



Pacific
Community
Communauté
du Pacifique

WCPFC Shark Research Plan Summary Tables

EB-WP-04

SPC-OFP

WHAT HAS BEEN TABLED AT SC?

10 papers tabled

Completed work (6)

- Review of shark data and modelling framework to support stock assessments (proj 78).
- PW silky shark assessment.
- NWP mako shark assessment.
- Whale shark risk assessment.
- Longline and purse seine bycatch estimation.

WHAT HAD BEEN TABLED AT SC?

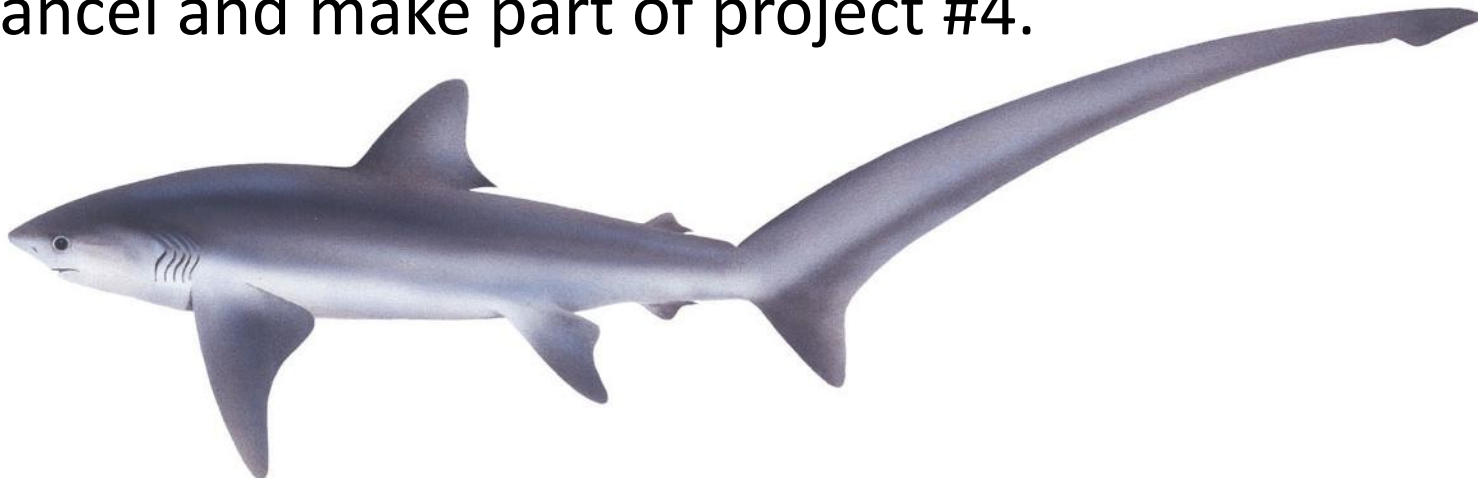
Ongoing work (4)

- Manta and mobulid ID guide.
- Post release mortality of silky and oceanic whitetip.
- LRPs for elasmobranchs.
- Silky shark tagging post release mortality and FAD entanglement.



2017 PROJECTS NOT FUNDED:

- Participation in ISC North Pacific shortfin mako shark stock assessment activities.
- SRP mid-term review - proposed cancel as part of project 78.
- Hammerhead shark catch histories - proposed cancel and make part of project #4.

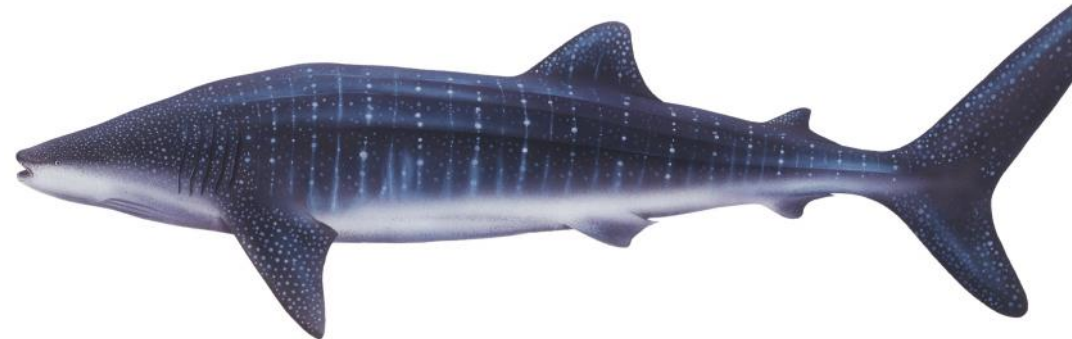


2019 PROJECTS

Carry overs from previous SRP

(dependant on the outcomes of project 78 - Species Specific Assessment Decision Trees)

- Southeast Pacific data preparation to support blue and shortfin mako assessments in 2020.
- Shark Modelling Project.
- Operational planning for shark biological data improvement.
- Assess spawner recruit relationships.





2019 PROJECTS

New (from SRP)

(dependant on the outcomes of project 78 - Species Specific Assessment Decision Trees)

- Southwest Pacific mako shark assessment.
- Hammerhead shark biology.
- Operational and management histories for WCPO longline fleets.
- Whale shark stock discrimination.



WHAT NEEDS TO BE DONE?

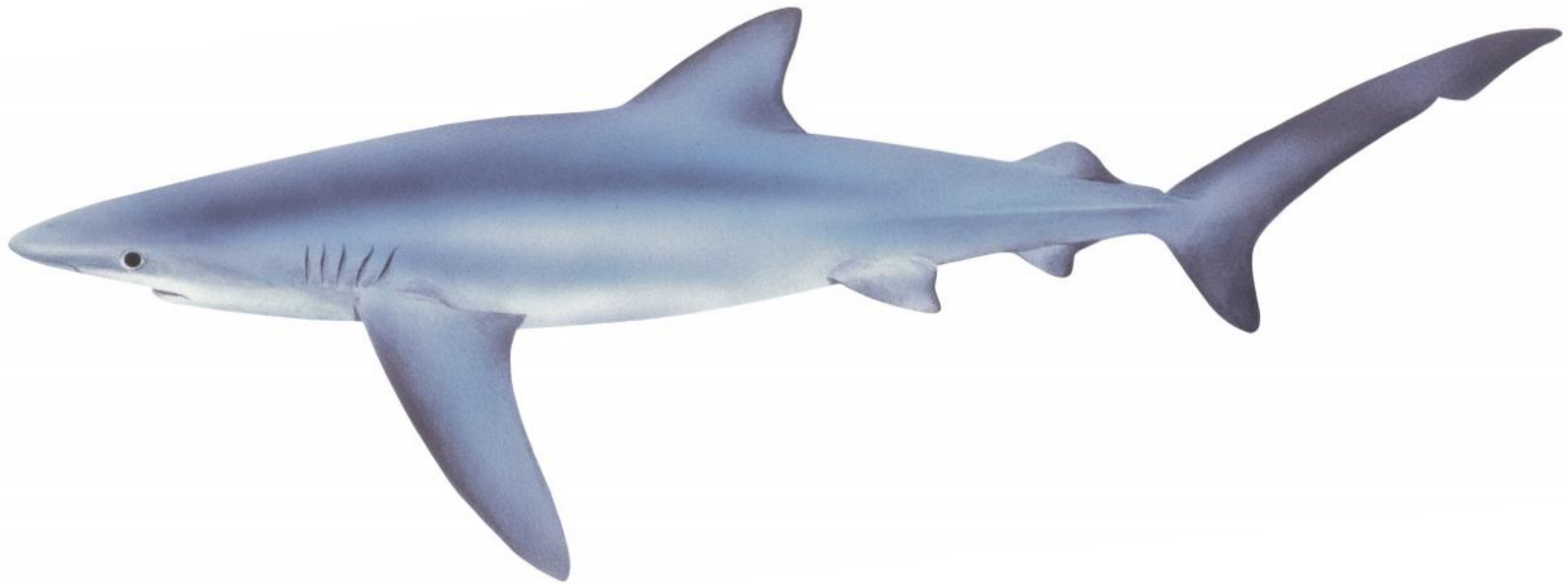
To assist the WCPFC Science Research Sub-Committee's deliberations, SC14 is invited to review these projects.

The proposal from the Theme Convenor is to have the detailed discussion in an ISG (electronically).

- Review the Shark Research Plan progress
- Update as needed
 - Developing a final project list considering necessity and sequencing of work.
 - Commenting on the project objectives.



THANKS FOR LISTENING



Species	Stock	Last assessment	2018	2019	2020	2021	2022
Grey shark	WCPO	2013		Assessment (SPC) depends on proj 78 and Pacific-wide assessment			
	Pacific-wide	-	Assessment (SCI4-SA-WP-xx) ABNJ		Stock discrimination? Note: Maybe better directed at another species ISG discuss pending outcome of PW assessment?	Stock discrimination?	
Oceanic whitetip shark	WCPO	2012		Assessment (if data supports now observer only) (SPC) depends on proj 78			
Blue shark	Southeast Pacific	-		Data preparation to support assessment #1	Assessment (if data supports) (WCPFC)		
	Southwest Pacific	2016			Assessment data preparation (SPC) (if South Pacific wide is preferred this can be cancelled)	Assessment (if data supports)	
	South Pacific-wide	-				Assessment (if data supports)	
	North Pacific	2017			Assessment (ISC)		

Species	Stock	Last assessment	2018	2019	2020	2021	2022
Bako shark (shortfin)	Southeast Pacific	-		Data preparation to support assessment #1	Assessment (if data supports) (WCPFC)		
	Southwest Pacific	-		Assessment (if data supports) #2			
	Northwest Pacific	2015 (Indicator analysis)	Assessment (ISC) (SC14-SA-WP-xx)			Assessment (ISC)	
	South Pacific wide	-		Assessment data preparation (SPC)	Assessment (if data supports)		
Porbeagle	Pacific-wide (southern hemisphere)	2017					
Eye thresher	WCPO	-					
	Pacific-wide	2017					
Hammerhead	WCPO	-		Biological research to determine species-specific age, growth and reproductive parameters? #3 Update catch history? Can be done as part of #4 SC13 #8 can be withdrawn if rolled into #4 Both projects above should be discussed in the light of proj 7	Stock discrimination? Biological research to determine species-specific age, growth and reproductive parameters? #3 continued		
	Pacific-wide	-					
Whaleshark	WCPO	-		Stock discrimination? #5	Stock discrimination?		
	Pacific-wide	-	Risk assessment based on purse seine interactions (SC14-EB-WP-xx) ABNJ				
Manta and mobulids	WCPO	-	Develop manta and mobulid - observer training and identification guides (SC14-EB-IP-xx) (ABNJ+SPC)				

Species	Stock	Last assessment	2018	2019	2020	2021	2022
General shark work	WCPO	NA	<p>Review of shark data and modelling framework to support stock assessments (proj 78) (SCI4-EB-WP-02) WCPFC/SPC</p> <p>SRP mid-term review? SCI3#7 but now rolled into proj 78.</p> <p>Post-release mortality of silky and oceanic whitetip sharks in longline and purse seine fisheries (SCI3-EB-IP-06) (SCI4-EB-IP-02) SPC/ABNJ</p> <p>Identifying LRPs for elasmobranchs (ongoing initial draft to SCI4) (SCI4-MI-WP-XX) WCPFC tender</p> <p>Longline bycatch estimation (SCI4-ST-WP-xx) - SPC</p> <p>Purse seine bycatch estimation (SCI4-ST-IP-xx) - SPC</p> <p>Project 42 silky shark tagging movement and FAD entanglement (ongoing - no paper for SCI4) (ISSF+SPC)</p>	<p>Operational and management histories #4</p> <p>Updated indicator analysis? (Pending outcome of proj 78 and SCI4 deliberations decide on scope and species to be covered)</p> <p>Shark modelling Project #6</p> <p>Operational planning for shark biological data improvement #7</p> <p>Assess spawner recruit relationships? #8</p>	<p>Develop a 2021-2025 shark research plan to be presented to SCI6 in 2020?</p>		
Review of shark CMM(s)	WCPFC key sharks	Not previously undertaken:	Potentially scheduled for 2023 if suggested review is retained in the CMM under development in 2018. However, some alternative suggestions in the text require review in 2021. This should be decided after any finalised shark CMM is agreed.				

Short finned mako (Isurus oxyrinchus) – Southern Hemisphere								
Assessment type	Inputs		Data needs	Do we have it (may need to provide detail)	Can we get it or estimate it? (may need to provide detail)	Can we do it? (if NO, should we work towards that? YES should we do it)		
<p>Rich Assessment, Integrated or other analytic assessment - e.g. Pt based</p>	Biology	Age and growth	Reliable length-at-age estimates	Yes		Yes – no catch uncertainty		
		Maturity	Reliable maturity schedule	No	Uncertainty with the reproductive cycle timing and the gestation period (9-25 mo.)			
		Stock structure	Some understanding of stock structure	Yes				
		M	Reliable M estimate	Yes	Approximate estimates 0.1-0.15			
	Fisheries	Catch	Catch history (more than 20 years)	No	Yes			
		Effort	Effort data	Yes, mostly longline effort				
		Length	Length samples from some fisheries	Yes for some fleets				
		Weight	Weight samples from some fisheries	Yes for some fleets				
	<p>Minimum Data Assessment Indicator based assessment (e.g. Rice et al.) or SRA - e.g. MIST (Pt based)</p>	Biology	Age and growth					Yes estimate of catch indices abundance should be produced checked reliability
			Maturity					
Stock structure								
Fisheries		Catch						
		Effort						
		Length						
		Weight						
<p>Poor Assessment, or ERA- eg PSA (by and Hobday)</p> <p>Risk indicator H, M, L</p>	PSA score	PSA I	PSA2	PSA3		Kirby and Hobday 2002 WCPFC-SEA EB SWG/ I		
	Deep Risk	MEDIUM	MEDIUM	MEDIUM				
	Shallow Risk	MEDIUM	MEDIUM	MEDIUM				

Whale Shark (Rhincodon typus)						
Assessment type	Inputs		Data needs	Do we have it (may need to provide detail)	Can we get it or estimate it? (may need to provide detail)	Can we do it? (if NO, should we work towards that? YES should we do it)
<p>Can we do a Rich Assessment, Integrated or other analytic assessment - e.g. M, H, L</p> <p>Pt based</p>	Biology	Age and growth	Reliable length-at-age estimates	No		No
		Maturity	Reliable maturity schedule	No		
		Stock structure	Some understanding of stock structure	No		
	Fisheries	M	Reliable M estimate	No		
		Catch	Catch history (more than 20 years)	No		
		Effort	Effort data	Yes		
		Length	Length samples from some fisheries for	Limited		
Weight	Weight samples from some fisheries	Limited				
<p>Can we do a Medium Data Assessment Indicator based assessment (e.g. Rice et al. or SRA - e.g. MIST)</p> <p>Pt based</p>	Biology	Age and growth		Limited information		<p>As part of 2018 COMS Ocean program Pacific whale shark analysis</p> <p>whale shark purse seine interactions</p>
		Maturity		Limited information		
		Stock structure		Limited information		
	Fisheries	Catch		No		
		Effort		No		
		Length		Limited		
		Weight		Limited		
<p>Can we do a Poor Assessment, or ERA- e.g. PSA</p> <p>Risk indicator</p> <p>H, M, L</p>	PSA score	PSA1	PSA2	PSA3		<p>Kirby and Hobday 2012 WCPFC-SEA EB SWGM</p>
	Deep Risk	HIGH	MEDIUM	MEDIUM		
	Shallow Risk	HIGH	MEDIUM	MEDIUM		

Smooth hammerhead (Sphyrna zygaena)						
Assessment type	Inputs		Data needs	Do we have it (may need to provide detail)	Can we get it or estimate it? (may need to provide detail)	Can we do it?*(if NO, show we work towards if YES show we do)
<p>Rich Assessment. Integrated or other analytic assessment - e.g. MIST (Fu et al.</p> <p>Point based</p>	Biology	Age and growth	Reliable length-at-age estimates	No		No
		Maturity	Reliable maturity schedule	No	Yes- based on studies from other areas	
		Stock structure	Some understanding of stock structure	Limited	HHD sharks are often not misidentified	
		M	Reliable M estimate			
	Fisheries	Catch	Catch history (more than 20 years)	No	With high uncertainty	
		Effort	Effort data			
		Length	Length samples from some fisheries	Very Limited		
		Weight	Weight samples from some fisheries	Very Limited		
<p>Minimum Data Assessment Indicator based assessment (e.g. Rice et al) SRA - e.g. MIST (Fu et al)</p> <p>Point based</p>	Biology	Age and growth		No	Eastern Pacific estimates exist	<p>Estimate overall catch would be first step towards SRA type analysis</p>
		Maturity		No	Regional information	
		Stock structure		No	General information only.	
	Fisheries	Catch		No	With high uncertainty	
		Effort		Reported		
		Length		Minimal observed species specific data		
		Weight		Minimal observed species specific data		
	<p>Poor Assessment, or ERA- eg PSA (Fu et al and Hobday)</p> <p>Risk indicator H, M, L</p>	PSA score	PSA I	PSA2	PSA3	
Deep Risk		MEDIUM	HIGH	MEDIUM		
Shallow Risk		MEDIUM	HIGH	MEDIUM		