



**SCIENTIFIC COMMITTEE
EIGHTEENTH REGULAR SESSION**

ELECTRONIC MEETING
10-18 August 2022

INTERSESSIONAL ACTIVITIES OF THE SCIENTIFIC COMMITTEE

WCPFC-SC18-2022/GN-IP-06

WCPFC Secretariat and SPC-OFP

Introduction

1. The purpose of this paper is to inform the Scientific Committee (SC) of the relevant science-related activities undertaken since SC17.

I. Summary Report of the 17th Regular Session of the Scientific Committee

2. The 17th Regular Session of the Scientific Committee was convened during 11-19 August 2021. This was the second-year virtual meeting due to continued travel restrictions from COVID-19 pandemic. The Secretariat posted on the SC17 website the Outcomes Document on 30 August 2021 and intersessionally adopted Summary Report including the Executive Summary on 12 November 2021.

II. Science Services from the SPC-OFP

3. In 2006, the Commission signed the first memorandum of understanding (MOU) with the Commission's Scientific Services Provider (SPC-OFP) to provide scientific and data management services. In December 2009, the Commission and the SPC agreed to revise the MOU to provide for a three-year arrangement as directed by the Commission. In 2019, the term MOU was changed to the MOA (Memorandum of Agreement). The MOA is composed of two sections: 1) general scientific, financial and administrative agreement which will be updated every three years, and 2) Annex I of the MOA (*Agreement for the Annual Provision of Scientific Services to the Commission and Assistance to Members by the Pacific Community*) which will be updated each year to accommodate scientific services as requested by the Commission for each calendar year. The 2022 scientific services in Annex 1 were co-signed by the SPC and the WCPFC on 21 January 2022 (**Attachment A**).

4. The SPC-OFP produced or was involved in producing around 55 papers and reports for SC18, covering all four theme issues of the SC plenary agenda, steering committee meetings and online discussion forum topics, and provided *ad hoc* advice and support throughout the year. In addition, the SPC-OFP assisted the following activities:

- Participated in TCC17 and WCPFC18, producing several additional key scientific papers and presentations for each meeting;
- Assisted the WPEA Project by supporting the electronic meeting of the Tuna Data Review and Annual Tuna Catch Estimates Workshops hosted by the Project participating countries (Indonesia,

Philippines and Vietnam); through participation in the in-person WPEA-ITM Tri-Country Workshop (29-30 June 2022) covering an update of observer program needs, how fisheries data are and can be used for fisheries management, and the future of WPEA; and ongoing database system and data management support;

- Hosted the online Pre-assessment Workshop (29-31 March 2022) for 2022 skipjack, southwest Pacific mako and southwest Pacific blue shark stock assessments including the peer review process for yellowfin tuna stock assessment;
- Conducted the Pacific Tuna Tagging Project (PTTP); coordinated the PTTP Cruise Planning Advisory Committee meeting (12 April 2022) and the 16th PTTP Steering Committee meeting (26 July 2022) electronically. SPC also convened an expert workshop in December 2021 to review the tagging datasets and the modelling approach that has been used to generate correction factors, and discuss potential improvements and changes to the methodology in the context of the characteristics of the datasets;
- Continued the Biological Sampling Programme and hosted the 4th WCPFC Pacific Marine Specimen Bank Steering Committee meeting (26 July 2022) electronically;
- Hosted the online 16th Tuna Data Workshop (6-7 April 2022) to assist compilation of CCM's tuna fishery data;
- Participated in the second 'Development of New WCPFC Tropical Tuna Measure' Workshop (6-10 September 2021), producing several additional key scientific papers and presentations for the meeting;
- Conducted two Stock Assessment Training Workshops: Introductory WS (21-24 June 2022) and Advanced WS (4-7 July 2022);
- Conducted two Harvest Strategy Capacity Building Seminars (8 June and 7 July 2022) in preparation for the 1st Science-Management Dialogue meeting on 19 and 22 August 2022;
- Organised and conducted two seminars on the Close-Kin Mark-Recapture and its Potential Application to WCPFC Tuna Stocks (1 October 2021 and 16 November 2021) with CSIRO;
- Provided technical assistance to the South Pacific Albacore Roadmap IWG meeting (15 July 2022);
- Participated in the 5th meeting of the WCPFC E-reporting and E-monitoring Working Group (20 July 2022);
- Assisted the preparation of briefing documents for use by regional representatives at CoP26, and supported to WCPFC member side events held at CoP26 through presentation on the expected impacts of climate change on Pacific tuna fisheries;
- Undertook informal collaborations with IATTC to recover tags from tagging campaigns undertaken in each respective jurisdiction but recovered in the others jurisdiction, and to apply and refine methodologies for risk assessment and species distribution modelling (e.g. IATTC-SAC-13-11); and
- Updated regularly the tables on Annual Catch and Effort estimates (the "ACE tables" <https://www.wcpfc.int/ace-by-fleet>) to provide additional estimates to the Commission meetings.

5. The SPC-OFP also published eight (8) peer reviewed scientific papers with co-authors on subjects of relevance to SC since SC17 (details available on request).

III. Progress of the SC Work Programme Activities

6. The WCPFC18 approved 2022 SC budget in **Attachment B**. SC work programmes conducted in 2021-2022 include, with Commission budgets in parenthesis:

a) *Project 35b: WCPFC Tuna Tissue Bank (\$ 103,204)*

The progress report of the Project 35b is posted on SC18 website. The WCPFC Pacific Marine Specimen Bank (renamed from the Tuna Tissue Bank) project has been continued since 2016 ([SC18-RP-P35b-01](#)). The 4th Steering Committee meeting was held electronically on 26 July 2022. CCMs are invited to visit the PMSB website:

<https://www.spc.int/ofp/PacificSpecimenBank>.

- b) *Project 42: Pacific-wide tagging project (\$ 730,000)*
WCPFC18 agreed the 2022-2024 PTTP Work Plan, and allocated funding of \$730,000 for 2022. The CP15 cruise was undertaken beginning 15th August for a total duration of 40 days. The main activity for 2022 includes WP6 cruise, tag seeding experiments, tag recovery and biological sampling ([SC18-RP-PTTP-01](#)). The 16th Steering Committee meeting was held electronically on 26 July 2022.
- c) *Project 60: Further paired sampling and unloading data comparisons (\$ 40,000)*
The SPC-OFP published a meeting paper [SC18-ST-IP-03](#) to document the progress of this project. The request to carry over the unused 2020 funds (\$40,000) to 2022 was approved at WCPFC18.
- d) *Project 65: 2022 Peer Review of 2020 Yellowfin Stock Assessment (\$50,000)*
SC16 accepted the 2020 yellowfin tuna (YFT) assessment ([SC16-SA-WP-04](#)) as the ‘best available science’ to inform managers of stock status. However, SPC noted that areas of uncertainty in the assessment required follow-up investigation and expert advice ([SC18-SA-IP-08](#)). The in-person modeling workshop is scheduled on 7-13 September 2022 in Noumea, New Caledonia, subject to COVID-19 travel restrictions and protocols.
- e) *Project 90: Fish weights/lengths for scientific analysis (\$ 75,000)*
Project 90 was originally a 3-year project (2019 - 2021) but WCPFC17 endorsed the extension of the project to 57 months from January 2019 through September 2023; \$75,000 for 2022). The outputs from 2021-2022 work are in [SC18-ST-IP-04](#).
- f) *Project 100c: Preparing western and central Pacific tuna fisheries for application of close-kin-mark-recapture methods to resolve key stock assessment uncertainties (WCPFC matching fund of USD 40,000 to the EU’s contribution of € 320,000)*
This project is a 3-year project (2022 – 2024), substantially funded through partner agencies as noted in SC17-GN-IP-07, with a matching fund from WCPFC to cover the epigenetic ageing approach for SP albacore, bigeye tuna and SWP swordfish. Grant application was prepared by WCPFC Secretariat and the Scientific Services Provider that was submitted to EU in January 2022. The progress report for this project is in [SC18-SA-IP-10](#).
- g) *Project 105: Bomb Radiocarbon Age Validation for bigeye and yellowfin tunas in WCPO (\$97,987)*
The objective of this project is to test the validity of age estimates for bigeye and yellowfin tuna from the western and central Pacific Ocean using bomb radiocarbon dating. The progress of the project is in [SC18-SA-IP-14](#) and the project will be finalized in December 2022.
- h) *Project 107b: Scientific Advice for Southwest Pacific Blue Shark Assessment (USD 40,000)*
This project is to present a new procedure leading to the selection of models to be included in the final grid used for providing management advice for Southwest Pacific blue shark (*Prionace glauca*). The results of this project are in [SC18-SA-WP-03](#).
- i) *Project 109: Training of Observers for Elasmobranch biological sampling (USD 25,000)*
This project aims to develop material for observers to use and run training workshops for a core group of observers in elasmobranch biological sampling and to train observers to collect elasmobranch biological material for age, growth and reproduction. The request to carry over the unused funds to 2022 was approved at WCPFC18. The progress report for this project is in [SC18-ST-IP-05](#).
- j) *Project 110: Non-entangling and biodegradable FAD trials in the WCPO (EU € 412,394.37, USA \$ 85,000, and ISSF \$ 20,000)*

This is a 30-month project which started in 2021 and is expected to be completed in 2023, but there were delays due to the continuing challenges brought by the COVID-19 pandemic and the expectation of a no-cost extension being required as a result. This project will conduct trials of non-entangling and biodegradable drifting Fish Aggregation Devices in the WCPO ([SC18-EB-IP-01](#)).

k) *Project 111: Southwest Pacific Mako Shark Assessment (USD 105,000)*

This project is to undertake a stock assessment of mako sharks in the southwest Pacific Ocean. The results of this project are in [SC18-SA-WP-02](#).

IV. Cooperation with other organizations

7. The Secretariat was represented at the following science-related meetings during the last 12 months:
- SPC Pre-Assessment Workshop, 29 – 31 March 2022, Online workshop (Zoom);
 - SPC Tuna Data Workshop, 6-7 April 2022, Online workshop (Zoom);
 - The 22nd ISC Plenary Meeting, 12-18 July 2022, Hybrid Meeting (In-Person in Kona, Hawaii and Online via Webex); and
 - WPEA Project related workshops and meetings for data review, annual catch estimates and other related meetings were conducted online and/or in-person.

V. Research Projects

Japanese Trust Fund Project

8. The Japanese Government supported the first year of JTF Phase 3 with a total budget of \$232,821, including WCPFC's 7.5% administration fee. Six project proposals were endorsed for 2022: two from Solomon Islands, one from Tuvalu, and three from Tonga. The Steering Committee meeting this year (2022) will be done through email correspondence. The Steering Committee will review the progress of each project. Detailed progress is described in the JTF Status Report ([SC18-RP-JTF-01](#)).

WCPFC Tuna Tissue Bank (TTB)

9. Refer to Paragraph 4.a) *Project 35b* above. In addition, the Secretariat has received two requests to access tissue samples: i) Postdoctoral Research Associate from Michigan State University and ii) M.S. Graduate student in the Department of Fisheries, Wildlife, and Conservation Sciences at Oregon State University. Following the WCPFC Tuna Tissue Bank Access Protocols, the Secretariat has made a formal agreements that were signed by both parties in March and April 2022, respectively.

West Pacific East Asia Project

10. The current WPEA-ITM Project funded by the New Zealand government continued to conduct key data collection activities in Indonesia, Philippines and Vietnam. Details are described in the WPEA-ITM Project Update ([SC18-RP-WPEA-01](#)).

VI. Voluntary Contributions from Members and Observers

11. Members and Observers of the Commission have voluntarily provided funding supports for the scientific work of the Commission. The European Union has made available to WCPFC in 2022 around EUR 320,000 to fund Project 100c. The third 5-year programme of the Korean government to support the SPC's Pacific Tuna Tagging Project started in 2019, providing about USD 170,000 per year.

**MEMORANDUM OF AGREEMENT
BETWEEN
THE COMMISSION FOR THE CONSERVATION AND MANAGEMENT OF HIGHLY
MIGRATORY FISH STOCKS IN THE WESTERN AND CENTRAL PACIFIC OCEAN
AND
THE PACIFIC COMMUNITY**

The Commission for the Conservation and Management of Highly Migratory Fish Stocks in the Western and Central Pacific Ocean (hereinafter referred to as “the WCPFC” or “the Commission”) and the Pacific Community (hereinafter referred to as “SPC”):

Recognizing that the Commission is required to, *inter alia*:

- adopt measures to ensure long-term sustainability of highly migratory fish stocks in its Convention Area and promote the objective of their optimum utilization;
- ensure that such measures are based on the best scientific evidence available and are designed to maintain or restore stocks at levels capable of producing maximum sustainable yield, as qualified by relevant environmental and economic factors, including the special requirements of developing States in the Convention Area, particularly small island developing States, and taking into account fishing patterns, the interdependence of stocks and any generally recommended international minimum standards, whether subregional, regional, or global;
- assess the impacts of fishing, other human activities and environmental factors on target stocks, non-target species, and species belonging to the same ecosystem or dependent upon or associated with the target stocks;
- adopt measures to minimize waste, discards, catch by lost or abandoned gear, pollution originating from fishing vessels, catch of non-target species, both fish and non-fish species (hereinafter referred to as non-target species) and impacts on associated or dependent species, in particular endangered species and promote the development and use of selective, environmentally safe and cost-effective fishing gear and techniques;
- protect biodiversity in the marine environment;
- take measures to prevent or eliminate over-fishing and excess fishing capacity and to ensure that levels of fishing effort do not exceed those commensurate with the sustainable use of fishery resources;
- collect and share, in a timely manner, complete and accurate data concerning fishing activities on, *inter alia*, vessel position, catch of target and non-target species and fishing effort, as well as information from national and international research programs;
- obtain for its consideration the best scientific information available from the Scientific Committee through review of research results, encouraging and promoting cooperation in scientific research and assessing status of target or non-target stocks of interest;
- obtain advice and recommendations on conservation and management measures from the Technical and Compliance Committee, in collaboration with the Scientific Committee; and
- obtain recommendations from the Northern Committee on the formulation of such conservation and management measures as may be adopted by the Commission in respect of stocks which occur mostly in the area north of 20° north parallel and on the implementation of such measures for the area north of 20° north parallel;

Noting also that the Commission:

- may engage the services of scientific experts to provide information and advice on the fishery resources covered by its Convention and related matters that may be relevant to the conservation and management of those resources;

- may enter into administrative and financial arrangements to utilize scientific services for this purpose; and
- in order to carry out its functions in a cost-effective manner, shall, to the greatest extent possible, utilize the services of existing regional organizations and shall consult, as appropriate, with any other fisheries management, technical or scientific organizations with expertise in matters related to the work of the Commission;

Recognizing that SPC, through the work of its Oceanic Fisheries Programme (hereinafter referred to as “OFP”), seeks to:

- ensure that regional and national fisheries management authorities in its region of competence have access to high-quality scientific information and advice on the status of, and fishery impacts on, stocks targeted or otherwise impacted by regional oceanic fisheries;
- ensure that regional and national fisheries management authorities within its region of competence have access to accurate and comprehensive scientific data on fisheries targeting the region’s resources of tuna, billfish and other oceanic species including non-target species; and
- improve the understanding of pelagic ecosystems in the western and central Pacific Ocean, with a focus on the western tropical Pacific;

Noting also that OFP, in pursuing these objectives, has, over a long period of time:

- developed and maintained a comprehensive database of catch, effort, size composition and other biological data from the oceanic fisheries of the western and central Pacific Ocean;
- conducted biological and ecological research on the target and non-target species impacted by the fisheries and their ecosystem;
- conducted regular stock assessments and associated analyses for highly migratory stocks of interest;
- provided a forum for the exchange of knowledge of oceanic fisheries in the western and central Pacific Ocean through the precursor to the Scientific Committee, the Standing Committee on Tuna and Billfish, and thus has an established international and regional network of scientific collaborators; and
- assisted SPC Member countries that are also Members of the Commission in the management of oceanic fisheries through the implementation of fishery monitoring and data management systems, the provision of scientific advice and the provision of national capacity building;

Have agreed as follows:

General cooperation

The Commission and SPC shall establish and maintain cooperation in respect of matters of common interest to the two organizations. In particular, the Commission and SPC will:

- i. encourage reciprocal participation in relevant meetings of each organization;
- ii. encourage the collaboration of national scientists in the scientific work undertaken by, or on behalf of, the Commission;
- iii. actively and regularly exchange relevant meeting reports, information, project plans, documents, and publications regarding matters of mutual interest, up to the limits allowed by the information-sharing policies agreed by each organization’s members; and
- iv. consult on a regular basis to enhance cooperation and minimize duplication.

Provision of Scientific Services to the Commission by SPC’s OFP

SPC’s OFP, in cooperation with other scientists, as appropriate, including those from Members of the Commission, will provide specific scientific services, as annually reviewed and agreed by both parties in **Annex 1**. Such services may include, *inter alia*, the following:

- i. data management services, including, as appropriate, the collection, compilation and dissemination

- of fisheries data according to agreed principles and procedures established by the Commission, data processing, and database development and maintenance, taking full account of the procedures and policies of both organizations relating to the confidentiality, disclosure and publication of data;
- ii. data summaries, identification of data gaps and analyses that the Commission may routinely require to carry out its functions;
 - iii. other data summaries and analyses that the Commission may require from time to time;
 - iv. advice on the implementation of e-reporting and e-monitoring;
 - v. regional stock assessments, CPUE standardization, sensitivity analysis and model refinement for key target and non-target species;
 - vi. ecosystem analyses, including developing ecosystem modelling and application to management, ecological risk assessment and related work;
 - vii. implementation of the approved Shark Research Plan, including stock assessment of key shark species, and refinement of the Shark Research Plan as needed;
 - viii. scientific evaluation of potential management options, agreed conservation and management measures and related work;
 - ix. development of management strategy evaluation to support the implementation of the harvest strategy framework, including provision of capacity building for Members on understanding of harvest strategy development, functioning and implications;
 - x. scientific advice in relation to the implementation of the Commission's vessel monitoring system, regional observer programme or other initiatives relating to fishing gear and technology, as appropriate;
 - xi. design and implementation of biological, ecological or stock assessment research programmes requested by the Commission, including collaborative research programmes with other regional fishery management organizations; and
 - xii. other advisory and technical services.

Provision of Assistance to Commission Members

In support of Article 30 of the Convention on the Conservation and Management of Highly Migratory Fish Stocks in the Western and Central Pacific Ocean, SPC will provide assistance to its Pacific Island Members to enhance their participation in the work of the Commission. Assistance may include, *inter alia*:

- i. assistance in monitoring the fishing activities of national fleets and foreign fleets fishing within Pacific Island exclusive economic zones;
- ii. assistance in data management, and in particular in satisfying the data reporting obligations to the Commission;
- iii. auditing of national fishery monitoring and data management systems;
- iv. assistance in the interpretation of scientific information being provided to the Commission;
- v. scientific advice for the management of national fisheries consistent with the objectives of the Commission; and
- vi. assistance in the implementation of management measures adopted by the Commission.

Financial Support

The Commission will provide financial support for the provision of scientific services and for the provision of assistance to Commission Members as agreed in **Annex 1**.

In respect of assistance to Pacific Island Commission Members, such assistance will normally be provided by SPC funding sources, or from the Commission's Special Requirements Fund, subject to procedures agreed by the Commission governing the use of that Fund and to the Commission's strategy for capacity building and operationalizing Article 30 of the Convention. Where assistance is to be funded from the Commission's Special Requirements Fund, this shall be included in the Service Agreement. In special circumstances, assistance may

also be requested for non-Pacific Island Commission Members. Such assistance will be funded by the Commission (in which case it will be detailed in the Service Agreement) or directly by the countries concerned.

General Administrative Arrangements

- i. This MOA becomes effective upon the date of signature of the responsible representatives of both Parties.
- ii. This MOA may be modified by written consent of the responsible representatives of both Parties. The modified MOA becomes effective upon the date of signature of such consent.
- iii. If any dispute should arise between the Parties on the operation of this MOA, the Parties will make every effort to resolve the dispute themselves, or if necessary, by utilizing a mutually-acceptable arbiter.
- iv. Either Party may terminate this MOA by providing written notice to the other of its intention to withdraw from the MOA. Termination shall be effective on 31 December of the year in which such notice is given, or 90 days following such notice, whichever is later. Upon termination of the MOA, any uncommitted funds provided for scientific services and assistance shall be refunded to the Commission.
- v. A full review of the terms and operation of this MOA and its Annexes will be conducted in concert with any review of the scientific structure and functions of the Commission.

Signature

Signed on behalf of the Western and Central Pacific Fisheries Commission and the Pacific Community:

Feleti Teo, OBE
Executive Director, WCPFC

Paula Vivili
Deputy Director General (Science and
Capability), SPC

Date: _____ January 2022

Date: _____ January 2022

ANNEX 1
Agreement for the Annual Provision of Scientific Services to the
Commission and Assistance to Members by the Pacific Community

(Pursuant to Article 2 of MOA)

I. Period covered by this Agreement

This Agreement is for the period from 1 January to 31 December 2022 and will be reviewed annually and be extended by one calendar year.

II. Specific Services and Terms of Reference for the Provision of Scientific Services for 2022

The scientific services to be provided to the Commission by SPC's OFP during the period of this Agreement are as follows:

Activity	Description of Service	Specific Outputs	Timing	Performance ¹
<i>Core SPC services</i>				
<i>1. Data management, statistical analyses and related services</i>				
i.	Data Management			
	1) Incorporate data provided by Members, Cooperating Non-Members and Participating Territories (CCMs) under the Commission's data provision policy into existing databases and facilitate access of Commission Secretariat staff to those data as appropriate.	<ul style="list-style-type: none"> • Databases updated and installed at WCPFC headquarters • Updated database query tools for regional databases available at WCPFC headquarters • WCPFC staff training as required 	January-December	
	2) Produce a summary on the status of the provision of scientific data to the Commission.	<ul style="list-style-type: none"> • SC / TCC / WCPFC papers as 	Mid-July, mid-	

¹ To be completed by SPC and WCPFC in November each year and provided as a paper to the Regular Session of the WCPF Commission and its appropriate subsidiary bodies (e.g., FAC)

		required • Continued update of the WCPFC Scientific Data Catalogue	September and mid-November	
ii.	<i>Compilation of catch and effort estimates</i>			
	<p>1) Compile estimates of annual catches by species, gear type and flag, as specified in the procedures for <i>Scientific Data to be Provided to the Commission</i> AND in support of the functions of the Commission and its subsidiary bodies, and conduct the following SC17 recommendations:</p> <ul style="list-style-type: none"> • expand the tables in ANNEX 2 of the SC17-ST-WP-01 to include the longline, purse seine and pole-and-line operational catch and effort data fields, for review by SC18 and TCC18, noting SC17 recommendation “SC17 recommended the SSP enhance the scientific data submission guidelines by preparing operational data field tables for longline, purse seine and pole and line operational data for SC18 review”; and • add a new annex to the data gaps paper (SC17-ST-WP-01) to include a breakdown of the coverage levels for each operational data field by year and fleet (Para 36, SC17 Report) <p><i>Note: Consider Paragraph 71 of the SC15 Summary Report and Paragraph 663 of the WCPFC16 Summary Report to support the improvement of the CMM for Charter Notification Scheme.</i></p>	SC papers	Mid-July	
	2) Estimates of annual catches by vessel flag, EEZ, archipelagic waters, and IATTC/WCPFC overlap area for use in determining the catch component of the Commission’s assessed contributions	Catch table provided to the Commission Secretariat	Late-Sept	
	<p>3) For catches for which estimates are not otherwise available, conduct statistical analyses to estimate catches, particularly regarding:</p> <ol style="list-style-type: none"> a) purse-seine catches of bigeye, skipjack, and yellowfin tuna, and b) discards of target tuna species. <p><i>Note 1: SC14 recommended that the Scientific Services Provider continue the work on purse seine and longline bycatch estimates, and provide updates every 2-3 years. (Paragraph 83, SC14 summary report).</i> Previous papers provided include:</p> <ul style="list-style-type: none"> • <i>PS bycatch estimates: SC14-ST-IP-04 and SC17-ST-IP-06</i> 	SC papers	Mid-July	

	<ul style="list-style-type: none"> • <i>LL bycatch estimates: SC14-ST-WP-03 and SC16-ST-IP-11</i> <p>The next longline bycatch update is due in 2023 and purse seine in 2024 under a 3-year cycle,</p> <p><u>Note 2:</u> Future papers consider the following SC17 recommendation in Para 58 in the SC17 Summary Report:</p> <p><i>58. SC17 recommended that future analyses providing estimates of purse seine bycatch include estimates of marine mammal bycatch to the species level, where possible, to allow for additional monitoring of bycatch and bycatch rates of marine mammal species.</i></p> <p>Estimates of marine mammal/cetacean interactions can be produced if requested as per SC17-ST-IP-10.</p>			
<i>iii</i>	<i>Additional data-related issues</i>			
iv.	<i>Data dissemination</i>			
	1) Produce and publish on the Commission’s website the <i>Tuna Fishery Yearbook</i> , containing annual catch estimates by gear type, flag and species.	Yearbook published on WCPFC website	Dec	
	2) Disseminate public domain catch, effort and size data on the Commission’s website at agreed level of resolution, enhancing where possible, while ensuring that the WCPFC rules for public domain data are applied. <ul style="list-style-type: none"> • Regarding size data, refer to the following SC17 recommendation: <p><i>“35. SC17 recommended publishing aggregated size data (data fields as listed in SC17-ST-WP-01, section 4.1) via the WCPFC Public Domain webpage, after CCMs have advised the SSP on which of their size data submissions should be excluded. In this regard, CCMs are requested to advise the SSP of the size data to be excluded before 31 December 2021, after which time the SSP will proceed to publish the WCPFC Public Domain size data based on this advice.”</i></p> • Contingent on the authorizations of relevant CCMs, facilitate release of non-ROP longline data for Project 101, as noted in Paragraph 378 of the SC17 Summary Report. 	Update WCPFC public domain webpage	Jan-Dec	
	3) Continue to produce the <i>Overview of Tuna Fisheries in the WCPO, including Economic Conditions</i> paper and include summaries of northern stocks in the WCPFC Convention Area; and more information on the “other” fisheries (Para 38, SC15 Summary Report).	SC paper	Mid-July	

	4) Generate the Annual catch and effort (ACE) tables based on the latest data, publish the ACE Tables on the relevant WCPFC webpages according to the agreed schedule.	Update WCPFC ACE Tables webpage	Mid-July, mid-September and November	
	5) Generate and disseminate the latest version of the WCPFC public domain bycatch data, including data defined in the Bycatch Data Exchange Protocol on the WCPFC public domain webpage.	Update WCPFC BDEP and public domain bycatch webpages	November	
	6) Update and disseminate the WCPFC Data Catalogue via the WCPFC Data Catalogue webpage.	Update WCPFC Data Catalogue webpage	November	
v.	<i>Technical / policy advice</i>			
	1) Provide <i>ad-hoc</i> advice on science and data-related implications of relevant MCS activities, including, but not limited to: transshipment, the regional observer programme, port sampling, VMS, port state measures, catch documentation schemes, the implementation of e-reporting and e-monitoring (ER and EM), etc.	Advice provided on request	Jan - Dec	
	2) Provide advice on data-related procedures of the Commission, e.g., <i>Rules and Procedures for the Protection, Access to and Dissemination of Non-Public Domain Data and Information Compiled by the Commission, and Scientific Data to be Provided to the Commission</i> ".	Advice provided on request	Jan - Dec	
	3) Provide support to coordination and collaboration on data-related matters between the ISC and WCPFC, including specific tables that show provisions of operational level catch and effort data for the North Pacific region from all CCMs.	Advice provided on request	Jan-Dec	
2. Stock assessment and related analytical services				
vi.	<i>Target species stock assessments and auxiliary analyses</i>			
	1) Undertake the following work in 2022 (Para. 410, SC17 Summary Report): a. the skipjack stock assessment, taking into consideration the research recommendations as noted in Para 223 of the SC15 Summary Report; b. the yellowfin tuna peer review and additional analyses: i) Provide an updated indicative schedule for the 2022 peer review process to the WCPFC Secretariat (Science Manager) by 30 April	SC papers	Mid-July	

	<p>2022, which includes availability of the external experts selected, an anticipated workshop schedule, an anticipated reporting process to SC18 or post-SC18 (ODF and/or a special online meeting), and any other information for the Secretariat's further arrangement of the peer review process and preparation of SC18 provisional agenda;</p> <p>ii) Consider CCMs' views expressed in paragraphs 242 - 247 of the SC17 Summary Report as appropriate in preparing the updated peer review process above; and</p> <p>c. continuing work to develop improved approaches for characterising stock assessment uncertainty:</p> <p>i) ongoing work to refine/enhance the characterisation of uncertainty using ensemble modelling, noting in 2022 this will be considered to some extent as part of the yellowfin tuna assessment peer review,</p> <p>ii) develop a draft TOR to present to SC18 for an independent peer review of how stock assessment uncertainty is characterized for presenting management advice from WCPFC stock assessments.</p>			
	2) Undertake analyses of catch and effort data, including operational-level data where possible, to construct indices of abundance for target and non-target species; and any additional research on biological parameters, to support stock assessments.	SC paper(s)	Mid-July	
	3) Make available stock assessment data and results files.	Data and results files posted on SPC-OFP website, and link on WCPFC website	Dec	
	4) Indicator papers for bigeye, yellowfin, skipjack tuna and south Pacific albacore for those years when a stock assessment is not conducted, with explanatory details for the figures and a brief interpretation of the trends.	SC paper	Mid-July	
	5) Trends paper for South Pacific albacore longline and troll fisheries.	SC paper	Mid-July	
vii.	<i>Model development and refinement</i>			
	1) Refinement or development of stock assessment models, as appropriate, and refinement of models for CPUE standardization, model ensemble approaches, and harvest strategy framework.	SC paper(s)	Mid-July	
3. Management analyses and CMM performance monitoring				
viii.	<i>Conservation and Management Measure performance monitoring</i>			

	1) Provide an update on other commercial fisheries for bigeye, skipjack and yellowfin to SC18/TCC18 so that SC/TCC can provide further advice to WCPFC19 on the application of paragraph 51 of CMM 2018-01, as noted in Paragraph 33 of the WCPFC18 Outcomes Document: <i>33. Noting potential issues with data availability, the Commission agreed that, at its regular session in 2022, it would agree a baseline period or limit for the Indonesia Large Fish Handline Fishery, based on the Indonesia proposal and advice from SC18 and TCC18.</i>	SC / TCC/ WCPFC papers, and tables or figures as required	Mid-July, mid- September and mid- November	
ix. Development of Harvest Strategy Framework				
	1) The Commission adopted the <i>Updated Harvest Strategy Workplan for the Adoption of Harvest Strategies under CMM 2014-06</i> at WCPFC18 (Attachment I, WCPFC18 Outcomes Document). i) Provide support and produce supporting documents to undertake the activities specified in the updated Workplan for consideration at SC18, TCC18 and WCPFC19.	SC / TCC / WCPFC papers as required	Mid-July, mid- September and mid- November	
	2) Produce supporting documents to facilitate efficient and effective discussions on proposed areas of focus (refer to Paragraph 59, WCPFC18 Provisional Outcomes Document) at the 1 st session of the Science-Management Dialogue currently planned to take place immediately after SC18 in August 2022.	SMD papers as required	Mid-July	
	3) Provide capacity building activities including education materials and capacity building workshops to build understanding by CCMs of harvest strategy development, functioning and implications to enable their participation in the process of harvest strategy development, decision making and implementation.	A list of capacity building activities		
	4) Conduct analyses required to support decision making on TRPs for skipjack, yellowfin and bigeye tuna.	SC papers as required		
x. Analyses to support development of Conservation and Management Measures				
	1) Evaluate the potential impacts of existing, new or revised management measures, and the results of which may be suggested to the Commission and/or meetings of its subsidiary bodies as requested.	SC / TCC / WCPFC papers and <i>ad hoc</i> advice, as required	Jan - Dec	
	2) Provide data and advice regarding the revision of CMMs as requested.	SC / TCC / WCPFC papers as	Jan - Dec	

		required		
4. Other advisory and technical services				
xi.	Other advisory and technical services			
	1) Provide support to continue Intersessional Working Groups for 2022, including the SP Albacore Roadmap IWG, noting priorities in paragraph 39 of the WCPFC18 Outcomes Document, and the FAD Management Options IWG.			
	2) Assist the WCPFC Secretariat on the review process of the Shark Research Plan.	SC paper	Mid July	
5. Oversight of WCPFC-funded or supported projects				
xii.	1) Oversight of the Commission supported projects (as of January 2022) and appropriate reporting on each as per individual contracts: <ul style="list-style-type: none"> • Project 35b: Maintenance of the WCPFC tuna tissue bank • Project 42: Pacific tuna tagging program • Project 60: Purse Seine Species Composition • Project 65 - Peer review of yellowfin tuna stock assessment and additional analyses • Project 90: Fish weights/lengths for scientific analysis • Project 100c –Application of CKMR to resolve stock assessment uncertainties • Project 107b - Scientific advice for SWP blue shark • Project 109 - Training observers for elasmobranch biological sampling • Project 110 - Non-entangling and biodegradable FADs • Project 111 - South Pacific mako shark assessment 			
	2) Provide a “provisional” list of the SPC-OFP documents for SC18 to the WCPFC Secretariat (Science Manager) as early as possible but no later than by 30 August 2022 for the finalization of the SC18 provisional agenda.			

III. Financial Support to be provided by the Commission

The financial support to be provided by the Commission to SPC’s OFP for the services outlined above is as follows:

Item	Cost basis	USD
Data management, stock assessment, and other advisory and technical services	Costs based on SPC costs of scientific staff positions, administration costs, travel to SC, TCC and WCPFC annual	961,875

	sessions, and computer support.	
Providing essential computer support and software development for stock assessment ²		173,206
Total Commission funding		1,135,081

IV. Schedule for Payments and Bank Details for Payment

The schedule of payments shall be as follows:

28 February 2021 (or before)	USD 283,771
30 April 2021 (or before)	USD 283,770
30 June 2021 (or before)	USD 283,770
30 September 2021 (or before)	USD 283,770

Name of Bank	Banque de Nouvelle-Caledonie
Address	25 av Henri Lafleur Victoire, Noumea, New Caledonia
Account name	La Communauté du Pacifique - USD
Account Number (IBAN/Swift code)	IBAN : FR76 1488 9000 8181 7160 0101 206 Swift Code: CEPANCNM

Feleti P Teo, OBE
Executive Director, WCPFC

Date: _____ January 2022

Paula Vivili
Deputy Director General (Science and Capability), SPC

Date: _____ January 2022

² Terms of reference for this resourcing includes:

- Further enhancement of MULTIFAN-CL and its use in stock assessment to implement SC recommendations
- Maintain and further develop the MULTIFAN-CL website to facilitate access to software and support
- Continue to implement a formal framework for management of MULTIFAN-CL code updates, testing new developments, training, and updating the users' guide

WCPFC18 approved SC18 Budget (December 2021)

	Approved budget 2021	Estimated expenditure 2021	Indicative budget 2022	Proposed budget 2022	Indicative budget 2023	Indicative budget 2024
Sub-item 2.1 Scientific Services (SPC)	943,015	943,015	961,875	961,875	981,112	1,000,734
Sub-item 2.2 Scientific Research						
Additional Resourcing SPC	169,810	169,810	173,206	173,206	176,670	180,204
P35b Maintenance of WCPFC Tissue Bank	101,180	101,180	103,204	103,204	105,268	107,373
P42 Pacific Tuna Tagging Project	730,000	730,000	730,000	730,000	730,000	730,000
P60 Improving purse seine species composition	40,000	40,000	0	0	0	0
P65 Peer review of stock modeling	0	0	50,000	50,000	0	0
P68 Estimation of Seabird Mortality	0	0	75,000	0	25,000	40,000
P88 Acoustic FAD analyses	15,000	15,000	0	0	0	0
P90 Fish weights/lengths for scientific analyses	20,000	20,000	75,000	75,000	0	0
P104 - LRPs for SW Pacific marlin / billfish	31,000	31,000	0	0	0	0
P105 - Bomb radiocarbon age validation for BE / YF	97,980	97,980	0	0	0	0
P107 - SP blue shark assessment	20,000	20,000	0	0	0	0
P108 - WCPO silky shark assessment	0	0	100,000	0	50,000	50,000
P109 - Training observers for elasmobranch sampling	25,000	25,000	0	0	0	0
P17X1. Billfish Research Plan 2023 - 2027	0	0	0	0	55,000	0
P17X2. SWP Mako Shark SA	0	0	0	105,000	0	0
P17X3. Preparing WCP tuna fisheries for CKMR	0	0	0	40,000	0	0
P17X4. Ensemble model for presenting SA uncertainty	0	0	0	0	20,000	0
P17X5. Scientific Advice for SWP blue shark	0	0	0	40,000	0	0
Total, Sub-item 2.2	1,249,970	1,249,970	1,306,410	1,316,410	1,161,938	1,107,577
Total, Sub-item 2.1 & 2.2	2,192,985	2,192,985	2,268,285	2,278,285	2,143,050	2,108,311