NORTHERN COMMITTEE
SEVENTEENTH REGULAR SESSION

ELECTRONIC MEETING
5 – 7 October 2020

SC17 Brief Summary for NC17

WCPFC-NC17-2021/IP-02a

WCPFC-SC

The Commission for the Conservation and Management of Highly Migratory Fish Stocks in the Western and Central Pacific Ocean
NORTHERN COMMITTEE
SEVENTEENTH REGULAR SESSION
ELECTRONIC MEETING
5 – 7 October 2021

SC17 BRIEF SUMMARY FOR NC17

OPENING OF THE MEETING

1. SC17 took place for eight days during 11–19 August 2021 as the 2nd electronic meeting in response to the COVID-19 pandemic. The meeting was chaired by the Vice-Chair Dr Tuikolongahau Halafihi (Tonga) as SC Chair Mr Matai'a Ueta Faasili Jr. (Samoa) was unable to attend.

REVIEW OF WCPO FISHERIES

2. The provisional total WCPFC Statistical Area (WCP–CA) tuna catch for 2020 was estimated at 2,668,063 mt, around 320,000 mt lower than the previous record catch in 2019 (2,988,661 mt). The 2020 WCP–CA tuna catch represented 80% of the total Pacific Ocean tuna catch of 3,354,965 mt, and 52% of the global tuna catch (the provisional estimate for 2020 is 5,101,520 mt).

Species	Catch (mt)	%
Skipjack	1,769,202	66.3
Yellowfin	643,251	24.1
Bigeye	150,180	5.6
Albacore	105,430 (NP: 35,499; SP: 69.931)	4.0

Gear	Catch (mt)	%
Purse seine	1,916,118	71.8
Pole-and-line	152,098	5.7
Longline	211,773	7.9
SP Troll albacore	4,772	0.2
Others	383,302	14.4

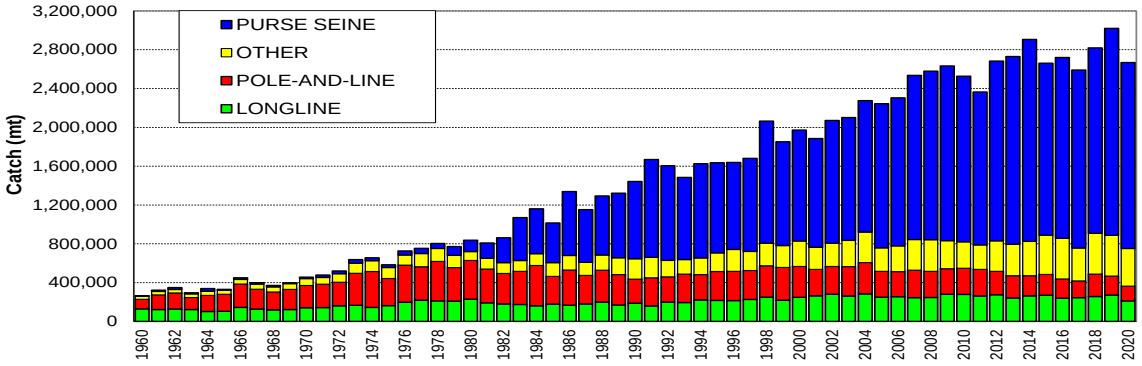

Figure 1. Catch (mt) of albacore, bigeye, skipjack and yellowfin in the WCP–CA, by longline, pole-and-line, purse seine and other gear types

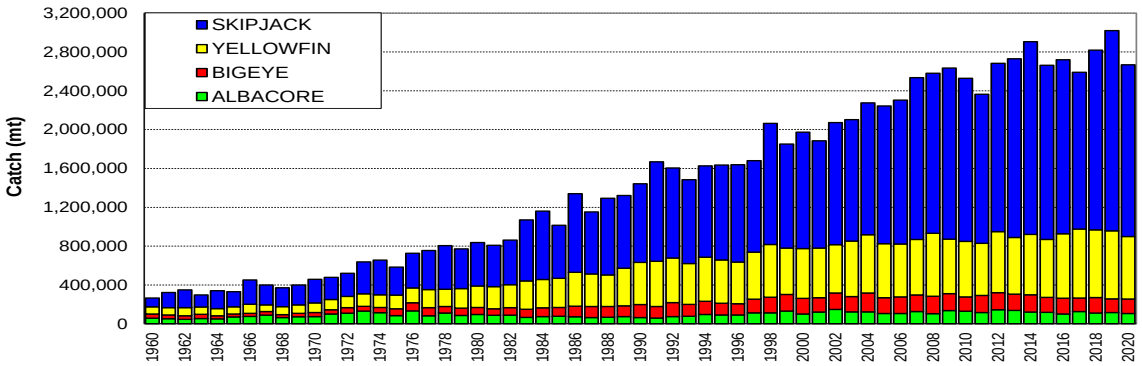

Figure 2. Catch (mt) of albacore, bigeye, skipjack and yellowfin in the WCP–CA

DATA AND STATISTICS THEME RECOMMENDATIONS

3. SC17 recommended publishing aggregated size data (data fields as listed in SC17-ST-WP-01, section 4.1) via the WCPFC public domain web page, after CCMs have advised the SSP on which of their size data submissions should be excluded. In this regard, CCMs are requested to advise the Scientific Services Provider (SSP) of the size data to be excluded before 31 December 2021, after which time the SSP will proceed to publish the WCPFC public domain size data based on this advice.

STOCK ASSESSMENT THEME RECOMMENDATIONS

4. SC17 reviewed four stock assessments: South Pacific albacore, Southwest Pacific blue shark and Southwest Pacific swordfish conducted by the SPC; and Pacific blue marlin conducted by the ISC. Refer to the Outcomes Document (NC17-IP-02) for details.

Pacific Blue Marlin

5. The following summarizes stock status and management advice of the Pacific blue marlin stock in the Western and Central North Pacific Ocean.

1) SC17 noted the following stock status from ISC:
   a. No target or limit reference points have been established for Pacific blue marlin by the WCPFC;
   b. Female spawning stock biomass was estimated to be 24,241 mt in 2019, or about 17% above SSB_{MSY} and 17% above 20%SSB_0.
   c. Fishing mortality on the stock (average F, ages 1 to 10) averaged roughly F = 0.13 during 2016-2019, or about 40% below F_{MSY} and 28% below F20% SSB_0.
   d. Blue marlin stock status from the ensemble model indicates that relative to MSY-based reference points, overfishing was very likely not occurring (>90% probability) and Pacific blue marlin is likely not overfished (81% probability, Figure PBUM-2).

2) SC17 noted the following conservation information from ISC:
   a. There is no evidence of excess fishing mortality above F_{MSY} ($F_{2016\text{-}2019}$ is 40% of F_{MSY}) or substantial depletion of spawning potential (SSB_{2019} is 17% above SSB_{MSY});
   b. It is important to note that retrospective analyses show that the assessment model tends to overestimate spawning stock biomass in recent years; and

c. The results show that projected female spawning biomass is expected to increase under the $F_{status\ quo}$ and $F_{30\%}$ harvest scenarios and decline to SSB_{MSY} under the High F and F_{MSY} harvest scenarios. The probability that the stock is overfished or overfishing occurring by 2029 under each harvest scenario is low.

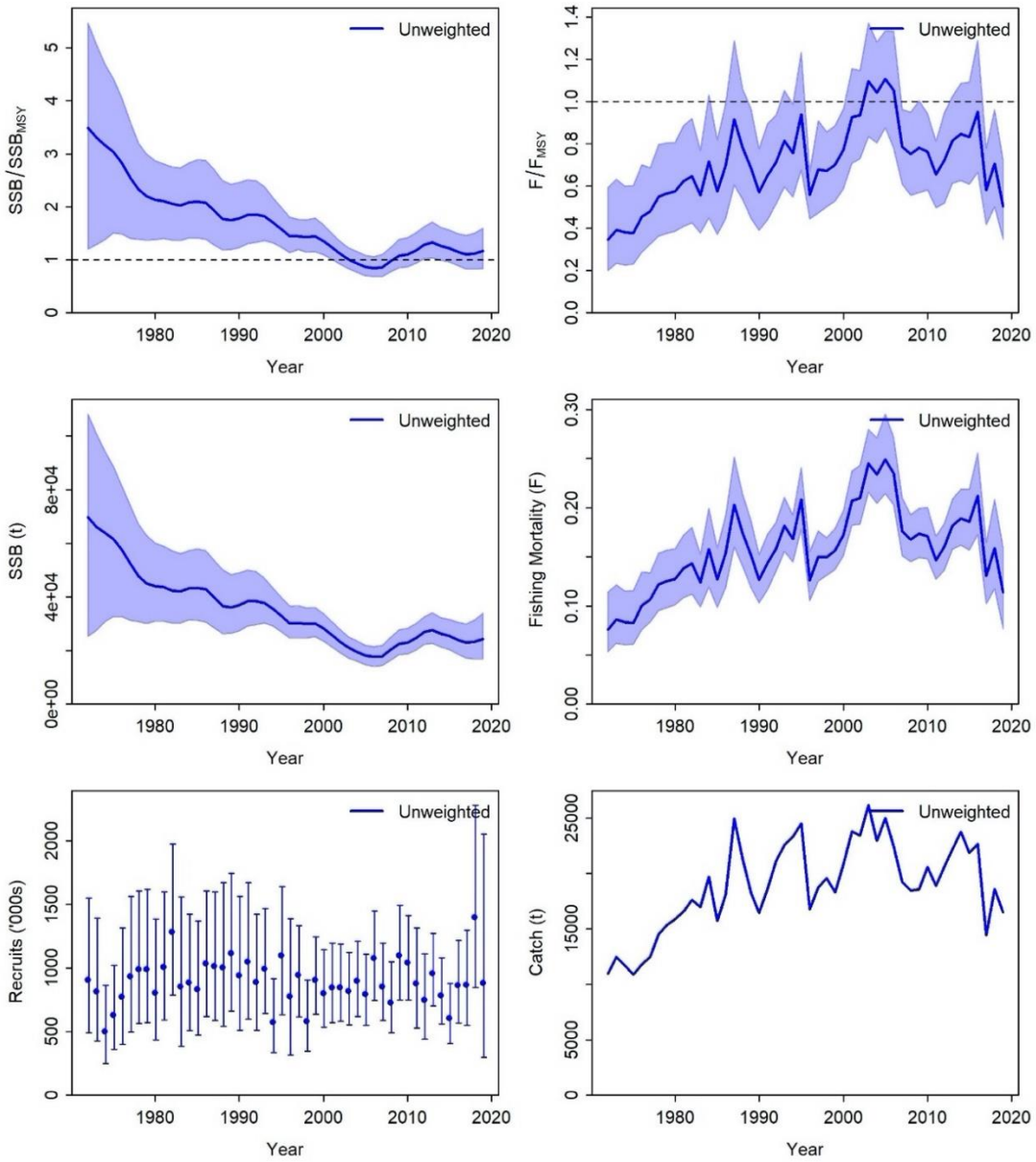

Figure PBUM-1. Time series of estimates of female spawning stock biomass over female spawning stock biomass at MSY (top left), fishing mortality over fishing mortality at MSY (top right), spawning stock biomass (center left), instantaneous fishing mortality (ages 1-10 $year^{-1}$, center right), recruitment (age-0 fish, bottom left), and catch (bottom right) for Pacific blue marlin (*Makaira nigricans*) derived from the 2021 stock assessment model ensemble. Lines (or points for recruitment) indicate the median value estimated from the joint multivariate delta-lognormal estimation, shaded areas (or error bars for recruitment) indicate the 95% confidence intervals. Unweighted indicates that both models have equal weights in the ensemble.

Peer Review

6. SPC introduced the arrangements to conduct an independent peer review of the 2020 WCPO yellowfin tuna assessment. Though the assessment was accepted as the 'best available science' to inform managers of stock status, it was noted that areas of uncertainty in the assessment required follow up investigation and expert advice, and that the assessment outcomes might provide an overly optimistic perception of stock status and the impact of fishing. Three experts were selected for the review by CCMs: Drs Mark Maunder, Andre Punt, and Jim Ianelli. SPC also noted that an in-person modelling workshop in real time with the experts is an essential part of the review, but that this is greatly complicated by the constraints imposed by COVID-19. To date, SPC has not been able to settle on arrangements that are workable for all parties, and it may not be possible to hold the workshop in the first half of 2022 as planned, with results reported to SC18.

MANAGEMENT ISSUES AND HARVEST STRATEGY DEVELOPMENT

TRPs for bigeye and yellowfin tuna

7. SC17 reviewed updated information on target reference points (TRPs) for bigeye and yellowfin tuna (SC17-MI-WP-01). SC17 noted that impacts on skipjack tuna depletion associated with relative changes to fishing levels to achieve a candidate bigeye tuna TRP are contingent on the proportion of fishing scalars related to purse seine fishing that target skipjack tuna. The relative change in fishing scalars to achieve candidate TRPs assume equal proportionality in purse seine and longline fishing scalars, provided for comparative purposes from the SC16 request. SC17 also noted that the risks of breaching the LRPs outlined in the paper are dependent on the treatment of uncertainty in any assessment and may underestimate uncertainty. SC17 noted that the analyses will greatly aid in considering candidate TRPs for bigeye and yellowfin tuna.

TRP for skipjack tuna

8. SC17 noted the challenges outlined in the paper SC17-MI-WP-02 on interpreting future fishing mortality and several CCMs proposed that additional analyses should be undertaken to consider how the fishing mortality estimated within the analysis is driven by the assumptions, particularly the contributions of the different gear types to the catch in Region 5 (western tropical region). To better understand the importance of each sector, one CCM requested yield or spawning biomass per-recruit curves by fishing sector be added to the paper.

Review of the overall harvest strategy work

9. Noting the planned schedule of adopting the management procedure for skipjack tuna in 2022, SC17 reviewed the progress on analysing the performance of candidate management procedures outlined in SC17-MI-WP-04.

10. SC17 commended the SSP for the PIMPLE app as it has served an important role in enhancing understanding of Management Procedures (MPs) and encouraged its use with managers in providing advice on the scientific aspects of candidate MPs. SC17 noted there are some MSY indicators presented within the PIMPLE software as this tool now includes both Kobe and Majuro plots.

11. SC17 noted that evaluations of candidate management procedures for skipjack tuna were based on a grid of operating models that was initially proposed at SC15 and subsequently revised at SC16. However, no formal agreement on the range of OMs to be used has been made by the SC. SC17 further noted that the

details of the OMs including model diagnostics were available for inspection online at https://ofp-sam.shinyapps.io/hierophant but more detailed presentation and discussion are warranted at SC18.

12. To progress the development of harvest strategies for skipjack, SC17 recommends that the Commission take note of the analyses outlined in SC17-MI-WP-04 and requests the Commission to provide advice on the following issues:

- Multispecies impacts on other tropical tuna related harvest strategies;
- Definition of fisheries and fishery controls within the harvest strategy;
- Input into candidate MP designs;
- Feedback on presentational approaches to enhance decision making;
- Procedures for selecting the 'best performing' MP.

SC WORK PROGRAM AND BUDGET

Scoring of the Proposed Scientific Committee Projects

13. SC17 agreed that Table WP-01 be used to score and then rank SC projects. SC agreed to implement this approach at SC17 and thereafter. Ranking is derived from the average of the scores allocated by CCMs.

Table WP-01. SC project scoring table. Colours represent priority rankings (6,9 = High; 3,4 = Medium; 1,2 = Low):

		Importance to WCPFC Management Outcomes or to the functioning of the SC		
	Rank	Low	Moderate	High
Feasibility: Likelihood of Success	Low	1	2	3
	Moderate	2	4	6
	High	3	6	9

Notes:

Importance criteria evaluate the significance of the outcomes of the proposal in contributing to the successful management of the WCPFC stocks or the functioning of the SC (e.g. is the proposal aligned with the WCPFC research and/or management priorities; does the proposal contribute to the effective planning and functioning of the SC; are the intended outputs/benefits well-defined and relevant; what is the level of impact and likelihood that the proposal outputs will be adopted; is the proposal cost effective). High= Essential; Moderate=Important but not essential; Low=Not Important.

Feasibility criteria evaluate the proposal's potential for success i.e., how likely is the proposal to achieve its stated objectives (e.g. are the objectives clearly stated, is the methodology sound, are the project objectives realistic and likely to be achieved, does the research team [if identified] have the ability, capacity and track record to deliver the outputs).

Review of proposed projects for 2022 – 2024

14. SC17 recommended the proposed work program and budget for 2022 and indicative budget for 2023 – 2024 in Table WP-02 to the Commission.

Table WP-02. Recommended Future Work Program and Budget for 2022 – 2024, ordered by CCM's averaged score. (Essential projects are highlighted in gray; P17Xy represents a new project)

Project Title	TOR	2022 (SC18)	2023 (SC19)	2024 (SC20)	Responsibility	Avg. score	# CCMs
SPC-OFP scientific services[1]		961,874	981,112	1,000,734	SPC	**8.8**	18
SPC Additional resourcing[2]	MFCL work	173,206	176,670	180,204	SPC	**8.2**	18
P35b. WCPFC Tissue Bank[2]	SC15-Att.G	103,204	105,268	107,373	SPC	**8.7**	19
P42. Pacific Tuna Tagging Program	SC15-Att.G	730,000	730,000	730,000	SPC	**8.9**	19
P65. Peer review	SC17-GN-IP-07	50,000			SPC	**9.0**	20
P17X4. Further development of ensemble model approaches for presenting SA uncertainty	TOR - TBC		20,000		SPC	**7.9**	20
P17X1. Billfish Research Plan 2023 - 2027	SC17-GN-IP-07	55,000			SPC	**7.8**	20
P90. Length weight conversion	SC16-GN-IP-08	75,000			SPC	**7.6**	20
P17X3. Preparing WCP tuna fisheries for application of CKMR methods to resolve key SA uncertainties.	SC17-GN-IP-07	40,000			SPC; Contingent on EU support	**6.9**	20
P17X2. SWP mako shark SA	SC17-GN-IP-07	105,000			SPC	**6.5**	20
P17X5. Scientific Advice for Southwest Pacific blue shark	SC17-GN-IP-07	40,000			SPC	**6.2**	20
P108. WCPO silky shark assessment	SC17-GN-IP-07	50,000	50,000		SPC; Report to SC19	**5.6**	14
P68. Seabird mortality	SC17-GN-IP-07	25,000	40,000	10,000	SPC	**5.2**	20
P60. PS Species Composition (Carry over 2000 budget to 2022)	SC15-Att.G				SPC	**N/A**	
Total Project Budget		**1,446,410**	**1,121,938**	**1,027,577**			
Total Project Budget + SPC		**2,408,284**	**2,103,050**	**2,028,311**			

ADMINISTRATION ISSUES

Election of Officers of the Scientific Committee

15. No nominations for a SC Chair and Vice-Chair for SC18 were made at SC17. The Executive Director advised that nominations for these positions would remain open until WCPFC18.

Next meeting

16. SC17 recommended to the Commission that SC18 would be held from 10–18 August 2022, and that it had not identified a host country for the meeting if held in person. Tonga offered to host SC19 in 2023.

[1] Budget – 2% annual increase