SPC/OFP	Provided on behalf of PNG/NFA
Philippines	PS		—	
Samoa	LL		—	
Solomon Islands	LL, PS, PL		—	
Chinese Taipei	LL, PS		—	
Tonga	LL		—	
United States	LL, TR, PL		—	
United States	PS		—	
Vanuatu	LL, PS		—	

NOTES

*Table 9. Historical ROP-defined trip data collected and ROP data provisions to the WCPFC (20 July 2010)*

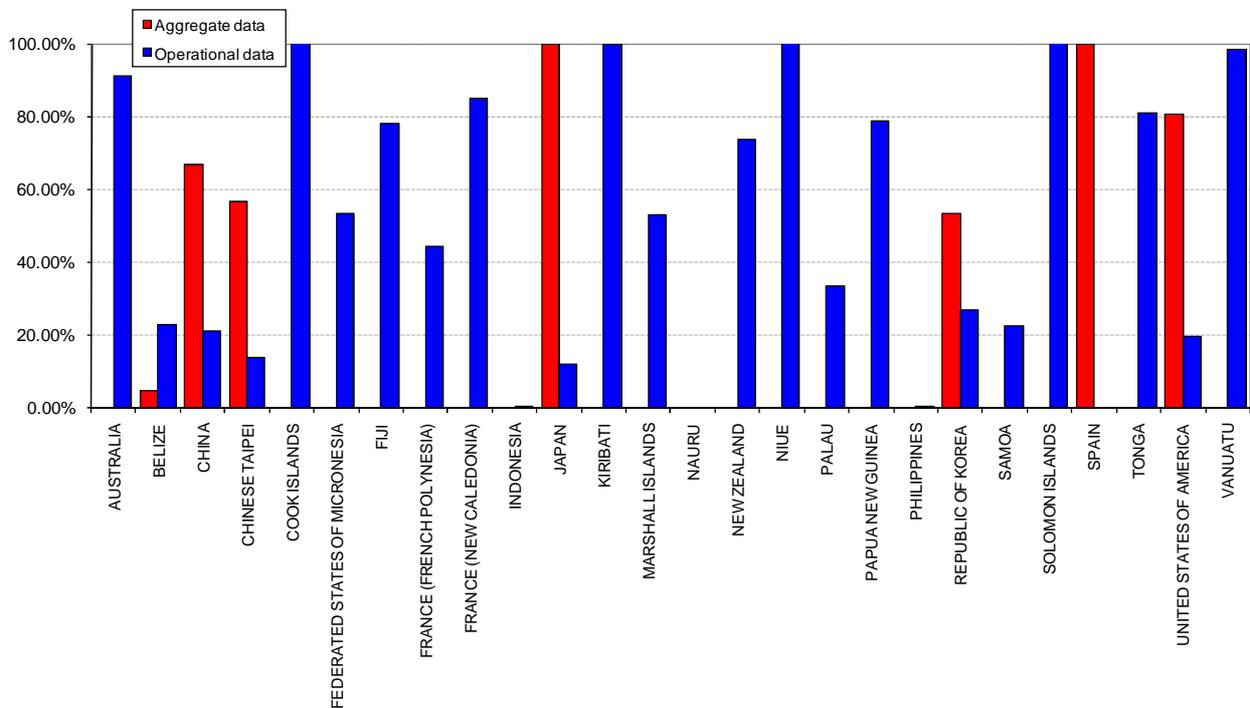
Year	LONGLINE			PURSE SEINE			POLE-AND-LINE		
	ROP-defined trips held by SPC/OFP	ROP trips provided to WCPFC	Non-ROP trips provided to WCPFC	ROP-defined trips held by SPC/OFP	ROP trips provided to WCPFC	Non-ROP trips provided to WCPFC	ROP-defined trips held by SPC/OFP	ROP trips provided to WCPFC	Non-ROP trips provided to WCPFC
1980	2	0	0	0	0	0	0	0	0
1981	3	0	0	0	0	0	0	0	0
1982	4	0	0	0	0	0	0	0	0
1984	2	0	0	0	0	0	0	0	0
1985	3	0	0	0	0	0	0	0	0
1986	1	0	0	0	0	0	0	0	0
1987	6	0	0	0	0	0	0	0	0
1988	14	0	0	5	0	0	0	0	0
1989	13	0	0	12	0	0	0	0	0
1990	27	0	0	7	0	0	0	0	0
1991	73	0	0	37	0	0	0	0	0
1992	74	0	0	17	0	0	0	0	0
1993	114	0	0	33	0	0	1	0	0
1994	139	0	0	52	0	0	0	0	0
1995	130	0	0	56	0	0	0	0	0
1996	123	0	0	75	1	0	0	0	0
1997	126	0	0	87	0	0	2	0	0
1998	106	0	0	103	0	0	25	0	0
1999	96	0	0	84	0	0	50	0	0
2000	166	0	0	71	0	0	29	0	0
2001	295	0	0	84	0	0	1	0	0
2002	413	0	0	126	0	0	122	0	0
2003	395	0	0	148	0	0	135	0	0
2004	351	0	0	190	0	0	4	0	0
2005	123	0	0	193	0	0	9	0	0
2006	138	0	0	204	0	0	13	0	0
2007	94	0	0	197	0	0	0	0	0
2008	47	2	17	177	0	0	0	0	0
2009	28	0	0	111	32	0	0	0	0
2010	5	0	0	2	0	0	0	0	0

**FIGURES**



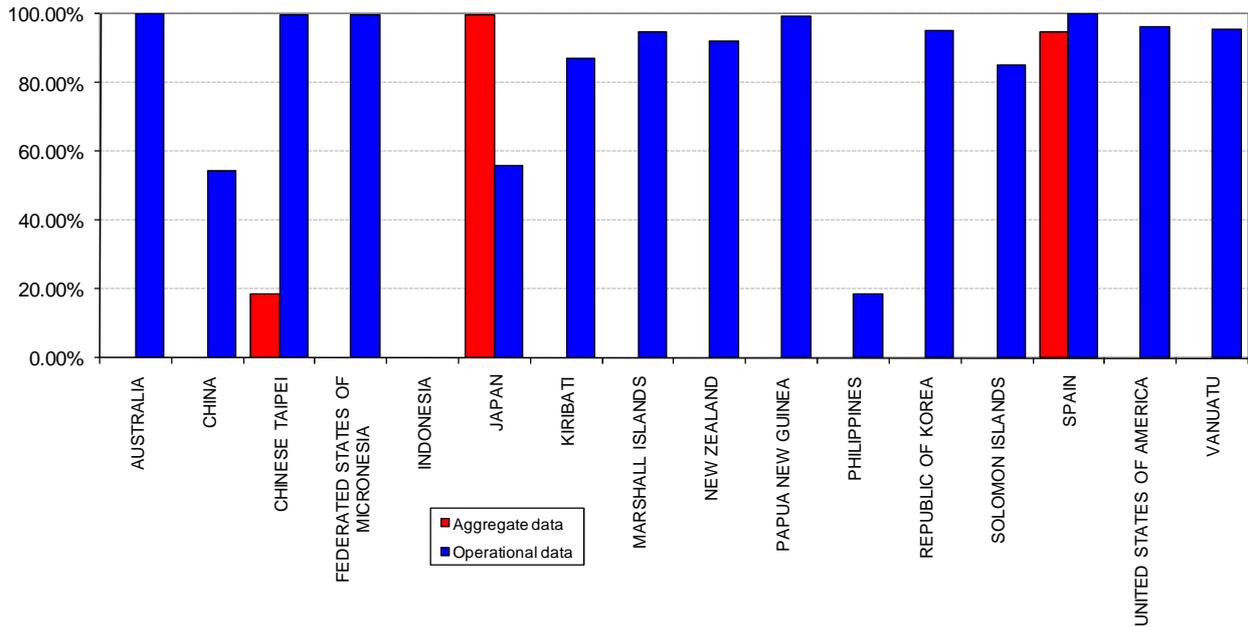
**Figure 1. Coverage of operational (logsheet) data, port sampling data and observer data compiled by the OFP**

(Data held by SPC/OFP, some of which are provided to the WCFPC; 2008 and 2009 data are provisional)



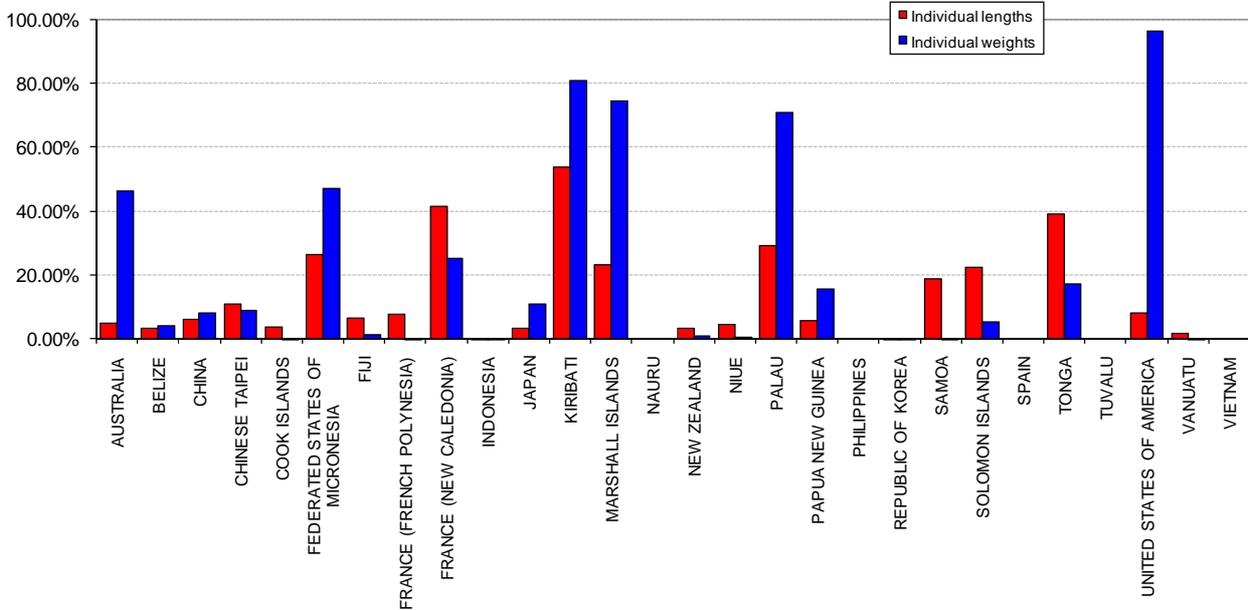
**Figure 2. Coverage of (i) aggregate and (ii) operational catch/effort data by fleet from the LONGLINE FISHERY**

(Aggregate data provided to the WCFPC; operational data held by SPC/OFP, some of which are provided to the WCFPC; covers 2000–2009)



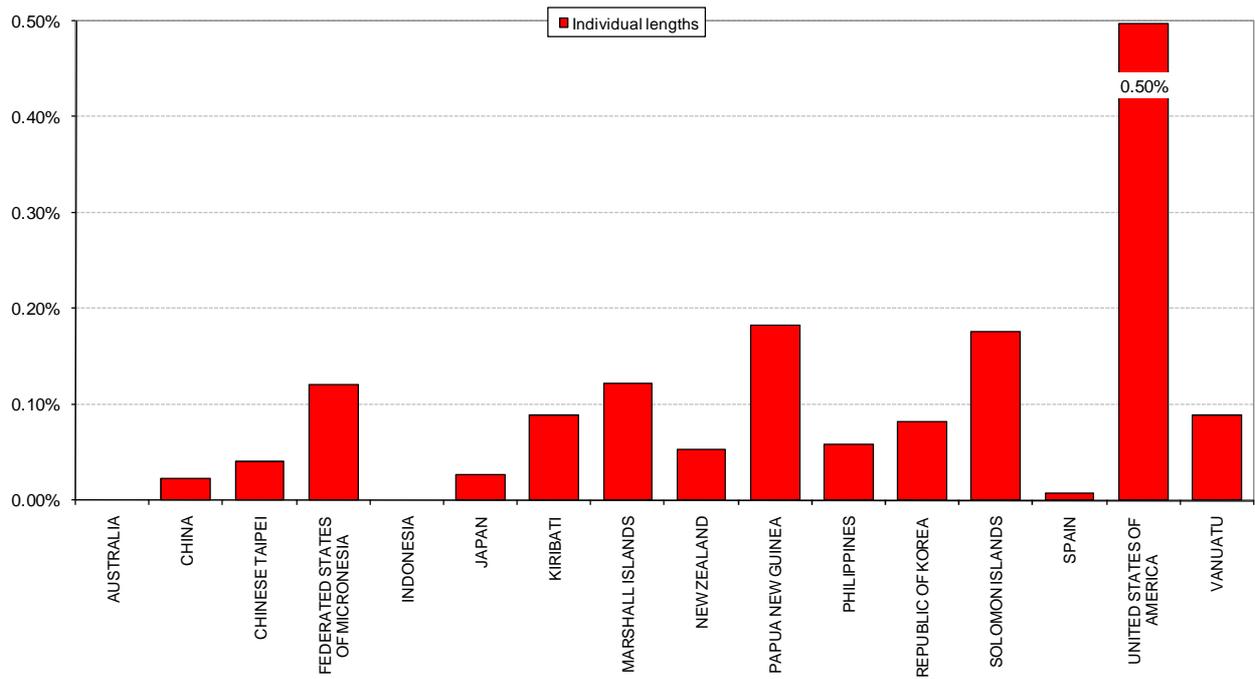
**Figure 3. Coverage of (i) aggregate and (ii) operational catch/effort data by fleet from the PURSE-SEINE FISHERY**

(Aggregate data provided to the WCPFC; operational data held by SPC/OFP, some of which are provided to the WCPFC; covers 2000–2009)



**Figure 4. Coverage of size composition data by fleet from the LONGLINE FISHERY**

(Data provided to the WCPFC; covers 2000–2009)



**Figure 5. Coverage of size composition data by fleet from the PURSE-SEINE FISHERY**  
(Data provided to the WCPFC; covers 2000–2009)