
OUTCOMES OF THE 20th SESSION OF THE SCIENTIFIC COMMITTEE

PREPARED BY: IOTC SECRETARIAT, 10 SEPTEMBER 2019

PURPOSE

To inform participants at the 10th Working Party on Methods (WPM10) of the recommendations arising from the 21st Session of the Scientific Committee (SC21) held in December 2018, specifically relating to the work of the WPM.

BACKGROUND

At the 21st Session of the SC, the SC noted and considered the recommendations made by the WPM in 2018 that included updates on the MSE process for various IOTC species.

Based on the recommendations arising from the WPM09, the SC21 adopted a set of recommendations, provided in [Appendix A](#) of this paper.

The recommendations contained in [Appendix A](#) were provided to the Commission for consideration at its 23rd Session held in June 2019. A separate paper, IOTC–2019–WPM10–04 addresses the responses and actions of the Commission.

In addition, the SC21 reviewed and endorsed a Program of Work for the WPM, including a revised MSE schedule, as detailed in [Appendix B](#) and [Appendix C](#) respectively. A separate paper (IOTC–2019–WPM10–07) 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 SC21 Report (IOTC–2018–SC21–R) are provided here for the consideration and action of the WPM10:

Report of the 8th Session of the Working Party on Methods (WPM08)

137. The SC noted the report of the 9th Session of the Working Party on Methods (IOTC–2018–WPM09–R), including the consolidated list of recommendations provided as an appendix to the report. The meeting was attended by 23 participants (27 in 2017), including 2 recipients of the MPF (5 in 2017).
138. The SC noted the good progress made in Management Strategy Evaluations exercises for IOTC species in 2018 including the initiation of the swordfish MSE work.
139. The SC noted that MSE is a dynamic and iterative process that represents an interface between science and management. The SC further noted that the WPM and SC were the appropriate forums for technical aspects while the Commission's focus is on management. The SC **AGREED** that forums such as the TCMP were effective in bridging this interface and maintaining interaction between the SC/WPs and the Commission.
140. The SC noted that the WPM schedule had been optimistic and there had been some delays. Based on these delays, the SC **AGREED** that 2019 is an important year to report back to TCMP on discussion to be subsequently endorsed by Commission and TCMP in 2020.
141. The SC noted the importance of ensuring CPCs, particularly those with limited capacity, are aware of the potential implications of harvest control rules and operating models and **AGREED** that strong engagement between CPCs, SC/WPs and the Commission was required to ensure these implications are understood.
142. The SC noted paper IOTC–2018–SC21–INF03, which was a report of the 7th workshop on MSE of IOTC WPM Scientists. The workshop was held in Lisbon at the Portuguese Institute for the Ocean and Atmosphere in March 2018.

7.6.1 Yellowfin tuna and Bigeye tuna MSE

143. The SC noted papers IOTC–2018–SC21–INF04 and IOTC–2018–SC21–INF05 which provided updates on IOTC Bigeye and Yellowfin Tuna MSE Operating Model Developments, respectively.
144. The SC noted that the same tuning criteria can lead to different outcomes amongst populations. The SC further noted that TCMP has identified some changes in the tuning criteria to be applied and **AGREED** there is the need to develop protocols on the refinement or changes of tuning criteria in the future.

7.6.2 *Albacore MSE*

145. The SC noted that the MSE for albacore commenced about 8 years ago and that the development of the operating model and management plan has been a long process.
146. The SC noted that a new assessment for albacore is expected in 2019 and that this may postpone the finalisation of the albacore MSE/MP, particularly if the assessment results differ significantly from the current assessment and in that case, there might be the need to re-condition the OM.
147. Acknowledging that there may be circumstances in which understanding of the productivity of stocks changes markedly, or where management or fleet changes result in large changes to the fishery, the SC **REQUESTED** that the WPM and MSE working groups discuss the issue of exceptional circumstances in the context of how these influence the validity of operating models, and produce a guideline or protocol and a series of recommendations for the SC's consideration. The WPM Chairperson agreed to progress this work during 2019.

7.6.3 *Skipjack tuna MSE*

148. Noting that the skipjack tuna harvest control rule is not a fully specified management procedure, the SC **RECOMMENDED** that a workplan and budget should be developed to undertake review and possible revision of the skipjack tuna harvest control rule under Resolution 16/02.
149. The SC noted that catches of skipjack tuna had exceeded the catch limits derived from the harvest control rule and suggested that urgent work is required to evaluate the harvest control rule with a view towards developing full management procedures. However, the SC noted that it would not be possible to undertake this work at TCMP in 2019 because the work had not been started and is currently unfunded. SC noted that 2020 or later is more realistic for this priority.

7.6.4 *Review of IOTC MSE Process and Methods Meetings*

150. The SC noted paper IOTC–2018–SC21–INF01 which provided a review by the Invited Expert to WPM09 of the IOTC MSE process and methods meetings, including the following abstract provided by the author:

“An overview of the processes and OMs used for Albacore (ALB), Yellowfin (YFT) and Bigeye (BET) were examined. Skipjack (SKJ) was covered with respect to what needs to be developed next and what a full Management procedure (MP) would entail. Finally, swordfish (SWO) is initially being set up with regard to conditioning. The ALB, BET and YFT OMs are completed, and candidate HCR's are being tested currently. Issues with respect to projections were discussed, and further clarity in the robustness tests to be examined were discussed, and reference set of OMs were also discussed.”

151. The SC noted that the WPM has made plans for internal review for technical issues of MSE, and experts within the WPM have been identified to undertake this work. The SC queried whether there was discussion around external peer review process on the various MSEs that had been conducted and **AGREED** that external peer review processes should be considered in the formulation of budgets and workplans. The SC noted that the external review undertaken in 2015 was beneficial, and suggested that a guidelines be developed to assist the incorporation of external review results into the IOTC MSE process.
152. The SC noted the issue of budget/resourcing in terms of the schedule of MSE development but that so far, the budgetary commitment from the Commission has been limited. The SC therefore **RECOMEMNDED** that the Commission allocate additional resources to the MSE work.
153. The SC noted that the chair will work in conjunction with the Secretariat to prepare a budget for the scientific activities 2019-2020, including MSE, to be presented to SCAF; which will avoid a situation where the budget is approved before SC recommendations are presented to the Commission.

7.6.5 *Management Strategy Evaluation joint tuna RFMO meeting*

154. The SC noted that a joint tuna RFMO meeting took place in Seattle in June 2018 to discuss common matters in relation to MSE process. The SC noted that this meeting falls under the Kobe process and referred CPCs to IOTC–2018–WPM09–INF04 for additional details.

7.6.6 *Stock Status Guidance*

155. The SC queried how to proceed with the characterisation of the stock status in relation to target and limit reference points (i.e. whether to use TRPs or LRPs). The SC noted that WPM09 was unable to complete discussions but that these discussions would be continued at TCMP and MSE workshops. The SC further noted that it was up to the SC to decide on what to display in terms of its management advice, but that the Commission was ultimately responsible for deciding how the stock status should be defined and how management is undertaken in relation to these reference points.
156. The SC noted that IOTC provide stock status relative to target reference points or MSY-based reference points.

The SC further noted that WCPFC only considers a stock “overfished” when biomass falls below limit reference points, not the target reference point. The SC **RECOMMENDED** to consider alternative formulations of the Kobe plot to indicate an appropriate buffer zone below BMSY to account for natural variations in biomass. A plot such as that included in figure 1 was **SUGGESTED** to be discussed by the Working Parties and the SC as a possibility for formulating the scientific management advice to the Commission.

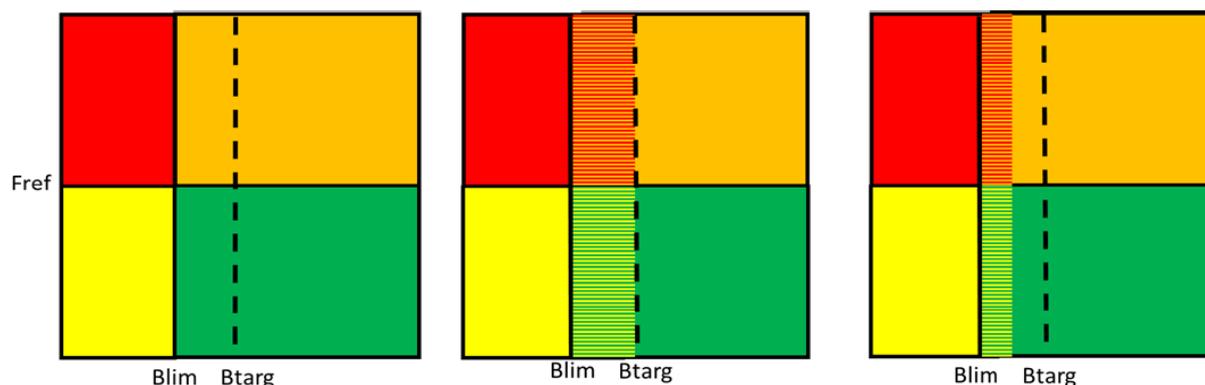


Fig. 1: Three examples of modified Kobe Plots in which there is a target biomass, B_{targ} , and a reference F (F_{ref}) such as F_{MSY} . In each plot, the red quadrant is based on biomass being below the limit (B_{lim}) rather than below a target biomass. The plot in the middle retains the four colours, but contains red-orange and yellow-green “buffer zones” between the target and limit. In the plot on the right, the buffer zone starts somewhat below the target biomass to account for natural fluctuations of the stock around the target. Note: This figure is from the ISSF Stock Assessment Workshop report (IOTC-2018-WPM09-INF06).

157. However, the SC **NOTED** the Kobe plot has been used to formulate the IOTC (Resolution 15/10) and ICCAT stock conservation decision frameworks and also to provide advice to various commissions. The SC further noted that the Kobe plot is more or less the same across RFMOs and there is a risk that if modified they may no longer be consistent with the common understanding as to how they were initially developed and have been used until now. The SC therefore **AGREED** that any revision or modification to the Kobe plot requires careful considerations and ideally this type of modified display should be coordinated with other tRFMOs through a Kobe process.
158. The SC noted one key element of precautionary fisheries management is to separate the limit and target reference points and to manage towards targets, therefore reference points for fishing mortality (F) (as well as biomass (B)) may need to be represented in any alternative plot.

7.6.7 Presentation of stock status advice for data limited stocks

159. The SC noted that funding has been received through an EU grant to conduct work for improving the data-limited methods for WPNT species and that this is due to commence in 2019. The SC welcomed this information and **REQUESTED** that the WPEB and WPB also be included in the planning and review.
160. The SC **AGREED** that work on the presentation of stock status advice for data limited stocks will need to be carried out inter-sessionally, and that this will require some level of preparation and planning. The SC **REQUESTED** the WPM Chairperson liaise with the Chairs of the WPNT, WPEB and WPB in order to draft a study proposal on this issue.

7.6.8 Update on the status of the joint CPUE indices (yellowfin tuna, albacore)

161. The SC queried the idea of ‘trustworthy’ CPUE standardisation indices and noted that a protocol for the joint CPUE standardisation needs to be developed for these inputs to stock assessments because the contributions of catch and selectivity differ amongst member fleets which may influence the interpretation of the standardisation results.
162. Noting that yellowfin tuna assessment results are sensitive to the target variable in the standardisation, the SC **REQUESTED** that further joint CPUE analysis should continue to explore and test alternative methods for identifying and accounting for targeting.
163. The SC congratulated the WPM on its work in response to prior recommendations of the WPM and SC. It was again noted that the process has greatly improved the ability of the SC to provide management advice to the Commission. Unfortunately, the lack of access to the operational level longline CPUE, except during the limited time available for joint meetings between authors, greatly reduces the efficiency of the process and limits the degree of capacity building for participating scientists, because these data are only available for analysis and

quality assurance for a limited time. In the interest of normalizing the process for producing joint longline CPUE for future assessments, the SC REQUESTED that the Secretariat continue discussions with the affected CPCs to develop a confidential data repository at the IOTC that would permit more detailed evaluation of these data as well as assuring the confidential nature of the information.

RECOMMENDATION

That the WPM:

- 1) **NOTE** paper IOTC–2010–WPM10–03 which outlined the main outcomes of the 21st 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 21st Session of the Scientific Committee to the Commission, relevant to the Working Party on Methods.

Appendix B: Schedule of MSE for the WPM (2019–2023).

APPENDIX A

CONSOLIDATED SET OF RECOMMENDATIONS OF THE 21ST SESSION OF THE SCIENTIFIC COMMITTEE (3 – 7 DECEMBER 2018) TO THE COMMISSION RELEVANT TO THE WORKING PARTY ON METHODS

*Extract of the Report of the 21st Session of the Scientific Committee
(IOTC-2018-SC21-R; Appendix 40, Pages 244–250)*

GENERAL RECOMMENDATIONS TO THE COMMISSION

Report of the 9th Session of the Working Party on Methods (WPM09)

Skipjack tuna MSE

SC21.23 (para. 148) Noting that the skipjack tuna harvest control rule is not a fully specified management procedure, the SC **RECOMMENDED** that a workplan and budget should be developed to undertake review and possible revision of the skipjack tuna harvest control rule under Resolution 16/02.

Stock Status Guidance

SC21.24 (para. 156) The SC noted that IOTC provide stock status relative to target reference points or MSY-based reference points. The SC further noted that WCPFC only considers a stock “overfished” when biomass falls below limit reference points, not the target reference point. The SC **RECOMMENDED** to consider alternative formulations of the Kobe plot to indicate an appropriate buffer zone below BMSY to account for natural variations in biomass. A plot such as that included in figure 1 was **SUGGESTED** to be discussed by the Working Parties and the SC as a possibility for formulating the scientific management advice to the Commission.

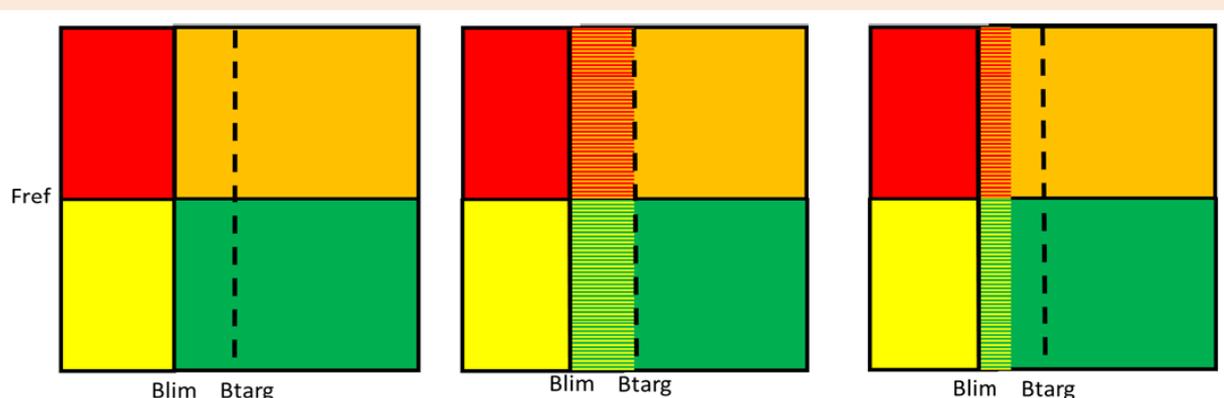


Figure 1 Three examples of modified Kobe Plots in which there is a target biomass, B_{targ} , and a reference F (F_{ref}) such as F_{MSY} . In each plot. The red quadrant is based on biomass being below the limit (B_{lim}) rather than below a target biomass. The plot in the middle retains the four colours, but contains red-orange and yellow-green “buffer zones” between the target and limit. In the plot on the right, the buffer zone starts somewhat below the target biomass to account for natural fluctuations of the stock around the target. Note: This figure is from the ISSF Stock Assessment Workshop report (IOTC-2018-WPM09-INF06).

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

SC21.29 (para. 177) Given the importance of external peer review for working party meetings, the SC **RECOMMENDED** that the Commission continues to allocate sufficient budget for an invited expert to be regularly invited to all scientific WP meetings.

Meeting participation fund

SC21.30 (para. 178) 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

- SC21.31 (para. 179) 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 CPCs scientific observers, both on board and port, still do not have smart phone technology/hardware access and need to have hard copies on board.

IOTC Secretariat staffing

- SC21.32 (para. 180) Noting the very heavy workload at the IOTC Secretariat and the ever increasing demands by the Commission and the Scientific Committee, and also the capacity to respond to requests for assistance by countries, the SC **RECOMMENDED** that the recommendation from the Performance Review PRIOTC02.07(g) is implemented, and that permanent staff of the IOTC Data and Science Section be increased by two (2) (1 x P4 and 1 x P3 level positions), supplemented by additional short-term consultants. Funding for these new positions should come from both the IOTC regular budget and from external sources to reduce the financial burden on the IOTC membership.

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

- SC21.33 (para. 181) 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](#).

Progress on the Implementation of the Recommendations of the Performance Review Panel

- SC21.34 (para. 214) The SC **RECOMMENDED** that the Commission note the updates on progress regarding Resolution 16/03, as provided at [Appendix 33](#).

Program of work and schedule of Working Party and Scientific Committee meetings

Consultants

- SC21.35 (para. 234) 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.

IOTC Scientific Strategic Plan

- SC21.36 (para. 247) The SC **AGREED** that the draft IOTC Strategic Science Plan 2020–2024 will be distributed to Heads of Delegation from each CPC for comment during early 2019, following which time 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 2020–2024 be tabled at the Commission meeting in 2019.

Review of the Draft, and Adoption of the Report of the 18th Session of the Scientific Committee

- SC21.37 (para. 250) The SC **RECOMMENDED** that the Commission consider the consolidated set of recommendations arising from SC21, provided at [Appendix 40](#).

APPENDIX B

SCHEDULE OF STOCK ASSESSMENTS FOR IOTC SPECIES AND SPECIES OF INTEREST FROM 2019–2023, AND FOR OTHER WORKING PARTY PRIORITIES

The SC **ADOPTED** a revised assessment schedule, ecological risk assessment and other core projects for 2019–23, for the tuna and tuna-like species under the IOTC mandate, as well as the current list of key shark species of interest, as outlined in Appendix 36 (IOTC–2018–SC21–R, Para. 241)

The SC **NOTED** that the WPM has selected five species for MSE (albacore, yellowfin, bigeye, skipjack and swordfish). While these species are equally prioritised in terms of science, swordfish has been labelled as the first priority given that it is the only species currently lacking funding.

At the 21st session of the Commission:

Schedule of work for the development of management procedures for key species in the IOTC Area

(Para. 58): The Commission noted the presentation by Australia on the schedule of work for the development of management procedures for key species in the IOTC Area (IOTC-2017-S21-14). The schedule provides information on when and how the Commission ought to be engaged in the management procedures process, and was developed with inputs from CPC’s, relevant IOTC working parties, the Scientific Committee, and uses, as its basis, the work plan of the Scientific Committee.

*(Para. 59): The Commission **ENDORSED** the schedule that was revised during S21 (provided in Appendix 9), noting it is a ‘living document’ to guide the work of the Commission and its subsidiary bodies in the future. The Commission also **REQUESTED** that a budget for implementation of the schedule be reviewed by the SCAF in 2018.*

The proposed schedule is available in IOTC-2019-WPM10-04 as Appendix B: Schedule of Work for TCMP (Schedule of work for the development of management procedures for key species in the IOTC area)