WCPFC TUNA TISSUE BANK
STEERING COMMITTEE

ELECTRONIC MEETING
03 August 2021 (from 15:00-16:00 hours Pohnpei time (UTC+11 hours)

Report of the Tuna Tissue Bank Steering Committee

WCPFC-SC17-2021/RP-P35b-02

TTB Steering Committee

1. PRELIMINARIES

The 3rd meeting of the Tuna Tissue Bank Steering Committee was held via video conference through Microsoft Teams on 03 August 2021, in preparation for the 17th Regular Session of the WCPFC Scientific Committee.

A list of meeting participants is provided in Annex 1 of this report.

Background

The WCPFC Tuna Tissue Bank (TTB) is a repository of biological samples from marine specimens collected from across the WCPO, and its ongoing operation is now funded by WCPFC through Project 35b. WCPFC established its TTB so that national and international fisheries research institutes could access the collections needed to advance our understanding of the dynamics of tuna and related species in the WCPFC region (including analyses to estimate spatially- and temporally-explicit age, growth and reproductive parameters, and to investigate stock structure, for consideration within future stock assessments). In a broader ecosystem context, the collections are also used for trophic analyses, including diet studies, measurement of stable isotopes, mercury and other biochemical elements for exploring trophic structure and movement, in addition to taxonomic studies.

The objective of Project 35b is to maintain the TTB, with particular emphasis on WCPO bigeye, yellowfin, albacore and skipjack tunas and swordfish, and, to facilitate transmission of samples to specified researchers with due cognizance of the WCPFC TTB Access Protocols (Anon. 2016). SPC as the Scientific Services Provider is tasked with maintaining and developing the TTB, and through the biological sampling programme, expanding the inventory of samples held.

In 2018, it was agreed to run the process of TTB reporting in a similar manner to the PTTP (Project 42) at SC15, with a brief report of the TTB Steering Committee presented to the SC Plenary by its chair (i.e. this report). This serves to expedite the work of the Scientific Committee whilst giving adequate time to discuss details of the TTB during the Steering Committee meeting.

1.1: Review and adoption of agenda

The provisional agenda for the TTB Steering Committee meeting was adopted and is provided in Annex 2.

2. TTB PROGRESS REPORT

Prior to the TTB Steering Committee meeting, a progress report to SC17 on TTB activities during 2020-21 (SC17-RP-35b-01) was finalised, posted on the WCPFC website at https://meetings.wcpfc.int/node/12614 and made available to meeting participants. A presentation summarising the progress report was presented at the meeting. Below we outline the key information presented to participants under Agenda item 2.

2.1: TTB activities – Between 1 July 2020 and 30 June 2021, 15555 new biological samples, taken from 2945 fish, were added to TTB holdings. SPC now houses 113,663 biological samples taken from 42,217 individual animal specimens.

2.2: Observer-based sampling – From early 2020 opportunities for onboard sample collection in most countries has been limited due to the implementation of National and Regional level restrictions to prevent the transmission of Covid19. However, the contributions from national observer programmes in Papua New Guinea, Philippines and New Caledonia have ensured that the number of fish sampled in 2020 is similar to that sampled in 2019.

2.3: Port sampling – Port sampling in 2020-21 has been increased to compensate for the ongoing uncertainty around at-sea sample collection. This has seen the number of fish sampled returning to a level similar to the 2015-2016 reference years.

2.4: Training – Over the past 12 months, three SPC fisheries officers took part in sea safety training and are now allowed to board commercial longliners to collect samples. Further, 22 observers, two port samplers and four SPC fisheries officers undertook training in biological sample collection, with a total of 646 samplers trained to date.

New training resources and tools have been developed and released. The Longline Observer Guide, 2021 was revised by SPC and is an update of the 2007 version. The update was necessary to reflect changes in the observer data forms (version 2018) and data collection protocols. (https://www.pirfo.org/index.php/resources/downloads/category/33-manuals?download=191:spc-longline-observer-guide-english-vs-2021). The publication of the illustrated new Manuel d'identification des requins et des raies (the French version of the Shark and ray identification manual, Park et al. 2019) was published in 2020. Hard copies have been distributed to the New Caledonian and French Polynesian fisheries agencies (https://fame1.spc.int/fr/component/content/article/249). A video tutorial on how to sample a frozen tagged fish is now available on YouTube and has been used to guide and refresh samplers collecting samples from frozen tuna in port and in canneries (Solomon Islands, Thailand, American Samoa).

2.5: New sampling approaches – Alternate approaches to sample collection were proposed to be trialled in 2021. These included targeting specific purse-seine trips to improve the temporal and spatial coverage of samples (see SC16-2020/RP-35b-02). Due to the continued suspension of most regional, sub-regional and national observer programs since SC16 the implementation of these trials has not been possible. These will be scheduled when the current suspensions are lifted and can be practically implemented.

SPC and CSIRO, Australia, have recently collaborated on related at-sea experiments designed to test the efficacy of various onboard sampling procedures for maintaining muscle tissue integrity and minimising contamination risk for downstream genetic analyses on tropical tunas (see SC17-EB-IP-12). These experiments involve the application of sterile biopsy punch tools to take clean muscle samples from tunas. They were carried out during the CP14 tuna tagging cruise in 2020 and on three trips on New Caledonian longline vessels in early 2021. It is envisaged that once COVID-19 travel restrictions ease and observer placements increase, these protocols could be rolled out to observers onboard purse seine and longline vessel across the region, the resulting samples contributing importantly to WCPFC's ongoing genetic and genomics research programmes.

During the 15th Central Pacific Tuna Tagging Cruise number, a portable Electronic Monitoring (EM) system will be tested specifically for monitoring biological sampling operations. The trial will evaluate the feasibility of using an EM system together with an Artificial Intelligence tool to identify and measure specimens and to identify the types of samples collected. If this concept is successful, the potential for using EM to assist biological sampling operations on future tagging cruises and commercial operations will be investigated further.

2.6: Infrastructure – The TTB has long-term storage facilities at SPC Headquarters in Nouméa and at CSIRO, Brisbane, Australia. In 2020-21, one fatmeter was acquired and improvements were conducted in the SPC, Noumea laboratory in terms of Health and Safety measures. Cold storage facilities have been expanded in Nouméa, providing an extra $20m^3$ of space, and new facilities have been organised in Noro, Solomon Islands and Madang, Papua New Guinea. Short and long-term storage has also been organized in Honolulu for samples collected as part of CP14 and CP15 tagging cruises.

2.7: *OnShore* and *OLLO* apps – During 2020, the ER application *OnShore* was used by port samplers to collect data at landing sites. Also, during 2020, the ER application *OLLO* was used by longline fisheries

observers to collect data during at sea missions. *OnShore* and *OLLO* allow the collection of data on species and length as well as data about the biological samples collected for each specimen sampled. Data collected using *OnShore* and *OLLO* are uploaded to the regional database TUFMAN2 and then are automatically transferred into BioDaSys.

Between July 2020 and June 2021, *OnShore* was used in French Polynesia, the Philippines, Tonga, Marshall Islands, FSM, Fiji and New Caledonia (by SPC OFP staff). *OLLO* was used in New Caledonia, French Polynesia and Tonga.

2.8: TTB access and outputs – There was one formal request from third parties to withdraw samples from the TTB or PMSB in 2020-21. Several informal enquiries were registered from university-based researchers around sample availability and access rights in the context of future collaborative projects.

At present, nineteen projects are classified as 'pending' in accessing samples from the TTB for WCPFC-related work, led by SPC and/or other national and international organisations. Thirty-two projects utilising TTB/PMSB samples are 'completed' as at 30 June 2021.

Seven additional papers, linked either directly or indirectly to the TTB, will be submitted to SC17 this year as Information Papers or Research Papers. A total of eleven other books, peer-reviewed journal articles, conference papers or popular articles associated with TTB work were published during the 2020-21 reporting period (see SC17-RP-35b-01 for details).

3. WORK PLAN 2021-22

3.1 : General work plan

The TTB work plan for the coming year was presented. Actions planned for 2021-22, continuing from previous years, include:

- Completion of a document on standard operating procedures for the TTB.
- Provision of training to Vanuatu and Samoa and to members interested in using *OnShore* for biological sampling.
- Creation of species reference guides to improve species identification. In particular, the production and distribution of new ID books (e.g. seabirds, in French and in English) and the production of a new ID book on billfishes.
- Investigation of the use of temperature probes to monitor conditions in portable cold-storage units (e.g. 'Eskies') during transportation for sample quality traceability.
- Continued updating and improvement of training materials for biological sampling.
- Continued development and enhancement of E-reporting apps.

New actions planned for 2021-22 include:

- Contribution to improvements in 'measurement conversion factor' data in the Solomon Islands, linked through WCPFC Project 90.
- Creation of a contract template to submit to WCPFC members to comply with Nagoya protocol.
- Development of the collaboration with MRAG to increase the sample collection (numbers, spatial and temporal coverage) and improve efficiency of the logistics.
- Investigation of DNA degradation over time to aid in developing protocols for genetics sampling.
- Development of infrastructure in Noumea (e.g. laboratory extension).

Steering Committee discussion on Agenda item 3

The Steering Committee sought clarification on why the evaluation of E-monitoring systems was not specifically mentioned in the future work plan. SPC clarified that this initial trial is solely to understand the current capabilities of these technologies. Once understood this will allow development of an ongoing work programme for its use in biological sampling and allow integration with other EM activities of WCPFC. Once SPC gets the results from this trial on CP15, it will be shared with the WCPFC membership.

4. ADMINISTRATIVE MATTERS

4.1: Budget – The annual cost of supporting the TTB is USD 97,200 baselined in 2018, with an annual inflation adjustment agreed by the Commission in 2018 for out-years.

The Steering Committee was reminded that the approved budget for 2021 was USD 101,180 with indicative annual budgets for 2022 and 2023 of USD 103,204 and USD 105,269 respectively. This comprises 60% for tuna tissue bank coordination, information management and training for samplers, 23% for sampling fees and freight, and 17% for the additional storage facility in Brisbane.

The WCPFC Secretariat requested that an Annex be added to this report that summarises the completion of activities as per the WCPFC Services Contract to the Science Services Provider for Project 35b activities in 2021. This summary will make the administrative processes of SC17 more efficient. They also requested a summary of the milestones and budget for 2022 activities to be included in this Annex.

This request has been provided as Annex 3 to this report

4.2: Recommendations to SC17 – The TTB Steering Committee endorsed the SC17 recommendations specified in SC17-RP-P35b-01:

- Continue to support initiatives to increase rates of observer biological sampling, noting that this contribution is essential to the ongoing success of WCPFC's work.
- Incorporate the identified budget into the 2022 budget and the 2023-24 indicative budgets, as development of the WCPFC TTB is intended to be ongoing, and is considered essential.
- Support efforts to obtain further super-cold storage capacity to ensure longevity of TTB samples.
- Endorse that the work plan in Section 4 of this report should be pursued by the Scientific Services Provider, in addition to standard duties associated with maintenance and operation of the WCPFC TTB in 2021-22.
- Consider referring to the TTB as the "Pacific Marine Specimen Bank" to avoid confusion amongst users due to the current dual naming of the bank.

The Chair added clarity to the last recommendation by noting that the "Pacific Marine Specimen Bank" is a term used to describe all fisheries tissue holding administered by SPC on behalf of the region. This dates back to samples collected in the late 1990s. It is a more widely known and publicized name. The TTB is considered a subset of samples within the Pacific Marine Specimen Bank.

5. ADOPTION OF REPORT

The draft report of the 3rd TTB Steering Committee meeting was circulated to meeting participants on 05 August 2021. Comments were invited from registered participants up until 17:00 Pohnpei time (UTC 6:00) on 10 August 2021. No comment has been received as at 12 August 2021 and the final report has been posted on the SC17 website.

Annex 1 – Registered participation list of the 2021 TTB Steering Committee.

Name	Delegation
Anne-Marie Trinh	French Polynesia
Aurelien Panizza	Pacific Community
Beau Bigler	Marshall Islands
Berry Muller	Marshall Islands
Bradley Moore	New Zealand
Bruno Leroy	Pacific Community
Caroline Sanchez	Pacific Community
David Itano	The Nature Conservancy
Elaine Garvilles	WCPFC Secretariat
Eidre Sharp	WCPFC Secretariat
Francois Roupsard	Pacific Community
Graham Pilling	Pacific Community
Isidro Tanangonan	Philippines
Jale Wea	Fiji
James Larcombe	Australia
Jed MacDonald	Pacific Community
Jessica Farley	CSIRO
Joe Scutt Phillips	Pacific Community
Johann Bell	Conservation International
John Annala	New Zealand
Joshua Fielding	Australia
John Hampton	Pacific Community
Jude Piruku	Forum Fisheries Agency
Kali Kramer-Andrike	PNA Secretariat
Karen Evans	Australia
Kathy Sisior	Palau
Lara Manarangi-Trott	WCPFC Secretariat
Lauriane Escalle	Pacific Community
Mark Fitchett	United States of America
Marlo Demo-os	Philippines
Michael Batty	Tuvalu
Nakamura Yasushi	Japan
Neville Smith	Pacific Community
Noa Sainz	European Union
Ren-Fen Wu	Chinese Taipei
Shane Griffiths	IATTC Secretariat
Simon Nicol	Pacific Community
SungKwon Soh	WCPFC Secretariat
Te Aomihia Walker	New Zealand
Tsuda Yuichi	Japan
Valerie Post	United States of America

Annex 2 – Adopted agenda of the 2021 TTB Steering Committee.

WCPFC TUNA TISSUE BANK
STEERING COMMITTEE

ELECTRONIC MEETING
03 August 2021, from 15:00-16:00 hours Pohnpei time (UTC+11 hours)

DRAFT AGENDA

WCPFC-SC17-2021/10

1. PRELIMINARIES

1.1 Review and adoption of agenda

2. TTB PROGRESS REPORT

2.1 TTB Activities (WCPFC-SC17-2021/RP-P35b-01)
2.2 Observer-based sampling
2.3 Port sampling
2.4 Training
2.5 New sampling approaches
2.6 Infrastructure
2.7 *OnShore* and *Ollo* apps
2.8 TTB access and outputs

3. WORK PLAN 2021-22

3.1 General work plan

4. ADMINISTRATIVE MATTERS

4.1 Budget
4.2 Recommendations to SC17

5. ADOPTION OF REPORT

Annex 3 Summarised TTB activities and achievements for 2021 and indicative milestones and budget for 2022.

2021 SCOPE OF WORK	ACHIEVEMENT	REFERENCE
Maintain and develop: • the public SPC webpage; • a web-accessed database holding non-public data; • a relational database that catalogues the samples to include fishery/sampling metadata; and • the Brisbane (CSIRO) storage site.	See www.spc.int/ofp/PacificSpecimenBank ER systems for observers and port samplers upgraded to include biological sampling	Section 2.5 SC17-RP-P35b-01
Tissue sample utilisation and a record of outcomes/outputs will also be detailed in the relational database	See www.spc.int/ofp/PacificSpecimenBank and section 2.5 and 3 in SC17-RP-P35b-01	SC17-RP-P35b-01
Subject to approval by the WCPFC Executive Director: • metadata will be made available to institutions or organizations responsible for providing scientific advice in fisheries through the web-accessible component of the database, and subsequently, and • SPC-OFP will facilitate the transmission of requested samples to specified researchers/organisations, and the return of unused and/or processed samples to the relevant storage facility	See section 2.3 and Table 3 SC17-RP-P35b-01	SC17-RP-P35b-01
As agreed at in SC16RP-P35b-03, the Scientific Services Provider will: • support initiatives to increase rates of observer biological sampling; • provide a background paper with suggested revisions to the access protocols for the TTB to eliminate any ambiguity associated with depositing or withdrawing samples from the TTB; and • complete the Work Plan 2020-2021 in WCPFC-SC16-2020/RP-P35b-03.	Port sampling increased to maintain sampling during Covid19 restrictions New incentive structure created for observer and port-sampling, including adding third-party agents to coordinate and compensate (MRAG Asia Pacific) Access protocol reviewed and minor changes made to the process of sample request (with WCPFC Secretariat) Workplan completed	SC17-RP-P35b-01
OUTPUTS AND SCHEDULE		
2021 progress report to the WCPFC Secretariat	https://meetings.wcpfc.int/node/12614	SC17-RP-P35b-01
Conduct of the 2021 WCPFC TTB Steering Committee meeting,	https://meetings.wcpfc.int/meetings/sc17-2021	SC17-RP-P35b-02
Steering Committee meeting report, including 2022-24 WCPFC TTB work plan,	https://meetings.wcpfc.int/node/12615	SC17-RP-P35b-02
Submission of a 2021 project final report to the WCPFC Secretariat by 31 December 2021.	Due December 2021	

2022 SCOPE OF WORK	Indicative WCPFC Budget (USD)	SPC Third Party* contributions (USD)	CSIRO Contributions (USD)
Tuna tissue bank coordination, information management and training for samplers	61,922	60,000	
Sampling fees and freight	23,737	60,000	
Storage	17,545		

*Third-party contributions include SPC programme funds provided by Australia and New Zealand and those of the European Union's Pacific-European-Union-Marine-Partnership project