

Report of the 8th IOTC Technical Committee on Management Procedures

Thailand, 10–11 May 2024

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ACRONYMS

BET	Bigeye Tuna
BMSY	Biomass that achieves maximum sustainable yield
CMM	Conservation and Management Measure (of the IOTC; Resolutions and Recommendations)
CPCs	Contracting parties and cooperating non-contracting parties
EU	European Union
FAO	Food and Agriculture Organization of the United Nations
IOTC	Indian Ocean Tuna Commission
MP	Management Procedure
MPD	Management Procedures Dialogue
MSE	Management Strategy Evaluation
MSY	Maximum Sustainable Yield
SC	Scientific Committee, of the IOTC
SSB	Spawning stock biomass
SPC	Secretariat of the Pacific Community
tRFMO	tuna Regional Fisheries Management Organization
TAC	Total Allowable Catch
TCMP	Technical Committee on Management Procedures
WP	Working Party of the IOTC
WPB	Working Party on Billfish of the IOTC
WPEB	Working Party on Ecosystems and Bycatch of the IOTC
WPM	Working Party on Methods of the IOTC
WPNT	Working Party on Neritic Tunas of the IOTC
WPDCS	Working Party on Data Collection and Statistics of the IOTC
WPTmT	Working Party on Temperate Tunas of the IOTC
WPTT	Working Party on Tropical Tunas of the IOTC
YFT	Yellowfin Tuna

STANDARDISATION OF IOTC WORKING PARTY AND SCIENTIFIC COMMITTEE REPORT TERMINOLOGY

SC16.07 (para. 23) The SC **ADOPTED** the reporting terminology contained in Appendix IV and **RECOMMENDED** that the Commission considers adopting the standardised IOTC Report terminology, to further improve the clarity of information sharing from, and among its subsidiary bodies.

HOW TO INTERPRET TERMINOLOGY CONTAINED IN THIS REPORT**Level 1: From a subsidiary body of the Commission to the next level in the structure of the Commission:**

RECOMMENDED, RECOMMENDATION: Any conclusion or request for an action to be undertaken, from a subsidiary body of the Commission (Committee or Working Party), which is to be formally provided to the next level in the structure of the Commission for its consideration/endorsement (e.g. from a Working Party to the Scientific Committee; from a Committee to the Commission). The intention is that the higher body will consider the recommended action for endorsement under its own mandate, if the subsidiary body does not already have the required mandate. Ideally this should be task specific and contain a timeframe for completion.

Level 2: From a subsidiary body of the Commission to a CPC, the IOTC Secretariat, or other body (not the Commission) to carry out a specified task:

REQUESTED: This term should only be used by a subsidiary body of the Commission if it does not wish to have the request formally adopted/endorsed by the next level in the structure of the Commission. For example, if a Committee wishes to seek additional input from a CPC on a particular topic, but does not wish to formalise the request beyond the mandate of the Committee, it may request that a set action be undertaken. Ideally this should be task specific and contain a timeframe for the completion.

Level 3: General terms to be used for consistency:

AGREED: Any point of discussion from a meeting which the IOTC body considers to be an agreed course of action covered by its mandate, which has not already been dealt with under Level 1 or level 2 above; a general point of agreement among delegations/participants of a meeting which does not need to be considered/adopted by the next level in the Commission's structure.

NOTED/NOTING: Any point of discussion from a meeting which the IOTC body considers to be important enough to record in a meeting report for future reference.

Any other term: Any other term may be used in addition to the Level 3 terms to highlight to the reader of and IOTC report, the importance of the relevant paragraph. However, other terms used are considered for explanatory/informational purposes only and shall have no higher rating within the reporting terminology hierarchy than Level 3, described above (e.g. **CONSIDERED; URGED; ACKNOWLEDGED**).

TABLE OF CONTENTS

1.	OPENING OF THE SESSION AND ARRANGEMENTS	7
2.	ADOPTION OF THE AGENDA AND ARRANGEMENTS FOR THE SESSION	7
3.	ADMISSION OF OBSERVERS	7
4.	DECISIONS OF THE COMMISSION RELATED TO THE WORK OF THE TCMP	8
4.1	OUTCOMES OF THE 7TH SESSION OF TCMP.....	8
5.	INTRODUCTION TO MSE AND PRESENTATION OF MSE RESULTS	8
6.	STATUS OF THE MANAGEMENT STRATEGY EVALUATION/OPERATING MODELS AND ACTIONS NEEDED FOR ADOPTION	9
6.1	SKIPJACK TUNA.....	9
6.2	SWORDFISH	11
6.3	GENERAL ISSUES	12
6.3.1	MP IMPLEMENTATION, ACTIONS AND REGULAR IMPLEMENTATION REVIEW	12
7.	FUTURE DIRECTION OF THE TECHNICAL COMMITTEE ON MANAGEMENT PROCEDURES	13
7.1	WORKPLAN.....	13
7.1.1	NEW TIMELINES.....	13
7.1.2	BUDGET AND RESOURCES NEEDED FOR TECHNICAL DEVELOPMENTS.....	13
7.1.3	EXTERNAL REVIEW.....	13
7.2	PRIORITIES.....	13
7.3	PROCESS AND FUTURE MEETINGS OF TCMP	13
8.	ADOPTION OF REPORT	14
Appendix I	List of Participants	15
Appendix II	Agenda for 8 th IOTC Technical Committee on Management Procedure.....	21
Appendix III	List of documents.....	22

EXECUTIVE SUMMARY

The eighth Technical Committee on Management Procedures meeting was held on the 10–11 May 2024. The meeting was held in a hybrid format, with delegations present physically in the meeting room, and some participants attending by videoconference. The Chair welcomed attendees and opened the meeting. Ms. Kim emphasized the significance of formulating Management Procedures in shaping the policy of IOTC members regarding the governance of important IOTC species. She highlighted the general consensus within the IOTC scientific community that the Management Strategy Evaluation for skipjack tuna and swordfish is in an advanced state, presenting a promising opportunity for the Commission to consider adopting the proposal for these species' Management Procedures. The Chair NOTED that Dr. Toshihide Kitakado, chair of the IOTC Scientific Committee, could not co-chair the meeting as initially intended. However, he offered online assistance for several agenda items. The Chair welcomed 131 delegates from 27 Contracting Parties of the Commission and 8 Observers (including the invited experts) to the session. The list of participants is provided in [Appendix I](#).

TCMP.Rec.01 (Para. 26) Considering that all Skipjack MPs tested show good performance with respect to stock status (e.g., all showing stock biomass above the LRP with high probability) and little difference among them in other performances measures under the reference set, the TCMP **NOTED** that all MPs ensure the skipjack will be managed within safe biological limits. Therefore, the TCMP **RECOMMENDED** the Commission to consider for adoption the EU proposal for the MP that has the following properties : (i) 50% probability of being at the skipjack target reference point in 2034-2038 (i.e., 40% B₀), (ii) the stable type MP parameterisation, and (iii) an asymmetric TAC change clause.

TCMP.Rec.02 (Para. 27) The TCMP **NOTED** that increased catches of skipjack will also affect yellowfin and bigeye stocks which are overfished and subject to overfishing. The TCMP **RECOMMENDED** that the SC investigate and incorporate ecosystem effects in the next skipjack revision of the MP since the fishery of skipjack will impact catches in other species, such as yellowfin, bigeye, and sharks.

TCMP.Rec.03 (Para. 28) Moreover, considering that in the past skipjack catches have been greater than the recommended limits, the TCMP **RECOMMENDED** the Commission to take the necessary actions to ensure that catches do not exceed the TAC when the MP is applied.

TCMP.Rec.04 (Para. 44) After considering the performance and trade-off between management objectives of the six candidate management procedures of swordfish, the TCMP **RECOMMENDED** the Commission to consider for adoption the Australian proposal for a swordfish MP: MP1 or MP2. These have the following properties: a fast reacting, data-based type MP, with either 60% (MP1) or 70% (MP2) probability of being at the target reference point in 2034-2038.

TCMP.Rec.05 (Para. 45) The TCMP also NOTED that changes in swordfish catch will also affect other species, particularly shark species. The TCMP **RECOMMENDED** that the SC investigate and incorporate ecosystem effects in the next swordfish revision of the MP.

TCMP.Rec.06 (Para. 56) Considering the progress on MSE for IOTC species, the TCMP **RECOMMENDED** that a virtual TCMP be convened early in 2025 with a special focus on albacore tuna if the SC agrees that sufficient progress has been made, and a one-day TCMP be convened back-to-back with the Commission's Session in 2025. The TCMP also **RECOMMENDED** that the WPM(MSE) be held in March/April, and that the next TCMP meeting should include a capacity building component, taking into considerations of the options suggested by the small Working Group.

1. OPENING OF THE SESSION AND ARRANGEMENTS

1. The eighth Technical Committee on Management Procedures meeting was held on the 10–11 May 2024 in Bangkok, Thailand. The meeting was held in a hybrid format, with delegations present physically in the meeting room, and some participants attending by videoconference. The meeting was chaired by Ms Jung-re Riley Kim (Chair of the IOTC).
2. The Chair welcomed attendees and opened the meeting. Ms. Kim emphasized the significance of formulating Management Procedures in shaping the policy of IOTC members regarding the governance of important IOTC species. She highlighted the general consensus within the IOTC scientific community that the Management Strategy Evaluation for skipjack tuna and swordfish is in an advanced state, presenting a promising opportunity for the Commission to consider adopting the proposal for these species' Management Procedures.
3. The Chair **NOTED** that Dr. Toshihide Kitakado, chair of the IOTC Scientific Committee, could not co-chair the meeting as initially intended. However, he offered online assistance for several agenda items. The Chair welcomed 131 delegates from 27 Contracting Parties of the Commission and 8 Observers (including the invited experts) to the session. The list of participants is provided in [Appendix I](#).

2. ADOPTION OF THE AGENDA AND ARRANGEMENTS FOR THE SESSION

4. The Chair **NOTED** that TCMP was established to improve the mutual understanding and effective communication between science and management, as well as to facilitate the commission's decision-making process on issues pertaining to management procedures. To this end, scientists reported on their progress in developing and assessing management procedures for the major Indian Ocean tuna stocks, following the guidelines outlined in Resolution 15/10 and the related workplan that the Commission approved.
5. The adopted agenda for the meeting is presented in [Appendix II](#). The documents presented to the TCMP are listed in [Appendix III](#).

3. ADMISSION OF OBSERVERS

6. Pursuant to Article VII of the Agreement establishing the IOTC, the TCMP08 admitted the following observers, as defined in Rule XIV of the IOTC Rules of Procedure (2023):

Members or Associate Members of the FAO

- United States of America

Non-governmental Organisations (NGO)

- International Pole-and-line Foundation
- International Seafood Sustainability Foundation
- PEW Charitable Trusts
- Sustainable Fisheries and Communities Trust
- Thai Tuna Industry Association
- WORLDWIDE FUND FOR NATURE

Invited Experts

- Taiwan, Province of China

4. DECISIONS OF THE COMMISSION RELATED TO THE WORK OF THE TCMP

4.1 OUTCOMES OF THE 7TH SESSION OF TCMP

7. The TCMP were informed of the main outcomes of the 7th Technical Committee on Management Procedures ([IOTC-2024-TCMP08-03](#)), included in the paragraphs below (Para. 30 & 31 are on the SKJ MP; Para 37 &38 are on the SWO MP):
- (Para. 30) TCMP NOTED the instability in catches associated with more aggressive tuning targets. It was proposed to exclude the 50% tuning, NOTING that a similar decision had been made for the MSE for bigeye tuna and swordfish. However, TCMP NOTED that MPs need still be evaluated using the full assessment model grid (currently only half models are included in the OM) and the MP performance may also change if TAC stabilizers are introduced. TCMP **AGREED** to postpone the decision to the TCMP08 meeting in May, pending full results, to allow MP options to be further narrowing down. Furthermore, the TCMP noted that the MP tuned for 50% of probability of reaching the target was preliminarily evaluated to have achieved a probability of being in the green Kobe quadrant ($B > BMSY$ and $F < FMSY$) of 83% and 85% for Type A MP and Type B MP, respectively.
 - (Para. 31) The TCMP found that the qualitative comparisons of multiple MPs against different management objectives (e.g., Type-A, 60% tuning is preferred against the maximum average catch; Type-B, 50% tuning is preferred against the maximum possible catch) in the skipjack MSE are very informative, and **REQUESTED** that the developers produce such qualitative comparisons (with an emphasis on whether the difference is significant) to summarize MP performance in order to assist managers in making MP selection decisions.
 - (Para. 37) The TCMP NOTED that the estimator in the Model-based MP is based on a standard Schaefer surplus production model, which assumes MSY occurs at 50% SBO. The TCMP further NOTED that this assumption does not align with the underlying 40-10 Hockey stick harvest control rule, as management actions may not be triggered when the stock falls below BMSY. It was pointed out that the discrepancy might not be important since the estimator serves to provide inputs to the HCR and it is subject to testing. Nevertheless, the TCMP suggested examining the effects of an estimator more in tune with the HCR, one that corresponds to an MSY occurring at 40% SBO, to determine its influence on MP performance. The TCMP **AGREED** that this warrants a technical discussion at the upcoming MSE April task force meeting.
 - (Para. 38) Based on the observed performance of MPs, the TCMP discussed options to refine MP selections for further consideration at the TCMP meeting in May. The TCMP NOTED that the performance was quite similar among various TAC stabilizers and **AGREED** to eliminate both the 15-15 and 10-10 options while retaining the 15-10 option. Additionally, the TCMP **AGREED** to maintaining all types of MPs (although model-based MPs typically yield lower catches they offer greater stability)
 - (Para. 40) The TCMP RECALLED that the deadline for submission of full documents for the TCMP in May falls on 10 April (30 days prior to the start of the TCMP meeting). The TCMP NOTED that this deadline falls before the completion of the MSE Task Force meeting, which takes place from the 10 – 13 April. As such, any discussions that take place during that meeting would not be able to be incorporated into the documents submitted for the TCMP. As such, the TCMP **AGREED** that the deadline for submission of documents for the TCMP should be extended until the 19th of April on an exceptional basis in 2024.
8. The TCMP also **NOTED** the information document [IOTC-2024-TCMP08-INF02](#), which summarises the outcome of the MSE Task Force meeting held from April 10 to 13 2024. The meeting discussed further revisions and analyses conducted on the skipjack and swordfish Management Strategy Evaluation, in accordance with requests from TCMP07.

5. INTRODUCTION TO MSE AND PRESENTATION OF MSE RESULTS

9. The TCMP **NOTED** a presentation by the SC Chair that introduced the basic principles of the MSE process and the communication of the results. This presentation explained key aspects of MSE procedures, such as model-based versus data-based management procedures, the tuning criteria against management objectives, and other

components such as TAC change constraints and time lags in TAC implementation. Furthermore, it emphasized the importance of routine examination of exceptional circumstances concerning the implementation of the management procedure.

10. The TCMP NOTED that the informational document [IOTC-2024-TCMP08-INF01](#), which is the Educational Tools developed for MSE Capacity Building, funded by an Australian grant (also available at <https://iotc.org/educational-tools>).

6. STATUS OF THE MANAGEMENT STRATEGY EVALUATION/OPERATING MODELS AND ACTIONS NEEDED FOR ADOPTION

6.1 SKIPJACK TUNA.

11. The TCMP NOTED the presentation of paper [IOTC-2024-TCMP08-04 Rev2](#), which provides an update on further MP simulation testing for Indian Ocean skipjack tuna, including the following summary provided by the authors.

“This document provides background information to inform the Commission’s decision on the adoption of a skipjack tuna Management Procedure (MP), as outlined in the Commission workplan. Two MP types are presented. Both have very similar performance and are likely to meet the Commission’s objectives with a high probability. Each MP-type was tuned to meet management objectives for skipjack with a 50%, 60% or 70% probability between 2034 and 2038. Tuning was conducted assuming either a symmetric or asymmetric limit to the allowable TAC change. This yielded a total of twelve candidate MPs. Simulation testing indicated that the tuning criteria will determine the overall stock status and average Total Allowable Catch (TAC). The MP-type determined the stability of the TAC over time, with the more stable MP-type also having a lower maximum possible catch. For the asymmetric TAC change limit, a smaller reduction in the TAC was allowed, but this led to more frequent changes over time.” – see the paper for the full summary.

12. The TCMP NOTED that the work, which has been ongoing since early 2019, seeks to design a full MP, noting that the current HCR of SKJ ([Res 21/03](#)) is not a MP. The candidate MPs under discussion are subject to full simulation testing and designed to generate the TAC advice directly from the catch rate data.

13. The TCMP NOTED that 12 MP configurations were assessed, corresponding to a combination of three tuning criteria (50%, 60%, or 70% in the target quadrant), two alternative MP types (‘Stable’ and ‘Target’ types), and two TAC stability options (a 15% symmetric TAC buffer, or a 15% up and 10% down asymmetric buffer). The MPs are tested against 36 OM models, with a 3-year management cycle and a 2-year total time lag.

14. The TCMP NOTED the following overall properties of the MPs:

- Stock status and average catch are primarily determined by tuning criteria (50%, 60%, or 70% of being in the target quadrant).
- The ‘Stable’ MP-type can have a higher average TAC and lower variability whereas the ‘Target’ MP-type has a higher possible TAC.
- The Asymmetric TAC change limit led to more frequent TAC changes but can improve stability for the ‘Target’ MP-type or in the presence of overcatch. Overall, the TAC change limit had the smallest effect on performance outcome.

15. The TCMP NOTED that the overcatch robustness test shows that in all cases the TAC is reduced, which highlights the importance not having overcatch and that the Commission ensures the total catch complies with the established TAC through an additional mechanism outside the MP, such as catch limits by CPC

16. The TCMP NOTED in case of overcatch, the ‘target’ MP type is more responsive because the catch reduction is triggered earlier than the ‘Stable’ MP type as a trade-off of being more variable. The TCMP also NOTED that the more conservative, 70% tuning criteria is also more effective in conserving the stock status in case of overcatch.

17. The TCMP NOTED that climate change has not been explicitly included in the MP. Climate change may be driving the recent higher estimated recruitment, but in the projections period the recruitments are estimated from a long-

- term stock recruitment relationship. Long-term recruitment is more conservative than the higher recruitment observed in recent period.
18. The TCMP **NOTED** that above average recruitment observed in the most recent years due to favourable environmental conditions had led to the current total catch limit being set at a very high level (628,262 tonnes) by the skipjack harvest control Rule ([Res 21/03](#)). However, the recent recruitments are considered an anomaly and the projected recruitments are expected to be around the long-term average on which the MP testing is based. As such all MPs tested will reduce the catch limits in the initial application period (the length of the period also depends on the catch stability clause).
19. However, if the recruitment continues to be high (and consequently the CPUE is high), the TAC may not be increased because of the form of the MP where there is a maximum TAC when the plateau is reached. The TCMP **QUESTIONED** if in this case the EC should be triggered. The TCMP **NOTED** that ECs are not triggered as different levels of recruitment have been tested in the MSE.
20. The TCMP **NOTED** that the CPUE used to establish the TAC for 2027-2029 in the MP testing has accounted for the most recent recruitment but the increase in the CPUE will not be reflected in an increase of a TAC as the catch may be constrained by the plateau in the MP.
21. The TCMP **NOTED** Information paper [IOTC-2024-TCMP08-INF04](#), which documents a proposed draft resolution made by the European Union on a MP for skipjack, to be considered by the Commission. The proposal is based on the current skipjack tuna MSE work and the pending elements in this proposal are expected to be finalised following the feedback and the conclusions of the TCMP meeting. The proposed timing of the application is aligned with the current stock assessment cycle (e.g., run the MP in 2025, to establish the TAC for 2027 – 2029).
22. The TCMP **NOTED** that the decisions need to be made regarding the tuning criteria, MP type (target or stable) and TAC maximum change (asymmetric or symmetric) in order to narrow down the options for the MPs to be considered by the Commission.
23. The TCMP **NOTED** that the SKJ target reference point of 40%B₀ which the MP are tuned to is much more conservative than MSY-based reference points used in other IOTC species as the B_{MSY} is much lower than the 40% B₀. As such, when the MPs are tuned to achieve the target, all MPs are able to maintain the stock above B_{MSY} level with high probability. All MPs tested are also able to maintain the stock above the Limit Reference Point (i.e., 20% B₀). For this reason, the EU proposal is for the MP with a 50% tuning objective. In an initial discussion, however, some members of the TCMP also suggested retaining the 60% tuning objective as it provides a good trade-off across different management objectives. The TCMP **AGREED** to exclude 70% tuning criteria.
24. The TCMP tentatively **AGREED** in a stable MP, as overall it provides a more stable time series of TAC and also achieved higher average catches.
25. The TCMP tentatively **AGREED** in asymmetric catch stability as it allows the TAC to go back to the plateau in one management cycle, (with the 10% systematic catch stability requiring 2 management cycles).
26. Considering that all Skipjack MPs tested show good performance with respect to stock status (e.g., all showing stock biomass above the LRP with high probability) and little difference among them in other performance measures under the reference set, the TCMP **NOTED** that all MPs ensure the skipjack will be managed within safe biological limits. Therefore, the TCMP **RECOMMENDED** the Commission to consider for adoption the EU proposal for the MP that has the following properties : (i) 50% probability of being at the skipjack target reference point in 2034-2038 (i.e., 40% B₀), (ii) the stable type MP parameterisation, and (iii) an asymmetric TAC change clause.
27. The TCMP **NOTED** that increased catches of skipjack will also affect yellowfin and bigeye stocks which are overfished and subject to overfishing. The TCMP **RECOMMENDED** that the SC investigate and incorporate ecosystem effects in the next skipjack revision of the MP since the fishery of skipjack will impact catches in other species, such as yellowfin, bigeye, and sharks.

28. Moreover, considering that in the past skipjack catches have been greater than the recommended limits, the TCMP **RECOMMENDED** the Commission to take the necessary actions to ensure that catches do not exceed the TAC when the MP is applied.

29. The TCMP also **REQUESTED** the European Union to include a provision asking the Scientific Committee to monitor future recruitments under skipjack exceptional circumstances.

6.2 SWORDFISH

30. The TCMP **NOTED** the presentation of paper [IOTC-2024-TCMP08-05 Rev2](#), which provides an update on further MP simulation testing for Indian Ocean swordfish, including the following summary provided by the authors.

“This document presents the outcome of the Indian Ocean swordfish MSE, in which three different Management Procedures (MP) were tested using simulation. The MPs tested are of two types: model-based (using a surplus production model combined with a harvest control rule) and data-based (based on the recent trend and value in a CPUE index). Two versions of the data-based one were investigated, one reacting faster to the changes in the CPUE index than the other” – see the paper for the full summary.

31. TCMP **NOTED** that the operating model, which was conditioned on the 2020 swordfish assessment model, and updated until 2023 using recent IOTC catch estimates, consisted of a much larger number of models than the assessment grid and therefore has encompassed a wider range of certainty as accounted by the assessment model. The TCMP further **NOTED** that the estimates of the 2023 assessment were also well contained within the confidence envelope of the OM.

32. The TCMP **NOTED** that two tuning criteria (60% and 70% in the Kobe green zone) were considered. For each turning criteria, three types of MPs were tested, a model based MP incorporating a classic 40-10 Hockey stick HCR, and two versions of data-based HCR, corresponding to either slow or fast reaction to standardised CPUE index (determined by reactivity parameters, applied to the recent slope in the CPUE index and the distance to the target CPUE). The MPs are tested assuming a 3-year management cycle and a 2-year total time lag.

33. The TCMP **NOTED** that the slope and distance parameters largely determine how the data-based MP behaves. The fast MP implies larger changes of TAC in response to the same level of changes in CPUE. Therefore, the data-based MP with different types of reactivity could give managers more options to react with signals or noise in the CPUE.

34. The TCMP **NOTED** the following overall properties of the MPs:

- All MPs maintain the stock well above the target and limit reference points and tuning criteria objective has a larger impact than MP type.
- Data-based MPs achieved slightly higher TAC with larger uncertainty than model-based MP, and the TAC is more variable for fast reacting data-based MP.
- Model based MPs is slightly more robust to impact of overcatch or additional time lag, whereas the data-based MP is more robust for poor recruitment.

35. The TCMP **NOTED** that different types of MP have different behaviours in terms of how the stock achieves the tuning target. The data-based MP changes the catch incrementally as a proportion of both the recent trend and distance to target for the CPUE index. Consequently, the data-based MP tend to gradually increases the catches (hence the fishing mortality), which led to higher biomass performance in the initial period, but lower performance towards the end of the projection period. On the contrary, the model-based MP determined the TAC based on what can achieve the target and maintain that catch (which are bounded by the plateau of maximum catch in the HCR).

36. The TCMP further **NOTED** that the model-based MP rarely sets TAC lower than the plateau of the HCR as the stock is in very good initial condition, and the MP will not be triggered until the stock is reduced down to 40% B0.

However, the catch performance would be different if MP is tested against a different initial condition of the stock status.

37. The TCMP **NOTED** that for the model-based MP, there are a number of instances where the TAC decreases significantly 20 years further into the projection period. It was clarified that these specific individual runs were purposely selected to demonstrate population dynamics that is not represented by the median (and the 90% confidence envelop) which shows a stable TAC over time. These runs represent less than 5% of the total runs.
38. The TCMP **NOTED** Information paper [IOTC-2024-TCMP08-INF03](#), which documents a proposed draft resolution made by Australia on a MP for swordfish, to be considered by the Commission. The proposal is based on the current swordfish MSE work and the pending element in this proposal is expected be finalised following the feedback and the conclusions the TCMP meeting. The proposed timing of the application is in 2024, with the first TAC derived from the MP to be applied for 2026-2028.
39. The TCMP **DISCUSSED** MP performances regarding the tuning criteria and MP type in order to narrow down the options for the MPs to be considered by the Commission.
40. The TCMP **NOTED** that the MSY-based limit reference point corresponds to a very low stock depletion according to the swordfish stock assessment, therefore the MP with a 70% tuning objective is considered to be more conservative and precautionary. On the other hand, the 60% tuning objective leads to higher TACs and is also consistent with the tuning criteria used in the adopted MP for bigeye tuna.
41. The TCMP **NOTED** that the model-based MP exhibits less resilience to recruitment failure, which could lead to an increased risk of the stock falling below the limit reference point. In contrast, the fast, data-based MP shows a greater ability to adjust to changes in stock size.
42. The TCMP also **NOTED** that while the model-based MP typically maintains a constant TAC at the plateau of the Harvest Control Rule (HCR) unless there is a stock decline, the data-based MPs has more potential to increase the TAC should the stock increase. However, the median TAC projections are similar between the two types of MPs.
43. The TCMP further **NOTED** that although the data-based MPs are simulated to result in reduction in stock levels after the late 2030s, reviewing the MP within a five to six-year timeframe could be sufficient to assess the situation effectively.
44. After considering the performance and trade-off between management objectives of the six candidate management procedures of swordfish, the TCMP **RECOMMENDED** the Commission to consider for adoption the Australian proposal for a swordfish MP: MP1 or MP2. These have the following properties: a fast reacting, data-based type MP, with either 60% (MP1) or 70% (MP2) probability of being at the target reference point in 2034-2038.
45. The TCMP also **NOTED** that changes in swordfish catch will also affect other species, particularly shark species. The TCMP **RECOMMENDED** that the SC investigate and incorporate ecosystem effects in the next swordfish revision of the MP.

6.3 GENERAL ISSUES

6.3.1 MP IMPLEMENTATION, ACTIONS AND REGULAR IMPLEMENTATION REVIEW

46. The TCMP **NOTED** that the adopted exceptional circumstances guidelines provide a process for annual review and method for determining management action for situations that fall outside the range of uncertainties covered by Management Strategy Evaluation (MSE) simulation testing. From this viewpoint, it was suggested that if catches reach the plateau in the HCR (for example, the Cmax in the skipjack MP), a substantial rise in CPUE could also constitute exceptional circumstances, if the increase lies outside the confidence intervals of the observed CPUE increases that have been simulation-tested.
47. The TCMP **NOTED** that Oman is undertaking a retrospective re-estimation of yellowfin tuna catches by its fleet, as

well as for other species such as skipjack. This may have an impact on the implementation of the MPs for IOTC species. The TCMP **AGREED** that the outcomes of this analysis should be considered during the review of exceptional circumstances throughout the course of the MP's implementation for the relevant species.

7. FUTURE DIRECTION OF THE TECHNICAL COMMITTEE ON MANAGEMENT PROCEDURES

7.1 WORKPLAN

7.1.1 NEW TIMELINES.

48. The TCMP **NOTED** the new MSE timeline presented by the SC Chair as well as future application of the Management Procedures provided that SKJ and SWO MPs are adopted by the Commission next week. TCMP **REQUESTED** the SC via its WPM review the current schedule of MSE work and provide an update to the TCMP in 2025 for endorsement.

7.1.2 BUDGET AND RESOURCES NEEDED FOR TECHNICAL DEVELOPMENTS.

49. The TCMP **NOTED** that, should the MPs for skipjack and swordfish be adopted and implemented, there may remain research needs to address outstanding issues. The TCMP was informed that the current science budget has some flexibility to support the ongoing MSE work for skipjack and swordfish in 2024 and 2025 if required.

50. The TCMP **NOTED** that Maldives has obtained funding for an MSE capacity-building workshop intended for fishery managers in coastal countries and requested the Secretariat to provide technical support and coordination of the workshop, scheduled for late August.

51. The TCMP **NOTED** the limited engagement of coastal states in the discussion of MSE work at the meeting. The TCMP **acknowledged** that the importance of ongoing capacity building to enhance awareness and understanding of MP development among coastal countries. Therefore, the TCMP **RECOMMENDED** the allocation of resources to support capacity-building efforts, to bolstering the participation and contribution of coastal countries in the MSE process.

7.1.3 EXTERNAL REVIEW.

52. The TCMP **NOTED** that the review of the BET MSE and MP had not commenced because there had been administrative difficulties in contracting and changes in circumstances of the consultant. The TCMP **NOTED** that the MSE task force meeting in April has reviewed the TOR for BET MSE review so that its scope is better aligned with the objectives of the review (Appendix V of [IOTC-2024-TCMP08-INF02](#)). The TCMP **NOTED** that the Secretariat has been tasked to identify candidate reviewers, with recommendations from the MSE Task Force.

7.2 PRIORITIES

53. The TCMP **NOTED** that the yellowfin tuna Management Strategy Evaluation (MSE) has no further progress due to several on-going problems with the assessment model, which is the basis for the Operating Model. In February 2023, external experts conducted a review of the yellowfin stock assessment and provided suggestions for enhancing the model. These expert recommendations may be integrated into the development of the yellowfin MSE.

54. The TCMP **NOTED** that if the Commission adopt management procedures for skipjack and swordfish, the focus of MSE efforts will shift to albacore and yellowfin. The TCMP was also informed the progress in the albacore tuna MSE, which is now examining a new method to condition the OM separately from the assessment model.

7.3 PROCESS AND FUTURE MEETINGS OF TCMP

55. The TCMP **NOTED** a presentation by the SC Chair on the outcomes of the virtual meeting of the Small Working Group on MSE presentation that took place on 1 February 2024. The SC Chair reminded the TCMP that in 2023 the Commission endorsed the creation of this small working group to discuss and agree on ways to improve communication between scientists and managers. The TCMP **NOTED** that the group discussions focused on

streamlining presentations, improving engagement with managers, and suggested alternative options for capacity building to enhance managers understanding of MSE processes.

56. Considering the progress on MSE for IOTC species, the TCMP **RECOMMENDED** that a virtual TCMP be convened early in 2025 with a special focus on albacore tuna if the SC agrees that sufficient progress has been made, and a one-day TCMP be convened back-to-back with the Commission's Session in 2025. The TCMP also **RECOMMENDED** that the WPM(MSE) be held in March/April, and that the next TCMP meeting should include a capacity building component, taking into considerations of the options suggested by the small Working Group.

8. ADOPTION OF REPORT

57. The report of the 8th IOTC Technical Committee on Management Procedures meeting (IOTC-2024-TCMP08-R) was **ADOPTED** on 14 May 2024.

APPENDIX I
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APPENDIX II
AGENDA FOR 8TH IOTC TECHNICAL COMMITTEE ON MANAGEMENT PROCEDURE

Date: 10-11 May 2024

Location: Bangkok, Thailand (Hybrid)

CoChairs: Ms. Riley Kim Jung-re (Commission Chair) and Dr. Toshihide Kitakado (SC Chair)

- 1. OPENING OF THE SESSION AND ARRANGEMENTS (Co-Chairs)**
- 2. ADOPTION OF THE AGENDA AND ARRANGEMENTS FOR THE SESSION (Co-Chairs)**
- 3. ADMISSION OF OBSERVERS (Co-Chairs)**
- 4. DECISIONS OF THE COMMISSION RELATED TO THE WORK OF THE TECHNICAL COMMITTEE ON MANAGEMENT PROCEDURES (IOTC Secretariat)**
 - 4.1 Outcomes of the 7th Session of TCMP
- 5. INTRODUCTION TO MSE AND PRESENTATION OF MSE RESULTS**
- 6 STATUS OF THE MANAGEMENT STRATEGY EVALUATION/OPERATING MODELS AND ACTIONS NEEDED FOR ADOPTION (Developers)**
 - 6.1 Skipjack tuna (Charlie Edwards)
 - 6.2 Swordfish (Thomas Brunel/Iago Mosqueira)
 - 6.3 General Issues
 - 6.3.1 MP implementation, actions and regular implementation review
- 7 FUTURE DIRECTION OF THE TECHNICAL COMMITTEE ON MANAGEMENT PROCEDURES (Co-Chairs)**
 - 7.1 Workplan
 - 7.1.1 New timelines
 - 7.1.2 Budget and resources needed for technical developments
 - 7.1.3 External review
 - 7.2 Priorities
 - 7.3 Process and future meetings of TCMP
- 8 ADOPTION OF REPORT (Co-chairs)**

APPENDIX III
LIST OF DOCUMENTS

Document	Title
IOTC-2024- TCMP08-01a	Draft: Agenda of the 8 th Technical Committee on Management Procedure Meeting
IOTC-2024- TCMP08-01b-rev1	Draft: Annotated agenda of the 8 th Technical Committee on Management Procedure Meeting
IOTC-2024- TCMP08-02	Draft: List of documents of the 8 th Technical Committee on Management Procedure Meeting
IOTC-2024- TCMP08-03	Outcomes of the 7 th Technical Committee On Management Procedure
IOTC-2024- TCMP08-04-rev2	Updated candidate MPs for Indian Ocean skipjack tuna (Edwards C)
IOTC-2024- TCMP08-05-rev2	IOTC Swordfish: Management Strategy Evaluation Update (Brunel T, Mosqueira I)
IOTC-2024- TCMP08-INF01	IOTC MSE Handout
IOTC-2024- TCMP08-INF02	Report of the 15th Session of the IOTC Working Party on Methods (Management Strategy Evaluation Task Force)
IOTC-2024- TCMP08-INF03	On a management procedure for swordfish in the IOTC area of competence
IOTC-2024- TCMP08-INF04	On a management procedure for skipjack tuna in the IOTC area of competence