

PROGRESS MADE ON THE RECOMMENDATIONS AND REQUESTS OF WPB23 AND SC28

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PURPOSE

To provide participants at the 24th WPB with an update on the progress made in implementing those recommendations from the previous Working Party on Billfish (WPB) meeting which were endorsed by the Scientific Committee (SC), and to provide alternative recommendations for the consideration and potential endorsement by participants as appropriate given any progress.

BACKGROUND

At the 23rd Session of the WPB, participants agreed on a series of actions to be taken by participants, CPCs, and the IOTC Secretariat on a range of issues. The subsequent table developed and agreed to by the WPB was provided to the SC for its endorsement at its December 2025 meeting.

DISCUSSION

The Rules of Procedure of the Scientific Committee include the following seven core tasks, which are to be supported by the various Working Parties.

- a) recommend policies and procedures for the collection, processing, dissemination and analysis of fishery data;
- b) facilitate the exchange and critical review among scientists of information on research and operation of fisheries of relevance to the Commission;
- c) develop and coordinate cooperative research programmes involving Members of the Commission in support of fisheries management;
- d) assess and report to the Commission on the status of stocks of relevance to the Commission and the likely effects of further fishing and of different fishing patterns and intensities;
- e) formulate and report to the sub-commission, as appropriate, on recommendations concerning conservation, fisheries management and research, including consensus, majority and minority views;
- f) consider any matter referred to by the Commission;
- g) carry out other technical activities of relevance to the Commission.

Recalling that the SC, at its 16th Session adopted a set of reporting terminology SC16.07 (para. 23), which was subsequently endorsed by the Commission at its 18th Session in 2014 (S18, para 10), to further improve the clarity of information sharing from, and among the science bodies, the following two term levels should be noted when interpreting the Reports and Appendix I to this paper:

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.

In addition to the Recommendations endorsed by the SC at its 28th Session, the SC also made several requests which, although are not passed to the Commission for its endorsement, are considered actions which the Scientific Committee has the mandate to issue. The revised recommendations are contained in Appendix I for the consideration and potential endorsement by the WPB24.

RECOMMENDATION

That the WPB **NOTE** the progress made in implementing the recommendations and requests of the 23rd Session of the WPB and consider whether revised recommendations need to be sent to the SC for its consideration.

APPENDICES

Appendix I: [Progress made on the Recommendations and Requests of WPB23](#)

APPENDIX I

Progress made on the recommendations and requests of WPB23 and SC28

WPB23 Rec. No.	Recommendation from WPB23	SC28 Rec. No.	Recommendation adopted by the SC28	Progress/Comments
WPB23.01 (para 90)	<i>Review of new information on the status of blue marlin and Indo Pacific sailfish</i> The WPB NOTED that, for several years, joint analyses combining catch and effort data from major longline fleets have been proposed to improve the CPUE index for billfish species, and that the WPEB recommended investigating methods to compare CPUE indices across fleets and to develop joint CPUE indices for bycatch species. The WPB also NOTED that these suggestions are based on a methodological perspective that such analyses could harmonize standardization methods, reconcile conflicts between indices developed from different fleets, and potentially produce more robust indices with broader spatial and temporal coverage. The WPB further NOTED that it is at the discretion of CPCs to determine the feasibility of such collaboration, considering data confidentiality agreements and other logistical arrangements. The WPB AGREED on the importance of establishing a process to discuss how to move forward. Noting that joint CPUE analysis arrangements already exist for the standardization of tropical and temperate tuna, the WPB RECOMMENDED that the SC advise the Commission to urge CPCs to explore ways to extend joint analyses to bycatch species, such as marlins.	SC28.11 (para 98)	<i>REPORT OF THE 23ST SESSION OF THE WORKING PARTY ON BILLFISH (WPB23)</i> <i>BLUE MARLIN STOCK ASSESSMENT</i> SC NOTED that, for several years, joint analyses combining catch and effort data from major longline fleets have been proposed to improve the CPUE index for billfish species, and that the WPEB had previously recommended investigating methods to compare CPUE indices across fleets and to develop joint CPUE indices for bycatch species. The SC also NOTED that these joint analyses could harmonize standardization methods, reconcile conflicts between indices developed from different fleets, and potentially produce more robust indices with broader spatial and temporal coverage. The SC further NOTED that it is at the discretion of CPCs to determine the feasibility of such collaboration, considering data confidentiality agreements and other logistical arrangements. The SC AGREED on the importance of establishing a process to discuss how to move forward. NOTING that joint CPUE analysis arrangements already exist for the standardization of tropical and temperate tuna, the SC RECOMMENDED that the Commission urge CPCs to explore ways to extend joint analyses to non-targeted species, such as marlins.	Update: Ongoing. A Joint tRFMO longline CPUE workshop is scheduled to take place in October 2026, providing an ideal forum to discuss the standardisation methods for the longline catch effort data.

WPB23.02 (para 92)	Following these discussions, the author of document IOTC-2025-WPB23-16 tentatively drafted Guidelines for Longline CPUE Standardization (Appendix IX). The WPB RECOMMENDED that the SC review and further develop these guidelines for potential adoption in the future			
WPB23.03 (para 138)	<i>Indo Pacific sailfish</i> NOTING that the methodology was not reviewed prior to the 2025 assessment, and NOTING concern from the WPB, the WPB RECOMMENDED that simulation testing be carried out prior to the next WPB in 2026 to understand whether the SPR index can be used as an abundance index in the JABBA model.	Para (104)	<i>Indo Pacific sailfish stock assessment</i> The SC DISCUSSED the novel abundance index and NOTED that the method has not been fully evaluated, even though it was AGREED after the SC in 2022 that the method should be evaluated by the WPM prior to being implemented in 2025. Indeed, during the WPB, the assumptions of the method were questioned, particularly with respect to the fact that the trend in biomass could be the opposite of that estimated by the SPR	Update: Developers to update
WPB23.04 (para 139)	The WPB RECOMMENDED that the stock assessment be revisited at the next WPB after simulation testing has been completed, and an updated stock status be presented to the SC in 2026.	Para (107)	Considering all this, the SC AGREED that the results of the current stock assessment should be revisited at the 24th WPB in 2026, alongside results of the simulation study	

WPB23.05 (para 166)	Resolution 18/05 Catch Limits NOTING the necessity to gather information to enable the development of advice relating to a range of potential management measures to complement the commonly used CPC based catch advice, the WPB RECOMMENDED that the Scientific Committee REQUEST: 1. That the IOTC Secretariat (or alternately CPCs, where the Secretariat does not hold a CPCs relevant data or information) provide summaries of observer data (or logbook data or other relevant information) to WPB pertaining to the following data types for the following fishery types: a. All gear/fishery types – discarding/retention rates and at-haul mortality (%) for each marlin and sailfish species, by fishery/gear type. b. Longline – proportion of each fleet using different hook types and sizes (Japanese tuna, J hook, Circle hook, other) c. Gillnet – estimate of the proportion of the gillnet fleet using subsurface setting, and if possible, preferred depths used in fishery, and whether the fishery predominantly sets/soaks the gear overnight or through the day (or other) 2. CPCs to consider undertaking analyses (e.g., model-based) of at-haul mortality,	Para (111)	Revision of catch levels of marlins under Resolution 18/05 NOTING the necessity to gather information to enable the development of advice relating to a range of potential management measures to complement the commonly used CPC based catch advice, the SC REQUESTED: • That the IOTC Secretariat (or alternately CPCs, where the Secretariat does not hold a CPCs relevant data or information) provide summaries of observer data (or logbook data or other relevant information) to WPB pertaining to the following data types for the following fishery types: ○ All gear/fishery types – discarding/retention rates and at-haul mortality (%) for each marlin and sailfish species, by fishery/gear type ○ Longline – proportion of each fleet using different hook types and sizes (Japanese tuna, J hook, Circle hook, other) ○ Gillnet – estimate of the proportion of the gillnet fleet using subsurface setting, and if possible, preferred depths used in fishery, and whether the fishery predominantly sets/soaks the gear overnight or through the day (or other). • CPCs to consider undertaking analyses (e.g., model-based) of at-haul mortality, at a longline fleet level (and if possible for	Update: The Commission has yet to revise Resolution 18/05
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WPB23.06 (para 167):	at a longline fleet level (and if possible for troll/handline), to help identify key factors driving at-haul mortality and subsequently, possibly help identify additional options to reduce at haul mortality. 3. CPCs individually or collaboratively conduct gillnet experimental fishing trials that: a. Aim to test different setting depths and times of setting/soaking (e.g. day/night), on catch rates and mortality of interacting species b. Collect data on all interacting species including billfish bycatch, target tuna and vulnerable species (e.g. cetaceans, turtles), in order to provide the Commission a quantified understanding of likely effects and possible trade-offs of various subsurface setting options, on each species. c. Prioritise accurate species identification. In addition, the WPB RECOMMENDED that the Scientific Committee advise the Commission to give consideration to how such a trial (point (3) above) might be supported financially and logistically.	SC28.12 (para 112)	troll/handline), to help identify key factors driving at-haul mortality and subsequently, possibly help identify additional options to reduce at haul mortality • CPCs individually or collaboratively conduct gillnet experimental fishing trials that: ○ Aim to test different setting depths and times of setting/soaking (e.g. day/night), on catch rates and mortality of interacting species ○ Collect data on all interacting species including billfish bycatch, target tuna and vulnerable species (e.g. cetaceans, turtles), in order to provide the Commission a quantified understanding of likely effects and possible trade-offs of various subsurface setting options, on each species. ○ Prioritise accurate species identification The SC RECOMMENDED that the Commission to give consideration to how best to financially and logistically support an experimental fishing trial with gillnets to be conducted by CPCs which would: • Aim to test different setting depths and times of setting/soaking (e.g. day/night), on catch rates and mortality of interacting species	
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			Collect data on all interacting species including billfish bycatch, target tuna and vulnerable species (e.g. cetaceans, turtles), in order to provide the Commission a quantified understanding of likely effects and possible trade-offs of various subsurface setting options, on each species	
WPB23.07 (para 171)	Revision of the WPB Program of work (2026–2030) The WPB RECOMMENDED that the SC consider and endorse the WPB Program of Work (2026–2030), as provided in Appendix IX.	para (197)	Program of Work (2026–2030) and assessment schedule The SC NOTED that the consolidated table of priorities does not replace the full programme of work of each working party (Appendix 36a-g) and that adequate attention and focus should still be allocated to those activities where possible. The SC further NOTED that Table 3 has been developed by the SC and working party Chairs to provide more specific direction to the IOTC Secretariat and the SC Chair as to the priorities of the SC so that, if and when external funding becomes available intersessionally, it is possible to clearly prioritise across all working parties based on the objectives of the SC (as agreed in IOTC–2014–SC17–R, para. 179).	Update: Completed
WPB23.08 (para 181)	Date and place of the 24rd and 25th Sessions of the Working Party on Billfish The WPB RECOMMENDED the SC consider early September as a preferred time period to hold the WPB24 in 2026. As usual it was also AGREED that this meeting should continue to be held back-to-back with the WPEB and that in 2026 WPB will be held in the week before the WPEB.	Para (204)	Final Meeting schedule The SC REQUESTED that the schedule of Working Party and Scientific Committee meetings for 2026 and 2027 provided in Appendix 38 be communicated by the IOTC SC Chairperson to the Commission for its endorsement.	Update: Completed The meeting schedule was adopted with the meeting to be held in September, back-to-back with the WPEB.

WPB23.09 (para 183)	Review of the draft, and adoption of the Report of the 23rd Session of the Working Party on Billfish (para 182): The The WPB RECOMMENDED that the Scientific Committee consider the consolidated set of recommendations arising from WPB22, provided at Appendix XI, as well as the management advice provided in the draft resource stock status summary for each of the five billfish species under the IOTC mandate, and the combined Kobe plot for the five species assigned a stock status in 2024 (Fig. 3): ○ Swordfish (<i>Xiphias gladius</i>) – Appendix IV ○ Black marlin (<i>Makaira indica</i>) – Appendix V ○ Blue marlin (<i>Makaira nigricans</i>) – Appendix VI ○ Striped marlin (<i>Tetrapturus audax</i>) – Appendix VII ○ Indo-Pacific sailfish (<i>Istiophorus platypterus</i>) – Appendix VIII	SC28.03 (para 270)	Billfish The SC RECOMMENDED that the Commission note the management advice developed for each billfish species under the IOTC mandate, as provided in the Executive Summary for each species, and the combined Kobe plot for the five species assigned a stock status in 2025 (Fig. 3): ○ Black marlin (<i>Istiompax indica</i>) – Appendix 18 ○ Blue marlin (<i>Makaira nigricans</i>) – Appendix 19 ○ Striped marlin (<i>Kajikia audax</i>) – Appendix 20 ○ Indo-Pacific sailfish (<i>Istiophorus platypterus</i>) – Appendix 21 ○ Swordfish (<i>Xiphias gladius</i>) – Appendix 22	Update: Completed
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WPB23 Report	WPB23 REQUESTS	Update/Progress
Para. 14	The WPB REQUESTED that the IOTC Secretariat continue to annually prepare a paper on the progress of the recommendations arising from the previous WPB, incorporating the final recommendations adopted by the Scientific Committee and endorsed by the Commission.	Update: Completed (IOTC-2026-WPB24-06).
Para. 73	The WPB also REQUESTED that more information on the effect of variables, as well as model diagnostics, be provided, and suggested that the authors use the R package DHARMA to visualize and interpret residuals.	Update: Authors of paper IOTC-2025-WPB23-15 to update.
Para. 85	WPB NOTED that use of the sdTMB model resulted in flattened trends in both the NWIO and NEIO, with a slight increase in the terminal period compared to the delta-GLM results; it was further NOTED that the dataset was divided into two areas to maintain continuity with previous standardization analyses. The WPB SUGGESTED that combining the regions might be more appropriate, since the spatio-temporal model already	Update: Authors of paper IOTC-2025-WPB23-17 to update

	accounts for uncertainties due to spatial stratification, and REQUESTED testing a spatial model against a spatio-temporal model to assess whether changes are attributable to temporal or spatial effects. The WPB also NOTED that sdTMB should be able to address spatio-temporal variability across the fishing grounds	
Para. 88	WPB REQUESTED clarification on the relative performance of the two models and a clear recommendation as to which approach is preferable. In particular, the WPB DISCUSSED whether a CV of 0.2 is too low and whether the reported values are close to, or substantially different from, this threshold. It was AGREED that further explanation is required to interpret the uncertainty estimates and to provide guidance on how these should be weighed in the assessment model	Update: Authors of paper IOTC-2025-WPB23-17 to update.
Para. 89	The WPB REQUESTED that this paper include a figure presenting both the combined standardized and nominal CPUE series for comparison.	Update: Authors of paper IOTC-2025-WPB23-17 to update.
Para. 101	The WPB DISCUSSED the fact that both M and h were fixed within the model with no time-varying M. When this is done, the population dynamics are essentially fixed, so it was REQUESTED that the next time the SS3 model is run for blue marlin, that a range of M was used, and that likelihood profiles were presented to check whether the estimates of these parameters were correct. Additionally, the WPB REQUESTED that retrospective analyses, and other diagnostics be provided to allow for data-driven model selection.	Update: Author of Paper IOTC-2025-WPB23-19 to update
Para. 111	The WPB DISCUSSED the ‘wiggleness’ of the posterior distribution of the carrying capacity parameter (K) suggesting that this may be due to lack of information in the data to inform the capacity parameter. It was suggested to use alternative priors for this parameter. The WPB also DISCUSSED the process error and REQUESTED that diagnostic plots be provided to the group to determine whether there were any trends in the process error, and how these differed between models, to assist with choosing a base case.	Update: Author of Paper IOTC-2025-WPB23-18 to update
Para. 112	The WPB REQUESTED further model diagnostics to allow full comparisons, including retrospective analyses, process error trends (as JABBA compensates by using process error to reconcile catch and abundance trajectories), DIC for model selection, and plots of the relative fit of Fox vs. Schaefer production models	Update: Author of Paper IOTC-2025-WPB23-18 to update
Para. 118	The WPB NOTED that Scenarios 10b and 10c had the best statistical fits (lowest RMSE) and improved MSY estimates, but overall S10c (applied CV weighting) remained the most balanced scenario, although for all models,	Update: Author of Paper IOTC-2025-WPB23-18 to update

	process error is trending upwards, making the possible outlook from the model relatively more optimistic. The WPB REQUESTED that this be investigated in the future, as the current estimation of stock status is likely still overly optimistic	
Para. 119	The WPB AGREED to use model scenario S10c as the base case, and REQUESTED that projections were completed using this model. Projections started in 2026, while catches in 2024 and 2025 were held constant. Catches for projections were based on the average catch for the final three years of data in the model (2021-2023 inclusive), and included 10 years of projections, with values of B/B _{msy} and F/F _{msy} at 3 years (2028) and 10 years (2035) used for management advice,	Update: Completed
Para. 140	The WPB ADOPTED the management advice developed for blue marlin, as provided in the draft status summary, and REQUESTED that the IOTC Secretariat update the draft stock status summary with the latest 2025 interaction data to be provided to the SC as part of the draft Executive Summary, for its consideration: • Blue marlin (<i>Makaira nigricans</i>) – Appendix VII	Update: Completed
Para. 141	The WPB ADOPTED the management advice developed for Indo-Pacific sailfish, as provided in the draft status summary, and REQUESTED that the IOTC Secretariat update the draft stock status summary with the latest 2025 interaction data to be provided to the SC as part of the draft Executive Summary, for its consideration: • Black marlin (<i>Istiompax indica</i>) – Appendix V	Update: Completed
Para. 144	The WPB NOTED that the research indicating two subpopulations likely identifies a potential Exceptional Circumstance with respect to the swordfish MP and REQUESTED that: • The authors of the Swordfish EC paper (IOTC-2025-WPB23-21) include discussion of this issue in the revised paper to the WPM, and	Update: Completed

	The WPM consider and discuss the implications of this new research for the future operation of the MP, and develop advice on this issue to the SC.	
Para. 147	The WPB NOTED again that the Japanese fishing effort and catch in the NWIO area for which the MP CPUE index is derived continues to be low relative to levels prior to a decade ago, and raised concerns again over the potential for this to increase the risk that the index is no longer representative and fit for use in the MP, or can even be produced in future. However, the WPB NOTED that the low effort in that area has existed now for a significant time and the use of the Japanese index from that area, under low effort conditions, has been tested and validated as suitable under the MSE testing process, and that a subsequent and more recent examination of the prediction skill of the NW JPN CPUE from the 2023 assessment model indicates that the prediction skill remains acceptable. However, the WPB REQUESTED that the WPM continue to monitor and explore alternate abundance indices as part of the next review of the MP.	Update: Ongoing.
Para. 159	WPB REQUESTED that this information be relayed to the Commission for advice on how the catch limits should be revised. NOTING that the group should propose methodology on how to revise the limits set forth in 18/05 to the Scientific Committee.	Update: The Commission has yet to revise Resolution 18/05.
Para. 179	The WPB REQUESTED that CPCs that may be interested in hosting the 24th and 25th Working Party on Billfish meetings contact the Secretariat.	Update: France offered to Host the WPB and WPEB meeting in 2026 in Reunion.