# REVISION OF THE WPB PROGRAM OF WORK (2016–2020)

**PREPARED BY: IOTC SECRETARIAT[1], 15 APRIL & 23 JULY 2015**

## PURPOSE

To ensure that participants at the 13th Working Party on Billfish (WPB13) 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 17th Session of the SC:

(Para. 175) The SC **NOTED** paper IOTC–2014–SC17–10 which outlined the proposed research priorities for each of the Working Parties, with the aim of developing an IOTC Science Program of Work for 2015 to 2019.

(Para. 176) The SC **REMINDED** the IOTC Secretariat that any projects recommended by the SC in 2013, and which were subsequently endorsed by the Commission and funded for implementation in 2014 and/or 2015 budget, should occur in 2015, if not already completed.

(Para. 177) The SC **NOTED** the proposed Program of Work and priorities for each of the Working Parties and **AGREED** to a consolidated Program of Work as outlined in Appendix XXXVIII. 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. 178) The SC **REQUESTED** that during the 2015 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.

(Para. 179) The SC **AGREED** that identifying research priorities among its Working Parties (Appendix XXXVIII) will assist individual CPCs and the IOTC Secretariat to identify funding sources for the implementation of priority research projects. Accordingly, and in the interest of transparency, the SC **REQUESTED** the IOTC Secretariat to follow the following consultative process involving the SC and Working Party Chairs and Vice-Chairs and the IOTC Secretariat:

- **Step 1:** Working Parties to identify research needs (based on the needs of the Commission), rank them by order of priority, provide cost estimates and list potential funding sources;
- **Step 2:** The SC and Working Party Chair and Vice-Chair, in liason with the IOTC Secretariat should develop a consolidated document taking into account the different Working Party research needs and priorities, with the objective of ranking the research needs among all Working Parties;
- **Step 3:** The Chair of the SC shall present these to the SC, to be discussed and endorsed as the consolidated research priorities for the IOTC Science process;
- **Step 4:** The IOTC Secretariat, in consultation with the Chair and Vice-Chair of the SC and Chair and Vice-Chair or relevant Working Parties, shall identify funding possibilities to undertake the consolidated research priorities;
- **Step 5:** Once the funding sources have been committed to a particular research priority, the panel mentioned above in Step 2 shall develop terms of reference of the 'Expression of Interest' (including tasks, timelines and deliverables) and the selection procedure/criteria;

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- **Step 6:** IOTC Secretariat to advertise a call for 'Expression of Interest' among the IOTC Commissioner's and Science contact lists, and via the IOTC website;
- **Step 7:** The Chair of the SC, Chair(s) and Vice-Chair(s) of the WP(s) concerned, in liaison with the IOTC Secretariat shall determine the most appropriate project proposal, based on the criteria defined in Step 5 and in line with the financial rules of the Commission and FAO. Potential contracted candidate will be contacted by the IOTC Secretariat to confirm availability.

***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*.

## DISCUSSION

Participants at the WPB13 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–2015–WPB13–03) to match those priorities.

## RECOMMENDATION/S

That the WPB:

1) **NOTE** paper IOTC–2015–WPB13–08, 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:** DRAFT: Working Party on Billfish Program of Work (2016–2020)

## APPENDIX A

# DRAFT: WORKING PARTY ON BILLFISH PROGRAM OF WORK (2016–2020)

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 | | | | |
|---|---|---|---|---|---|---|---|---|
| | | | | 2016 | 2017 | 2018 | 2019 | 2020 |
| 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. | | 1.3 m Euro: European Union | | | | | |
| | 1.1.1 Next Generation Sequencing (NGS) to determine the degree of shared stocks for billfish (highest priority species: swordfish and striped marlin) 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. | | TBD | | | | | |
| | 1.1.2 Nuclear markers (i.e. microsatellite) to determine the degree of shared stocks for billfish (highest priority species: striped marlin) in the Indian Ocean with the southern Atlantic Ocean and Pacific Ocean, as appropriate. | | TBD | | | | | |
| | 1.2 Tagging research to determine connectivity, movement rates and mortality estimates. | | US$?? | | | | | |
| | 1.1.3 Tagging studies (P-SAT) | | TBD | | | | | |

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| 2. | Biological and ecological information (incl. parameters for stock assessment) | 2.1 Age and growth research | US$?? | |
| | | 2.1.1 CPCs to provide further research reports on billfish biology, namely age and growth studies including through the use of fish otolith or other hard parts, either from data collected through observer programs or other research programs. | CPCs directly | |
| | | 2.2 Age-at-Maturity | US$?? | |
| | | 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. | CPCs directly | |
| | | 2.3 Spawning time and locations | US$?? | |
| | | 2.3.1 Collect gonad samples from billfish to confirm the spawning time and location of the spawning area that are presently hypothesized for each billfish species. | CPCs directly | |
| | | 2.4 Spawning time and locations | US$?? | |
| | | 2.4.1 Collect gonad samples from billfish to confirm the spawning time and location of the spawning area that are presently hypothesized for each billfish species | CPCs directly | |
| 3. | Historical data review | 3.1 Changes in fleet dynamics | US$?? | |
| | | 3.1.1 Japan and Taiwan,China to undertake an historical review of their longline fleets and to document the changes in fleet dynamics. The historical review should include as much explanatory information as possible regarding changes in fishing areas, species targeting, gear changes and other fleet characteristics to assist the WPB understand the current fluctuations observed in the data. | CPCs directly | |
| | | 3.2 Species identification | US$?? | |
| | | 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 | CPCs directly | |

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| | | identification problems that are detrimental to any analysis of the status of the stocks. | |
| 4. | Sports/recreational fisheries | 4.1 Fishery trends | US$50,000 |
| | | 4.1.1 The catch and effort data for sports/recreational fisheries targeting marlins and sailfish in the Indian Ocean should be submitted to the IOTC Secretariat to assist in future assessments for these species. CPCs with active sports/recreational fisheries targeting marlins and sailfish should undertake a comprehensive analysis for provision to the WPB. | TBD |
| 5. | CPUE standardisation | 4.1 Develop and/or revise standardised CPUE series for each billfish species and major fisheries/fleets for the Indian Ocean. | US$?? |
| | | 4.1.1 Swordfish: Priority LL fleets: Taiwan,China, EU(Spain, Portugal, France), Japan, Indonesia | CPCs directly |
| | | 4.1.2 Striped marlin: Priority fleets: Japan, Taiwan,China | CPCs directly |
| | | 4.1.3 Black marlin: Priority fleets: Taiwan,China | CPCs directly |
| | | 4.1.4 Blue marlin: Priority fleets: Taiwan,China | CPCs directly |
| | | 4.1.5 IP Sailfish: Priority fleets: Priority LL fleets: EU(Spain, Portugal, France), Japan, Indonesia; Priority GN fleets: I.R. Iran and Sir Lanka | CPCs directly |
| 6. | Stock assessment / Stock indicators | 6.1 Develop and compare multiple assessment approaches to determining stock status for swordfish (SS3, ASPIC etc). | US$?? |
| | | 6.2 Develop and investigate new methods for data poor stocks (marlins and IP sailfish) (Hire a consultant for 15-20 days per year to undertake data poor stock assessment approaches and travel to the WPB to present and discuss results. | US$12,000 per year (IOTC Regular Budget) |
| 7. | Target and Limit reference points | 7.1 To advise the Commission, by end of 2016 at the latest on Target Reference Points (TRPs) and Limit Reference Points (LRPs). | US$?? |
| | | 7.1.1 Assessment of the interim reference points as well as alternatives: Used when assessing the albacore stock status and when | WPM |

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| | | establishing the Kobe plot and Kobe matrices.<br>= Agreed to pass this task temporarily to 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. | US$?? | |
| | | 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.<br>= Agreed to pass this task temporarily to WPM. | WPM | |

**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 | 2016 | 2017 | 2018 | 2019 | 2020 |
|---|---|---|---|---|---|
| ***Working Party on Billfish*** | | | | | |
| Black marlin | **Full assessment*** | | **Full assessment*** | | |
| Blue marlin | **Full assessment*** | | | **Full assessment*** | |
| Striped marlin | | **Full assessment*** | | **Full assessment*** | |
| Swordfish | Indicators | **Full assessment** | | | **Full assessment** |
| Indo-Pacific sailfish | | | **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.