# OUTCOMES OF THE 22nd SESSION OF THE SCIENTIFIC COMMITTEE

**PREPARED BY: IOTC SECRETARIAT, 01 JUNE 2020**

## PURPOSE

To inform participants at the 22nd Working Party on Tropical Tunas Data Preparatory meeting (WPTT22 (DP)) of the recommendations arising from the 22nd Session of the IOTC Scientific Committee (SC) held from 2 - 6 December 2019, specifically relating to the work of the WPTT.

## BACKGROUND

At the 22nd Session of the SC, the SC noted and considered the recommendations made by the WPTT in 2019 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 tropical tuna species.

Tropical tunas caught in the IOTC area of competence and under the WPTT mandate

| Common name | Species | Code |
|---|---|---|
| Bigeye tuna | *Thunnus obesus* | BET |
| Skipjack tuna | *Katsuwonus pelamis* | SKJ |
| Yellowfin tuna | *Thunnus albacares* | YFT |

The recommendations on the deficiencies in data collection, monitoring and reporting by CPCs in relation to tropical tunas will be discussed under agenda item 4 and in paper IOTC–2020–WPTT22(DP)–08 and are therefore not presented in this paper.

Based on the recommendations arising from the WPTT21, the SC22 adopted a set of recommendations, provide at Appendix A of this paper.

The recommendations contained in Appendix A will be provided to the Commission for consideration at its 24th Session to be held in November 2020.

In addition, the SC22 reviewed and endorsed a Program of Work (2020–2024) for the WPTT, including a revised assessment schedule, as detailed in Appendix B. A separate paper (IOTC–2020–WPTT22–09) will outline the review and development process for a *Program of Work* for the WPTT for the next five years.

## DISCUSSION

In addition to the recommendations outlined in Appendix A, the following extracts from the SC22 Report (2019) are provided here for the consideration and action of the WPTT22:

***Report of the 21st Session of the Working Party on Tropical Tunas (WPTT21)***

The SC **NOTED** the report of the 21st Session of the Working Party on Tropical Tunas (IOTC–2019–WPTT21–R), including the consolidated list of recommendations provided as an appendix to the report. The meeting was attended by 68 participants (cf. 57 in 2018), including 13 recipients of the MPF (cf. 7 in 2018).

The SC **NOTED** that the change in the methodology used for the production of catch statistics by EU,Spain has resulted in a large increase in the reported bigeye catches in 2018. This increase was considered implausible by the WPTT. The SC **NOTED** that the WPTT adopted revised catch estimates for bigeye and yellowfin tuna in 2018 (based on the purse seine species composition in 2017) for use in the stock assessments for these species. The method for producing the revised catch estimates was fully documented and discussed by the WPDCS15.

***Bigeye tuna stock assessment and development of management advice***

The SC NOTED that the 2019 bigeye tuna assessment (using Stock Synthesis) concluded that the stock is not overfished but is subject to overfishing. The SC further **NOTED** that a continued decline of the CPUE from the main longline fleets

and the recent increase in fishing pressure on the juvenile component of the population by the purse seine fleet have resulted in more pessimistic estimates of stock status compared to the previous assessment

The SC **NOTED** that the 2019 bigeye tuna stock assessment captured structural uncertainty through a grid of 18 models covering stock recruitment, tag weighting and selectivity assumptions, and statistical uncertainty was also incorporated into the estimates of stock status by utilising a resampling technique which was originally developed for the recent ICCAT bigeye tuna assessment.

The SC **NOTED** paper IOTC–2019–SC22–INF03 which provided a review by the invited scientific expert to WPTT21 of the 2019 bigeye and yellowfin tuna stock assessments, including the following abstract provided by the author:

> *"Different approaches were examined for assessing YFT & BET in 2019. A large effort was made to address issues identified in 2018 and the analysts should be commended on that. With respect to YFT, assessment examined in 2019, substantial issues relating to data quality were examined. Various assessment methodologies were examined and concluded that the stock continued to remain overfished; this includes a continuity analysis from 2018; however few models did not indicate overfishing trajectories were present, but more time needs to be spent examining these models, and weighting issues across models, and the most appropriate use of tagging information Some diagnostics indicate that information content in indices and length composition is limited and fail under numerous hypothesis examined (runs test and hindcasting tests)."* See document for full abstract

The SC **NOTED** that the report by the invited scientific expert provides guidance on how future assessments for yellowfin and bigeye tunas might be improved. The SC REQUESTED the Secretariat to work with the Chair of the WPTT and the relevant assessment modellers to consider the salient points raised in the expert review for use in the next assessment for these species

***Yellowfin tuna assessment update***

The SC **NOTED** paper IOTC–2019–SC22–INF01 which provided an update on the state of the development of the workplan to improve the current assessment of yellowfin tuna, including the following abstract provided by the author:

> *"In 2018, the IOTC Scientific Committee (SC) adopted a workplan to reduce the uncertainties of the current stock assessment of Indian Ocean yellowfin tuna. In 2019, several tasks of the workplan have been addressed and reported to the 21st Working Party of Tropical Tunas (WPTT). However, the WPTT agreed that the progress on the workplan was insufficient to provide new management advice in 2019. The main reasons for this are the complexity of the endeavour, the lack of agreement on key model aspects and time constraints for a thorough examination of the new model during the WPTT meeting. However, the WPTT acknowledged the substantial amount of work conducted to improve the yellowfin assessment and requested that the Chair of the WPTT coordinates the full documentation of the work conducted inter-seasonally and during the WPTT and the tasks that still need to be addressed, to be presented to the SC in 2019. In this document, we summarise the progress of the different tasks of the workplan and identify paths to continue reducing the existing uncertainties on the dynamics of Indian Ocean yellowfin tuna.)".*

The SC **RECALLED** that the full yellowfin stock assessment conducted in 2018 concluded that the stock is overfished and is subject to overfishing. The SC further **RECALLED** that the assessment was considered insufficient to cover the full range of uncertainty inherent in the data as well as in the model assumptions. As such a yellowfin workplan was initiated to reduce the uncertainty and improve the predictive capability of the assessment model to allow the SC to make more robust management advice.

The SC **NOTED** that some aspects of the data uncertainty covered in the yellowfin workplan (e.g. historical catch by acritical fleets) can be applied to most IOTC species, while other aspects of uncertainty (e.g. the utility of IO-RTTP tagging data and the longline size frequency data) were mostly relevant to the tropical tuna.

The SC **NOTED** that the yellowfin workplan focused on improving the current SS3 model which was scrutinized in more detail by the WPTT. Although simpler biomass dynamic models (e.g. BDM) were also investigated, they were mainly used to explore alternative model options and have not been used by the WPTT for providing management advice. The SC further **NOTED** that in case of tropical tuna, some of the nuances of the populations or fishery dynamics (e.g. changes in selectivity over time) were better captured by models with a finer population structure.

The SC **NOTED** that although the considerable progress has been a made in advancing the array of tasks under the yellowfin workplan, the WPTT did not consider the revised model(s) was qualitatively different to the previous assessment, or sufficiently improved to justify its use for providing new management advice on catch limit.

The SC commended the yellowfin workplan steering committee and the assessment scientist for their efforts and excellent contributions to reduce the uncertainty of the yellowfin assessment model. The SC **WELCOMED** the future developments identified by the WPTT that are expected to improve the yellowfin assessment through intersessional work. The SC also **NOTED** that opportunities exist to further reduce data and parameter uncertainty, and to improve modelling choices, through internal IOTC projects (e.g. the EU funded projects on tag modelling and longline size review) and external workshops (e.g. 2020 Spatial Stock Assessment Methods workshop and CAPAM workshop on natural mortality). However, given the difficulty and scope of the work, there is no guarantee that a satisfactory full assessment can be achieved by 2020.

The SC **NOTED** that despite the progress that has been made to reduce the fishing pressure on the yellowfin stock, the gear groups that are subject to Resolution 18/01 (superseded by 1901) have not fully achieved the targeted catch reduction as set out by the resolution, and many of the fleets that are not subject to the catch reduction have increased their catches. The SC **AGREED** that one option to improve the reduction of yellowfin catches would be to apply the catch limit to all gears/fleets.

The SC **NOTED** that the implementation of a conservation and management measure on one species may have an adverse effect on other species e.g. the recent transition of fishing mode from free schools to FAD schools to avoid or reduce large yellowfin catches by the EU purse seine fleets have resulted in increased catches on juvenile bigeye and skipjack tuna. The SC **AGREED** that from the sustainability perspective, it is important that conservation and management measures should consider the overall effect on the impacted species as those fisheries are multi-species in nature.

The SC **NOTED** that the WPTT had begun preliminary discussions on alternative management options such as closed areas and closed season. The SC further **NOTED** although spatial catch-and-effort data (e.g. 5x5) are available to allow the effects of spatial/seasonal closure to be evaluated, the results will most likely depend on the accuracy of such data. Experiences from other t-RFMOs indicate that such studies were generally very difficult.

The SC **NOTED** that the IOTC Secretariat has implemented a detailed procedure to assist CPCs to calculate the fraction of the yellowfin catches that are subject to the catch reduction under Resolution 19/01 (documented in the WPDCS report). To this end, the SC **REQUESTED** CPCs to provide the fraction of their fleet catches that are subject to Resolution 19/01 when reporting yellowfin catches to the IOTC Secretariat.

***Joint tuna RFMO FAD working party meeting***

The SC **NOTED** document IOTC-2019-WPTT21-INF02 that provides the meeting report of the 2nd joint Tuna RFMO FAD working group meeting.

The SC **NOTED** that several important discussions took place at that meeting with regards to issues of common interest across the tuna RFMOs and that a list of recommendations to the RFMOs was discussed and adopted as in Appendix 6 of that report.

The SC **NOTED** that a primary concern for the IOTC is the definitions and terminology related to FAD fishing activities, and to work with other tRFMOs on a similar terminology for reporting purposes and to allow inter-ocean comparative analyses. The SC therefore **RECALLED** the recommendation made by the WPTT21 that the IOTC FAD Working Group, which to date has met only once, be reactivated with a clear mandate to discuss these and other IOTC FAD issues.

***Review of the statistical data available for skipjack tuna***

The SC **NOTED** that total catches in 2018 (607,701 t) were 30% higher than the catch limit generated by the Harvest Control Rule (470,029 t) which applies to the years 2018–2020, and that catches have increased over the past 3 years. The SC reiterated its **RECOMMENDATION** that the Commission urgently consider the need to monitor catches of skipjack in the 2019–2020 period to ensure catches do not exceed the limit.

***WPTT priorities and Program of Work***

The SC **NOTED** the WPTT Program of work, with high priorities being given to biological sampling, CPUE standardisations, fishery-independent monitoring including acoustic FAD monitoring, and MSE

Acknowledging that holding data preparatory meetings prior to stock assessments is generally considered to be best practice and in view of the success of the albacore tuna data preparatory meeting in 2019, the SC **AGREED** to explore the possibility of holding data preparatory meetings in addition to stock assessment meetings for the major IOTC species in 2020.

**RECOMMENDATION**

That the WPTT:

1) **NOTE** paper IOTC–2020–WPTT22(DP)–03 which outlined the main outcomes of the 22nd Session of the Scientific Committee, specifically related to the work of the WPTT.

2) **CONSIDER** how best to progress these issues at the present meeting.

**APPENDICES**

**Appendix A:** Consolidated set of recommendations of the 22nd Session of the Scientific Committee to the Commission, relevant to the Working Party on Tropical Tunas.

**Appendix B:** Assessment schedule for the WPTT 2020–2024.

## APPENDIX A
## CONSOLIDATED SET OF RECOMMENDATIONS OF THE 19TH SESSION OF THE SCIENTIFIC COMMITTEE (1–5 DECEMBER 2016) TO THE COMMISSION

**STATUS OF TUNA AND TUNA-LIKE RESOURCES IN THE INDIAN OCEAN AND ASSOCIATED SPECIES**

***Tuna – Highly migratory species***

SC22.01 (para. 117) The SC **RECOMMENDED** that the Commission note the management advice developed for each tropical and temperate tuna species as provided in the Executive Summary for each species, and the combined Kobe plot for the four species assigned a stock status in 2019 (Fig. 1):

- Albacore (*Thunnus alalunga*) – Appendix 8
- Bigeye tuna (*Thunnus obesus*) – Appendix 9
- Skipjack tuna (*Katsuwonus pelamis*) – Appendix 10
- Yellowfin tuna (*Thunnus albacares*) – Appendix 11

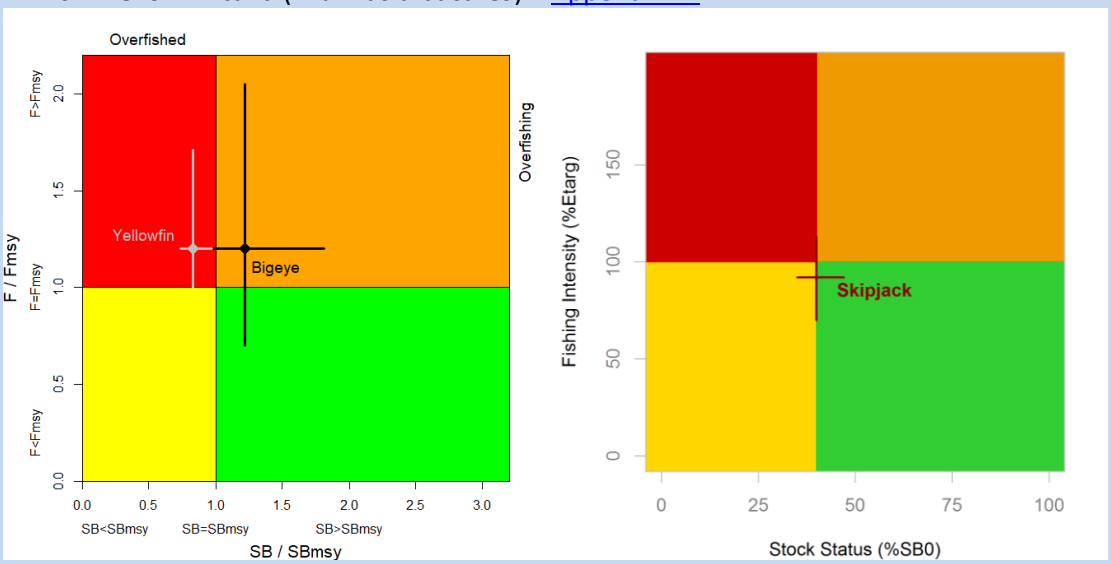


**Fig. 1**. (Left) Combined Kobe plot for bigeye tuna (black: 2019), and yellowfin tuna (grey: 2018) showing the estimates of current stock size (as SB) and current fishing mortality (F) in relation to optimal spawning stock size and optimal fishing mortality. (Right) Kobe plot for skipjack tuna showing the estimates of the current (2017) stock status. Cross bars illustrate the range of uncertainty from the model runs with a 80% CI.

**GENERAL RECOMMENDATIONS TO THE COMMISSION**

***Review of the statistical data available for skipjack tuna***

SC22.15 (para. 76) The SC **NOTED** that total catches in 2018 (607,701 t) were 30% higher than the catch limit generated by the Harvest Control Rule (470,029 t) which applies to the years 2018–2020, and that catches have increased over the past 3 years. The SC reiterated its **RECOMMENDATION** that the Commission urgently consider the need to monitor catches of skipjack in the 2019–2020 period to ensure catches do not exceed the limit.

***SUMMARY DISCUSSION OF MATTERS COMMON TO WORKING PARTIES (CAPACITY BUILDING ACTIVITIES – STOCK ASSESSMENT COURSE; CONNECTING SCIENCE AND MANAGEMENT, ETC.)***

***Invited Expert(s) at the WP meetings***

SC22.18 (para. 104) Given the importance of external independent review for working party meetings, the SC **RECOMMENDED** the Commission continues to allocate sufficient budget for invited scientific experts to be regularly invited to scientific working party meetings.

***Meeting participation fund***

SC22.19 (para. 105) 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.

***IOTC species identification guides: Tuna and tuna-like species***

SC22.20 (para. 106) 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.

***Chairpersons and Vice-Chairpersons of the SC and its subsidiary bodies***

SC22.21 (para. 107) The SC **RECOMMENDED** that the Commission note and endorse the Chairpersons and Vice-Chairpersons for the SC and its subsidiary bodies for the coming years, as provided in Appendix 7.

***IMPLEMENTATION OF THE REGIONAL OBSERVER SCHEME***

SC22.22 (para. 127) The SC **ACKNOWLEDGED** that estimation of ROS coverage for the purse seine fleets is adversely impacted by the lack of uniformity in reporting effort data to the IOTC Secretariat, and AGREED that this information, which is particularly useful to assess the performance of Resolution 11/04, should be further standardized. As such, the SC **RECOMMENDED** that all purse seine fleets reporting effort as fishing hours or fishing days begin to submit this information as 'number of sets' instead, in particular when fulfilling the reporting requirements of Resolution 15/02.

***PROGRESS ON THE IMPLEMENTATION OF THE RECOMMENDATIONS OF THE PERFORMANCE REVIEW PANEL***

SC22.23 (para. 133) The SC **RECOMMENDED** that the Commission note the updates on progress regarding Resolution 16/03, as provided at Appendix 33.

***PROGRAM OF WORK AND SCHEDULE OF WORKING PARTY AND SCIENTIFIC COMMITTEE MEETINGS***

***Consultants***

SC22.24 (para. 150) Noting the highly beneficial and relevant work done by IOTC stock assessment consultants 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.

***REVIEW OF THE DRAFT, AND ADOPTION OF THE REPORT OF THE 22ND SESSION OF THE SCIENTIFIC COMMITTEE***

SC22.25 (para. 160) The SC **RECOMMENDED** that the Commission consider the consolidated set of recommendations arising from SC22, provided at Appendix 38.

**APPENDIX B**

## SCHEDULE OF STOCK ASSESSMENTS FOR IOTC SPECIES AND SPECIES OF INTEREST FROM 2020–2024, AND FOR OTHER WORKING PARTY PRIORITIES

The SC **ADOPTED** a revised assessment schedule, ecological risk assessment and other core projects for 2020–24, 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 36. (IOTC–2019–SC22–R, Para. 148)

*Extract of the Report of the 22nd Session of the Scientific Committee*

*(IOTC–2019–SC22–R; Appendix 36, Pages 196 to 198)*

| ***Working Party on Tropical Tunas*** | | | | | |
|---|---|---|---|---|---|
| **Species** | **2020** | **2021** | **2022** | **2023** | **2024** |
| Bigeye tuna | Indicators | Indicators | **Full assessment** | Indicators | Indicators |
| Skipjack tuna | **Full assessment** | Indicators | Indicators | **Full assessment** | Indicators |
| Yellowfin tuna | Indicators | **Full assessment** | Indicators | Indicators | **Full Assessment** |

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