



**SCIENTIFIC COMMITTEE
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Training observers for elasmobranch biological sampling (Project 109)

WCPFC-SC19-2023/ST-IP-05

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Tim Park¹

¹ Oceanic Fisheries Programme (OFP), Pacific Community (SPC), Noumea, New Caledonia

1. EXECUTIVE SUMMARY

This paper details the activities undertaken on Project 109 since SC17. The work has been limited due to the cessation of observer placements during the COVID-19 pandemic, and the related regional restrictions on international travel that have prevented the face-to-face training necessary to undertake the work.

Following recent regional decisions scheduling the recommencement of observer coverage, and the relaxation of many regional travel restrictions, requests for face-to-face observer refresher training have begun. These will allow practical training such as elasmobranch biological sampling to be delivered.

A Request for Quotes for a consultancy to develop key pelagic shark and mobulid ray sampling protocols and produce associated training materials has also been drafted and is being released for bids.

We therefore invite SC19 to endorse a no-cost extension to the project period to the end of December 2024. This will allow the time required to complete the consultancy, develop the materials, and implement the protocols in the following year of observer training. This should also allow sufficient data to have been collected in time to report to SC20.

INTRODUCTION

The Western and Central Pacific Fisheries Commission's (WCPFC) CMM 2010-07 has identified 14 key shark species, including three raised to Species of Special Interest (SSI) status. Additionally, the *Pacific Islands Regional Plan of Action for Sharks* suggests six additional 'high risk' species among the key species. (See also Clarke and Harley (2014), SC10-EB-IP-06 and SC6-EB-WP-01). More recently, six mobulid rays were also included among the key species (Clarke *et al* 2017; Park, 2019). The designation of Key Species raises these shark species' status in terms of the need for stock assessment and hence supportive data collection (Clarke *et al*, 2017).

WCPFC SC Project 97 '2021-2025 Shark Research Plan' (Brouwer & Hamer, 2020) highlighted gaps in data that are needed for elasmobranch stock assessment. It recommended:

The SC develop an "agreed suite" of biological parameters (or upper and lower bounds) and units of measurement (e.g. total length) for use in WCPFC assessments and update the information sheets accordingly.

Brouwer and Hamer (2020) emphasised that observers be used to collect biological material from dead Key Shark species. Data collected should include standardised length, weight (when possible), ageing material (vertebrate samples), clasper length, uterine condition, number of embryos and embryo lengths. These data are critical for assessing growth rates, maturity, fecundity and pupping areas.

The 17th Commission Annual meeting (Anon., 2021) endorsed the 2021-2025 Shark Research Plan and its recommendations, including project X8, as *Project 109: Training Observers for Elasmobranch Biological Sampling*.

The scope of Project 109 includes:

- i) the development of material for methods for collection, recording, storing, and measuring of samples; and

- ii) workshops in selected locations to demonstrate the techniques for the observers, and then provide practical training on the collection of these samples

Protocols for biological sampling of sharks are established, such as the collection of shark biological samples (White, 2014), including the efficacy of collecting caudal vertebrae for shark ageing, demonstrated by Joong, *et al* (2018). However, shark and ray specific protocols have not yet been compiled and integrated into the Pacific Islands Regional Fisheries Observer (PIRFO) training.

2. PROJECT 109 WORK TO DATE

SPC were contracted to conduct the work of Project 109 with a budget of US\$25,000. This was signed on February 1, 2021. US \$20,000 has been advanced to conduct the work, but at this time there has been no expenditure in this project given the challenges of the COVID-19 pandemic.

While SPC has conducted observer training in the region during the pandemic, it has been done remotely via Zoom. Training remotely has limited the topics to focus on collecting fishing operational information and species identification. Biological sampling training has not been conducted owing to its practical nature, which requires face-to-face training and assessment. Travel restrictions throughout the region meant that training observers in biological sampling has been postponed until face-to-face training becomes possible.

PICTs² programmes have made very few observer placements since April 2020, when the WCPFC allowed a moratorium on observer coverage for purse seine and transshipment vessels. FFC122 in May 2022 agreed to end the moratorium among their members and return to mandated observer coverage levels by 1 January 2023.

Since late 2022 observer programmes have been ramping up to return to normal observer operations. The 2023 observer programme status survey done by SPC revealed that most programmes have suffered attrition of field staff during the COVID-19 pandemic period. To meet their capacity needs, national observer programmes have begun requesting that SPC conduct and support PIRFO observer training, refresher and debriefer training.

These training workshops are underway during 2023 and conducted as face-to-face training. This allows better delivery of practical training such as biological sampling training. Shark biological sampling will be included.

The training with respect to sharks will include the three key aspects of observer data collection from the Shark research Plan 2021-2025 (Brouwer and Hamer, 2020):

- i. Biological sampling;
- ii. Shark species identification focusing on the Key Shark Species has been adopted into PIRFO observer training for all PICTs observer programmes, using SPC's Shark and Ray identification;
- iii. collecting morphometric conversion factors data of many species including Key Shark species, as per Project 90 (Macdonald et al, 2023).

A Request for Quotes for an expert consultancy to develop shark sampling protocols and produce associated training materials has been drafted and is being circulated for bids, as Attachment 1.

We therefore invite SC19 to endorse a no-cost extension of the project period to the end of December 2024. This will allow the time required to complete the consultancy, develop the

² Pacific Island Countries and Territories

materials, and implement the protocols in the following year of observer training. This should also allow sufficient data to have been collected in time to report to SC20.

3. PLANNED SCHEDULE

1. Complete short-term consultancy to develop regional elasmobranch sampling protocols and produce associated training materials.
2. Develop standardised protocols for collection of morphometric and biological (age, reproductive) samples.
3. Trial the utility of protocols.
4. Introduce elasmobranch biological sampling to certified observer trainers at PIRFO Trainer and Assessors' workshop in late 2023.
5. Implement elasmobranch biological sampling training in the scheduled face-to-face observer and refresher training workshops. This would be linked in with the shark and ray species identification and conversion factors training in the planned 2023-24 observer training workshops.

4. REFERENCES

Anon (2021). Summary Report. Seventeenth Regular Session of the Commission, Electronic Meeting. Seventeenth Regular Session of the Scientific Committee of the Western and Central Pacific Fisheries Commission.

S. Brouwer and Hamer, P. (2020). Final Report, Project 97: 2021-2025 Shark Research Plan. Sixteenth Regular Session of the Scientific Committee of the Western and Central Pacific Fisheries Commission.

Clarke, S.C. and S.J. Harley (2014). A Proposal for a Research Plan to Determine the Status of the Key Shark Species. WCPFC-SC10-2014/ EB-IP-06 (SC6-EB-WP-01). Tenth Regular Session of The Scientific Committee of the Western and Central Pacific Fisheries Commission.

Clarke, S., K. Staisch and L. Manarangi-Trott, (2017). Clarification of WCPFC Shark Designations and Observer Data Collection Requirements in Response to WCPFC13 Decisions regarding Manta and Mobulid (Devil) Rays. WCPFC-SC13-2017/ST-WP-07. Thirteenth Regular Session of the Scientific Committee of the Western and Central Pacific Fisheries Commission. Rarotonga, Cook Islands.

Joung S-J, Lyu G-T, Hsu H-H, et al (2018) (2018). Age and growth estimates of the blue shark *Prionace glauca* in the central South Pacific Ocean. *Mar Freshwater Res* 69:1346–1354. <https://doi.org/10.1071/MF17098>

Macdonald J., P. Williams, F. Roupsard, C. Sanchez, M. Ghergariu, L. Bell, S. Nguyen Cuu, E. Schneider, S. Hoyle, S.K. Chang, M. Hosken, J. Potts, T. Park, R. B.B. Conteras, S. Nicol (2023). Project 90 update: Better data on fish weights and lengths for scientific analyses. WCPFC- SC19-2023/ST-IP-04. Nineteenth Regular Session of the Scientific Committee of the Western and Central Pacific Fisheries Commission.

Park, T., L. Marshall, A. Desurmont, B. Colas, N. Smith. (2019). Shark and Ray Identification Manual for Observers and Crew of the Western and Central Pacific Tuna Fisheries. Noumea, New Caledonia: Pacific Community.

White, W. (2014). *Manual for data collection and species identification of sharks from longline vessels in Papua New Guinea - observer training guide*. ACIAR-funded project: Sustainable management of the shark resources of Papua New Guinea: socioeconomic and biological characteristics of the fishery.

Attachment 1. Summary of RFQ for Consultancy to Develop PIRFO Elasmobranch Biological Sampling Standards – WCPFC Project 109

A. BACKGROUND/CONTEXT

The WCPFC Scientific Committee's endorsed Shark Research Plan 2021-2025 (WCPFC-SC16-2020/EB-IP-01 Rev1) highlighted information gaps in biological parameters of many shark species that interact with pelagic tuna fisheries.

The data needed would clarify life history parameters such as data are important for assessing growth rates, maturity, fecundity and pupping areas. The Shark Research Plan suggests data collection should include the collection of length, weight (when possible), ageing material (vertebrate samples), clasper length, uterine condition, number of embryos, embryo lengths.

The observers of SPC's members' observer programmes' collect biological samples from fish and sharks for SPC's specimen bank and ecosystem monitoring team. SPC provides biological training for biological sampling to experienced observers. The elasmobranch sampling is expected to be an extension of the established protocols for sampling and infrastructure for sending samples to SPC.

B. PURPOSE, OBJECTIVES, SCOPE OF SERVICES

The objective of the project is to develop and provide established standard best-practice protocols for collecting biological samples of the WCPFC's key shark and ray species. The material provided will be used in a sampling manual and as slides to be used by SPC staff for training observers in elasmobranch sampling.

All materials provided will become SPC property for their intended use and be free of any copyright, or third-party ownership that may limit SPC's use of material.

The scope of this project includes:

- i) *the development of training and reference material for training and field use by fisheries observers' methods for collection, recording, storing and measuring of samples from the key elasmobranchs of the WCPFC tuna fisheries***
- ii) *provide practical training on the collection of these samples***

Owing to the impact on pelagic shark and ray populations through their interaction with tuna fisheries, the Western and Central Pacific Fisheries Commission (WCPFC) has designated 14 shark species and six mobulid species as **Key Shark Species** (for data provision), which are:

- Blue shark (*Prionace glauca*);
- Mako sharks (*Isurus oxyrinchus*, *I. paucus*);
- Oceanic whitetip shark (*Carcharhinus longimanus*);
- Thresher sharks (*Alopias superciliosus*, *A. pelagicus* and *A. vulpinus*);
- Silky shark (*C. falciformis*);
- Porbeagle shark (*Lamna nasus*);
- Hammerhead sharks (*Eusphyrina blochii*, *Sphyrna lewini*, *S. mokarran* and *S. zygaena*);
- Whale shark (*Rhincodon typus*);
- Manta and mobulid rays (*Mobula alfredi*, *M. birostris*, *M. tarapacana*, *M. mobular*, *M. thurstoni*, and *M. kuhlii*).

C. TIMELINES

The period of work is expected to be:

- i. Three to four days to compile the training and field material;
- ii. a day plus travel time to demonstrate practical collection of samples to relevant SPC training staff.

and consultant's bids should reflect this duration.

The anticipated start date should be in the third or fourth quarter of 2023. The work is expected to be complete within one month of initiating the work.

The outcomes of the work will be reported to WCPFC SC20 under WCPFC Project 109: Training Observers for Elasmobranch Biological Sampling.

D. REPORTING AND CONTRACTING ARRANGEMENTS

The Consultant will report to the FAME through Timothy Park (timothyp@spc.int), for the Deputy Director OFP, FAME.

The consultant will agree with OFP a work plan that will specify the activities to be undertaken and the timelines to be met.

The work on developing materials is anticipated to be done in the consultant's own workplace. On agreement of the parties, the consultant may be required to demonstrate the sampling techniques to SPC staff in the FAME laboratory housed in the SPC offices Noumea. If the consultant is required to travel this will be according to the SPC Financial and Travel policies. The consultant's bid should reflect this cost.

E. SKILLS AND QUALIFICATIONS

The Consultant will have a graduate qualification in relevant field; and have demonstrated technical knowledge and skills pertaining to biological sampling of elasmobranchs.

Experience in developing and publishing of protocols for biological sampling of elasmobranchs would be desirable.