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DRAFT CONSERVATION AND MANAGEMENT MEASURE ON A MANAGEMENT PROCEDURE FOR WCPO SKIPJACK TUNA

WCPFC19-2022-DP04
28 October 2022

FFA Member CCMs

Draft Conservation and Management Measure on a Management Procedure for WCPO Skipjack Tuna

WCPFC-2022-DPXX
28 October 2022

Submission by FFA Member CCMs[1]

Abstract

This paper explains the basis for a proposal by FFA Members for the adoption of an interim Management Procedure for WCPO Skipjack Tuna. A draft CMM prepared by FFA Members for this purpose is attached.

The paper also assesses the draft CMM against the requirements of CMM 2013-06 on the Criteria for the Consideration of Conservation and Management Proposals.

Introduction

1. The WCPO skipjack tuna stock is the largest global tuna stock and is a critically important stock for global tuna canning supplies, other commercial tuna products and small-scale, artisanal and subsistence fisheries. The effective management and sustainable use of this stock is important both to the peoples of the states in whose waters this stock occurs and to the fleets that harvest them. The stock is especially important for SIDS, for some of whom this stock is the natural resource on which their sustainable development most heavily depends.

2. The WCPO skipjack tuna stock is one of the healthiest tropical tuna stocks in the world because of the effective management arrangements applied to this stock by FFA Members and other members of the WCPFC. Nearly 60 per cent of the WCPO skipjack tuna catches have been taken in the waters of FFA Members in recent years, largely under the PNA Vessel Day scheme, and the stock provides a large proportion of the global supply of certified sustainable tuna catches.

3. The proposed interim Management Procedure is designed to improve decision-making on management and conservation for skipjack tuna fisheries by having pre-agreed rules for how fishing will be adjusted as status of stocks change, and better taking account of uncertainty. The adoption of an interim Management Procedure for this stock will be a further important step in ensuring the effective management and sustainable use of the stock and meeting the interests of the growing number of customers in buying sustainable tuna products. In this

[1] Prepared without prejudice to the positions of FFA Member CCMs individually or collectively

respect, the proposed CMM is also an important step in the implementation of CMM 2014-06 on establishing harvest strategies for key fisheries and stocks in the WCPO.

4. The draft CMM responds to previous advice from the Scientific Committee recommending that the Commission take appropriate management action to ensure that the biomass depletion level of skipjack tuna fluctuates around the TRP (e.g., through the adoption of a harvest control rule), and to the decision of WCPFC18 to review and adopt a management procedure for skipjack tuna at WCPFC19.

5. The draft CMM also builds on the conclusion of the recent Science-Management Dialogue that the management procedure for skipjack tuna was on track for adoption at WCPFC19.

Background

6. In article 5 (c) of the Convention, members of the Commission have committed to apply the precautionary approach, in accordance with the Convention and all relevant internationally agreed standards and recommended practices and procedures.

7. Annex II of the Agreement for the Implementation of the Provisions of the United Nations Convention of the Law of the Sea of December 1982 relating to the Conservation and Management of Straddling Fish Stocks and Highly Migratory Fish Stocks (UNFSA) sets out guidelines for the application of precautionary reference points in the conservation and management of straddling fish stocks and highly migratory fish stocks.

8. Article 6 1. (a) of the Convention requires members of the Commission, in their application of the precautionary approach, to apply these guidelines and determine, on the basis of the best scientific information available, stock-specific reference points and the action to be taken if they are exceeded.

9. At its 9th Annual Session, the Commission decided that Limit Reference Points (LRPs) for south Pacific albacore, bigeye, skipjack and yellowfin tunas shall be the spawning biomass that is 20 per cent of the estimated spawning biomass in the absence of fishing averaged over a recent 10-year period ($SB_{F=0, t1-t2}$).

10. At its 10th Annual Session, the Commission decided that the time window for estimation of the spawning biomass in the absence of fishing should have a length of 10 years and be based on the last ten years in the assessment starting from the penultimate year of the assessment period.

Structure of the Proposal

11. The proposed interim Management Procedure allows for flexibility in that the CMM requires the Commission to take the output of the Management Procedure into account when reviewing the Tropical Tuna CMM rather than requiring the Commission to directly apply that output. This flexibility is a response to the complexity of the Harvest Strategy process, the delays in progress, the ongoing changes in the assessments and the fishery, the differences between

CCMs and the current healthy status of the skipjack tuna stock. It will give CCMs the opportunity to adopt and work with the skipjack tuna Management Procedure on an interim basis until they are comfortable with adopting the Management Procedure fully. It will also allow elements that are not fully detailed or agreed by WCPFC19 to be further developed over time.

12. The Management Procedure will be applied in a repeating 3-year cycle. The CMM provides for the trial to run for 2 cycles. The Commission may decide at any point to revise the CMM to fully apply the Management Procedure.

Scope

13. The Management Procedure applies to the catch and effort of purse seine and pole and line fisheries and other commercial fisheries in EEZs and the high seas. Around 70 per cent of the skipjack tuna catch of the fisheries to which the Management Procedure applies are taken in the waters of FFA Members.

Target Reference Point

14. At its 12th Annual Session, the Commission adopted 50 per cent of the estimated recent average spawning biomass in the absence of fishing, ($SB_{F=0,\ t1\text{-}t2}$) as an interim target reference point for skipjack tuna.

15. The rationale put forward for that target reference point was based on an analysis of a set of candidate target reference points which indicated that the target reference point proposed at that time was:
    a) *sufficiently distant from the LRP to ensure the population did not fall below the LRP with a high degree of certainty;*
    b) *consistent with broadly maintaining the recent patterns of fishing, including effort levels;*
    c) *projected to result in spawning biomass increasing slightly from 2012 levels;*
    d) *suggested purse seine catch rates were likely to remain at around current levels; and*
    e) *projected to provide a "pretty good yield" of around 90% of that at MSY.*

16. The Pacific Community (SPC) have updated that analysis as shown in the table below (see WCPFC19-2022-10).

Median spawning biomass depletion levels of skipjack tuna ($SB/SB_{F=0}$) and corresponding change in spawning biomass depletion from different specified historical levels, change in purse seine effort (scalar), resulting median total equilibrium yield (as a percentage of MSY) and the risk of falling below the LRP. Results under baseline fishery conditions indicated by the shaded row.

Median spawning biomass depletion level ($\%SB_{F=0}$)	Change in PS effort from 2012 levels*	Median total equilibrium yield (%MSY)**	Risk $SB/SB_{F=0}$ < LRP	Change in spawning biomass depletion ($\%SB_{F=0}$) from				
				2007-2009 average levels	2012 levels	2012-2015 average levels	2016-2018 average levels	2018-2021 average levels
60%	-40%	61%	0%	-16%	-1%	-2%	+14%	+18%
58%	-35%	63%	0%	-18%	-3%	-4%	+12%	+15%
56%	-27%	66%	0%	-21%	-7%	-8%	+8%	+11%
54%	-20%	69%	0%	-23%	-10%	-11%	+4%	+7%
52%	-10%	72%	0%	-27%	-14%	-15%	0%	+3%
50%	0%	75%	0%	-30%	-17%	-18%	-5%	-2%
48%	+10%	77%	0%	-33%	-21%	-22%	-9%	-6%
46%	+20%	79%	0%	-36%	-24%	-25%	-13%	-10%
44%	+30%	81%	0%	-38%	-27%	-28%	-16%	-13%
42%	+40%	83%	1%	-41%	-30%	-31%	-19%	-17%
40%	+52%	84%	2%	-43%	-33%	-34%	-23%	-21%

* 'baseline' conditions as described in the main text. No future 'effort creep' assumed, i.e. CPUE is assumed strictly proportional to the abundance.

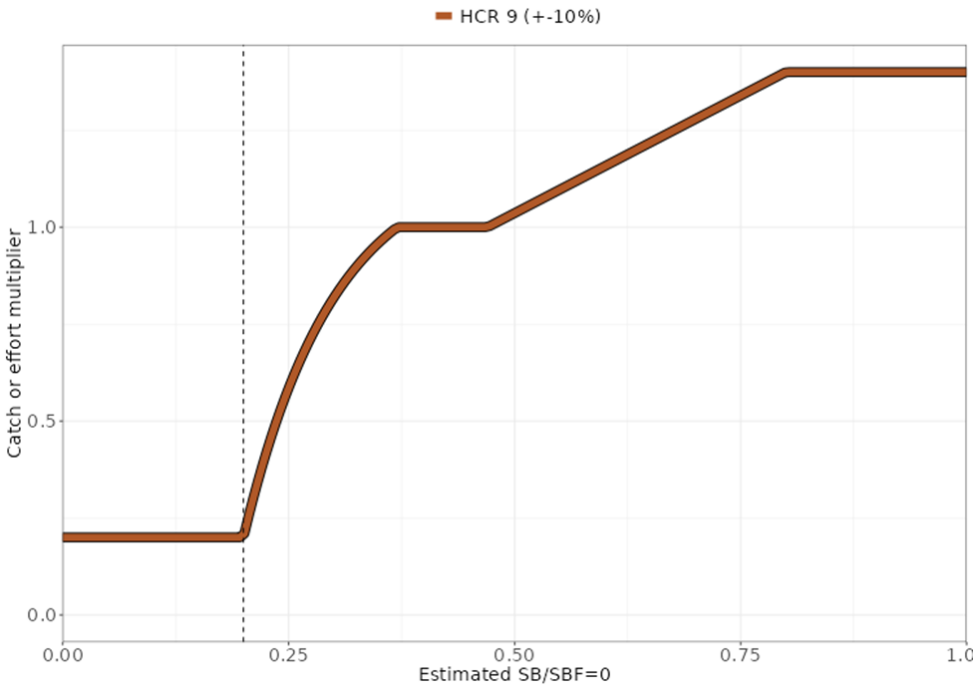
** Recalculated using estimated equilibrium catch at the defined fishing level

17. The proposed TRP in the draft CMM is designed to be consistent with the condition of the purse seine effort in 2012 and recent (2018-21) skipjack tuna stock conditions. This approach is broadly consistent with the previous interim target reference point, with an updated stock-related element. The updating of the stock-related element takes into account the effects of increases in reported skipjack tuna catches in Indonesia and Philippines, changes to the Tropical Tuna CMM in 2017 and changes in the skipjack tuna assessment model. From the table above, applying that approach is consistent with a target reference point of 50 per cent of $SB_{F=0}$.

Harvest Control Rule

18. The proposed harvest control rule is similar to that illustrated in the figure below. The proposed harvest control rule was selected with the view of the long-term stability of the fisheries that this stock supports. This is consistent with our view that the fishery is performing at the level where we want it to be and that we want to see the fishery continue to perform at this level into the future. It provides a "Hillary" step designed to manage the fishery within a range of spawning biomass depletion levels, centered around the proposed target reference point definition. It includes a 10% constraint on the change in the catch or effort scalar, that is applied

to all fisheries as the output of the harvest control rule. This provides a stable and predictable operating environment for those fisheries that this stock supports.



Special Circumstances Relating to Catches in Archipelagic Waters

19. The interim Management Procedure includes a provision for the Commission to adjust the Target Reference Point as an alternative to adjusting catch and effort when changes in catch and effort in archipelagic waters have had an impact on $SB_{recent}/SB_{F=0}$.

Other Elements of the Proposed Management Procedure

20. The other elements of the Management Procedure, including the settings of the Estimation Model, the Data Requirements and Monitoring Strategy and the description of Exceptional Circumstances are taken directly from documentation from the Scientific Committee and the Science-Management Dialogue.

Application of CMM 2013-06

The following information is offered to assist the Commission to meet the requirements of CMM 2013-06 in respect of this draft CMM.

a. Who is required to implement the proposal?

All CCMs will be required to implement this proposal in their cooperation to apply the Management Procedure for skipjack tuna. However, it should be noted that those CCMs who are participants in the PNA Purse Seine Vessel Day Scheme bear a large proportion of the effort of implementation because around 70% of the catch of skipjack tuna in fisheries controlled by the Management Procedure is taken in the waters of those CCMs.

b. Which CCMs would this proposal impact and in what way(s) and what proportion?

This proposal will have an impact on all CCMs involved in fisheries for WCPO skipjack tuna. The impact will be greatest on SIDS in whose waters fishing for skipjack tuna largely takes place, and who are, in many cases, substantially dependent on fisheries targeting skipjack for their sustainable development. The impact on those SIDS will depend on how the Commission applies the Management Procedure for skipjack tuna, noting that CMM 2014-06 requires that *Harvest strategies shall not result in transferring, directly or indirectly, a disproportionate burden of conservation action onto developing States Parties, and territories and possessions*. To the extent that the application of the Management Procedure improves the management of the fisheries for WCPO skipjack tuna, those SIDS will benefit. However, if the application of the Management Procedure does not work as anticipated, those SIDS could potentially face severe economic losses, which is addressed by the element of flexibility built into the proposal.

c. Are there linkages with other proposals or instruments in other regional fisheries management organizations or international organizations that reduce the burden of implementation?

Yes, there are linkages to the process of setting of the TAE for the purse seine VDS under the Palau Arrangement implemented by the PNA and Tokelau, which is a measure applied by a subregional fisheries management organization under Article 8 of the Convention.

d. Does the proposal affect development opportunities for SIDS?

The proposed Management Procedure is designed to improve decision-making management and conservation for skipjack tuna fisheries by having pre-agreed rules for how fishing will be adjusted as the status of stocks change, and better taking account of uncertainty. If effective in this way, the proposal could enhance development opportunities for those SIDS substantively engaged in the skipjack tuna fisheries. However, as the recent TRP analysis has shown, the Harvest Strategy approach currently being applied also has the potential to severely reduce development opportunities for many SIDS. The interim nature of the proposal is designed to

provide an approach for the Commission to explore the application of a skipjack tuna Management Procedure while avoiding those potentially severely adverse outcomes.

e. Does the proposal affect SIDS domestic access to resources and development aspirations?

As noted above, the proposal has the potential to contribute to maintaining and increasing the value of fisheries for skipjack tuna, including the artisanal and purse seine fisheries in a way that would enhance SIDS domestic access to resources and promote development aspirations. However, the recent TRP analysis has also shown that a skipjack tuna Management Procedure could potentially severely constrain purse seine harvests of skipjack tuna in a way that would severely adversely affect SIDS domestic access to resources and development aspirations.

f. What resources, including financial and human capacity, are needed by SIDS to implement the proposal?

The Harvest Strategy approach is recognised as complex and demanding, and effective participation in this process is challenging. This is a recognised priority, with assistance already being provided by the SPC, FFA, the PNAO and the WCPFC, through a range of workshops and technical advisory activities. Work in this area will need to continue to be recognised as a priority.

However, capacity building assistance by itself is not sufficient. There is a need to also ensure that Harvest Strategy activities are integrated into the Commission's programme in a way that does not increase the burden of overall participation in Commission activities on SIDS.

g. What mitigation measures are included in the proposal?

The mitigation measures included in the proposal are:

a) The interim nature of the proposed Management Procedure which is designed to enable further development of the skipjack tuna Management Procedure in a way that might avoid some of the potentially more severe adverse effects noted above, and which recognises the complexity of the work and the time and effort needed to participate in it effectively; and
b) The Special Circumstances provision which is designed to avoid the particular risk that the effects of increases in skipjack tuna catches in archipelagic waters on spawning biomass depletion result in the Management Procedure indicating a need for a reduction in purse seine effort even though the stock is very healthy. That provision allows for an adjustment to the TRP as an alternative to adjustments to catch and effort of skipjack tuna fisheries.

h. What assistance mechanisms and associated timeframe, including training and financial support, are included in the proposal to avoid a disproportionate burden on SIDS?

Current and projected programmes of assistance are expected to meet the needs for training and technical assistance, provided the current priority is maintained.

Attachment

Draft Proposal for an Interim Skipjack Tuna Management Procedure[2]

Objective

1. The objective of the interim Management Procedure (MP) for skipjack tuna, is to ensure that:
   a) the spawning potential depletion[3] ratio of skipjack tuna is maintained on average in the long-term at around the target reference point; and
   b) the spawning potential depletion ratio of skipjack tuna is maintained above the limit reference point with a risk of the limit reference point being breached no greater than 20 percent.

Reference Points

2. The reference points are:
   a) Target reference point: Calculated on the basis of two spawning potential depletion values, where spawning potential depletion is expressed as a percentage of the estimated average spawning potential in the absence of fishing for the relevant 10-year period ($SB_{recent}/_{SBF=0,\ t1\text{-}t2}$) as defined in paragraph 3 and using the median values across the grid of assessment models as agreed by the WCPFC Scientific Committee. The first value represents the estimated average depletion of the skipjack tuna stock over the four-year period 2018-2021. The second value represents the long-term median equilibrium stock depletion that would be reached under the agreed baseline fishing conditions for skipjack tuna (purse seine effort at 2012 levels, pole and line effort at average 2001-04 levels, and the domestic fisheries in assessment region 5 at average 2016-18 levels). The target reference point is the average of these two values (weighting of 50/50). The target reference point is estimated from the 2022 WCPO skipjack tuna stock assessment at 50[4] per cent of $SB_{F=0}$.
   b) Limit reference point: 20 percent of the estimated recent average spawning potential in the absence of fishing, ($SB_{F=0,\ t1\text{-}t2}$).

3. The method to be used in estimating $SB_{recent}/SB_{F=0,\ t1\text{-}t2}$ shall be:
   a) SB_{recent} is the average estimated spawning potential across the last four years of the most recent stock assessment time period;
   b) $SB_{F=0,\ t1\text{-}t2}$ is the average of the estimated spawning potential in the absence of fishing for a time window of ten years based on the most recent skipjack tuna stock assessment, where $t1=y_{last-10}$ to $t2=y_{last-1}$ where y_{last} is the last year within the assessment; and
   c) The estimation shall be based on the relevant estimates of recruitment that have been adjusted to reflect conditions without fishing according to the stock recruitment relationship.

Elements of the MP

4. The MP includes:
   a) The Harvest Control Rule set out in Annex 1;

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[2] Prepared without prejudice to the positions of PNA and Tokelau individually or collectively.

[3] Spawning potential depletion refers to the estimated spawning potential as a percentage of the estimated spawning potential in the absence of fishing (i.e. the unfished spawning potential). The metric is dynamic and is estimated for each model time step.

[4] The calculated value is 50.5.

b) The Estimation Model using the settings set out in Annex II;
c) Data Requirements and the Monitoring Strategy set out in Annex III;
d) The procedure for Exceptional Circumstances set out in Annex IV; and
e) The provision for Special Circumstances set out in Annex V.

Roles of the Commission, the Scientific Committee and the Scientific Services Provider

5. The Scientific Committee shall:
   a) Regularly review the performance and outputs of the MP, including the indicators set out in Annex III. and;
   b) Provide advice to the Commission on the continued performance of the MP, including advice to the Commission on exceptional circumstances in accordance with Annex IV.

6. The Scientific Services Provider shall run the MP, perform the full assessment, and support Scientific Committee and Commission consideration of the MP.

7. The Commission shall take the output of the MP into account when reviewing the CMM 2021-01: CMM for Bigeye, Yellowfin and Skipjack Tuna in the Western and Central Pacific Ocean or any successor Measure in a repeating 3-year schedule as follows:

Year	Scientific Services Provider	Scientific Committee	Commission
2023	-Run the MP (using data to 2022). -Support SC and Commission consideration of the MP.	-Provide advice to the Commission on the MP outputs for the period 2024-2026.	-Review the Tropical Tuna CMM. -Revise catch and effort related limits for 2024-2026.
2024		-Data to monitor performance of the MP not available in first year of implementation.	-Apply Tropical Tuna CMM.
2025	-Perform full stock assessment (y_{last} = 2024).	-Review the performance of the MP, including potential exceptional circumstances, and advise Commission.	-Apply the Tropical Tuna CMM.
2026	-Run the MP (using data to 2025). -Support SC and Commission consideration of the MP.	-Monitor the performance of the MP using available data to 2025. -Provide advice to Commission on the MP outputs for the next management period (2027-2029).	-Review the Tropical Tuna CMM. -Revise catch and effort related provisions for 2027-2029.
2027		-Monitor the performance of the MP using available data to 2026.	Apply the Tropical Tuna CMM.
2028	-Perform full stock assessment (y_{last} = 2027).	-Review the performance of the MP, including potential exceptional circumstances, and advise Commission.	-Apply the Tropical Tuna CMM. -Review the performance and use of the MP.
2029	-Run the MP (using data to 2028). -Support SC and Commission consideration of the MP.	-Monitor the performance of the MP using available data to 2028. -Provide advice to the Commission on catch and effort related provisions for the next management period (2030-2033).	-Review the Tropical Tuna CMM. -Review catch and effort related provisions for 2027-2029.

Management Strategy Evaluation

8. The MP has been simulation tested to determine its likely performance against a range of plausible scenarios. These scenarios and the details of the testing procedure are provided in WCPFC-2022-SC18/-MI-WP-03. The results of the evaluations are outlined in WCPFC-SC18-2022/-MI-WP-02 and are available online at: https://ofp-sam.shinyapps.io/PIMPLE_WCPFC19/.

Allocation

9. Allocation is not included in, or affected by, the MP.

Review and Final Provisions

10. The Commission shall review this CMM in 2025 and 2028 to ensure that the various provisions are having the intended effect. The Commission may amend the CMM at any point to fully apply the MP.

11. This measure shall come into effect on 16 February 2023 and shall replace CMM 2015-06 at that time. It shall remain in effect until 15 February 2030 unless earlier replaced or amended by the Commission.

ANNEX I: HARVEST CONTROL RULE

1. The harvest control rule is outlined in Figure 1. Features include:
   a) The input to the harvest control rule is the estimated spawning potential depletion ratio for the latest estimation year ($SB_{latest}/SB_{F=0,\ t1\text{-}t2}$), where SB_{latest} is the estimated spawning potential in the last year of data within the estimation model and $SB_{F=0,\ t1\text{-}t2}$ is the same time period as described in 3 b) above;
   b) The output from the harvest control rule is a scalar (multiplier) that adjusts future catch or effort relative to a baseline of 2012 values.;
   c) All fisheries are scaled equally. Scalars apply to effort for purse seine fisheries, and to catch for all other fisheries; and
   d) For each 3-year management period, the harvest control rule uses the estimate of stock status ($SB_{latest}/SB_{F=0,\ t1\text{-}t2}$), as determined by the Estimation Model, to calculate a scalar that adjusts catches or effort up or down relative to 2012 effort levels.

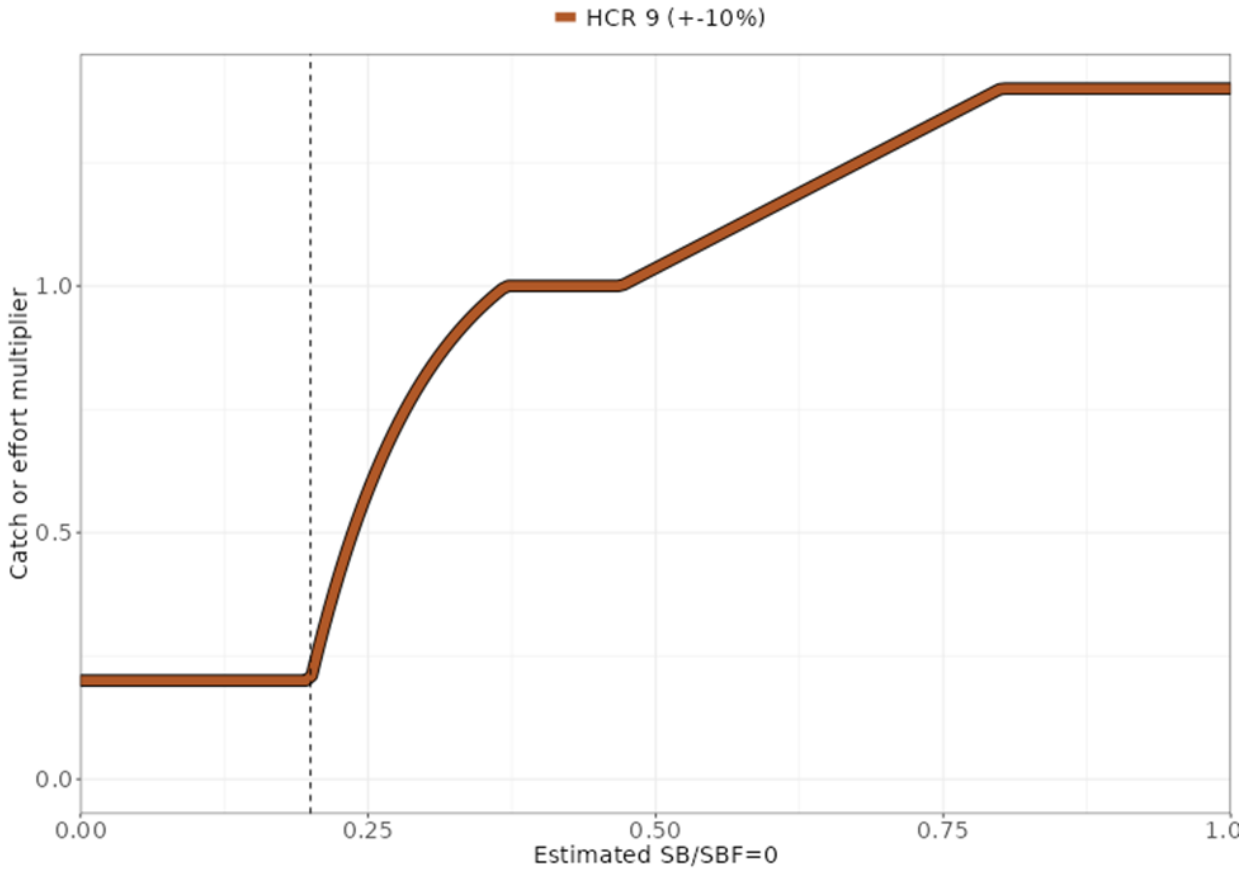

Figure 1. Harvest control rule

2. The harvest control rule formulation is provided in WCPFC-SC18-2022/MI-WP-03. The parameters are as follows:

   Type = 'asymptotic_Hillary_step_constrained'
   $SB/SB_{F=0}$ min 0.2
   $SB/SB_{F=0}$ max 0.8
   Out_min 0.2
   Out_max 1.4
   $SB/SB_{F=0}$_step_min 0.2
   $SB/SB_{F=0}$_step_max 0.55
   Step_height 1.0
   Curve 10
   Max_change_up 1.10
   Max_change_down 0.9

3. The maximum increase or decrease in effort indicated by the HCR between any 3-year management period shall be 10% relative to the catch and effort levels specified by the MP for the previous three years period.

ANNEX II: ESTIMATION MODEL

4. Stock status ($SB/SB_{F=0}$) is estimated within the MP from a MULTIFAN-CL Estimation Model (Annex II) detailed in WCPFC-SC18-2022-MI-WP02 Attachment A. The parameters of the Estimation Model are as follows:

Model Setting		Value
Regional Structure		8 regions
Steepness		0.8
Length comp. wtg.		100
Tag mixing period		1 qtr
VonB growth params	Lmin	25.7051
	Lmax	78.0308
	K	0.212
Hyperstability in CPUE		0

ANNEX III: DATA REQUIREMENTS AND MONITORING STRATEGY

Table 1. Data requirements under the WCPO MP and considerations for the monitoring strategy with respect to the collection, provision, coverage, and quality of data necessary to run the MP. Data prioritisation is considered here with specific regard to the monitoring strategy.

Data requirement	Priority	Monitoring Considerations
MP: estimation model		
Annual catch estimates.	High	Obligatory under WCPFC scientific data submission standards.
Aggregate catch/effort data.	High	Obligatory under WCPFC scientific data submission standards.
Operational catch/effort data.	High	Obligatory under WCPFC scientific data submission standards.
Standardised CPUE indices for important index fisheries (e.g. pole and line fisheries).	High	Continuation of ongoing arrangements.
Species composition data for purse seine catches.	High	Dependent on observer coverage.
Size composition data.	High	Obligatory under WCPFC scientific data submission standards.
Tagging data	High	Dependent on ongoing WCPFC funding.
Monitoring Strategy: stock assessment		
As above for MP.	High	As a minimum, the data listed above will be required to run the stock assessment.
Additional data to inform the stock assessment.	Low	Where available, additional data will be used to improve the stock assessment e.g. growth, maturity, effort creep, population structure and movement.
Monitoring Strategy: performance indicators		
Other data as available to calculate performance indicators – this may include:	The frequency and scope of these data may vary depending on data availability and collection procedures. Performance indicators calculated from them may represent only a subset of the fishery.	
Economic data.	Medium	e.g. voluntarily submitted economic information
Ecosystem data.	Medium	e.g. bycatch and discards (mandatory) information
Social information.	Medium	e.g. industry/employment, household surveys

Table 2. Aspects of the Management Procedure that may be considered for inclusion in the monitoring strategy and the Commission body at which those considerations can be made.

MP Element	Commission Body	Monitoring Considerations
Review the MSE framework		
OM grid.	SC	Ensure that the most important sources of uncertainty are included in the OM grid.
Calculation of performance indicators.	SC	Appropriate representation of objectives by performance indicators.
Modelling assumptions.	SC	Consider the technical details of the simulation and testing framework.
Data availability to support the MSE framework.	SC/TCC	Improvements to data collection to either enhance the OM framework and/or reduce the uncertainty included in the OM grid.
Review performance of the MP		
Comparison of MP performance against latest stock assessment.	SC	Check that the MP is performing as expected.
Data availability to run the MP.	SC/TCC	Check availability, quantity, quality of data necessary to run the MP (e.g. the estimation model).
Other sources of data to monitor performance not included in the MSE framework.	SC/TCC	Identify other data as available to inform calculation of performance indicators (economic, social, ecosystem, etc).
Review of the MP		
Management objectives.	Commission	Check that the overall objectives of the MP are still appropriate.
Exceptional circumstances.	SC/TCC/ Commission	Drawing on all of the above, have events (unexpected, extra-ordinary) occurred such that remedial action is required to either review, modify or replace the MP

Table 3. Performance Indicators Examined

Indicator 1	Maintain SKJ, YFT, BET biomass at or above levels that provide fishery sustainability throughout their range.
Indicator 3	Maximise economic yield from the fishery (average expected catch).
Indicator 4	Maintain acceptable CPUE.
Indicator 6	Catch stability.
Indicator 7	Effort stability: effort variation relative to a reference period.
Indicator 8	Proximity of $SB/SB_{F=0}$ to the average $SB/SB_{F=0}$ in 2018-21.

ANNEX IV: EXCEPTIONAL CIRCUMSTANCES

5. Exceptional circumstances are defined as the occurrence of events that are outside the range of scenarios considered for testing the MP. In the case of such events, it may be necessary to re-evaluate the MP or, in severe cases where there is considered to be a risk to the stock, take remedial action. Exceptional circumstances are not a mechanism for making regular, small adjustments to the MP, but rather should be invoked where, through an agreed process, the operation of the MP has been demonstrated to be highly risky or inappropriate. This Annex provides guidance on the process for determining whether exceptional circumstances exist and the necessary actions but does not provide firm definitions of all possible exceptional circumstances.

Process to determine if exceptional circumstances exist

6. SC to implement and conduct a monitoring strategy and to advise the Commission on the occurrence of exceptional circumstances based on the results of:
    - Routine annual evaluation of potential exceptional circumstances based on information presented to and reviewed by SC; and
    - Detailed evaluation of potential exceptional circumstances every 3 years coincident with the stock assessment.

7. Examples of what might constitute exceptional circumstances include, but are not limited to:
    - Persistent low recruitment outside the range for which the MP was tested;
    - Substantial improvements in knowledge, or new knowledge, concerning the dynamics of the population which would have an appreciable effect on the operating models used to test the MP;
    - Non-availability of important input data resulting in an inability to run the MP;
    - Stock assessment biomass estimates that are substantially outside the range of simulated stock trajectories considered in the MP evaluations, calculated under the reference set of operating models;
    - Failure of reported catches and effort to be within an acceptable range around the levels indicated by the MP; and
    - Persistent or strong negative outcome in indicators in Annex III.

Process for action in the event of exceptional circumstances

8. Having determined that there is evidence for exceptional circumstances, the SC will, in the same year, provide advice to the Commission including, but not limited to:
    - the nature and considered severity of the exceptional circumstances;
    - the necessary action required:
        - where the severity is considered to be high, the recommendation may be for a change to the catch/effort limits; and
        - where the severity is considered to be low, the recommendation may be that the Scientific Committee review the MP earlier than scheduled.

ANNEX V: SPECIAL CIRCUMSTANCES

9. The Commission shall consider adjusting the Target Reference Point as an alternative to adjusting catch and effort when catch and effort in archipelagic waters are having an increasing relative impact on $SB_{recent}/SB_{F=0}$.