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INTERIM REPORT ON CAUSES OF DATA GAPS

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WESTERN AND CENTRAL PACIFIC FISHERIES COMMISSION

Interim Report on Causes of Data Gaps

25 July 2008

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1.0 Introduction

During the Third Regular Session of the Western and Central Pacific Fisheries Commission's (WCPFC) Scientific Committee (SC) in August 2007, the Committee discussed gaps in the data required to support stock assessment and ecosystem and fishery management. The Committee recommended that the WCPFC conduct a study to identify causes of data gaps. The study was endorsed by the Commission in December 2007, with the results of the study to be discussed at the Fourth Regular Session of the SC which will meet at Port Moresby, Papua New Guinea, 11-22 August 2008.

The scope of the 'Data Gaps' study was expressed as follows;

- With reference to the Scientific Data to be provided to the Commission¹, to identify what data **have** been provided to the Commission;
- With reference to the Scientific Data to be provided to the Commission, to identify what data **have not** been provided to the Commission;
- Where Scientific Data have not been provided, to identify the possible causes; and,
- Where Scientific Data have not been provided, to identify possible means that the Commission can take to realistically improve the provision of data.

2.0 Process

FINNZ was engaged by the WCPFC Secretariat to undertake the data gaps study. The process for investigating the data gaps has been to;

1. Assess and review the nature of the member agreed Scientific Data to be provided to the Commission. The latest version of this is attached as Appendix One to this paper.
2. Review the status of data provision to the Commission. As the Secretariat of the Pacific Community (SPC) currently manage all data receipt for the commission, this was largely done through coordination with Peter Williams of SPC²
3. Obtain necessary context on the current state of data provision through discussions with key personnel.
4. Ascertain key data gaps and indicative reasons for gaps
5. Develop a Questionnaire to obtain member feedback on data capture and test indicative reasons for data gaps
6. Analyse Questionnaire results
7. Provide recommendations for consideration by the Commission

¹ Appendix IV, Attachment K, Report of the Statistics Specialist Working Group, Summary Report, Scientific Committee, Third Regular Session, 13-14 August 2007, Honolulu, HI, U.S.A.

² It was of note that the identification of data that has or has not been provided to the Commission is part of an cataloguing exercise being undertaken by Peter Williams of SPC. Whilst not complete at the commencement of the study Mr Williams work provided an excellent basis for identifying what data has or has not been provided to the Commission.

3.0 Scoping Discussions

To gain an understanding of the history of data requirements, current state of data provision, and the wider context of the supply of data, discussions were held with the following people;

- Andrew Wright - Executive Director , WCPFC;
- Kim Duckworth - Chair of the WCPFC Statistics Specialist Working Group, a subsidiary body of the WCPFC Scientific Committee and, Research Data Manager, Ministry of Fisheries, New Zealand;
- David Kirby, Project Manager, Ecological Risk Assessment Project, SPC-Oceanic Fisheries Programme, New Caledonia; and,
- Peter Williams - Fisheries Database Manager, SPC-Oceanic Fisheries Programme, New Caledonia.

To gain some additional context with regard to data collection and to see what lessons could be learned from other Regional Fishery Management Organisation's (RFMO's), discussions were held with Dr Robin Allen, Executive Officer of the Interim Secretariat for the South Pacific Regional Fisheries Management Organisation and former Director of the Inter American Tuna Commission (IATTC).

These discussions provided valueable input to the data gaps study, particularly in the following areas;

- Current state of data provision;
- Indicative problems associated with the initial collection of data and subsequent provision of data to the Commission; and
- The best means for conducting the study.

4.0 Status of the Provision of Data to the Commission

To determine what data has (or has not) been provided to the Commission, a review was undertaken to confirm the following;

- What scientific data was required by the Commission?
- Who were the entities that were required to provide data to the Commission?
- What scientific data had been provided to the Commission?

It is of note that data analysis conducted by Peter Williams of SPC provided an extremely valuable input to this review. Mr Williams had produced tables detailing which entities had provided data to the Commission and the nature of the data provided³.

Scientific Data to be provided to the Commission

Detail of the Scientific Data to be provided to the Commission is attached as Appendix One to this report. In summary there are 5 different categories of data that are to be provided:

- Annual Catch Estimate (ACE) data;
- Number of Active Vessels (usually provided with ACE data);
- Operational Catch and Effort data;
- Aggregate Catch and Effort Data; and
- Size Composition Data⁴.

The members of the Commission have agreed that data will be provided from 1950 or from the earliest time that any subsequent fishery was established.

Providers of Data

The Commission has 24 members, one fishing entity and one regional economic integration organisation, plus 7 territories and 2 cooperating non-members. There are also 3 other states that have voluntarily submitted scientific data to the Commission. In respect of this study the Commission could reasonably expect to receive data from up to 38 entities.

Summary of Data Provided to the Commission

A high level summary of the scientific data, by data category, provided to the Commission is provided below;

a) ANNUAL CATCH ESTIMATE DATA AND VESSEL INFORMATION

The Commission requires members, cooperating non-members and participating territories (CCMs) to provide estimates of annual or seasonal catches to the Commission from 1950 onwards, or if the fleet began operating after 1950, from the year in which the fleet began operating.

CCMs are required to provide estimates of catches for each calendar year for each gear type used. The area in which fishing activity occurs determines the species that annual catch estimates are to be provided for. All estimates are to be reported in tonnes and include discards.

³ These summary are available online via the SPC data site <http://www.spc.int/oceanfish/html/wcpfc/statistics/StatProv.asp>

⁴ The tables showing provisions of historical size data were not available at the time of undertaking this study. These tables have recently (24th July) become available.

CCMs are also required to provide the number of vessels active in the WCPFC Statistical Area during each calendar year for each gear type. Although, it is worth noting that CCMs were not required to provide “the number of vessels by size class” in respect of historical data collected prior to the establishment of the Commission. As part of the analysis of data provided to the commission, SPC has provided notes in the summary data provision tables as to whether vessel information was not provided or not provided by vessel size class categories.

Summary of the Provision of Annual Catch Estimate Data

The information in table one shows that generally CCMs have a high compliance rating for providing annual catch estimate information. Where information gaps exist, the types of gaps are limited. It should be noted that from 2008 following the decision of the Commission, in December 2007, to require CCMs to report to the Commission on the number of vessels active in the WCPF Convention Area during the previous 12-month reporting period.

Table One - Summary of ACE Data

	No of Entities	Percentage of Total
All ACE data provided 1950 -2006	26	68%
All ACE data provided for most years, but one-off gaps in time ⁵	6	16%
ACE data provided for all years, but some gaps within actual data provided	4	10%
ACE data had both gaps in time and in actual data provided	2	5%
No ACE data provided for any years	0	0%

b) OPERATIONAL CATCH AND EFFORT DATA

Operational level catch and effort data is detailed fishing activity data usually collected on logsheets. These data include information regarding vessel identifiers, trip information and operational information for different gear types.

The Commission requires CCMs to submit operational catch and effort data for all years from 1950, starting with the first year for which the data are available.

Summary of Provision of Operational Catch and Effort Data

Analysis illustrates that there is a dearth of operational level catch and effort data provide to the Commission. Analysis indicates that 26 out of 38 entities (68%) are actually collecting some operational data, but not providing it to the Commission (or have yet to do so). This means that there is no way to determine whether there are gaps in the collected data or whether it is complete and correct.

The information also highlights that there are a number of CCMs where it is unknown whether operational catch data is collected or not. Although, an assumption could be made that if Aggregate Catch Data is being provided (see c below), then this aggregate is based on collected Operational Catch and Effort Data.

⁵ These appear to be one off gaps, rather than consistent lack of data

Table Two - Summary of Operational Catch and Effort Data

	No of Entities	Percentage of Total
No Operational Level Data Provided	26	68%
<ul style="list-style-type: none"> • Operational level data collected but not provided • Collection status of operational level data is "unknown" 	11	29%
	6	16%
Operational Level Data Collected but only provided from 2005	5	13%
Collected and provided operational level data every year although may be gaps in actual data	1	2%

c) AGGREGATE CATCH AND EFFORT DATA

The Commission data requirements require CCMs to provide catch and effort data aggregated by time period and geographic area where operational level catch and effort data that are provided to the Commission is less than 100% of coverage. This requires members to provide all of the operational level catch and effort data that they have AND the aggregate catch and effort data.

Summary of Provision of Aggregate Catch and Effort data

The generation of aggregate level data by SPC from SPC member countries forms the majority of the aggregate scientific data that has been made available to the Commission. Only 11 countries actually submitted aggregate level data to the Commission. The information that was submitted differed across time and between different fisheries in the same country, suggesting a disjointed approach within CCMs' fisheries administrations to the collection of fishery data.

Table Three - Summary of Aggregate Catch and Effort Data

	No of Members	Percentage of Total
Aggregate data derived from ACE or operational level catch and effort data provided to SPC	16	42%
Collection status of aggregate data is "unknown"	5	13%
Aggregate data collected but not provided	2	5%
All aggregate level data provided for all years	1	3%
Inconsistent results across time and fisheries including gaps in actual data provided	7	18%

5.0 Summary of the Provision of Data

The more general in nature the information required is i.e. annual catch estimates, the higher the level of reporting to the specified level. There is a notable absence of Operational Catch and Effort Data. At present there are many fisheries with a collection status of “unknown” and that status has been assigned to a number of different fisheries at some time between 1950 and 2006. It is unclear whether that means that the CCM does not know whether their fleet (or fisheries administration) has collected that information, or whether it means that the Commission does not know whether that information has been collected. It may suggest that the fishery was inactive during that time. This will need to be clarified if that gap is to be eliminated.

6.0 Indicative Rationale for Data Gaps

After reviewing the scientific data to be provided to the Commission, the actual data provided to the Commission, together with discussions with key individuals, some indicative rationale for the non provision of data were derived. These indicative causes provided a ‘line in the sand’ which was tested throughout the remainder of the study.

The indicative reasons for non provision of data were;

- Misunderstanding of what data is required and how data is to be provided - for example, the Commission requires aggregate data to be provided where operational catch data isn’t captured in respect of 100% of fishing activity, The requirement necessitates both the provision of aggregate data as well as the operational data that is available. This isn’t written clearly in the Commission’s requirements;
- Translation of English language requirements by some members may cause further lack of clarity;
- Lack of Resources - to either collect data from the source or to provide collected data to the Commission;
- Collecting data but not the specific types required by the Commission;
- Domestic legal constraints i.e. privacy laws;
- Other agreements i.e. all data being collected and stored, however authorisation not given to release data so collected and stored by SPC to the Commission: and,
- Potential lack of recognition among key officials of the importance of data for stock assessment or other fisheries management tasks.

7.0 Engagement with Data Correspondents - Development of Questionnaire

The indicative reasons for data gaps were considered very broad and were largely based on discussions with the persons named in Section 3.0 above. To determine what problems lead to the existence of data gaps and subsequently to define what actions could be undertaken to improve the provision of data, a questionnaire was developed to solicit input from SPC and Commission data correspondents.

In conjunction with Peter Williams and Andrew Wright it was agreed that the questionnaire would be focussed on operational catch and effort data for the following reasons;

1. It is the data category with the most gaps;
2. There are many instances where it is either unknown or assumed that operational catch effort data has been collected by CCMs in respect of fishing activity;
3. The finer scale of this operational data will allow for more complete and robust stock and ecological risk assessments;
4. Improved collection and provision of operational data will facilitate a baseline against which to identify discrepancies against Annual Catch Estimates (which has good supply coverage) - particularly those annual catch estimates that have been derived from landing data;
5. Improving collection and provision of operational data will allow for more accurate aggregated catch (where operational catch and effort data doesn't have a coverage rate of 100%); and,
6. Provision of operational data will also facilitate the ability to check the accuracy of aggregated catch figures. It is of note that 100% coverage of operational catch data would mitigate the need for aggregate data.

The 'cornerstone' element associated with the operational catch and effort data provided the best value in a questionnaire. Obtaining a baseline of operational data i.e. asking each CCM by fishery whether they collect operational data and what the estimated level of coverage is, would provide a 'line in the sand' to then assess why these data aren't collected, what is being done to improve capture and provision and assist in identifying what the Commission could do address deficiencies in respect of the collection and provision of this data. The questionnaire, attached as Appendix B to this report, specifically asked;

- What fisheries are CCMs actively participating in?
- What is the level of operational catch data coverage for those fisheries i.e. how much activity is being recorded?
- What level of data recorded is being provided to the Commission?
- What reasons exist that limit the recording of operational catch data?
- What reasons exist that restrict the provision of operational catch data to the Commission?
- What can the Commission do to assist with the provision of data?

8.0 Analysis of Questionnaire Response

As at the date of this report only 4 questionnaires have been returned to the Commission. Of these, 3 respondents indicated that 76-99% of their fishing activity within selected fisheries was recorded as operational catch data. These 3 respondents confirmed that 100% of operational catch data recorded was provided to the Commission, with one respondent confirming that they don't collect all of the types of operational catch data that the Commission requires. None of these 3 respondents required any help from the Commission to improve data collection.

The fourth respondent stated that the 76-99% of data was recorded as operational catch data, but that only 10% was captured in respect of smaller vessels. This respondent detailed that lack of clarity surrounding the reporting requirements and a lack of resources restricted the capture and provision of operational catch data. This respondent stated that clarification of data requirements and provision of data collection and processing training would assist in the improvement of the provision of data to the Commission.

9.0 Outstanding Issues

The low response rate to the questionnaire limits the ability to make specific recommendations as direct input from data correspondents would allow for the consideration of specific data capture and provision issues. Without the appropriate levels of engagement between the Commission, SPC and CCMs for the provision of data there is limited likelihood of resolving data gaps. At the date of this report further engagement with data correspondents is required to resolve the data gaps faced by the Commission.

10.0 Summary and Recommendations

Under the Convention, the Commission and its CCMs must assess the impacts of fishing on all UNCLOS Annex 1 highly migratory fish species (excluding saurians) as well as associated and dependent species. To gain robust outcomes from stock assessment and ecological risk assessment projects, the provision of operational catch data is essential.

There exist significant gaps in the scientific data to be provided to the Commission, particularly in respect of operational level catch data. These gaps severely undermine the robustness of stock assessment and ecological risk assessment, in turn limiting the effectiveness of the Commission to fulfil its fisheries management brief.

Recommendations

As discussed earlier in this report, there is a need for increased ability by the Commission to interact regularly with each data provider. Ideally “face-to-face” meetings with data correspondents would be the most beneficial for understanding constraints on collection and provision of data. Identification of specific issues will allow for explicit actions to be undertaken.

1. We recommend that the Commission investigate, as a means of completing this data gaps review and more importantly long term, to improve on going collection of data, to employ/contract a Data Capture Manager who would have as his/her priority, a requirement to meet regularly with CCM Data Correspondents. We recommend that the strengthening of data management capabilities in this manner, at least in the short term, would best be achieved by providing this additional resource to support the Commissions data management services provider. The Data Capture Management Role would primarily assist with:

- Defining/clarifying Commission data requirements,
- Providing data collection and processing training;
- Identifying problems and potential resolution with data supply from each member,
- Reporting regularly to the Commission Scientific Committee on data supply,

2. We also recommend that workshops (yearly or twice yearly) be run and attended by data correspondents. These workshops will provide sessions at which data correspondents could review and clarify issues associated with the capture and provision of data. A suggested itinerary for this workshop could include;

1. Review Scientific data to be provided to the Commission
2. Review the purpose of providing data to the Commission and expand on how this data is used as an input to stock assessment and ecological risk assessments
3. Review the current status of data provided by CCMs
4. Identify short, medium and long term goals (along with establishing measurable deliverables) focussed on improving the provision of data to the Commission.

11.0 Appendix One - Scientific Data to Be Provided to the Commission

**Commission for the Conservation and Management of
Highly Migratory Fish Stocks in the Western and Central Pacific Ocean**

**SCIENTIFIC COMMITTEE
THIRD REGULAR SESSION**

13–24 August 2007
Honolulu, HI, U.S.A.

SUMMARY REPORT

ATTACHMENT K
REPORT OF THE STATISTICS SPECIALIST WORKING GROUP

Appendix IV
Scientific data to be provided to the Commission

Revised to accommodate the provision of data on fishing activities outside the Convention Area and as endorsed by the Commission at its Fourth Regular Session from 2 to 7 December 2007

1. Estimates of annual catches

The following estimates of catches during each calendar year shall be provided to the Commission for each gear type:

- catches of bigeye tuna (*Thunnus obesus*), skipjack tuna (*Katsuwonus pelamis*), yellowfin tuna (*Thunnus albacares*), blue marlin (*Makaira mazara*) and black marlin (*Makaira indica*) in (i) the WCPFC Statistical Area (see paragraph #8) and (ii) the portion of the WCPFC Statistical Area east of the 150° meridian of west longitude; and
- catches of albacore (*Thunnus alalunga*), striped marlin (*Tetrapturus audax*), swordfish (*Xiphias gladius*) and Pacific bluefin tuna (*Thunnus orientalis*) in (i) the Pacific Ocean south of the Equator, (ii) the Pacific Ocean north of the Equator, (iii) the WCPFC Statistical Area north of the Equator, (iv) the WCPFC Statistical Area south of the Equator, and (v) the portion of the WCPFC Statistical Area east of the 150° meridian of west longitude.

For trollers targeting albacore in the Pacific Ocean south of the Equator, the following estimates of catches during the fishing season (July to June) should also be provided:

- catches of albacore in the Pacific Ocean south of the Equator.

Catch estimates shall also be provided for other species as determined by the Commission.

Estimates of discards should also be provided.

Longline catch estimates shall be for whole weight, rather than processed weight. All catch estimates shall be reported in tonnes (i.e., metric tons).

The statistical methods that are used to estimate the annual and seasonal catches shall be reported to the Commission, with reference to the coverage rates for each type of data (e.g., operational catch and effort data, records of unloadings, species composition sampling data) that is used to estimate the catches and to the conversion factors that are used to convert the processed weight of longline-caught fish to whole weight.

2. *Number of vessels active*

The number of vessels active¹ in the WCPFC Statistical Area during each calendar year shall be provided to the Commission for each gear type.

For longliners, pole-and-line vessels and purse seiners, the number of vessels active shall be provided by gross registered tonnage (GRT) class. The GRT classes are defined as follows:

- Longline: 0–50, 51–200, 201–500, 500+
- Pole-and-line: 0–50, 51–150, 150+
- Purse seine: 0–500, 501–1000, 1001–1500, 1500+

For trollers targeting albacore, the number of vessels active during each calendar year shall be provided for (i) the WCPFC Statistical Area south of the Equator and (ii) the WCPFC Statistical Area north of the Equator. For trollers targeting albacore in the Pacific Ocean south of the Equator, the number of vessels active during the fishing season (July to June) shall be provided for (i) the WCPFC Statistical Area south of the Equator and (ii) the Pacific Ocean south of the Equator.

3. *Operational level catch and effort data*

Operational level catch and effort data (e.g., individual sets by longliners and purse seiners, and individual days fished by pole and line vessels and trollers) shall be provided to the Commission, in accordance with the standards adopted by Commission at its second regular session. These are listed in Annex 1.

It is recognised that certain members and cooperating non-members of the Commission may be subject to domestic legal constraints, such that they may not be able to provide operational data to the Commission until such constraints are overcome. Until such constraints are overcome, aggregated catch and effort data and size composition data as described in (4) and (5) below shall be provided.

It is also recognised that certain members and cooperating non-members of the Commission may have practical difficulties in compiling operational data for fleets comprised of small vessels, such as certain sectors of the fisheries of Indonesia, the Philippines and small island developing States.

¹ A vessel is considered to be “active” if it fished (targetting highly migratory fish stocks) at least one day during the year.

4. *Catch and effort data aggregated by time period and geographic area*

If the coverage rate of the operational catch and effort data that are provided to the Commission is less than 100%, then catch and effort data aggregated by time period and geographic area that have been raised to represent the total catch and effort shall be provided. Longline catch and effort data shall be aggregated by periods of month and areas of 5° longitude and 5° latitude. Purse-seine and ringnet catch and effort data shall be aggregated by periods of month, areas of 1° longitude and 1° latitude, and type of school association. Catch and effort data for other surface fisheries targeting tuna shall be aggregated by periods of month and areas of 1° longitude and 1° latitude.

If the coverage rate of the operational catch and effort data that are provided to the Commission is less than 100%, then 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 shall also be provided.

If the coverage rate of the operational catch and effort data that are provided to the Commission is less than 100%, then catch and effort data that have been raised to represent the total catch and effort shall also be aggregated by periods of year and areas of national jurisdiction and high seas within the WCPFC Statistical Area.

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.

The statistical methods that are used to derive the aggregated catch and effort data shall be reported to the Commission, with reference to the coverage rates of the operational catch and effort data, and the types of data and method used to raise the catch and effort data.

5. *Size composition data*

Length and/or weight composition data that are representative of catches by the fisheries shall be provided to the Commission at the finest possible resolution of time period and geographic area and at least as fine as periods of quarter and areas of 20° longitude and 10° latitude.

6. *The roles of flag states and coastal states*

Flag states or entities shall be responsible for providing to the Commission scientific data covering vessels they have flagged, except for vessels operating under joint-venture or charter arrangements with another state such that the vessels operate, for all intents and purposes, as local vessels of the other state, in which case the other state shall be responsible for the provision of data to the Commission.

It is recognised that the ability of flag States or entities to provide scientific data to the Commission may be constrained by the terms of bilateral or regional arrangements, such as the Treaty on Fisheries Between the Governments of Certain Pacific Island States and the Government of the United States of America.

Scientific data compiled by coastal states shall also be provided to the Commission.

7. *Time periods covered and schedule for the provision of data*

Estimates of annual or seasonal catches should be provided to the Commission from 1950 onwards or, if the fleet began operating after 1950, from the year in which the fleet began operating.

Operational catch and effort data, and size composition data, should be provided for all years, starting with the first year for which the data are available.

For all gear types, except trollers targeting albacore in the Pacific Ocean south of the Equator, estimates of annual catches, the number of vessels active, catch and effort data, and size composition data, covering a calendar year should be provided by April 30 of the year following the calendar year (e.g., data covering calendar year 'x' should be provided by 30 April of year 'x+1').

For trollers targeting albacore in the Pacific Ocean south of the Equator, estimates of annual catches, the number of vessels active, catch and effort data, and size composition data, covering a fishing season (July to June) should be provided by April 30 of the year following the year in which the season ends (e.g., data covering the season from July of year 'x' to June of year 'x+1' should be provided by 30 April of year 'x+2').

Estimates of annual catches, the number of vessels active, catch and effort data, and size composition data should be revised, and the revisions provided to the Commission, as additional data become available.

8. *Definition of the WCPFC Statistical Area*

The WCPFC Statistical Area is defined as follows: from the south coast of Australia due south along the 141° meridian of east longitude to its intersection with the 55° parallel of south latitude; thence due east along the 55° parallel of south latitude to its intersection with the 150° meridian of east longitude; thence due south along the 150° meridian of east longitude to its intersection with the 60° parallel of south latitude; thence due east along the 60° parallel of south latitude to its intersection with the 130° meridian of west longitude; thence due north along the 130° meridian of west longitude to its intersection with the 4° parallel of south latitude; thence due west along the 4° parallel of south latitude to its intersection with the 150° meridian of west longitude; thence due north along the 150° meridian of west longitude; and from the north coast of Australia due north along the 129° meridian of east longitude to its intersection with the 8° parallel of south latitude, thence due west along the 8° parallel of south latitude to the Indonesian

archipelago; and from the Indonesian peninsula due east along the 2°30' parallel of north latitude to the Malaysian peninsula.

9. *Periodic reviews of the requirements for scientific data*

The Commission, through its Scientific Committee, shall periodically review the requirements for scientific data and shall provide the Commission with revised versions of this recommendation, as appropriate.

Annex 1. Standards for the Provision of Operational Level Catch and Effort Data

1. Data items that shall be reported to the Commission

1.1 Vessel identifiers, for all gear types

Name of the vessel, country of registration, registration number, international radio call sign: The registration number is the number assigned to the vessel by the State that has flagged the vessel. A code may be used as a vessel identifier instead of the name of the vessel, registration number and call sign for vessels that have fished and that intend to fish only in the waters of national jurisdiction of the State that has flagged the vessel.

1.2 Trip information, for all gear types

The start of a trip is defined to occur when a vessel (a) leaves port after unloading part or all of the catch to transit to a fishing area or (b) recommences fishing operations or transits to a fishing area after transshipping part or all of the catch at sea (when this occurs in accordance with the terms and conditions of article 4 of Annex III of the Convention, subject to specific exemptions as per article 29 of the Convention).

Port of departure, date of departure, port of unloading, date of arrival in port of unloading: If the start of a trip coincides with recommencing fishing operations or transiting to a fishing area after transshipping part or all of the catch at sea, then “Transshipment at sea” shall be reported in lieu of the port of departure, and if the end of a trip coincides with transshipping part or all of the catch at sea, then “Transshipment at sea” shall be reported in lieu of the port of unloading.

1.3 Information on operations by longliners

Activity: This item should be reported for each set and for days on which no sets were made, from the start of the trip to the end of the trip. Activities should include “a set”; “no fishing — in transit”; “no fishing — gear breakdown”; “no fishing — bad weather”; and “no fishing — in port”.

Date of start of set and time of start of set: The date and start of set time should be GMT/UTC. If no sets are made, the date and main activity should be reported.

Position of start of set: The position of start of set should be reported in units of at least minutes of latitude and longitude. If no sets are made, the noon position should be reported.

Number of hooks per set.

Number of branch lines between floats. The number of branch lines between floats should be reported for each set.

Number of fish caught per set, for the following species: albacore (*Thunnus alalunga*), bigeye (*Thunnus obesus*), skipjack (*Katsuwonus pelamis*), yellowfin (*Thunnus albacares*), striped

marlin (*Tetrapturus audax*), blue marlin (*Makaira mazara*), black marlin (*Makaira indica*) and swordfish (*Xiphias gladius*), and other species as determined by the Commission.

If the total weight or average weight of fish caught per set have been recorded, then the total weight or average weight of fish caught per set, by species, should also be reported. If the total weight or average weight of fish caught per set have not been recorded, then the total weight or average weight of fish caught per set, by species, should be estimated and the estimates reported. The total weight or average weight shall refer to whole weights, rather than processed weights.

1.4 Information on operations by pole-and-line vessels and related gear types

Activity: This item shall be reported for each day, from the start of the trip to the end of the trip. Activities should include “a day fishing or searching with bait onboard”; “no fishing — collecting bait”; “no fishing — in transit”; “no fishing — gear breakdown”; “no fishing — bad weather”; and “no fishing — in port”.

Date: The date should be GMT/UTC.

Noon position: The noon position should be reported in units of at least minutes of latitude and longitude.

Weight of fish caught per day, for the following species: albacore, bigeye, skipjack, yellowfin, and other species as determined by the Commission.

1.5 Information on operations by purse-seiners and related gear types

Activity: This item shall be reported for each set and for days on which no sets were made, from the start of the trip to the end of the trip. Activities should include “a set”; “a day searched, but no sets made”; “no fishing — in transit”; “no fishing — gear breakdown”; “no fishing — bad weather”; and “no fishing — in port”.

Date of start of set, time of start of set and time of end of set: The date and time of the start of set and the time of end of set should be GMT/UTC. If no sets are made, the date and main activity should be reported.

Position of set or noon position: If a set is made, then the position of the set shall be reported. If searching occurs, but no sets are made, then the noon position shall be reported. The position should be reported in units of at least minutes of latitude and longitude.

School association: All common types of school association should be reported, while uncommon types of association should be reported as “other”. Common types of school association are “free-swimming” or “unassociated”; “feeding on baitfish”; “drifting log, debris or dead animal”; “drifting raft, FAD or payao”; “anchored raft, FAD or payao”; “live whale”; and “live whale shark”.

Weight of fish caught per set, for the following species: albacore, bigeye, skipjack, yellowfin, and other species as determined by the Commission.

1.6 Information on operations by trollers and related gear types

Activity: This item shall be reported for each day, from the start of the trip to the end of the trip. Activities should include “a day fished”; “no fishing — in transit”; “no fishing — gear breakdown”; “no fishing — bad weather”; and “no fishing — in port”.

Date: The date should be GMT/UTC.

Noon position: The noon position should be reported in units of at least minutes of latitude and longitude.

Number of fish caught per day, for the following species: albacore, bigeye, skipjack, yellowfin, and other species as determined by the Commission.

If the total weight or average weight of fish caught per day have been recorded, then the total weight or average weight of fish caught per day, by species, should also be reported. If the total weight or average weight of fish caught per day have not been recorded, then the total weight or average weight of fish caught per day, by species, should be estimated and the estimates reported. The total weight or average weight shall refer to whole weights, rather than processed weights.

2. Geographic area to be covered by operational catch and effort data to be provided to the Commission

The geographic area to be covered by operational catch and effort data to be provided to the Commission shall be the WCPFC Statistical Area, except for fisheries targeting albacore in the Pacific Ocean south of the Equator, for which the geographic area should be the Pacific Ocean south of the Equator.

3. Target coverage rate for operational catch and effort data to be provided to the Commission

The target coverage rate for operational catch and effort data to be provided to the Commission is 100%.

4. Procedures for the verification of operational catch and effort data

Operational catch and effort data should be verified as follows:

- a) The amount of the retained catch should be verified with records of unloading obtained from a source other than the crew or owner or operator of the fishing vessel, such as an agent of the company responsible for unloading or onward shipping or purchasing of the catch.

- b) Positions of latitude and longitude should be verified with information obtained from vessel monitoring systems.
- c) The species composition of the catch should be verified with sampling conducted by observers during fishing operations or by port samplers during unloading.

12.0 Appendix Two - Data Gaps Questionnaire



WESTERN AND CENTRAL PACIFIC FISHERIES COMMISSION DATA GAPS PROJECT ASSESSMENT OF OPERATIONAL DATA

This questionnaire relates to only those fisheries managed by the Western and Central Pacific Fisheries Commission.

Part One - When completing sections A and B, please only respond in relation to fishing activity of Vessels flagged to your country (i.e. national fleet), covering activities throughout the WCPFC Convention Area

SECTION A RECORDING OF OPERATIONAL CATCH DATA

Question 1. For each of the fisheries below, please state whether any operational catch data is currently recorded by vessels flagged to your country?

Fishery
Longline
Pole-and-line
Purse seine
Troll
Other (please specify below)

Question 2. For only those fisheries where you answered 'yes' in question 1, what is your best estimate of how much fishing activity is being recorded by vessels flagged to your country.

Fishery
Longline
Pole-and-line
Purse seine
Troll
Other (please specify below)

Question 3. Please select those reasons that influence or inhibit recording of operational catch data required by the Commission (Please select all that apply).

Do not understand in detail what operational catch data recording is required by the Commission.

Have a current operational catch data recording regime, but the operational catch data required by the Commission is different from what we record

Do not have the resources in place to record the operational catch data required by the Commission (resources, people, or programs)

Other, please specify

**Question 4. With reference to your answers in question 3, do you have any activities or projects in place to improve the recording of operational catch data as required by the Commission?
If yes, please outline them briefly in the space provided below.**

Question 5. What can the Commission do to assist your country with improving the recording of operational catch data as required by the Commission?

SECTION B PROVISION OF OPERATIONAL CATCH DATA TO THE COMMISSION

Question 6. For only those fisheries where you have answered 'yes' in question 1, what is your best estimate of the amount operational catch data you provide to the Western and Central Pacific Fisheries Commission as a % of the total operational catch data recorded by vessels flagged.

Fishery
Longline
Pole-and-line
Purse seine
Troll
Other (please specify below)

Question 7. Please select those reasons that influence your provision of operational catch data to the Commission (Please select all those that apply).

Did not know operational catch data was to be provided to the Commission
Do not understand how operational catch data is to be provided to the Commission (how refers to the submission mechanism and the format the data is required in).
Do not understand when operational catch data is to be provided to the Commission
Do not have the resource capacity to collate and provide operational catch data to the Commission
Do not provide data to the Commission due to legal constraints (e.g. privacy laws/international agreement). Please specify below.
Other, please specify

Question 8. With reference to your answer in Question 7, Do you have any activities or projects in place to improve the **provision** of operational catch data as required by the Commission? If yes, please outline them briefly.

Question 9. What can the Commission do to assist your country with improving the **provision** of operational catch data to the Commission?

Part Two - When completing sections C and D, please only respond in relation to fishing activity of foreign vessels licensed to fish within your national waters

SECTION C RECORDING OF OPERATIONAL CATCH DATA

Question 10. For each of the fisheries below, please state whether any operational catch data is currently recorded for foreign vessels within your national waters.

Fishery
Longline
Pole-and-line
Purse seine
Troll
Other (please specify below)

Question 11. For only those fisheries where you answered 'yes' in question 10, what is your best estimate of how much fishing activity is being recorded for foreign vessels within your national waters.

Fishery
Longline
Pole-and-line
Purse seine
Troll
Other (please specify below)

Question 12. Please select those reasons that influence or inhibit recording of operational catch data required by the Commission (Please select all that apply).

Do not understand in detail what operational catch data recording is required by the Commission.

Have a current operational catch data recording regime, but the operational catch data required by the Commission is different from what we record

Do not have the resources in place to record the operational catch data required by the Commission (resources, people, or programs)

Other, please specify

**Question 13. With reference to your answers in question 12, do you have any activities or projects in place to improve the recording of operational catch data as required by the Commission?
If yes, please outline them briefly in the space provided below.**

Question 14. What can the Commission do to assist your country with improving the recording of operational catch data as required by the Commission?

SECTION D PROVISION OF OPERATIONAL CATCH DATA TO THE COMMISSION

Question 15. For only those fisheries where you have answered 'yes' in question 10, what is your best estimate of the amount operational catch data you provide to the Western and Central Pacific Fisheries Commission as a percentage of the total operational catch data recorded for foreign vessels within your national waters.

Fishery
Longline
Pole-and-line
Purse seine
Troll
Other (please specify below)

Question 16. Please select those reasons that influence your provision of operational catch data to the Commission (Please select all those that apply).

Did not know operational catch data was to be provided to the Commission
Do not understand how operational catch data is to be provided to the Commission (how refers to the submission mechanism and the format the data is required in).
Do not understand when operational catch data is to be provided to the Commission
Do not have the resource capacity to collate and provide operational catch data to the Commission
Do not provide data to the Commission due to legal constraints (e.g. privacy laws/international agreement). Please specify below.
Other, please specify

Question 17. With reference to your answer in Question 16, Do you have any activities or projects in place to improve the **provision** of operational catch data as required by the Commission? If yes, please outline them briefly.

Question 18. What can the Commission do to assist your country with improving the **provision** of operational catch data to the Commission?