

## OUTCOMES OF THE 22<sup>nd</sup>, 23<sup>rd</sup> and 24<sup>th</sup> SESSIONS OF THE SCIENTIFIC COMMITTEE

PREPARED BY: IOTC SECRETARIAT, 15 MARCH 2022

### PURPOSE

To inform participants at the 8<sup>th</sup> Working Party on Temperate Tunas (WPTmT08(DP)) of the recommendations arising from the 22<sup>nd</sup>, 23<sup>rd</sup> and 24<sup>th</sup> Sessions of the IOTC Scientific Committee (SC), with the latter held from 6–10 December 2021, specifically relating to the work of the WPTmT.

### BACKGROUND

At the past 3 Sessions of the SC, the SC noted and considered the recommendations made by the WPTmT in 2019 (no WPTmT meetings in 2020 or 2021) that included requests to address the deficiencies in data collection, monitoring and reporting by CPCs, as well as to carry out targeted research on understanding stock structure of the albacore in the Indian Ocean and possible connectivity with the southern Atlantic Ocean albacore population.

The recommendations on the deficiencies in data collection, monitoring and reporting by CPCs in relation to temperate tunas will be discussed in paper IOTC–2022–WPTmT08(DP)–07 and are therefore not presented in this paper.

Based on the recommendations arising from the WPTmT07, the SC22 – SC24 adopted a set of recommendations, provided in [Appendix A](#) of this paper. These are all taken from SC24 as the advice has been the same since SC22 due to the lack of any additional WPTmT meetings in the interim.

The recommendations contained in [Appendix A](#) will be provided to the Commission for consideration at its 26<sup>th</sup> Session to be held in May 2022. A separate paper, IOTC–2022–WPTmT08(DP)–04 addresses the responses and actions of the Commission to the previous recommendations presented to the S25.

In addition, the SC22 (reiterated in SC23 and SC24) reviewed and endorsed a work plan for the WPTmT (*Research recommendation and priorities for IOTC Working Parties*), including a revised assessment schedule, as detailed in [Appendix B](#) and [Appendix C](#). A separate paper (IOTC–2022–WPTmT08(DP)–08) will outline the review and development process for a *Program of Work* for the WPTmT for the next five years.

### DISCUSSION

In addition to the recommendations outlined in [Appendix A](#), [Appendix B](#) and [Appendix C](#), and noting that the last WPTmT meeting report was considered in detail by the SC in 2019, the following extracts **from the SC22, SC23 and SC24 Reports (2019, 2020 and 2021 respectively)** are provided here for the consideration and action of the WPTmT07(DP):

#### From the SC22 report (2019):

##### *Albacore Tuna stock assessment*

(para. 79) The SC **NOTED** paper IOTC-2019-SC22-13 which provided information on uncertainties in the 2019 stock assessment for Indian Ocean albacore tuna and suggestions of further researches in 2020 for improving the assessment and providing management advice, including the following abstract provided by the author:

*“The stock status of Indian Ocean albacore tuna was assessed in WPTmT07 held in July 2019, and the stock status was recognized as “not overfished” but “subject to overfishing”. However, at the same time, the assessment result was regarded as subject to high uncertainties. By summarizing the main uncertainties in the assessment and observations of potential improvements both in fishery data and biological information, we strongly suggest conducting an assessment meeting for albacore tuna in 2020. This will not be a meeting for a new full assessment, but to update the 2019 assessments using new information on biology, most recent catch data, revised CPUE indices, improved recruitment estimates for projection and wider ranges of natural mortality and steepness”.*

(para. 80) The SC **NOTED** that the 2020 and draft 2021 calendars of working party meetings were approved by the Commission in June 2019, and the WPTmT is not scheduled to meet in either of these years. The SC **NOTED** the request by the chairs of the WPTmTs to hold an assessment meeting in April 2020 but **AGREED** that this would not be appropriate as the SC would not have an opportunity to review the WPTmT outputs prior to the Commission meeting in June 2020. The SC **AGREED** that it would be beneficial to hold an assessment preparatory meeting in 2020 or 2021; and to this end, the SC **RECOMMENDED** that the Commission consider approving an assessment preparatory meeting for the WPTmT in either of these years.

(para. 81) This meeting could, inter alia, consider how to reduce uncertainty in the assessment and prepare the albacore tuna assessment model for the inclusion of the most recent catch data, revised CPUE indices, improved recruitment estimates, and wider ranges of natural mortality and steepness. The SC **REQUESTED** the WPM, in 2020 and 2021 to provide any additional advice and guidance to the WPTmT on the nature and extent of the next assessment.

#### **From the SC23 report (2020):**

No new discussion

#### **From the SC24 Report (2021):**

No new discussion.

#### ***Executive summaries for albacore***

The SC also adopted a revised Executive Summary for albacore that can be found as appendices to the SC24 report, and which can be downloaded from the IOTC website in English and French:

English: <http://iotc.org/science/scientific-committee>

French: <http://iotc.org/fr/science/comit%C3%A9-scientifique>

#### **RECOMMENDATION**

That the WPTmT:

- 1) **NOTE** paper IOTC–2022–WPTmT08(DP)–03 which outlined the main outcomes of the 22<sup>nd</sup>, 23<sup>rd</sup> and 24<sup>th</sup> Sessions of the Scientific Committee, specifically related to the work of the WPTmT.
- 2) **CONSIDER** how best to progress these issues at the present meeting.

#### **APPENDICES**

**Appendix A:** Consolidated set of recommendations of the 24<sup>th</sup> Session of the Scientific Committee (6–10 December 2021) to the Commission, relevant to the Working Party on Temperate Tunas.

**Appendix B:** Research recommendations and priorities for the IOTC Working Party on Temperate Tunas (WPTmT).

**Appendix C:** Assessment schedule for the WPTmT 2012–2026.

## APPENDIX A

# **CONSOLIDATED SET OF RECOMMENDATIONS OF THE 21<sup>st</sup> SESSION OF THE SCIENTIFIC COMMITTEE (3-7 December 2018) TO THE COMMISSION RELEVANT TO THE WORKING PARTY ON NERITIC TUNAS**

*Extract of the Report of the 21<sup>st</sup> Session of the Scientific Committee*

*(IOTC-2018-SC21-R; Appendix 40, PAGES 242-248)*

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

### ***Tuna – Highly migratory species***

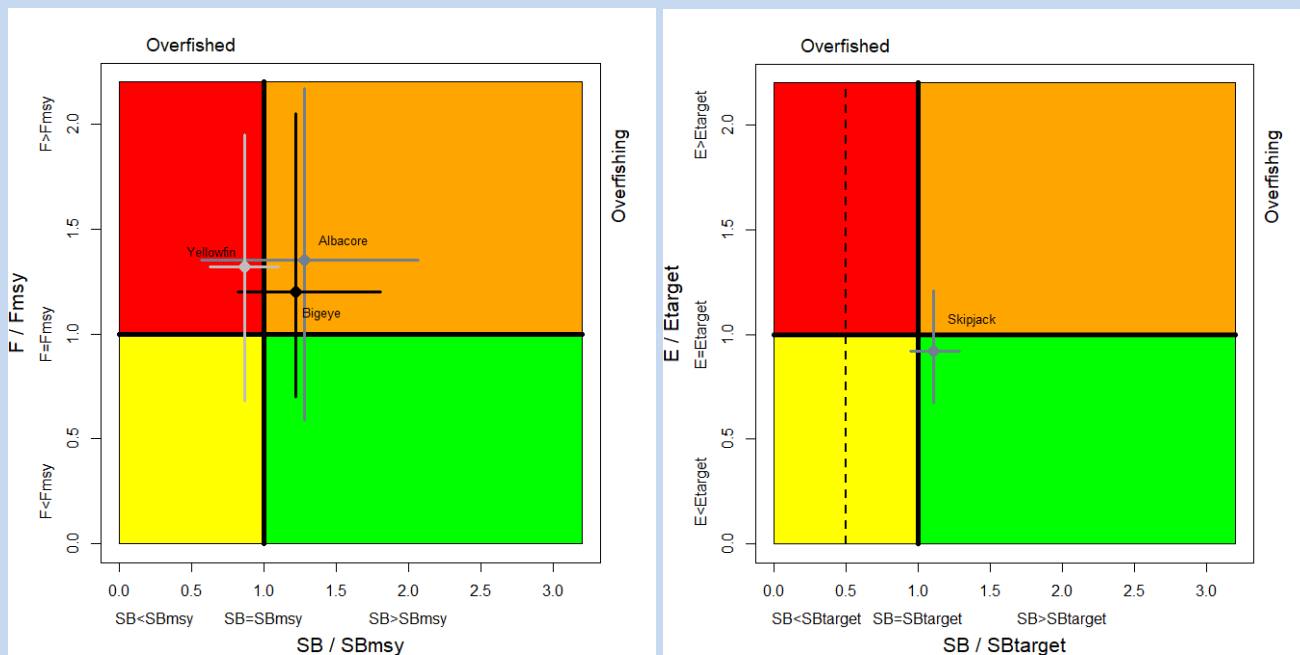
SC24.01 (para. 154) The SC **RECOMMENDED** that the Commission note the management advice developed for each tropical and temperate tuna species as provided in the Executive Summary for each species, and the combined Kobe plot for the four species assigned a stock status in 2021 (Fig. 1):

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: status in 2018, based on the assessment conducted in 2019), and yellowfin tuna (light grey: 2020, with assessment conducted in 2021) and albacore (dark grey: 2017 with assessment conducted in 2019) showing the estimates of current spawning biomass (SB) and current fishing mortality (F) in relation to optimal spawning stock size and optimal fishing mortality. (Right) Kobe plot for skipjack tuna (2019 with assessment conducted in 2020) showing the estimates of the current stock status (The dashed line indicates the limit reference point at 20%SB0 while SBtarget=0.4 SB0). Cross bars illustrate the range of uncertainty from the model runs with an 80% CI (95% CI for albacore).

## **GENERAL RECOMMENDATIONS TO THE COMMISSION**

### ***Report of the Working Party on Temperate Tunas (WPTmT)***

No WPTmT meeting was held in 2021.

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

SC24.23 (para. 145) 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***

SC24.24 (para. 147) 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***

SC24.25 (para. 148) 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 CPC scientific observers, both on board and at port, need to have hard copies.

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

SC24.26 (para. 150) 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](#).

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

***Consultants***

SC24.27 (para. 181) 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 24<sup>TH</sup> SESSION OF THE SCIENTIFIC COMMITTEE***

SC24.28 (para. 190) The SC **RECOMMENDED** that the Commission consider the consolidated set of recommendations arising from SC24, provided at [Appendix 38](#).

## APPENDIX B

### RESEARCH RECOMMENDATIONS AND PRIORITIES

*Extract of the Report of the 24<sup>th</sup> Session of the Scientific Committee*

*(IOTC–2022–SC24–R; Appendix 35b, PAGE 187 – 188)*

### WORKING PARTY ON TEMPERATE TUNAS PROGRAM OF WORK (2020–2024)

**Table 1.** Priority topics for obtaining the information necessary to develop stock status indicators for albacore in the Indian Ocean

Topic	Sub-topic and project	Priority	Est. budget and/or potential source	Timing				
				2020	2021	2022	2023	2024
1. Stock structure (connectivity and diversity)	1.1 Genetic research to determine the connectivity of albacore throughout its distribution and the effective population size.	Low (5)	1.3 m Euro: European Union					
2. Biological information (parameters for stock assessment)	2.1 Biological research (collaborative research to improve understanding of spatio-temporal patterns in age and growth and reproductive parameters)	High (1)	TBD					
	2.1.1 Age and growth studies: Uncertainty about the growth curve is a primary source of uncertainty in the stock assessment. A preliminary growth curve was developed in 2019, but there is substantial work to be done to ensure that growth curves include data from smaller size classes, and that spatio-temporal patterns in growth are quantified for use in the stock assessment. Collaborative sampling programs, involving a combination of observer- and port-based sampling, are required to ensure that		TBD					

		adequate samples are collected.							
		2..1.2 Quantitative biological studies are necessary for albacore throughout its range to determine spatio-temporal patterns in key reproductive parameters including sex ratio; female length- and age-at-maturity; spawning location, periodicity and frequency; batch fecundity at length and age; spawning fraction and overall reproductive potential, to inform future stock assessments.	TBD						
2	CPUE standardisation	3.1 Continue the development of standardized CPUE series for each albacore fishery for the Indian Ocean, with the aim of developing appropriate CPUE series for stock assessment purposes.	High (2)	CPUE Workshop (TBD)					
		3.1.1 Spatio-temporal structure and target changes need to be considered carefully, as fish density and targeting practices can vary in ways that affect CPUE indices. Developments may include changes to fishery spatial structure, new approaches for area weighting, time-area interactions in the model, and/or indices using VAST.		CPCs directly					
3	Size frequency data	5.1 Further investigate the size information provided by CPCs in order to better understand the stock dynamics and inputs into the assessment models. This is particularly necessary for the purse seine data.	High (3)	TBD					
5	Management strategy evaluation	6.1 Continue to collaborate with the WPM on input to the Management Strategy Evaluation (MSE) process.	High (4)	TBD					

## APPENDIX C

### ASSESSMENT SCHEDULE FOR IOTC WORKING PARTIES

*Extract of the Report of the 24<sup>th</sup> Session of the Scientific Committee*

*(IOTC–2021–SC24–R; Appendix 36, PAGE 219)*

The SC **ADOPTED** a revised assessment schedule, ecological risk assessment and other core projects for 2022–26, 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–2021–SC24–R).

<i>Working Party on Temperate Tunas</i>					
Species	2022	2023	2024	2025	2026
Albacore	Data preparatory Meeting	–	–	Data preparatory Meeting	
	Stock assessment meeting			Stock assessment meeting	