

OUTCOMES OF THE 27th SESSION OF THE SCIENTIFIC COMMITTEE

PREPARED BY: IOTC SECRETARIAT, 17 MAY 2025

PURPOSE

To inform participants at the 27th Working Party on Tropical Tunas Data Preparatory meeting (WPTT27(DP)) of the recommendations arising from the 27th Session of the IOTC Scientific Committee (SC) held from 2 -6 December 2024, specifically relating to the work of the WPTT.

BACKGROUND

At the 27th Session of the SC, the SC noted and considered the recommendations made by the WPTT in 2024 that included requests to address the deficiencies in data collection, monitoring and reporting by CPCs, as well as to carry out targeted research and analysis on tropical tuna species.

Tropical tunas caught in the IOTC area of competence and under the WPTT mandate

Common name	Species	Code
Bigeye tuna	<i>Thunnus obesus</i>	BET
Skipjack tuna	<i>Katsuwonus pelamis</i>	SKJ
Yellowfin tuna	<i>Thunnus albacares</i>	YFT

The recommendations on the deficiencies in data collection, monitoring and reporting by CPCs in relation to tropical tunas will be discussed in paper IOTC–2025–WPTT27(DP)–07 and are therefore not presented in this paper.

Based on the recommendations arising from the WPTT26, the SC27 adopted a set of recommendations, provide at [Appendix A](#) of this paper.

The recommendations contained in [Appendix A](#) were provided to the Commission for consideration at its 29th Session held in April 2025.

In addition, the SC27 reviewed and endorsed a Program of Work (2025–2029) for the WPTT, including a revised assessment schedule. A separate paper will be reviewed during the WPTT27(AS) and will outline the review and development process for a *Program of Work* for the WPTT for the next five years.

DISCUSSION

In addition to the recommendations outlined in [Appendix A](#), the following extracts from the SC27 Report (2024) are provided here for the consideration and action of the WPTT27(DP):

Report of the 26th Session of the Working Party on Tropical Tunas (WPTT26)

80. The SC **NOTED** the report of the 26th Session of the Working Party on Tropical Tunas ([IOTC–2024–WPTT26–R](#)), including the consolidated list of recommendations provided as an appendix to the report. The meeting was attended by 130 participants (cf. 91 in 2023). Two participants received funding through the MPF.
81. The SC **NOTED** the update of yellowfin catch limits for 2024 and 2025 following resolution 19/01 and 21/01 was provided by the Secretariat (see Section 7.6.2).

7.4.1 Yellowfin tuna stock assessment

82. The SC **NOTED** that WPTT put in a significant effort to discuss and review the yellowfin tuna (YFT) assessment, which was conducted by the modelling team with some help from a consultant who has previously been involved in the expert panel review. The SC **THANKED** the chair of WPTT for the thorough overview of the WPTT report and expressed gratitude to the YFT assessment team for their hard work on this new assessment. The SC **ACKNOWLEDGED** the team's efforts to address many points from the independent review and to make

the best assessment possible with the available information and data, with several improvements on the model.

Assessment inputs

83. The SC **NOTED** that the detailed summary provided on data, biology, and model development showed major changes from the previous assessment. The SC further **NOTED** the use of a model grid to characterize uncertainty.
84. The SC **NOTED** that the assessment incorporated a new growth curve based on a validated aging study, which was accepted by WPTT. This new curve suggests a higher L_{inf} , implying a less productive stock than the growth curves used in 2021.
85. The SC **NOTED** that the natural mortality rate, agreed by the WPTT, was based on the Lorenzen curve, assuming a maximum age of 11 (from samples in the Indian Ocean). The mean natural mortality rate is lower than previously assumed, which could also lead to an estimate of lower productivity than the natural mortality vector used in 2021.
86. The SC **NOTED** the significant difference between the 2024 CPUE index and the 2021 CPUE index, especially in tropical areas. The 2024 index shows a flatter trend since the 1990s, with a notable increase in recent years. This has a significant impact on the assessment outcomes and management advice. This issue is described in detail below in the key issues on CPUE index section below.
87. The SC **NOTED** that the use of the 2021 CPUE index in the assessment model results in a significantly more pessimistic biomass up to 2020 (-23%) compared to using the 2024 CPUE indices. However, the SC **NOTED** that the other data used in the assessment (catch and length frequency data) also indicates an increase in biomass in the recent years, albeit a smaller increase (21% and 11% respectively) than the increase due to the inclusion of the 2024 CPUE index (79%).

Key Issues on CPUE index

88. The SC **NOTED** information document [IOTC-2024-SC27-INF01](#), which outlines how analytic methods affect Longline CPUE indices. The author identified several changes in the 2024 analysis compared to 2021 and suggested that these changes might have led to more optimistic index trends up to 2020. For example, combining data from two regions R1a and R1b was advised against due to differing abundance trends and data quality issues. The author also stressed that using cluster analysis for tropical areas had been previously discouraged and could significantly affect the tropical indices.
89. The SC **NOTED** that the WPTT was unable to confirm if the inclusion of the Arabian Sea (R1a) data was the cause of the positive trend in the 2024 index, as an alternative annual index which also included the R1a data showed a more pessimistic trend. The SC further **NOTED** that both the 2021 and 2024 assessments treated both regions (R1a and R1b) as one area, which implicitly assumes that they share the same trend.
90. The SC **NOTED** that a member of the CPUE modelling team indicated that there are no specific reasons for these changes but suggested that they were unlikely to make significant differences in the CPUE. It was argued that using cluster analysis instead of hooks between floats could avoid confounding factors like line material.
91. **NOTING** that concerns were raised about the large difference between the 2024 and 2021 index and the methods used in the standardization process, the SC **REQUESTED** that the joint CPUE working group revise and update the yellowfin tuna CPUE in 2025 in time to be reviewed by WPTT27 assessment meeting, in accordance with the “Recommended action points related to Joint CPUE standardizations” in Appendix IX of the WPTT26 report. The SC **NOTED** that this will enable the WPTT and SC to review the CPUE standardisation and to provide clear advice to the 2026 Commission meeting on the need, if any, to update the yellowfin tuna stock assessment in 2026 to include the revised CPUE.
92. The SC **NOTED** that the Joint CPUE workshop had limited participation and was conducted over a short time period. However, it was noted that the workshop format and standardisation methods have remained the same for a long time. The SC **NOTED** the importance of the Joint Longline CPUE Index as a primary input for the stock assessments of several key IOTC species, including yellowfin, bigeye and albacore tunas, and **AGREED** on the need to ensure a transparent, inclusive, and replicable process in the development of the Joint CPUE Index using operational data. The SC therefore, **RECOMMENDED** that the Commission investigate options to allow independent scientists or Secretariat stock assessment experts to provide inputs and advice

through attending meetings of the Joint Longline CPUE standardisation group. The SC **RECALLED** that during the 2015–2019 period analysis was conducted by a consultant by participating in the meetings.

Benchmark Reference points

93. The SC **NOTED** that the assessment model estimated negative recruitment deviates in earlier periods and positive recruitment deviates recently, as such, the WPTT proposed adjusting reference point benchmarks based on average recruitment deviations from a reference period. Using this scaling method for yellowfin would lower the stock status because the adjusted benchmark (SB_{MSY} or spawning biomass at MSY) is higher. **NOTING** the lack of certainty regarding whether recent higher estimated recruitment will be maintained, the WPTT also included reference point estimates based on long-term recruitment.
94. The SC **REQUESTED** other working parties with expertise on stock assessments to discuss and review the new approach for calculating the reference points for their stock assessments or species.

Assessment outputs and advice

95. The SC **NOTED** that regardless of whether the exact reasons are understood or not, the influence of the CPUE index on the assessment is significant, as it affects the MSY reference points, the estimated level of depletion, and future catch limits. Therefore, the SC **AGREED** that it is crucial to consider the additional uncertainty that this issue introduces, which is not reflected in the assessment grid, when forming its final conclusions and advice on the assessment.
96. Given the uncertainty associated with the new CPUE, the SC **RECOMMENDED** that the Commission set a TAC for 2026 only, of no more than the estimated median MSY, which is comparable to the average catch of the last five years, as a precautionary measure to allow time for further investigation (i.e. resolving of uncertainty associated with the new CPUE) and development of advice for 2027 onwards.

Assessment Performance

97. The SC **NOTED** that strong concerns were expressed by some CPCs regarding the results of the 2024 stock assessment for yellowfin tuna, particularly highlighting the structural changes and lack of transparency in the joint CPUE used as the primary index in the assessment, as well as the sudden shift in stock status from a high probability of red to a high probability of green in the Kobe plot. These CPCs indicated that their concerns regarding the assessment will be brought to the Commission's attention.
98. The SC **NOTED** information document [IOTC-2024-SC27-INF02](#), which summarizes a review of the yellowfin tuna stock assessment. This paper suggests that prudent management would keep catches at the previous level which supposedly allowed for the increase in biomass, before the next assessment indeed confirms recovery of biomass.
99. The SC **NOTED** that the paper suggested that using a multi-parameter model like SS3 tends to estimate a lower B_{MSY}/B_0 compared to standard surplus models. Additionally, the paper suggested that the current model's recruitment variability is too high to offer useful management advice.
100. The SC **ACKNOWLEDGED** that all tropical tuna species are evaluated using integrated assessment tools such as SS3 and Multifan-CL. These tools show a similar range for B_{MSY}/B_0 and have observed comparable recruitment patterns in tuna stocks across the world's oceans—including the Atlantic, Indian Ocean, and Pacific. These assessments are conducted by various Regional Fisheries Management Organizations (RFMOs).
101. Meanwhile, the SC **NOTED** that most CPCs are of the view that there is a robust scientific process behind the results. This process was thoroughly discussed at the WPTT, including an in-depth examination into the differences between the 2024 and the 2021 assessments. The SC also **NOTED** that all assessment model files have been kept transparent, everyone can access the model, and there is already a plan to further investigate these discrepancies.
102. The SC **NOTED** that there are some observations that some CPCs such as Sri Lanka have had of their own domestic fisheries data, that do not seem to align with the assessments results. The SC **ENCOURAGED** CPCs to develop abundance indices using these observations to improve the assessment model.

7.4.2 Update on the WGFAD06

103. The SC **NOTED** the report of the 6th working group meetings on FADs ([IOTC-2024-WGFAD06-R](#)). The meetings were attended by 90 participants (75 and 116 participants in WGFAD04 and WGFAD05 respectively in 2023).
104. The SC **NOTED** that after the recent resolutions on FAD were adopted, CPCs seem less inclined to submit papers to WGFAD. This led to the shortening of WGFAD06 to a single day and the cancellation of WGFAD07

this year due to a shortage of papers. Therefore, the SC **RECOMMENDED** that the Commission schedule only one WGFAD meeting in 2025. The SC also suggests that this meeting should take place before the WPEB, as FAD issues are relevant to WPEB, to allow the findings to be reported to both WPEB and WPTT.

7.4.3 Other Matters

105. The SC **NOTED** that exceptional circumstances of adopted MPs need to be considered at both species WPs and WPM. The SC also **NOTED** that there is benefit in species WPs being held before WPM to allow discussions on issues such as new information on biology before the consideration of potential modelling implications and as such **RECOMMENDED** that in the future the WPM be held after the WPTT.

RECOMMENDATION

That the WPTT:

- 1) **NOTE** paper IOTC–2025–WPTT27(DP)–03 which outlined the main outcomes of the 27th Session of the Scientific Committee, specifically related to the work of the WPTT.
- 2) **CONSIDER** how best to progress these issues at the present meeting.

APPENDICES

Appendix A: Consolidated set of recommendations of the 27th Session of the Scientific Committee to the Commission, relevant to the Working Party on Tropical Tunas.

APPENDIX A

CONSOLIDATED SET OF RECOMMENDATIONS OF THE 27TH SESSION OF THE SCIENTIFIC COMMITTEE (2–6 DECEMBER 2024) TO THE COMMISSION

STATUS OF TUNA AND TUNA-LIKE RESOURCES IN THE INDIAN OCEAN AND ASSOCIATED SPECIES

Tuna – Highly migratory species

SC27.01 (para. 175) The SC **RECOMMENDED** that the Commission note the management advice developed for each tropical and temperate tuna species as provided in the Executive Summary for each species, and the combined Kobe plot for the four species assigned a stock status in 2024 (Fig. 2):

Albacore (*Thunnus alalunga*) – [Appendix 8](#)

Bigeye tuna (*Thunnus obesus*) – [Appendix 9](#)

Skipjack tuna (*Katsuwonus pelamis*) – [Appendix 10](#)

Yellowfin tuna (*Thunnus albacares*) – [Appendix 11](#)

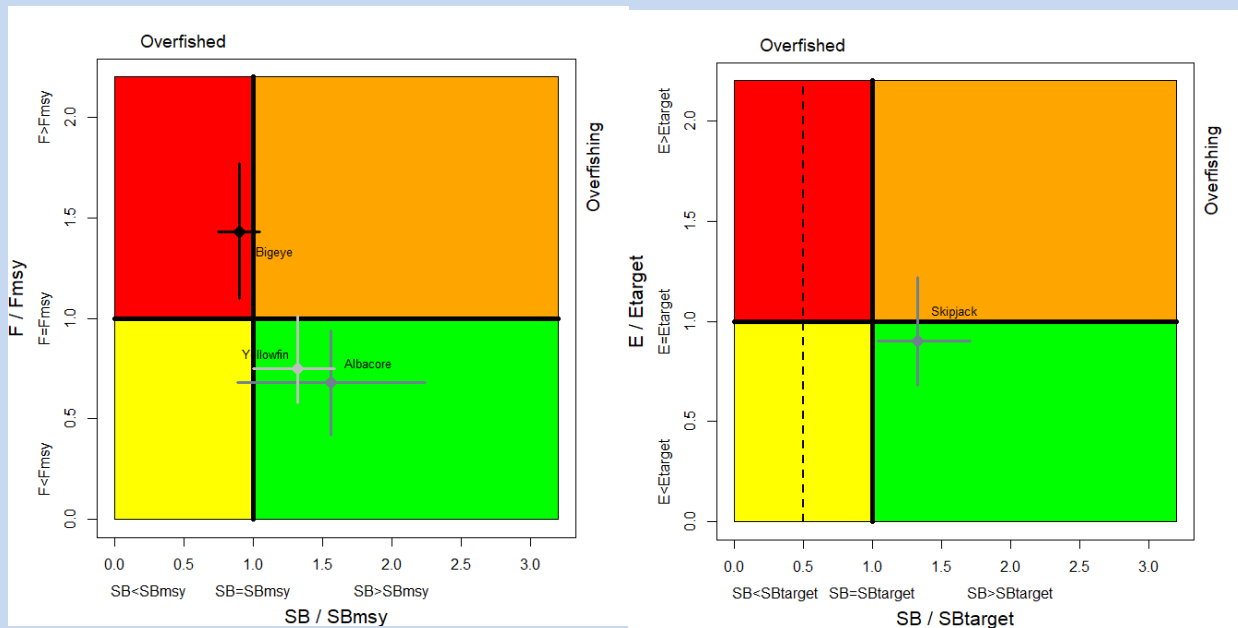


Fig. 2. (Left) Combined Kobe plot for bigeye tuna (black: status in 2021, with assessment conducted in 2022), and yellowfin tuna (light grey: 2023, with assessment conducted in 2024) and albacore (dark grey: 2020 with assessment conducted in 2022) showing the estimates of current spawning biomass (SB) and current fishing mortality (F) in relation to optimal spawning stock size and optimal fishing mortality. (Right) Kobe plot for skipjack tuna (2022 with assessment conducted in 2023) showing the estimates of the current stock status (the dashed line indicates the limit reference point at 20%SB₀ while SB_{target}=0.4 SB₀). Cross bars illustrate the range of uncertainty from the model runs with an 80% CI (95% CI for albacore).

GENERAL RECOMMENDATIONS TO THE COMMISSION

REPORT OF THE 26TH SESSION OF THE WORKING PARTY ON TROPICAL TUNAS (WPTT26)

Yellowfin tuna stock assessment

SC27.15 (para. 104) The SC **NOTED** that the Joint CPUE workshop had limited participation and was conducted over a short time period. However, it was noted that the workshop format and standardisation methods have remained the same for a long time. The SC **NOTED** the importance of the Joint Longline CPUE Index as a primary input for the stock assessments of several key IOTC species, including yellowfin, bigeye and albacore tunas, and **AGREED** on the need to ensure a transparent, inclusive, and replicable process in the development of the Joint CPUE Index using operational data. The SC therefore, **RECOMMENDED** that the Commission investigate options to allow independent scientists or Secretariat stock assessment experts to provide inputs and advice through attending meetings of the Joint Longline CPUE standardisation group. The SC **RECALLED** that during the 2015–2019 period analysis was conducted by a consultant by participating in the meetings.

SC27.16 (para. 108) Given the uncertainty associated with the new CPUE, the SC **RECOMMENDED** that the Commission set a TAC for 2026 only, of no more than the estimated median MSY, which is comparable to the average catch of the last five years, as a precautionary measure to allow time for further investigation (i.e. resolving of uncertainty associated with the new CPUE) and development of advice for 2027 onwards.

Update on the WGFAD05

SC27.17 (para. 116) The SC **NOTED** that after the recent resolutions on FAD were adopted, CPCs seem less inclined to submit papers to WGFAD. This led to the shortening of WGFAD06 to a single day and the cancellation of WGFAD07 this year due to a shortage of papers. Therefore, the SC **RECOMMENDED** that the Commission schedule only one WGFAD meeting in 2025. The SC also suggests that this meeting should take place before the WPEB, as FAD **issues** are relevant to WPEB, to allow the findings to be reported to both WPEB and WPTT.

Other Matters

SC27.18 (para. 117) The SC **NOTED** that exceptional circumstances of adopted MPs need to be considered at both species WPs and WPM. The SC also **NOTED** that there is benefit in species WPs being held before WPM to allow discussions on issues such as new information on biology before the consideration of potential modelling implications and as such **RECOMMENDED** that in the future the WPM be held after the WPTT.

SUMMARY DISCUSSION OF MATTERS COMMON TO WORKING PARTIES

Invited Expert(s) at the WP meetings

SC27.25 (para. 159) Given the importance of external independent review for working party meetings, the SC **RECOMMENDED** the Commission continues to allocate sufficient budget for invited scientific experts to be regularly invited to scientific working party meetings.

IOTC species identification guides: Tuna and tuna-like species

SC27.26 (para. 165) The SC reiterated its **RECOMMENDATION** that the Commission allocates budget towards continuing the translation and printing of the IOTC species ID guides so that hard copies of the identification cards can continue to be printed as many CPC scientific observers, both on board and at port need to have hard copies.

Chairpersons and Vice-Chairpersons of the SC and its subsidiary bodies

SC27.27 (para. 170) The SC **RECOMMENDED** that the Commission note and endorse the Chairpersons and Vice-Chairpersons for the SC and its subsidiary bodies for the coming years, as provided in [Appendix 7](#).

Other matters

SC27.28 (para. 174) The SC **NOTED** the occasional need of technical workshops, corresponding to a request by the SC or Commission. The SC **RECOMMENDED** that:

- Technical workshops are not to be nested within Working Party meetings

- The terms of reference for such technical workshops should be established ahead of time to clarify their role and decision-making process, including whether they can make direct recommendations to the SC.

PROGRAM OF WORK AND SCHEDULE OF WORKING PARTY AND SCIENTIFIC COMMITTEE MEETINGS

Consultants

SC27.29 (para. 199) **NOTING** the highly beneficial and relevant work done by IOTC stock assessment consultants in previous years, the SC **RECOMMENDED** that the engagement of consultants be continued for each coming year based on the Program of Work. Consultants will be hired to supplement the skill set available within the IOTC Secretariat and CPCs.

Data preparatory meetings and Hybrid meetings

SC27.30 (para. 201) **ACKNOWLEDGING** that holding data preparatory meetings prior to stock assessments is considered to be best practice (as identified by the yellowfin stock assessment external reviewer, the WPTT and the WPDCS) and noting that since 2019 data preparatory meetings were successfully held for the WPTmT, WPTT and WPEB, the SC **AGREED** to continue the practice of having data preparatory meetings in addition to stock assessment meetings for the major IOTC species. The SC **RECOMMENDED** that data preparatory meetings could continue to be held virtually so as not to increase the travel and costs required for the already full IOTC timetable of meetings.

SC27.31 (para. 202) The SC **NOTED** that there had been a few teething problems holding meetings in a hybrid format in 2023 and 2024, especially related to the costs associated with the audio-visual equipment required, as well as the issues associated with ensuring the equipment was suitable to ensure full participation of both those in person as well as those connecting virtually. However, the SC **AGREED** on the utility of facilitating both in-person and virtual participation at future meetings to ensure increased participation and reduce the logistical costs for many CPCs and observers. As such, the SC **RECOMMENDED** that future Scientific Committee meetings continue to be held in a hybrid format, as well as working parties if possible. The SC further **RECOMMENDED** that all presentations at these meetings be made in person to ensure the aforementioned issues did not adversely affect the quality of the advice being provided.

SC27.32 (para. 203) The SC **NOTED** all IOTC working party meetings this year (except the WPDCS and WPSE) were held in Seychelles, as there were no offers to host them. The SC meeting was originally planned in Seychelles but this was not possible due to unavailability of the venue. There has been an increasing reluctance for CPCs to offer to host IOTC scientific working party and SC meetings. This reluctance may be due to budget constraints, as well as the logistical burdens of Hybrid meetings. The SC **NOTED** that there has been a number of issues when hosting meetings in Seychelles (e.g., high cost). The SC **RECOMMENDED** this issue be discussed at the Commission in order to find a way forward.

IOTC Scientific Strategic Research Plan

SC27.33 (para. 208) The SC **AGREED** that the draft updated IOTC Strategic Science Plan 2025–2029 will be distributed to Heads of Delegation from each CPC for comment during early 2025. Thereafter comments will be collated and consolidated and another version sent to CPCs for final review. Pending agreement of CPCs, and noting that the IOTC Strategic Science Plan would be a dynamic document that would change over time, the SC **RECOMMENDED** that the revised draft of the IOTC Strategic Science Plan 2025–2029 be tabled at the Commission meeting in 2025.

REVIEW OF THE DRAFT, AND ADOPTION OF THE REPORT OF THE 25TH SESSION OF THE SCIENTIFIC COMMITTEE

SC27.34 (para. 214) The SC **RECOMMENDED** that the Commission consider the consolidated set of recommendations arising from SC25, provided at Appendix 39.