



**SCIENTIFIC COMMITTEE
NINETEENTH REGULAR SESSION**

Koror, Palau
16 – 24 August 2023

INTERSESSIONAL ACTIVITIES OF THE SCIENTIFIC COMMITTEE

WCPFC-SC19-2023/GN-IP-02

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 SC18.

I. Summary Report of the 18th Regular Session of the Scientific Committee

2. The 18th Regular Session of the Scientific Committee was convened during 10-18 August 2022. This was the third-year virtual meeting due to continued travel restrictions from the COVID-19 pandemic. The Secretariat posted on the SC18 website the Outcomes Document on 29 August 2022 and intersessionally adopted Summary Report including the Executive Summary on 9 November 2022.

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 2023 scientific services in Annex 1 were co-signed by the SPC and the WCPFC on 24 February 2023 (**Attachment A**).

4. The SPC-OFP produced or was involved in producing around 65 papers and reports for SC19, covering all four theme issues of the SC plenary agenda, steering committee meetings, online discussion forum topics, and provided *ad hoc* advice and support throughout the year. In addition, the SPC-OFP led or assisted with the following activities:

- Participated in TCC18 (21-27 September 2022) and WCPFC19 (27 November – 3 December 2022), producing several additional key scientific papers and presentations for each meeting;
- Assisted the first Science-Management Dialogue, producing and presenting several documents on 19 and 22 August 2022;
- Convened a workshop for the peer review of 2020 yellowfin stock assessment during 7-13 September 2022;

- Hosted the 17th Tuna Data Workshop in Noumea, New Caledonia (17-21 April 2023) to assist compilation of CCM’s tuna fishery data;
- Hosted the Pre-assessment Workshop in Noumea, New Caledonia (25-28 April 2023) for 2023 yellowfin, bigeye, and silky shark assessments, harvest strategy development, MFCL development work, skipjack assessment follow-up work, tuna assessment research planning, and approaches for ensemble model development and characterizing uncertainty (Project 113);
- Provided technical assistance to the South Pacific Albacore Roadmap IWG meeting (5 May 2023);
- Provided technical assistance to the 1st Transshipment IWG meeting (17th May 2023);
- Participated in the 3rd Development of New WCPFC Tropical Tuna Measure Workshop (28-29 June 2023), producing several additional key scientific papers and presentations for the meeting;
- Conducted the Pacific Tuna Tagging Project (PTTP); coordinated the PTTP Cruise Planning Advisory Committee meeting (21 April 2023) and the 17th PTTP Steering Committee meeting (1 August 2023) electronically;
- Continued the Biological Sampling Programme and hosted the 5th WCPFC Pacific Marine Specimen Bank Steering Committee meeting (1 August 2023) electronically;
- Assisted the WPEA Tuna Data Review and Annual Tuna Catch Estimates Workshops hosted by the Project participating countries (Indonesia, Philippines and Vietnam) including participation in the new NSAP database roll-out in Philippines during 17 – 19 January 2023 and in-person WPEA-ITM Tri-Country data improvement and assessment capacity building Workshop (27 – 31 March 2023); 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.

III. Progress of the SC Work Programme Activities

5. The WCPFC19 approved 2023 SC budget is in **Attachment B**. SC work programmes conducted in 2022-2023 include, with Commission budgets in parenthesis:

- a) *Project 35b: WCPFC Pacific Marine Specimen Bank (\$ 105,268)*
The progress report of the Project 35b is posted on SC19 website ([SC19-RP-P35b-01](#)). The WCPFC Pacific Marine Specimen Bank project has been continued since 2016, and the 5th Steering Committee meeting will be held electronically on 1 August 2023. CCMs are invited to visit the PMSB website: <https://www.spc.int/ofp/PacificSpecimenBank>.
- b) *Project 42: Pacific-wide tagging project (\$ 730,000)*
WCPFC19 endorsed the 2023-2025 PTTP Work Plan, and allocated funding of \$730,000 for 2023. In 2022, the WP6 cruise released around 17,000 tags, of which 98% were skipjack tuna. These releases also included 630 fish injected with strontium chloride (SrCl₂) to support future growth studies and around 250 fish were sampled for the Pacific Marine Specimen Bank (PMSB). The main activity for 2023 includes CP16 cruise, tag seeding experiments, tag recovery and biological sampling ([SC19-RP-PTTP-01](#)). The 17th Steering Committee meeting will be held electronically on 1 August 2023.
- c) *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 review workshop was held on 7-13 September 2022 in Noumea, New Caledonia. The report for this project is in [SC19-SA-WP-01](#).
- d) *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 2022-2023 work are in [SC19-ST-IP-04](#).

- e) *Project 97b: Mid-Term Review of 2021-2025 Shark Research Plan (USD 30,000)*
The objective of this project is to review the WCPFC Scientific Committee’s 2021-2025 Shark Research Plan (Project 97). Final Report to evaluate progress against the plan and assess future needs for shark research relevant to the management of the WCPO shark stocks. The project results are in [SC19-EB-WP-06](#).
- 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 the EU and 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 [SC19-SA-WP-13](#).
- 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 final report for this project is in [SC18-SA-IP-14a](#).
- h) *Project 108: Silky Shark Stock Assessment in WCPO (USD 50,000)*
This project is designed to assess the stock status of silky sharks in the western Pacific Ocean using the most informative approach with respect to the available data. The assessment should assess the stock status against conventional stock assessment metrics as well as those suggested in the [WCPFC 2021-2025 Shark Research Plan \(SC16-EB-IP-01 rev1\)](#). The progress of this project is in [SC19-SA-WP-10](#).
- 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 [SC19-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 a no-cost extension requested of the EU until December 2025 being required as a result. This project will conduct trials of non-entangling and biodegradable drifting Fish Aggregation Devices in the WCPO. The progress of this project is detailed in [SC19-EB-WP-02](#).
- k) *Project 112: Billfish Research Plan 2023 – 2027(USD 55,000)*
This project aims to develop a WCPFC research plan focused on WCPFC billfish species including marlins, swordfish, sailfish and short-billed spearfish for the period 2023-2027. The project report is detailed in [SC19-SA-WP-16](#).
- l) *Project 113: Further development of ensemble model approaches for presenting stock assessment*

uncertainty (USD 30,000)

This project was developed to review and summarize the various approaches used for characterizing uncertainty in WCPFC stock assessments for tuna, billfish and sharks over the last 5 years. It is also expected to describe how uncertainty was communicated in the context of managing risks and its influence on decision-making processes used by the WCPFC. The project may also give comments on the suitability of the recent approaches to characterizing uncertainty for the management system, including the harvest strategy approach. The report for this project is detailed in [SC19-SA-WP-12](#).

- m) *Project 114: Improved Coverage of Cannery Receipt Data for WCPFC Scientific Work (USD 35,000)*
This is a 3-year project (from January 2023 through December 2025). This project's overarching objective is to improve the coverage of cannery receipt data through collaboration with relevant port state CCM authorities. The progress report of this project is detailed in [SC19-ST-IP-06](#).

- n) *Project 115: Exploring Evidence and Mechanisms for a Long-term Increasing Trend in Recruitment of Skipjack Tuna in the Equatorial Pacific and the Development and Modelling of Defensible Effort Creep Scenarios (USD 20,000)*

This project aims to conduct a review and analysis of relevant data and other information to explore the possibility, or otherwise, of an increasing trend in skipjack tuna recruitment in the equatorial Pacific since the late 1980s and to consider bottom-up, production-driven processes, and top-down, predation driven processes. It is also expected to develop plausible and defensible effort creep scenarios to apply to skipjack abundance indices, with a focus on pole-and-line indices and apply these in model runs of the 2022 skipjack diagnostic model. Noting the workloads of CCM partners, this project has been extended to be completed for SC20. The progress report of this project is in [SC19-SA-IP-05](#).

IV. Cooperation with other organizations

6. The Secretariat was represented at the following science-related meetings during the last 12 months:
- SPC Pre-Assessment Workshop, 25 – 28 April 2023, Noumea, New Caledonia;
 - SPC Tuna Data Workshop, 17 – 21 April 2023, Noumea, New Caledonia;
 - The 23rd ISC Plenary Meeting, 10 - 17 July 2023, Kanazawa, Japan; 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

7. In 2023, the Japanese Government through the Japan Trust Fund (JTF) gave a total budget of \$217,787, including WCPFC's 7.5% administration fee. Six project proposals were endorsed for 2023: two from Solomon Islands, one from Palau, and three from Tonga. The Steering Committee will review the progress of each project at the margins of SC19. Detailed progress is described in the JTF Status Report ([SC19-RP-JTF-01](#)).

West Pacific East Asia Project

8. 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 ([SC19-RP-WPEA-01](#)). The Project also conducted the *WPEA-ITM End of Project Gap Analysis* to inform the design and implementation of a possible future phase of support for improved tuna data monitoring in the WPEA countries participating in the project. This report is in [SC19-RP-WPEA-02](#).

VI. Voluntary Contributions from Members and Observers

9. Members and Observers of the Commission have voluntarily provided funding support for the scientific work of the Commission. The European Union has made available to WCPFC in December 2022 around EUR 320,000 to fund Project 100c: *Preparing western and central Pacific tuna fisheries for application of close-kin-mark-recapture methods to resolve key stock assessment uncertainties*. 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. Other Members and Observers such as New Zealand, USA, IATTC, CSIRO and ISSF also provided sufficient funds to Harvest Strategy work, Project 100c, Project 110, etc.

**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

Date: 23 February 2023

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

Date: 24 February 2023

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 2023 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 2023

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>I. Data management, statistical analyses and related services</i>				
i.	<i>Data Management</i>			
	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	

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)

	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 required • Continued update of the WCPFC Scientific Data Catalogue 	Mid-July, mid-September and mid-November	
ii.	<i>Compilation of catch and effort estimates</i>			
	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 provide an SC19 paper responding to the following SC18 recommendation: <i>Noting the inconsistency in the data reporting requirements between the Scientific Data to be Provided by the Commission (SciData), and other WCPFC reporting obligations (e.g., in CMMs), and the need to improve the data available for stock assessments, SC18 recommended that the Scientific Services Provider undertake a review of the minimum data reporting requirements and report to SC19 in 2023. SC18 requested CCMs to submit proposals for additional or amended data field, with associated justification, before 30th March 2023.</i>	SC papers	Mid-July	
	2) Provide draft guidance for SC19 consideration on how CCMs could provide operational catch and effort data to the Commission more frequently during the year, in particular, considering CCMs' implementation of data provision: <ul style="list-style-type: none"> a) within 30 days of the end of a trip and, where applicable, at the end of every transshipment at sea; and/or b) by 1 July and 31 December with available information for that calendar year. 	SC papers		
	3) 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	
	4) For catches for which estimates are not otherwise available, conduct statistical analyses to estimate catches, particularly regarding: <ul style="list-style-type: none"> a) purse-seine catches of bigeye, skipjack, and yellowfin tuna, b) discards of target tuna species, and 	SC papers	Mid-July	

	<p>c) noting the COVID-related impacts on observer coverage in the WCPO, where appropriate provide updates of catch estimates of non-target species, including estimate uncertainties (e.g., CVs) of bycatch for the longline fishery (Refer to Note 1 and 2 below):</p> <p><u>Note 1:</u> <i>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> • <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: 58. <i>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>			
iii.	<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.	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	
iv.	<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				
v.	<i>Target species stock assessments and auxiliary analyses</i>			
	1) Undertake the following work as the 2023 priority (Para. 393, SC18 Summary Report): a) Full assessment for the WCPO bigeye tuna and yellowfin tuna, incorporating key recommendations from the <i>Independent review of recent WCPO yellowfin tuna assessment</i> (SC19-SA-WP-01);	SC papers	Mid-July	

	<ul style="list-style-type: none"> b) Include or combine available information and updates on the impacts of climate change with status of stocks reporting (Paragraph 348, SC18 Summary Report) c) Initial work following up on skipjack assessment recommendations (paragraphs 17 – 22, SC18 Summary Report), and review of implications arising from 2022 yellowfin review; 			
	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	
vi.	<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				
vii.	<i>Conservation and Management Measure performance monitoring</i>			
	<ul style="list-style-type: none"> 1) WCPFC 19 agreed that the process to revise the TTM will be based on CMM 2021-01 and at least two workshops will be needed to make progress towards the adoption of a revised TTM in 2023. <ul style="list-style-type: none"> a) Provide analytical support to tropical tuna CMM discussions throughout the process for the revision of the TTM in 2023 (Attachment H, WCPFC19 Summary Report). 2) Provision of technical advice related to discussions on the options for a baseline of the Indonesia “large-fish” handline fishery under the TTM. 	SC / TCC/ WCPFC papers, and tables or figures as required	Mid-July, mid-September and mid-November	

viii.	<i>Development of Harvest Strategy Framework</i>			
	1) The Commission adopted the <i>Indicative Work Plan for the Adoption of Harvest Strategies under CMM 2014-06</i> at WCPFC19 (Attachment M, WCPFC19 Outcomes Document). a) Provide support and produce supporting documents to undertake the activities specified in the updated Workplan for consideration at SC19, TCC19 and WCPFC20.	SC / TCC / WCPFC papers as required	Mid-July, mid-September and mid-November	
	2) Conduct assigned roles for 2023 as specified in the CMM 2022-01 (<i>CMM on a Management Procedure for WCPO Skipjack Tuna</i>), mindful of any remaining requested work related to operating models and monitoring strategy noted in paragraphs 231, 232, and 262 of the SC18 Summary Report, to support SC and Commission consideration of the management procedure.	SC / TCC / WCPFC 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 South Pacific albacore, yellowfin and bigeye tuna.	SC papers as required		
ix.	<i>Ecosystem and Climate Indicators</i>			
	1) Provide specific workplans and a project proposal for the development and testing of “Ecosystem and Climate Indicators” for review and prioritization by the Scientific Committee in 2023.			
x.	<i>Analyses to support development of Conservation and Management Measures</i>			
	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 required	Jan - Dec	
4. Other advisory and technical services				
xi.	<i>Other advisory and technical services</i>			

	1) Provide support to continue Intersessional Working Groups for 2023, including the SP Albacore Roadmap IWG, noting SPA Roadmap IWG Workplan 2023 – 2026 (Attachment I, WCPFC19 Summary Report), and the FAD Management Options IWG including review of the effectiveness of paragraph 22 of CMM 2021-01 and other FAD related issues.			
	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 2023) and appropriate reporting on each as per individual contracts: <ul style="list-style-type: none"> • Project 35b: Maintenance of the WCPFC Pacific Marine Specimen Bank • Project 42: Pacific Tuna Tagging Program • Project 60: Improving Purse Seine Species Composition • Project 90: Fish weights/lengths for scientific analysis • Project 97b – Mid-term review of SRP • Project 108 – Silky shark stock assessment in the WCPO • Project 109 - Training observers for elasmobranch biological sampling • Project 110 - Non-entangling and biodegradable FADs • Project 112 – Billfish Research Plan • Project 114 – Improved Coverage of Cannery Receipt Data for WCPFC Scientific Work • Project 115 – Exploring Evidence and Mechanisms for a Long-term Increasing Trend in Recruitment of Skipjack Tuna in the Equatorial Pacific and the Development and Modelling of Defensible Effort Creep Scenarios 			
	2) Provide a “provisional” list of the SPC-OFP documents for SC19 to the WCPFC Secretariat (Science Manager) as early as possible but no later than by 30 April 2023 for the finalization of the SC19 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
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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 sessions, and computer support.	981,112
Providing essential computer support and software development for stock assessment ²		176,670
Total Commission funding		1,157,782

IV. Schedule for Payments and Bank Details for Payment

The schedule of payments shall be as follows:

28 February 2023 (or before)	USD 289,447
30 April 2023 (or before)	USD 289,445
30 June 2023 (or before)	USD 289,445
30 September 2023 (or before)	USD 289,445

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: 23 February 2023

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

Date: 24 February 2023

² Terms of reference for this resourcing includes, but is not limited to:

- 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; and
- Continue to implement a formal framework for management of MULTIFAN-CL code updates, testing new developments, training, and updating the users' guide.

WCPFC19 approved SC19 Budget (December 2022)

	Approved budget 2022	Estimated expenditure 2022	Indicative budget 2023	Approved budget 2023	Indicative budget 2024	Indicative budget 2025
Sub-item 2.1 Scientific Services (SPC)	961,875	961,875	981,112	981,112	1,000,734	1,020,749
Sub-item 2.2 Scientific Research						
Additional Resourcing SPC	173,206	173,206	176,670	176,670	180,204	183,808
P35b Maintenance of WCPFC Tissue Bank	103,204	103,204	105,268	105,268	107,373	109,520
P42 Pacific Tuna Tagging Project	730,000	730,000	730,000	730,000	730,000	730,000
P65 Peer review of stock modeling	50,000	37,882	0	0	0	0
P68 Estimation of Seabird Mortality	0	0	25,000	0	25,000	40,000
P90 Fish weights/lengths for scientific analyses	75,000	75,000			0	0
P108 - WCPO silky shark assessment	0	0	50,000	50,000	50,000	0
P111 (P17X2). SWP Mako Shark SA	105,000	105,000	0	0	0	0
P100c (P17X3). Preparing WCP tuna fisheries for CKMR	40,000	40,000	0	0	0	0
P107b (P17X5). Scientific Advice for SWP blue shark	40,000	40,000	0	0	0	0
P18X1 (P17X1) Billfish Research Plan 2023 - 2027	0	0	55,000	55,000	0	0
P18X2 (P17X4) Ensemble model SA uncertainty	0	0	20,000	30,000	0	0
P18X3 Improved coverage of cannery receipt data	0	0	0	35,000	60,000	35,000
P18X4 Evidence for increasing trend in SKJ rec.	0	0	0	20,000	0	0
P18X6 Pacific silky shark assessment	0	0	0	0	30,000	0
P18X7 Pacific whale shark assessment	0	0	0	0	85,000	0
P18X8 Shark Research Plan midterm review	0	0	0	30,000	0	0
Total, Sub-item 2.2	1,316,410	1,304,292	1,161,938	1,231,938	1,267,577	1,098,328
Total, Sub-item 2.1 & 2.2	2,278,285	2,266,167	2,143,050	2,213,050	2,268,311	2,119,077