



Food and Agriculture Organization
of the United Nations



ITEM 7. ACTION REQUIRED FOR RESOLUTION 22/03 ON A MANAGEMENT PROCEDURE FOR BIGEYE TUNA

NOTE:

WE ARE NOT DISCUSSING THE MP ITSELF.

**RATHER, WE ARE MAKING SURE HOW THE MP WAS APPLIED TO SET A
RECOMMENDED TAC BASED ON RESOLUTION 22/03.**



Food and Agriculture Organization
of the United Nations

MP DEFINED IN 22/03



Food and Agriculture
Organization of the
United Nations



Indian Ocean Tuna Commission
Commission des Thons de l'Océan Indien

RESOLUTION 22/03

ON A MANAGEMENT PROCEDURE FOR BIGEYE TUNA IN THE IOTC AREA OF COMPETENCE.

Keywords: *Bigeye tuna, Management Procedure, Harvest Strategy, Target reference point, MSY.*

The Indian Ocean Tuna Commission (IOTC),



Management procedure

2. The adopted management procedure for bigeye tuna known as MP1 Harvest is described in Annex I (MP).
3. Consistent with the adopted management objectives of the Commission, the management procedure is designed to achieve:
 - a) a 60% probability that the bigeye tuna spawning stock biomass achieves the target reference point of SB_{MSY}^1 by 2034-2038;
 - b) the bigeye tuna spawning stock biomass avoids breaching the interim limit reference point specified in Resolution 15/10 with a high probability;and operates with the following constraint:
 - c) the maximum increase or decrease in the TAC shall be 15% relative to the previous TAC.



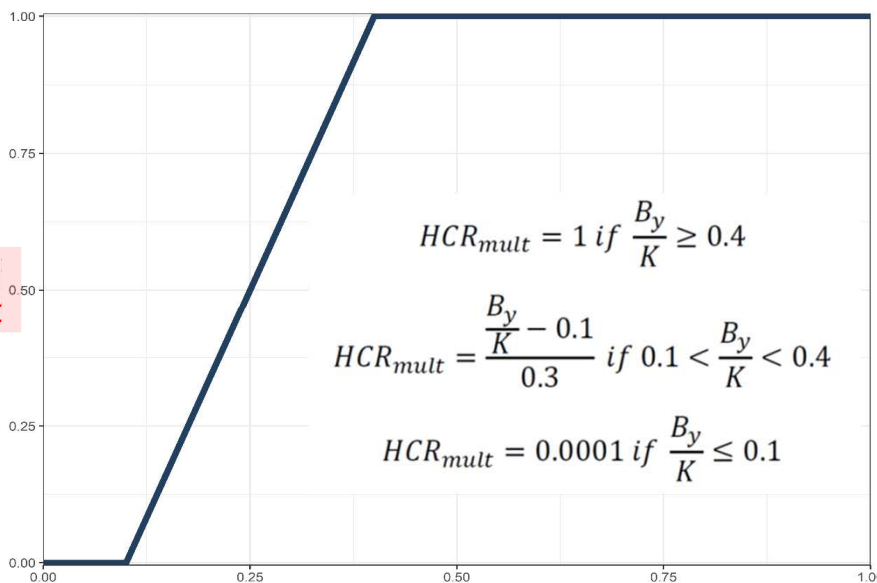
IMPLEMENTATION SCHEDULE FOR BET (22/03)



IOTC COMMITTEE	2022	2023	2024	2025	2026	2027	2028	2029
Commission (May/June)	Select and adopt BET MP	Annual Review of SC advice →						
		Set TAC (2024-2025)		Set TAC (2026-2028)			Set TAC (2029-2031)	
WPTT and WPM (Oct)	Collate catch data and CPUE series used in MP		Collate data used in MP			Collate data used in MP		
	Consider exceptional circumstances (EC), advise SC		Consider EC			Consider EC		
SC (Dec)	Run MP		Run MP			Run MP		
	Assess stock status			Assess stock status			Assess stock status	
	Annual Review of Exceptional Circumstances →							
	Provide TAC advice to the Commission		Provide TAC advice			Provide TAC advice		

- Hockey-stick shaped Harvest Control Rule (HCR)

$$TAC_{new} = B_y(1 - \exp(-F_{mult} \times HCR_{mult} \times F_{MSY} \text{ ratio}))$$



HCR_{mult}

$$HCR_{mult} = 1 \text{ if } \frac{B_y}{K} \geq 0.4$$

$$HCR_{mult} = \frac{\frac{B_y}{K} - 0.1}{0.3} \text{ if } 0.1 < \frac{B_y}{K} < 0.4$$

$$HCR_{mult} = 0.0001 \text{ if } \frac{B_y}{K} \leq 0.1$$

B/K

- Maximum TAC change constraint of **15%**

Annual TAC calculated for 2024-2025

(fixed tuning para) $F_{mult} = 3.178$

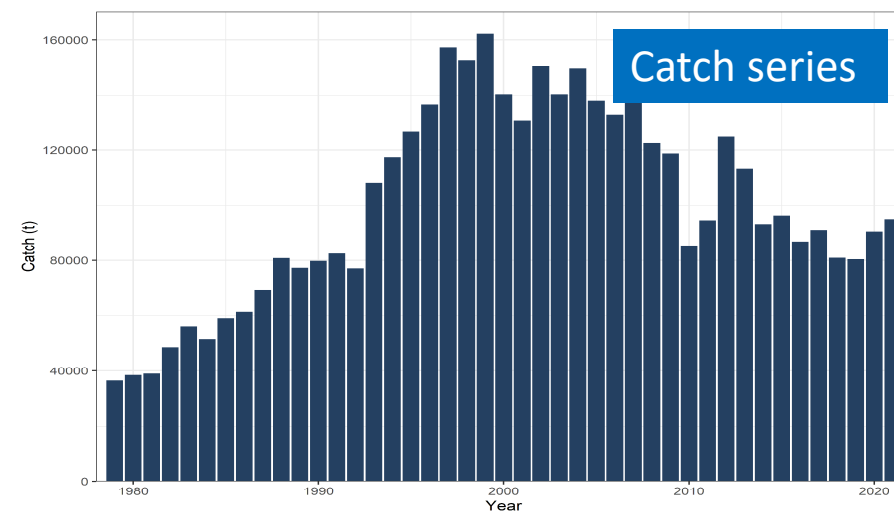
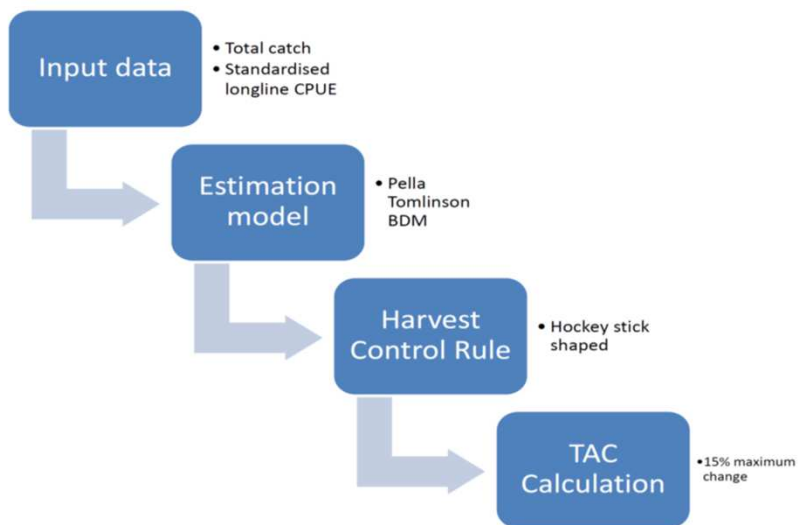
(from estimation model)

$B_y = ?$

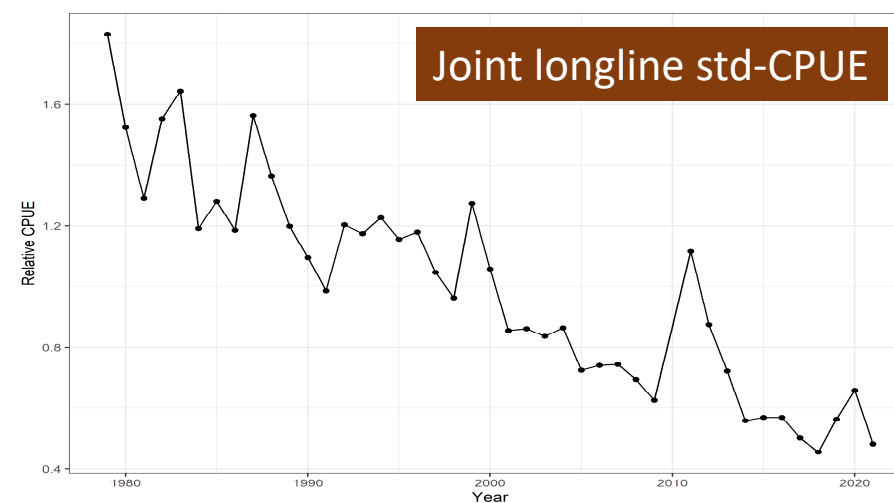
$B_y / K = ?$

$F_{MSY} \text{ ratio} = ?$

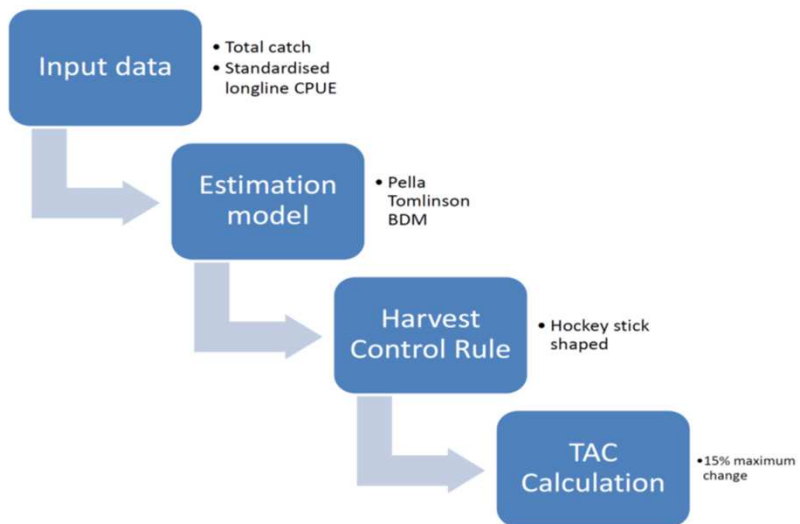
(from HCR) $HCR_{mult} = ?$



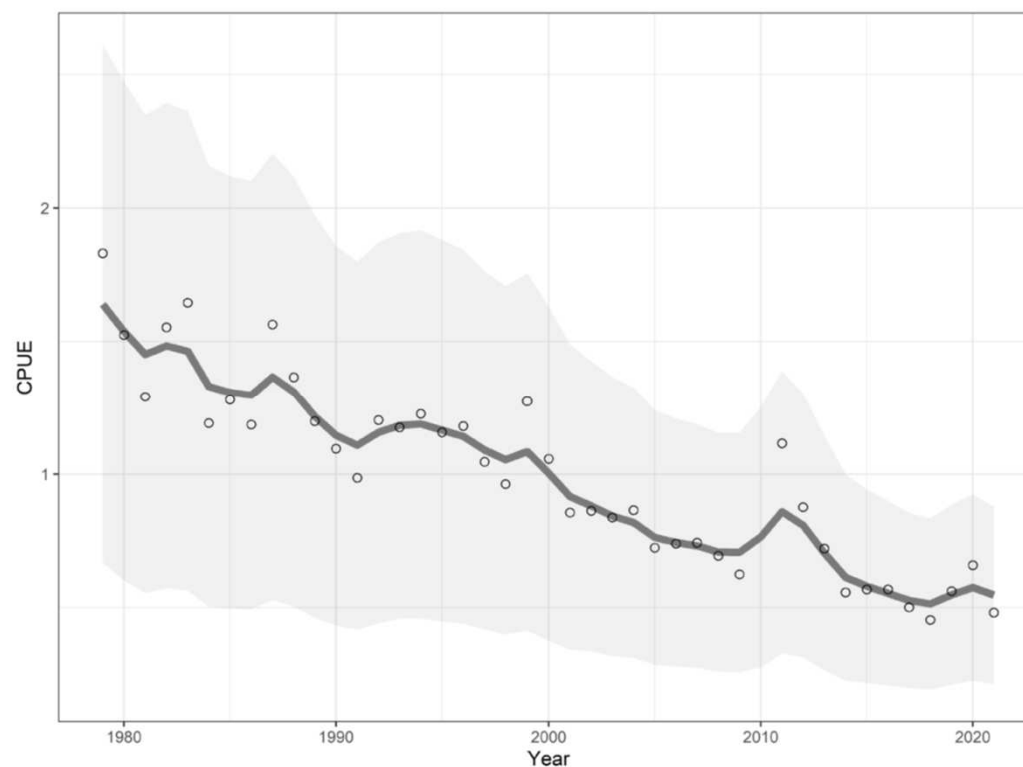
- Model-based estimation model
- Two sets of input data (1979-2021)
 - Total annual catch
 - Joint longline standardised CPUE



RUNNING THE BIGEYE TUNA MP FOR 2022

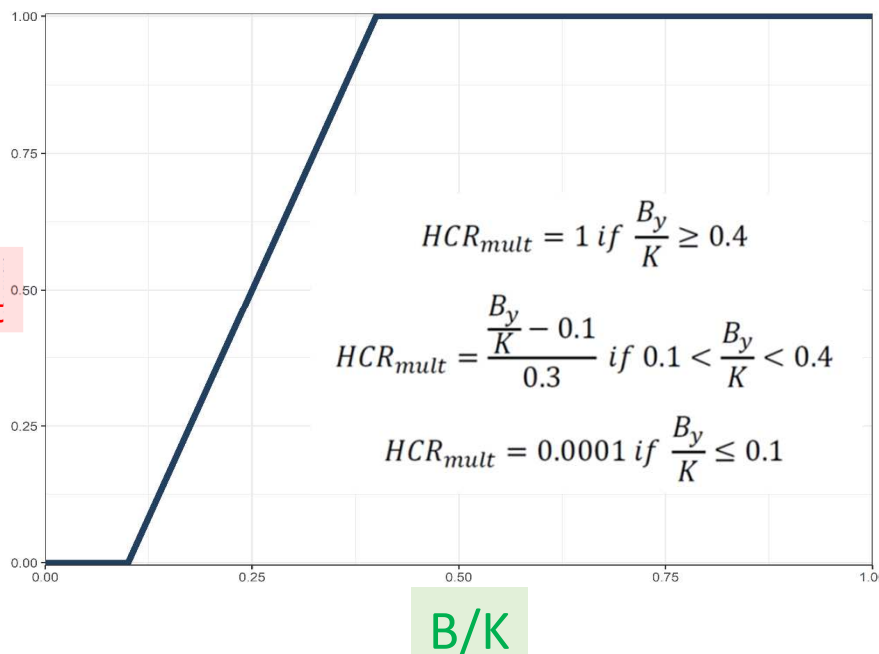


The MP fits a Pella-Tomlinson biomass dynamic model



- Hockey-stick shaped Harvest Control Rule (HCR)

$$TAC_{new} = B_y(1 - \exp(-F_{mult} \times HCR_{mult} \times F_{MSY} \text{ ratio}))$$



- Maximum TAC change constraint of **15%**

Annual TAC calculated for 2024-2025

(fixed tuning para) $F_{mult} = 3.178$

(from estimation model)

$B_y = 587,081$ (t)

$B_y / K = 0.284$

$F_{MSY} \text{ ratio} = 0.0545$

(from HCR) $HCR_{mult} = 0.612$

$TAC_{new} = 68,404$ t (>15% lower than 2021 catch of 94,803 t)

Recommended TAC (endorsed by SC) = **80,583 t** (15% below 2021 catch)



EXCEPTIONAL CIRCUMSTANCES



- Exceptional circumstances are conditions or data that fall outside the range of uncertainties that the MP was tested against
- A safety net
- Annual process
- Changes to the MP recommended TAC should be avoided except in situations where the TAC advice would pose a risk to the stock or the fishery
- Provides transparency in IOTC TAC decisions

- New information on the stock, population dynamics, or biology
- Changes in fisheries operations
- Changes to input data to the MP or missing data
- TACs that are inconsistent with MP TAC advice (e.g. catches > MP TAC)



Stage 1

When an MP is adopted, SC will annually review the following items for evidence of exceptional circumstances:

1. Information on the stock, fishing operations, population dynamics parameters, or biology that is outside the range (90% probability interval from MSE projections – or % to be decided by the SC) considered during MSE of the adopted MP.
2. Input data to the MP that are missing, have changed, or outside the range (90% – or % to be decided by the SC) simulated in the MSE.
3. Implementation of the MP that is inconsistent with the MP advice (e.g. total catch is greater than the TAC recommended by the MP).

Stage 2

If there is evidence for exceptional circumstances the SC will review the potential impact and severity on implementation and performance of the MP.



EXCEPTIONAL CIRCUMSTANCES



Stage 3

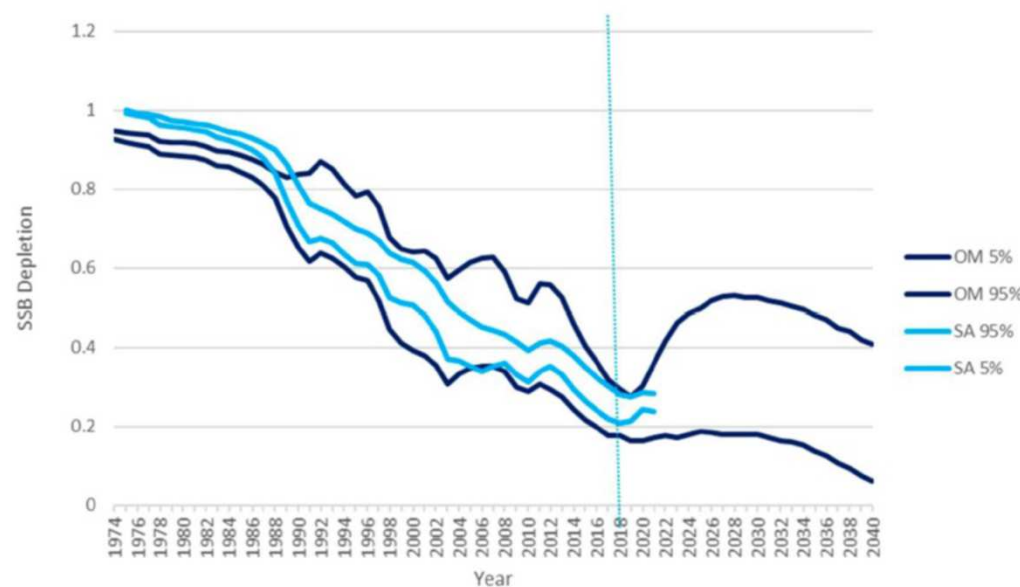
Depending on the impact of the exceptional circumstance, the SC will provide advice on the action required, such as a collection of ancillary data to be reviewed, review of the MP and, if necessary, provide updated management advice (e.g. TAC advice). As a guide, the SC could consider the following:

If there is a very high potential impact the SC will consider TAC changes. TAC change can be determined by an x% change to the TAC, where the x% is based on an urgently updated assessment and projections and is consistent with meeting the objectives of the MP.

- see “Appendix 6A of the 2021 SC report” for more details

EXCEPTIONAL CIRCUMSTANCES PROCESS

- Is it Exceptional? – outside 90% range in MSE
- Is there an impact on MP performance?
- What actions can be taken?
 - monitoring, data collection, MP review,
 - consider a change to the TAC if there is a very high risk to the stock



- 2022 WPs and SC reviewed exceptional circumstances for BET
- **The SC agreed that the review of evidence for exceptional circumstances did not identify any reasons to change the advice on the TAC**
- Recommended: No change to MP TAC advice



RECOMMENDATIONS



Bigeye tuna MP



SC25.18 (para. 98) The SC **NOTED** that the application of the bigeye management procedure resulted in a recommended TAC of 80,583 t per year for 2024 and 2025, which requires a 15% catch reduction from the 2021 catch level. The SC **RECOMMEND** that the Commission endorse the calculated TAC for 2024 and 2025.

SC25.19 (para. 99) Given average catch of BET in the past 5 years being above the calculated TAC for 2024 and 2025 and the lack of effective implementation of catch limits for other stocks in the IOTC, the SC **RECOMMENDED** that the Commission ensure effective implementation of the bigeye management procedure recommended TAC, especially taking into consideration the current overfished and subject to overfishing status of the stock. The SC **NOTED** that respecting the BET TAC is especially important when taking into consideration the multi-species nature of the Tropical tuna fisheries and especially taking into account the existing catch limit for YFT and TAC for SKJ.



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