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Peter Williams[1]

***Rev. 1** Update of 2017 data provisions to reflect data received recently. (EU longline size data and US Troll aggregate and operational catch/effort data)

[1] Oceanic Fisheries Programme (OFP) Pacific Community (SPC) Noumea, New Caledonia

ABSTRACT

This paper reports on the major developments over the past year with regard to filling gaps in the provision of scientific data to the Commission.

The review of gaps in 2016 and 2017 scientific data provisions includes the assignment of a tier-scoring evaluation level. There have not been any significant developments in some categories of the main data gaps over the past three years and readers have therefore been referred to the relevant sections in past data-gap papers. Recent developments include sections on:

- the latest provisions of operational data and remaining gaps
- Nationality of the catch (charters)
- Estimates of discards/releases

All CCMs with fleets active in the WCPFC Convention Area provided 2017 **annual catch estimates** by the deadline of the 30th April 2018, and there were no major data gaps, which is a significant achievement. The issues previously reported in annual catch estimates have been further reduced and the lack of any estimates for key shark species remains the main gap for some CCMs, particularly in years before 2017.

Aggregate catch/effort data for 2017 were provided by the deadline of 30th April 2018 for all but one fleet (the gap is the 2017 data for the US albacore troll fleet, due to delays in data processing). The quality of aggregate data provided continues to improve with a reduction in the number of data-gap notes assigned to the aggregate data in recent years. The main issues that remain include the reporting of key shark species catches for some CCMs. The main development in the resolution of **operational data** gaps over the past year were the provision of full 2017 operational data for the Chinese Taipei longline and purse seine fleets. The continued provision of operational data for the Japanese, Chinese and Korean tuna fleets is also noteworthy.

The paper solicits SC14 feedback in three areas:

- Establishing a project with a targeted approach to addressing the current gaps in **conversion factor data**. Refer to "*The requirements for enhancing conversion factor information*", SC14 ST-IP-05, Williams and Smith (2018);
- How **E-Monitoring data** should be dealt with in the WCPFC context, specifically in regards to **ROP longline coverage**. Refer to the outcomes of the 3rd meeting of the WCPFC ERandEM Working Group (6-7 August 2018), and to the "*Status of ROP Data Management*", SC14 ST-IP-02 (Williams et al., 2018);
- In regards to better information on **longline estimates of discards/releases**, the proposal for CCMs to consider:
  - reviewing their respective longline logbooks to ensure there is differentiation between (i) releases of live fish (in healthy condition), and (ii) releases/discards of dead fish, or fish "unlikely-to-survive", which will facilitate the estimation of annual discards for the WCPFC key species;
  - ensuring the definition of "live (in healthy condition)" which is consistent with observer data collection is included in the logbook instructions;
  - ensuring the annual estimates of discards/releases reconcile with discards/releases in their aggregate and operational data, and
  - in addition to estimates of discards in weight by species, provide annual estimates of discards in number (dead fish, or fish "unlikely-to-survive") for the longline fishery only;

The paper refers to the issues in loading the "non-standard" observer data provisions and in referencing Williams et al. (2018), **strongly encourages CCMs to use the WCPFC E-Reporting observer data field standards as the basis for providing their data in the future.**

The UNDP-funded Sustainable Management of Highly Migratory Fish Stocks in the West Pacific and East Asian Seas (WPEA–SM) project is transitioning to the NZ-funded WPEA-Improved Tuna Monitoring (WPEA-ITM) Project this year. These projects contribute WCPFC technical assistance to the Philippines, Indonesia and Vietnam to, *inter alia*, improve monitoring and data management of their domestic fisheries. There has been good progress in the collection and provision of data from each of these countries in recent years and the paper also lists some of the challenges that remain.

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1. INTRODUCTION

1. The obligations for provision of scientific data to the Commission are set out in the Scientific Committee (SC) documentation "*Scientific Data to be Provided to the Commission*" and "*Standards for the Provision of Operational Catch and Effort Data to the Commission*" (Anon. 2005a, Annex VII) which were adopted by the Western and Central Pacific Fisheries Commission (WCPFC) at its second session in December 2005 (Anon. 2005b, par. 25). The "*Standards for the Provision of Operational Catch and Effort Data to the Commission*" were incorporated as ANNEX 1 of "*Scientific Data to be Provided to the Commission*" which was further refined and subsequently adopted at the Fourth Regular Session of the Commission, Tumon, Guam, USA, 2-7 December 2007 (Anon, 2007). The latest version can be found on the WCPFC web site here. The main revisions to this document since it was first adopted include:

i. The inclusion of catch estimates of key shark species and specifying the size class intervals for size data), which were adopted at the Seventh Regular Session of the Commission (WCPFC7), Honolulu, Hawaii, 6–10 December 2011 (Anon. 2011), the Ninth Regular Session of the Commission (WCPFC9), Manila, Philippines, 6–10 December 2012 (Anon. 2012) and the Tenth Regular Session of the Commission (WCPFC10), Cairns, Australia 2–6 December 2013 (Anon. 2013)

ii. The change to require estimates of discards/releases for the key WCPFC species to be submitted as a member country obligation, which was adopted at the Thirteenth Regular Session of the Commission (WCPFC13), Denarau Island, Fiji, 5–9 December 2016 (Anon. 2016).

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

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

4. The WCPFC Data Catalogue has been updated on the WCPFC web site (http://www.wcpfc.int/wcpfc-data-catalogue-0) to cover the 2017 data provisions. This facility provides a description of the WCPFC data holdings by gear, species and data type (annual catch estimates, aggregate catch and effort data, operational catch/effort data and aggregated size data).

5. The Tenth Meeting of the Technical and Compliance Committee of the WCPFC (TCC10 – Pohnpei, Sept. 2014) reviewed a request to consider a tiered-scoring system to better reflect the magnitude and severity of the implications of the lack of scientific data provisions, and directed the SPC to produce an outline of how this system might work. A paper by SPC on a proposed tier-scoring system was considered at WCPFC11 and the SPC was directed by WCPFC11 (Anon, 2014b) to consider this system for the data gaps paper prepared for SC11 (see Williams, 2015). Subsequent SC and TCC meetings (SC11, SC12, TCC11 and TCC12) noted the usefulness of the tier-scoring evaluation for the submission of scientific data and recommended this process continue, acknowledging there may be further refinements as required.

6. The ANNEX of this paper briefly outlines the methodology for undertaking the tier-scoring evaluation of the scientific data submissions by Cooperating Commission Members (CCMs), which has been included in the tables of this paper.

2. STATUS OF DATA GAPS

7. Data gaps and other issues related to the provision of data have been reported at each Scientific Committee meeting since the first in 2005 [the first data gaps paper for SC1 (Williams and Lawson, 2005) and the most recent data gaps paper for SC13 (Williams, 2017)].

8. The following sections describe the most important current gaps in the WCPFC scientific data holdings. The text in *blue italics* reflects the recent work and/or developments to resolve the respective data gaps.

9. Readers are referred to previous versions of this paper and other papers for more detail on important categories of data gaps where there have not been any significant developments over the past year. These sections will continue to be referenced in future versions of this paper when there are significant developments and until they are resolved. Please refer to the following issues:

- Major data gaps for key fleets (Williams, 2014 – Section 2.1.4)
  - Chinese Taipei STLL fleet prior to 2004
- Coverage rates (Williams, 2014 – Section 2.2)
- Key shark species (Williams, 2017 – Section 2.3)
- Nationality of the catch (Williams, 2014 – Section 2.3), and Section 2.3 in this paper;
- Aggregate catch and effort data (Williams, 2014 – Section 2.6)
- Species composition data for purse seiners (Williams, 2014 – Section 2.8; Hampton & Williams, 2017; Peatman et al., 2017; Peatman et al., 2018)
- Annual catch estimates by EEZ (Williams, 2015 – Section 2.3)
- Number of vessels in the aggregate data (Williams, 2015 – Section 2.4)
- Coverage rates (Williams, 2014 – Section 2.2)
- Data to determine Length-Weight and Weight-Weight Conversion factors (Williams, 2017; Williams & Smith, 2018)

2.1 Major data gaps for key fleets

2.1.1 Philippines tuna fishery data

10. During the past year, the WCPFC Secretariat and the SPC/OFP continued to work with their Philippine counterparts to improve the data available from the Philippines domestic fisheries. The UNDP-funded WPEA–SM[2] project which has provided support for this work since 2015, is now transitioning to a new, third project, the WPEA-Improved Tuna Monitoring (WPEA-ITM) Project which is scheduled to operate until March 2022, through a grant from the New Zealand Ministry of Foreign Affairs and Trade. [The first WPEA-OFM[3] project terminated in 2014]. The WPEA projects also support Indonesia and Vietnam.

11. The main activities related to data collected in the Philippines' domestic fisheries over the past year include:

- *The Eleventh Philippines Annual Catch Estimates Review Workshop and the Ninth National Stock Assessment Project (NSAP) data review workshop were convened and attended by important stakeholders with knowledge and information on the tuna fisheries in the Philippines (government, industry and NGOs).*
- *The coverage of logbook and observer data collected for the component of the Philippines domestic purse seine fleet fishing in the High Seas Pocket #1 continued to be 100% for 2017 (as in previous years). E-Reported logbook data were again provided for this fishery covering 2017 activities.*

[2] Refer to http://www.wcpfc.int/doc/wpea-sm-project-document
[3] Refer to http://www.wcpfc.int/doc/2009/wpea-ofm-project-document

12. The Philippines have enhanced the monitoring of their complex and diverse domestic fisheries significantly over the past 5–10 years, with most of the important data gaps now resolved. However, areas that continue to need attention include:

i. Improving logsheet coverage for the purse seine vessels fishing in the Philippines EEZ;
ii. Consideration for establishing a logbook system for the large-fish handline fishery;
iii. More reliable estimates for the small-scale municipal gears;
iv. A better understanding of the extent of catches from the handline fisheries targeting large yellowfin tuna in some regions.

2.1.2 Indonesian tuna fishery data

13. Prior to the recent WPEA projects, the absence of a breakdown of annual catch estimates by gear type, the lack of operational logsheet and size data for the Indonesian domestic fisheries were amongst the most significant gaps in the provision of data to the WCPFC, but these projects have assisted Indonesia make significant progress in resolving at least two of these data gaps: the regular submission of size data and the provision of annual catch estimates by gear and species.

14. During the past year, the WCPFC Secretariat and the SPC/OFP continued to work with their Indonesian counterparts to improve the data available from these fisheries. Significant developments in the past year include:

- *The Ninth Indonesia/WCPFC Area Annual Catch Estimates Review Workshop (ITFACE-9) was conducted in Bogor, Indonesia in June 2018, and the Sixth Indonesia/WCPFC Port Sampling data review workshop was held in Bitung in March 2018. The main outcomes of these workshops were*
  - *i. The move to a nationally standardized data collection system (OneData) which is the main data source used in the annual catch estimates process. The ITFACE-9 workshop considered these data for the first time and while there were anticipated challenges, there was optimism that data from the OneData initiative will improve over time.*
  - *ii. Improved coverage and quality of the port sampling data compared to previous years;*
  - *iii. Improvements to the database management and reporting system maintained by the Indonesia project data manager;*
  - *iv. The inclusion of reviews of logbook and observer data in the port sampling data review workshop.*
  - *v. Participants to the ITFACE-9 workshop noted that the 2017 longline and pole-and-line estimates were now closer to what were anticipated for these fisheries based on other sources of information, for example, vessel and landings activity and information from industry, independent reviews and study tours. The ITFACE-9 workshop noted following potential issues in the 2017 estimates:*
    - *The large discrepancy in the troll fishery estimates between 2015, 2016 and 2017;*
    - *The catch estimate for purse seine appeared higher than anticipated, based on recent study tours and reviews;*
- *The implementation of national logbook data collection system continues to progress with the coverage of logbooks for vessels >5 GT up to 13% in 2017 (compared to 6.6% in 2016). A breakdown of logbook coverage by gear is not yet available. Some 2017 logbook data have been submitted to the WCPFC, but further data quality control is required before the balance of data can be submitted.*
- *One hundred and two (102) observer trips were conducted in the WCPFC Area of the Indonesian EEZ during 2017 and basic data for four (4) longline trips have been provided to the WCPFC, although many of the required WCPFC Regional Observer Programme (ROP) data fields were not included. Further collaboration will be required to ensure full observer data can be submitted to the WCPFC.*

15. The most important areas for progress with catch estimates and data within Indonesia include:

i. The need for more comprehensive review and consolidation of data from all potential sources in the catch estimation process (including industry and NGO data) which would help, *inter alia*, explain the trends in catches by gear;

ii. Compilation and submission of available aggregate and operational catch/effort data for recent years since the logbooks became mandatory in the Indonesian domestic tuna fisheries (2011-2017), although this is acknowledged as a long term goal with assistance provided through the WPEA projects;
iii. Submission of observer data which covers the ROP data field requirements.

2.1.3 Vietnamese tuna fishery data

16. Prior to the recent WPEA projects, there were no annual catch estimates, no operational and no aggregated catch and effort data available from Vietnam tuna fisheries, other than anecdotal information on catches (e.g. Lewis, 2005). Since the establishment of the three WPEA projects, there has been considerable progress in Vietnam to establish data collection and management systems for their tuna fisheries and it has ultimately resulted in the submission of, *inter alia*, annual catch estimates to the WCPFC over the past five years.

17. Significant developments in the past year include:

- *The Seventh Vietnam Annual catch estimates workshop was conducted in June 2018 with a focus on reviewing data collected in the Vietnam tuna fisheries over recent years and the production of estimates for 2017 for their three tuna fisheries (longline/handline, gillnet and purse seine). The reliability of estimates continues to improve and the nine provinces involved (supported by the central Directorate of Fisheries) are more capable and comfortable with the process.*
- *The coverage of operational logbook data continues at around 30-35% for the handline fishery and at around 10% for their purse seine and gillnet fisheries. The coverage of landings data which are critical for the annual catch estimates process, was 35%, 45% and 43%, for HL, PS and GN, respectively.*
- *The WCPFC audit/review of 2017 data identified only one issue and that most data are of an acceptable quality.*

18. Significant progress has been made in a short period but there remain several challenges for Vietnam in the monitoring and data management areas, including:

i. the continuation of the good progress with the coverage of logbook, landings and port sampling data collection for their longline, purse seine and gillnet fisheries;
ii. the compilation and provision of aggregate and operational catch/effort data from the longline fishery from logbooks collected since 2011;
iii. a sustainable observer programme.

2.2 Operational catch and effort data

19. Significant progress has been made with the provision of historical operational data over the past few years (see Section 3.3 below and Tables 5 and 6 in this paper, and previous versions of this paper). Significant developments over the past year include:

- *Provision of complete operational logbook data for the Chinese Taipei longline and purse seine fleets, covering activities for 2017. This represents the first time data of this level have been provided as a WCPFC submission.*
- *Continued provision of operational data for the Indonesia longline, purse seine and pole-and-line fleets, although coverage is very low at this stage. It is hoped that coverage of operational data for the larger industrial Indonesian fleets will increase in the future.*

20. The operational catch and effort data submitted for the China, Indonesia, Japan, Korea and Chinese Taipei fleets in recent years are by far the most significant developments in resolving operational data gaps since the establishment of the Commission. The intent in providing these data is very positive and we look forward to the provision of historical operational data for these fleets in the future (to resolve the gap in historical data provision).

21. For the countries yet to provide **historical** operational data to the WCPFC, the recent initiative whereby the WCPFC scientific service providers had access to operational data in a collaborative study (see OFP, 2015a and OFP, 2015b) was acknowledged as a good interim arrangement until such time as the complete historical data can be provided on a permanent basis to satisfy the wide range of Commission work, noting that this submission is a member country reporting obligation. In the short term, therefore, an extension of this arrangement to access all historical data needs to be formalized as soon as possible to ensure this important work can continue.

2.3 Nationality of the catch (charters)

22. The consistent assignment of "fishing nation" in all types of scientific data has a number of important implications within the SC and other areas of the Commission's work. Since 2010, the WCPFC has had a Charter Notification Scheme. The establishment of a WCPFC Conservation Management Measure (CMM) on chartering[1] (the latest version is CMM 2016-05 – see https://www.wcpfc.int/doc/cmm-2016-05/conservation-and-management-measure-charter-notification-scheme) provides a mechanism for the chartering CCM to choose to notify the Commission of its arrangements, so that the catches and effort of the vessels may be considered operating as "an integral part of the domestic fleet of that Chartering Member or Participating Territory. The notifications affect the assignment of nationality (in favor of the Charter Member or Participating Territory) for catch and effort data provided to the Commission. Procedures are required to ensure, *inter alia*, that "double-counting" of catch and effort data provided by both the flag and chartering entities does not occur.[4]

23. Since the first version of this CMM came into force, the WCPFC Secretariat has been tasked through the relevant CMM to present a summary of notified Charters to the Commission, and has also been required to make the information available to all CCMs. Regular Annual Sessions have regularly received information papers prepared by the Secretariat containing a list of the charters notified by CCMs on an annual basis and more recently, the WCPFC Secretariat has provided authorized CCM users the ability to view the list of all notified charters online through the WCPFC intranet. This information has facilitated the correct assignment of nationality to the WCPFC catch and effort data, and resolved issues and confusion that existed prior to the establishment of this CMM.

24. However, a particular issue (related to 2017 data) raises the possibility of inconsistencies in how purse seine catch data will be reported at the WCPFC, national and sub-regional levels. Williams (2014) outlined the procedures used by the WCPFC data service provider to assign the nationality (charter) to the scientific data, which included:

> *The assignment of 'fishing nation' for the FSM Arrangement (FSMA) purse-seine vessels has been based on the FSMA 'home party' principle since the mid-1990s and this assignment has continued through the WCPFC process;*

25. Since the establishment of the charter notification scheme, the assignment of 'fishing nation' (charter) for FSMA purse-seine vessels has proceeded without any issues, with chartering CCMs generally notifying the WCPFC of their FSMA chartered vessels.

26. During 2017, two Chinese-flagged purse seine vessels were chartered by PNG under the FSM Arrangement, but these vessels were not included in a charter notification to the WCPFC. Since the chartered vessels were not listed under the WCPFC charter notification list, the flag state (China) is obliged to include the catch and effort of these two vessels in their annual catch estimates and scientific data submission to the WCPFC. However, the charter state (PNG) has also included the catch and effort of these two vessels in their annual catch estimates and scientific data submission to the WCPFC. To avoid the issue of double-counting, the WCPFC data service provider has applied the rules of the CMM and since the charter was not notified, then the catch and effort of the two vessels has been attributed to the flag state.

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[1] CMM 2016-05 - "CONSERVATION AND MANAGEMENT MEASURE FOR CHARTER NOTIFICATION SCHEME"

[4] Section 6 of Scientific Data to be Provided says "Flag CCMs 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. "

27. While this action has resolved the issue of double-counting, the situation will still result in inconsistencies in reporting 2017 catch and effort between the WCPFC, and the charter state (and also the PNAO) for this particular fleet (PNG purse seine fleet). The obvious remedy to avoid these inconsistencies in the future would be for the charter state (PNG) to notify all charters (i.e. including their FSMA charters) to the WCPFC according to the relevant CMM. An additional solution to ensure this situation is avoided is for the WCPFC to consider using the annual FSM Arrangement vessel list as an additional source list of the purse seine vessels chartered by Pacific Island countries.

2.4 Estimates of Discards/Releases

28. Suggested updates to the "*Scientific Data to be Provided to the Commission*" were reviewed by SC12 and TCC12, and adopted at WCPFC13 (Anon. 2016). Amongst the changes was the requirement for flag states to submit estimates of discards/releases for the key WCPFC species (this submission was previously non-binding), starting with the submission of 2017 data.

> ***1. Estimates of annual catches***
> …
> *Estimates of discards/releases shall also be provided for each species listed above [WCPFC key species].*
> …
> *Longline catch estimates shall be for whole weight, rather than processed weight.*
> *All catch estimates shall be reported in metric tonnes*
> …

29. Williams (2017) noted that the reporting of discards/releases in metric tonnes is not a problem in the purse seine fishery for tuna and certain bycatch species, but there may need to be consideration for also providing estimates of discard/release in number of individuals, where relevant, particularly for the longline fishery. The inclusion of discard/release in number would also be consistent with the reporting requirements in the WCPFC Conservation Management Measures (CMMs) for certain key shark species.

30. SC13 recommended that

> *the Scientific Service Provider review the importance and practicalities for including the provision of estimates of longline discards in number of individuals discarded/released in the "Scientific Data to be provided to the Commission", with a definition for discards/releases, and report to SC14.*

31. The Scientific Service Provider has undertaken a preliminary review of the potential sources of discard/release data for the longline fishery and the submission requirements under the "*Scientific Data to be Provided to the Commission*". The preliminary review noted the following:

i. The main requirement for discard estimates is to account for the 'total removals' from the stock concerned;
ii. The provision of annual discard estimates of WCPFC key species in metric tonnes for the longline fishery is a binding requirement for WCPFC CCMs for 2017 data onwards. However, the provision of discards in aggregate and operational data is non-binding. Some CCMs instead provide an annual estimate of discards in number;
iii. For recent years, the annual estimate of discards has been included with the annual (retained) catch estimates, which are in turn used to raise the aggregate data used in the stock assessments;
iv. The Scientific Service Provider expects that CCMs will exclude releases of fish in healthy condition in the estimation of discards;
v. CCMs have provided data for discards of the WCPFC key species in number and/or weight estimates in their aggregate and operational data (both sourced from logbooks);
vi. The data on discard by species from logbooks and observers are the sources used to determine the annual discard estimates for key species to be included in the (binding) annual catch estimate submitted to the WCPFC;

vii. Discards by species are reported on logbooks, typically in numbers but may also include a (visual) estimated weight. The operational data (i.e. logbooks) do not appear to differentiate between (i) releases of live fish (in healthy condition), and (ii) releases/discards of dead fish, or fish "unlikely-to-survive". The lack of this differentiation therefore has implications for estimating the annual discards estimates, which should only refer to the latter category. This differentiation is also consistent with the reporting requirements of several shark species CMMs;

viii. Discard data by species from observer data are considered the most reliable, but the coverage of observer data in the longline fishery is currently very low and so the discard estimates may not be representative. Discards in number are reported by observers and estimates of weight are obtained by using an estimated average weight by species from retained catch (where available);

ix. For the longline fishery, the estimates of discards in weight are not as accurate, nor as easy to determine, as estimates of discard in number. The retained catch in number are used for the longline fishery in stock assessments, so discards in number (not weight) would therefore be consistent and the preferred unit of catch within the aggregate data.

32. The annual estimates of discards for the WCPFC key species has only recently become a binding requirement, and the quality of reporting and the coverage of data used to estimate discards (observer, aggregate and operational) is gradually improving, so it is deemed premature to recommend any additional changes to the WCPFC scientific data rules at this stage.

33. Instead, CCMs are encouraged to consider

i. reviewing their respective longline logbooks to ensure there is differentiation between (i) releases of live fish (in healthy condition), and (ii) releases/discards of dead fish, or fish "unlikely-to-survive", which will facilitate the estimation of annual discards for the WCPFC key species;

ii. ensuring the definition of "live (in healthy condition)" which is consistent with observer data collection is included in the logbook instructions;

iii. ensuring the annual estimates of discards/releases reconcile with discards/releases in their aggregate and operational data, and

iv. in addition to estimates of discards in weight by species, provide annual estimates of discards <u>in number</u> (dead fish, or fish "unlikely-to-survive") for the longline fishery only;

34. With respect to the work suggested in the previous paragraph, the Scientific Service Provider will assist their Pacific Island member countries if they decide to proceed, and ensure the relevant updates to WCPFC E-Reporting (ER) data standards are noted for future review.

3. RECENT PROVISIONS OF SCIENTIFIC DATA TO THE WCPFC

35. Under the policy for the provision of data to the Commission, annual catch estimates and aggregated catch and effort data must be provided by 30 April of the following year (see "7. Time periods covered and schedule for the provision of data" at https://www.wcpfc.int/system/files/Att%20G_Revised%20SciData%20decision.pdf).

36. As noted in the introduction, the tables of data submission presented herein include a column with a "tier-scoring evaluation score" which will be referred to under the WCPFC compliance monitoring process and reviewed at TCC14 (September 2018).

3.1 Annual Catch Estimates

37. Tables 1 and 2 list the dates on which catch estimates for 2016 and 2017, respectively, were provided, and include notes on the data that have been provided, mainly highlighting gaps or problems in those data (4th column), general notes on the data provided (5th column), and an indicator for the tier-scoring evaluation level (6th column).

38. All CCMs provided annual catch estimates for 2016 and 2017, by the respective deadlines (30 April 2017 and 30 April 2018). Indonesia, Philippines and Vietnam typically schedule their annual catch estimates review workshops (e.g. in May/June 2018 for 2017 data) which is after the submission deadline but prepared and submitted provisional 2017 estimates from these countries prior to the 30th April deadline this year. Revisions to annual catch estimates were also received from other CCMs prior to July 2018, and we expect further revisions to be included in the WCFPC Part 1 Annual Reports.

39. The quality of estimates provided continues to improve with further reduction in the number of data-gap notes. For the 2017 estimates, there were no major data gaps reported.

3.2 Aggregate Catch/Effort data

40. Tables 3 and 4 list the dates on which aggregated catch and effort data were provided for 2016 and 2017, respectively. The notes in the 4th column of the table refer to instances where the data provided do not satisfy criteria specified in the guidelines for the provision of Scientific Data to the WCPFC, general notes on the data are provided in the 5th column (these notes are not data gap issues but are informative) and an indicator for the tier-scoring evaluation level in the 6th column.

41. Pacific Island countries provide operational catch/effort (logsheet) data [which are aggregated by the OFP] on a regular basis and their provisions of aggregate catch/effort data have therefore been flagged as being provided on the deadline (30 April 2018) since they were available at that time.

42. Notable issues in aggregate catch/effort data that have been resolved in recent years include:

- *The continued improvement with the inclusion of key shark species catches in the aggregate data submissions;*
- *The EU longline fleets are now providing catch in number in their operational data, automatically satisfying this requirement in their aggregate catch/effort data submission.*
- *Indonesia provided operational catch/effort data for 2016 and 2017, and with landings data collected through the WPEA project, a more reliable version of aggregate data can be generated for their fleets.*
- *Indonesia and Vietnam now provide catches of key shark species in their landings data, which contributes to the generation of their aggregate data, although the coverage is acknowledged to be low.*

43. The main gap in the provision of 2016 aggregate catch/effort data relates to the absence of key shark species catch in the Vietnamese data. The timeliness of the provision of aggregate catch/effort data continues to improve with all CCMs providing 2017 data by the deadline of 30th April 2018, except for the US Albacore troll fleet, apparently due to delays in data processing. For 2017, the other main data gap concerns the low

coverage of operational data available to generate aggregate data for the Indonesia fleets and the anticipated under-reporting of key shark species.

3.3 Operational catch/effort data

44. Tables 5 and 6 show the schedule for the submissions of 2016 and 2017 operational catch and effort data to the WCFPC, respectively. The difficulties in implementing logbook programs for small-scale fisheries is acknowledged and indicated in these tables. The gaps in the 2017 data submissions include:

- Operational data for the US albacore troll fleet, apparently due to delays in data processing
- The low coverage in the data provided for the Indonesia and Vietnam fleets
- The non-provision of a number of required fields in the Indonesia operational data
- Catches of key shark species are not included in the Vietnam fleet data

45. Good progress continues to be made in resolving data gaps in the provision of operational catch and effort data to the WCPFC, particularly with the submission of operational data for recent years from China, Japan and Korea. As mentioned in Section 2.2, the most significant development with 2017 data submissions was the provision, for the first time, of **full operational catch/effort data for Chinese Taipei longline and purse seine fleets**.

46. The provision of **historical** operational data for the Asian tuna fleets (China, Indonesia, Japan, Korea and Chinese Taipei) remain the main data gaps and it is hoped that these data can be provided in the near future. As reported in previous years, nearly all CCMs have now modified data collection systems and are including a breakdown of the catch (and where relevant, the release) of the key shark species in their operational data submissions.

3.4 Size data

47. Table 7 shows the schedule for the submissions of 2017 size data to the WCFPC. The notes in the 4th column of the table refer to instances where the data provided do not satisfy criteria specified in the guidelines for the provision of Scientific Data to the WCPFC, general notes on the data are provided in the 5th column (these notes are not data gap issues but are informative), and an indicator for the tier-scoring evaluation level in the 6th column. The only gaps in the provision of 2017 size data are for the EU-Spanish swordfish-target longline fleet and the US albacore troll fleet.

3.5 Overall scientific data submission evaluation

48. Table 8 provides an overall evaluation of each CCM's submission of scientific data to the WCPFC by consolidating the tier-scoring evaluations for each data type (see ANNEX for further information), as requested by TCC11:

> ***Para. 388. TCC11 recommends that WCPFC12 tasks SPC to further refine the tier scoring system to provide, among other things, an indicator of compliance of CCMs as a whole with provision of scientific data.***

49. For the submission of 2017 data, 29 of the 33 CCMs/entities (88%; an improvement on 85% for 2016 data) were evaluated as completely satisfying (100%) the **binding** requirements for the provision of scientific data to the WCPFC. The four (4) CCMs that did not achieve 100% were at least at 85% or greater.

3.6 Regional Observer Programme (ROP) data

50. The SPC/OFP has been processing observer data on behalf of their member countries for close to 20 years and the Seventh Regular Session of the Commission (6–10 December 2011) approved the continuation of this work in respect of the Regional Observer Programme (ROP) data in the short-medium term (Anon., 2012).

Williams et al. (2018) describes the recent developments, future work and initiatives with respect to ROP data management and it also includes tables indicating the current coverage of available observer data.

51. There was a deterioration in the timeliness in the provision of purse seine observer data for 2017 activities compared to the previous year, and this affected certain work for SC14 (e.g. the estimation of purse seine species composition) and preliminary work for TCC14. The Scientific Service Provider (SPC) will be working with respective observer providers in the hope of resolving any issues that caused this delay in observer data provisions.

52. Williams et al. (2018) notes the complexity and time required in loading non-standard observer data and **strongly encourages CCMs to use the WCPFC E-Reporting observer data field standards as the basis for providing their data in the future**, even though the data are not generated from ER/EM systems.

53. The significant increase in the number of E-Monitoring trials[5] resulted in a SC13 recommendation as to how these data are to be considered in the WCPFC context, specifically in regards to ROP longline coverage. The 3rd WCPFC E-Reporting and E-Monitoring Working Group (6-7 August 2018) will attempt to address this recommendation.

4. DISSEMINATION OF DATA

4.1 Bycatch Data Exchange Protocol (BDEP)

54. The report of SC11 (Para. 669 of Anon,. 2015a) recommended:

> *...that SPC, with help from ABNJ Tuna Project:*
> - *develop a process to populate the [BDEP] template; and*
> - *provide the first BDEP template (for 2013-2015) to SC12 for review with ROP data subject to the WCPFC data rules.*

55. Recent developments with respect to enhancements and availability of BDEP data were included in an SC13 paper (Williams et al., 2017) and a dedicated page was created on the WCPFC web site in 2017 to download BDEP data ("Public Domain Bycatch Data" – https://www.wcpfc.int/node/29966). The most recent update of BDEP data (up to 2017 inclusive) is now available on this web page, and the latest developments in BDEP data over the past year are described in Fitzsimmons et al. (2018).

4.2 Enhancing the set of WCPFC public domain data

56. During the past two years, SPC (as the Commission's technical service provider) has been requested to provide versions of aggregated data that would satisfy the conditions for WCPFC public domain data, but are at a different level of aggregation to the public domain data available on the WCPFC web site. The following are examples of requests for WCPFC public domain data :

- Aggregated catch/effort data, stratified by year, quarter, 5°x5° latitude/longitude cells and flag, with the WCPFC three-vessel rule applied;
- Aggregated catch/effort data, stratified by year, 5°x5° latitude/longitude cells and flag, with the WCPFC three-vessel rule applied.

57. In addition to these new public domain data sets, some work has been initiated to ensure the data adhere to all available international standards. For example, the United Nations (UN) Food and Agricultural Organisation (FAO) Coordinating Working Party on Fisheries Statistics (CWP) has established a global Areal Grid System standard and this has now been incorporated into the WCPFC public domain data.

58. These new data sets are now available via the WCPFC public domain data web pages (https://www.wcpfc.int/node/4648).

[5] In the past 3 years, observer data for nearly 300 trips have been generated from the E-Monitoring trials conducted in Pacific Islands countries.

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ANNEX – Notes on tier-scoring evaluation system

WCPFC11 agreed to adopt the proposal to assign a tier-scoring evaluation system for the provision of scientific data to the WCPFC which clearly distinguishes between the three levels described below.[6] The tier-scoring system developed by the WCPFC science/data service provider (SPC/OFP) is a systematic process used to evaluate scientific data submissions against the requirements in the "Scientific Data to be Provided to the Commission[7]", which attempts to provide some measure of the significance of data gaps to the scientific work of the Commission.

The tier-scoring approach ranges from "LEVEL I" which indicates the most severe gap with little or no submission of data which has by far the greatest impacts on the scientific work of the Commission , and that "LEVEL III" would indicate fully satisfying the requirements for data submission.

I. No data are provided, or data have been provided but they have been evaluated as 'unusable' (instances where none of the data provided can be used in assessments). This level of data gap is the most severe and has by far the greatest impacts on the scientific work of the Commission.
II. Data have been provided, most of which can be used for the scientific work of the Commission, but (i) there are one or several (minimum-standard) data fields not provided and/or (ii) the coverage of the data is not according to the requirements. In these cases, some of the scientific work of the Commission cannot be undertaken. Within this level, further distinction on the level of data submission could be made by considering the number of missing data fields in the data provided (for example, a status of FOUR data gaps is considered more serious than a status of ONE data gap).
III. Data have been provided, there are no gaps in the (minimum standard) data fields provided and the coverage of data is sufficient to be used for undertaking the scientific work of the Commission.

It should be noted that the tier-score evaluation should not be considered a final compliance evaluation by the Commission on data gaps. However, it is recognized that the tier-score evaluation is expected to be amongst the advice and information that will be available to the TCC for its review of compliance with "Scientific data to be Provided to the Commission" decision through the WCPFC Compliance Monitoring process.

The methodology for determining the tier-scoring evaluation score listed in relevant columns of TABLES in this paper are as follows:

1. Where data have not been provided by a CCM, then a CATEGORY I level is assigned.
2. Where data provided by a CCM is deemed complete, without any gaps in (minimum standard) data fields provided, then a CATEGORY III level is assigned.
3. Where data provided by a CCM is deemed incomplete due to some fields missing, a CATEGORY II level is assigned, and the following procedures are used:
    a. The table below lists the total number of key attributes required in the submission of each type of scientific data.

KEY Attributes in each Scientific data type for TIER-SCORING EVALUATION					
Annual catch estimates	Aggregate catch/effort data - PS/PL	Aggregate catch/effort data - LL	Operational catch/effort data - PS/PL	Operational catch/effort data - LL	Size Data
26	26	42	28	47	9

    b. For each submission of data, the number of data field gaps are summed and subtracted from the total number of required data fields (by data type and gear) to produce a tier-scored percentage index for category II. For example, if a CCM submitted aggregate longline catch/effort data but did not include the catches of two key shark species (catch in weight and number = four data field gaps), then the tier-scored percentage index would be (42-4)/42 = 90%, and the assignment would be CATEGORY II (90%).

[6] WCPFC11 adopted the tier scoring system for evaluating compliance with the provision of scientific data to the Commission, on the understanding that TCC will keep looking at the process of refining the CMR. The tiered scoring system would be sent to the SC for its consideration.

[7] http://www.wcpfc.int/doc/data-01/scientific-data-be-provided-commission-revised-wcpfc4-6-7-and-9 is the basis of the evaluation of submissions of 2016 scientific data, but the latest version adopted at WCPFC13 (https://www.wcpfc.int/system/files/Att%20G_Revised%20SciData%20decision.pdf) will be used for submissions of 2017 scientific data, onwards.

4. The required coverage of OPERATIONAL DATA is 100% and the coverage for each CCM submission has been listed in a dedicated column for COVERAGE in Tables 5 and 6. The guidelines for the submission of scientific data indicate in section "4. Catch and effort data aggregated by time period and geographic area" that:

> *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.*
>
> *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.*

The guidelines also indicate that "*It is also recognized that certain members and cooperating non-members of the Commission may have practical difficulties in compiling operational data for fleets comprised of small vessels...*"

Instances where coverage of operational data is less than 100%, but (i) annual catch/effort estimates by geographic area have been made available and together with the operational level catch and effort data that has been submitted, is sufficient to allow the scientific work of the Commission to be undertaken, or (ii) the fleets in question are acknowledged to be "artisanal" in nature, have been distinctly highlighted in Tables 5 and 6.

As recommended by TCC11 (Anon, 2015b; Para. 388), this paper attempts to provide an overall evaluation of scientific data to the WCPFC in Table 8. This evaluation only considered **binding** requirements from the "Scientific data to be provided to the Commission", and did not consider (i) coverage of data types and (ii) other non-binding requirements listed in this document. This approach is consistent with how TCC reviews and uses the tier-scored evaluation information. The method for determining the overall evaluation was to take the average evaluation of each data type submission (without weighting). In each case, the evaluation level 'III' scored 100%, the evaluation level 'I' scored 0% and the evaluation level 'II' used the respective score (%) assigned in that data type. Where a CCM had a separate evaluation by gear(s) within a particular data type, then the average evaluation across all gears for that CCM and data type was determined and used.

TABLES

Table 1. Provision of 2016 annual catches estimates to the WCPFC

COUNTRY / TERRITORY / ENTITY	GEAR(s)	Date submitted	DATA-GAP Notes	General NOTES	TIER-SCORING EVALUATION LEVEL
Australia	LL, PS, PL, HL,TR	29 Apr 2017		G, H	III
Canada	TR	24 Apr 2017			III
China	LL, PS	30 Apr 2017			III
Cook Islands	LL, TR	28 Apr 2017		F, G, H	III
Ecuador	PS	29 Apr 2017			III
El Salvador	PS	29 Apr 2017			III
European Union	LL, PS	29 Apr 2017		F	III
Federated States of Micronesia	LL, PS	28 Apr 2017		F, G, H	III
Fiji Islands	LL, PL	28 Apr 2017		F, G, H	III
French Polynesia	LL, PL, OT	28 Apr 2017		G, H	III
Indonesia	LL	28 Apr 2017		F	III
	PS, PL, HL, TR, OT	28 Apr 2017		F, J	III
Japan	PS, LL	30 Apr 2017		C, K	III
	PL, TR, OT	30 Apr 2017			III
Kiribati	LL, PS, OT	28 Apr 2017		G, H	III
Republic of Korea	LL, PS	30 Apr 2017		H	III
Marshall Islands	LL, PS	28 Apr 2017		F, G, H	III
New Caledonia	LL	28 Apr 2017		G, H	III
New Zealand	LL, PS, TR, PL	28 Apr 2017		G, H	III
Niue	LL	28 Apr 2017		D	III
Palau	LL, PL	28 Apr 2017		D	III
Papua New Guinea	LL, PS	28 Apr 2017		G, H	III
Philippines	PS	28 Apr 2017		F, G, H	III
	LL	28 Apr 2017		D	III
	HL, RN, OT	28 Apr 2017		F, J	III
Samoa	LL	28 Apr 2017		G, H	III
Solomon Islands	LL	28 Apr 2017		D	III
	PS, PL	28 Apr 2017		H	III
Chinese Taipei	LL, PS	28 Apr 2017			III
Tokelau	OT	28 Apr 2017			III
Tonga	LL	28 Apr 2017		G, H	III
Tuvalu	LL, PS, OT	28 Apr 2017		G, H	III
United States	LL, PS, TR, HL, PL	28 Apr 2017		G, H	III
Vanuatu	LL, PS	28 Apr 2017		G, H	III
Vietnam	LL/HL, GN, PS	28 Apr 2017	11	J, L	II (92%)
Wallis and Futuna	LL	28 Apr 2017		D	III

DATA-GAP NOTES

1	Total annual catches were provided by SPECIES, but not broken down by GEAR.
2	Marlin catch estimate not provided to the species level.
3	Coverage of data used to determine estimates not provided
4	Type(s) of data used to determine estimates not provided
5	Methods used to determine estimates not provided
6	Breakdown of active vessels by GRT size class not provided
7	Swordfish catch estimates only provided
8	Billfish catch estimates not provided for the longline gear
9	Estimates of all main tuna species not provided
10	Estimates exclude archipelagic waters catches
11	Estimates of shark catch by species have NOT been provided
12	Estimates of shark catch by SPECIES provided, but not for all KEY species taken by this fleet
13	Estimates of DISCARDs SHOULD BE provided (non-binding)
14	Estimates of ALBACORE, SWORDFISH and STRIPED MARLIN for the South Pacific Ocean have NOT been provided

GENERAL NOTES

A	Catches were estimated by the SPC/OFP while assisting with the preparation of the national fisheries report.
B	Catch estimates were taken from the national fisheries report presented at the meeting of the Scientific Committee.
C	Total annual catches can be determined by aggregating operational data that were provided on this date.
D	Fleet(s) inactive for this calendar year in the WCPFC Convention Area
E	National legislation (or policy) requires that time/area strata comprising data for less than three vessels can not be disseminated.
F	Provisional estimates initially provided, and final estimates provided prior to SC13.
G	Estimates of all KEY shark species have been provided in AGGREGATE catch/effort data, OPERATIONAL catch/effort data and/or OBSERVER data provisions
H	Estimates of DISCARDs provided in AGGREGATE catch/effort data, OPERATIONAL catch/effort data or OBSERVER data provisions
I	Pending resolution of attribution of catches according to CHARTER arrangements
J	No Discards reported - advised that full retention is assumed in these fisheries (except for protected species).
K	Estimates of DISCARDs SHOULD be provided (non-binding)
L	Breakdown of vessels by GRT not provided but brekdown by HP provided and an understanding that most vessels are < 50 GRT

TIER-SCORING EVALUATION LEVEL

I	No data are provided, or data have been provided but they have been evaluated as 'unusable' (instances where none of the data provided can be used in assessments). This level of data gap is the most severe and has by far the greatest impacts on the scientific work of the Commission.
II	Data have been provided, most of which can be used for the scientific work of the Commission, but (i) there are one or several (minimum-standard) data fields not provided and/or (ii) the coverage of the data is not according to the requirements. In these cases, some of the scientific work of the Commission cannot be undertaken. The % value assigned in this category represents the estimated proportion of the key attribute data provided compared to the full set of key attribute data required as stipulated in the the WCPFC data submission guidelines.
III	Data have been provided, there are no gaps in the data provided and the coverage of data is according to the requirements.

Table 2. Provision of 2017 annual catches estimates to the WCPFC

COUNTRY / TERRITORY / ENTITY	GEAR(s)	Date submitted	DATA-GAP Notes	General NOTES	TIER-SCORING EVALUATION LEVEL
Australia	LL, PS, PL, HL,TR	30 Apr 2018		G, H	III
Canada	TR	18 Apr 2018			III
China	LL, PS	30 Apr 2018			III
Cook Islands	LL, TR	27 Apr 2018		G, H	III
Ecuador	PS	30 Apr 2018			III
El Salvador	PS	30 Apr 2018			III
European Union	LL, PS	28 Apr 2018			III
Federated States of Micronesia	LL, PS	27 Apr 2018		G, H	III
Fiji Islands	LL, PL	27 Apr 2018		G, H	III
French Polynesia	LL, PL, OT	27 Apr 2018		G, H	III
Indonesia	LL	27 Apr 2018		F	III
	PS, PL, HL, TR, OT	27 Apr 2018		F, J	III
Japan	PS, LL	27 Apr 2018		F, C, K	III
	PL, TR, OT	27 Apr 2018		F	III
Kiribati	LL, PS, OT	27 Apr 2018		G, H	III
Republic of Korea	LL, PS	30 Apr 2018		H	III
Marshall Islands	LL, PS	27 Apr 2018		G, H	III
New Caledonia	LL	27 Apr 2018		G, H	III
New Zealand	LL, PS, TR, PL	30 Apr 2018		G, H	III
Niue	LL	27 Apr 2018		D	III
Palau	LL, PL	27 Apr 2018		D	III
Papua New Guinea	LL, PS	27 Apr 2018		G, H	III
Philippines	PS	27 Apr 2018		F, G, H	III
	LL	27 Apr 2018		D	III
	HL, RN, OT	27 Apr 2018		F, J	III
Samoa	LL	27 Apr 2018		G, H	III
Solomon Islands	LL	27 Apr 2018		D	III
	PS, PL	27 Apr 2018		H	III
Chinese Taipei	LL, PS	30 Apr 2018			III
Tokelau	OT	27 Apr 2018			III
Tonga	LL	27 Apr 2018		G, H	III
Tuvalu	LL, PS, OT	27 Apr 2018		G, H	III
United States	LL, PS, TR, HL, PL	27 Apr 2018		G, H	III
Vanuatu	LL, PS	27 Apr 2018		G, H	III
Vietnam	LL/HL, GN, PS	27 Apr 2018		F, L	III
Wallis and Futuna	LL	28 Apr 2018		D	III

DATA-GAP NOTES

1	Total annual catches were provided by SPECIES, but not broken down by GEAR.
2	Marlin catch estimate not provided to the species level.
3	Coverage of data used to determine estimates not provided
4	Type(s) of data used to determine estimates not provided
5	Methods used to determine estimates not provided
6	Breakdown of active vessels by GRT size class not provided
7	Swordfish catch estimates only provided
8	Billfish catch estimates not provided for the longline gear
9	Estimates of all main tuna species not provided
10	Estimates exclude archipelagic waters catches
11	Estimates of shark catch by species have NOT been provided
12	Estimates of shark catch by SPECIES provided, but not for all KEY species taken by this fleet
13	Estimates of DISCARDs SHOULD BE provided (non-binding)
14	Estimates of ALBACORE, SWORDFISH and STRIPED MARLIN for the South Pacific Ocean have NOT been provided

GENERAL NOTES

A	Catches were estimated by the SPC/OFP while assisting with the preparation of the national fisheries report.
B	Catch estimates were taken from the national fisheries report presented at the meeting of the Scientific Committee.
C	Total annual catches can be determined by aggregating operational data that were provided on this date.
D	Fleet(s) inactive for this calendar year in the WCPFC Convention Area
E	National legislation (or policy) requires that time/area strata comprising data for less than three vessels can not be disseminated.
F	Provisional estimates initially provided, and final estimates provided prior to SC13.
G	Estimates of all KEY shark species have been provided in AGGREGATE catch/effort data, OPERATIONAL catch/effort data and/or OBSERVER data provisions
H	Estimates of DISCARDs provided in AGGREGATE catch/effort data, OPERATIONAL catch/effort data or OBSERVER data provisions
I	Pending resolution of attribution of catches according to CHARTER arrangements
J	No Discards reported - advised that full retention is assumed in these fisheries (except for protected species).
K	Estimates of DISCARDs SHOULD be provided (non-binding)
L	Breakdown of vessels by GRT not provided but brekdown by HP provided and an understanding that most vessels are < 50 GRT

TIER-SCORING EVALUATION LEVEL

I	No data are provided, or data have been provided but they have been evaluated as 'unusable' (instances where none of the data provided can be used in assessments). This level of data gap is the most severe and has by far the greatest impacts on the scientific work of the Commission.
II	Data have been provided, most of which can be used for the scientific work of the Commission, but (i) there are one or several (minimum-standard) data fields not provided and/or (ii) the coverage of the data is not according to the requirements. In these cases, some of the scientific work of the Commission cannot be undertaken. The % value assigned in this category represents the estimated proportion of the key attribute data provided compared to the full set of key attribute data required as stipulated in the the WCPFC data submission guidelines.
III	Data have been provided, there are no gaps in the data provided and the coverage of data is according to the requirements.

Table 3. Provision of 2016 Aggregated catch and effort data to the WCPFC

COUNTRY / ENTITY	GEAR TYPE	Date Submitted	DATA-GAP Notes	General NOTES	TIER-SCORING EVALUATION LEVEL
Australia	LL, PL, PS, TR	29 Apr 2017		C,I	III
Canada	TR	24 Apr 2017			III
China	LL (DWFN)	30 Apr 2017		P	III
	PS	30 Apr 2017		P	III
Cook Islands	LL, TR	28 Apr 2017		J, I, O	III
Ecuador	PS	29 Apr 2017		C	III
El Salvador	PS	29 Apr 2017		C	III
European Union	LL	28 Apr 2017		C, F, P, R	III
	PS	28 Apr 2017		C	III
Federated States of Micronesia	LL, PS	28 Apr 2017		J, O	III
Fiji Islands	LL, PL	28 Apr 2017		J, O	III
French Polynesia	LL	28 Apr 2017		J, O	III
Indonesia	LL, PS, PL	28 Apr 2017	18	Q, O, S, T	II (50%)
	HL, TR, GN, OT	28 Apr 2017		N, Q	III
Japan	LL	30 Apr 2017		A, F,H, I, L, R	III
	PL	30 Apr 2017		L	III
	PS	30 Apr 2017		L	III
Kiribati	LL, PS	28 Apr 2017		J, O	III
Marshall Islands	LL, PS	28 Apr 2017		J, O	III
New Caledonia	LL	28 Apr 2017		J, I, O	III
New Zealand	LL, PL, HL, PS	28 Apr 2017		C,I	III
Niue	LL	28 Apr 2017		E	III
Palau	LL, PL	28 Apr 2017		E	III
Papua New Guinea	LL, PS	28 Apr 2017		J, I, O	III
Philippines	PS	28 Apr 2017		M, Q	III
	LL	28 Apr 2017		E	III
	HL, RN, OT	28 Apr 2017		M, N, Q	III
Republic of Korea	LL	30 Apr 2017		P	III
	PS	30 Apr 2017		P	III
Samoa	LL	28 Apr 2017		J, I, O	III
Solomon Islands	LL	28 Apr 2017		E	III
	PL, PS	28 Apr 2017		J	III
Chinese Taipei	LL (DWFN)	28 Apr 2017		H, I, L	III
	LL (small)	28 Apr 2017		H, I, L	III
	PS	28 Apr 2017		L	III
Tonga	LL	28 Apr 2017		J, I, O	III
Tuvalu	LL, PS	28 Apr 2017		J, O	III
United States	LL (American Samoa)	28 Apr 2017		B, I	III
	LL (Hawaii)	28 Apr 2017		B, I	III
	PS (Treaty)	28 Apr 2017		J	III
	TR (North Pacific)	28 Apr 2017		B	III
	TR (South Pacific)	28 Apr 2017		B	III
Vanuatu	LL, PS	28 Apr 2017		J, O	III
Vietnam	LL/HL	28 Apr 2017	23	M, Q, S	II (83%)
	PS, GN	28 Apr 2017	23	M, Q, S	II (73%)
Wallis and Futuna	LL	28 Apr 2017		E, O	III

DATA-GAP NOTES

1	The catch data are in units of weight (kgs or metric tonnes) only, rather than both numbers of fish and weight.
2	The catch data are in units of numbers of fish only, rather than both numbers of fish and kilograms.
3	The catch data are for swordfish only.
4	The unit of effort is "days on which a set was made", rather than "days fished or searched".
5	The unit of effort is "sets" rather than "days fished or searched".
6	The catch/effort data are not stratified by the required categories of school association
7	The units of effort are unknown, or non-standard
8	No effort data provided
9	The data are aggregated by 5°x5° instead of 1°x1°
10	The 5°x5°/month Longline catch and effort data are not stratified by "Hooks between Floats"
11	Coverage of data provided is less than 50%
12	No breakdown of Billfish species catch provided
13	The estimation of bigeye in the reported yellowfin-plus-bigeye catch has not been undertaken in these data
14	The spatial aggregation is non-standard (must be 5°x5° for Longline; 1°x1° for surface fisheries)
15	Data have not been "raised" to represent total catch and effort
16	Species composition of main tuna species catch does correspond to annual catch estimates
17	Aggregate data provided for the WCPO area (Pacific Ocean west of 150°W) and not the WCPFC Convention Area
18	Catches of KEY shark species have been provided, but (i) not all KEY SPECIES COVERED, and/or (ii) COVERAGE of shark species catches is considered LOW.
19	Annual Catch and Effort estimates by areas of national jurisdiction (EEZs) and High Seas have NOT BEEN PROVIDED.
20	Vessel numbers by YEAR, MONTH and AREA used to filter public domain data have NOT BEEN PROVIDED
21	Catches of KEY shark species have not been provided, but can potentially be estimated from observer data.
22	Aggregate Catch/Effort data for ALBACORE, SWORDFISH and STRIPED MARLIN for the south Pacific Ocean east of the WCPFC Area MAY ALSO be provided (non-binding)
23	Catches of KEY shark species have not been provided.
24	Effort in SETS by SET TYPE not provided for PURSE SEINE data

GENERAL NOTES

A	Unraised data stratified by 5°x5°, month and hooks between floats were also provided
B	National legislation (or policy) requires that time/area strata comprising data for less than three vessels can not be disseminated.
C	Aggregate data not provided, but have been generated from Operational data submitted to the WCPFC.
D	Aggregate data not provided or incomplete, but have been generated from annual catch estimates and operational data made available by the Coastal States.
E	This fleet was inactive in the WCPFC Convention Area.
F	Distant-water longline fleet data do not cover the entire Pacific Ocean (required for stock assessments of certain species)
G	Represents a combination of data provided by the flag state (for domestically-based vessels) and coastal states
H	Vessel numbers per Month and Area provided.
I	Catches of KEY shark species provided in their AGGREGATE data
J	Aggregate data have been generated from annual catch estimates and operational data made available to the SPC by their member countries through national bilateral agreements or subregional arrangements (e.g. the US Multilateral Purse Seine treaty managed by FFA).
K	Pending resolution of attribution of catches according to CHARTER arrangements
L	Annual Catch and Effort estimates by areas of national jurisdiction (EEZs) and High Seas HAVE BEEN PROVIDED.
M	Aggregate data not provided, but have been generated from Annual catch estimates and operational data provided to SPC directly for stock assessments.
N	"It is recognized that certain members and cooperating non-members of the Commission may have practical difficulties in compiling operational data for fleets comprised of small vessels."
O	Logsheet forms used by this fleet cover the collection of each of the KEY SHARK species and these logsheet data have been aggregated and provided to the WCPFC.
P	OPERATIONAL catch/effort data also provided and satisfies the requirements stipulated under AGGREGATE data.
Q	Flag State advised that there is full retention in their fishery (except for protected species which must be released), so no DISCARDS
R	Aggregate Catch/Effort data for ALBACORE, SWORDFISH and STRIPED MARLIN for the south Pacific Ocean east of the WCPFC Area MAY ALSO be provided (non-binding)
S	Coverage of data provided is less than 50% (non-binding)
T	Aggregate data not provided, but can be estimated from Operational data submitted to the WCPFC and landings data collected under the WPEA project.

TIER-SCORING EVALUATION LEVEL

I	No data are provided, or data have been provided but they have been evaluated as 'unusable' (instances where none of the data provided can be used in assessments). This level of data gap is the most severe and has by far the greatest impacts on the scientific work of the Commission.
II	Data have been provided, most of which can be used for the scientific work of the Commission, but (i) there are one or several (minimum-standard) data fields not provided and/or (ii) the coverage of the data is not according to the requirements. In these cases, some of the scientific work of the Commission cannot be undertaken. The % value assigned in this category represents the estimated proportion of the key attribute data provided compared to the full set of key attribute data required as stipulated in the the WCPFC data submission guidelines.
III	Data have been provided, there are no gaps in the data provided and the coverage of data is according to the requirements.

Table 4. Provision of 2017 Aggregated catch and effort data to the WCPFC

COUNTRY / ENTITY	GEAR TYPE	Date Submitted	DATA-GAP Notes	General NOTES	TIER-SCORING EVALUATION LEVEL
Australia	LL, PL, PS, TR	30 Apr 2018		C,I	III
Canada	TR	18 Apr 2018			III
China	LL (DWFN)	30 Apr 2018		P	III
	PS	30 Apr 2018		P	III
Cook Islands	LL, TR	27 Apr 2018		J, I, O	III
Ecuador	PS	30 Apr 2018		C	III
El Salvador	PS	30 Apr 2018		C	III
European Union	LL	28 Apr 2018		C, F, P, R	III
	PS	28 Apr 2018		C	III
Federated States of Micronesia	LL, PS	27 Apr 2018		J, O	III
Fiji Islands	LL, PL	27 Apr 2018		J, O	III
French Polynesia	LL	27 Apr 2018		J, O	III
Indonesia	LL, PS, PL	27 Apr 2018	18	Q, O, S, T	II (50%)
	HL, TR, GN, OT	27 Apr 2018		N, Q	III
Japan	LL	27 Apr 2018		A, F,H, I, L, R	III
	PL	27 Apr 2018		L	III
	PS	27 Apr 2018		L	III
Kiribati	LL, PS	27 Apr 2018		J, O	III
Marshall Islands	LL, PS	27 Apr 2018		J, O	III
New Caledonia	LL	27 Apr 2018		J, I, O	III
New Zealand	LL, PL, HL, PS	30 Apr 2018		C,I	III
Niue	LL	27 Apr 2018		E	III
Palau	LL, PL	27 Apr 2018		E	III
Papua New Guinea	LL, PS	27 Apr 2018		J, I, O	III
Philippines	PS	27 Apr 2018		M, Q	III
	LL	27 Apr 2018		E	III
	HL, RN, OT	27 Apr 2018		M, N, Q, T	III
Republic of Korea	LL	30 Apr 2018		P	III
	PS	30 Apr 2018		P	III
Samoa	LL	27 Apr 2018		J, I, O	III
Solomon Islands	LL	27 Apr 2018		E	III
	PL, PS	27 Apr 2018		J	III
Chinese Taipei	LL (DWFN)	30 Apr 2018		H, I, L	III
	LL (small)	30 Apr 2018		H, I, L	III
	PS	30 Apr 2018		L	III
Tonga	LL	27 Apr 2018		J, I, O	III
Tuvalu	LL, PS	27 Apr 2018		J, O	III
United States	LL (American Samoa)	28 Apr 2018		B, I	III
	LL (Hawaii)	28 Apr 2018		B, I	III
	PS (Treaty)	28 Apr 2018		J	III
	TR	3 Aug 2018		B	III
Vanuatu	LL, PS	27 Apr 2018		J, O	III
Vietnam	LL/HL	27 Apr 2018	18	M, Q, S, T	II (95%)
	PS, GN	27 Apr 2018	18	M, Q, S, T	II (92%)
Wallis and Futuna	LL	28 Apr 2018		E, O	III

DATA-GAP NOTES

1	The catch data are in units of weight (kgs or metric tonnes) only, rather than both numbers of fish and weight.
2	The catch data are in units of numbers of fish only, rather than both numbers of fish and kilograms.
3	The catch data are for swordfish only.
4	The unit of effort is "days on which a set was made", rather than "days fished or searched".
5	The unit of effort is "sets" rather than "days fished or searched".
6	The catch/effort data are not stratified by the required categories of school association
7	The units of effort are unknown, or non-standard
8	No effort data provided
9	The data are aggregated by 5°x5° instead of 1°x1°
10	The 5°x5°/month Longline catch and effort data are not stratified by "Hooks between Floats"
11	Coverage of data provided is less than 50%
12	No breakdown of Billfish species catch provided
13	The estimation of bigeye in the reported yellowfin-plus-bigeye catch has not been undertaken in these data
14	The spatial aggregation is non-standard (must be 5°x5° for Longline; 1°x1° for surface fisheries)
15	Data have not been "raised" to represent total catch and effort
16	Species composition of main tuna species catch does correspond to annual catch estimates
17	Aggregate data provided for the WCPO area (Pacific Ocean west of 150°W) and not the WCPFC Convention Area
18	Catches of KEY shark species have been provided, but (i) not all KEY SPECIES COVERED, and/or (ii) COVERAGE of shark species catches is considered LOW.
19	Annual Catch and Effort estimates by areas of national jurisdiction (EEZs) and High Seas have NOT BEEN PROVIDED.
20	Vessel numbers by YEAR, MONTH and AREA used to filter public domain data have NOT BEEN PROVIDED
21	Catches of KEY shark species have not been provided, but can potentially be estimated from observer data.
22	Aggregate Catch/Effort data for ALBACORE, SWORDFISH and STRIPED MARLIN for the south Pacific Ocean east of the WCPFC Area MAY ALSO be provided (non-binding)
23	Catches of KEY shark species have not been provided.
24	Effort in SETS by SET TYPE not provided for PURSE SEINE data

GENERAL NOTES

A	Unraised data stratified by 5°x5°, month and hooks between floats were also provided
B	National legislation (or policy) requires that time/area strata comprising data for less than three vessels can not be disseminated.
C	Aggregate data not provided, but have been generated from Operational data submitted to the WCPFC.
D	Aggregate data not provided or incomplete, but have been generated from annual catch estimates and operational data made available by the Coastal States.
E	This fleet was inactive in the WCPFC Convention Area.
F	Distant-water longline fleet data do not cover the entire Pacific Ocean (required for stock assessments of certain species)
G	Represents a combination of data provided by the flag state (for domestically-based vessels) and coastal states
H	Vessel numbers per Month and Area provided.
I	Catches of KEY shark species provided in their AGGREGATE data
J	Aggregate data have been generated from annual catch estimates and operational data made available to the SPC by their member countries through national bilateral agreements or subregional arrangements (e.g. the US Multilateral Purse Seine treaty managed by FFA).
K	Pending resolution of attribution of catches according to CHARTER arrangements
L	Annual Catch and Effort estimates by areas of national jurisdiction (EEZs) and High Seas HAVE BEEN PROVIDED.
M	Aggregate data not provided, but have been generated from Annual catch estimates and operational data provided to SPC directly for stock assessments.
N	"It is recognized that certain members and cooperating non-members of the Commission may have practical difficulties in compiling operational data for fleets comprised of small vessels."
O	Logsheet forms used by this fleet cover the collection of each of the KEY SHARK species and these logsheet data have been aggregated and provided to the WCPFC.
P	OPERATIONAL catch/effort data also provided and satisfies the requirements stipulated under AGGREGATE data.
Q	Flag State advised that there is full retention in their fishery (except for protected species which must be released), so no DISCARDS
R	Aggregate Catch/Effort data for ALBACORE, SWORDFISH and STRIPED MARLIN for the south Pacific Ocean east of the WCPFC Area MAY ALSO be provided (non-binding)
S	Coverage of data provided is less than 50% (non-binding)
T	Aggregate data not provided, but can be estimated from Operational data submitted to the WCPFC and landings data collected under the WPEA project.

TIER-SCORING EVALUATION LEVEL

I	No data are provided, or data have been provided but they have been evaluated as 'unusable' (instances where none of the data provided can be used in assessments). This level of data gap is the most severe and has by far the greatest impacts on the scientific work of the Commission.
II	Data have been provided, most of which can be used for the scientific work of the Commission, but (i) there are one or several (minimum-standard) data fields not provided and/or (ii) the coverage of the data is not according to the requirements. In these cases, some of the scientific work of the Commission cannot be undertaken. The % value assigned in this category represents the estimated proportion of the key attribute data provided compared to the full set of key attribute data required as stipulated in the the WCPFC data submission guidelines.
III	Data have been provided, there are no gaps in the data provided and the coverage of data is according to the requirements.

Table 5. Provision of 2016 Operational catch and effort data to the WCPFC

					TIER-SCORING EVALUATION LEVEL	
FLAG STATE / ENTITY	GEAR(s)	Date Submitted	DATA-GAP Notes	General NOTES	KEY ATTRIBUTES	COVERAGE
Australia	LL, PL, PS, TR	29 Apr 2017		E	III	100%
Canada	TR			A	III	N/A
China	LL	30 Apr 2017	11	I	III	90%
	PS	30 Apr 2017			III	100%
Cook Islands	LL	30 Apr 2017	11	C, J	III	85% *
Ecuador	PS	29 Apr 2017	11	F	III	60% *
El Salvador	PS	29 Apr 2017			III	100%
European Union	LL	29 Apr 2017		E	III	100%
	PS				III	100%
Federated States of Micronesia	LL	30 Apr 2017	11	C, J, F	III	55% *
	PS			C, J	III	85% *
Fiji Islands	LL, PL	30 Apr 2017		C, J	III	100%
French Polynesia	LL	30 Apr 2017		C, J, F	III	100%
	PL			G	III	#
	TR			G	III	#
Indonesia	LL, PS, PL	28 Apr 2017	1,2,4,5,9,10	K	II (72%)	< 20%
	HL, TR, GN, OT			G, K	III	#
Japan	PS, PL	30 Apr 2017		E, M	III	100%
	LL	30 Apr 2017		E, M	III	65% *
Kiribati	LL	30 Apr 2017	11	C, J, F	III	50% *
	PS		11	C, J, F	III	72% *
Republic of Korea	LL, PS	30 Apr 2017		E	III	100%
Marshall Islands	LL	30 Apr 2017		C, J	III	100%
	PS			C, J	III	100%
New Caledonia	LL	30 Apr 2017		C, J	III	100%
New Zealand	LL	28 Apr 2017	11	E, F	III	100%
	PL, TR, PS			E	III	100%
Niue	LL	30 Apr 2017		A	III	N/A
Palau	LL, PL	30 Apr 2017		A	III	N/A
Papua New Guinea	LL	30 Apr 2017		C, J, F	III	100%
	PS		11	C, J, F	III	75% *
Philippines	PS	28 Apr 2017		J, K	III	100%
	LL	28 Apr 2017		A	III	N/A
	HL, RN, OT			G, K	III	#
Samoa	LL	30 Apr 2017		C, J	III	100%
Solomon Islands	LL	30 Apr 2017		A	III	N/A
	PS		11	C, J, F	III	85% *
	PL			C, J	III	100%
Chinese Taipei	LL	28 Apr 2017	6	E, F	III	55% *
	PS			F	I	0%
Tonga	LL	30 Apr 2017		C, J	III	100%
Tuvalu	LL, PS	30 Apr 2017		C, J	III	100%
United States	LL (American Samoa)	28 Apr 2017	11	E, F	III	95% *
	LL (CNMI, GUAM)	28 Apr 2017		E	III	100%
	LL (Hawaii)	28 Apr 2017		E	III	100%
	PL, HL, TR (trop)			G	III	#
	PS, TR (ALB)	28 Apr 2017		B	III	100%
Vanuatu	LL	30 Apr 2017	11	C, J, F	III	100%
	PS	30 Apr 2017		C, J	III	100%
Vietnam	LL/HL	28 Apr 2017	6, 8	G, H, K, F	II (85%)	33%
	PS, GN	28 Apr 2017	6, 8	G, H, K, F	II (75%)	< 20%
Wallis and Futuna	LL	30 Apr 2017		A	III	N/A

DATA-GAP NOTES

1	For LONGLINE GEAR - "Branchlines between floats" not provided
2	For LONGLINE GEAR - "Hooks per set" not provided
3	"Activity" not provided
4	"Time of set" not provided
5	For PURSE SEINE GEAR - categories of "School Association" were not provided
6	Coverage of data provided is < 50%
7	Discard information not included
8	Catches of KEY shark species have not been provided.
9	Catches of KEY shark species have been provided, but (i) not all KEY SPECIES COVERED, and/or (ii) COVERAGE of shark species catches is considered LOW.
10	The catch data are in units of weight (kgs or metric tonnes) only, rather than both numbers of fish and weight.
11	Coverage of data data provided is > 50% but < 100%

GENERAL NOTES

A	No activity in the WCPFC Convention Area during this year
B	Operational Logsheet data provided by FFA on behalf of their member countries on a regular basis
C	Operational Logsheet data provided to SPC by their member countries on a regular basis
D	Operational Logsheet data provided to SPC by their member countries on a regular basis, but authorisation to pass on to WCPFC yet to be provided.
E	Catches of KEY shark species have been provided
F	Coverage of operational data is not 100%, but Annual Catch and Effort estimates by areas of national jurisdiction (EEZs) and High Seas ARE AVAILABLE.
G	"It is recognized that certain members and cooperating non-members of the Commission may have practical difficulties in compiling operational data for fleets comprised of small vessels."
H	Operational Logsheet data provided to SPC for analyses related to stock assessments.
I	Operational Logsheet data also provided to SPC by their member countries which are coastal states where this FLAG STATE fleet is based
J	Logsheet forms used by this fleet cover the collection of each of the KEY SHARK species.
K	Flag State advised that there is full retention in their fishery, so no DISCARDS.
L	2014 historical operational longline data were provided to SPC for a collaborative study in accordance to the agreement with respective CCMs (see SC10 report-Attachment F and OFP [2016a] and OFP [2016b].
M	Operational data provided to the WCPFC for the WCPFC Area south of 20°N and aggregate 1°x1° year/month data provided for WCPFC Area north of 20°N

TIER-SCORING EVALUATION LEVEL

I	No data are provided, or data have been provided but they have been evaluated as 'unusable' (instances where none of the data provided can be used in assessments). This level of data gap is the most severe and has by far the greatest impacts on the scientific work of the Commission.
II	Data have been provided, most of which can be used for the scientific work of the Commission, but (i) there are one or several (minimum-standard) data fields not provided and/or (ii) the coverage of the data is not according to the requirements. In these cases, some of the scientific work of the Commission cannot be undertaken. The % value assigned in this category represents the estimated proportion of the key attribute data provided compared to the full set of key attribute data required as stipulated in the the WCPFC data submission guidelines.
III	Data have been provided, there are no gaps in the (minimum standard) data fields provided and the coverage of data is sufficient to be used for undertaking the scientific work of the Commission.

COVERAGE

Coverage has been determined from VMS trip coverage where possible. Where VMS data are incomplete or not available, coverage has been deteremined in some cases by comparing the total target tuna catch from operational data for that gear to the total target tuna catch from ANNUAL CATCH ESTIMATES.

*	Instances where coverage of operational data is less than 100%, but annual catch/effort estimates by geographic area have been made available and together with the operational level catch and effort data that has been submitted, is sufficient to allow the scientific work of the Commission to be undertaken
#	"It is recognized that certain members and cooperating non-members of the Commission may have practical difficulties in compiling operational data for fleets comprised of small vessels."

Table 6. Provision of 2017 Operational catch and effort data to the WCPFC

					TIER-SCORING EVALUATION LEVEL	
FLAG STATE / ENTITY	GEAR(s)	Date Submitted	DATA-GAP Notes	General NOTES	KEY ATTRIBUTES	COVERAGE
Australia	LL, PL, PS, TR	30 Apr 2018		E	III	100%
Canada	TR	18 Apr 2018			III	100%
China	LL	30 Apr 2018	11	I	III	60% *
	PS	30 Apr 2018			III	100%
Cook Islands	LL	27 Apr 2018		C, J	III	100%
Ecuador	PS	30 Apr 2018	11	F	III	93% *
El Salvador	PS	30 Apr 2018	11		III	65% *
European Union	LL	28 Apr 2018		E	III	100%
	PS				III	100%
Federated States of Micronesia	LL	27 Apr 2018	11	C, J, F	III	55% *
	PS		11	C, J	III	60% *
Fiji Islands	LL, PL	27 Apr 2018		C, J	III	100%
French Polynesia	LL	27 Apr 2018		C, J, F	III	100%
	PL			G	III	#
	TR			G	III	#
Indonesia	LL, PS, PL	27 Apr 2018	1,2,4,5,9,10	K	II (72%)	< 5%
	HL, TR, GN, OT			G, K	III	#
Japan	PS, PL	27 Apr 2018		E, M	III	100%
	LL	27 Apr 2018	11	E, M	III	63% *
Kiribati	LL	27 Apr 2018		C, J, F	III	100%
	PS		11	C, J, F	III	72% *
Republic of Korea	LL, PS	30 Apr 2018		E	III	100%
Marshall Islands	LL	27 Apr 2018		C, J	III	100%
	PS			C, J	III	100%
New Caledonia	LL	27 Apr 2018		C, J	III	100%
New Zealand	LL	30 Apr 2018		E, F	III	100%
	PL, TR, PS			E	III	100%
Niue	LL	27 Apr 2018		A	III	N/A
Palau	LL, PL	27 Apr 2018		A	III	N/A
Papua New Guinea	LL	27 Apr 2018		C, J, F	III	100%
	PS		11	C, J, F	III	84% *
Philippines	PS	27 Apr 2018	11	J, K	III	70% *
	LL	27 Apr 2018		A	III	N/A
	HL, RN, OT			G, K	III	#
Samoa	LL	27 Apr 2018		C, J	III	100%
Solomon Islands	LL	27 Apr 2018		A	III	N/A
	PS		11	C, J, F	III	85% *
	PL			C, J	III	100%
Chinese Taipei	LL	30 Apr 2018		E, F	III	100%
	PS	30 Apr 2018		F	III	100%
Tonga	LL	27 Apr 2018		C, J	III	100%
Tuvalu	LL, PS	27 Apr 2018		C, J	III	100%
United States	LL (American Samoa)	28 Apr 2018	11	E, F	III	95% *
	LL (CNMI, GUAM)	28 Apr 2018		E	III	100%
	LL (Hawaii)	28 Apr 2018		E	III	100%
	PL, HL, TR (trop)			G	III	#
	PS	28 Apr 2018		B	III	100%
	TR (ALB)	3 Aug 2018			III	100%
Vanuatu	LL	27 Apr 2018	11	C, J, F	III	65% *
	PS	27 Apr 2018		C, J	III	100%
Vietnam	LL/HL	27 Apr 2018	6, 8	G, H, K, F	II (85%)	35%
	PS, GN	27 Apr 2018	6, 8	G, H, K, F	II (75%)	< 20%
Wallis and Futuna	LL	28 Apr 2018		A	III	N/A

DATA-GAP NOTES

1	For LONGLINE GEAR - "Branchlines between floats" not provided
2	For LONGLINE GEAR - "Hooks per set" not provided
3	"Activity" not provided
4	"Time of set" not provided
5	For PURSE SEINE GEAR - categories of "School Association" were not provided
6	Coverage of data provided is < 50%
7	Discard information not included
8	Catches of KEY shark species have not been provided.
9	Catches of KEY shark species have been provided, but (i) not all KEY SPECIES COVERED, and/or (ii) COVERAGE of shark species catches is considered LOW.
10	The catch data are in units of weight (kgs or metric tonnes) only, rather than both numbers of fish and weight.
11	Coverage of data data provided is > 50% but < 100%

GENERAL NOTES

A	No activity in the WCPFC Convention Area during this year
B	Operational Logsheet data provided by FFA on behalf of their member countries on a regular basis
C	Operational Logsheet data provided to SPC by their member countries on a regular basis
D	Operational Logsheet data provided to SPC by their member countries on a regular basis, but authorisation to pass on to WCPFC yet to be provided.
E	Catches of KEY shark species have been provided
F	Coverage of operational data is not 100%, but Annual Catch and Effort estimates by areas of national jurisdiction (EEZs) and High Seas ARE AVAILABLE.
G	"It is recognized that certain members and cooperating non-members of the Commission may have practical difficulties in compiling operational data for fleets comprised of small vessels."
H	Operational Logsheet data provided to SPC for analyses related to stock assessments.
I	Operational Logsheet data also provided to SPC by their member countries which are coastal states where this FLAG STATE fleet is based
J	Logsheet forms used by this fleet cover the collection of each of the KEY SHARK species.
K	Flag State advised that there is full retention in their fishery, so no DISCARDS.
L	2014 historical operational longline data were provided to SPC for a collaborative study in accordance to the agreement with respective CCMs (see SC10 report-Attachment F and OFP [2016a] and OFP [2016b].
M	Operational data provided to the WCPFC for the WCPFC Area south of 20°N and aggregate 1°x1° year/month data provided for WCPFC Area north of 20°N

TIER-SCORING EVALUATION LEVEL

I	No data are provided, or data have been provided but they have been evaluated as 'unusable' (instances where none of the data provided can be used in assessments). This level of data gap is the most severe and has by far the greatest impacts on the scientific work of the Commission.
II	Data have been provided, most of which can be used for the scientific work of the Commission, but (i) there are one or several (minimum-standard) data fields not provided and/or (ii) the coverage of the data is not according to the requirements. In these cases, some of the scientific work of the Commission cannot be undertaken. The % value assigned in this category represents the estimated proportion of the key attribute data provided compared to the full set of key attribute data required as stipulated in the the WCPFC data submission guidelines.
III	Data have been provided, there are no gaps in the (minimum standard) data fields provided and the coverage of data is sufficient to be used for undertaking the scientific work of the Commission.

COVERAGE

Coverage has been determined from VMS trip coverage where possible. Where VMS data are incomplete or not available, coverage has been deteremined in some cases by comparing the total target tuna catch from operational data for that gear to the total target tuna catch from ANNUAL CATCH ESTIMATES.

*****	Instances where coverage of operational data is less than 100%, but annual catch/effort estimates by geographic area have been made available and together with the operational level catch and effort data that has been submitted, is sufficient to allow the scientific work of the Commission to be undertaken
#	"It is recognized that certain members and cooperating non-members of the Commission may have practical difficulties in compiling operational data for fleets comprised of small vessels."

Table 7. Provision of 2017 Size data to the WCPFC

FLAG STATE / ENTITY	GEAR(s)	Date Submitted	DATA-GAP Notes	General NOTES	TIER-SCORING EVALUATION LEVEL
Australia	LL	30 Apr 2018		B, C	III
	PL, PS, TR			J	III
Canada	TR	18 Apr 2018		A	III
China	LL	30 Apr 2018		A, H	III
	PS	30 Apr 2018		A, H	III
Cook Islands	LL	27 Apr 2018		A, H, K	III
Ecuador	PS	30 Apr 2018		H	III
El Salvador	PS	30 Apr 2018		H	III
European Union	LL	18 May 2018		L	III
	PS	30 Apr 2018		H	III
Federated States of Micronesia	LL, PS	27 Apr 2018		A, H, I, K	III
Fiji Islands	LL, PL	27 Apr 2018		A, H, K	III
French Polynesia	LL	27 Apr 2018		A, H, K	III
	PL, TR			J	III
Indonesia	LL, PS, OT	25 Mar 2018		A, K	III
Japan	PS	27 Apr 2018		A, H	III
	LL, PL	27 Apr 2018		A, H, I	III
Kiribati	LL	27 Apr 2018		A, H, K	III
	PS	27 Apr 2018		A, H	III
Republic of Korea	LL, PS	30 Apr 2018		A, H	III
Marshall Islands	LL, PS	27 Apr 2018		A, H, K	III
New Caledonia	LL	27 Apr 2018		A, H, K	III
New Zealand	LL, PL, PS, TR	30 Apr 2018		A, H	III
Niue	LL	27 Apr 2018		G	III
Palau	LL, PL	27 Apr 2018		G	III
Papua New Guinea	LL, PS	27 Apr 2018		A, H	III
Philippines	PS, HL, RN, OT	27 Apr 2018		A, H, K	III
	LL	27 Apr 2018		G	III
Samoa	LL	27 Apr 2018		A, H, K	III
Solomon Islands	LL, PS, PL	27 Apr 2018		A, H	III
Chinese Taipei	LL	30 Apr 2018		A, H, I	III
	PS	30 Apr 2018		A, H, I	III
Tonga	LL	27 Apr 2018		A, H, K	III
Tuvalu	LL	27 Apr 2018		A, H	III
	PS	27 Apr 2018		A, H	III
United States	LL (American Samoa)	28 Apr 2018		B, E, F	III
	LL (Hawaii)	28 Apr 2018		B, E, F	III
	HL	28 Apr 2018		B, E, F	III
	TR				I
	PS	28 Apr 2018		A, H, K	III
Vanuatu	LL, PS	27 Apr 2018		A, H, I, K	III
Vietnam	LL	27 Apr 2018		A, K	III
	PS, GN	27 Apr 2018		A, K	III
Wallis and Futuna	LL	30 Apr 2018		G	III

DATA-GAP NOTES

1	Temporal stratification at the YEAR level has been provided only
2	Spatial stratification is larger than 10° latitude x 20° longitude
3	There is no breakdown by SCHOOL ASSOCIATION in PURSE SEINE samples provided by the FLAG STATE
4	The data were not stratified by latitide/longitude
5	LENGTH INTERVAL in data provided does not comply to WCPFC Requirements
6	WEIGHT INTERVAL in data provided does not comply to WCPFC Requirements
7	No SIZE data provided by the FLAG STATE
8	No SIZE data provided by the FLAG STATE, but SIZE data provided for this fleet by COASTAL STATES

GENERAL NOTES

A	LENGTH DATA PROVIDED and LENGTH INTERVALS comply with the WCPFC Requirements where data provided (Skipjack tuna – 1cm, Albacore tuna – 1cm, Yellow fin tuna – ideally 1cm, but not more than 2 cm, Bigeye tuna – ideally 1cm, but not more than 2 cm, Billfish – ideally 1cm, but not more than 5 cm)
B	WEIGHT DATA PROVIDED and WEIGHT INTERVALS comply with WCFPC requirements (1kgs)
C	Weights are gilled-and-gutted (kilograms)
D	Weights are gilled-and-gutted-and-tailed (kilograms)
E	Weights are gilled-and-gutted (pounds)
F	Broad areas which can be equated to 10° latitude x 20° longitude blocks were provided
G	No activity by this fleet in the WCPFC Convention Area
H	Includes data provided through the WCPFC Regional Observer Programme (ROP) data
I	Includes data collected through PORT SAMPLING by COASTAL STATES and provided to SPC on a regular basis.
J	Acknowledged to be small-scale/insignificant fisheries
K	Includes data collected through PORT SAMPLING by FLAG STATE
L	Swordfish target fishery with swordfish size data provided at 5cm intervals.

TIER-SCORING EVALUATION LEVEL

I	No data are provided, or data have been provided but they have been evaluated as 'unusable' (instances where none of the data provided can be used in assessments). This level of data gap is the most severe and has by far the greatest impacts on the scientific work of the Commission.
II	Data have been provided, most of which can be used for the scientific work of the Commission, but (i) there are one or several (minimum-standard) data fields not provided and/or (ii) the coverage of the data is not according to the requirements. In these cases, some of the scientific work of the Commission cannot be undertaken. The % value assigned in this category represents the estimated proportion of the key attribute data provided compared to the full set of key attribute data required as stipulated in the the WCPFC data submission guidelines.
III	Data have been provided, there are no gaps in the data provided and the coverage of data is according to the requirements.

Table 8. Overall evaluation for the provision of 2017 scientific data to the WCPFC

COUNTRY / TERRITORY / ENTITY	GEAR(s)	Annual Catch estimates	Aggregate CATCH/EFFORT data	Operational CATCH/EFFORT data	SIZE data	OVERALL Science Data
Australia	LL, PS, PL, HL,TR	100%	100%	100%	100%	100%
Belize	LL	100%	100%	100%	100%	100%
Canada	TR	100%	100%	100%	100%	100%
China	LL, PS	100%	100%	100%	100%	100%
Cook Islands	LL, TR	100%	100%	100%	100%	100%
Ecuador	PS	100%	100%	100%	100%	100%
El Salvador	PS	100%	100%	100%	100%	100%
European Union	LL	100%	100%	100%	0%	88%
	PS	100%	100%	100%	100%	
Federated States of Micronesia	LL, PS	100%	100%	100%	100%	100%
Fiji Islands	LL, PL	100%	100%	100%	100%	100%
French Polynesia	LL, PL, OT	100%	100%	100%	100%	100%
Indonesia	LL, PS, PL, HL, TR, OT	100%	50%	72%	100%	81%
Japan	PS, LL, PL, TR, OT	100%	100%	100%	100%	100%
Kiribati	LL, PS, OT	100%	100%	100%	100%	100%
Republic of Korea	LL, PS	100%	100%	100%	100%	100%
Marshall Islands	LL, PS	100%	100%	100%	100%	100%
New Caledonia	LL	100%	100%	100%	100%	100%
New Zealand	LL, PS, TR, PL	100%	100%	100%	100%	100%
Niue	LL	100%	100%	100%	100%	100%
Palau	LL, PL	100%	100%	100%	100%	100%
Papua New Guinea	LL, PS	100%	100%	100%	100%	100%
Philippines	PS, LL, HL, RN, OT	100%	100%	100%	100%	100%
Samoa	LL	100%	100%	100%	100%	100%
Senegal	LL	100%	100%	100%	100%	100%
Solomon Islands	LL, PS, PL	100%	100%	100%	100%	100%
Chinese Taipei	LL, PS	100%	100%	100%	100%	100%
Tokelau	OT	100%	100%	100%	100%	100%
Tonga	LL	100%	100%	100%	100%	100%
Tuvalu	LL, PS, OT	100%	100%	100%	100%	100%
United States	LL, PS, HL, PL	100%	100%	100%	100%	85%
	TR	100%	0%	0%	0%	
Vanuatu	LL, PS	100%	100%	100%	100%	100%
Vietnam	LL, GN, PS	100%	93%	80%	100%	93%
Wallis and Futuna	LL	100%	100%	100%	100%	100%