REVISION OF THE WPB PROGRAM OF WORK (2015–2019)

PREPARED BY: IOTC SECRETARIAT, 29 SEPTEMBER 2014

PURPOSE

To ensure that participants at the 12th Working Party on Billfish (WPB12) 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 16th Session of the SC:

(Para. 192) The SC **NOTED** paper IOTC–2013–SC15–16 which outlined the proposed research priorities for each of the Working Party meetings held in 2013, with the aim of developing an IOTC Science Work Plan for 2014, and future years.

(Para. 193) The SC **NOTED** the proposed work plans and priorities of each of the Working Parties and **AGREED** to the revised work plans as outlined in Appendix XXXIV [of the SC16 Report]. The Chairs and Vice-Chairs of each working party shall ensure that the efforts of their working party is 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. 194) The SC **REQUESTED** that all Working Parties provide their work plans with items prioritised based on the requests of the Commission of the SC.

(Para. 195) The SC **ADOPTED** a revised assessment schedule, ecological risk assessment and other core projects for 2014–18, 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 XXXV [of the SC16 Report].

(Para. 196) The SC **REQUESTED** that the IOTC Secretariat develop a template for each working party to use in developing their works plans in 2014, with the aim of standardising the way in which each working party presents a prioritised plan each year for the SC's consideration.

Commission

At Sessions of the Commission, Conservation and Management Measures adopted contained elements which 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 13/10 ***On interim target and limit reference points and a decision framework***

(para. 1) When assessing stock status and providing recommendations to the Commission, the IOTC Scientific Committee should apply the following interim target and limit reference points for the species of tuna and tuna-like species listed in **Table 1**. B_{MSY} refers to the biomass level for the stock that would produce the Maximum Sustainable Yield; F_{MSY} refers to the level of fishing mortality that produces the Maximum Sustainable Yield.

Table 1. Interim target and limit reference points.

Stock	Target Reference Point	Limit Reference Point
Albacore	B_{MSY}; F_{MSY}	$B_{LIM} = 0.40\ B_{MSY}$; $F_{LIM} = 1.40\ F_{MSY}$
Bigeye tuna	B_{MSY}; F_{MSY}	$B_{LIM} = 0.50\ B_{MSY}$; $F_{LIM} = 1.30\ F_{MSY}$
Skipjack tuna	B_{MSY}; F_{MSY}	$B_{LIM} = 0.40\ B_{MSY}$; $F_{LIM} = 1.50\ F_{MSY}$
Yellowfin tuna	B_{MSY}; F_{MSY}	$B_{LIM} = 0.40\ B_{MSY}$; $F_{LIM} = 1.40\ F_{MSY}$
Swordfish	B_{MSY}; F_{MSY}	$B_{LIM} = 0.40\ B_{MSY}$; $F_{LIM} = 1.40\ F_{MSY}$

(para. 2) These interim target and limit reference points shall be assessed and further reviewed by the IOTC Scientific Committee and the results shall be presented to the Commission for adoption of species-specific reference points. If applicable, the IOTC Scientific Committee should endeavour to apply the

interim reference points in the provision of advice on the status of stocks and on recommendations for management measures.

(para. 3) The IOTC Scientific Committee shall assess, as soon as possible and more particularly through the management strategy evaluation process (MSE) process, the robustness and the performance of the interim reference points, specified under paragraph 1 and other reference points based on the guidelines of International agreements taking into account: i) the nature of these reference points – target or limits, ii) the best scientific knowledge on population dynamics and on life-history parameters, iii) the fisheries exploiting them, and iv) the various sources uncertainty.

(para. 4) In addition the IOTC Scientific Committee shall develop and assess potential harvest control rules (HCRs) to be applied, considering the status of the stocks against the reference points assessed in paragraph 3 for albacore, bigeye tuna, skipjack tuna, yellowfin tuna and swordfish. Based on the results of the MSE and considering the guidelines set forth in the UNFSA and in Article V of the IOTC Agreement, the IOTC Scientific Committee will recommend to the Commission HCRs for these tuna and tuna-like species…

DISCUSSION

Participants at the WPB12 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–2014–WPB12–03) to match those priorities.

RECOMMENDATION/S

That the WPB:

1) **NOTE** paper IOTC–2014–WPB12–08, which encouraged the WPB to further develop and refine its Program of Work for 2015–2019 to align with the requests and directives from the Commission and Scientific Committee.
2) **RECOMMEND** a revised Program of Work for 2015–2019 to the Scientific Committee for its consideration and potential endorsement.

APPENDICES

Appendix A: DRAFT: Working Party on Billfish Program of Work (2015–2019)

APPENDIX A

DRAFT: WORKING PARTY ON BILLFISH PROGRAM OF WORK (2015–2019)

The following is the Draft WPB Program of Work (2015–2019) and is based on the specific requests of the Commission and Scientific Committee, and will need to be modified to incorporate topics identified during the WPB12. 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**: Priority topics for obtaining the information necessary to develop stock status indicators for billfish in the Indian Ocean;
- **Table 2**: High priority topics, by project for billfish in the Indian Ocean; and
- **Table 3**: 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	Priority
Stock structure (connectivity)	Research to describe the population structure and connectivity of billfish within the Indian Ocean (and adjacent Pacific and Atlantic waters as appropriate) (Priority species: High = swordfish, Medium = striped marlin and Indo-Pacific sailfish)	High
	➢ Next Generation Sequencing (NGS)	High
	➢ Otolith microchemistry/isotope research	Med
	➢ Tagging studies (P-SAT)	Med
Biological information (parameters for stock assessment)	Age and growth research	High
	Age-at-Maturity	High
	Fecundity-at-age/length relationships	Medium
Ecological information	Spawning time and locations	High
Historical data review	Changes in fleet dynamics	High
	Species identification	High
Sports/recreational fisheries	Fishery trends	High
CPUE standardisation	Develop standardised CPUE series for each billfish species and fishery for the Indian Ocean (High priority fleets: EU-Spain LL, Japan LL; Indonesia LL)	High
Stock assessment / Stock indicators	Develop and compare multiple assessment approaches to determining stock status for billfish	High
Target and Limit reference points	To advise the Commission, by end of 2016 at the latest on Target Reference Points (TRPs) and Limit Reference Points (LRPs).	High
Management measure options	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

Table 2. High priority topics, by project for billfish in the Indian Ocean.

Topic	Sub-topic and project	Priority
Stock structure (connectivity)	Research to describe the population structure and connectivity of billfish within the Indian Ocean (and adjacent Pacific and Atlantic waters as appropriate) (Priority species: High = swordfish, Medium = striped marlin and Indo-Pacific sailfish) ➢ Next Generation Sequencing (NGS) to determine billfish stock structure, and migratory range. Determine the degree of shared stocks for swordfish in the Indian Ocean with the southern Atlantic Ocean.	High
Biological information (parameters for stock assessment)	Age and growth research ➢ CPCs to provide further research reports on billfish biology, including using through the use of fish otolith studies, either from data collected through observer programs or other research programs.	High
	Age-at-Maturity ➢ Quantitative biological studies are necessary for billfish throughout their 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.	High
Ecological information	Spawning time and locations ➢ Collect gonad samples from billfish to confirm the spawning time and location of the spawning area that are presently hypothesized for each billfish species	High
Historical data review	Changes in fleet dynamics ➢ 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
	Species identification ➢ 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
Sports/recreational fisheries	Fishery trends ➢ 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 these species should undertake a comprehensive analysis for provision to the WPB.	High
CPUE standardisation	Develop standardised CPUE series for each billfish fleet/fishery for the Indian Ocean ➢ Swordfish: High priority fleets: EU-Spain LL, Japan LL; Indonesia LL ➢ Indo-Pacific sailfish: Develop/improve accurate standardised CPUE indices. High priority fleets: EU-Spain LL, Japan LL; Indonesia LL; I.R. Iran and Sir Lanka GN	High
Stock assessment / Stock indicators	Develop and compare multiple assessment approaches to determining stock status for billfish	High
Target and Limit reference points	To advise the Commission, by end of 2016 at the latest on Target Reference Points (TRPs) and Limit Reference Points (LRPs). ➢ Used when assessing billfish stock status and when establishing the Kobe plot and Kobe matrices	High
Management measure options	To advise the Commission, by end of 2016 at the latest, on potential management measures having been examined through the Management Strategy Evaluation	High

(MSE) process.

- 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.

Table 3. Assessment schedule for the IOTC Working Party on Billfish (WPB)

Species	2015	2016	2017	2018	2019
Working Party on Billfish					
Black marlin	Indicators	**Full assessment**	Indicators	**Full assessment**	Indicators
Blue marlin	**Full assessment**	Indicators	**Full assessment**	Indicators	**Full assessment**
Striped marlin	**Full assessment**	Indicators	**Full assessment**	Indicators	**Full assessment**
Swordfish (IO, SWIO)	Indicators	**Full assessment**	Indicators	**Full assessment**	Indicators
Indo-Pacific sailfish	Indicators	**Full assessment**	Indicators	**Full assessment**	Indicators