



**COMMISSION**

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Rarotonga, Cook Islands (Hybrid)

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**Shark Research Plan 2021-2025**

Summary of the Informal Small Group Report on SRP at SC19

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1. The purpose of this paper is to introduce the outcomes of SC19 discussion on SC19-EB-WP-06 (*Shark research plan 2021-2025 mid-term review*). SC19 agreed to establish an Informal Small Group (ISG-05) to review the details of the project in the paper in the margins of the plenary meeting, and the ISG-05 introduced their outcomes to SC19 plenary in the form of the ISG-05 Report (Attachment 4, SC19 Outcomes Document). The following is a brief summary of the ISG-05 Report related to its work plan with some highlights.
2. As recommended, SC19 agreed to extend the current shark research plan (SRP) to 2030 to encompass two assessment cycles.
3. In addition to discussion at ISG-05, an online survey was distributed to Heads of Delegations seeking feedback on priorities and timelines for 16 projects that were not covered at the ISG. The received priority rankings and timelines were reviewed and approved by ISG-05. **Annex I** reflects the updated project definitions, priorities and timelines as discussed at the ISG-05.
4. The following project TORs were submitted to the Commission for funding support in 2024:
  - A modified TOR for Silky shark stock assessment in the WCPO, reflecting an expanded scope including data-poor methods (Project P108)
  - Manta, mobulid and whale shark fisheries characterisation, CPUE standardisation and data-poor assessment (Project P19X9)
  - Oceanic whitetip assessment in the WCPO (Project P19X10)
  - Developing a statistically robust and spatial/temporal optimized sampling strategy for biological data collection (Project P19X11)

## Appendix I. Updated Table 5 for inclusion in revised SC19-EB-WP-06

**Table 5.1.** Stock assessment

Stock assessment					
Title	Priority	Start year	End year	Comments	
<b>(a) Determine the stock status for WCPFC key sharks</b>					
i) Southwest Pacific blue shark assessment	High	2026	2028		
ii) North Pacific blue shark assessment	High	2026	2027		
iii) Southwest Pacific shortfin mako shark assessment	High	2027	2028		
iv) North Pacific shortfin mako shark assessment	High	2023	2024	Data preparatory meeting in November 2023; assessment scheduled for presentation to SC20.	
v) WCPO silky shark assessment	High	2022	2024	Underway 1-year (papers for SC19-SA-WP-10 <sup>1</sup> and SC19-SA-IP-09 <sup>2</sup> )	
vi) WCPO oceanic whitetip shark assessment	High	2024	2025		
vii) Fishery characterisation of manta and mobulid rays and whale sharks	High	2024	2025	SC19 survey 91% high 2024 agreed start date	
viii) Fishery characterisation of hammerhead and thresher sharks	Medium	2025	2026	SC19 survey 86% medium and agree on start date	
<b>(b) Develop reliable catch histories, assessment methods and data input improvements</b>					
i) Redefining the fleets currently assumed in the BSH NP stock assessment	Medium	2021	2022	Work completed (ISC/21/SHARKWG-2/I-01) the results indicate that no change to the fleet composition used in the assessment was required.	
ii) Developing a statistically robust and spatial/temporal optimized sampling strategy for biological data collection – consider ISC’s approach	High	2024	2025	SC19 survey 100% agreement	
iii) Future options for assessments with less data due to ongoing reduction in retention of sharks (i.e., degradation of data for CPUE and estimation of catch)	Medium	2026	2027	SC19 survey 64% medium start date 2024-2027 chose the mid	
iv) Spatio-temporal abundance patterns and drivers of abundance indices for SP shortfin mako	Medium	2025	2026	SC19 survey 55% medium start date 2025	
v) Satellite tagging of mako sharks (juveniles and adults) in NZ, AU and the high seas east of NZ (genetic analysis also mentioned regarding natal homing)	Medium	2025	2027	SC19 survey 75% medium start 2025 (need 2 year for this work)	
vi) Feasibility of tag-recapture methods to obtain estimates of M (for SP shortfin mako)	Medium	2025	2026	SC19 survey 60% medium start date 2025	
<b>(c) Test and improve medium and data poor assessment methods to inform management decisions</b>					
i) Include data poor assessment metrics as standard outputs for data rich assessments where possible	High	Ongoing	Ongoing	Done in SP-BSH, SP-mako? SC Shark ISG may want to review these and provide a specific list for future assessments.	
<b>(d) Assess the success of management</b>					
i) Review the impact of CMM 2022-04	High	2027	2028	SC19 survey 100% agreement on priority and start date	

**Table 5.2.** Mitigation

Mitigation					
Title	Priority	Start year	End year	Comments	
<b>(a) Provide advice on mitigation Sharks with non-retention policies and unwanted elasmobranchs.</b>					
i) Investigate effective mitigation for WCPFC Key Sharks	Medium	2023	2025	To do – still planned project scheduled for proposal at SC19	

<sup>1</sup> Analysing potential inputs to the 2024 stock assessment of Western and Central Pacific silky shark (*Carcharhinus falciformis*)

<sup>2</sup> Characterisation of the fisheries catching Silky sharks (*Carcharhinus falciformis*) in the Western and Central Pacific Ocean

ii)	Investigate mitigation method trade-offs between mitigation methods for sharks, seabirds and sea turtles	Medium	2023	2025	To do – still planned project scheduled for proposal at SC19
<b>(b) Provide advice on safe release methods and assess release survival of WCPFC Key Sharks</b>					
i)	Estimate silky and oceanic whitetip shark post release survival from WCPO longline fisheries	High	2025	2026	SC19 survey 59% high priority. Some work undertaken in EPO (IATTC – Shaffer) preliminary results indicate a post-release mortality rate of 5.7% for silky sharks Hutchinson and Bigelow – OCS (67%-92% survival) FAL (100% survival)
ii)	Estimate whale shark post release survival from WCPO purse seine fisheries	TBD	TBD	TBD	Hot spot analysis suggested as part of assessment project a) vi) Postpone until those results are on the table
iii)	Estimate the retention time of elasmobranchs entangled in FADs	Low	2025	2027	SC19 survey 50% low

**Table 5.3. Biological data improvements**

Biology					
Title	Priority	Start year	End year	Comments	
<b>(a) Increase the understanding of important biological parameters of WCPFC Key Sharks</b>					
i)	Silky shark and oceanic whitetip shark reproductive biology and longevity	High	2027	2030	To do – still planned but probably delayed due to COVID delays for observer training in biological data collection. Schedule work once enough samples have been collected.
ii)	Biology and life history of hammerhead sharks	High	2025	2027	To do – still planned but probably delayed due to COVID delays for observer training in biological data collection. Schedule work once enough samples have been collected.
iii)	Resolving blue shark reproductive biology and reproductive schedule	Medium	2025	2027	To do – still planned but probably delayed due to COVID delays for observer training in biological data collection. Schedule work once enough samples have been collected.
iv)	Biology of the longfin mako shark	Medium	2025	2027	To do – still planned but probably delayed due to COVID delays for observer training in biological data collection. Schedule work once enough samples have been collected.
v)	Life history of thresher sharks	Medium	2025	2027	If not assessment, this can get a lower priority
vi)	Validated life history, biology, and stock structure of the shortfin mako in the South Pacific	Medium	2025	2027	To do – still planned but probably delayed due to COVID delays for observer training in biological data collection. Schedule work once enough samples have been collected.
vii)	Age validation and stock structure of the silky shark and oceanic whitetip shark	Low	2025	2027	To do – still planned but probably delayed due to COVID delays for observer training in biological data collection. Schedule work once enough samples have been collected.
viii)	Stock structure and life history of southern hemisphere porbeagle shark	Low			Move to CCSBT
ix)	Biology of manta and mobulid rays	High	2027	2030	SC19 survey 45% high (35% medium and 20% low) start date most 2027
x)	Stock structure of manta and mobulid rays	High	2027	2028	SC19 survey 50% high
xi)	Stock structure of hammerhead sharks	Low	2026	2030	SC19 survey 55% low
xii)	Genetic CKMR (and stock structure and natal homing) scoping study all species	Medium	2026	2027	82% medium with a start date of 2026
xiii)	Review of non-lethal approaches to collect life-history data (e.g., reproductive status from blood samples) to inform observer training	Medium	2025	2026	45% medium (35% high 20% low)

**Table 5.4. Observer data collection**

Observer data					
Title	Priority	Start year	End year	Comments	
<b>(a) Improve spatio-temporal observer data for informing scientific needs</b>					

i)	Training observers in the WCPO to be proficient in species identification	High	ongoing	ongoing	Material developed by SPC: Park T., Marshall L., Desurmont A., Colas B. and Smith N. 2019. Shark and ray identification manual for observers and crew of the western and central Pacific tuna fisheries. Noumea, New California: Pacific Community . 79p. Observer training ongoing
ii)	Training observers for extraction and storage of vertebrae and shark reproductive material	High	2021	ongoing	SPC currently looking at getting the protocols developed for shark biological sampling through a consultant. This should also ensure that observer training covers good sampling practices for tissue samples to reduce cross-contamination.
iii)	Training observers for on-desk reproductive staging of elasmobranchs	High	2021	ongoing	SPC currently looking at getting the protocols developed for shark biological sampling through a consultant.
iv)	Measuring elasmobranchs on purse seine and longline vessels for length-length and length-weight conversion factor development	High	ongoing	ongoing	ROP training conversion factor measurements have just been introduced – COVID delay.