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CONSULTANCY REPORT: CAUSES OF DATA GAPS

**WCPFC-SC5-2005/ST-WP-02
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Prepared by the Secretariat

Introduction

1. The Third Regular Session of the Scientific Committee (SC3) in August 2007 recommended that the Commission undertake a study to identify the causes of data gaps. The proposed study was endorsed by WCPFC4 in December 2007 with the recommendation that the results of the study be considered at the Fourth Regular Session of the Scientific Committee (SC4) at Port Moresby in August 2008. The focus of the study was to cover the current data reporting obligations to the WCPFC, the identification of data gaps and an appraisal of the causes of data gaps.

2. Detailed terms of reference, including the scope of the assignment, tasks and outputs was developed by the Secretariat in consultation with the SPC-OFP and the convener of the Statistics Specialist Working Group (ST-SWG). A call for Expression of Interest to undertake the assignment was posted on the Commission's website in late February 2008. Two applications to undertake the work were received by the deadline of 31st March 2008. Subsequently, the Secretariat contracted FishServe from New Zealand for the assignment.

3. The SC4, during both the meeting of the ST-SWG and the Plenary, received an interim report concerning the work being undertaken. The main issue raised during these presentations was the low level of response the consultants had received from data correspondents in CCMs to assist with a key element of the assignment – to profile the causes of data gaps (4 responses received at the start of SC4). As a result, SC4 recommended that:

“...all CCMs complete and submit responses to the data gaps questionnaire via email by 31st August 2008 and that an updated analysis be presented for information to WCPFC5.”

4. In response to this recommendation an additional 15 questionnaires were submitted to the consultants. This additional information was analyzed and incorporated into a Final Report which was available to WCPFC5 as an information paper, and forwarded to SC5 as a ST-SWG working paper.

WESTERN AND CENTRAL PACIFIC FISHERIES COMMISSION

Final Report on Causes of Data Gaps

29 October 2008

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1. 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 discussed at the Fourth Regular Session of the SC which met at Port Moresby, Papua New Guinea, on the 11th -22nd of 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. 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. 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. 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>

⁴The 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
 Final Report on the causes of Data Gaps

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. 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 now 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. 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. 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 Two 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. Analysis of Questionnaire Response

Prior to the Fourth Regular Session of the Scientific Committee (SC4) meeting held in August 2008, only four questionnaire responses were received. An additional 15 responses were received by the Commission and forward to FINNZ after the SC4 meeting. A total of nineteen responses were received - this is approximately half of the total possible number of responses that could have been received. The following section analyses the findings from those responses. Given the total number of responses we have not focussed on statistical analysis as much as we have focussed on the comments made by respondents. In some instances respondents have not completed 'tick boxes' and have made a comment instead. For the purposes of the statistical analysis, and where necessary, we have interpreted these comments and assigned to a relevant 'tick box' answer.

All responses have been summarised into one questionnaire, along with our interpretations, and attached as Appendix Two. Also, unless otherwise indicated, the word "data" is used to mean operational catch data and the term "fishing activity recorded" means the recording of operational catch data.

Overview, Part One, Data Recorded versus Data Provided by Vessels Flagged to Respondents i.e. National Fleet.

When considering the data recorded against the amount of data provided to the Commission, on average across all fisheries 62% of the respondents stated that they provided over 75% of the data they record. Table One below provides a summary of data recording and provision by fishery.

Table One: Data recording and Provision

	Number of respondents who indicated they record data for national vessels	Number of respondents who indicated they provide over 75% of data for national vessels	% provided
Longline	14	9	64%
Pole-and-line	5	2	40%
Purse seine	14	9	64%
Troll	5	4	80%
			62%

Data Recording

In terms of recording data, of the 19 questionnaires received:

- 11 respondents indicated that between 76-99% of their fishing activity was recorded.
- 5 respondents indicated that 100% was recorded.
- 3 respondents indicated that less than 75% was recorded.

Reasons that Influenced or Inhibited the Recording of Data

Respondents provide a range of comments on reasons why data wasn't recorded. These comments are listed in Question 3 of Appendix Two. The main factors that were reported to inhibit the recording of data are summarised as follows;

- Data required by the commission being different from data recorded: 8 respondents
- Not having the required resources: 6 respondents.
- Not understanding the requirements: 4 respondents.

Improving the Recording of Data

Respondents provided a range of comments on projects and activities that are in place to improve the recording of data. These comments are listed in question four of Appendix Two and are summarised as follows;

- Legislative and Regulatory change
- Enhanced administrative procedures
- Application of additional human resources
- Increased industry liaison

Help required to improve data recording

The responses received indicate two main areas where assistance is required in improving data recording, namely understanding the requirements (35%) and resource building / funding (25%). Specific respondent comments are listed in Question 5 of Appendix Two. Of the 19 respondents:

- 7 indicated they would like assistance in understanding the requirements or educating participants on the requirements. For example, requests for funding to conduct in-country workshops, requests for more information about what data is required and why;
- 5 indicated they would like assistance with funding and/or capacity building to improve data collection;
- 7 indicated they did not require any assistance.

Assistance with understanding the requirements was most predominant in the group who reported recording over 75% of their data, whereas, assistance with funding/capacity building was most predominant in the group who reported recording less than 75% of their data.

Provision of Data - Where data recorded in excess of 75% of fishing activity

Of the 11 respondents who reported that between 76-99% of their fishing activity was recorded:

- 2 confirmed that 100% of operational catch data recorded was provided to the Commission.
- 6 reported that they provided between 76-99% of operational catch data recorded.
- 2 reported that they provided at least 57% of operational catch data recorded, and
- 1 reported that they provided 20% of operational catch data recorded (with 100% being provided in the one fishery and none in the remaining fisheries)

Of the 5 respondents who reported that 100% of their fishing activity was recorded:

- 4 indicated that they provided 100% of operational catch data.
- 1 indicated that they provided less than 25% of operational catch data

Reasons that influence or inhibit provision of data to the Commission

The main factors that were reported to inhibit the provision of data to the Commission were:

- Not providing data to the Commission due to **legal constraints** (e.g. privacy laws): **4** respondents
- Not having the **resource capacity** to collate and provide data to the Commission: **3** respondents
- Not understanding **how** data is to be provided (submission and format of data): **3** respondents
- Not knowing **data** was to be provided: **2** respondents

Question 7 of Appendix Two provides specific comments from respondents in relation to the problems faced with provision of operational catch data to the Commission.

Improving the Provision of Data

Respondents provided a range of comments on projects and activities that are in place to improve the recording of data. These comments are listed in question 4 of Appendix Two and are summarised as follows;

- Use of Technology (Tufman/scanning)
- Implementation of new or improved logsheet programmes
- Liaison with relevant parties to facilitate data transfer (common theme of work with SPC)

Help Required to Improve Provision of Data

There are two main areas where respondents stated assistance is required to improve provision of data:

- Understanding the requirements - 35% of respondents
- Capacity building / funding - 40% of respondents

Of the 19 respondents:

- 7 indicated they would like assistance in understanding the requirements. For example: require technical advice, coaching through various scenarios, formatted forms showing the exact data required, an annual timetable of the data required.
- 7⁶ indicated they would like assistance with funding and/or capacity building including: human resources, industry consultation, office equipment, monitoring of landing sites, data processing, etc.
- 6 indicated they required no assistance.

Of the respondents who reported that more than 75% of their fishing activity was recorded,

- 7 indicated they would like assistance in understanding and explaining the requirements, including explaining requirements to companies, understanding how to provide information to the Commission, and getting technical advice, coaching through scenarios and a template form from the commission,
- 5 indicated they would like assistance with funding for industry consultation, negotiation, and data collection and processing.

Of the 3 respondents who reported that less than 75% of their fishing activity was recorded, 2 indicated they would like assistance with funding and/or capacity building, whilst 1 indicated they did not require any assistance.

⁶ Note that some respondents required help with both funding/capacity building and understanding the requirements

Overview, Part Two, Data Recorded versus Data Provided by Foreign Vessels licensed to Fish within Respondents' National Waters.

When considering the data recorded against the amount of data provided to the Commission, on average across all fisheries 19% of the respondents stated that they provided over 75% of the data they record. Table Two below provides a summary of data recording and provision by fishery.

It is of note that respondents did not provide much detail regarding the recording and provision of data by foreign vessels licensed to fish in the respondents waters.

Table Two: Data Recording and Provision

	Number of respondents who indicated they record data for foreign vessels	Number of respondents who indicated they provide over 75% of data for foreign vessels	% provided
Longline	8	1	12%
Pole-and-line	5	1	20%
Purse seine	9	4	44%
Troll	2	0	0%
			19%

Recording of data by foreign vessels

In terms of recording data, of the 19 questionnaires received:

- 6 respondents indicated that between 76-99% of their fishing activity was recorded.
- 3 respondents indicated that 100% was recorded.
- No other respondents provided an indication of how much foreign vessel's data was recorded.

Reasons that influence or inhibit the recording of foreign vessel's data

Only two respondents provided reasons for the lack of reporting data. In both cases this was stated as resulting from a lack of resources. Question 12 of Appendix Two provides specific comments from respondents in relation to the problems faced with recording data.

Improving the recording of data of foreign vessels

Respondents provided a range of comments on projects and activities that are in place to improve the recording of data. These comments are listed in question 13 of Appendix Two and are summarised as follows;

- Translation of Logsheets
- Increased Industry Liaison

Help required to improve data recording

Respondents provided few comments on help required to improve the recording of data. These comments are listed in question 14 of Appendix Two.

Provision of data in respect of foreign vessels

Of the 6 respondents who reported that between 76-99% of their fishing activity was recorded:

- 1 confirmed that 100% of operational catch data recorded was provided to the Commission.
- 3 reported that they provided between 76-99% of operational catch data recorded.
- 2 reported that they provided less than 75% of operational catch data recorded

Of the 3 respondents who reported that 100% of their fishing activity was recorded:

- 2 indicated that they provided 100% of operational catch data.
- 1 did not provide an indication of how much data was provided.

Reasons that influence or inhibit the provision of data in respect of foreign vessels

Question 16 of Appendix Two provides specific comments from respondents in relation to the problems faced with provision of operational catch data to the Commission. It was significant that one respondent stated that they had difficulty providing data when other CCM's did not. Also, another respondent stated their provision of data was influenced by what the Commission would do with the data,

Improving the provision of data in respect of foreign vessels

Two respondents provided comments on projects and activities that are in place to improve the provision of data. These comments are listed in question 17 of Appendix Two and are summarised as follows;

- Improving on the understanding of requirements
- Improving administrative procedures.

Help required to improve data provision

Respondents provided comments on help required to improve the recording of data. These comments are listed in question 18 of Appendix Two and are summarised as follows;

- Help bring about an increase in the understanding of requirements
- Funding for capacity building, human resources and improved processes

9. 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. 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:

- Educate data correspondents on the purpose and importance of collection and provision of data
- 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 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.

3. We recommend that the Commission executive continue to liaise with senior representatives of CCM's and other relevant entities to undertake the following;

- Reinforce key messages pertaining to the importance of data recording and data provision.
- Provide assurances as to the security and 'fit for purpose' use of data provided

Appendix One**Scientific Data to Be Provided to the Commission**



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

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	Yes	No	No activity
Longline	14	3	1
Pole-and-line	5	2	4
Purse seine	14		2
Troll	5	4	2
Other (please specify below)			
The professional small scale nearshore fishery gathers two types of boat : poti marara and bonitier which use a range of gears such as trolling, vertical hand line, harpoon and pole and line mostly. Operational catch data are collected for both type of boats.			
Operational catch data is collected for approximately 27 other fishing methods (not usually targeting tuna or other highly migratory fish species).			
Handline - Yes Ringnet - Yes			
Recreational game fishing Charter game fishing			
Handline Yes(Semi-operational) (not all of the usual operational details on effort are recorded for all fleets)			
Handline - Yes Ringnet - Yes			

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	<25	25-50	51-75	76-99	100
Longline	1		1	6	5
Pole-and-line	1		1		3
Purse seine	2			3	8
Troll	1	1		2	2
Other (please specify below)					
The fishing activity of longline fishery is estimated in three parts. About 90% of 97 large tuna longline (LTLL) vessels are reported by fishermen, about 10% of 790 domestic small tuna longline (STLL) vessels are collected by statisticians at domestic ports, and about 100% of 640 foreign small tuna longline (foreign STLL) vessels are collected by SPC.					
Coverage of the professional small scale nearshore fishery is estimated at 59 % (in catch, 61 % in fishing trips) in 2007					
Longline - Position , catch by species. Wet and retrieval time etc.					
Purse seine - Position, catch by species, set time, by catch etc.,					
Recreational game fishing - 75% of tournament					
Charter game fishing - 100%					
Handline 50%					

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

A	Do not understand in detail what operational catch data recording is required by the Commission.	4
B	Have a current operational catch data recording regime, but the operational catch data required by the Commission is different from what we record	4+4Bs = 8
C	Do not have the resources in place to record the operational catch data required by the Commission (resources, people, or programs)	2+4Cs = 6
Other reasons provided		Evaluation*
Poor compliance with the regulation and geographical scattering of the small scale fishery		
Our logsheets provides for the recording of catch on a trip basis, but not catch by set by trip. We are looking at deploying logsheets that can provide for the recording of operational catch data.		B
The vessel master provides operational catch data at the end of the fishing trip as required by FSM arrangement licence conditions. Such data is submitted to Kiribati and a scanned copy is provided to SPC for processing.		B
Troll fishermen do not provide operational catch data (small domestic fishermen on South Tarawa)		
Have operational catch data recording regime but need to further educate industry to fill in the form properly, including translating the form to other languages.		C
<ul style="list-style-type: none"> Fiji's pole and line fishing has reduced to nill (2008). Japanese PL vessels report on catch only if fished in Fiji waters. Focus, since 2002, has been on the collection of operational data from the longline vessels. Trolling has only been done on a small-scale with fishers fishing around FADS. There has been a lack of personnel and resources to obtain operational data from these Fishers. 		B & C
Domestic regulation bans the reveal of the operation data.		
Some logsheet not receive from the fishing company.		C
We are currently collecting and providing these data to SPC for analysis and processing.		B
Recreational data recording inhibited by large & diffuse nature of fishing.		
For small scale fisheries(troll handline) we lack resources to operate and enforce more comprehensive data reporting systems that would for example, capture such data form recreational fishermen or those who ignore reporting requirements.		C
N.B. When we receive additional data requirements from the Commission we incorporate same into our operation catch data recording regime.		

Evaluation*

The comments provided were evaluated and some were found to loosely belong to one of the above factors marked as A,B or C above. These were then added to the original scores.

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.

Number of Yes responses: 11

	Evaluation
For the data improvement program, 17 statisticians have been deployed to station at 4 domestic ports to enhance domestic STLL data collection since September 2007. Their work includes collection of logbooks from fishermen, and interview with fishermen to obtain fishery-related information and to conduct port-sampling program. Logbook coverage rate will be improved significantly in the near future in a gradual manner. But, the operational catch data required by the Commission may not be sufficient, because financial resources, manpower and personnel's experience are still inadequate at present.	Yes
Improvement of the regulation	Yes
We are putting in place administrative procedures to track who has logbooks and who has submitted logbooks and tie license renewal in year T+1 to submission of logbooks from year T.	Yes
Yes, we are reviewing our legislation to incorporate the commissions requirements (with regard to type of data to provide) into our local fishery data collection regime. This could come into effect in a years time or two.	Yes
This year BFAR started requiring fishing boat operators to fill-up and submit LOGSHEETS (See below) <ul style="list-style-type: none"> • BFAR requires fishing companies to submit the completed logsheets for each fishing vessel every 1st of the following month through electronic mail and hard copy. • Then all submitted logsheets are encoded in the TUFMAN system (installed June 2008 at BFAR/NFRDI Office). • Ongoing consultation dialogues/meetings are being done. 	Yes
We have been continuously working with the industry to explain what data is required in the logsheets. Whenever the opportunity analysis	Yes
Some compliance measures to improve current recording standards (penalties)	Yes
Under Fiji's national Tuna development and management plan(200). A management services division was set-up to, amongst other things, collect catch data from the domestic LL Fleet. The division also collect C&E data from the flagged(licensed) vessels that use Fiji as ports for unloading, bunkering, provisioning, crew-change etc.,	Yes
There is no problem to record operational catch data but it is impossible to reveal because of domestic regulation	No
Yes, currently the SPC funded the position of natural tuna Data Coordinator and for other temporary data entry officers to improve tuna data collection and procession.	Yes
Currently, we are using the Regional Database (providing by SPC), TUFMAN.	No
Proposed projects on <ul style="list-style-type: none"> • Collecting game fishing club records • Survey of game fishing activities, e.g., through tackle shops 	No
We work continuously with state of Hawaii fishing managers to improve the collection and quality control for troll and handline fishing.	Yes
In April 2008 we revised our catch reporting form in accordance with the Commission's latest standards for the Provision of Operational Level of Catch and Effort Data. Our system for the recording of operational catch data is reviewed quarterly. We revise our catch reporting forms so as to incorporate the latest requirement of all RFMOs., i.e. we require reporting by all vessels, in all RFMOS to the highest standard set by any one RFMO. In this way, we achieve, so far as possible, uniformity in reporting throughout our fleet of longliners wrolwide.	Yes

Evaluation: Yes indicates the activities are current and in progress, or have already been started.

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

Number of “Nothing” responses: 6

	Evaluation
1.What operational catch data recording is required by the Commission? The Commission shall decide on detailed items and standards.	T
2. We hope to get the operational catch data of our flagged vessels collected by SPC and OFP. Those data can help to confirm whether the same data were repeatedly reported.	
3. The Commission can assist in training on data collection and processing.	
Need training	T
Financial support for in country workshop on the commission’s requirements with regard to data provision, including operational catch data.	T
If commission is interested in this catch data, then assistance in a form of provisioning of funds to help us to conduct artisanal data collection on a random basis	F
Capacity building: Additional (human/financial) resources are needed to help in the recording of operational catch data particularly for handline and other small scale fishing operators.	F
Run workshops focused on filling the forms, including the explanations as why the fields are needed. The workshop should target the industry especially those who fill the forms.	T
Do not currently need assistance. Receive assistance from SPC-OPF & FFA. May request assistance in future if the need arises	
<ul style="list-style-type: none"> • Funding for data forms especially for foreign vessels. We currently provide forms at no cost to the agents and companies to which these vessels are under. • Provision of funds to run projects to cover collection of data from the troll, PL fisheries. 	F
Funding of data entry officers should continue and it should goes for yearly basis rather than monthly basis.	F
Supply the relevant information required.	T
We are anticipating to meet with the industry through series of meetings or may be some other cost effective means to address issues of : <ul style="list-style-type: none"> • Better identifications of catch and by-catches • Turtle and sea bird release and handling, • Other issues. 	T
May be the commission could assist with supplement funding in assistance for us to host and execution of this plan.	
No assistance required, other than high-level pressure to ensure that data collection & reporting are given a high priority.	
Capacity building Additional (human/financial) resources are needed to help in the recording of operational catch data particularly for handline and other small scale fishing operators.	F
It would be helpful if the Commission would provide a detailed layout and explanation of the operational data which they require. This would enable us to cross-check the adequacy of the data which we submit to you. It would be helpful if the Commission Commented on the data which we have submitted and identified the additional data required in good time for these to be considered at the appropriate meetings.	T

Evaluation:

T= indicates a need for Training or for understanding the requirements or educating participants on the requirements.
F = indicates a need for Funding or Capacity building assistance to improve data collection.

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	<25	25-50	51-75	76-99	100
Longline	2	3		4	5
Pole-and-line	2		1		2
Purse seine	1	1	1	2	7
Troll	1			1	3

Other (please specify below)
The fishing activity of longline fishery is estimated in three parts. About 90% of 97 large tuna longline (LTLL) vessels are reported by fishermen, about 10% of 790 domestic small tuna longline (STLL) vessels are collected by statisticians at domestic ports, and about 100% of 640 foreign small tuna longline (foreign STLL) vessels are collected by SPC.
Consistent with the specificities of the small scale fishery, only catch estimates are provided to the commission for this fleet.
There were no detailed operational catch data recorded before. Collection of operational catch data required by the Commission started only this year but on a limited coverage.
PNG always provides operational data for other fleets fishing in PNG waters at about >80% level.(logsheet coverage)
Recreational 0%
Handline 0%
There were no detailed operational catch data recorded before. Collection of operational catch data required by the commission started only this year but on a limited coverage.

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

A	Did not know operational catch data was to be provided to the Commission	3
B	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).	2+1=3
C	Do not understand when operational catch data is to be provided to the Commission	
D	Do not have the resource capacity to collate and provide operational catch data to the Commission	3+1=4
E	Do not provide data to the Commission due to legal constraints (e.g. privacy laws/international agreement). Please specify below.	3+1=4
Other reasons provided		Evaluation*
Operational catch data has been provided to the scientific service provider (SPC) but formal authority not yet granted for release to the Commission.		E
Needs to review and develop domestic framework to allow for the provision of operational catch data.		
No problem in the provisioning on the operational catch data to the commission. Perhaps this will depend on what the commission will use the data for.		
There were no detailed operational catch data recorded before. Collection of operational catch data required by the Commission started only this year but on a limited coverage.		
PNG provides those data. It is with spe		
We have the capacity to provide operational catch data, but have small(staff) team to carry out the work, usually time constraints		D
We did not provide data directly to the commission however we do provide operational data to OFF.		
We are currently providing the data to SPC through scanning process, where the data is being scanned and sent to SPC for processing		
Recreational data unavailable (¬ required by WCPFC?)		
There were no detailed operational catch data recorded before. Collection of operational catch data required by the Commission started only this year but on a limited coverage.		
Although we have a general understanding, further clarification is needed with regard to the format for submission of data.		B

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.**

Number of "Yes" responses:

	Evaluation
No problem with dissemination	
Will be working with SPC to establish a process for formal transfer of operational data for domestic vessels to the Commission.	
Work in collaboration with SPC-OFT on the development of an appropriate LC logsheet for our fleet that enables the collection of Operational Catch Data.	
Tupman has been introduced and we hope the database will be more reliable and user friendly to be able to provide such data more faster and efficiently.	
Through the National Stock Assessment Program(NSAP) and the implementation of the Logsheets.	
There are number of avenues where this is addressed which includes. <ul style="list-style-type: none"> • Industry consultative meeting. • Mention during the negotiation period. • Specific officer to follow-up on page information and includes visits to companies for explanation. 	
Data audits, create better data registry & improve the current tuna data management plan to improve efficiency. One new staff member was recruited to the offshore fisheries division. Have plans to have him do attachments with SPC_OF to bring him up to speed with regional programmes and continue training him up to handle data for commission purposes	
Under SPC's guidance we currently have a tuna data collection system in place <ul style="list-style-type: none"> • Review and revise of the part sampling and observer programme. • Improve our follow up with industries for collection of operational data. • Set up in house data processing system with the help of SPC 	
We have a new processing plant to be operating by next year(2009) therefore we have plans to further improve this provisions.	
We just have to improve the scanning process and hopefully have dedicated staffs to share the responsibilities.	
The U.S. is working on several mechanisms(simultaneously) each of which is anticipated to make if possible to at least(submit current operational data)(I am not 100% certain whether or not (after legal mechanisms are established for submitting current operational data to UCPFC are established) whether we will be hampered by the commissions provisions and MOV's for sharing this data with other entities). Each mechanism involves either modifications of regulations, or laws, or both. It has not been established by legal opinion(yet) whether these mechanisms will be retroactive with regard to past data. Current indications are negative, but seem illogical. Also working to better link operational data on catch location with market data on fish weight composition.	
Through the National Stock Assessment Program(NSAP) and the implementation of the Logsheets.	

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

	Evaluation
Encourage support for Tuna Data Workshops, conducted by SPC, to address data issues.	T
Need information to know how providing operational catch data to the commission	T
Office equipment support	F
Capacity building in data management and to conduct workshop (in-country) so that people will see the very importance of data in relation to stock assessment and when using these information in having decisions when it comes to managing fisheries resources.	T & F
Maybe provide some funding to carry out: <ul style="list-style-type: none"> • Industry consultative meeting. • Mention during the negotiation period. • Specific officer to follow-up on page information and includes visits to companies for explanation. 	F
Using SPC-OFP assistance.	
<ul style="list-style-type: none"> • Provision of data forms for fleets operating in & out of Fiji. • Funding for expert IT advice. 	F
<ul style="list-style-type: none"> • Funding should provide to enhance our data collection and procession. • Technical advice an data require by the commission. 	T & F
Provide assistance in terms of training/funding for the capacity needed to carry out these operation.	T & F
Data is being scanned and sent to SPC but at times the process becomes slower due to very limited staffs, and very high volume of data to be scanned. If the commission could assist with additional funding, maybe additional staffs could be contracted to under-take scanning and submissions of data.	F
It would help me in providing advice internally to regulators if I could be coached through the various scenarios by which other entities besides WCPFC could access operational data provided by the U.S. I know this has been carefully specified, but I get confused and walking through a group of example cases would be helpful. I am not 100% certain whether or not (after legal mechanisms are established for submitting current operational data to UCPFC are established) whether we will be hampered by the commissions provisions and MOU's for sharing this data with other entities.	T
Capacity building: Additional(human/financial) resources are needed to help in the recording of operational catch data particularly for handline and other small scale fishing operators and also through the expansion of landing sites being monitored.	F
The Commission can provide us with a format for the reporting of operational data, that is, a Form showing the exact data that the Commission requires us to submit to them on an annual basis so as to avoid any possibility of errors/misunderstandings. Also, it would be helpful if a timetable is produced showing on an annual basis, all reporting requirements to the Commission with dates for submission in chronological order.	T
High level pressure to ensure that data collection and reporting are given a high priority	

Evaluation legend:

T= a need for Training or for understanding the requirements or educating participants on the requirements.

F = a need for Funding or capacity building assistance to improve data collection

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

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	Yes	No	No activity
Longline	8		1
Pole-and-line	5		1
Purse seine	9		1
Troll	2	2	1
Other (please specify below)			
There are no foreign vessels within our national waters.			
Only foreign purse seine vessel access PNG waters. No other fishing by foreign fleets.			
No foreign fishing			
We have no foreign fishing vessels operating within our national waters. Our fleet consist entirely of vessels operating on the High Seas.			

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	<25	25-50	51-75	76-99	100
Longline		1	2	1	2
Pole-and-line				2	1
Purse seine			1	3	3
Troll				1	
Other (please specify below)					
New management plan just implemented July 2008 too early & say, but aiming for 100%					

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

A	Do not understand in detail what operational catch data recording is required by the Commission.	
B	Have a current operational catch data recording regime, but the operational catch data required by the Commission is different from what we record	
C	Do not have the resources in place to record the operational catch data required by the Commission (resources, people, or programs)	1
Other reasons provided		Evaluation*
Late submission or non-submission of operational catch data from foreign vessels. Some vessels do not submit their catches		
Logsheets need to be translated into languages understood by nationals of the fleets fishing. (Ex. Chinese, Taiwanese, Korean, Philippines, Japanese etc.,)		
Not manage to collect all logsheet data from fishing companies.		
We are currently providing all to SPC but at times the submission process is very slow due to huge volumes of data to be scanned, and logsheets sometimes is received late from fishing vessels, or companies.		C

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.

Applying penalties to those vessel owners that don't send data. Suspend licence. No project so far
PNG has asked Japan to translate the logsheet into Japanese. This is being done.
Improve with follow up of logsheet data collection from the fishing company, especially logtime companies.
We do not have project currently in place but we are currently depending on the tufman by SPC, and scans sent to SPC

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

Run a workshop with focus to understand the logsheets and why certain fields are required. Should also focus on filling the forms correctly.
Urge fishing companies and DWFN to up to data with data submission to coastal state according to the condition of licensing.
Increase capacity in terms of
We don't have any plans at the moment.

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	<25	25-50	51-75	76-99	100
Longline	1		2		1
Pole-and-line	1				1
Purse seine	1		1	2	2
Troll	1				
Other (please specify below)					
Canadian national waters do not fall within WCPFC Convention Area. Some US troll vessels enter Canadian waters to fish for North Pacific albacore.					
All our data stored at SPC are available to the Commission.					
Refer Question 11 answer					
Longline - We provide all data to SPC Pole-and-line - We provide all data to SPC Purse seine - We provide all data to SPC Troll No troll fishery					

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

A	Did not know operational catch data was to be provided to the Commission	
B	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).	
C	Do not understand when operational catch data is to be provided to the Commission	
D	Do not have the resource capacity to collate and provide operational catch data to the Commission	1
E	Do not provide data to the Commission due to legal constraints (e.g. privacy laws/international agreement). Please specify below.	
Other reasons provided		Evaluation*
Operational data for foreign fleets in our zone have been provided to SPC but not yet considered Commission data. As we understand, some CCMs have not provided any data at all thus we have some difficulty with the provision of this data until the issue is resolved.		
Operational catch data from foreign vessels entering Canadian waters would be reported to the ISC and the IATTC by the national data correspondents for each nation.		
The provision of data to the commission could be influence by what the commission will do with the data.		
Operational catch data provided and is with spec no problem.		
Some data not collection from the fishing companies.		
We continue to provide all data to SPC through scans.		

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.**

The workshop on data, helps with this vessel.
Scanning process

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

Encourage all CCMs to provide missing data.
Capacity building in data management and to conduct workshop (in-country) so that people will see the very importance of data in relation to stock assessment and when using these information in having decisions when it comes to managing fisheries resources.
At the moment our scanner is down, so may be wcpfc can by PNG a scanner, which will be used to scan logsheets and send to spl or the commission.
Funding for Resources(Human) needed for improving of data collection and procession.
May be assist with sharing the postage costs of mailing, of data (diskettes) to SPC, or if FTP through internet is a positive option by the commission to consider looking into for transferring data online, that may help.