



Nuku'alofa, Tonga
13 – 21 August 2025

PROVISIONAL ANNOTATED AGENDA

WCPFC-SC21-2025-03 (Rev.02)

AGENDA ITEM 1 OPENING OF THE MEETING

The meeting will commence at 8:30 AM on Wednesday, August 13, 2025.

1.1 Welcome address

The Chair will welcome delegations from WCPFC Members, Cooperating Non-Members, participating Territories (CCMs), and Observers to the Twenty-First Regular Session of the Scientific Committee (SC21).

A senior official from Tonga, the Commission Chair, the Executive Director, and the SC Chair will be invited to deliver an opening address.

1.2 Meeting arrangements

The Chair will outline procedural matters, including the meeting schedule, administrative arrangements, and the list of Theme Convenors.

Chair	Emily Crigler: emily.crigler@noaa.gov
Vice Chair	Vacant
ST Theme	Valerie Post: valerie.post@noaa.gov
SA Theme	Hidetada Kiyofuji: kiyofuji_hidetada20@fra.go.jp
	Berry Muller: bmuller@mimra.com
	Michelle Sculley: michelle.sculley@noaa.gov
MI Theme	Shuya Nakatsuka: nakatsuka_shuya49@fra.go.jp
EB Theme	Yonat Swimmer: yonat.swimmer@noaa.gov
	Leyla Knittweis: leyla.knittweis@mpi.govt.nz

Deadlines for submitting meeting papers via the [SC Document Submission System](#):

- 1) Annual Report – Part 1: due by 7 July 2025
- 2) Titles, abstracts, and justification for acceptance: due by 24 June 2025
- 3) Full papers: due by 14 July 2025

1.3 Issues arising from the Commission

SC21 will be briefed on issues arising from the previous meetings of the Commission and the Scientific Committee.

SC21-GN-IP-01	WCPFC Secretariat and SPC-OFP. Issues arising from the Commission
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1.4 Adoption of the agenda

The Provisional Agenda for SC21 was posted on 8 May 2025, in accordance with Rule 1 of the Commission's Rules of Procedure. Any Member of the Commission, the Chair, or the Executive Director may, at least 30 days before the opening of the Regular Session, request the inclusion of supplementary items in the Provisional Agenda. A request for the inclusion of a supplementary item in the Provisional Agenda shall be accompanied by a written explanation of the proposed supplementary item, which will be communicated to all CCMs and observers at least 20 days before the opening of the Session.

Other matters to be discussed under Agenda Item 12 may be proposed here.

1.5 Reporting arrangements

In accordance with Rule 33 of the Commission's Rules of Procedure, the Outcomes Document, containing the text of all decisions adopted by SC21, will be distributed to all members, territories, and observers within seven (7) working days of the adoption. The SC21 Summary Report will be adopted intersessionally.

A lead rapporteur will be hired to produce a DRAFT Summary Report, and the Theme Convenors will arrange their support rapporteurs as needed.

1.6 Intersessional activities of the Scientific Committee

The Chair, with support from the Secretariat, will report on SC's intersessional activities.

SC21-GN-IP-02	WCPFC Secretariat and SPC-OFP. Intersessional activities of the Scientific Committee
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AGENDA ITEM 2 REVIEW OF FISHERIES

2.1 Overview of Western and Central Pacific Ocean (WCPO) fisheries

The Pacific Community – Oceanic Fisheries Programme (SPC-OFP) and the Pacific Islands Forum Fisheries Agency (FFA) will present an overview of tuna fisheries in the Western and Central Pacific Ocean (WCPO), including economic conditions for 2024.

As recommended by SC14 (paragraph 119), analyses and projections of economic conditions in WCPO fisheries will be presented under this agenda item. SC21 will be invited to provide supplementary information, questions, and comments.

SC21-GN-WP-01	T. Vidal and T. Ruaia. Overview of tuna fisheries in the Western and Central Pacific Ocean, including economic conditions – 2024
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2.2 Overview of Eastern Pacific Ocean (EPO) fisheries

The Inter-American Tropical Tuna Commission (IATTC) will present an overview of the fisheries for highly migratory species in the EPO region. SC21 will be invited to provide supplementary information, questions, and comments.

SC21-GN-WP-02	IATTC. The Tuna Fishery in the Eastern Pacific Ocean in 2024
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2.3 Annual Report – Part 1 from Members, Cooperating Non-Members, and Participating Territories

All CCMs shall submit Part 1 of the Annual Report (the amended template is available at [SC-1](#) under Guidelines on the WCPFC website) via the dedicated SC21 paper submission webpage by 7 July 2025.

The submitted Part 1 reports are posted on the SC21 website. All annual reports are assumed to have been reviewed before the meeting. This agenda item is an opportunity for questions and clarifications ONLY concerning these reports.

2.4 Reports from regional fisheries bodies and other organizations

The deadline for submitting meeting documents, via the dedicated SC21 paper submission webpage, from regional fisheries bodies and other intergovernmental or non-governmental organizations is 14 July 2025. Organizations observing SC21 may deliver a brief presentation (up to 3 minutes) on key issues relevant to the Scientific Committee's work. To arrange a presentation, a 1–2 paragraph summary must be submitted to the Secretariat and coordinated with the Chair by the same deadline.

AGENDA ITEM 3 DATA AND STATISTICS THEME

3.1 Data gaps of the Commission

3.1.1 Report on the WCPFC scientific data

SSP will present *Scientific Data Available to the WCPFC* related to data gaps. SC21 will review several sources of data gaps, including historical and persistent data gaps, operational data coverage, incomplete data submissions, challenges in collecting size data, and limitations of observer coverage.

SC21 will review SSP's report and, where relevant, recommend actions to address any identified data gaps.

SC21-ST-WP-01	T. Vidal. Scientific data available to the Western and Central Pacific Fisheries Commission
SC21-ST-IP-01	SPC-OFP. Estimates of annual catches in the WCPFC statistical area
SC21-ST-IP-02	SPC-OFP. Coverage Levels for Operational Data Fields Submitted to the WCPFC

3.1.2 Reconciliation of size composition data for stock assessments (Project 127)

This two-year project aims to review and improve size data collection for WCPFC stock assessments by evaluating past and current methods, summarizing key changes, and providing guidance for stock assessment scientists. It will identify critical inadequacies or oversampling in sampling procedures and propose solutions for more consistent and reliable size composition data. Additionally, the project will address discrepancies in size data reported to WCPFC by working with relevant CCMs to enhance data accuracy and consistency.

SC21 will assess the progress report and provide recommendations if necessary. The final report will be presented at SC22.

SC21-ST-WP-02	P. Hamer, E. Schneiter, T. Vidal, P. Williams. Review and reconciliation of size data collected in the WCPFC-CA for stock assessment purposes (WCPFC Project: 127)
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3.1.3 Improving operational data evaluation and submission standards

SC21 will review progress made by the SSP in developing (i) gear-specific subsets of key species to refine the evaluation of operational data reporting, and (ii) a proposal for standardized data submission workflows, including templates and formatting guidelines. These efforts aim to address limitations in current evaluation methods, where all gear types are assumed to encounter all key species, and to enhance the efficiency, consistency, and accuracy of scientific data submissions to the Commission. These developments respond to recommendations from SC20 (paras 37 and 38, SC20 Summary Report) and are intended to support more realistic reporting assessments and streamlined data handling across CCMs.

SC21 will provide recommendations to the Commission on amending *Scientific Data to be provided to the Commission* (SciData) as needed.

SC21-ST-WP-03	T. Vidal. Proposed data standardization approaches for improved efficiency
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3.1.4 Better data on fish weights and lengths for scientific analyses (Project 90)

SC21 will review the progress of Project 90, which focuses on enhancing data collection and analysis related to fish weights and lengths for scientific analyses. The final project report is scheduled for submission to the Secretariat by the end of 2025. Several CCMs at SC20 commended Project 90's significant progress in collecting and analyzing conversion factor data, supported its continuation with dedicated funding, and prioritized tasks such as data collection through new

agreements, database updates, and refinement of analytical tools to enhance stock assessments. The Terms of Reference for Project 90 are available in document [SC20-GN-WP-06](#).

Based on the review, SC21 will provide recommendations to the Commission regarding the future direction of this project.

SC21-ST-IP-03	SPC-OFP. Project 90 update: Better Data on Fish Weights and Lengths for Scientific Analyses
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3.1.5 Improved coverage of cannery receipt data (Project 114)

Some members at SC20 have recognized Project 114 for its significant progress in enhancing the coverage of cannery receipt data, which contributed to accurate species composition analyses in purse seine fisheries. Some stakeholders have supported continued collaboration and expanding data collection efforts through bilateral arrangements to improve stock assessments and fishery monitoring within the WCPFC framework. Due to the remaining funds from restricted travel from Noumea in 2024, this project will continue until 30 September 2025. The TOR is available at [SC20-GN-WP-06](#).

SC21 will review Project 114's final report and provide further evaluations and future directions as needed.

SC21-ST-WP-04	T. Vidal, S. Gislard, J. Scutt Phillips, and T. Peatman. Project 114 Update: Progress in improving Cannery Receipt Data for WCPFC scientific work
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3.1.6 Minimum data reporting requirements

SC21 will review any proposals to improve data reporting requirements. SC20 and WCPFC21 requested SC21 to consider the following issues.

3.1.6.1 Proposal on sea turtle data reporting requirements for fishing operations

SC21 will consider a paper from the SSP outlining possible sea turtle data reporting requirements for longline and purse seine vessels. The proposal will aim to support the incorporation of these requirements into the annual *Scientific Data to be Provided to the Commission* (SciData), as requested by SC20. (*Paragraph 76, SC20 Summary Report*)

SC21-ST-WP-05	SPC-OFP. Strengthening Scientific Data Reporting to Support Sea Turtle Conservation (CMM 2018-04)
SC21-ST-WP-06	USA. Proposed process to review current reporting requirements and mitigation measures in CMM 2018-04 (sea turtle)

3.1.6.2 Development of a FAD Logbook

After reviewing [SC20-ST-WP-06](#) and [SC20-ST-IP-09](#), SC20 requested SSP to identify FAD data fields needed for scientific analyses and, as requested, SSP and the Secretariat prepared a paper for

TCC20 and FADMO-IWG outlining FAD data needs for WCPFC’s science, management, and monitoring work ([TCC20-2024-18](#)). (paras 77-78, SC20 Summary Report)

SC21 will review reports related to the FAD minimum data fields from the FADMO-IWG and provide feedback to the IWG to finalize the FAD logbook data fields.

SC21-ST-WP-07	FAD MO IWG Chair. Proposed Minimum FAD Logbook Data Fields to be Provided by Vessel Operators
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3.1.6.3 Reporting requirements for cetacean interaction

In response to the Commission’s tasking (para 669, WCPFC21 Summary Report), SC21 will review background information provided by the SSP and develop scientific advice for WCPFC22 on appropriate requirements for effective reporting of cetacean interactions in tuna and associated species fisheries. This work may include consideration of data types, collection methods, reporting formats, and alignment with SciData provisions to ensure robust and consistent monitoring across gear types, particularly in support of implementing CMM 2024-07 (*CMM for Protection of Cetaceans from Purse Seine and Longline Fishing Operations*) and enhancing cetacean interaction data from both longline and purse seine operations.

SC21 will review the SSP’s information and advise the Commission on effective reporting of cetacean interactions.

SC21-ST-WP-08	T. Vidal. Cetacean interaction data reporting requirements
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3.1.7 Bycatch estimates of the longline fishery

SC21 will revisit regional-scale bycatch estimates for the WCPFC longline fishery, following the previous review conducted at SC19. The earlier work, which covered the 2003–2021 period, provided modeled estimates for a wide range of bycatch groups, including finfish, billfish, sharks and rays, marine mammals, and sea turtles, based on available observer data. That analysis highlighted key limitations, including low and spatially imbalanced observer coverage (especially in the northwest Pacific), challenges in estimating gear configuration (such as hooks between floats), and difficulties modeling catch rates for rarely observed species. Nevertheless, the trends in catch rates were considered more informative than absolute catch numbers.

SC21 will review updated estimates and assess methodological improvements made since the previous iteration. These may include enhanced modeling techniques, improved integration of uncertainty (e.g., in gear deployment data), and expanded coverage of observer data, possibly including electronic monitoring. SC21 will provide recommendations on further work as needed.

SC21-ST-WP-09	T. Peatman and S. Nicol. Summary of bycatch in WCPFC longline fisheries at a regional scale, 2003-2023
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3.2 Further analysis of purse seine fishing behavior, reporting, and effort estimation

SC21 is invited to note that follow-up work by the SSP, in response to SC20’s request for further analysis on changes in purse seine fishing behaviour and their implications for estimating fishing

effort (para 88, SC20 Summary Report), was initially intended for review during SC21. However, in light of the anticipated workload and priorities in 2025, updates on this work will be deferred to SC22. Building on the findings of [SC20-ST-WP-03](#), the analysis will examine how evolving practices, such as increased reliance on instrumented FADs and shifting patterns in reported non-fishing activities, affect the accuracy of effort-based management. SC21 may provide suggestions to the SSP on additional analyses that may be required.

SC21-ST-IP-04	I. Tanangonan, M. Demo-os, J. Jara, J. Ferrer, R. Reslin and A. Dickson. Group Seine Operations of Philippine Flagged Vessels in High Seas Pocket Number 1 (HSP1)
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3.3 Regional Observer Programme

3.3.1 ROP Data Issues

SC21 will receive an update on the work of the IWG-ROP related to any improvements to ROP Minimum Data Fields, including more information on species of special interest, removal of redundant ROP data fields, modification to the FAD data fields, adding non-fish transfers to observer data fields to monitor transshipment and provide advice to TCC and Commission as needed.

SC21-ST-WP-10	ROP-IWG Chair. Update on ROP-IWG Taskings and Proposed Changes to ROP Minimum Standard Data Fields
SC21-ST-WP-10_suppl_01	WCPFC Secretariat. Consolidated document presenting current suggested amendments to the Minimum Standard Data Fields
SC21-ST-IP-05	A. Panizza, T. Vidal, C. Falasi, E. Loganimoce and E. Schneiter. Status of observer data management

3.3.2 Training observers for elasmobranch biological sampling (Project 109)

Project 109 has made steady progress in enhancing elasmobranch biological sampling by resuming face-to-face observer training following COVID-19 disruptions. The training includes integrating key shark species identification, biological sampling methods, and morphometric data collection into standard regional programs. A consultant has been selected through a competitive process to develop standardized shark sampling protocols and training materials, which were scheduled for completion and implementation in Pacific Islands Regional Fisheries Observer programme workshops by the end of 2024. However, due to the travel restrictions from Noumea in 2024, demonstration of the practical application of the method was deferred to 2025, with no cost extension of the Project to the end of September 2025.

SC21 will review the progress of Project 109 and provide necessary advice as needed to the Commission.

SC21-ST-IP-06	T. Park. Training observers for elasmobranch biological sampling (Project 109)
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3.4 Electronic Reporting and Electronic Monitoring

The Commission at WCPFC21 adopted the *Interim Electronic Monitoring Minimum Standards, covering Technical, Data and Reporting Requirements* (Attachment 17, WCPFC21 Summary Report) and *ER and EM IWG workplan* (Attachment 18, WCPFC21 Summary Report).

SC21 will receive an update from the ER&EM-IWG on a set of tasks identified by the ERandEM IWG workplan for 2025, aiming at enhancing electronic monitoring implementation across the WCPFC. The tasks include: (i) reviewing or developing standardized templates for Part 1 EM program reporting and related EM standards (2025-2026), (ii) considering potential updates to interim EM standards to promote harmonization across RFMOs, informed by the ABNJ Tuna II workshop in December 2024 (2025-2026), (iii) reviewing EM data requirements linked to CMMs not already covered by ROP minimum data fields (2025-2026), (iv) contributing to the design of an audit and assurance process for EM standards in longline fisheries (2025), and (v) initiating work on developing EM standards for carrier vessels conducting transshipments for longline vessels (2025).

SC21 will provide its review outcomes to the Commission to support the implementation and progress of the ER&EM IWG workplan.

SC21-ST-WP-11	USA. Proposal for joint work through the ROP and ER&EM IWGs
SC21-ST-WP-12	ISSF. Report of the Electronic Monitoring Minimum Standards Harmonization Workshop.

3.5 Fisheries and Resources Monitoring Systems (FIRMS) Partnership

FIRMS is a formal inter-agency information partnership, established in 2004 and coordinated by the FAO through its Fisheries Global Information System (FIGIS). It aims to provide authoritative, standardized information on the status and trends of global fishery resources and fisheries.

The Commission tasked SC21 with assessing the value of WCPFC joining the FIRMS Partnership and reporting back to WCPFC22 in 2025 (para 793, WCPFC21 Summary Report).

Noting the WCPFC21 tasking, SC21 will review and discuss any related materials and provide recommendations to the Commission for further consideration.

SC21-ST-WP-13	Secretariat and SPC. Assessment of the Value of WCPFC Joining the FIRMS Partnership
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3.6 Other ST issues

SC21 may consider any other issues that are not covered under the Data and Statistics Theme agenda items.

SC21-ST-IP-07	X. Li, Z. Geng, X. Dai, F. Wu, J. Zhu. Progress report of the research survey for 2024 by Chinese fishery research vessel "Song Hang" in the WCPFC area
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AGENDA ITEM 4 STOCK ASSESSMENT THEME

SC21-SA-IP-01	P. Hamer. Summary Report from the 2025 SPC Pre-assessment Workshop
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4.1 Improvement of MULTIFAN-CL software

4.1.1 Update of MULTIFAN-CL software

SC21 will note ongoing improvements to the MULTIFAN-CL software. It will briefly review these updates and provide comments as necessary.

SC21-SA-IP-02	N. Davies, F. Bouyé, and J. Hampton. Developments in the Multifan-CL software 2024-25
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4.1.2 Scoping the next generation of tuna stock assessment software (Project 123)

The 3-year Project 123 aims to evaluate features and capabilities that will be important in future tuna assessments, explore fitting models to tuna data using existing software platforms, guide decisions on the type of new software development required, and establish collaboration with tuna Regional Fisheries Management Organizations (RFMOs) and research labs to achieve these goals.

At SC20, ISG-09 reviewed the scoping of next-generation tuna stock assessment software and supported prioritizing practical tasks, including transitioning swordfish and striped marlin assessments to Stock Synthesis and testing simplified models for yellowfin tuna. Members acknowledged the need to focus on immediate assessment priorities while keeping longer-term software development under consideration, depending on available resources and capacity. (Attachment E, SC20 Summary Report).

SC21 will review the progress of Project 123, which explores the transition to next-generation stock assessment software for tuna fisheries. The project report may include i) evaluating the benefits, limitations, uncertainties, and resource implications associated with each software platform under consideration; ii) assessing the feasibility of analyzing tagging data independently from the main stock assessment models, a potential strategy to reduce model complexity while maintaining scientific robustness; and iii) identifying key analytical features and technical capabilities that future stock assessment platforms should incorporate, such as support for spatial structure, tagging integration, and flexibility for multi-species and multi-fleet assessments, to ensure that WCPFC assessments remain scientifically credible, transparent, and adaptable to evolving fishery and management needs.

SC21 will provide feedback on the progress of the project as needed.

SC21-SA-WP-01	A. Magnusson, N. Davies, G. Pilling, and P. Hamer. Project 123: Scoping the next generation of tuna stock assessment software
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4.2 Template for reporting stock assessment outcomes (Project 113b)

SC20 recommended a template for *Consistent Reporting of Stock Assessment Outcomes, Uncertainties and Risk* (Attachment F, SC20 Summary Report), and the Commission endorsed the template as a guideline, providing the following advice (para 206, WCPFC21 Summary Report):

- Include MSY-based reference points in the template if calculable and useful.
- Correct overfished status reference to LRP ($20\%SB_{F=0}$).
- Revise the overfishing reference to F_{MSY} .

SC21 will review the Commission's advice above and finalize the template for applying to the *Provision of scientific information to the Commission* section under each stock assessment agenda item.

4.3 WCPO Tunas

4.3.1 WCPO skipjack tuna (*Katsuwonus pelamis*)

4.3.1.1 Skipjack stock assessment

The last stock assessment was conducted in 2022, but SC18 in 2022 did not achieve a consensus on the management advice for skipjack tuna in the WCPO and provided technical recommendations for future assessment (paragraphs 103-108, SC18 Summary Report). SC19 reviewed *Follow-up work on 2022 skipjack assessment recommendations* (SC19-SA-WP-07) and provided advice for further improvement (287-293, SC19 Summary Report)

SC21 will review the results of the 2025 skipjack tuna stock assessment, building upon recommendations from SC20 (paragraphs 203 – 206, SC20 Summary Report) and addressing outstanding issues from the 2022 assessment. The review will evaluate improvements in natural mortality and reproductive biology parameters, including new insights into age estimation using otolith analysis and radiocarbon validation, updated fecundity-at-size relationships, and spatial variability in growth. SC21 will also consider the latest CPUE index refinements, including adjustments for preferential sampling, effort creep, and regionally scaled indices, as well as enhancements to tagging data integration, particularly through spatial-temporal modeling and tag-mixing analyses. Emphasis will be placed on evaluating the impacts of effort creep on depletion and recruitment trajectories and on the application of orthogonal polynomial recruitment methods to better capture variability across years, regions, and seasons.

SC21 will provide scientific advice on model structure, uncertainty characterization, and future stock assessment strategies.

SC21-SA-WP-02	T Teears. WCPO skipjack tuna stock assessment
SC21-SA-IP-03	T. Teears, M. Ghergariu, T. Peatman, B. Pohl, J. Scutt Phillips, J. Hampton. Background Analyses and Data Inputs for the 2025 WCPO skipjack tuna Stock Assessment
SC21-SA-IP-04	Y. Aoki, N. Matsubara, Y. Tsuda, M. Nishimoto, and H. Kiyofuji. Japanese data update: Tagging, Size and Biological information
SC21-SA-IP-05	M. Nishimoto, Y. Aoki, N. Matsubara, Y. Tsuda, H. Kiyofuji, T. Teears, N. Yao, P. Hamer. Japanese pole-and-line CPUE standardization using sdmTMB for skipjack tuna stock assessment

SC21-SA-IP-06	T. Peatman , J. Scutt Phillips and S. Nicol. Analysis of tagging data for the 2025 skipjack assessment: corrections to tag releases for tagging conditions
SC21-SA-IP-07	T. Peatman , S. Gislar , J. Scutt Phillips, J. Potts, and S. Nicol. Analysis of tag seeding data for the 2025 skipjack assessment: reporting rates for purse seine fleets

4.3.1.2 Provision of scientific information to the Commission

- a. Stock assessment and trends
- b. Stock status
- c. Management advice

4.3.2 Other WCPO tunas

SC21-SA-IP-08	K. Okamoto, K. Kumon , T. Eba, T. Hasegawa, K. Satoh and H. Ijima. Verification of annulus formation in the otoliths of captive yellowfin tuna in the WCPO
SC21-SA-IP-20	Senina I., Bonnin, L., Lengaigne, M., Kiyofuji, H., Buenafe, K., Fuller, D., and S. Nicol. Reference Model of Skipjack Tuna in the Pacific Ocean Using SEAPODYM Integrating Catch, Length, Tagging, and Early Life History Data
SC21-SA-IP-21	Romain Forestier, Lucas Bonnin, Inna Senina, Tiffany Vidal, Marc Ghergariu, Simon Nicol. A comprehensive method to integrate unbiased fisheries data in spatially-explicit population dynamics models

4.3.2.1 Indicator analysis

An indicator paper provides empirical information on recent patterns in fisheries for all 'key' target tuna species (skipjack, bigeye, yellowfin, and South Pacific albacore tuna) for those years when a stock assessment is not conducted. The paper includes explanatory details for the figures and a brief interpretation of the trends rationalizing the content of the indicators paper to minimize duplication with *Overview of tuna fisheries in the WCPO* (SC21-GN-WP-01), noting that short-term projections as the most useful component and non-standardized CPUE data should be retained (*para. 210, SC20 Summary Report and para. 17, WCPFC21 Outcomes Document*).

SC21 will review the bigeye, yellowfin, and SP albacore tuna indicator analyses and provide comments or questions.

SC21-SA-WP-03	P. Hamer. A compendium of fisheries indicators for target tuna stocks in the WCPFC Convention Area
SC21-SA-IP-09	P. Hamer. Trends in the South Pacific albacore longline and troll fisheries

4.3.2.2 Updated reproductive biology of tropical tunas (Project 120)

Estimating spawning potential remains a key challenge for WCPFC tropical tuna assessments due to the limited availability of biological data, especially for bigeye and skipjack tuna. SC19

supported an EU-funded study initially on yellowfin, later expanded to bigeye and skipjack tuna, with WCPFC20 approving USD 44,000 co-funding toward the EUR 200,000 project starting in January 2024 and concluding with a final report in August 2026. Project TOR is available at [SC20-GN-WP-06](#).

SC21 will review the project's progress and provide guidance as needed for further activities.

SC21-SA-IP-10	S. Gislard, J. Scutt Phillips, J. Farley and S. Nicol. Project 120: Progress report on Reproductive Biology of WCPO Yellowfin Tuna
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4.4 Northern stocks

Annex I of the Commission's Rules of Procedure defines 'northern stocks' to be 'stocks which occur mostly in the area north of 20° north parallel' and currently are 'northern Pacific bluefin¹, northern albacore² and the northern stock of swordfish³'.

4.4.1 Provision of scientific information from the ISC

Following the MOU between WCPFC and ISC⁴, the ISC's scientific information and advice will be presented at the annual meetings of the Scientific Committee. The ISC Chair, or their designated representative, will be invited to brief SC21 on ISC's activities since SC20, including the stock status and conservation information for ISC species, as well as future plans.

SC21-SA-WP-04	ISC Plenary. Report of the 25th Meeting of the International Scientific Committee for Tuna and Tuna-like Species in the North Pacific Ocean
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4.4.2 Pacific bluefin tuna (*Thunnus orientalis*)

4.4.2.1 Research on migratory patterns

The Commission requested the Northern Committee to task the ISC with undertaking research into migratory patterns of PBF (para 178, WCPFC21 Report). SC21 will note the progress of the Commission's request from the ISC.

4.5 Billfish

4.5.1 Southwest Pacific swordfish (*Xiphias gladius*)

4.5.1.1 Stock assessment of Southwest Pacific swordfish

¹ Pacific bluefin tuna

² North Pacific albacore

³ North Pacific swordfish

⁴ International Scientific Committee for Tuna and Tuna-like Species in the North Pacific Ocean

The most recent swordfish stock assessment was conducted in 2021 and follows a four-year cycle. SC21 will review the 2025 stock assessment for Southwest Pacific swordfish, converting it to the Stock Synthesis platform and focusing on key issues such as spatial structure, regional stratification, CPUE series selection, and size composition data.

SC21-SA-WP-05	J. Day. Stock assessment of Southwest Pacific swordfish
SC21-SA-IP-11	B. Finucci, B.R. Moore, and Leyla Knittweis. Characterisation and CPUE indices for swordfish (<i>Xiphias gladius</i>) from the New Zealand surface longline fishery 1993 to 2023
SC21-SA-IP-12	K. Kim. Analysis of swordfish CPUE from the Spanish fleet in the southwest Pacific Ocean
SC21-SA-IP-13	P. Neubauer, C. Castillo-Jordán, J. Day and P. Hamer Exploring the potential for observer CPUE for southwest Pacific swordfish (<i>Xiphias gladius</i>) and striped marlin (<i>Kajikia audax</i>)
SC21-SA-IP-14	T. Peatman, J. Day, C. Castillo Jordan and P. Hamer. Analysis of longline size frequency data for the 2025 southwest Pacific swordfish and striped marlin assessments

4.5.1.2 Provision of scientific information to the Commission

- a. Stock assessment and trends
- b. Stock status
- c. Management advice

4.5.2 Southwest Pacific striped marlin (*Kajikia audax*)

4.5.2.1 Stock assessment of Southwest Pacific striped marlin

In 2024, SSP conducted an assessment of the Southwest Pacific striped marlin and highlighted serious concerns regarding the technical aspects of the assessment. Noting these concerns, SC20 recommended that further work, including resolving the conflict between the size composition data and the CPUE indices, should be undertaken as part of a revision to the assessment for consideration at SC21 (paras 248-249, SC20 Summary Report). SC21 will review the updated assessment conducted using the Stock Synthesis model and provide recommendations to the Commission. Future projection scenarios will be covered under the Management Issues theme.

SC21-SA-WP-06	C. Castillo Jordan. Revised 2024 stock assessment of striped marlin in the southwestern Pacific Ocean: Part 1- integrated assessment in Stock Synthesis
SC21-SA-WP-07	N. Ducharme-Barth. 2025 Stock Assessment of Striped Marlin in the Southwest Pacific Ocean: Part II – Bayesian Surplus Production Model
SC21-SA-IP-15	N. Ducharme-Barth, C. Castillo-Jordán, M. Sculley, R. Ahrens, F. Carvalho. Summary report from the NOAA-SPC assessment model meeting on SWPO striped marlin

4.5.2.2 Provision of scientific information to the Commission

SC21 will review the revised stock assessment results and the projection scenario outputs and

provide the Commission with the following information.

- a. Stock assessment and trends
- b. Stock status
- c. Management advice

4.6 Sharks

4.6.1 Oceanic whitetip shark (*Carcharhinus longimanus*)

4.6.1.1 Oceanic whitetip shark stock assessment (Project 124)

SC21 will review the results of the oceanic whitetip shark stock assessment, building on the Phase 1 outcomes endorsed by SC20, which included data compilation, fishery characterization, and catch reconstruction. The assessment now includes updated longline catch and abundance indices based on recent observer data, and applies both an integrated model (Stock Synthesis) and a dynamic surplus production model, as recommended.

SC21 will assess key elements, including the treatment of time-varying release mortality, parameter specifications (such as stock-recruit relationships), the incorporation of fate modeling, and the sensitivity of length-frequency data modeling. Additional focus will be placed on refining CPUE indices, addressing data gaps (e.g., right-tail sensitivity), and evaluating uncertainty in population estimates from earlier time periods.

SC21 will provide scientific advice on model results and assumptions, confirm a base case model for 2025, and consider the use of alternative formulations and historical data to improve stock size estimation and projections.

SC21-SA-WP-08	P. Neubauer and K. Large. Stock Assessment of Oceanic Whitetip Shark in the Western and Central Pacific Ocean 2025 (Project 124)
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4.6.1.2 Provision of scientific information to the Commission

- a. Stock assessment and trends
- b. Stock status
- c. Management advice

4.7 Projects and Requests

4.7.1 Application of Close-Kin-Mark-Recapture methods (Project 100c)

Under the EU-funded, 3-year Project 100c (*Preparing WCP tuna fisheries for application of CKMR methods to resolve key stock assessment uncertainties, 2023-2025*), SC20 reviewed the CKMR feasibility and design study for South Pacific albacore and recognized the capability of regional sampling teams to collect up to 84,000 tissue samples over three years for CKMR analysis in South Pacific albacore stock assessments. SC20 recommended that the SSP consider follow-up studies on South Pacific albacore to improve CKMR analyses, including finer-scale sampling, potential multiple stocks, data integration, and factors influencing population structure.

SC21 will review progress made to date, including implementation of SOPs and the collection of 10,000–15,000 tissue samples in 2025, and provide guidance on the future application of CKMR in stock assessment frameworks.

SC21-SA-WP-09	G. Anderson. Project 100c: Progress towards a Close-Kin-Mark-Recapture application to South Pacific Albacore
SC21-SA-WP-10	G. Anderson. Evaluation of population genetics and connectivity of albacore tuna in the Western and Central Pacific Ocean to underpin sampling design and marker development for close-kin mark-recapture (CKMR)
SC21-SA-WP-14	G. Anderson. Close-Kin Mark-Recapture of South Pacific Albacore: a proof of concept for application in WCPFC tuna and associated species

4.7.2 Longline effort creep and CPUE index collaboration across Tuna-RFMOs (Project 122a)

Effort creep in longline fisheries can lead to overestimating stock abundance and underestimating fishing pressure, resulting in inaccurate assessments, flawed management decisions, and ineffective conservation measures. Project 122 (*Scoping study on longline effort creep in the WCPO*) intended to review existing research on effort creep, particularly in longline and other relevant fisheries, to summarize investigative methods, assess the relevance of published scenarios to WCPO longline fleets, and evaluate how effort creep has been incorporated into stock assessment models. SC20 recommended a no-cost extension of this work to Project 122a (*Extending the scoping study on longline effort creep in the WCPO to enable cross tuna RFMO collaboration and broader discussion on CPUE abundance index development*) to continue this work (para 372, SC20 Summary Report). To this end, the project will engage with DWFNs and the industry on effort creep and technology trends, initiate collaboration with tRFMOs on joint CPUE analysis planning, and explore funding opportunities to support inter-tRFMO efforts.

SC21 will review the results of this scoping study and provide further guidance or recommendations to improve the CPUE index.

SC21-SA-IP-16	P Hamer and M. Maunder. Project 122: Progress report on the scoping study on longline effort creep in the WCPO
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4.7.3 Biology from billfish in longline fisheries (Project 125)

This four-year project aims to collect biological samples from billfish (South Pacific striped marlin, blue marlin, black marlin, shortbill spearfish, and sailfish) in the WCPO longline fisheries and analyze them to estimate growth and maturity. Annual project updates will be presented at SC from 2025 to 2028, with a final report in 2028.

SC21 will review the progress report and provide advice as needed.

SC21-SA-WP-11	TBC. Project 125: Billfish biology
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4.7.4 Developing sampling strategy for sharks (Project 126)

Biological data is crucial for integrated and data-limited stock assessments, but current shark sampling in the Pacific is spatially limited and may not represent full population structures. The ISC's International Billfish Biological Sampling (IBBS) program for North Pacific billfish (Kinney et al., 2023) addresses this by collecting data for robust biological parameters and assessing spatial variations. This project should replicate that approach for WCPO sharks to improve sample collection and biological understanding, including growth and maturity estimates.

SC21 will review the project's outcomes and provide recommendations for future data collection.

SC21-SA-WP-12	TBC. Project 126: Optimised sampling for shark biological data collection
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4.7.5 Stock connectivity scoping study (Project 128)

This project aims to assess the feasibility of investigating stock connectivity for yellowfin and skipjack tuna, with a focus on Region 2 (yellowfin) and Region 5 (skipjack) in the western Pacific and East Asia and their linkages to the broader WCPFC Convention Area. At SC20, the importance of reducing uncertainty in stock assessments and improving CMMs was emphasized, particularly through a better understanding of the biological distinctness and unique characteristics of these regions. Project 128 delivers a comprehensive project proposal outlining the sampling framework, methodologies, regional capacity, and estimated costs for future tissue-based genetic studies.

SC21 will review the proposed terms of reference, overall project budget, implementing agency, and how project outcomes can inform the 2028 skipjack and 2029 yellowfin stock assessments, as well as ongoing harvest strategy development.

SC21-SA-WP-13	CSIRO, Indonesia, Philippines, Vietnam, and SPC. Understanding connectivity of key tuna species in the Western Pacific and East Asia region with the WCPFC Convention Area: results of Project 128
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4.7.6 Research Plan Update

SC21 will review the progress of the following research plans and provide recommendations for any plan updates.

4.7.6.1 Tuna Assessment Research Plan (2023 – 2026) annual update

SC21 notes that research recommendations in Para 262⁵ of the SC19 Summary Report were suggested to be included in the Tuna Assessment Research Plan.

SC21-SA-IP-17	G Pilling, P. Hamer and S. Nicol. Tuna Assessment Research Plan (TARP) for 'Key' Tuna Species Assessments in the WCPO, 2025-2028
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⁵ SC19 adopted several research recommendations for the further development and improvement of the WCPO bigeye tuna stock assessment and suggested these be considered for potential inclusion in the Tuna Assessment Research Plan (TARP): (14 research items listed under paragraph 262.)

4.7.6.2 Billfish Research Plan (2023 – 2030) annual update

SC21 will review the Billfish Research Plan with annual updates.

SC21-SA-IP-18	S Brouwer and P. Hamer. Progress against the 2023-2030 Billfish Research Plan - 2025
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4.7.6.3 Shark Research Plan 2021-2030 annual updates

SC21 will review the Shark Research Plan 2021-2030 with annual updates.

SC21-SA-IP-19	S Brouwer and P. Hamer. Progress against the 2021-2030 Shark Research Plan - 2025
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4.7.6.4 WCPFC tuna biological sampling plan (Project 117)

SC21 will review SSP's tuna biological sampling plan and endorse the plan as needed.

SC21-SA-WP-15	T. Peatman, J. Scutt Phillips, J. Potts and S. Nicol. WCPFC projects 117 & 118: the development of biological sampling plans for tuna and billfish
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4.7.6.5 WCPFC billfish biological sampling plan (Project 118)

SC21 will review SSP's billfish biological sampling plan and endorse the plan as needed.

SC21-SA-WP-15	T. Peatman, J. Scutt Phillips, J. Potts and S. Nicol. WCPFC projects 117 & 118: the development of biological sampling plans for tuna and billfish
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4.8 Other SA issues

SC21 may consider any other issues that are not covered under the Stock Assessment Theme agenda items.

AGENDA ITEM 5 MANAGEMENT ISSUES THEME

5.1 Development of the WCPFC harvest strategy framework for key tuna species

SC21 will note the following key updates to the *Indicative Workplan for the Adoption of Harvest Strategies under CMM-2022-03* (see Attachment 16, WCPFC21 Outcomes Document). In the Workplan, WCPFC21 agreed to the following in 2025:

- South Pacific albacore: Operating models and MSE developed; adoption of a management procedure in 2025.
- Bigeye tuna: Three candidate TRPs (32%, 34%, and 36% $SB_{F=0}$) have been endorsed for further evaluation; the adoption of the TRP and MP may be deferred to 2026.
- Skipjack tuna: The monitoring strategy was finalized.

- Yellowfin tuna: MSE operating model development has been deferred to 2026.
- General: Capacity-building workshops held; the 2nd Science-Management Dialogue supported; 2025 workplan prioritizes South Pacific albacore and skipjack.

SC21-MI-IP-01	N. Yao, I. Lynn, R. Scott, F. Scott, M. Wickens, and G. Pilling. Capacity building and stakeholder consultation - 2025 update
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5.1.1 Skipjack tuna

5.1.1.1 Skipjack tuna management procedure

SC21 will review the outcomes of a re-evaluation of the estimation method (EM) used in the interim Skipjack Tuna Management Procedure (MP), as provided for under CMM 2022-01. SC20 noted that the performance of the MP is scheduled for review in 2025 and that WCPFC20 recognized the potential need to re-evaluate the EM before the MP is next implemented.

SC20 recommended that the SSP examine two specific approaches to modifying the EM, while retaining the current operating model grid and harvest control rule (para 401, SC20 Summary Report):

- Modification of tropical CPUE abundance indices in the existing estimation method along the lines of the approach taken using unassociated set purse seine CPUE data by the 2022 stock assessment.*
- Further investigation of alternative stock assessment platforms and modelling approaches.*

Based on the re-evaluation, SC21 will provide recommendations to WCPFC22 on whether the interim skipjack MP should be revised.

SC21-MI-WP-01	N. Yao, M. Nishimoto, T. Teears, Y. Aoki, R. Scott, F. Scott, M. Wickens, G. Pilling. Skipjack MP estimation method analysis: P&L CPUE
SC21-MI-WP-02	R. Scott, F. Scott, N. Yao, M. Wickens, G. Pilling. Impacts of FAD closure duration on the skipjack MP
SC21-MI-IP-02	P. Hamer, T. Teears, and PNAO. Examining Indicators of Effort Creep in the WCPO Purse Seine Fishery: 2025 report

5.1.1.2 Monitoring strategy for skipjack tuna

SC21 will review progress on the ongoing refinement of the monitoring strategy for the skipjack tuna Management Procedure (paras 452-455, SC20 Summary Report). SC20 requested that the SSP conduct targeted analyses to:

- Evaluate whether changes in the FAD closure duration (as adopted in CMM 2023-01) will affect the performance of the interim MP;*
- Representativeness and appropriateness of candidate CPUEs for use in MP.*

To improve the transparency and responsiveness of the monitoring strategy, SC20 recommended that in years without a stock assessment, the Scientific Committee could review the monitoring strategy and provide feedback through the Online Discussion Forum. In addition, SC21 may review

several other issues in Tables 1 and 2 of the *WCPFC Skipjack Tuna Monitoring Strategy Report* (Attachment 15, WCPFC21 Summary Report), including reviewing the performance of the MP with potential exceptional circumstances. The Commission also encouraged ongoing work to consider climate change impacts within the skipjack MP operating model grid (para 356, WCPFC21 Summary Report).

Based on its review and findings, SC21 will provide recommendations to the Commission on the potential need to revise the current interim skipjack MP in CMM 2022-01.

SC21-MI-WP-03	R. Scott. Skipjack monitoring strategy
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5.1.2 South Pacific albacore tuna

5.1.2.1 South Pacific albacore management procedure

SC21 notes that WCPFC21 reviewed [WCPFC21-2024-DP11_Rev01](#) (*Proposed Conservation and Management Measure on a Management Procedure for South Pacific Albacore*) and [WCPFC21-2024-DP12_Rev01](#) (*Draft Outline for a South Pacific Albacore CMM that Implements the Management Procedure*), which may be further refined for possible adoption at WCPFC22 in 2025.

The SSP provided a note on the modelling approach for South Pacific albacore harvest strategies ([WCPFC Circular 2025-17](#)). SC21 will review the revised modelling approach for the South Pacific albacore management procedure, evaluate the implications of the mixed fishery framework, and provide feedback on catch assumption scenarios (robustness set) and coordination with the bigeye management procedure.

SC21 will provide advice to the Commission on the performance of candidate management procedures for adoption at WCPFC22.

SC21-MI-WP-04	F. Scott, R. Scott, M. Wickens and N. Yao. South Pacific Albacore: MP evaluations
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5.1.2.2 Joint WCPFC/IATTC Working Group for South Pacific Albacore

~~SC21 notes that the Commission agreed in principle to establish a Joint Working Group (JWG) for South Pacific albacore and endorsed the framework in WCPFC21-2024-DP14b as a guide. According to the guide, the US will draft the JWG terms of reference for review by both IATTC and WCPFC. At the same time, the WCPFC Secretariat, in collaboration with the WCPFC Chair, will develop a workplan and timeline and ensure stakeholders are kept informed. (paras 735-738, WCPFC21 Summary Report).~~

~~SC21 will review the draft Terms of Reference (TOR) and provide advice and suggestions as needed to the Commission, noting the SC's role in contributing scientific input to help refine the scope of the JWG, identify key scientific issues, and ensure that the TOR aligns with scientific priorities for the management of South Pacific albacore.~~

In response to a request from the Commission on the Secretariat's support to SSP's genetic sampling of SP albacore in the southern IATTC area (para 466, WCPFC21 Summary Report), SSP noted that they are in a position to renew a recently expired MOU between SPC and IATTC that would allow the two agencies to collaborate on projects of mutual interest.

5.1.2.3 Updates on SP Albacore Roadmap IWG

The IWG Chair will provide a brief on the outcomes of the SP Albacore Roadmap IWG work, noting that a dedicated *South Pacific Albacore Management Workshop* (SPAM-WS) will be held between SC21 and TCC21 (para 713, WCPFC21 Summary Report). SC21 will review and respond to any requests from the IWG.

713. The Commission agreed to hold South Pacific albacore management workshops in 2025 focused on:

- a. *South Pacific albacore management procedures.*
- b. *South Pacific albacore management arrangement for implementing the management procedure.*
- c. *Mixed fishery issues including ensuring compatibility between the bigeye and South Pacific Albacore management procedures.*

5.1.3 Bigeye tuna

5.1.3.1 Bigeye operating models

Based on the bigeye tuna harvest strategy work plan ([WCPFC21-2024-DD15 Rev01](#)), SC21 will review and endorse the grid of operating models (comprising the reference set and robustness set) designed to capture key sources of uncertainty and plausible states of nature for bigeye tuna. These models will be used in the management strategy evaluation.

SC21-MI-WP-05	R. Scott. BET operating models
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5.1.3.2 Bigeye management procedure – design

SC21 will review the proposed design of the bigeye tuna management procedure, including the structure of candidate harvest control rules and estimation model options. SC21 will provide recommendations to the Commission, noting that adoption of the MP may be deferred to 2026 due to the SSP's workload and capacity constraints in 2025.

SC21-MI-WP-06	M. Wickens. Bigeye tuna: Management Procedure Design
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5.1.3.3 Bigeye Target Reference Points and Performance Evaluation of Candidate Management Procedures

As part of the sequenced approach endorsed by the Commission, which prioritizes the development of a harvest strategy for bigeye tuna before addressing yellowfin, SC21 will review three candidate TRPs based on 2012–2015 average spawning biomass depletion levels 34%, 32%, and 36% $SB_{F=0}$ (paras. 432–436, WCPFC21 Summary Report). These candidate TRPs are to be integrated into candidate MPs and evaluated through the MSE framework.

SC21 will assess:

- The sensitivity of the candidate TRPs by testing alternative fishing levels and considering recent fishing conditions in Region 2;
- The performance of candidate MPs against agreed performance indicators;
- The technical aspects of estimation model options and HCR designs, in line with the harvest strategy work plan.

SC21 will provide scientific advice to the Commission, including recommendations on the most appropriate TRP for bigeye tuna and the most robust and effective candidate MP(s) for consideration and further refinement.

SC21-MI-WP-07	R. Scott. Bigeye tuna MP evaluations
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5.1.4 Mixed fishery MSE framework

Considering the SSP's note on the modelling approach for South Pacific albacore harvest strategies ([WCPFC Circular 2025-17](#)), SC21 will review updates from the SSP on developing the mixed fishery modeling framework and future work plan and provide advice as needed for further development.

SC21-MI-WP-08	F. Scott. Yellowfin tuna: preliminary evaluations under the mixed fishery harvest strategy design.
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5.1.5 Progress of the WCPFC Harvest Strategy Work Plan

Considering the progress of developing the harvest strategy framework along with the [Indicative Work Plan for the Adoption of Harvest Strategy Under CMM 2022-03](#), SC21 will advise the Commission of further updates to the work plan as needed.

SC21-MI-WP-10	J. Larcombe and G. Pilling. Wider Issues for Consideration within the Harvest Strategy Workplan Review
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5.2 Pacific bluefin tuna management strategy evaluation

The ISC will present the PBF MSE results. SC21 will review the PBF MSE, taking into consideration the discussions from JWG10 and NC21, and provide advice as needed.

SC21-MI-WP-09	ISC PBFWG. Report of the Pacific Bluefin Tuna Management Strategy Evaluation
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5.3 Southwest Pacific striped marlin – management projections

WCPFC21 requested that the SSP prepare for SC21 a tractable set of projections from the next South Pacific Striped Marlin stock assessment that represent the following scenarios (paras 242 and 254, SC20 Summary Report; para 207, WCPFC21 Summary Report):

- a. Status quo scenario: Projection based on recent catch levels;

- b. Recovery scenario 1: Projection using catch levels that result to a median depletion of 20% by 2034;
- c. Recovery scenario 2: Projection using catch levels that result to a median depletion of 30% by 2034;
- d. Recovery scenario 3: Projection using catch levels that result in a median depletion equal to SB_{MSY} by 2034; and
- e. Non-retention/live release scenario: Projection using catch levels that reflect the likely outcomes under a management measure requiring release of live animals or non-retention of all animals.

5.4 North Pacific striped marlin projections

The Commission adopted Conservation and Management Measure for the North Pacific Striped Marlin (CMM 2024-06). The Commission tasked the ISC in 2025 to conduct updated projections for North Pacific striped marlin, incorporating the catch allocations described in paragraph 5 of CMM 2024-06. These projections should evaluate whether the adopted allocations are consistent with achieving the rebuilding target outlined in the rebuilding plan (para 652, WCPFC21 Summary Report).

SC21 will review the ISC's updated projections and provide advice to the Commission.

SC21-SA-WP-04	ISC BILLWG. North Pacific striped marlin projections (Included in SC21-SA-WP-04: Report of the 25th Meeting of the International Scientific Committee for Tuna and Tuna-like Species in the North Pacific Ocean)
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5.5 Southwest Pacific swordfish management procedure

The Commission has agreed to develop a management strategy evaluation framework for Southwest Pacific swordfish, which will commence following the 2025 SWP swordfish stock assessment. Australia and the EU have been tasked with developing a project scope and work plan for consideration by SC21, focusing on bycatch and target fisheries, as well as the resources needed for future Harvest Strategy work. ([Paragraphs 458-460, WCPFC21 Summary Report](#))

SC21 will review the project scope and work plan submitted by Australia and the EU and provide advice for the Commission's consideration.

5.6 Review of effectiveness of CMM 2023-01

SC21 will review and advise the Commission on whether various provisions of CMM 2023-01 are achieving their intended effect (paragraph 52).

It will also address issues related to certain CCMs without baseline catch limits, as outlined in paragraph 48, [and provide advice to the Commission](#) (para 290, WCPFC21 Summary Report).

SC21-MI-IP-03	G. Pilling. Evaluation of CMM 2023-01
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5.7 Other MI issues

SC21 may consider any other issues that are not covered under the Management Issues Theme agenda items.

AGENDA ITEM 6 ECOSYSTEM AND BYCATCH MITIGATION THEME

6.1 Ecosystem and Climate Indicators

6.1.1 Ecosystem and Climate Indicator Report Card

SC21 will review the progress of the five-year Project 121 (*Ecosystem and climate indicators, 2023-2027*), which involves developing and testing candidate indicators through technical analyses, refining them via expert and member workshops, reporting to the Scientific Committee, preparing routine indicator updates, and creating tools for effective communication with WCPFC and broader stakeholders.

SC21 will also review various indicators in the updated Ecosystem and Climate Indicator Report Card, available data on climate change impacts on stocks and ecosystems, the potential effects of climate change on related fishing activities, and any other related issues.

SC21-EB-IP-01	SPC-OFP. Project 121 Update: Ecosystem and Climate Indicators
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6.1.2 Climate change

6.1.2.1 Climate Change Workplan

WCPFC21 adopted the WCPFC Climate Change Workplan for 2024 – 2027 (Attachment 13, WCPFC21 Summary Report). Several projects in the Workplan are covered under other relevant agenda items. SC21 may review the general progress of overall activities in the Climate Change Workplan and provide advice or recommendations to the Commission for any update of the Plan.

6.1.2.2 CMM climate change vulnerability assessment

WCPFC21 adopted the terms of reference for a CMM Climate Change Vulnerability Assessment consultancy (Attachment 14, WCPFC21 Summary Report). SC21 will review the consultancy report on CMM climate change vulnerability assessment and provide comments and recommendations to the Commission as needed.

SC21-EB-WP-01	K. Robertson and M. Baird. WCPFC CMM Climate Change Vulnerability Assessment
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6.1.3 Updates on the 2019 SEAPODYM Review

Noting paragraph 465 of the WCPFC21 Summary Report, the SSP will provide updates in addressing issues raised by the [2019 Review of SEAPODYM \(SC16-EB-IP-06\)](#).

465. The Commission tasked the SSP with providing an update to SC21 on its progress in addressing issues raised by the 2019 SEAPODYM review.

SC21 will consider and discuss the updates from the SSP and provide recommendations as needed.

SC21-EB-WP-02	SPC-OFP. Updates on the 2019 SEAPODYM Review (WCPFC Project: 62)
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6.2 FAD impacts

SC21-EB-IP-02	G. Moreno, G. Boyra, J. Uranga, B. Sobradillo, A. Lekanda, U. Martínez, N. Cuevas, I. Sancristobal, H. Murua, M. Grande, J. Santiago, V. Restrepo. Acoustic discrimination in tropical tuna purse seine fisheries: state of the art, ongoing projects and future directions
SC21-EB-IP-03	L. Escalle, J. Mourot and P. Hamer. Update and Workplan on FAD Research

6.2.1 Research on non-entangling and biodegradable FADs

SC21 will review various research outputs related to non-entangling and biodegradable Fish Aggregating Devices (FADs), including the progress of Project 110 (Non-entangling and biodegradable FAD trials in the WCPO), which is funded by the EU, US, and ISSF and is scheduled for completion in December 2025. Project 110a is to enhance Project 110 by deploying additional non-entangling and biodegradable FADs. SC21 will review and provide comments on the progress of Projects 110 and 110a.

SC21-EB-WP-03	L. Escalle, G. Moreno, I. Zudaire, J. Uranga, D. David, and P. Hamer. Progress Report of Project 110 and 110a: Non-entangling and Biodegradable FAD Trial in the Western and Central Pacific Ocean
SC21-EB-IP-04	G. Moreno, L. Escalle, I. Zudaire, M. Roman, G. Morán, J. Lopez, J. Murua, J. Uranga, V. Restrepo, H. Murua. Key outcomes of the International workshop on biodegradable Fish Aggregating Devices

6.2.2 Research on dFAD loss and abandonments

SC21 will review research on the analysis of stranded dFADs and options to mitigate dFAD loss and abandonments, as well as their impacts on the marine ecosystem.

SC21-EB-WP-04	Escalle L., Moreno G., and Paul H. Stakeholders' view and economic and feasibility analysis on options to mitigate dFAD loss and abandonments and their impacts: preliminary results
SC21-EB-WP-05	Mourot J., Thellier T., Lopez J., Fuller L., David D., Royer S.J., Hood L., Bigler B., Mugneret B., Nicholas T.R., Pollock K., Prioul F., Marks A., Batty M., Jones J., Lynch J.M., Tait H., and Escalle L. Updated analyses of the regional database of stranded drifting Fish Aggregating Devices (dFADs) in the Pacific Ocean

SC21-EB-IP-05	Scutt Phillip, J., Escalle, L., Murua, H., Lopez, J., and Moreno, G. A short-lived FAD in the Pacific: Implications and Adaptations in the Move to Biodegradable Fish Aggregating Devices
SC21-EB-IP-06	E. Gilman, G. Moreno, H. Murua, and M. Chaloupka. Guidelines for developing plans of action on managing abandoned, lost and discarded fishing gear

6.2.3 Updates on FAD Management Options IWG

The Commission endorsed the FAD Management Options IWG Workplan for 2024-2026 (Attachment 19, WCPFC21 Outcomes Document). SC21 will review the intersessional activities and progress of the FADMO-IWG work and provide feedback to facilitate the IWG's progress.

SC21-EB-WP-06	FADMO-IWG. Progress of the FADMO-IWG Priority Tasks for 2025
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6.3 Bycatch management

6.3.1 Bycatch Management Information System

SC21 will review any updates related to bycatch management, including the Bycatch Management Information System (BMIS), any feedback on the bycatch management site at <http://www.wcpfc.int/bycatch-management> or <http://www.bmis-bycatch.org/>, and the Bycatch Data Exchange Protocol (BDEP) within the BMIS.

6.3.2 Bycatch Assessment and Management

SC21 will review any research outcomes related to bycatch assessment and management to identify the status of bycatch species and associated mitigation tools.

SC21-EB-IP-07	S. Brouwer, M. Bain-Vete, J. Maefiti, B. Kumasi, L. Clark. The interaction rate and distribution of false killer whales and rough-toothed dolphin in the PNA purse seine fishery
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6.4 Review of CMM for Seabirds (CMM 2018-03)

As requested by the Commission (para 552, WCPFC21 Summary Report), SC21 will provide advice to the Commission on the supporting material provided by CCMs and the SSP.

SC21-EB-WP-07	New Zealand. Review of Conservation and Management Measure to mitigate the impact of fishing for highly migratory fish stocks on seabirds (CMM 2018-03): an update of WCPFC-SC20-EB-WP06
SC21-EB-WP-08	D. Ochi. Review of Tori-Line Specifications for Large Longline Vessels in the South Pacific under CMM 2018-03
SC21-EB-IP-08	ACAP. Updated ACAP Best Practice Advice on Reducing the Bycatch of Albatrosses and Petrels in WCPFC Fisheries

SC21-EB-IP-09	M. R. Duessler, O. Rowley, G. Elliott, G. Parker, K. Rexer-Huber, P. Sagar, K. Walker, I. Debski, J. H Fischer. Fine-scale overlap analyses of Gibson’s and Southern Buller’s Albatross with pelagic longline fishing effort
SC21-EB-IP-10	USA. Exploring seabird interactions in Hawai’i’s deep-set and shallow-set longline fisheries
SC21-EB-IP-17	S. McKechnie. Summaries of longline fishing effort and observer coverage with respect to the review of the seabird bycatch CMM 2018-03

6.5 Elasmobranchs

SC21-EB-WP-09	J. Stahl, M. Hutchinson, J. Tucker, F. O’Neill, C. Young, and E. Crigler. A collaborative approach to collecting species-specific manta and devil ray catch data and assessing handling effects on post release survival.
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6.5.1 Review of CMM for sharks (CMM 2024-05)

Paragraphs 29–30 of the CMM task the Scientific Committee (SC) with periodically assessing the stock status of key shark species and evaluating the impact of fishing gear on non-retained sharks, including oceanic whitetip and silky sharks, while providing advice on mitigation measures, preferably in collaboration with the Inter-American Tropical Tuna Commission.

In addition, SC21 will consider any information submitted in response to CMM provisions concerning the review of safe release and bycatch mitigation measures (paras 20–23), biological sampling and species-specific requirements (paras 24–25), data provision and research support (paras 26–28), and preparatory work for the Commission’s 2027 review of the measure (para 33).

SC21 will deliver advice or recommendations to the Commission based on its review of these elements.

SC21-EB-WP-11	M. Hutchinson, J. Lopez, D. Ovando and M. Roman . Best handling and release practice guidelines for sharks in IATTC fisheries
SC21-EB-IP-12	H. Murua, G. Moreno, J. Murua, M. Grande, and V. Restrepo. Trialing shark bycatch release devices on board purse seiners in the Pacific Ocean to enhance shark survival
SC21-EB-IP-13	J. Murua, J.M. Ferarios, M. Grande, N. Cuevas, I. Onandia, M. ErauskinExtramiana, L. Lopetegui-Eguren, A. Salgado, and J. Santiago. Can lifting large sharks by the tail with bycatch release devices be a best practice for improved crew safety and shark survival?
SC21-EB-IP-14	M. Mollier, S. Derville, C. Maze, A. Virgili , C. Lerebourg, F. Prioul, P. Hamer, M. Hosken, S. McKechnie, and P. Tixier. Both environmental conditions and fisher behaviour influence the occurrence of shark and odontocete depredation on the longline catch in New Caledonia

6.6 Cetaceans

WCPFC21 adopted CMM 2024-07 (*CMM for the protection of cetaceans from purse seine and longline fishing operations*), which shall enter into force on July 1, 2025.

As requested by the Commission, the SSP provided *Whale, dolphin and seabirds ID cards for Pacific Islands Regional Fisheries Observers*, which were prepared by the Pacific Community. It also contacted the International Whaling Commission (IWC) for the provision of Cetacean ID Guides in the WCPO, and the IWC noted that they could submit a proposal to SC21 for the publication of the Guide with their budget.

SC21-EB-WP-10	E. Campbell. Developing a Cetacean Identification Guide for the Pacific Ocean
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6.7 Deep-sea mining

Noting the Commission's approval of seeking WCPFC's observer status with the International Seabed Authority, the Commission tasked the Secretariat to engage with a broad range of stakeholders to gain awareness and understanding of deep seabed mining activities and their potential direct or indirect impact on tuna fisheries in the WCPFC Convention Area (para 794, WCPFC21 Summary Report).

SC21 will review available information and consider whether any advice to the Commission is needed.

SC21-EB-IP-15	WCPFC Secretariat. Update on Secretariat taskings on deep sea mining
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6.8 Other EB issues

SC21 may consider any other issues that are not covered under the Ecosystem and Bycatch Mitigation Theme agenda items.

SC21-EB-IP-16	Tawa, A., Ishihara, T., Matsubara, N., Hasegawa, T., Yamaguchi, T., Nagatomo, Y., Okazaki, M., Kusaka, A., Hidaka, K., Kiyofuji, H., Allain, V., Vourey, E., Barbin L., Magnier P., Nicol, S., Hamer, P., Pilling, G.. Preliminary report of "Pacific Tuna and Ecosystem Research Cruise Project" in 2024
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AGENDA ITEM 7 OTHER RESEARCH PROJECTS

7.1 Pacific Marine Specimen Bank (Project 35b)

SC21 will review the progress of Project 35b and the outcomes of the 7th Steering Committee meeting and provide recommendations to the Commission for the project's continuity.

SC21-RP-P35b-01	SPC-OFP. Project 35b: WCPFC Pacific Marine Specimen Bank
SC21-RP-P35b-02	PMSB Steering Committee. Report of the Pacific Marine Specimen

	Bank Steering Committee
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7.2 Pacific Tuna Tagging Project (Project 42)

SC21 will review the progress of the Pacific Tuna Tagging Project (Project 42) and the results of its 17th PTTP Steering Committee Meeting. SC21 will provide recommendations to the Commission for the continuity of the project.

SC21-RP-PTTP-01	SPC-OFP. Project 42: Pacific Tuna Tagging Project Report and Work-plan for 2024-2027
SC21-RP-PTTP-02	PTTP Steering Committee. Project 42: Report of the Pacific Tuna Tagging Project Steering Committee

7.3 West Pacific East Asia Project

SC21 will note the progress to date on the new WPEA-SPF project, which began in July 2024. As not all implementing agreements were in place at the project's start, delivery is expected to ramp up in 2025.

SC21-RP-WPEA-01	L. Olsen. WPEA-SPF Project Update
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7.4 Japan Trust Fund activities

SC21 will receive the results of the 2025 JTF Steering Committee meeting and provide advice as needed.

SC21-RP-JTF-01	Secretariat. Japan Trust Fund Status Report (2025)
SC21-RP-JTF-02	JTF Steering Committee. Japan Trust Fund Steering Committee Meeting Report (2025)

7.5 Other Projects

SC21 may consider any other projects funded through voluntary contributions of WCPFC CCMs.

AGENDA ITEM 8 COOPERATION WITH OTHER ORGANISATIONS

SC21 will review the status of cooperation with other organizations and, if necessary, provide recommendations for the Commission's consideration.

SC21-GN-IP-03	Secretariat. Cooperation with other organizations
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AGENDA ITEM 9 SPECIAL REQUIREMENTS OF DEVELOPING STATES AND PARTICIPATING TERRITORIES

SC21 will consider intersessional activities to build capacity in the science of developing States

and participating territories, including those supported by the Commission's Special Requirements Fund.

AGENDA ITEM 10 FUTURE WORK PROGRAM AND BUDGET

10.1 Development of the 2026 work program and budget, and projection of 2027-2028 provisional work program and indicative budget

SC21 will develop the 2026 SC work program and budget and provisional work program and indicative budget for 2027-2028 for the Commission's consideration and endorsement. All project proposers will submit their proposals with detailed terms of reference, including objectives, rationale, assumptions, scope of work, data requirements (public or non-public domain data), time frame, budget, and references for SC's review and ranking priorities.

SC21 will note a recommendation from the Finance and Administration Committee to the Commission (Para 71, FAC9 Summary Report) that *"WCPFC12 task SC with carefully considering proposed scientific projects in the context of the indicative budget agreed for the coming year."*

SC21-GN-WP-04	Secretariat. Terms of reference for proposed projects for 2026-2028
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AGENDA ITEM 11 ADMINISTRATIVE MATTERS

11.1 Future operation of the Scientific Committee

11.1.1 Guidelines and process improvements

The SC will review and adopt the consolidated *Guidelines for Paper Submission and Overall Operations of the Scientific Committee*, which combined guidance on the SC paper submission via website and criteria for acceptance and type of papers, the updated template for project proposals to SC, and the updated guidelines for the SC Chair and Theme Convenors. Once adopted, this document will be placed under WCPFC's Key Documents site (para 772, SC20 Summary Report).

SC21-GN-WP-03	Secretariat. Guidelines for Paper Submission and Operations of the Scientific Committee
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11.1.2 Policy of SC meeting duration

SC21 will consider the length of the current SC meetings and recommend any consistent policy, if available, for future meetings, including the improved meeting structure with efficient thematic scheduling.

11.2 Election of Officers of the Scientific Committee

SC21 will recommend a Scientific Committee Chair and Vice-Chair to the Commission for consideration at WCPFC22.

11.3 Next meeting

Members are invited to confirm the dates and venue for SC22 in 2026 and to propose dates and venue for SC23 in 2027.

AGENDA ITEM 12 OTHER MATTERS

SC21 will consider any other issues that are raised under Agenda Item 1.4.

AGENDA ITEM 13 ADOPTION OF THE SUMMARY REPORT OF THE TWENTIETH REGULAR SESSION OF THE SCIENTIFIC COMMITTEE

SC21 will adopt all recommendations of the Scientific Committee, and the SC21 Summary Report will be adopted intersessionally after SC21.

AGENDA ITEM 14 CLOSE OF THE MEETING

The meeting will close at 17:00 on Thursday, 21 August 2025.