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ITEM 6. STATUS OF THE MANAGEMENT STRATEGY EVALUATION AND ACTIONS NEED FOR ADOPTION/IMPLEMENTATION

6.1 ALBACORE
6.2 BIGEYE
6.3 SWORDFISH
6.4 GENERAL ISSUES

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ITEM 6.2 BIGEYE

RESOLUTION 22/03

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

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		

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RUNNING THE BIGEYE TUNA MP IN 2025

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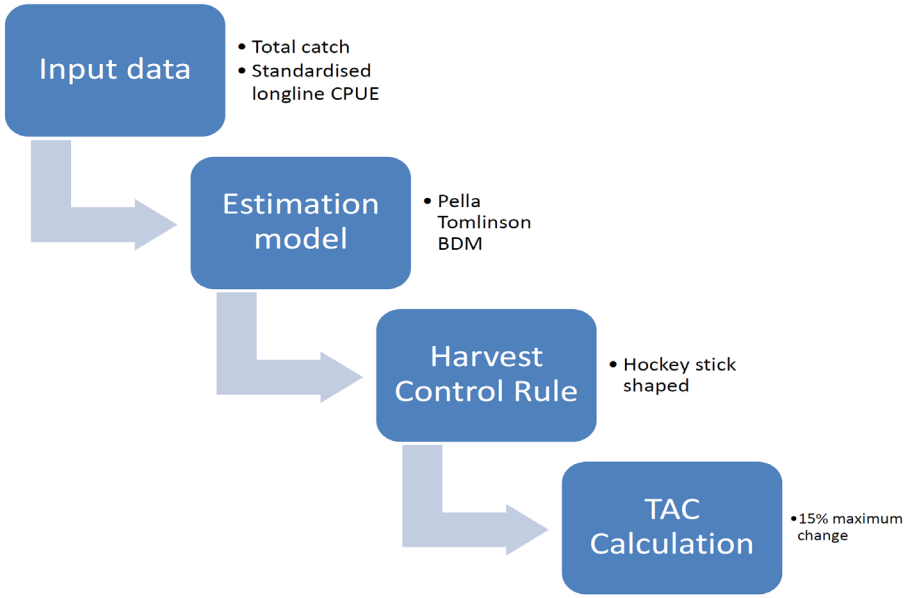
- MP was scheduled to be applied again in 2024 to set TAC for 2026-2028
- CPUE index required to run MP was not available in 2024 as per Res 22/03 requirements (annual CPUEs were submitted instead of quarterly CPUEs)
- Joint CPUE team reconvened in Feb 2025 to produce the required CPUE index (see IOTC-2025-TCMP09-INF03)
- Australian scientists ran the MP using the data set (IOTC-2025-TCMP09-INF04)
- the WPM(MSE) Taskforce met online on 24 February 2025 to review the CPUE, run MP based on the new CPUE, review again Exceptional Circumstances (IOTC-2025-TCMP09-INF05) , and provide catch **RECOMMENDATION to the SC**
- **The special session of the SC held on 26 Feb endorsed the outcome (**IOTC-2025-SSC01-R)

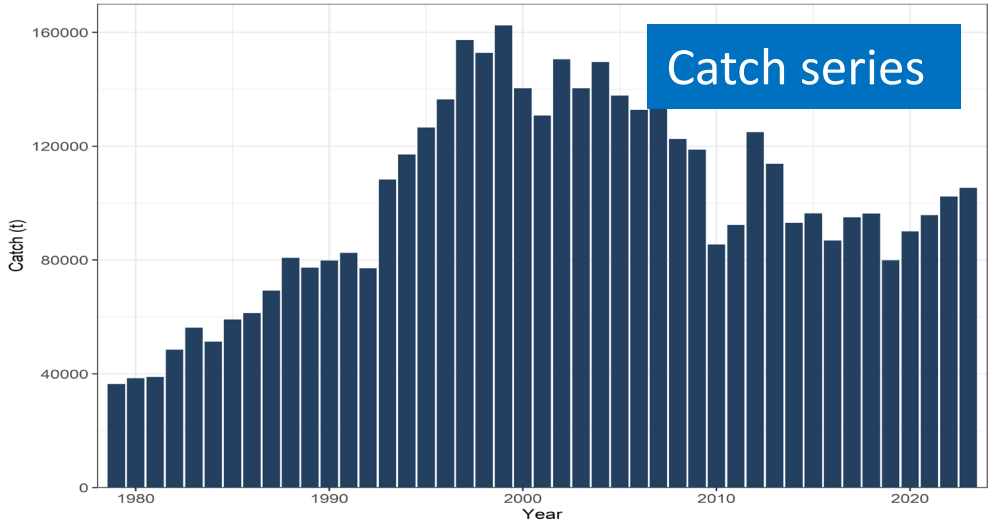
IMPLEMENTATION SCHEDULE FOR BET (22/03)

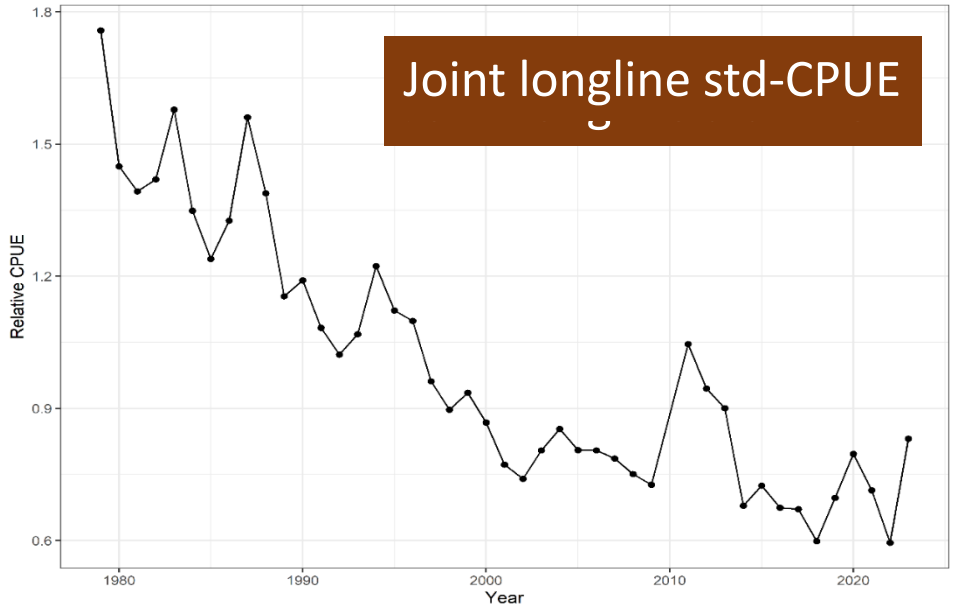
IOTC COMMITTEE	2022	2023	2024	2025	2026	2027	2028	2029
Commission (May/June)	**Select and adopt BET MP**	Annual Review of SC advice →						
		Set TAC (2024-2025)		**Set TAC** (2026-2028)			**Set TAC** (2029-2031)	
WPTT and WPM (Oct)	Collate catch data and CPUE series used in MP		Collate data used in 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		

Special session of SC (Feb 2025)

RUNNING THE BIGEYE TUNA MP IN 2025







- Model-based estimation model
- Two sets of input data (1979-2023)
  - i) Total annual catch
  - ii) Joint longline standardised CPUE

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RUNNING THE BIGEYE TUNA MP IN 2025

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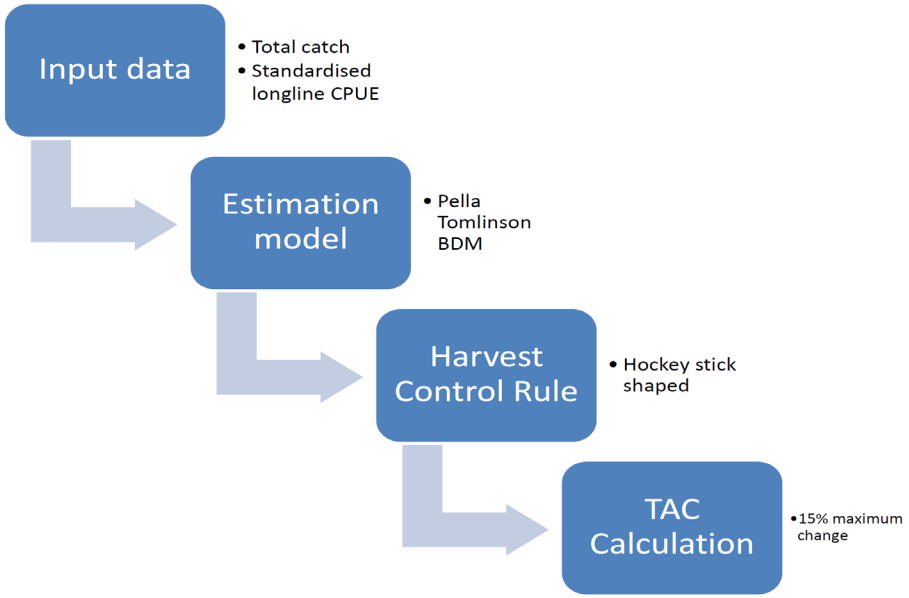
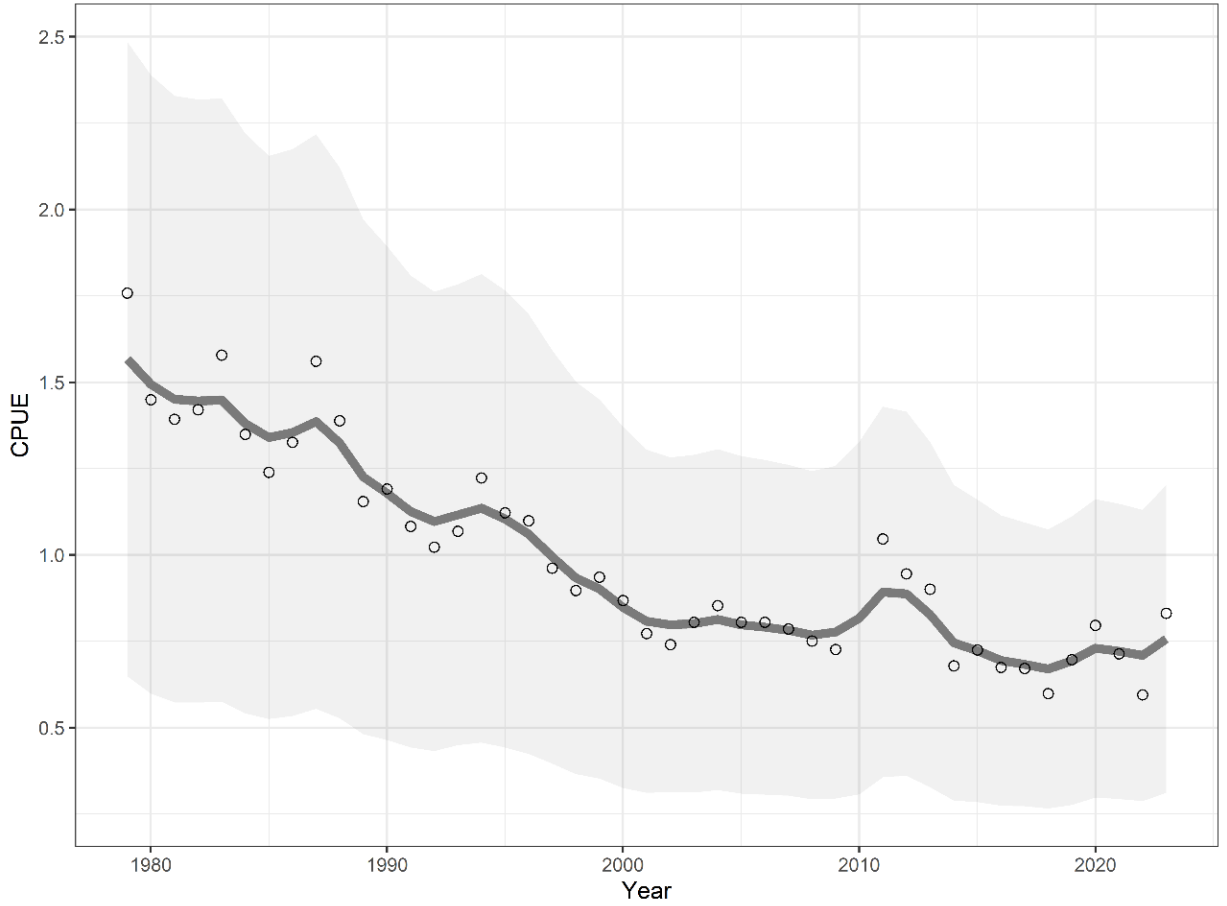


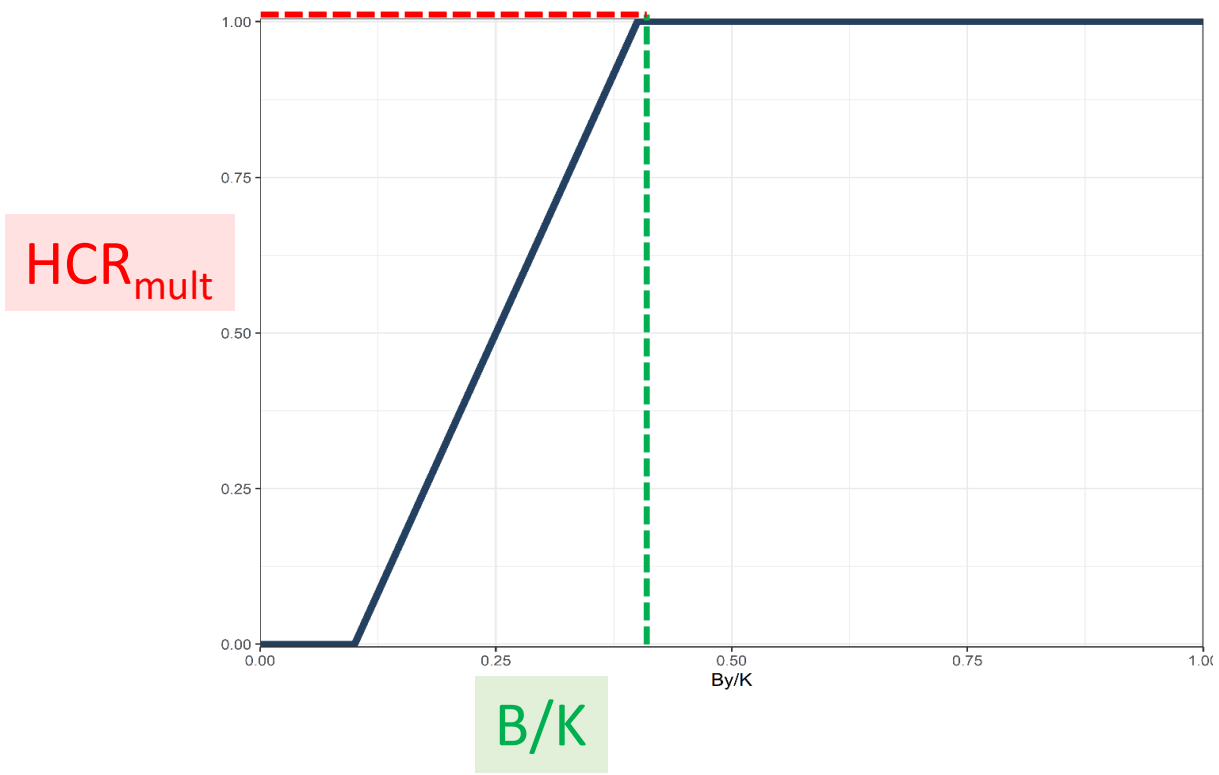
The MP fits a Pella-Tomlinson biomass dynamic model



RUNNING THE BIGEYE TUNA MP IN 2025

- Hockey-stick shaped Harvest Control Rule (HCR)

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



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

Annual TAC calculated for 2026-28

(fixed tuning para) F_{mult} = 3.178

(from estimation model)

B_y = 750,170 (t)

B_y /K = 0.414

F_{MSY} *ratio* = 0.071447

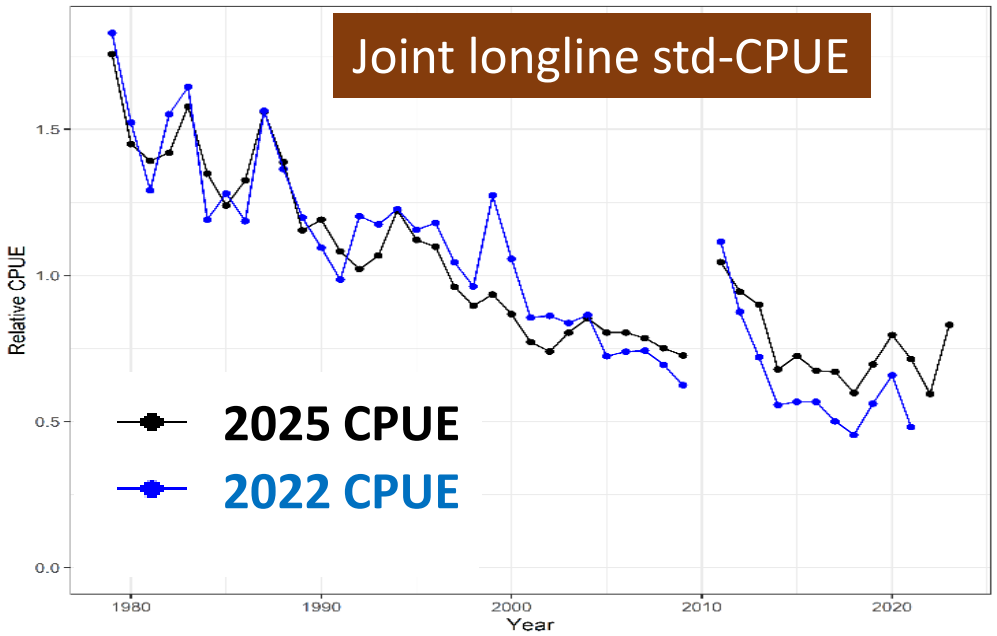
(from HCR) HCR_{mult} = 1

TAC_{new} = 175,005 t

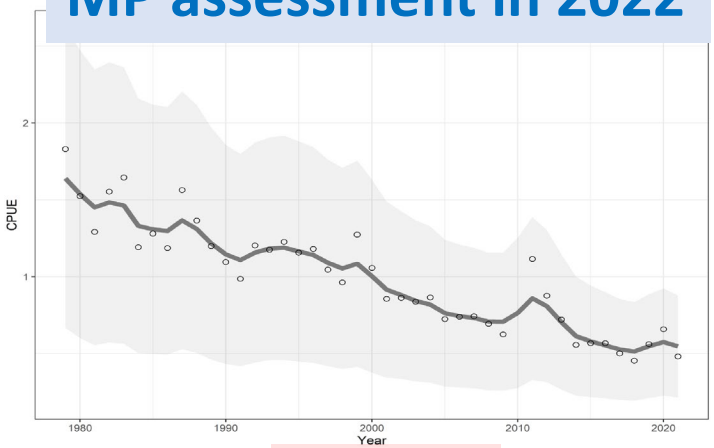
(>15% high than 2024-25 TAC of 80,583 t)

Recommended TAC (endorsed by SC) = **92,670 t** (15% above current TAC)

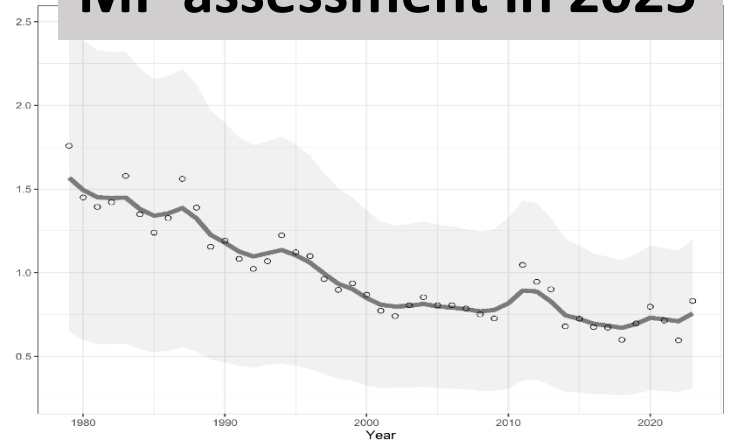
COMPARISON BETWEEN 2022 AND 2025 APPLICATIONS



MP assessment in 2022

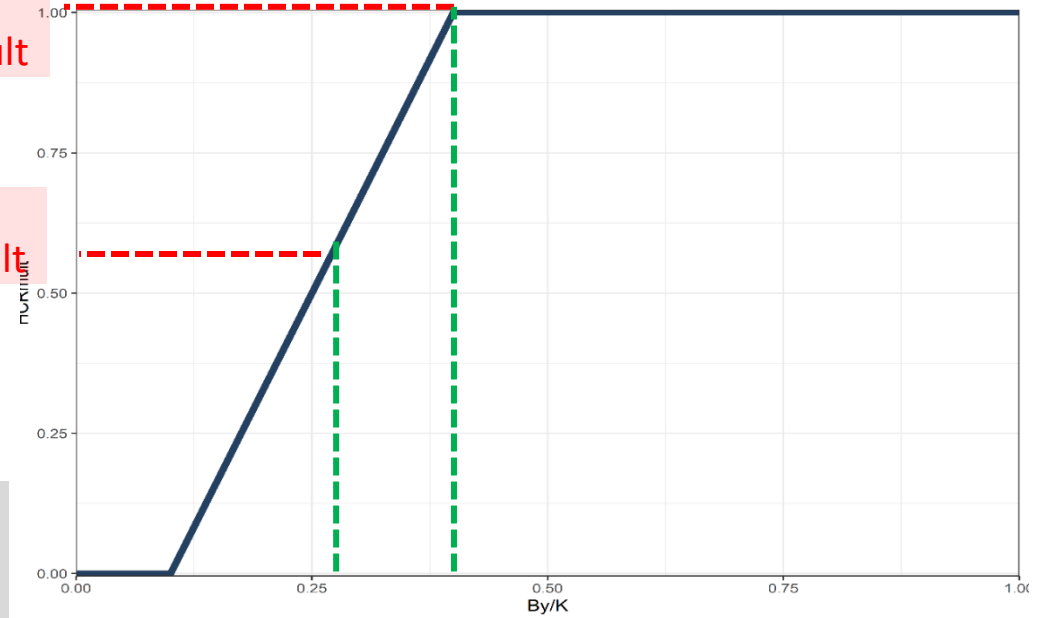


MP assessment in 2025



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

HCR$_{mult}$



B/K B/K

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)

TAC$_{new}$ **= 175,005 t (>15% high than 2024-25 TAC of 80,583 t)**

Recommended TAC (endorsed by SC) **= 92,670 t** (15% above current TAC)

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EXCEPTIONAL CIRCUMSTANCES

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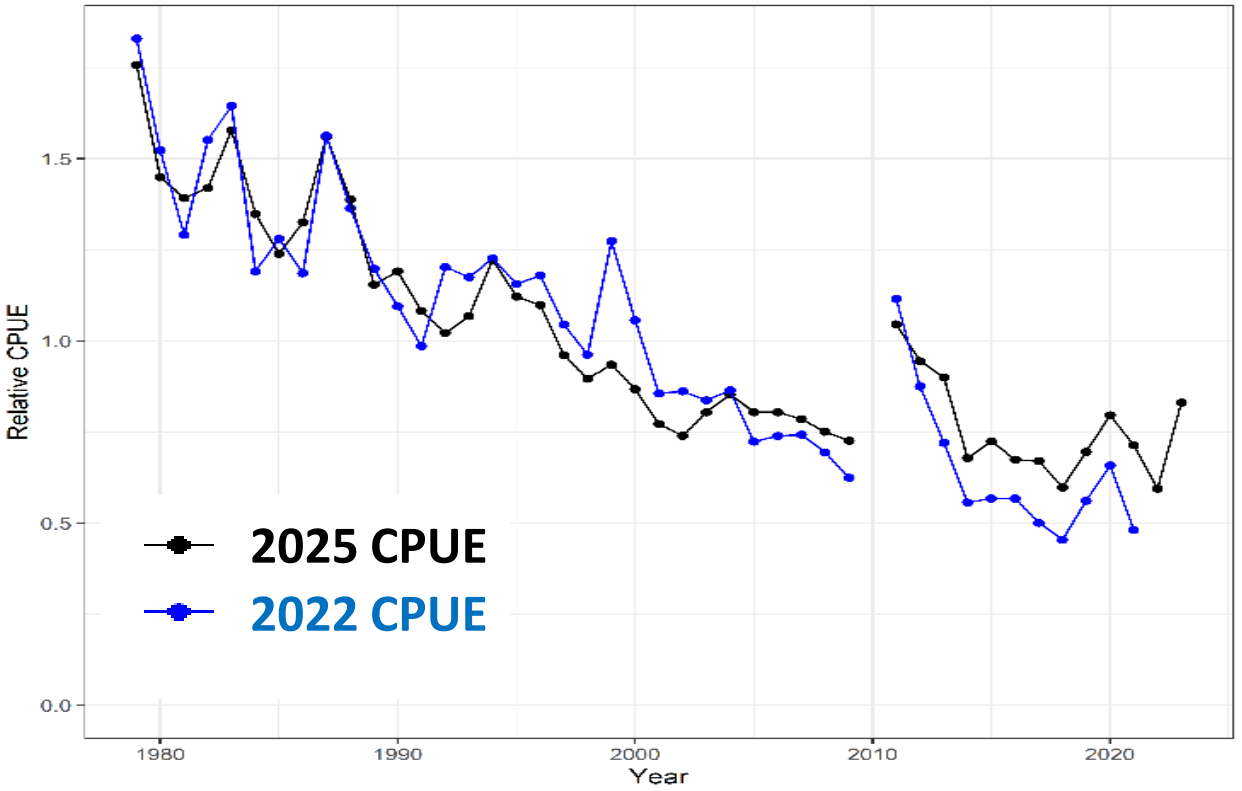
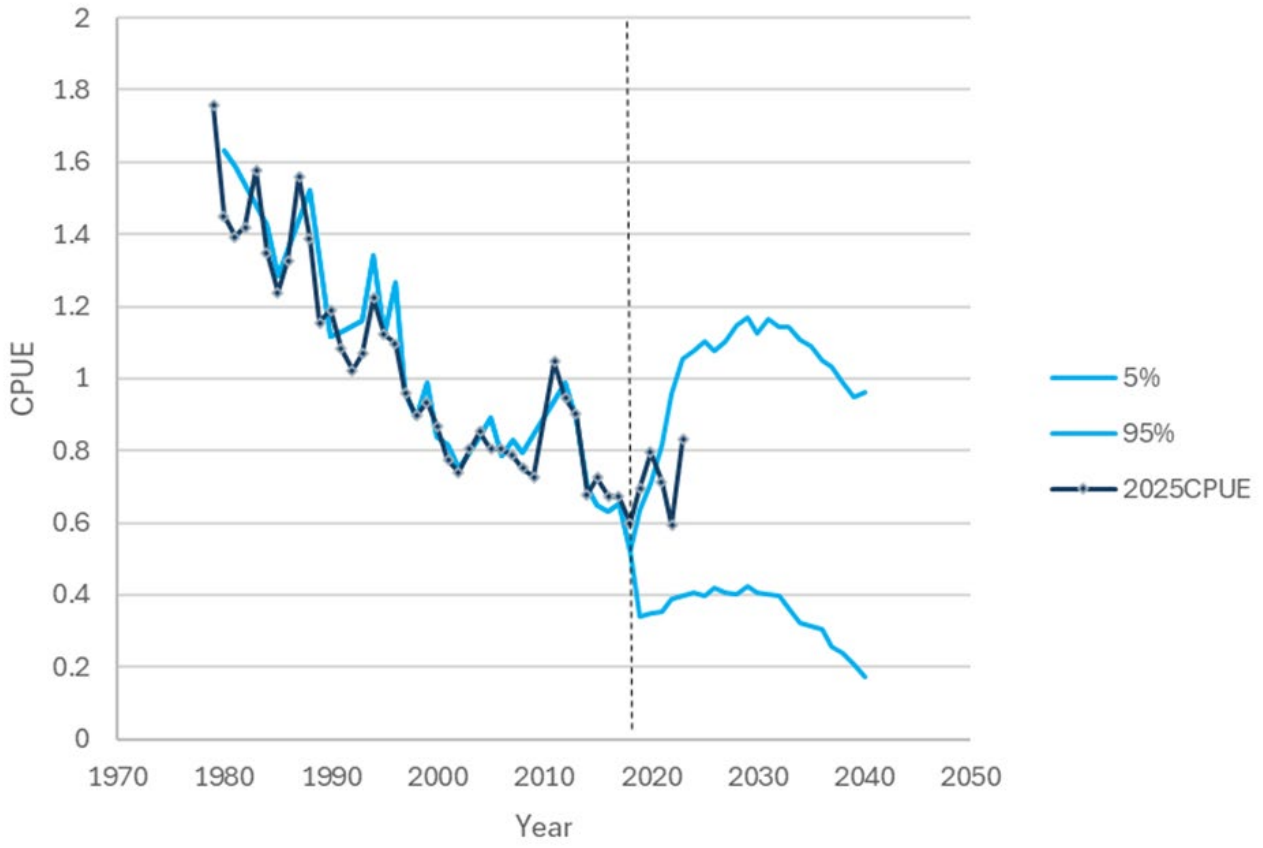
- CPUE was the only exceptional circumstance identified
- The CPUE standardization differs from the specified methods:
  - Data: aggregated in 2022; operational in 2025 as specified in 22/03
  - Model: delta log-normal in 2022; lognormal models in 2025
  - sampling and exclusion of some data in 2021-2023 in 2025 CPUE
  - Generally similar trend than 2022 and 2019 in all regions
- No other exceptional circumstances were detected in the 2024 review



COMPARISON OF 2025 CPUE AND MSE PROJECTIONS

- The historical period 1979-2018 shows similar trends.
- The 2025 CPUE is within the MSE range 2021-2023.
- The 2025 CPUE series is slightly above the 95% confidence bound of the MSE projected range in 2019 and 2020 -> **a positive exceptional circumstance**
- The impact may include slightly higher TAC results from the MP, which is, however, constrained by the 15% TAC change constraint component of the MP.
- Thus, no further actions are required to proceed with the recommended TAC from the BET MP.



From Preece and Williams (2025) IOTC-2025-TCMP09-INF05)

RECOMMENDATIONS FROM THE 1ST SPECIAL SESSION OF SC

BIGEYE TUNA MP (RESOLUTION 22/03)

SSC.01 (para. 15) The SC **NOTED** that the application of the bigeye management procedure generated an unconstrained estimated TAC of 175,005 t which is more than 15% higher than the TAC set for 2024 and 2025. The SC **NOTED** that by applying the maximum 15% change in the TAC as per Resolution 22/03, the MP recommended a TAC of 92,670 t. per year for 2026-2028. Therefore, the SC **RECOMMENDED** that the Commission adopt the TAC advice for Bigeye tuna of 92,670 t resulting from the MP.

SSC.02 (para. 21) **NOTING** that the CPUE standardisation conducted by the joint CPUE working group differs slightly from the specified methods in the MP (Williams et al., 2022), the SC **RECOMMENDED** that a fixed set of CPUE standardization code is developed for each MP to ensure that it is developed following the specifications of the MP.

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ACKNOWLEDGEMENT

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- Australian scientist group (Ashley Williams, Ann Preece, Richard Hillary)
- WPM chair/co-chair, Hilario Murua and Ann Preece
- Science manager, Dan Fu

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ITEM 6.3 SWORDFISH

- IOTC-2025-TCMP09-INF06: Proposal for amending the management procedure adopted for the Indian Ocean swordfish and practical aspect for its first implementation (Brunel T, Mosqueira)

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

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IOTC-2025-S29-PropU[E]

ON A MANAGEMENT PROCEDURE FOR SWORDFISH IN THE IOTC AREA OF COMPETENCE

SUBMITTED BY: AUSTRALIA

RESOLUTION 24/08 SWO MP

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Indian Ocean Tuna Commission
Commission des Thons de l'Ocean Indien
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RESOLUTION 24/08
ON A MANAGEMENT PROCEDURE FOR SWORDFISH IN THE IOTC AREA OF COMPETENCE.

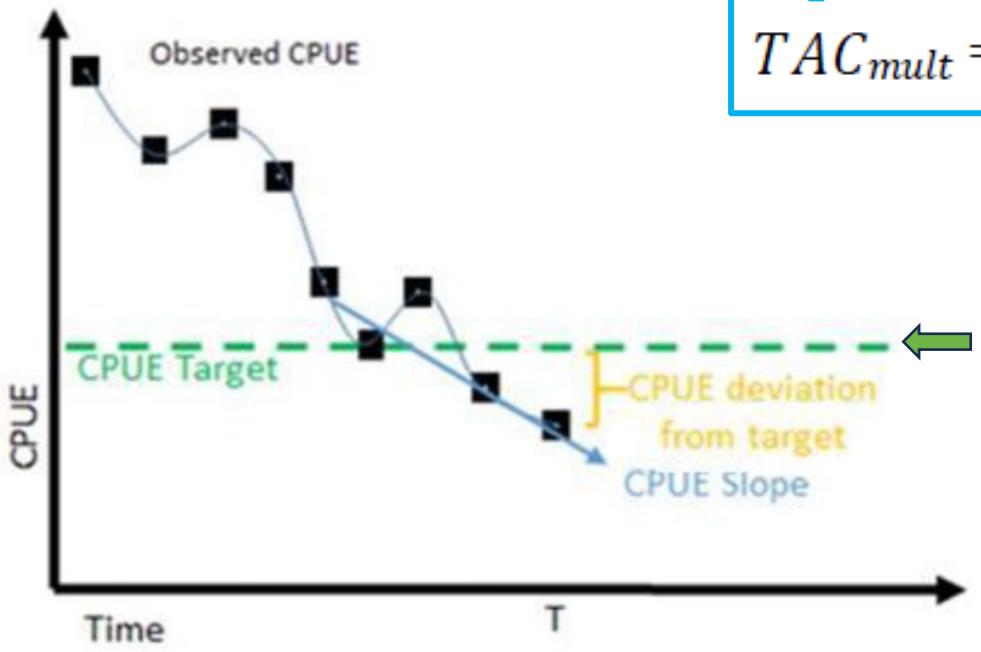
New TAC = TAC_{mutl} * (Current TAC)

$$TAC_{mult} = 1 + k_a Sl + k_b D$$

$k_a = 2.1$

$k_b = 1.2$

Target CPUE = 0.7125



IMPLEMENTATION SCHEDULE

IOTC COMMITTEE	2024	2025	2026	2027	2028	2029	2030	2031
Commission (May/June)	**Select and adopt SWF MP**	Annual Review of SC advice →						
		Set TAC (2026-2028)			**Set TAC** (2029-2031)			**Set TAC** (2032-2034)
WPB and WPM (Oct)	Collate data used in MP			Collate data used in MP			Collate data used in MP	
	Annual Consideration of exceptional circumstances (EC), advise SC	Consider EC	Consider EC	Consider EC	Consider EC	Consider EC	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	

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EXCEPTIONAL CIRCUMSTANCES

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- The WPM **AGREED** that there were no exceptional circumstances for the swordfish MP relating to stock status, population dynamics or biology, fishery or fishing operations, catch data inputs or CPUE data inputs

The MP in Res24/08 used simulated CPUE in 2020-2022 instead of actual CPUEs in that period

- The WPM NOTED, however, an issue identified by the developers which WPM AGREED represents an exceptional circumstance. Specifically, a discrepancy in the treatment of the CPUE index in the first year of the simulations, resulted in the MP not reaching the management objective of achieving at least 60% probability of being in the Kobe green zone during 2034-2038 period. The WPM NOTED that correcting this issue results in an MP that does not reach the objective (i.e. achieves only 54% probability of being in the Kobe green zone). The WPM SUGGESTED to produce an MP that corrects the CPUE issue as well as it is retuned to achieve the management objective stipulated in Resolution 24/08.

RECOMMENDATIONS FROM THE SC 2024

Swordfish tuna MP (Resolution 24/08)

SC27.21 (para. 124) The SC **RECOMMENDED** that the Commission implement a TAC for 2026-2028 for swordfish based on the amended and retuned MP1 if the Commission wishes to ensure that it achieves the current objective in Res 24/08 to be in the Kobe green zone with at least 60% probability during 2034-2038 period. This would require a minor amendment to the Target CPUE value in Annex I of Res 24/08 from 0.7125 to 0.75. The SC **NOTED** that should the Commission continue to implement the current MP1, without retuning, it has a lower probability (54%) of being in the Kobe green zone and higher TAC variability, but otherwise similar performance statistics (Table 1 of IOTC–204–WPM15–R). The TAC derived from running SWO MP1 with or without retuning is 30527 t (i.e. the same and therefore not a severe impact) because the max TAC change constrain is reached in both MPs.

SC27.22 (para. 125) Irrespective of the MP chosen by the Commission, the SC **RECOMMENDED** that the Commission endorse the resultant TAC of 30,527 t for swordfish for 2026-2028.