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## REVISION OF THE WPB PROGRAM OF WORK (2017-2021)

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### PURPOSE

To ensure that participants at the 14<sup>th</sup> Working Party on Billfish (WPB14) 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 18<sup>th</sup> Session of the SC:

- (Para. 152) The SC **NOTED** paper IOTC-2015-SC18-09 which provided the Scientific Committee (SC) with a proposed Program of Work for each of its Working Parties (WP), including preliminary prioritisation of the elements requested by each WP. The aim is to develop an overall Program of Work Plan for 2015-19 which will deliver the information the Commission has requested to meet the objectives of the IOTC.
- (Para. 153) The SC **NOTED** the proposed Program of Work and priorities for the Scientific Committee and each of the Working Parties and **AGREED** to a consolidated Program of Work as outlined in Appendix XXXIV. The Chairpersons and Vice-Chairpersons of each working party shall ensure that the efforts of their working party 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. 154) The SC **REQUESTED** that during all future Working Party meetings, each group not only develop a Draft Program of Work for the next five years containing low, medium and high priority projects, but that all High Priority projects are ranked. The intention is that the SC would then be able to review the rankings and develop a consolidated list of the highest priority projects to meet the needs of the Commission. Where possible, budget estimates should be determined, as well as the identification of potential funding sources.

#### *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 15/05 On conservation measures for striped marlin, black marlin and blue marlin**

*Para. 3: The IOTC Scientific Committee shall request that the Working Party on Billfish continue their work on assessing and monitoring the status of the above mentioned species until such time as comprehensive assessments are possible. The IOTC Scientific Committee shall also evaluate the catch trends of the mentioned species and recommend Conservation and Management Measures as appropriate.*

*Para. 5: The Scientific Committee shall annually review the information reported by CPCs on these species and, as necessary, provide recommendations to the Commission on ways to strengthen the conservation and management of these species.*

#### **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.*

Para. 10: *This Resolution is applicable during the years 2015 and 2016. The Commission shall review its implementation at the 2016 IOTC Session.*

## **DISCUSSION**

Participants at the WPB14 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 (previously outlined in paper IOTC-2016-WPB14-03) to match those priorities.

## **RECOMMENDATION/S**

That the WPB:

- 1) **NOTE** paper IOTC-2016-WPB14-08, which encouraged the WPB to further develop and refine its Program of Work for 2016-2020 to align with the requests and directives from the Commission and Scientific Committee.
- 2) **RECOMMEND** a revised Program of Work for 2016-2020 to the Scientific Committee for its consideration and potential endorsement.

## **APPENDICES**

[Appendix A](#): Working Party on Billfish Program of Work (2017-2021)

**APPENDIX A**

**WORKING PARTY ON BILLFISH PROGRAM OF WORK (2017–2021)**

The Program of Work consists of the following, noting that a timeline for implementation would be developed by the SC once it has agreed to the priority projects across all of its Working Parties:

- **Table 1:** High priority topics for obtaining the information necessary to develop stock status indicators for billfish in the Indian Ocean; and
- **Table 2:** Stock assessment schedule.

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

Topic	Sub-topic and project	Priority ranking	Est. budget and/or potential source	Timing				
				2017	2018	2019	2020	2021
1. Stock structure (connectivity and diversity)	1.1 Genetic research to determine the connectivity of billfish throughout their distribution (including in adjacent Pacific and Atlantic waters as appropriate) and the effective population size.	High (1)	1.3 m Euro: (European Union)					
	1.1.1 Next Generation Sequencing (NGS) to determine the degree of shared stocks for billfish in the Indian Ocean with the southern Atlantic Ocean and Pacific Ocean, as appropriate. Population genetic analyses to decipher inter- and intraspecific evolutionary relationships, levels of gene flow (genetic exchange rate), genetic divergence, and effective population sizes.	High (1)						
	1.1.2 Nuclear markers (i.e. microsatellite) to determine the degree of shared stocks for billfish (highest priority species: blue, black, striped marlin and sailfish) in the Indian Ocean with the southern Atlantic Ocean and Pacific Ocean, as appropriate.	High (1)						
	1.2 Tagging research to determine connectivity, movement rates and mortality estimates of billfish.	High (4)	US\$50,000					
	1.2.1 Tagging studies (PSAT)		(TBD)					

2. Biological and ecological information (incl. parameters for stock assessment)	2.1 Age and growth research	High (8)	CPCs directly					
	2.1.1 CPCs to provide further research reports 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 or other research programs.							
	2.2 Age-at-Maturity	High (9)	(CPCs directly)					
	2.2.1 Quantitative biological studies are necessary for billfish throughout its range to determine key biological parameters including age-at-maturity and fecundity-at-age/length relationships, age-length keys, age and growth, which will be fed into future stock assessments.							
	2.3 Spawning time and locations	High (10)	(CPCs directly)					
	2.3.1 Collect gonad samples from billfish to confirm the spawning time and location of the spawning area that are presently hypothesized for each billfish species.							
3. Historical data review	3.1 Changes in fleet dynamics							
	3.1.1 Japan and Taiwan,China to undertake an historical review of their longline fleets and to document the changes in fleet dynamics. 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.	High (7)	(CPCs directly)					
	3.2 Species identification							
	3.2.1 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.	High (6)	(CPCs directly)					
4. Sports/recreational fisheries	4.1 Fishery trends							

	4.1.1	The catch and effort data for sports/recreational fisheries targeting marlins and sailfish in the Indian Ocean should be submitted to the IOTC Secretariat to assist in future assessments for these species. CPCs with active sports/recreational fisheries targeting marlins and sailfish should undertake a comprehensive analysis for provision to the WPB.	High (2)	Consultant US\$54,000					
5.	CPUE standardisation	5.1 Develop and/or revise standardised CPUE series for each billfish species and major fisheries/fleets for the Indian Ocean.							
	5.1.1	Swordfish: Priority LL fleets: Taiwan,China, EU(Spain, Portugal, France), Japan, Indonesia	High (11)	(CPCs directly)					
	5.1.2	Striped marlin: Priority fleets: Japan, Taiwan,China	High (12)	(CPCs directly)					
	5.1.3	Black marlin: Priority fleets: Longline: Taiwan,China; Gillnet: I.R. Iran, Sri Lanka)	High (14)	(CPCs directly)					
	5.1.4	Blue marlin: Priority fleets: Taiwan,China	High (15)	(CPCs directly)					
	5.1.5	I.P. Sailfish: Priority fleets: Priority gillnet fleets: I.R. Iran and Sri Lanka; Priority longline fleets: EU(Spain, Portugal, France), Japan, Indonesia;	High (13)	(CPCs directly)					
6.	Stock assessment / Stock indicators	6.1 Develop and compare multiple assessment approaches to determining stock status for swordfish (SS3, ASPIC, etc.).	High (16)	US\$??					
		6.2 Data poor stock assessment on billfish species in 2016 and 2017	High (3)	Consultant / US\$16,250					
		6.3 Workshops on data poor techniques for assessment including CPUE estimations for billfish species from gillnet fisheries in 2016 and 2017.	High (5)	Consultant US\$11,750					
7	Target and Limit reference points	7.1 To advise the Commission, by end of 2016 at the latest on Target Reference Points (TRPs) and Limit Reference Points (LRPs).	High (17)						
		7.1.1 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. = Agreed to pass this task temporarily to WPM.		WPM					
8	Management measure options	8.1 To advise the Commission, by end of 2016 at the latest, on potential management measures having been examined through the Management Strategy Evaluation (MSE) process.	High (18)						

8.1.1 These management measures will therefore have to ensure the achievement of the conservation and optimal utilisation 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. = Agreed to pass this task temporarily to WPM.

WPM

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**Table 2.** Assessment schedule for the IOTC Working Party on Billfish (WPB) **Note:** 2016 to 2019 already agreed to by the SC and Commission.

Species	2017	2018	2019	2020	2021
<i>Working Party on Billfish</i>					
Black marlin		Full assessment*			
Blue marlin			Full assessment*		
Striped marlin	Full assessment*		Full assessment*		Full assessment*
Swordfish	Full assessment			Full assessment	
Indo-Pacific sailfish		Full assessment*			Full assessment*

\*Including data poor stock assessment methods; Note: the assessment schedule may be changed dependant on the annual review of fishery indicators, or SC and Commission requests. ALB: albacore; BET: bigeye tuna; YFT: yellowfin tuna; SKJ: skipjack tuna.