

OUTCOMES OF THE FOURTEENTH SESSION OF THE SCIENTIFIC COMMITTEE

PREPARED BY: IOTC SECRETARIAT, 28 AUGUST, 2013
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PURPOSE

To inform participants at the Working Party on Billfish (WPB11) of the recommendations arising from the Fifteenth Session of the Scientific Committee (SC15), held from 10–15 December 2012, specifically relating to the work of the WPB.

BACKGROUND

At the 15th Session of the SC, the SC noted and considered the recommendations made by the WPB in 2012 that included requests to address the deficiencies in data collection, monitoring and reporting by CPCs, as well as to carry out targeted research and analysis on billfish species.

Billfish caught in the IOTC area of competence

| Common name | Species | Code |
|-----------------------|--------------------------------|------|
| Swordfish | <i>Xiphias gladius</i> | SWO |
| Black marlin | <i>Makaira indica</i> | BLM |
| Blue marlin | <i>Makaira nigricans</i> | BUM |
| Striped marlin | <i>Tetrapturus audax</i> | MLS |
| Indo-Pacific sailfish | <i>Istiophorus platypterus</i> | SFA |

Based on the recommendations arising from the WPB10, two sets of recommendations were adopted at SC15 that are relevant to the work of the WPB:

- 1) Consolidated set of recommendations of the Fifteenth Session of the Scientific Committee (10–15 December, 2012) to the Commission, relevant to the WPB (provided at [Appendix A](#)).
- 2) Research recommendations and priorities for IOTC Working Parties in 2013 (provided at [Appendix B](#)).

The recommendations contained in [Appendix A](#) were provided to the Commission for consideration at its 17th Session held in May 2013. A separate paper, IOTC-2013-WPB11-04 will address the responses from the Commission.

The recommendations contained in [Appendix B](#) will be reviewed and updated throughout the course of the WPB11 meeting.

DISCUSSION

In addition to the recommendations outlined in [Appendix A](#) and [Appendix B](#), the SC made several other comments and requests relevant to the WPB, which participants are asked to consider:

Southwest Indian Ocean swordfish

The SC **NOTED** that SWIOFP is currently undertaking a research project on swordfish using pop-up archival tags that may shed additional light on the degree of connectivity between swordfish in the southwest and the broader Indian Ocean. **NOTING** the level of fishing activities and catches of swordfish in the southwest Indian Ocean, the SC **AGREED** that a separate executive summary for swordfish in the southwest Indian Ocean be provided to the Commission, noting that work is currently in progress to determine the level of connectivity of swordfish between areas of the Indian Ocean. (para. 60 of the SC15 report)

Data available at the Secretariat for billfish species

The SC **NOTED** that the quality of the data available at the IOTC Secretariat on marlins is likely to be compromised by species misidentification and **REQUESTED** that CPCs review their historical data in order to identify and correct

potential identification problems that are detrimental to any analysis of the status of the stocks. (para. 63 of the SC15 report)

Catch, Catch-and-effort, Size data

The SC **REQUESTED** that the EU, Spain improve the status of catch-and-effort data for marlins and sailfish and its provision to the IOTC Secretariat. (para. 65 of the SC15 report)

The SC **REQUESTED** that the EU, Spain longline fleet provide the IOTC Secretariat with catch-and-effort and size data of marlins and sailfish by time and area strata, noting that this is already a mandatory reporting requirement. (para. 66 of the SC15 report)

The SC **REQUESTED** that Japan resume size sampling on its commercial longline fleet, and that Taiwan, China provide size data for its fresh longline fleet to attain the minimum recommended by the Commission (1 fish by metric ton of catch by type of gear and species). (para. 67 of the SC15 report)

The SC **REQUESTED** that Indonesia and India provide catch-and-effort and size frequency data for their longline fleets. (para. 68 of the SC15 report)

The SC **REQUESTED** that CPCs having artisanal and semi-industrial fleets, in particular Iran, Pakistan and Sri Lanka, provide catch and effort as well as size data as per IOTC requirements for billfish caught by their fleets. (para. 69 of the SC15 report)

NOTING that not all CPCs are collecting size data using standard measurements, the SC **AGREED** that only lower-jaw to fork length, eye to fork length or pectoral to second dorsal length are taken by fishers, samplers and observers for billfish species. (para. 70 of the SC15 report)

The SC **REQUESTED** that the EU record and report information on catches of billfish, by species, for its purse seine fisheries. (para. 71 of the SC15 report)

Data inconsistencies

Noting the progress made to date, the SC **REQUESTED** that the IOTC Secretariat finalise the study aimed at assessing the consistency of average weights derived from the available catch and effort data, as derived from logbooks, and size data provided by EU, Spain, Japan, Seychelles and Taiwan, China and to report final results at the next WPB meeting. (para. 72 of the SC15 report)

Implementation of the regional observer scheme

The SC **EXPRESSED** its strong concern regarding the low level of reporting to the IOTC Secretariat of both the observer trip reports and the list of accredited observers since the start of the ROS in July 2010. Such a low level of implementation and reporting is detrimental to the work of the SC, in particular regarding the estimation of incidental catches of non-targeted species, as requested by the Commission. In particular, the SC **NOTED** that the IOTC Regional Observer Programme could be a significant source of potential data for marine turtles (e.g. sex and species composition, etc.) for some longline and gillnet fisheries. (para. 217 of the SC15 report)

The SC **RECOGNISED** that the implementation of national observer programmes is not a simple task, e.g. due to piracy activities, and that the financial and human costs involved in the deployment of observers are important to consider, in particular for CPCs with large fishing fleets. However, the SC **AGREED** that the minimum observer coverage of 5% set out by Resolution 11/04 is already below the minimum necessary coverage estimated by simulations, and that it should not be lowered. (para. 221 of the SC15 report)

Executive summaries for billfish species

The SC15 report may be downloaded from the IOTC website in English and French:

English: <http://iotc.org/files/proceedings/2012/sc/IOTC-2012-SC15-R%5BE%5D.pdf> [14 mb]

French: <http://iotc.org/files/proceedings/2012/sc/IOTC-2012-SC15-R%5BF%5D.pdf> [14 mb]

RECOMMENDATION

That the WPB **NOTE** paper IOTC–2013–WPB11–03 which outlined the main outcomes of the Fifteenth Session of the Scientific Committee (SC15), specifically related to the work of the WPB, and consider how to progress outstanding issues at the present meeting.

APPENDICES

Appendix A: [Consolidated set of recommendations of the Fifteenth Session of the Scientific Committee \(10–15 December, 2012\) to the Commission, relevant to the Working Party on Billfish.](#)

Appendix B: [Research recommendations and priorities for IOTC working parties in 2013 and 2014.](#)

APPENDIX A

CONSOLIDATED SET OF RECOMMENDATIONS OF THE FIFTEENTH SESSION OF THE SCIENTIFIC COMMITTEE (10–15 DECEMBER, 2012) TO THE COMMISSION RELEVANT TO THE WORKING PARTY ON BILLFISH

Extract of the Report of the Fifteenth Session of the Scientific Committee

(IOTC–2012–SC15–R; Appendix XXXVIII, PAGES 275–288)

STATUS OF TUNA AND TUNA-LIKE RESOURCES IN THE INDIAN OCEAN

Billfish

- SC15.02 (para. 210) The SC **RECOMMENDED** that the Commission note the management advice developed for each billfish species as provided in the Executive Summary for each species:
- Swordfish (*Xiphias gladius*) – [Appendix XIII](#)
 - Black marlin (*Makaira indica*) – [Appendix XIV](#)
 - Blue marlin (*Makaira nigricans*) – [Appendix XV](#)
 - Striped marlin (*Tetrapturus audax*) – [Appendix XVI](#)
 - Indo-Pacific sailfish (*Istiophorus platypterus*) – [Appendix XVII](#)

GENERAL RECOMMENDATIONS TO THE COMMISSION

Report of the Tenth Session of the Working Party on Billfish (WPB10)

Non-compliance matters

- SC15.13 (para.87). **NOTING** that despite the mandatory reporting requirements detailed in Resolutions 10/02 and 12/03 data on billfish fisheries, in particular for the marlins, remain largely unreported by CPCs, the SC **RECOMMENDED** that the Compliance Committee and the Commission note these non-compliance matters, develop mechanisms to ensure that CPCs fulfil their reporting obligations.

Report of the Fourth Session of the Working Party on Methods (WPM04)

Capacity building

- SC15.32 (para.128) The SC **RECOMMENDED** that the IOTC Secretariat coordinate the development and delivery of several training workshops focused on providing assistance to developing CPCs to better understand the MSE process, including how reference points and harvest control rules are likely to function in an IOTC context. The implications of IOTC Resolution 12/01 *on the implementation of the precautionary approach* and IOTC Recommendation 12/14 *on interim target and limit reference points* should be incorporated into the workshop. The SC **REQUESTED** that the Commission's budget incorporate appropriate funds for this purpose.

Work on MSE development

- SC15.33 (para.134) The SC **RECOMMENDED** that the Commission allocate funds in the 2013 and 2014 IOTC budgets, for an external expert on MSE to be hired for 30 days per year, to supplement the skill set available within IOTC CPCs, and for the establishment of a participation fund to cover the planned WPM workshops.

Summary discussion of matters common to Working Parties

Funding for Chairs and Vice-Chairs to attend IOTC meetings

- SC15.40 (para.178) The SC **RECOMMENDED** that the IOTC Secretariat include a proposed budget line in the IOTC budget for 2013 and all future years, that would cover the travel expenses of Chairs and Vice-Chairs from developing countries (and developed countries when they are not attached to any national institutions) who are otherwise unable to obtain funding to support their attendance at their respective working party meeting, and for a Chair or Vice-Chair to attend the SC meeting each year.

IOTC species identification cards***Billfish identification cards***

SC15.41 (para.179) **NOTING** that the IOTC Secretariat has developed identification cards for billfish species at the request of the WPB and SC, but no funds have yet been allocated to print the cards, the SC **RECOMMENDED** that the Commission allocate funds in the 2013 budget to print sets of identification cards for the billfish species, noting that the total estimated printing costs for the first 1000 sets of the identification cards is around a maximum of US\$6,700 (Table 7). The IOTC Secretariat shall seek funds from potential donors to print additional sets of the identification cards at US\$5,500 per 1000 sets of cards.

TABLE 7. Estimated production and printing costs for 1000 sets of billfish species identification cards

| Description | Unit price | Units required | Total |
|-------------------------|-------------------|-----------------------|--------------|
| Printing plates / plate | US\$100 | 12 | 1,200 |
| Printing /1000 sets | US\$5500 | 1 | 5,500 |
| Total estimate (US\$) | | | 6,700 |

Fishing hook identification cards

SC15.44 (para.184) Noting the continued confusion in the terminology of various hook types being used in IOTC fisheries, (e.g. tuna hook vs. J-hook; definition of a circle hook), the SC **RECOMMENDED** that the IOTC Secretariat develop an identification guide for hooks and pelagic gears used in IOTC fisheries, as staffing and financial resources permit, and to distribute the guide to all CPCs once completed. The SC also **AGREED** that circle hooks are defined by hooks having their point turned at least 90° from their shank.

Identification cards – general

SC15.45 (para.185) The SC **RECOMMENDED** that IOTC CPCs translate, print and disseminate the identification cards to their observers and field samplers (Resolution 11/04), and as feasible, to their fishing fleets targeting tuna, tuna-like and shark species. This would allow accurate observer, sampling and logbook data on tuna and tuna-like species to be recorded and reported to the IOTC Secretariat as per IOTC requirements.

Dedicated workshop on CPUE standardisation

SC15.46 (para.189) **NOTING** the combined recommendations from the WPB, WPTmT and WPTT to hold a dedicated workshop on CPUE standardisation, the SC **RECOMMENDED** that a dedicated, informal workshop on CPUE standardisation, including issues of interest for other IOTC species, should be carried out before the next round of stock assessments in 2013. The terms of reference (TORs) for the workshop are provided in Appendix VII. Where possible it should include a range of invited experts, including those working on CPUE standardisation in other ocean/RFMOs, in conjunction with scientists from main tuna fishing countries, and supported by the IOTC Secretariat. The IOTC Secretariat shall include a budget item for this workshop, for the consideration of the Commission.

On Interim Target and Limit Reference Points

SC15.47 (para.194) **NOTING** the completion of the MSE work on tropical tunas is likely to take several years, and that the lack of data or information to improve the work on formal stock assessments should not hinder the application of the Precautionary Approach, the SC **RECOMMENDED** that the Commission consider the adoption of the interim target and limit reference points as a Resolution. Furthermore, interim harvest controls rules should be considered by the Commission for adoption in the Resolution.

Employment of a Fisheries Officer (Science)

SC15.48 (para.195) **NOTING** the rapidly increasing scientific workload at the IOTC Secretariat, including a wide range of additional science related duties assigned to it by the SC and the Commission, and that the current Fishery Officer supporting the IOTC scientific activities will depart at the end of February 2013, the SC strongly **RECOMMENDED** that the Commission approve the hiring of a Fishery Officer (Science) to work on a range of matters in support of the scientific process, including but not limited to science capacity building, bycatch and regional observer schemes.

Examination of the Effect of Piracy on Fleet Operations and Subsequent Catch and Effort Trends

SC15.50 (para.204) The SC **RECOMMENDED** that given the lack of quantitative analysis of the effects of

piracy on fleet operations and subsequent catch and effort trends, and the potential impacts of piracy on fisheries in other areas of the Indian Ocean through the relocation of longliners to other fishing grounds, specific analysis should be carried out and presented at the next WPTT meeting by the CPCs most affected by these activities, including Japan, Republic of Korea and Taiwan, China. The Chair of the WPTT shall facilitate the analysis and report back to the SC in 2013.

Implementation of the Regional Observer Scheme

- SC15.51 (para.218) The SC **RECOMMENDED** that all IOTC CPCs urgently submit, and keep up-to-date, their list of accredited observers to the IOTC Secretariat and implement the requirements of Resolution 11/04 *on a Regional Observer Scheme*, which states that:
“The observer shall, within 30 days of completion of each trip, provide a report to the CPCs of the vessel. The CPCs shall send within 150 days at the latest each report, as far as continuous flow of report from observer placed on the longline fleet is ensured, which is recommended to be provided with 1°x1° format to the Executive Secretary, who shall make the report available to the Scientific Committee upon request. In a case where the vessel is fishing in the EEZ of a coastal state, the report shall equally be submitted to that Coastal State.” (para. 11)
- SC15.52 (para.220) The SC **RECOMMENDED** that the Commission consider how to address the lack of implementation of observer programmes by CPCs for their fleets and reporting to the IOTC Secretariat as per the provision of Resolution 11/04 *on a Regional Observer Scheme*, noting the update provided in [Appendix XXXIII](#).

RECOMMENDATIONS TO SPECIFIC CPCS AND/OR OTHER BODIES

Report of the Tenth Session of the Working Party on Billfish (WPB10)

Data available at the Secretariat for billfish species

- SC15.65 (para.62) The SC **NOTED** the main billfish data issues that are considered to negatively affect the quality of the statistics available at the IOTC Secretariat, by type of dataset and fishery, which are provided in Appendix VI of the WPB10 report (IOTC-2012-WPB10-R), and **RECOMMENDED** that the CPCs listed in the appendix, make efforts to remedy the data issues identified and to report back to the WPB at its next meeting.

Length-age keys

- SC15.66 (para.64) The SC **RECOMMENDED** that as a matter of priority, CPCs that have important fisheries catching billfish (EU, Indonesia, Japan, Sri Lanka and Taiwan, China,) to collect and provide basic or analysed data that would be used to establish length-age keys and non-standard measurements to standard measurements keys for billfish species, by sex and area.

Data inconsistencies

- SC15.67 (para.73) The SC **RECOMMENDED** that as a matter of priority, India, Iran and Pakistan provide catch-and-effort data and size data for billfish, in particular for gillnet fisheries, as soon as possible, noting that this is already a mandatory reporting requirement.

Madagascar's billfish landings

- SC15.68 (para.78) **NOTING** that the longline fishery in Madagascar is a new and developing fishery, the SC **RECOMMENDED** that Madagascar ensure that it develops and implements a data collection system, including sampling, logbooks and observers, which would adequately cover the entire fishery.

Maldives billfish landings

- SC15.690 (para.80) The SC **NOTED** that the level of capture of marlins from the Maldivian artisanal fishery appears to be very high compared to the total catches reported for the Indian Ocean and **RECOMMENDED** that the Maldives provide a review of its landings of each marlin species at the next WPB meeting
- SC15.70 (para.81) The SC **RECOMMENDED** that the Maldives implement data collection systems, through logbooks and sampling for its fisheries that incorporate species level information requirements for billfish, as per IOTC Resolution 12/03. The information collected should allow the Maldives to estimate species level catches by gear for billfish and other important IOTC or bycatch species.

Mozambique billfish landings

SC15.71 (para.82) **NOTING** that at present no scientific observers are being placed on board foreign flagged vessels licensed to fish in the Mozambique EEZ, the SC **RECOMMENDED** that Mozambique make it a licensing requirement for any foreign vessels fishing in the Mozambique EEZ to take on board scientific observers and to report the data collected as per IOTC requirements. Foreign vessels fishing in the Mozambique EEZ should ensure that scientific observers are brought onboard as per IOTC requirements.

Review of fleet dynamics

SC15.72 (para.83) The SC **RECOMMENDED** that both Japan and Taiwan,China undertake a complete historical review of their longline data and to document the changes in fleet dynamics for presentation at the next WPB meeting. 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.

Swordfish: European Union longline fisheries CPUE indices

SC15.73 (para.86) The SC **RECOMMENDED** that scientists from the EU undertake a revised CPUE analysis for their longline fleets, and consider combining the analysis prior to the next WPB meeting where swordfish will be dealt with as a priority.

Summary discussion of matters common to Working Parties***CPUE discussion summary***

SC15.93 (para.187) The SC **EXPRESSED** concern that the majority of the important recommendations issued by the SC to the various working parties in previous years in regards to CPUE standardisation have often not been addressed, and that there was no major progress on these issues during the past two years. Therefore, the SC **RECOMMENDED** that the scientists in charge of this work make every possible effort to consider those guidelines in future CPUE standardisation work in order to improve the quality of CPUE series which are essential to stock assessments.

SC15.94 (para.188) **NOTING** that a set of ‘core areas’ which are likely to be robust to frequent fluctuations of external factors, may be more informative than using all of the data available, especially when other species were being targeted, the SC **RECOMMENDED** that ‘core areas’ be identified and agreed to by each working party so as to facilitate and monitor population abundance trends across all fleets. This should be carried out intersessionally and presented at the proposed longline CPUE workshop, to be held in the second quarter of 2013.

Risk-based approaches to determining stock status

SC15.95 (para.190) The SC **RECOMMENDED** that the IOTC Secretariat facilitate a process to provide the necessary information to the SC so that it may consider the Weight-of-Evidence approach to determine species stock status, as an addition to the current approach of relying solely on fully quantitative stock assessment techniques.

Revised ‘Guidelines for the Presentation of Stock assessment Models’

SC15.96 (para.247) **NOTING** the conclusions and recommendation from the KOBE 3 meeting held in 2011, “*Kobe III participants agreed that the K2SM is a useful tool for evaluating management strategies or options, provided that the uncertainties in assessments can be adequately quantified. Participants acknowledged that considerable work remains to be done both to reduce uncertainty in stock assessments, and to develop common standards or guidelines for how uncertainty is reflected. Kobe III participants recommended that the scientific committees and bodies of the tRFMOs jointly develop methods to better quantify the uncertainty and understand how this uncertainty is reflected in the risk assessment inherent in the K2SM.*”

the SC **RECOMMENDED** that in 2013, collaborative efforts be developed among tRFMO on this matter, by targeting the development of how to build K2SM with well estimated levels of uncertainty.

APPENDIX B

RESEARCH RECOMMENDATIONS AND PRIORITIES FOR IOTC WORKING PARTIES IN 2013 AND 2014

Extract of the Report of the Fifteenth Session of the Scientific Committee

(IOTC-2012-SC15-R; Appendix XXXV, PAGES 263-264, 269)

The IOTC Scientific Committee **RECOMMENDED** that each of its Working Parties undertake the following research tasks as priorities in 2013 and tentatively for 2014:

Working Party on Billfish (WPB)

Core topics for research

The SC **AGREED** that there was no urgent need to carry out stock assessments for the swordfish resources in the Indian Ocean in 2013, and therefore that efforts over the coming year be focused on the other billfish species, in particular on striped marlin, blue marlin and black marlin.

The SC **RECOMMENDED** that the Istiophorids (striped marlin, blue marlin, black marlin and Indo-Pacific sailfish) undergo new or revised CPUE analysis in 2013, taking into account the various points in the CPUE discussion summaries throughout the WPB10 report.

The SC **RECOMMENDED** the following core areas as priorities for research over the coming year:

- Billfish species biology (i.e. growth reproduction)
- Size data analyses
- Stock status indicators – exploration of indicators from the available data
- Striped marlin, blue marlin and black marlin CPUE standardisation
- Stock assessment – Istiophorids

APPENDIX XXXVI

ASSESSMENT SCHEDULE FOR IOTC WORKING PARTIES

The IOTC Scientific Committee **RECOMMENDED** that each of its Working Parties undertake stock assessments and development of stock status indicators following the schedule shown in Table 1.

Table 1. Schedule of stock assessments for IOTC species and species of interest in 2013 and tentatively for 2014–2017, and for the WPM priorities.

| Species | 2013 | 2014 | 2015 | 2016 | 2017 |
|---|------------------------|------------------------|------|------|------|
| <i>Working Party on Billfish</i> | | | | | |
| Black marlin | Full assessment | | | | |
| Blue marlin | Full assessment | | | | |
| Striped marlin | Full assessment | | | | |
| Swordfish | Indicators | Full assessment | | | |
| Indo-Pacific sailfish | Indicators | | | | |

Note: the assessment schedule may be changed dependant on the annual review of fishery indicators, or SC and Commission requests.