

PROGRESS ON RECOMMENDATIONS OF THE 20th SESSION OF THE SCIENTIFIC COMMITTEE

PREPARED BY: IOTC SECRETARIAT AND SC CHAIRPERSON¹, 23 NOVEMBER 2018

PURPOSE

To provide participants at the 21st Scientific Committee (SC) with an update on the progress made in implementing the recommendations from the previous SC meeting, and to provide alternative recommendations for the consideration and potential endorsement by participants as appropriate given any progress.

BACKGROUND

At the 20th Session of the SC, participants agreed on a series of actions to be taken by participants, CPCs, and the IOTC Secretariat on a range of issues. The subsequent table developed and agreed to by the SC was endorsed at its December 2017 meeting.

DISCUSSION

The Rules of Procedure of the Scientific Committee include the following seven core tasks, which are to be supported by the various Working Parties.

- a) recommend policies and procedures for the collection, processing, dissemination and analysis of fishery data;
- b) facilitate the exchange and critical review among scientists of information on research and operation of fisheries of relevance to the Commission;
- c) develop and coordinate cooperative research programmes involving Members of the Commission in support of fisheries management;
- d) assess and report to the Commission on the status of stocks of relevance to the Commission and the likely effects of further fishing and of different fishing patterns and intensities;
- e) formulate and report to the sub-commission, as appropriate, on recommendations concerning conservation, fisheries management and research, including consensus, majority and minority views;
- f) consider any matter referred to by the Commission;
- g) carry out other technical activities of relevance to the Commission.

Recalling that the SC, at its 16th Session adopted a set of reporting terminology SC16.07 (para. 23), which was subsequently endorsed by the Commission at its 18th Session in 2014 (S18, para 10), to further improve the clarity of information sharing from, and among the science bodies, the following two term levels should be noted when interpreting the Reports and [Appendix I](#) to this paper:

Level 1: From a subsidiary body of the Commission to the next level in the structure of the Commission:

RECOMMENDED, RECOMMENDATION: Any conclusion or request for an action to be undertaken, from a subsidiary body of the Commission (Committee or Working Party), which is to be formally provided to the next level in the structure of the Commission for its consideration/endorsement (e.g. from a Working Party to the Scientific Committee; from a Committee to the Commission). The intention is that the higher body will consider the recommended action for endorsement under its own mandate, if the subsidiary body does not already have the required mandate. Ideally this should be task specific and contain a timeframe for completion.

Level 2: From a subsidiary body of the Commission to a CPC, the IOTC Secretariat, or other body (not the Commission) to carry out a specified task:

REQUESTED: This term should only be used by a subsidiary body of the Commission if it does not wish to have the request formally adopted/endorsed by the next level in the structure of the Commission. For example, if a Committee wishes to seek additional input from a CPC on a particular topic, but does not wish to formalise the request beyond the mandate of the Committee, it may request that a set action be undertaken. Ideally this should be task specific and contain a timeframe for the completion.

¹ secretariat@iotc.org

The Recommendations endorsed by the SC at its 20th Session are contained in [Appendix I](#) for the consideration, review of progress, and revision/reiteration as necessary by the SC21. The SC participants are also encouraged to review the Progress on the Recommendations of Working Parties prepared by the Secretariat and presented to each Working Party for their consideration and revision (IOTC-2018-WPNT08-06, IOTC-2018-WPEB14-06, IOTC-2018-WPB16-06, IOTC-2018-WPM09-06, IOTC-2018-WPTT20-06, IOTC-2018-WPDCS14-06, IOTC-2016-WPTmT06-06).

RECOMMENDATION

That the SC:

- 1) **NOTE** paper IOTC–2018–SC21–11 which detailed the progress made in implementing the recommendations and the requests of the 20th Session of the Scientific Committee (SC20);
- 2) **AGREE** to consider and revise as necessary, the recommendations, and for these to be combined with any new recommendations arising from SC21.

APPENDICES

Appendix I: Progress made on the Recommendations of SC20

SC20 Report	SC recommendations	Update/Progress
SC20.08 Para. 13	<p>Previous Decisions of the Commission</p> <p>The SC RECOMMENDED that Resolution 15/02 Mandatory statistical reporting requirements for IOTC Contracting Parties and Cooperating Non-Contracting Parties (CPCs) be reviewed to include the mandatory reporting of zero catches for all species under the mandate of IOTC, in order to support the implementation of IOTC Resolution 16/06 On measures applicable in case of non fulfilment of reporting obligations in the IOTC.</p>	<p>Update: In 2018, the Commission reiterated its concerns about the lack and poor quality of data, and again strongly RECOMMENDED that CPCs take immediate steps to review, and where necessary, improve their performance with respect to the provision of data through improved compliance with Resolutions 15/01 On the recording of catch and effort data by fishing vessels in the IOTC area of competence, and 15/02 Mandatory statistical reporting requirements for IOTC contracting parties and cooperating non-contracting parties.</p> <p>Moreover, the Commission in 2018 adopted Resolution 18/07 On Measures Applicable in Case of Non-Fulfilment of Reporting Obligations in the IOTC including the mandatory reporting of zero catches.</p>
SC20.09 Para. 24 SC20.10 Para. 25	<p>National Reports from CPCs</p> <p>Noting that the Commission, at its 15th Session, expressed concern regarding the limited submission of National Reports to the SC, and stressed the importance of providing the reports by all CPCs, the SC RECOMMENDED that the Commission note that in 2017, 22 reports were provided by CPCs (23 in 2016, 26 in 2015, 26 in 2014) (Table 2).</p> <p>The SC RECOMMENDED that the Compliance Committee and Commission note the lack of compliance by 10 Contracting Parties (Members) and 2 Cooperating Non-Contracting Parties (CNCs) that did not submit a National Report to the Scientific Committee in 2017, noting that the Commission agreed that the submission of the annual reports to the Scientific Committee is mandatory</p>	<p>Update: In 2018, the Commission NOTED that 10 Contracting Parties and 2 Cooperating Non-Contracting Parties did not submit a National Report to the Scientific Committee in 2017, and issues with lack of data and poor quality data persist.</p> <p>Update: See above</p>
SC20.11 Para. 32 SC20.12 Para. 33	<p>WPNT Data Quality Issues</p> <p>The SC noted that compliance with data reporting obligations is particularly low for neritic tuna species, despite the importance of scientific data for stock assessment, and REQUESTED CPCs do their best to collect data and comply with data reporting requirements adopted by the IOTC. The SC further RECOMMENDED that mechanisms are developed by the Commission to improve current scientific advice by encouraging CPCs to comply with their data recording and reporting requirements.</p> <p>Noting a number of long-standing data reporting or data quality issues that severely impact the assessment of neritic species, the SC RECOMMENDED that funds be made available to the IOTC Secretariat (either through the IOTC Regular Budget or from external sources) dedicated to capacity building activities, or data compliance and support missions, aimed at</p>	<p>Update: At its 22nd session, the Commission EXPRESSED further concern about the overall lack of information on neritic tunas, strongly ENCOURAGED the coastal States to improve data collection and reporting, and develop measures to underpin sustainable management of IOTC neritic species.</p> <p>Update: : Ongoing</p> <p>i.) <u>I.R. Iran</u>: A Data Compliance and Support mission was conducted by the IOTC Secretariat in September 2017 to assist SHILAT with the reporting of mandatory statistical data (i.e., particularly</p>

<p>SC20.13 Para. 34</p>	<p>improving the availability of data for those countries identified as a priority for neritic species in terms of importance of catches. Specifically:</p> <ol style="list-style-type: none"> i. when sufficient data is recovered, or made available, that the IOTC Secretariat allocates funds to assist with the development of a standardized CPUE series for gillnets, in collaboration with IOTC members, including organization of a joint-workshop or hiring of an international consultant; ii. that the IOTC Secretariat formally communicates to India requesting the submission of mandatory datasets according to the requirements of IOTC Resolution 15/02 and, if necessary, conducts a Data Compliance and Support mission to facilitate the reporting of data to the IOTC; iii. that the IOTC Secretariat continues to support the work of WWF-Pakistan and the Government of Pakistan in the evaluation and reporting of the crew-based observer program, and facilitate the reporting of length data and catch-and-effort collected by the observer log-books <p>The SC AGREED that a new item on data mining and collation of historical and current catch data for these species should be added as a fundamental piece of work to be undertaken as a priority and RECOMMENDED that this work is supported by the IOTC Secretariat.</p>	<p>catch-and-effort and size frequency data), and also assess the availability of datasets for standardization of a CPUE series for gillnet fisheries.</p> <p>The mission resolved a number of long-standing issues with deficiencies in Iran's IOTC data submissions.</p> <p>Submission of catch-and-effort, size data, and nominal catches for the period 2014 - 2017 to IOTC by I.R. Iran, (and according to IOTC data reporting standards), has recently been received and is being processed.</p> <p>Agreement was also reached in terms of collaboration between the IOTC Secretariat and SHILAT in exploring the potential for a standardized gillnet series for the main neritic tunas (e.g., kawakawa and longtail tuna).</p> <p>ii.) <u>India</u>: A formal letter was sent from the IOTC Executive to the IOTC representative of India requesting the timely, and complete, submission of the mandatory data required by IOTC Resolution 15/02; also that data for previous years' also be submitted as a matter of priority.</p> <p>iii.) <u>Pakistan</u>: a Data Compliance and technical assistance mission is planned by the IOTC Secretariat for December 2019 to Pakistan to provide technical assistance on the validation of the revised historical catch series submitted by Pakistan, and also evaluation of the crew-based observer scheme. The IOTC Secretariat to provide a more comprehensive update during the WPNT08 meeting.</p> <p>Update: Ongoing as above</p>
<p>SC20.14 Para. 35</p>	<p>WPNT CPUE Standardisation</p> <p>Acknowledging the importance of indices of abundance for future stock assessments, the SC RECOMMENDED that the development of standardised CPUE series is explored, based on the guidelines developed by the SC in 2015 (<i>Guidelines for the presentation of CPUE standardisations and stock assessment models</i>²), with priority given to fleets which account for the largest catches of neritic tuna and tuna-like species (e.g., I.R. Iran, Indonesia, India, Pakistan, and Sri Lanka)..</p>	<p>Update: Following the Data Compliance and Support mission in September 2017 to I. R. Iran, the IOTC Secretariat planned a follow-up mission for May 2018 dedicated to exploring options for developing a standardised gillnet CPUE series (for neritic tunas). Unfortunately the mission was deferred until a later date, due to issues beyond the control of the IOTC Secretariat and I.R. Iran</p>
<p>SC20.15 Para. 42</p>	<p>WPNT Working party attendance and the MPF</p> <p>The SC RECOMMENDED that the Commission note the following:</p>	<p>Update: Ongoing</p>

² <http://iotc.org/documents/guidelines-presentation-cpue-standardisations-and-stock-assessment-models-1>

	<p>1) The participation of developing coastal state scientists to the WPNT has been consistently high following the adoption and implementation of the IOTC Meeting Participation Fund adopted by the Commission in 2010 (Resolution 10/05 On the establishment of a Meeting Participation Fund for developing IOTC Members and Non-Contracting Cooperating Parties), now incorporated into the IOTC Rules of Procedure (2014), as well as though the hosting of the WPNT in developing coastal State Contracting Parties (Members) of the Commission (Table 8).</p> <p>2) The continued success of the WPNT, at least in the short term, appears heavily reliant on the provision of support via the MPF which was established primarily for the purposes of supporting scientists to attend and contribute to the work of the Scientific Committee and its Working Parties.</p> <p>3) The MPF should be utilised so as to ensure that all developing Contracting Parties of the Commission are able to attend the WPNT meeting, as neritic tunas are very important resources for many of the coastal countries of the Indian Ocean..</p>	
SC20.16 Para. 44	<p>Billfish IOTC Resolutions</p> <p>The SC recalled its previous RECOMMENDATION that on the next revision of the IOTC Agreement, the shortbill spearfish (<i>Tetrapturus angustirostris</i>) be included as an IOTC species.</p>	<p>Update: Ongoing</p> <p>2018 WPB16 repeated this RECOMMENDATION as no actions were taken by Commission in its 2018 meeting.</p>
SC20.17 Para. 49	<p>Billfish species identification</p> <p>The SC AGREED on the importance of the hard, waterproof copies of the billfish IOTC species identification guides for observers and port samplers, and again RECOMMENDED that funds are allocated for further printing of the species ID guides for distribution to sports fishing clubs and recreational fisheries to improve the quality of data reported, and that additional funds be provided for the translation of these into the priority languages identified by the SC.</p>	<p>Update: Ongoing</p> <p>Funds from the IOTC regular budget and external sources have been obtained, however, printing has been delayed due the new requirement to process the document through the FAO publications approval system and an issue that subsequently arose on image ownership. The latter issue has been resolved and work is proceeding.</p>
SC20.18 Para. 55	<p>Swordfish stock assessment and MSE</p> <p>The SC noted that the next step of the swordfish MSE is to finalize the OM and present the results to the TCMP02 within the current resource constraints (e.g., staff time and travelling). Noting that the Commission considers the development of an MSE for swordfish to be a high priority activity, the SC RECOMMENDED that this is reflected in the 2019 budget of the Commission.</p>	<p>Update: Funds were allocated to the Swordfish MSE through an EU grant. This facilitated a workshop and an SC document (IOTC-2018-SC21-12)</p>
SC20.19 Para. 58	<p>Resolution 15/05 conservation measures for billfish</p> <p>The SC noted that catches for Black Marlin, Blue Marlin, and Striped Marlin have increased in 2016 (and 2015) from the average level of 2009-2014 as observed in Appendix VIa. The catch in 2016 for Blue marlin was 3,510 t higher (27 % larger) than the average 2009-2014, 4,286 t larger (32 %) for Black marlin and 1,398 (36 %) for Striped marlin. Considering the status of these stocks the SC urgently RECOMMENDED that measures are agreed to recover the status of the stock of the three marlin species covered by Resolution 15/05 as per the management advice given in the Executive Summaries.</p>	<p>Update: The Commission adopted resolution 18/05 <i>On management measures for the conservation of billfish, striped marlin, black marlin, blue marlin and Indo-Pacific sailfish</i>.</p>

<p>SC20.20 Para. 61</p>	<p>Evaluation of the mitigation measures contained in Resolution 13/06 for Oceanic whitetip shark</p> <p>The SC noted the ongoing compliance issue for those CPCs reporting nominal catch of oceanic whitetip sharks and RECOMMENDED that the Compliance Committee investigate these reported catches further and report the findings to the Commission.</p>	<p>Update: The Commission NOTED the information provided by the SC that there continues to be catches of oceanic whitetip shark in the IOTC Area, although prohibited as per Resolution 13/06</p>
<p>SC20.21 Para. 62</p>	<p>Longline hook identification guide</p> <p>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 reiterated its previous RECOMMENDATION (SC19.16; para. 55 of IOTC-2016-SC19-R) that the Commission allocate funds in the 2018 IOTC Budget to develop an identification guide for fishing hooks and pelagic fishing gears used in IOTC fisheries</p>	<p>Update: Ongoing US\$15,000 in the IOTC Research Budget for identification cards has been allocated to this activity.</p>
<p>SC20.22 Para. 63</p>	<p>CPUE Collaborative study of shark CPUE from multiple Indian Ocean longline fleets</p> <p>Noting the conflicting patterns in blue shark CPUE derived from different Indian Ocean longline fleets and considering the success of using joint analysis of operational catch and effort data to resolve such conflicts in other Working Parties, the SC RECOMMENDED initiating work on joint analysis of operational catch and effort data from multiple fleets, to further develop methods and to provide indices of abundance for sharks of interest to the IOTC. A consultant should be considered to conduct such work for a budget of around EUR45, 000.</p>	<p>Update: Pending. The consultant specializing in joint CPUE analysis is not available for the 2019 period, but will be engaged in the future.</p>
<p>SC20.23 Para. 67</p>	<p>Review of mitigation measures in Resolution 12/04</p> <p>Noting the findings of the Pacific workshop regarding the effectiveness of large circle hooks, finfish bait and the removal of the first and/or second hooks next to the floats for mitigating sea turtle interactions and mortalities in Pacific longline fisheries, the SC AGREED that further consideration of these mitigation techniques for Indian Ocean fisheries is warranted. Such a study should attempt to develop findings regarding the consequences of various mitigation techniques, primarily with regard to impacts on target and non-turtle bycatch species catch rates, to the extent possible based on data availability and quality. The SC therefore RECOMMENDED that the potential for a similar workshop to be held in the Indian Ocean is explored with potential funding from the Commission and/or from the Common Oceans ABNJ Tuna Project. The SC noted this is included in the WPEB workplan and REQUESTED the WPEB Chairperson work with the Secretariat to pursue this idea further with potential participants and funding sources.</p>	<p>Update: Pending. This is included in the workplan of the WPEB but no definitive steps?? are specified. This is being taken up with the Common Oceans ABNJ Tuna Project</p>
<p>SC20.24 Para. 69</p>	<p>Status of development and implementation of National Plans of Action for seabirds and sharks, and implementation of the FAO guidelines to reduce marine turtle mortality in fishing operations</p> <p>The SC RECOMMENDED that the Commission note the current status of development and implementation of National Plans of Action (NPOAs) for sharks and seabirds, and the implementation of the FAO guidelines to reduce marine turtle mortality in fishing operations, by each CPC as provided in Appendix V, recalling that the IPOA-Seabirds and IPOA-Sharks</p>	<p>Update: Presented to and Noted at the S22 Commission meeting.</p>

	were adopted by the FAO in 1999 and 2000, respectively, and required the development of NPOAs.	
SC20.25 Para. 70	<p>Update: Ecosystem Based Fisheries Management (EBFM) joint meeting of tRFMOs in 2016</p> <p>The SC noted the need for training and capacity building as the first step to moving forward with developing goals and strategies for the implementation of EBFM and therefore RECOMMENDED that a workshop is held to explain the key elements of EBFM so that a plan for implementation of EBFM in the IOTC Area of Competence can be developed by 2019.</p>	<p>Update: There is a possibility that a joint tRFMO meeting will be held in 2019 or 2020. This will be clarified with the Common Oceans ABNJ Tuna Project who funded the last meeting, and with ICCAT, who chaired it.</p> <p>2018 WPEB included in its workplan the organization of a workshop to progress on EBFM for early 2019.</p>
SC20.26 Para. 78	<p>Review of new information on the status of bigeye tuna: Nominal and standardised CPUE indices</p> <p>The SC acknowledged the efficiency value of making the operational logbook data available to appropriate analysts outside of the responsible CPCs, and RECOMMENDED that high level arrangements for sharing and confidentiality should be pursued. Noting the confidentiality issues with some of the datasets, the SC REQUESTED that the IOTC Secretariat and main stakeholders explore options to facilitate future data sharing agreements which, once in place, may not necessitate face-to-face meetings and could instead include remote processes</p>	<p>Update: The IOTC Secretariat explored with Japan the possibilities of using data access methods that maintain confidentiality and allow for more substantial analyses of the operational-level longline data held by Japan (a formal letter was communicated to Fisheries Agency of Japan in February 2018, IOTC REF: 6871). Japan has subsequently indicated that they would like to maintain the current arrangement of the data-sharing for the collaborative CPUE analysis.</p>
SC20.27 Para. 79	<p>The SC RECOMMENDED that the joint longline CPUE standardization for tropical tunas should continue, and that further development work should be assigned a high priority. Acknowledging that the law of diminishing returns will affect similar future analyses, the SC suggested that immediate priorities should focus on the following areas:</p> <ul style="list-style-type: none">• develop joint CPUE indices for other IOTC species (i.e., billfish and sharks);• explore possibilities for including CPUE data provided by other IOTC CPCs (particularly coastal fisheries);• identify a unified approach for species targeting using simulation testing (for example, the value of cluster analysis is clear in the temperate regions, but less so in tropical regions);• recover vessel identification details from historical data;• further develop the work on time-area interactions. Include a detailed examination of catch rates and related data in the piracy area, comparing pre-piracy and post-piracy effects. Potentially also consider the effects of localised depletion and renewal processes on catch rates.• conduct further analyses to explore 1977 discontinuity (other oceans);• develop an Indian Ocean CPUE reference manual for practitioners to use <p>explore other density probability functions to improve model fit.</p>	<p>Update: This is being addressed through an expert consultancy and the update on this work was presented to the WPTT20 (IOTC-2018-WPTT20-35)</p>

SC20.28 Para. 88	<i>Skipjack stock assessment</i> The SC noted that catches of skipjack in recent years are close to the recommended annual catch limit from the HCR, and RECOMMENDED that the Commission encourage CPCs to closely monitor catches of skipjack tuna to ensure that the integrity of the catch limit is maintained.	Update: Ongoing 2018 WPTT made a similar RECOMMENDATION to ensure that 2018-2020 catches do not exceed the catch limit.
SC20.29 Para. 91	<i>Review of data available at the IOTC Secretariat for temperate tuna species</i> The SC RECOMMENDED that funding be allocated for the further development of the combined joint CPUE series which incorporates the standardized indices of abundance for Japan, Republic of Korea, and Taiwan,China, and that an update is provided at the next WPTmT meeting prior to the next stock assessment of albacore.	Update: A consultant is being engaged to provide this analysis to the 2019 WPTmT data preparatory meeting.
SC20.30 Para. 92	<i>New information on biology, ecology, fisheries and environmental data relating to temperate tunas</i> Noting the general paucity of biological indicators available from the Indian Ocean, and particularly the lack of age-specific maturity as a primary source of uncertainty in the stock assessment of albacore tuna, the SC recalled its previous RECOMMENDATION that a study on the growth curve of albacore tuna in the Indian Ocean be given a high priority in the SC Program of Work and that the study is completed prior to the next meeting of the WPTmT scheduled for 2019.	Update: This is being addressed through an EU Grant and the results of the analysis will be provided to the 2019 WPTmT data preparatory meeting.
SC20.31 Para. 100	<i>Update on the status of the joint CPUE indices (yellowfin tuna, bigeye tuna & albacore)</i> The SC recognized the importance of normalizing these procedures and approaches into the various Working Party stock assessments making use of longline catch rate indices, ENDORSED such joint analyses and RECOMMENDED these continue into the future as a normal course of business. It was noted that additional time for more detailed analysis is still needed and SC REQUESTED that methods to increase analysis time, such as the use of secure, cloud-based data exchange and increased use of electronic communication between analysts be investigated.	Update: This is being addressed through an expert consultancy and the update on this work was presented to the WPTT20 (IOTC–2018–WPTT20–35).
SC20.32 Para. 101	The SC congratulated the WPM for the investigation of catchability/selectivity changes and spatial size patterns of bigeye and yellowfin tuna in the early years of the Japanese longline fishery and AGREED that this work is important in terms of improving understanding of the trends in CPUE. Noting that various issues have been identified that could be explored further, the SC RECOMMENDED that this work is continued	Update: [Ongoing] This work could be continued by the national scientists.
SC20.33 Para. 102	<i>Priorities for future development of the joint CPUE indices</i> The SC noted that a substantial amount of work has already been completed for the tropical tunas and that it may be more worthwhile to focus on some other species for which this approach would be useful. The SC therefore RECOMMENDED that a similar joint analysis approach is explored for key IOTC billfish and shark species.	Update: This was discussed at both the WPB and WPEB and the work is scheduled for the future pending the availability of the independent expert
SC20.34 Para. 106	<i>Presentation of stock status advice for data limited stocks</i>	Update: Funding has been secured for the proposed study from an EU grant and it will commence in 2019.

	(para. 106) The SC AGREED that work on the presentation of stock status advice for data limited stocks will need to be carried out inter-sessionally, and that this will require some level of preparation and planning. The SC REQUESTED the WPM Chairperson liaise with the Chairs of the species WPs (WPNT and WPB) in order to draft a study proposal on this issue and RECOMMENDED the Commission allocates funding to this project.	
SC20.35 Para. 112	WPDCS ROS E-reporting and E-monitoring projects The SC RECOMMENDED that a data exchange be implemented between existing software formats used for the collection of observer data by CPCs (e.g., ObServe), and the IOTC Regional Observer Database, to facilitate the transfer of historical observer data to the IOTC database for future dissemination and analysis.	Update: Ongoing, see paper IOTC-2018-WPDCS-33
SC20.36 Para. 115	Resolution 11/04 On a Regional Observer Scheme requests the submission of a report after each trip but the SC RECOMMENDED that on the next revision of the Resolution, this should be amended to request the submission of data in an electronic format suitable for automated data extraction (including historic data) with a given deadline so that information from multiple trips can be provided.	Update: Ongoing. A proposal including the requirement to submit observer data in an electronic format was presented to 2018 Commission meeting but was not adopted.
SC20.37 Para. 118	WPDCS General discussion on data issues Acknowledging the substantial gaps in reporting of mandatory IOTC datasets by many CPCs to the IOTC Secretariat, which increases the uncertainty of stock assessments and management advice based on these data, the SC strongly RECOMMENDED the Commission strengthen the penalty mechanisms adopted in Resolution 16/06 On measures applicable in case of non-fulfilment of reporting obligations in the IOTC to improve compliance by CPCs in terms of the submission of basic fishery data in accordance with Resolution 15/01 and 15/02..	Update: The Commission in 2018 adopted Resolution 18/07 <i>On measures applicable in case of non-fulfilment of reporting obligations in the IOTC</i>
SC20.38 Para. 119	The SC noted the issues with the lack of data and problems of poor data quality that were identified throughout the Working Party reports and strongly RECOMMENDED that these issues are addressed through improved compliance with Resolutions <i>15/01 On the recording of catch and effort data by fishing vessels in the IOTC area of competence, and 15/02 Mandatory statistical reporting requirements for IOTC contracting parties and cooperating non-contracting parties.</i>	Update: In 2018, the Commission reiterated its concerns about the lack and poor quality of data, and again strongly RECOMMENDED that CPCs take immediate steps to review, and where necessary, improve their performance with respect to the provision of data through improved compliance with Resolutions 15/01 On the recording of catch and effort data by fishing vessels in the IOTC area of competence, and 15/02 Mandatory statistical reporting requirements for IOTC contracting parties and cooperating non-contracting parties
SC20.39 Para. 122	General - Data collection and capacity building The SC AGREED that, while external funding is helping the work of the Commission, funds allocated by the Commission to capacity building are still too low, considering the range of issues identified by the SC and its Working Parties, particularly in relation to the implementation of the Regional Observer Scheme and data collection and reporting for artisanal fisheries and RECOMMENDED that the Commission further increases the IOTC Capacity Building budget to fund these activities in the future..	Update: The Capacity Building fund was increased in 2018 from 2017.

SC20.40 Para. 124	<p>General - Invited Expert(s) at the WP meetings</p> <p>Given the importance of external peer review for working party meetings, the SC RECOMMENDED that the Commission continues to allocate sufficient budget for an invited expert to be regularly invited to all scientific WP meetings.</p>	Update: Invited experts attended all SC WP meetings in 2018
SC20.41 Para. 126	<p>General - Meeting participation fund</p> <p>The SC reiterated its RECOMMENDATION that the IOTC Rules of Procedure (2014), for the administration of the Meeting Participation Fund be modified so that applications are due not later than 60 days, and that the full Draft paper be submitted no later than 45 days before the start of the relevant meeting. The aim is to allow the Selection Panel to review the full paper rather than just the abstract, and provide guidance on areas for improvement, as well as the suitability of the application to receive funding using the IOTC MPF. The earlier submission dates would also assist with visa application procedures for candidates.</p>	Update: .No progress
SC20.42 Para. 127	<p>General – IOTC species identification guides: Tuna and tuna-like species</p> <p>The SC reiterated its RECOMMENDATION that the Commission allocates budget towards continuing the translation and printing of the IOTC species ID guides so that hard copies of the identification cards can continue to be printed as many CPCs scientific observers, both on board and port, still do not have smart phone technology/hardware access and need to have hard copies on board.</p>	Update: .Ongoing
SC20.43 Para. 128	<p>General - IOTC Secretariat staffing</p> <p>Noting the very heavy workload at the IOTC Secretariat and the ever increasing demands by the Commission and the Scientific Committee, and also the capacity to respond to requests for assistance by countries, the SC RECOMMENDED that the recommendation from the Performance Review PRIOTC02.07(g) is implemented, and that permanent staff of the IOTC Data and Science Section be increased by two (2) (1 x P4 and 1 x P3 level positions), supplemented by additional short-term consultants, to commence work by late-2018 or earlier, and that funding for these new positions should come from both the IOTC regular budget and from external sources to reduce the financial burden on the IOTC membership</p>	Update: The Science Manager joined the secretariat in July 2018 and a further P1 position is expected in January of 2019. A P4 science coordinator position was approved by the commission in 2018, but no budget was set aside for it during the 2018-2019 funding cycle.
SC20.45 Para. 150	<p>General - Outcomes of the IOTC and Joint T-RFMO FAD Working Group</p> <p>Noting that Resolution 17/08 provides a start date for the implementation of non-entangling FADs, but no end date, the SC RECOMMENDED that this Resolution is revised to include a date by which non-entangling FADs should be fully implemented.</p> <p><i>“To reduce the entanglement of sharks, marine turtles or any other species, the design and deployment of FADs shall be based on the principles set out in Annex III, which will be applied gradually from 2014” (Resolution 17/08, para. 13).</i></p>	Update: Ongoing
SC20.46 Para. 163	<p>General – Biodegradable FAD (BIOFAD) Project</p> <p>The SC noted the challenges in conducting studies on biodegradable FADs (for example the limit on the number of active FADs per purse seine vessel in the Indian Ocean that may</p>	Update: The Commission adopted Resolution 18/04 <i>On bioFAD experimental project</i> without special allocations for experimental FADs deployed.

	hinder the deployment of BIOFADs following experimental sampling designs, and also engagement with the fleet to deploy BIOFADs that may not be successful for fishing). Thus, the SC RECOMMENDED the Commission consider special allocations for experimental FADs deployed for the collection of scientific data for vessels willing to participate in biodegradable FAD testing under protocols reviewed and endorsed by the Scientific Committee.	
SC20.47 Para. 197	General – Implementation of the Regional Observer Scheme The SC therefore RECOMMENDED that the EMS standards presented for purse seine fisheries (IOTC-2016-SC19-15) are adopted and REQUESTED that draft standards are similarly proposed for the longline fleets by CPCs currently trialling and implementing EMS on these vessels and that draft standards are also developed for gillnet fleets through the ROS Pilot Project.	Update: In 2018 the Commission AGREED to defer IOTC-2018-S22-PropD and PropJ On a Regional Observer Scheme. However, work on minimum standards has continued and a workshop was held in 2018 and a document presented to the WPDCS (IOTC-2018-WPDCS14-35)
SC20.48 Para. 201	General – Progress on the Implementation of the Performance Review Panel The SC RECOMMENDED that the Commission note the updates on progress regarding Resolution 16/03, as provided at Appendix XXXIII.	Update: This is presented in document IOTC-2018-SC21-08
SC20.49 Para. 212	General – Consultants Noting the highly beneficial and relevant work done by IOTC stock assessment consultants in 2016 and in previous years, the SC RECOMMENDED that the engagement of consultants be continued for each coming year based on the Program of Work. Consultants will be hired to supplement the skill set available within the IOTC Secretariat and CPCs.	Update: Ongoing and this is being achieved through EU grants and the IOTC regular budget.
SC20.50 Para. 237	General – Template for Invited Experts Noting the recommendation of the IOTC Performance Review (PRIOTC02.02d), the SC AGREED that a comprehensive, formal external peer review is sometimes important for important or contentious assessments. Thus, the SC RECOMMENDED that a process is established and that the Commission allocates funding for external peer review of stock assessments to take place periodically, based on priorities identified by the SC, and REQUESTED that the Secretariat develop ToRs for these, with input from the SC Chair and Vice-Chair, and potentially based on a framework similar to that established for the Center for Independent Experts.	Update: Ongoing. This is being discussed between the SC chair and secretariat