REVISION OF THE WPB PROGRAM OF WORK (2025–2029)

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PURPOSE

To ensure that participants at the 22nd Working Party on Billfish (WPB21) revise the Program of Work for the WPB by taking into consideration the specific requests of the Commission and Scientific Committee.

BACKGROUND

Scientific Committee

At the 25th Session of the SC:

(Para. 179) The SC **NOTED** IOTC–2022–SC25–08 which provided the SC with a proposed Program of Work for each of its working parties, including prioritisation of the elements requested by each working party.

(Para 180) The SC **NOTED** the proposed Program of Work and priorities for the SC and each of the working parties and **AGREED** to a consolidated Program of Work as outlined in Appendix 35a-g and in accordance with the IOTC Strategic Science Plan 2020-2024. The Chairpersons and Vice-Chairpersons of each working party will ensure that the efforts of their respective working parties are focused on the core areas contained within the appendix, taking into account any new research priorities identified by the Commission at its next Session.

(Para. 182) The SC **AGREED** on the consolidated table of priorities across all working parties, as developed by each working party Chairperson, and **REQUESTED** that the IOTC Secretariat, in consultation with the Chairpersons and vice-Chairpersons of the SC and relevant working parties, develop ToRs for the specific projects to be carried out.

(Para. 183) The SC **NOTED** that the consolidated table of priorities does not replace the full programme of work of each working party (Appendix 35a-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).

Commission

At Sessions of the Commission, Conservation and Management Measures adopted contained elements that call on the Scientific Committee, via the WPB, to undertake specific tasks. These requests will need to be incorporated into a revised Program of Work for the WPB:

Resolution 15/11 ***On the implementation of a limitation of fishing capacity of contracting parties and cooperating non-contracting parties***

> Para. 2: *In notifying their vessels fishing for tropical tunas in the area in 2006, and for swordfish and albacore in 2007, the CPCs shall confirm that they have verified the effective presence and fishing activities of their vessels in the IOTC area of competence in 2006 and in 2007, through their VMS records, catch reports, port calls, or other means. The IOTC Secretariat shall have access to such information upon request.*

Resolution 18/05 ***On management measures for the conservation of the billfishes: striped marlin, black marlin, blue marlin and indo-pacific sailfish***

> Para. 5: *Pending advice from the Scientific Committee on a joint and/or a species specific minimum conservation size, notwithstanding Resolution 17/04, CPCs shall not retain on board, trans-ship, land, any specimen smaller than 60 cm Lower Jaw Fork Length (LJFL) of any of the species referred to in paragraph 2,*

but shall return them immediately to the sea in a manner that maximizes post-release survival potential without compromising the safety of crew.

Para. 12*: The IOTC Working Party on Billfish and the Scientific Committee shall continue their work on assessing and monitoring the status of Striped Marlin, Black Marlin, Blue Marlin and Indo-pacific Sailfish and provide advice to the Commission*

Para. 13: *The Scientific Committee and the Compliance Committee shall annually review the information provided and assess the effectiveness of the fisheries management measures reported by CPCs on striped marlin, black marlin, blue marlin and Indo-Pacific sailfish and, as appropriate, provide advice to the Commission*.

Para. 14: *For each of the four species covered by this Resolution, the Scientific Committee shall provide advice:*

a. *Options to reduce fishing mortality with a view to recover and/or maintain the stocks in the Green zone of the Kobe Plot with levels of probability ranging from 60 to 90% by 2026 at latest. The advice shall be provided on the basis of the current exploitation pattern as well as of its likely change to take into account the advice under point c. below;*
b. *Options for candidate reference points for their conservation and management in the IOTC Area of Competence;*
c. *Species specific minimum conservation sizes by taking into account the size at maturity and the recruitment size to the fishery by gear as well as its practicability. Where adequate, due to considerations on technical interaction of fisheries, advice shall provide also a minimum conservation size common to the four species.*

Resolution 18/05 *On a management procedure for swordfish in the IOTC area of competence*

Para. 11*: A review of performance of the MP by the Commission and its subcommittees is to occur in 2031. The aim of the review is to ensure the MP is performing as expected and whether there are any conditions that warrant reconditioning the operating models, retuning the existing MP, or consideration of alternate candidate MPs and a new full management strategy evaluation*

Para. 12*: The SC is also requested to investigate approaches to incorporate a multi-species framework into future candidate management procedures and if possible, wider impacts in the ecosystem such as the mortality on associated and dependent species affected by tuna fishing operations, i.e. marine turtles, marine mammals, seabirds, sharks and fish species caught incidentally (bycatch).*

DISCUSSION

Participants at the WPB22 are requested to consider the priorities set by the Commission and the Scientific Committee, via Conservation and Management Measures, and revise its Program of Work to match those priorities.

RECOMMENDATION/S

That the WPB:

1) **NOTE** paper IOTC–2024–WPB22–08, which encouraged the WPB to further develop and refine its Program of Work for 2024–2028 to align with the requests and directives from the Commission and Scientific Committee.
2) **RECOMMEND** a revised Program of Work for 2025–2029 to the Scientific Committee for its consideration and potential endorsement.

APPENDICES

Appendix A: Working Party on Billfish Program of Work (2024–2028) – to be updated to 2025 – 2029.

APPENDIX A

WORKING PARTY ON BILLFISH PROGRAM OF WORK (2024–2028) – TO BE UPDATED TO 2025 - 2029

Table 1. Priority topics for obtaining the information necessary to develop stock status indicators for billfish in the Indian Ocean

Topic in order of priority	Sub-topic and project	Timing				
		2024	2025	2026	2027	2028
1. Reproductive biology study	CPCs to conduct reproductive biology studies, which are necessary for billfish throughout its range to determine key biological parameters including length-at-maturity, age-at-maturity and fecundity-at-age, which will be fed into future stock assessments, as well as provide advice to the Commission on the established Minimum Retention Sizes (Res 18-05, paragraphs 5 and 14c). (Priority: marlins and sailfish). Propose to have a two-day workshop to discuss the standard of billfish maturity staging inter-sessionally prior to the next WPB. Funding are needed to support the workshop participation of CPCs and expert(s) on billfish reproduction (expecting to have confirmation from the host organization).					
2. Biological and ecological information	2.1 Age and growth research 2.1.1 CPCs to provide further research on billfish biology, namely age and growth studies including through the use of fish otolith or other hard parts, either from data collected through observer programs, port sampling or other research programs. (Priority: all billfishes: swordfish, marlins and sailfish)					
	2.2 Spawning time and locations 2.2.1 Collect gonad samples from billfish or utilise any other scientific means to confirm the spawning time and location of the spawning areas that are presently hypothesized for each billfish species. This will also provide advice to the Commission on the request for alternative management measures (Res. 18-05, paragraph 6). Partially supported by EU, on-going support and collaboration from CPCs are required.					
	2.3 Stock structure (connectivity and diversity)					

		2.3.1 Continue work on determining stock structure of Billfish species, using complimentary data sources, including genetic and microchemistry information as well as other relevant sources/studies.					
3.	Billfish bycatch mitigation	WPB and CPCs scientists to firstly, review and summarise existing information on billfish bycatch mitigation, including also factors influencing at-haul and post-release mortality of billfish, and secondly to undertake further research to inform gaps in understanding on potential effective mitigation approaches, to provide options for the Commission to reduce fishing mortality for species where that is required (e.g. Black Marlin, Striped Marlin and Sailfish) focusing on gillnet and longline fisheries but also including recreational and sport fishing activities .					
		Other Future Research Requirements (not in order of priority)					
1.	Data mining and processing – (Development of subsequent CPUE indices)	Data on gillnet fisheries are available in Pakistan (and potentially other CPCs) and the recovery of this information and the development of gillnet CPUE indices would improve species assessments, particularly for: • Black marlin • Sailfish					
2.	Historical data review	2.1 Changes in fleet dynamics					
		2.1.1 Continue the work with coastal countries to address recent changes and/or increases of marlins catches especially in some coastal fleets. The historical review should include as much explanatory information as possible regarding changes in fishing areas, species targeting, gear changes and other fleet characteristics to assist the WPB understand the current fluctuations observed in the data and very high increases in some species (e.g., black marlin mainly due to very high catches reported by India in recent years). The possibility of producing alternative catch histories should also be explored. Priority countries: India, Pakistan, Iran, I.R., Indonesia.					
		2.2 Species identification					
		2.2.1 The quality of the data available at the IOTC Secretariat on marlins (by species) is likely to be compromised by species miss-identification. Thus, CPCs should review their historical data in order to identify, report and correct (if possible) potential identification problems that are detrimental to any analysis of the					

	status of the stocks. Consider the application of DNA-Barcoding technology for billfish species identification.					
	2.3 Tagging data recovery from alternate sources (e.g. Billfish foundation) to supplement IOTC tagging database information.					
3. Observer Training to improve data collection for billfish (and other) species	3.1 Training for observers with respect to billfish species identification, various length measurements and biological sampling (gonads, spines and otoliths).					
4. CPUE standardization	4.1 Develop and/or revise standardized CPUE series for each billfish species and major fisheries/fleets for the Indian Ocean.					
	4.1.1 Swordfish: Priority LL fleets: Taiwan,China, EU(Spain, Portugal, France), Japan, Indonesia, South African					
	4.1.2 Striped marlin: Priority fleets: Japan, Taiwan,China					
	4.1.3 Black marlin: Priority fleets: Longline: Taiwan,China; Gillnet: I.R. Iran, Sri Lanka, Indonesia					
	4.1.4 Blue marlin: Priority fleets: Japan, Taiwan,China, Indonesia					
	4.1.5 I.P. Sailfish: Priority fleets: Priority gillnet fleets: I.R. Iran and Sri Lanka; Priority longline fleets: EU(Spain, Portugal, France), Japan, Indonesia;					
	4.1.6 Joint analysis of operational catch and effort data from Indian Ocean longline fleets as recommended by WPM					
5. Stock assessment / Stock indicators	5.1 Workshops on techniques for assessment including CPUE estimations for billfish species in 2021 and 2022. Priority fleets: Gillnet fisheries					
6. Target and Limit reference points	6.1 Assessment of the interim reference points as well as alternatives: Used when assessing the Swordfish stock status and when establishing the Kobe plot and Kobe matrices.					
7. Management measure options	7.1 To advise the Commission, on potential management measures having been examined through the Management Strategy Evaluation (MSE) process.					
	7.1.1 These management measures will therefore have to ensure the achievement of the conservation and optimal utilization of stocks as laid down in article V of the Agreement for the establishment of the IOTC and more particularly to ensure that, in as short a period as possible and no later than 2020, (i) the fishing					

	mortality rate does not exceed the fishing mortality rate allowing the stock to deliver MSY and (ii) the spawning biomass is maintained at or above its MSY level.					
8. Close-Kin Mark-Recapture studies	Review of CKMR applicability for Billfish species and potential feasibility study					
9. Stock structure (connectivity and diversity)	Tagging research (PSAT tags) to determine connectivity, movement rates and mortality estimates of billfish (Priority species: swordfish). Similar projects have been partially funded by EU, with a focus on epipelagic species. More tags are needed for swordfish.					
10. Billfish as bycatch	How to provide scientific advice to management on billfish caught as bycatch					

Table 2. Assessment schedule for the IOTC Working Party on Billfish

Working Party on Billfish					
Species	2024	2025	2026	2027	2028
Black marlin	Full assessment			Full assessment	
Blue marlin		Full assessment			Full assessment
Striped marlin	Full assessment			Full assessment	
Swordfish		Indicators**	Full assessment		Indicators**
Indo-Pacific sailfish		Full assessment*			Full assessment*

* Including data poor stock assessment methods; Note: the assessment schedule may be changed depending on the annual review of fishery indicators, or SC and Commission requests.

** Including biological parameters, standardized CPUE, and other fishery trends