OUTCOMES OF THE 20th SESSION OF THE SCIENTIFIC COMMITTEE

PREPARED BY: IOTC SECRETARIAT, 26 JUNE 2018

PURPOSE

To inform participants at the 8th Working Party on Neritic Tunas (WPNT08) of the recommendations arising from the 20th Session of the IOTC Scientific Committee (SC) held from 30 November – 4 December 2017, specifically relating to the work of the WPNT.

BACKGROUND

At the 20th Session of the SC, the SC noted and considered the recommendations made by the WPNT in 2017 that included requests for CPCs to improve data collection and reporting, recommendation for developing mechanisms to improve scientific advice and for funds made available to capacity building activities, or data compliance and support missions.

IOTC code	English name	Scientific name
LOT	Longtail tuna	*Thunnus tonggol*
FRI	Frigate tuna	*Auxis thazard*
BLT	Bullet tuna	*Auxis rochei*
KAW	Kawakawa	*Euthynnus affinis*
COM	Narrow-barred Spanish mackerel	*Scomberomorus commerson*
GUT	Indo-Pacific king mackerel	*Scomberomorus guttatus*

Based on the recommendations arising from the WPNT07, the SC20 adopted a set of recommendations, provide at Appendix A of this paper.

The recommendations contained in Appendix A were provided to the Commission for consideration at its 22st Session held in May 2018. A separate paper, IOTC–2018–WPNT08–04 addresses the responses and actions of the Commission.

In addition, the SC20 reviewed and endorsed a Program of Work (2018–22) for the WPNT, including a revised stock assessment schedule, as detailed in Appendix B and Appendix C. A separate paper (IOTC–2018–WPNT08–08) will outline the review and development process for a Program of Work for the WPNT for the next five years.

DISCUSSION

In addition to the recommendations outlined in Appendix A, Appendix B and Appendix C, the SC made several other comments relevant to the WPNT, which participants are asked to consider:

Report of the 7th Session of the Working Party on Neritic Tunas (WPNT07)

Data quality issues

The SC **NOTED** the unusually high proportion of nominal catches of neritic tuna species that were either partially or fully estimated by the IOTC Secretariat in 2016 (e.g., ranging from 41% to 85% of catches depending on species), mainly due to issues with the recent data submissions from India which were submitted late, and also reported inconsistencies with catches compared to previous years.

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.

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 improving the availability of data for those countries identified as a priority for neritic species in terms of importance of catches. Specifically:

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.

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.

CPUE standardisation

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 (*Guidelines for the presentation of CPUE standardisations and stock assessment models*[1]), 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).

Meta-analysis of growth parameters

The SC **NOTED** the workshop on meta-analysis and population parameters that was held back-to-back with the WPNT07 meeting and provided new estimates of growth parameters for neritic species in the Indian Ocean.

Neritic tuna stock assessments and management advice

The SC **NOTED** that all of the neritic tuna stock assessments that have been used for management advice are based on data limited catch-only methods. These methods include information on growth but no abundance indices. MSY-based reference points are thus estimated under the assumption of a symmetric production curve (Schaefer).

The SC **NOTED** the large uncertainties involved when assessing stocks based on highly uncertain catch data with no abundance indices.

The SC **NOTED** that management advice was also provided for three species for which a stock assessment was not undertaken (three species were assessed and three species were not assessed). The management advice, suggests that catches are restricted to an average of the 2009-2015 reference period. This period was chosen based on the period in time in which other neritics tunas species were estimated to have reached MSY, however, the SC noted that in the period 2009-2015 the catches reached and breached MSY and, therefore, the SC **AGREED** to use the period 2009-2011 where the MSY was reached.

The SC **NOTED** that the assumption of a single stock structure under which these assessments are undertaken and that this is quite fundamental for these species and **AGREED** on the importance of the stock structure project for these species.

The SC **NOTED** the limited progress in updating a catch-only method each year and **AGREED** that a stock assessment should be conducted every three years while the intermediate years should be focussed on improving biological data and developing abundance indices. This is reflected in the updated plan of work in Appendix XXXVII.

Working party attendance and the MPF

The SC **RECOMMENDED** that the Commission note the following:

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.

[1] http://iotc.org/documents/guidelines-presentation-cpue-standardisations-and-stock-assessment-models-1

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.

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.

WPNT meeting schedule

The SC noted the serious issues with data limitations faced by the WPNT and the difficulty in progressing with the planned assessment schedule. Results produced based on the limited data are highly uncertain and, hence, progress in providing appropriate advice to the Commission has been relatively slow. Therefore, the SC **AGREED** to adjust the assessments to a triennial cycle with capacity building/data mining workshops to be held in the intermediate years, focussing on a particular priority topic. As CPUE analysis is the main priority in the current PoW, the SC further **AGREED** to focus solely on this issue in 2018 as per the new assessment schedule outlined in Appendix XXXVII.

(Extracts from SC20 Report, paras. 30 – 42 and 218).

Executive summaries for neritic tuna species

The SC also adopted revised Executive Summaries for each of the neritic tuna species that can be found as appendices to the SC20 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

These Executive Summaries are also available via the IOTC **Stock Status dashboard**:

www.iotc.org/science/status-summary-species-tuna-and-tuna-species-under-iotc-mandate-well-other-species-impacted-iotc

RECOMMENDATION/S

That the WPNT:

1) **NOTE** paper IOTC–2018–WPNT08–03 which outlined the main outcomes of the 20th Session of the Scientific Committee (SC20), specifically related to the work of the WPNT.
2) **CONSIDER** how best to progress these issues at the present meeting.

APPENDICES

Appendix A: Consolidated set of recommendations of the 20th Session of the Scientific Committee to the Commission, relevant to the Working Party on Neritic Tunas.
Appendix B: Program of work (2018–2022) for the IOTC Working Party on Neritic Tunas (WPNT).
Appendix C: Schedule of stock assessments for the WPNT (2018–22).

APPENDIX A

CONSOLIDATED SET OF RECOMMENDATIONS OF THE 20th SESSION OF THE SCIENTIFIC COMMITTEE (30 November – 4 December 2017) TO THE COMMISSION RELEVANT TO THE WORKING PARTY ON NERITIC TUNAS

Extract of the Report of the 20th Session of the Scientific Committee

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

Tuna and seerfish – Neritic species

SC20.03 (para. 178) The SC **RECOMMENDED** that the Commission note the management advice developed for each neritic tuna (and mackerel) species under the IOTC mandate, as provided in the Executive Summary for each species, and the combined Kobe plot for the three species assigned a stock status in 2017 (Fig. 5):

- Bullet tuna (*Auxis rochei*) – Appendix XVII
- Frigate tuna (*Auxis thazard*) – Appendix XVIII
- Kawakawa (*Euthynnus affinis*) – Appendix XIX
- Longtail tuna (*Thunnus tonggol*) – Appendix XX
- Indo-Pacific king mackerel (*Scomberomorus guttatus*) – Appendix XXI
- Narrow-barred Spanish mackerel (*Scomberomorus commerson*) – Appendix XXII

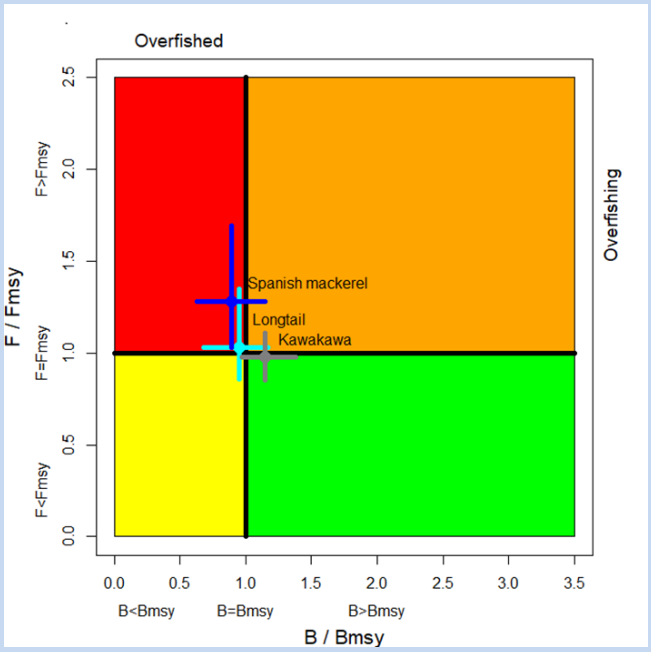

Fig. 5. Combined Kobe plot for longtail tuna (cyan: 2016), narrow-barred Spanish mackerel (dark blue: 2016), and kawakawa (white: 2015) showing the estimates of stock size (B) and current fishing mortality (F) in relation to MSY-based reference points. Numbers in brackets indicate the last year of data available at the time of the assessment. Cross bars illustrate the range of uncertainty from the model runs.

GENERAL RECOMMENDATIONS TO THE COMMISSION, TO SPECIFIC CPCs AND/OR OTHER BODIES

REPORT OF THE 7TH SESSION OF THE WORKING PARTY ON NERITIC TUNAS (WPNT07)

DATA QUALITY ISSUES

SC20.11 (para. 32) 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.

SC20.12 (para. 33) 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 improving the availability of data for those countries identified as a priority for neritic species in terms of importance of catches. Specifically:

iv. 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;

v. 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;

vi. 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

SC20.13 (para. 34) 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.

CPUE standardisation

SC20.14 (para. 35) 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 (*Guidelines for the presentation of CPUE standardisations and stock assessment models*[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).

Working party attendance and the MPF

SC20.15 (para. 42) The SC **RECOMMENDED** that the Commission note the following:

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).

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.

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.

Summary discussion of matters common to Working Parties

Data collection and capacity building

SC20.39 (para. 122) 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.

Invited Expert(s) at the WP meetings

SC20.40 (para. 124) Given the importance of external peer review for working party meetings, the SC

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

RECOMMENDED that the Commission continues to allocate sufficient budget for an invited expert to be regularly invited to all scientific WP meetings.

Meeting participation fund

SC20.41 (para. 126) 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

SC20.42 (para. 127) 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.

IOTC Secretariat staffing

SC20.43 (para. 128) 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.

IMPLEMENTATION OF THE REGIONAL OBSERVER SCHEME

SC20.47 (para. 197) 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.

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

SC20.48 (para. 201) The SC **RECOMMENDED** that the Commission note the updates on progress regarding Resolution 16/03, as provided at Appendix XXXIII.

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

Consultants

SC20.49 (para. 212) 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.

APPENDIX B

RESEARCH RECOMMENDATIONS AND PRIORITIES

Extract of the Report of the 20th Session of the Scientific Committee

(IOTC–2018–SC20–R; Appendix XXXVIb, PAGE 194)

The SC **NOTED** the proposed Program of Work and priorities for the Scientific Committee and each of the Working Parties and **AGREED** to a consolidated Program of Work as outlined in Appendix XXXIVa-g. The Chairpersons and Vice-Chairpersons of each working party shall ensure that the efforts of their working party are focused on the core areas contained within the appendix, taking into account any new research priorities identified by the Commission at its next Session.

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

Topic	Sub-topic and project	Priority	Est. budget and/or potential source	Timing				
				2018	2019	2020	2021	2022
1. Data mining and collation	Collate and characterise operational level data for the main neritic tuna fisheries in the Indian Ocean to investigate their suitability to be used for developing standardised CPUE indices.	High (1)	CPCs directly					
2. CPUE standardisation	Develop standardised CPUE series for the main fisheries for longtail, kawakawa, Indo-Pacific King mackerel and Spanish mackerel in the Indian Ocean, with the aim of developing CPUE series for stock assessment purposes.	High (2)	CPUE Workshop (TBD)					
	➢ Longtail tuna. Priority fleets: Iran (gillnet), Indonesia (line and gillnet), Malaysia (coastal purse seine), Pakistan, Oman, Thailand (coastal purse seine) and India (all gillnet).		CPCs directly					
	➢ Spanish mackerel. Priority fleets: Gillnet fisheries of Indonesia, India, Iran, Pakistan and Oman.		CPCs directly					
	➢ Kawakawa. Priority fleets: Indonesia (purse seine/ line), Malaysia (coastal purse seine), Thailand (coastal purse seine), India (gillnet), Iran (gillnet) and Pakistan (gillnet).		CPCs directly					
	➢ Indo-Pacific king mackerel. Priority fleets: Gillnet fisheries of India, Indonesia, Pakistan (gillnet/troll) and Iran.		CPCs directly					
3. Stock assessment / Stock indicators	Develop and compare multiple assessment approaches to determine stock status for longtail tuna, kawakawa and Spanish mackerel (SS3, ASPIC etc).	High (3)	IOTC Regular Budget					

	➢ The Weight-of-Evidence approach should be used to determine stock status, by building layers of partial evidence, such as CPUE indices combined with catch data, life-history parameters and yield-per recruit metrics, as well as the use of data poor assessment approaches. ➢ The following data should be collated and made available for collaborative analysis: 1) catch and effort by species and gear by landing site; 2) operational data: stratify this by vessel, month, and year for the development as an indicator of CPUE over time; and 3) operational data: collate other information on fishing techniques (i.e. area fished, gear specifics, depth, environmental condition (near shore, open ocean, etc.) and vessel size (length/horsepower).						
4. Biological information (parameters for stock assessment)	Age and growth research; Age-at-Maturity Quantitative biological studies are necessary for all neritic tunas throughout their range to determine key biological parameters including age-at-maturity and fecundity-at-age/length relationships, age-length keys, age and growth, which will be fed into future stock assessments.	High (4)					

5. Stock structure (connectivity)	Genetic research to determine the connectivity of neritic tunas throughout their distributions	High (5)	1.3 m Euro: European Union					
	➢ Determine the degree of shared stocks for all neritic tunas under the IOTC mandate in the Indian Ocean, so as to better equip the SC in providing management advice based on unit stocks delineated by geographic distribution and connectivity.		TBD					
	➢ Genetic research to determine the connectivity of neritic tunas throughout their distributions: Table 2b should be used as a starting point for research project development to delineate potential stock structure for neritic tunas in the Indian Ocean.							
	➢ The IOTC Secretariat to coordinate a review of the available literature on neritic tuna stock structure across the Indian Ocean to assess the data already available such as the location of spawning grounds to identify potential sub-stocks.							

APPENDIX C
ASSESSMENT SCHEDULE FOR IOTC SPECIES AND SPECIES OF INTEREST FROM 2018–2022

Extract of the Report of the 20th Session of the Scientific Committee

(IOTC–2017–SC20–R; Appendix XXXVII, PAGE 221)

The SC **ADOPTED** a revised assessment schedule, ecological risk assessment and other core projects for 2018–22, 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 *XXXVII* (IOTC–2017–SC20–R, Para. 221).

Species	2018	2019	2020	2021	2022
Working Party on Neritic Tunas					
Bullet tuna	CPUE workshop	Biological parameters	Data-poor assessment	Workshop on priority topic in PoW	Workshop on priority topic in PoW
Frigate tuna	CPUE workshop	Biological parameters	Data-poor assessment	Workshop on priority topic in PoW	Workshop on priority topic in PoW
Indo-Pacific king mackerel	CPUE workshop	Biological parameters	Data-poor assessment	Workshop on priority topic in PoW	Workshop on priority topic in PoW
Kawakawa	CPUE workshop	Biological parameters	**Assessment***	Workshop on priority topic in PoW	Workshop on priority topic in PoW
Longtail tuna	CPUE workshop	Biological parameters	**Assessment***	Workshop on priority topic in PoW	Workshop on priority topic in PoW
Narrow-barred Spanish mackerel	CPUE workshop	Biological parameters	**Assessment***	Workshop on priority topic in PoW	Workshop on priority topic in PoW

*Including data poor stock assessment methods; Note: the assessment schedule may be changed dependant on the annual review of fishery indicators, or SC and Commission requests.