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## OUTCOMES OF THE 24<sup>th</sup> SESSION OF THE SCIENTIFIC COMMITTEE

PREPARED BY: IOTC SECRETARIAT, 04 OCTOBER 2022

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### PURPOSE

To inform participants at the 13<sup>th</sup> Working Party on Methods (WPM13) of the recommendations arising from the 24<sup>th</sup> Session of the Scientific Committee (SC24) held in December 2021, specifically relating to the work of the WPM.

### BACKGROUND

At the 24<sup>th</sup> Session of the SC, the SC noted and considered the recommendations made by the WPM in 2021 that included updates on the MSE process for various IOTC species.

Based on the recommendations arising from the WPM12, the SC24 adopted a set of recommendations, provided in [Appendix A](#) of this paper.

The recommendations contained in [Appendix A](#) was provided to the Commission for consideration at its 26<sup>th</sup> Session held in May 2022. A separate paper, IOTC–2022–WPM13–04 addresses the responses and actions of the Commission from its 26<sup>th</sup> session.

In addition, the SC24 reviewed and endorsed a Program of Work for the WPM, including a revised MSE schedule, as detailed in [Appendix B](#) as well as the guidelines for the provisions of exceptional circumstances for IOTC species MPS contained in [Appendix C](#). A separate paper (IOTC–2022–WPM13–07) will outline the review and development process for a *Program of Work* for the WPM for the next five years.

### DISCUSSION

In addition to the recommendations outlined in [Appendix A](#), [Appendix B](#) and [Appendix C](#), the following extracts from the SC24 Report (IOTC–2021–SC24–R) are provided here for the consideration and action of the WPM13:

#### **7.5 Report of the 12<sup>th</sup> Session of the Working Party on Methods (WPM12)**

111. The SC noted the report of the 12<sup>th</sup> Session of the Working Party on Methods ([IOTC–2021–WPM12–R](#)), including the consolidated list of recommendations provided as an appendix to the report. The meeting was attended by 55 participants (cf. 55 in 2020). No MPF funding was provided as the meeting was held online.
112. The SC **NOTED** that the WPM has reviewed and discussed a wide range of issues including MSE progress for IOTC species, general MSE issues, joint CPUE standardisations, science-based FAD management, and stock status determination guidance.

#### **7.5.1 Management Strategy Evaluation Progress**

113. The SC **NOTED** the good progress made in Management Strategy Evaluations exercises for IOTC species in 2021, and the useful discussions of MSE work at the MSE Task Force meeting (a technical expert group of the WPM) and the TCMP meeting in 2021.
114. The SC **NOTED** the guidelines included as [Appendix 6a](#) to this report to deal with exceptional circumstances in the MSE process. The SC further **NOTED** that these guidelines are a living document and revisions may still be required in the future. The SC **RECOMMENDED** that the Commission consider and endorse the guidelines.
115. The SC **NOTED** the revised schedule of MSE work included as [Appendix 6b](#) to this report to provide the timeframe for the development of management procedures for key IOTC species. The SC **NOTED** that the revised MSE schedule is still ambitious but that the technical work could, in principle, be completed within the proposed timeframes with minor adjustments. The SC **RECOMMENDED** that the Commission consider and endorse the revised timetable.

### 7.5.2 Albacore MSE

116. The SC **NOTED** that the ALB operating model (OM) has been constructed from the 2019 assessment model, using a partial factorial design approach. Two different MPs – one based on a surplus production model, and one based on an HCR employed by CCSBT for Southern bluefin tuna, have been tested. The SC also **NOTED** the proposal to test alternative methods in order to have an OM that is not dependent on the stock assessment.

### 7.5.3 Skipjack tuna MSE

117. The SC **NOTED** an MSE expert has been contracted in 2020 to undertake review of the skipjack tuna harvest control rule with a view to review and provide advice on potential revisions to the HCR as required by Res 16/02. The work continued in 2021 including to (1) develop an OM based on Stock Synthesis III; (2) develop a simple stock assessment model that can be fitted to simulated data from the skipjack stock assessment grid, and (3) simulation test model-based Management Procedures (MPs) with input from stakeholders.

118. The SC **NOTED** that the WPM considered that presenting results on the performance of MPs against different reference points (i.e., MSY and depletion-based) is likely to make communication of the results more difficult but that information on MSY-based reference points could be included in the full table of performance statistics.

### 7.5.4 Yellowfin tuna MSE

119. The SC **NOTED** that there has been no further progress on the yellowfin MSE due to issues with the stock assessment model that have been encountered in recent years and which have not been resolved in time for the MSE work. The SC **NOTED** that these issues are also shared by the current OM which is based on the assessment model.

120. The SC **NOTED** that the WPM had suggested that if the 2021 stock assessment is endorsed by the Scientific Committee, and there are no obvious issues in the projections that appear likely to manifest in the OMs, then the OMs will be reconditioned and the testing of candidate MPs will resume.

121. However, although the SC considers the yellowfin tuna assessment to have been significantly improved, there are still some important and highlighted issues in the assessment and projection that may make it not feasible to further utilize the current OM. Therefore, alternative approaches for the redevelopment and reconditioning of the YFT-OM will be explored as part of the ongoing YFT-MSE work should be considered as an option. The SC **NOTED** that the proposed alternatives for OM development would be less dependent on historical data but would make heavy use of the current assessment model. The SC **AGREED** that a more detailed discussion of this approach should take place (at the MSE Working Group meeting earlier next year) before the best course of action was determined.

### 7.5.5 Bigeye tuna MSE

122. The SC **NOTED** that the bigeye tuna OM, which has been developed over the years, has proven to be relatively stable. The SC also **NOTED** that many candidate MPs have been thoroughly evaluated by MSE so far. Following the WPM' recommendation, the SC has determined that the bigeye OM and MSE has appropriately considered the key causes of uncertainty for this stock and that the conditions for applying the "Butterworth guillotine" (stop OM reconditioning) are met. The SC therefore **AGREED** to endorse the bigeye tuna OM.

123. The SC **NOTED** two MPs, specifically the Model-based hockey stick (PT-HS) and the Model-based Catch and CPUE projection (PT-PROJ), both tuned against two tuning criteria (60% and 70% probability of being in the Kobe green quadrant over the reference years) are recommended by the WPM, based on their performance indicators. The SC **AGREED** to present the MPs together with their performance indicators to the TCMP/Commission. The SC **NOTED** it will be up to the TCMP/Commission to decide on the final MP.

124. The SC **THANKED** the developers of bigeye tuna MSE for their hard work in the development of OM and evaluations of candidate MP over the years, and everyone including the WPM participants that contributed to the revision of the bigeye tuna MSE. The SC further **CONGRATULATED** the developers for achieving key milestones towards the successful adoption of a management procedure for the bigeye tuna stock.

125. The SC **NOTED** document [IOTC-2021-SC24-INF06](#) that provides the terms of reference for the proposed external review of the bigeye MSE, which is planned to take place 2022-2024. The SC discussed the timeframes, workplans and deliverables, and provided further refinement on the TOR. The SC **AGREED** that

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the process of the external review should not impede the adoption of an interim bigeye MP by the Commission prior to completion of the review. The SC also **AGREED** that the number of reviewers required will be determined at a later stage depending on the availability of funding (see also Para. 102 on the YFT Peer review)

#### **7.5.6 Swordfish MSE**

126. The SC **NOTED** that limited progress had been made on the Swordfish MSE in 2020 but work resumed in early 2021, with good progress made throughout the rest of the year.

#### **7.5.7 Update on TCMP04**

127. The SC **NOTED** document IOTC-2021-TCMP04-R on the Report of the 4th session of the TCMP held in June 2021. The SC **NOTED** that the WPM had taken into consideration the recommendations and discussions held at that meeting.

### **RECOMMENDATION**

That the WPM:

- 1) **NOTE** paper IOTC–2022–WPM13–03 which outlined the main outcomes of the 24<sup>th</sup> Session of the Scientific Committee, specifically related to the work of the WPM.
- 2) **CONSIDER** how best to progress these issues at the present meeting.

### **APPENDICES**

**Appendix A:** Consolidated set of recommendations of the 24<sup>th</sup> Session of the Scientific Committee to the Commission, relevant to the Working Party on Methods.

**Appendix B:** Schedule of MSE for the WPM (2022–2026).

## APPENDIX A

**CONSOLIDATED SET OF RECOMMENDATIONS OF THE 24<sup>TH</sup> SESSION OF THE SCIENTIFIC COMMITTEE (6 – 10 DECEMBER 2021) TO THE COMMISSION RELEVANT TO THE WORKING PARTY ON METHODS**

*Extract of the Report of the 24<sup>th</sup> Session of the Scientific Committee  
(IOTC–2021–SC24–R; Appendix 38, Pages 221–226)*

**GENERAL RECOMMENDATIONS TO THE COMMISSION**

**SUMMARY DISCUSSION OF MATTERS COMMON TO WORKING PARTIES (CAPACITY BUILDING ACTIVITIES – STOCK ASSESSMENT COURSE; CONNECTING SCIENCE AND MANAGEMENT, ETC.)**

***Invited Expert(s) at the WP meetings***

SC24.23 (para. 145) 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.

***Meeting participation fund***

SC24.24 (para. 147) The SC reiterated its **RECOMMENDATION** that the IOTC Rules of Procedure (2014), for the administration of the Meeting Participation Fund be modified so that applications are due not later than 60 days, and that the full Draft paper be submitted no later than 45 days before the start of the relevant meeting. The aim is to allow the Selection Panel to review the full paper rather than just the abstract, and provide guidance on areas for improvement, as well as the suitability of the application to receive funding using the IOTC MPF. The earlier submission dates would also assist with visa application procedures for candidates.

***IOTC species identification guides: Tuna and tuna-like species***

SC24.25 (para. 148) 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***

SC24.26 (para. 150) 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](#).

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

***Consultants***

SC24.27 (para. 181) 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.

**REVIEW OF THE DRAFT, AND ADOPTION OF THE REPORT OF THE 24<sup>TH</sup> SESSION OF THE SCIENTIFIC COMMITTEE**

SC24.28 (para. 190) The SC **RECOMMENDED** that the Commission consider the consolidated set of recommendations arising from SC24, provided at [Appendix 38](#).

## APPENDIX B

## SCHEDULE OF WORK FOR THE DEVELOPMENT OF MANAGEMENT PROCEDURES FOR KEY SPECIES IN THE IOTC AREA

Year	Albacore	Skipjack	Yellowfin	Bigeye	Swordfish
2021	<p><b>TCMP:</b> Provide advice to Commission on elements of candidate MPs, and any proposed Resolutions for an MP, that require a decision by the Commission, including the performance of candidate MPs against Commission objectives.</p>	<p><b>TCMP:</b> Provide advice to the Commission on outcomes from the application of the HCR.</p> <p>Provide advice to Commission on elements of candidate MPs, and any proposed Resolutions for an MP, that require a decision by the Commission, including the performance of candidate MPs against Commission objectives.</p>	<p><b>TCMP:</b> Provide advice to Commission on elements of candidate MPs, and any proposed Resolutions for an MP, that require a decision by the Commission, including the performance of candidate MPs against Commission objectives.</p>	<p><b>TCMP:</b> Provide advice to Commission on elements of candidate MPs, and any proposed Resolutions for an MP, that require a decision by the Commission, including the performance of candidate MPs against Commission objectives.</p>	<p><b>TCMP:</b> Provide advice to Commission on elements of candidate MPs, and any proposed Resolutions for an MP, that require a decision by the Commission, including the performance of candidate MPs against Commission objectives.</p>
	<p><b>Commission:</b> Consider work and advice from subsidiary bodies and provide direction to the WPs/SC on the need for further MSE of candidate or alternative MPs.</p> <p><b>WPs/SC:</b> Consider recommendations from the Commission and undertake MSE to provide advice on the performance of candidate MPs.</p>	<p><b>Commission:</b> Consider work and advice from subsidiary bodies and provide direction to the WPs/SC on the need to undertake further MSE of candidate or alternative MPs</p> <p><b>WPs/SC:</b> Consider recommendations from the Commission and undertake MSE to provide advice on the performance of candidate MPs.</p>	<p><b>Commission:</b> Consider work and advice from subsidiary bodies and provide direction to the WPs/SC on the need to undertake further MSE of candidate or alternative MPs.</p> <p><b>WPs/SC:</b> Consider recommendations from the Commission and undertake MSE to provide advice on the performance of candidate MPs.</p>	<p><b>Commission:</b> Consider work and advice from subsidiary bodies and provide direction to the WPs/SC on the need to undertake further MSE of candidate or alternative MPs.</p> <p><b>WPs/SC:</b> Consider recommendations from the Commission and undertake MSE to provide advice on the performance of candidate MPs.</p>	<p><b>Commission:</b> Consider work and advice from subsidiary bodies and provide direction to the WPs/SC on the need to undertake further MSE of candidate or alternative MPs.</p> <p><b>WPs/SC:</b> Consider recommendations from the Commission and undertake MSE to provide advice on the performance of candidate MPs.</p>
2022	<p><b>TCMP:</b> Provide advice to Commission on elements of candidate MPs, and any proposed Resolutions for</p>	<p><b>TCMP:</b> Provide advice to Commission on elements of candidate MPs, and any proposed Resolutions for</p>	<p><b>TCMP:</b> Provide advice to Commission on elements of candidate MPs, and any proposed Resolutions for</p>	<p><b>TCMP:</b> Provide advice to Commission on elements of candidate MPs, and any proposed Resolutions for</p>	<p><b>TCMP:</b> Provide advice to Commission on elements of candidate MPs, and any proposed Resolutions for</p>

	<p>an MP, that require a decision by the Commission, including the performance of candidate MPs against Commission objectives.</p> <p><b>Commission:</b> Consider work and advice from subsidiary bodies and provide direction to the WPs/SC on the need for further MSE of candidate or alternative MPs.</p>	<p>an MP, that require a decision by the Commission, including the performance of candidate MPs against Commission objectives.</p> <p><b>Commission:</b> Consider work and advice from subsidiary bodies and provide direction to the WPs/SC on the need to undertake further MSE of candidate or alternative MPs.</p>	<p>an MP, that require a decision by the Commission, including the performance of candidate MPs against Commission objectives.</p> <p><b>Commission:</b> Consider work and advice from subsidiary bodies and provide direction to the WPs/SC on the need to undertake further MSE of candidate or alternative MPs.</p>	<p>an MP, that require a decision by the Commission, including the performance of candidate MPs against Commission objectives.</p> <p><b>Commission:</b> Consider work and advice from subsidiary bodies. Decision and adoption of an MP.</p>	<p>an MP, that require a decision by the Commission, including the performance of candidate MPs against Commission objectives.</p> <p><b>Commission:</b> Consider work and advice from subsidiary bodies and provide direction to the WPs/SC on the need to undertake further MSE of candidate or alternative MPs.</p>
	<p><b>WPs/SC:</b> Consider recommendations from the Commission and undertake MSE to provide advice on the performance of candidate MPs.</p>	<p><b>WPs/SC:</b> Consider recommendations from the Commission and undertake MSE to provide advice on the performance of candidate MPs.</p>	<p><b>WPs/SC:</b> Consider recommendations from the Commission and undertake MSE to provide advice on the performance of candidate MPs.</p>	<p><b>WPs/SC:</b> Process and application of the adopted MP.</p>	<p><b>WPs/SC:</b> Consider recommendations from the Commission and undertake MSE to provide advice on the performance of candidate MPs.</p>
2023	<p><b>TCMP:</b> Provide advice to Commission on elements of candidate MPs, and any proposed Resolutions for an MP, that require a decision by the Commission, including the performance of candidate MPs against Commission objectives.</p> <p><b>Commission:</b> Consider work and advice from subsidiary bodies and provide direction to the WPs/SC on the need to</p>	<p><b>TCMP:</b> Provide advice to Commission on elements of candidate MPs, and any proposed Resolutions for an MP, that require a decision by the Commission, including the performance of candidate MPs against Commission objectives.</p> <p><b>Commission:</b> Consider work and advice from subsidiary bodies. Decision and adoption of an MP.</p>	<p><b>TCMP:</b> Provide advice to Commission on elements of candidate MPs, and any proposed Resolutions for an MP, that require a decision by the Commission, including the performance of candidate MPs against Commission objectives.</p> <p><b>Commission:</b> Consider work and advice from subsidiary bodies and provide direction to the WPs/SC on the need to</p>	<p><b>TCMP:</b></p> <p><b>Commission:</b></p>	<p><b>TCMP:</b> Provide advice to the Commission on elements of candidate MPs, and any proposed Resolutions for an MP, that require a decision by the Commission, including the performance of candidate MPs against Commission objectives.</p> <p><b>Commission:</b> Consider work and advice from subsidiary bodies and provide direction to the WPs/SC on the need to</p>

	undertake further MSE of candidate or alternative MPs.  <b>WPs/SC:</b> Consider recommendations from the Commission and undertake MSE to provide advice on the performance of candidate MPs.		undertake further MSE of candidate or alternative MPs.  <b>WPs/SC:</b> Consider recommendations from the Commission and undertake MSE to provide advice on the performance of candidate MPs.		undertake further MSE of candidate or alternative MPs.  <b>WPs/SC:</b> Consider recommendations from the Commission and undertake MSE to provide advice on the performance of candidate MPs,
2024	<b>TCMP:</b> Provide advice to Commission on elements of candidate MPs, and any proposed Resolutions for an MP, that require a decision by the Commission, including the performance of candidate MPs against Commission objectives. <b>Commission:</b> Consider work and advice from subsidiary bodies. Decision and adoption of an MP.	<b>TCMP:</b> Provide advice to Commission on elements of candidate MPs, and any proposed Resolutions for an MP, that require a decision by the Commission, including the performance of candidate MPs against Commission objectives. <b>Commission:</b> Consider work and advice from subsidiary bodies. Decision and adoption of an MP.	<b>TCMP:</b> Provide advice to Commission on elements of candidate MPs, and any proposed Resolutions for an MP, that require a decision by the Commission, including the performance of candidate MPs against Commission objectives. <b>Commission:</b> Consider work and advice from subsidiary bodies. Decision and adoption of an MP.		<b>TCMP:</b> Provide advice to Commission on elements of candidate MPs, and any proposed Resolutions for an MP, that require a decision by the Commission, including the performance of candidate MPs against Commission objectives. <b>Commission:</b> Consider work and advice from subsidiary bodies. Decision and adoption of an MP.

## APPENDIX C

**GUIDELINES FOR THE PROVISIONS OF EXCEPTIONAL CIRCUMSTANCES FOR IOTC SPECIES MPs**

*[This is a living document with generic guidelines that could apply for any MP adopted and implemented by the IOTC.]*

When a Management Procedure (MP) is adopted, a set of checks are essential to ensure that unexpected events do not result in MP advice that is risky for the stock and fisheries. These checks are part of these guidelines that provide a structure for providing management advice when there are concerns about implementing an MP. The guidelines provide a scientific process for developing appropriate management responses to exceptional circumstances and, hence, provide transparency in TAC decision making by the Commission.

Exceptional circumstances are defined in the IOTC as “... circumstances (primarily related to future monitoring data falling outside the range covered by Management Strategy Evaluation (MSE) simulation testing) where overriding of the output from a Management Procedure should be considered...”. Exceptional circumstance can include:

- New knowledge about the stock, population dynamics or biology
- Changes in fisheries or fishing operations
- Changes to input data to the MP, or missing data, or
- Inconsistent implementation of the MP advice (e.g. total catch is greater than the Total Allowable Catch (TAC)).

Management responses to exceptional circumstances can include review of additional information or new research, review of the performance of the MP (via reconditioned Operating Models), or management advice to precautionarily revise the TAC. These guidelines provide broad principles to govern the research or management actions to take in such an event.

The process has three stages: 1) determine whether any exceptional circumstances exist, 2) determine the severity and impact of the exceptional circumstances on achieving the objectives of the MP, and 3) if necessary, identify the research or management actions that could be taken by the IOTC.

**Stage 1:** When an MP is adopted, the IOTC Scientific Committee (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.

**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.