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SCIENTIFIC DATA AVAILABLE TO THE WESTERN AND CENTRAL PACIFIC FISHERIES COMMISSION

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- was the version posted for SC15 Meeting on 8 August 2019 as **WCPFC-SC15-2018/ST WP-1 rev. 1.** Rev. 1 (17th September 2019)
- Includes updates to Tables 5 and 6 for operational data provisions, to include recent submission of French Polynesia artisanal fishery data for 2017 and 2018 respectively.

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 2017 and 2018 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 four years and readers have therefore been referred to the relevant sections in past data-gap papers. Recent developments include sections on:

- Nationality of the catch (charters)
- Addressing SC14 recommendations related to data gaps, specifically
    - reconcile the names and codes of some species of sharks;
    - explain the differences in coverage of longline observer data presented in some SC14 papers.

All CCMs with fleets active in the WCPFC Convention Area provided 2018 **annual catch estimates** by the deadline of the 30th April 2019, although there was one gap which was resolved in late July 2019. 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 2018 were provided by the deadline of 30th April 2019 for all fleets. 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 data gap concerns the low coverage of operational data available to generate aggregate data for the Vietnam and Indonesia fleets, and the anticipated under-reporting of key shark species in general.

All CCMs with active fleets provided **operational catch/effort data** for 2018, with the main gaps being

(i) the low coverage in the data provided for the Indonesia and Vietnam fleets;
(ii) the non-provision of a number of required fields in the Indonesia and Vietnam operational data (catch in number for longline and handline fisheries), and
(iii) catches of key shark species are not included in the Vietnam fleet data.

The coverage of 2018 operational data for some fleets is not complete (100%), although there was some improvement in coverage compared to the 2017 data.

Issues in dealing with the assignment of 2018 catch/effort data to charters are noted for two fleets (China and PNG), and updates to the Bycatch Data Exchange Protocol (BDEP) data are briefly described.

The NZ-funded WPEA-Improved Tuna Monitoring (WPEA-ITM) Project contributes 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.

TABLE OF CONTENTS

1. INTRODUCTION 1

2. STATUS OF DATA GAPS 2

2.1 Data gaps reported elsewhere 2

2.2 Major data gaps for key fleets 2

2.2.1 Philippines tuna fishery data 2

2.2.2 Indonesian tuna fishery data 3

2.2.3 Vietnamese tuna fishery data 4

2.3 Nationality of the catch (charters) 5

2.4 SC14 recommendations 6

3. RECENT PROVISIONS OF SCIENTIFIC DATA TO THE WCPFC 7

3.1 Annual Catch Estimates 7

3.2 Aggregate Catch/Effort data 7

3.3 Operational catch/effort data 8

3.4 Size data 8

3.5 Overall scientific data submission evaluation 8

3.6 Regional Observer Programme (ROP) data 8

4. RECENT DEVELOPMENTS IN DISSEMINATION OF DATA 9

4.1 Bycatch Data Exchange Protocol (BDEP) 9

REFERENCES 10

ANNEX – Notes on tier-scoring evaluation system 13

TABLES 15

Table 1. Provision of 2017 annual catches estimates to the WCPFC 15

Table 2. Provision of 2018 annual catches estimates to the WCPFC 17

Table 4. Provision of 2018 Aggregated catch and effort data to the WCPFC 21

Table 5. Provision of 2017 Operational catch and effort data to the WCPFC 23

Table 6. Provision of 2018 Operational catch and effort data to the WCPFC 25

Table 7. Provision of 2018 Size data to the WCPFC 27

Table 8. Overall compliance evaluation for the provision of 2018 scientific data to the WCPFC 29

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 2018 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 SC14 (Williams, 2018)].

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.

2.1 Data gaps reported elsewhere

9. Readers are referred to previous versions of this paper for more detail on important categories of data gaps where there have not been any significant developments over the past year, or other papers that provide more detail on recent developments to address specific gaps. 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 categories of data gaps:

- **Major data gaps for key fleets** (Williams, 2014 – Section 2.1.4)
  - Chinese Taipei STLL fleet prior to 2004
- **Operational catch and effort data** (Williams, 2018 – Section 2.2), noting the need to continue the arrangement whereby the WCPFC scientific service providers have access to historical operational data (see OFP, 2015a and OFP, 2015b).
- **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; Peatman et al., 2019)
- **Annual catch estimates by EEZ** (Williams, 2015 – Section 2.3)
- **Number of vessels in the aggregate data** (Williams, 2015 – Section 2.4)
- **Conversion factor data** (Williams, 2017; Williams & Smith, 2018; SPC-OFP, 2019)

10. Some historical gaps could be resolved with the application of resources to conduct data rescue projects, for example. However, there are also some historical gaps that cannot be resolved, but have been documented to explain those gaps in the context of the scientific work of the Commission.

2.2 Major data gaps for key fleets

2.2.1 Philippines tuna fishery data

11. 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 WPEA-Improved Tuna Monitoring (WPEA-ITM) Project is scheduled to operate until March 2022 through a grant from the New Zealand Ministry of Foreign Affairs and Trade. This new WPEA project provided support principally to Indonesia and Vietnam in the past year, since the Philippines government is now fully supporting the tuna fisheries monitoring, workshops and other activities that had been supported in the Philippines through previous WPEA projects.

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

- *The Twelfth Philippines Annual Catch Estimates Review Workshop and the Tenth 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 2018 (as in previous years). E-Reported logbook data were again provided for this fishery covering 2018 activities.*
- *The Philippines moved to the new version of the web-based Tufman 2 system in the past year, with this system facilitating the processing and management of their national observer data and logsheet data. Redevelopment of the Philippines NSAP database system is currently being considered as a WPEA activity; this database holds comprehensive landings and port sampling data from their artisanal fisheries.*

13. 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.

2.2.2 Indonesian tuna fishery data

14. 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.

15. 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 Tenth Indonesia/WCPFC Area Annual Catch Estimates Review Workshop (ITFACE-10) was conducted in Bogor, Indonesia in June 2019, and the Seventh Indonesia/WCPFC Port Sampling data review workshop was held in Bitung in March 2019. The main outcomes of these workshops were*
  - *i. The ITFACE-10 workshop noted the improved estimates (2018 estimates compared to 2017) in the second year of their new OneData system. The change to stratified sampling incorporating GEAR was acknowledged to have been the main reason for the improvement.*
  - *ii. Participants to the ITFACE-10 workshop noted that the 2018 longline and purse seine estimates were 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-10 workshop noted the following potential issues in the 2018 estimates:*
    - *The pole-and-line catch estimate is higher than anticipated based on estimates from other sources;*
    - *The inconsistency in the troll fishery estimates in recent years (since 2015);*
    - *The large increase in the gillnet catch estimate compared to recent years;*
  - *iii. Continued improvement in the coverage and quality of the port sampling data, which have an uninterrupted time series of ten years;*
  - *iv. Continued improvements to the database management and reporting system maintained by the Indonesia Center for Fisheries Research (CFR) data manager;*
  - *v. The inclusion of reviews of logbook and observer data in the port sampling data review workshop.*
- *An observer planning workshop was conducted in March 2019 as a WPEA activity. The agreed draft plan produced from this workshop will be used, inter alia, to ensure observer trips can produce information consistent with WCPFC Regional Observer Programme (ROP) data fields in the future.*

16. 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 (2011-2018), 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.

2.2.3 Vietnamese tuna fishery data

17. 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.

18. Significant developments in the past year include:

- *The Eighth Vietnam Annual catch estimates workshop was conducted in June 2019 with a focus on reviewing data collected in the Vietnam tuna fisheries over recent years and the production of estimates for 2018 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 now more capable and comfortable with the process.*
- *A national logbook has recently been implemented in Vietnam's tuna fisheries. The logbook satisfies most of the WCPFC data requirements and Vietnam has been advised on the key fields that are missing and should be supported to adhere to WCPFC requirements. Scanned logbooks for 2018 activities have been provided to the WCPFC, but have yet to be processed. Installation of the TUFMAN 2 system is planned for Vietnam in late 2019, which will include support for the new national logbook.*
- *An observer planning workshop was conducted in Vietnam during March 2019 as a WPEA activity. The agreed draft plan produced from this workshop will be used, inter alia, to ensure observer trips can produce information consistent with WCPFC Regional Observer Programme (ROP) data fields in the future.*

19. 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.

2.3 Nationality of the catch (charters)

20. Williams (2018) describes the background to 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), the processes established by the WCPFC Secretariat to facilitate the storage and access of charter notification information, and issues experienced in dealing with charters in the data provided by CCMs. The following paragraphs describe issues encountered in the 2018 data submissions to the Commission.

21. 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;*

22. 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.

23. However, one charter state (PNG) has yet to notify charters (i.e. including their FSMA charters) directly to the WCPFC Secretariat according to the relevant CMM, despite notifying the WCPFC Science Service Provider directly each year, which allows the assignment to catch/effort to be done in line with their historical data. As such, this paper is a request to PNG to please consider submitting their list of chartered vessels for the current year, and recent years, to the WCPFC Secretariat as soon as possible.

24. A number of Chinese-flagged purse seine and longline vessels were chartered to Pacific Island CCMs during 2018. The relevant Pacific Island countries notified the WCPFC Secretariat of these charters, which were subsequently listed on the WCPFC web site. However, the provision of 2018 scientific data by China (as flag state) to the WCPFC appears to include several instances where chartered vessel catches have been (erroneously) included. Clarification from China is sought to avoid double-counting with the catch estimates provided by other CCMs chartering Chinese vessels:

i. Operational longline catch/effort logbook data were provided by China in their scientific data submission for 2018 activities, but they include a number of trips by chartered vessels.
    i. Are the catches of chartered longline vessels included in their 2018 annual longline catch estimates and aggregated longline catch/effort data ?
    ii. Could the catch/effort of chartered vessels be removed from annual catch estimates and aggregate data and these data resubmitted ?
    iii. Are the catches of vessels chartered in previous years included in the aggregated data and annual catch estimates ? Can these estimates and data also be revised and resubmitted ?
    iv. In future data submissions, could China please consider including a list of vessels that contribute to their annual catch estimates and aggregated data, to confirm the exclusion of catch for chartered vessels ?

25. The WCPFC Science Service Provider is readily available to assist, wherever required, in resolving these issues.

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

2.4 SC14 recommendations

26. The following SC14 recommendation was addressed over the past year as part of broader work on the WCPFC Science Service Provider (SPC) species and related reference databases (noting that these databases are used for WCPFC scientific work).

SC14 recommended that the Scientific Service Provider reconcile the names and codes of some species of sharks included in their databases.

27. The main work involved a careful reconciliation of the SPC species database with the FAO ASFIS database (see http://www.fao.org/fishery/collection/asfis/en). This included resolution of misspelling in English and scientific names and updates to interim codes to align to the FAO three-letter code. In some instances, there were inconsistencies in species/species groups in the observer data provided by CCMs (with the FAO ASFIS), and so it was necessary to retain the original species reference data which may have resulted in using an interim, non-FAO three-letter code.

28. The SPC species database is a centralized reference table used by a number of databases (e.g. observer, logbook, port sampling), but there are some databases shared outside of SPC (e.g. BIODASYS) for which the updated species data needed to be propagated to reflect the updates.

29. The SPC Species database is in the public domain and can be accessed through the PREVIEW system at http://www.spc.int/ofp/preview/login.php, after requesting a login through a simple registration process.

30. The following SC14 recommendation is addressed in the following paragraphs.

SC14 recommended that the differences in coverage of longline observer data presented in some SC14 papers be investigated by Scientific Service Provider and reported to SC15.

31. The main reasons for the differences in coverage of longline observer data are:

i. Different metrics may be used in determining coverage. Williams et al. (2019) provides tables of observer coverage by fleet, where each CCM has selected a metric for coverage; CCMs typically use the metric that provides the highest coverage to address compliance with the CMM 2007-01 requirements;
ii. Differences may also be due to the use of ROP-defined data or the full observer data (ROP_non-ROP) that are available to SPC scientists, and others authorised to access these data. An example is in Table 1 of the BDEP data (https://www.wcpfc.int/node/29966), which compares the annual coverage of ROP data with the coverage of all observer data held at SPC;
iii. Differences may also be the result of when analyses were conducted in relation to delays in receiving, reviewing and then loading observer data. As an example, SPC have only recently received 2018 observer data from a CCM and it was too late to have these data included in analyses or summaries presented in SC15 papers. 2018 observer data from another CCM have a number of issues that need to be resolved before they can be loaded into the ROP database.

32. Providing an indication of (i) whether data are ROP or not, (ii) when the data were extracted, and (iii) where possible, provide an indication of any major CCM observer data that are not yet available or not yet loaded, are three areas that may better inform Commission members.

3. RECENT PROVISIONS OF SCIENTIFIC DATA TO THE WCPFC

33. 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).

34. 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 TCC15 (September 2019).

3.1 Annual Catch Estimates

35. Tables 1 and 2 list the dates on which catch estimates for 2017 and 2018, 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).

36. All CCMs provided annual catch estimates for 2017 and 2018, by the respective deadlines (30 April 2018 and 30 April 2019). Indonesia, Philippines and Vietnam typically schedule their annual catch estimates review workshops (e.g. in May/June 2019 for 2018 data) which is after the submission deadline but prepared and submitted provisional 2018 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 2019, and we expect further revisions to be included in the WCFPC Part 1 Annual Reports.

37. The quality of estimates provided continues to improve with further reduction in the number of data-gap notes. For the 2018 estimates, there was only one gap reported (south Pacific Ocean catches of albacore tuna, Pacific Bluefin tuna, striped marlin and swordfish for the China longline fleet), which was subsequently resolved with the provision of data on 23rd July 2019.

3.2 Aggregate Catch/Effort data

38. Tables 3 and 4 list the dates on which aggregated catch and effort data were provided for 2017 and 2018, 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.

39. 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 2019) since they were available at that time.

40. Notable issues in aggregate catch/effort data where progress has been made 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 have provided operational catch/effort data since 2016, which potentially forms the basis of generating aggregate catch/effort data, although the coverage remains very low.*

41. The main gap in the provision of 2018 aggregate catch/effort data relates to the absence of key shark species catch in the Vietnamese and Indonesian data. The timeliness of the provision of aggregate catch/effort data has been maintained from recent years with all CCMs providing 2018 data by the deadline of 30th April 2019. For 2018, the other main data gap concerns the low coverage of operational data available to generate aggregate data for the Vietnam and Indonesia fleets, and the anticipated under-reporting of key shark species in general.

3.3 Operational catch/effort data

42. Tables 5 and 6 show the schedule for the submissions of 2017 and 2018 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 2018 data submissions include:

- 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 and Vietnam operational data, for example, the catch in number for longline and handline fisheries. Vietnam used a national logbook during 2018 which did not include several required fields.
- Catches of key shark species are not included in the Vietnam fleet data

43. Most of the significant gaps in operational data have been resolved in recent years, as noted in Section 2.2 of Williams (2018). The coverage of operational data for some fleets is not complete (100%), although there was some improvement in coverage compared to the 2017 data.

44. 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

45. Table 7 shows the schedule for the submissions of 2018 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 2018 size data are for the Vietnam tuna fisheries and the US albacore troll fleet, but noting that provision of size data is non-binding.

3.5 Overall scientific data submission evaluation

46. 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.***

47. For the submission of 2018 data, 31 of the 34 CCMs/entities (91%; an improvement on 88% for 2017 data) were evaluated as completely satisfying (100%) the **binding** requirements for the provision of scientific data to the WCPFC. The four (3) CCMs that did not achieve 100% were at least at 81% or greater, noting that some of these data gaps may be resolved before TCC15.

3.6 Regional Observer Programme (ROP) data

48. The SPC/OFP has been processing observer data on behalf of their member countries for more than 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).

49. Williams et al. (2019) describes the recent developments, future work and initiatives with respect to ROP data management. This paper also includes

i. Tables summarizing current coverage of available observer data by gear;
ii. Tables summarizing observer data by Pacific Island observer providers (new);
iii. Tables summarizing data generated from E-Monitoring trials that have been provided to the Science Service provider;
iv. A brief description of an ongoing review to investigate the potential of E-Monitoring data for scientific work of the Commission.

4. RECENT DEVELOPMENTS IN DISSEMINATION OF DATA

4.1 Bycatch Data Exchange Protocol (BDEP)

50. The most recent update of BDEP data (up to 2018 inclusive) are now available at "Public Domain Bycatch Data" – https://www.wcpfc.int/node/29966, and the latest developments with regards to BDEP over the past two years are described in Fitzsimmons et al. (2018) and Fitzsimmons et al. (2019).

51. The latest version of the BDEP data include the following enhancements :

- A breakdown of the seabird interaction to the species level (Task 6 of the BDEP Work Plan; Fitzsimmons et al., 2018), and progressed through work under WCPFC Project 68 (Peatman and Smith, 2019);
- The inclusion of marine mammal interactions to the species level (Task 7 of the BDEP work plan; Fitzsimmons et al., 2018).

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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.[2] 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[3]", 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%).

[2] 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.

[3] 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 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	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 SC14.
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 2018 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 2019		G, H	III
Canada	TR	30 Apr 2019			III
China	LL, PS	29 Apr 2019			III
Cook Islands	LL, TR	12 Apr 2019		G, H	III
Ecuador	PS	30 Apr 2019			III
El Salvador	PS	30 Apr 2019			III
European Union	LL, PS	29 Apr 2019			III
Federated States of Micronesia	LL, PS	12 Apr 2019		G, H	III
Fiji Islands	LL, PL	12 Apr 2019		G, H	III
French Polynesia	LL, PL, OT	12 Apr 2019		G, H	III
Indonesia	LL	12 Apr 2019		F	III
	PS, PL, HL, TR, OT	12 Apr 2019		F, J	III
Japan	PS, LL	23 Apr 2019		F, C	III
	PL, TR, OT	23 Apr 2019		F	III
Kiribati	LL, PS, OT	12 Apr 2019		G, H	III
Republic of Korea	LL, PS	30 Apr 2019		H	III
Marshall Islands	LL, PS	12 Apr 2019		G, H	III
Nauru	PS	12 Apr 2019		G, H	III
New Caledonia	LL	25 Apr 2019		G, H	III
New Zealand	LL, PS, TR, PL	30 Apr 2019		G, H	III
Niue	LL	12 Apr 2019		D	III
Palau	LL, PL	12 Apr 2019		G, H	III
Papua New Guinea	LL, PS	12 Apr 2019		G, H	III
Philippines	PS	12 Apr 2019		F, G, H	III
	LL	12 Apr 2019		D	III
	HL, RN, OT	12 Apr 2019		F, J	III
Samoa	LL	12 Apr 2019		G, H	III
Solomon Islands	LL	12 Apr 2019		G, H	III
	PS, PL	12 Apr 2019		H	III
Chinese Taipei	LL, PS	30 Apr 2019			III
Tokelau	OT	12 Apr 2019			III
Tonga	LL	12 Apr 2019		G, H	III
Tuvalu	LL, PS, OT	12 Apr 2019		G, H	III
United States	LL, PS, TR, HL, PL	26 Apr 2019		G, H	III
Vanuatu	LL, PS	12 Apr 2019		G, H	III
Vietnam	LL/HL, GN, PS	29 Apr 2019		F, L	III
Wallis and Futuna	LL	30 Apr 2019		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 this year's SC meeting.
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 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 4. Provision of 2018 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 2019		C,I	III
Canada	TR	30 Apr 2019			III
China	LL (DWFN)	29 Apr 2019		P	III
	PS	29 Apr 2019		P	III
Cook Islands	LL, TR	12 Apr 2019		J, O	III
Ecuador	PS	30 Apr 2019		C	III
El Salvador	PS	30 Apr 2019		C	III
European Union	LL	29 Apr 2019		C, F, P, R	III
	PS	29 Apr 2019		C	III
Federated States of Micronesia	LL, PS	12 Apr 2019		J, O	III
Fiji Islands	LL, PL	12 Apr 2019		J, O	III
French Polynesia	LL	12 Apr 2019		J, O	III
Indonesia	LL, PS, PL	12 Apr 2019	18	Q, O, S, T	II (50%)
	HL, TR, GN, OT	12 Apr 2019		N, Q	III
Japan	LL	23 Apr 2019		A, F,H, I, L, R	III
	PL	23 Apr 2019		L	III
	PS	23 Apr 2019		L	III
Kiribati	LL, PS	12 Apr 2019		J, O	III
Marshall Islands	LL, PS	12 Apr 2019		J, O	III
Nauru	PS	12 Apr 2019		J, O	III
New Caledonia	LL	12 Apr 2019		J, O	III
New Zealand	LL, PL, HL, PS	30 Apr 2019		C,I	III
Niue	LL	12 Apr 2019		E	III
Palau	LL, PL	12 Apr 2019		J, O	III
Papua New Guinea	LL, PS	12 Apr 2019		J, O	III
Philippines	PS	12 Apr 2019		M, Q	III
	LL	12 Apr 2019		E	III
	HL, RN, OT	12 Apr 2019		M, N, Q, T	III
Republic of Korea	LL	30 Apr 2019		P	III
	PS	30 Apr 2019		P	III
Samoa	LL	12 Apr 2019		J, O	III
Solomon Islands	LL	12 Apr 2019		J, O	III
	PL, PS	12 Apr 2019		J	III
Chinese Taipei	LL (DWFN)	30 Apr 2019		H, I, L	III
	LL (small)	30 Apr 2019		H, I, L	III
	PS	30 Apr 2019		L	III
Tonga	LL	12 Apr 2019		J, O	III
Tuvalu	LL, PS	12 Apr 2019		J, O	III
United States	LL (American Samoa)	26 Apr 2019		B, I	III
	LL (Hawaii)	26 Apr 2019		B, I	III
	PS (Treaty)	26 Apr 2019		J	III
	TR	26 Apr 2019		B	III
Vanuatu	LL, PS	12 Apr 2019		J, O	III
Vietnam	LL/HL	29 Apr 2019	18	M, Q, S, T	II (95%)
	PS, GN	29 Apr 2019	18	M, Q, S, T	II (92%)
Wallis and Futuna	LL	30 Apr 2019		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 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%
	OT	12 Sep 2019		G, L	III	#
Indonesia	LL, PS, PL	27 Apr 2018	1,2,4,5,6,9,10	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	Represents a range of French Polynesia small-scale, artisanal gears taking tuna with a range of fishing methods. Vessels include the poti marara and bonitier fleets.
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 2018 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 2019		E	III	100%
Canada	TR	30 Apr 2019			III	100%
China	LL	29 Apr 2019	11	I	III	51% *
	PS	29 Apr 2019			III	100%
Cook Islands	LL	12 Apr 2019		C, J	III	100%
Ecuador	PS	30 Apr 2019	11	F	III	58% *
El Salvador	PS	30 Apr 2019			III	100%
European Union	LL	29 Apr 2019		E	III	100%
	PS				III	100%
Federated States of Micronesia	LL	12 Apr 2019	11	C, J, F	III	91% *
	PS		11	C, J	III	78% *
Fiji Islands	LL, PL	12 Apr 2019		C, J	III	100%
French Polynesia	LL	12 Apr 2019		C, J, F	III	100%
	OT	12 Sep 2019		G, L	III	#
Indonesia	LL, PS, PL	12 Apr 2019	1,2,4,5,6,9,10	K	II (72%)	< 5%
	HL, TR, GN, OT			G, K	III	#
Japan	PS, PL	26 Apr 2019		E, M	III	100%
	LL	26 Apr 2019	11	E, M	III	96% *
Kiribati	LL	12 Apr 2019	11	C, J, F	III	61% *
	PS			C, J, F	III	100%
Republic of Korea	LL, PS	30 Apr 2019		E	III	100%
Marshall Islands	LL	12 Apr 2019		C, J	III	100%
	PS			C, J	III	100%
Nauru	PS	12 Apr 2019		C, J	III	100%
New Caledonia	LL	12 Apr 2019		C, J	III	100%
New Zealand	LL	30 Apr 2019		E, F	III	100%
	PL, TR, PS			E	III	100%
Niue	LL	12 Apr 2019		A	III	N/A
Palau	LL	12 Apr 2019	11	C, J	III	72% *
Papua New Guinea	LL	12 Apr 2019	11	C, J, F	III	69% *
	PS		11	C, J, F	III	75% *
Philippines	PS	12 Apr 2019	11	J, K	III	70% *
	LL	12 Apr 2019		A	III	N/A
	HL, RN, OT			G, K	III	#
Samoa	LL	12 Apr 2019		C, J	III	100%
Solomon Islands	LL	12 Apr 2019	11	C, J	III	80% *
	PS		11	C, J, F	III	94% *
	PL		11	C, J	III	72% *
Chinese Taipei	LL	30 Apr 2019	11	E, F	III	85% *
	PS	30 Apr 2019		F	III	100%
Tonga	LL	12 Apr 2019		C, J	III	100%
Tuvalu	LL, PS	12 Apr 2019		C, J	III	100%
United States	LL (American Samoa)	26 Apr 2019	11	E, F	III	88% *
	LL (CNMI, GUAM)	26 Apr 2019		E	III	100%
	LL (Hawaii)	26 Apr 2019		E	III	100%
	PL, HL, TR (trop)			G	III	#
	PS	26 Apr 2019		B	III	100%
	TR (ALB)	26 Apr 2019			III	100%
Vanuatu	LL	12 Apr 2019	11	C, J, F	III	82% *
	PS	12 Apr 2019		C, J	III	100%
Vietnam	LL/HL	29 Apr 2019	6, 8, 10	G, H, K, F, N	II (85%)	35%
	PS, GN	29 Apr 2019	6, 8	G, H, K, F, N	II (75%)	< 20%
Wallis and Futuna	LL	30 Apr 2019		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	Represents a range of French Polynesia small-scale, artisanal gears taking tuna with a range of fishing methods. Vessels include the poti marara and bonitier fleets.
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
N	National logbook data provided, but does not completely satisfy the WCPFC operational data field requirements as yet.

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 2018 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 2019		B, C	III
	PL, PS, TR			J	III
Canada	TR	30 Apr 2019		A	III
China	LL	29 Apr 2019		A, H	III
	PS	29 Apr 2019		A, H	III
Cook Islands	LL	12 Apr 2019		A, H, K	III
Ecuador	PS	30 Apr 2019		H	III
El Salvador	PS	30 Apr 2019		H	III
European Union	LL	29 Apr 2019		L	III
	PS	29 Apr 2019		H	III
Federated States of Micronesia	LL, PS	12 Apr 2019		A, H, I, K	III
Fiji Islands	LL, PL	12 Apr 2019		A, H, K	III
French Polynesia	LL	12 Apr 2019		A, H, K	III
Indonesia	LL, PS, OT	25 Mar 2019		A, K	III
Japan	PS	26 Apr 2019		A, H	III
	LL, PL	26 Apr 2019		A, H, I	III
Kiribati	LL	12 Apr 2019		A, H, K	III
	PS	12 Apr 2019		A, H	III
Republic of Korea	LL, PS	30 Apr 2019		A, H	III
Marshall Islands	LL, PS	12 Apr 2019		A, H, K	III
Nauru	PS	12 Apr 2019		A, H, K	III
New Caledonia	LL	12 Apr 2019		A, H, K	III
New Zealand	LL, PL, PS, TR	30 Apr 2019		A, H	III
Niue	LL	12 Apr 2019		G	III
Palau	LL, PL	12 Apr 2019		A, H, K	III
Papua New Guinea	LL, PS	12 Apr 2019		A, H	III
Philippines	PS, HL, RN, OT	12 Apr 2019		A, H, K	III
	LL	12 Apr 2019		G	III
Samoa	LL	12 Apr 2019		A, H, K	III
Solomon Islands	LL, PS, PL	12 Apr 2019		A, H	III
Chinese Taipei	LL	30 Apr 2019		A, H, I	III
	PS	30 Apr 2019		A, H, I	III
Tonga	LL	12 Apr 2019		A, H, K	III
Tuvalu	LL	12 Apr 2019		A, H	III
	PS	12 Apr 2019		A, H	III
United States	LL (American Samoa)	28 Apr 2019		B, E, F	III
	LL (Hawaii)	28 Apr 2019		B, E, F	III
	HL	28 Apr 2019		B, E, F	III
	TR			M	III
	PS	28 Apr 2019		A, H, K	III
Vanuatu	LL, PS	12 Apr 2019		A, H, I, K	III
Vietnam	LL			M	III
	PS, GN			M	III
Wallis and Futuna	LL	30 Apr 2019		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, Yellowfin 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.
M	Data not provided, despite activity in this fishery. However, this gap is not considered a WCPFC compliance issue.

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 compliance evaluation for the provision of 2018 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%	100%	100%
	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%
Nauru	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%	100%
	TR	100%	100%	100%	100%	
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%