
REVISION OF THE WPEB PROGRAM OF WORK (2023–2027)

PREPARED BY: IOTC SECRETARIAT & CHAIR, AUGUST 2022

PURPOSE

To ensure that participants at the 18th Working Party on Ecosystems and Bycatch (WPEB18) revise the Program of Work for the WPEB by taking into consideration the specific requests of the Commission and Scientific Committee.

BACKGROUND

Scientific Committee

At the 24th Session of the SC:

- (Para. 175) The SC **NOTED** IOTC–2021–SC24–08 which provided the SC with a proposed Program of Work for each of its working parties, including prioritisation of the elements requested by each working party.
- (Para. 176) The SC **NOTED** the proposed Program of Work and priorities for the SC and each of the working parties and **AGREED** to a consolidated Program of Work as outlined in [Appendix 35a-g](#) and in accordance with the IOTC Strategic Science Plan 2020-2024. The Chairpersons and Vice-Chairpersons of each working party will ensure that the efforts of their respective working parties 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.
- (Para. 178) The SC **AGREED** on the consolidated table of priorities across all working parties, as developed by each working party Chairperson, and **REQUESTED** that the IOTC Secretariat, in consultation with the Chairpersons and vice-Chairpersons of the SC and relevant working parties, develop ToRs for the specific projects to be carried out.
- (Para. 179) The SC **NOTED** that the consolidated table of priorities does not replace the full programme of work of each working party ([Appendix 35a-g](#)) and that adequate attention and focus should still be allocated to those activities where possible. The SC further **NOTED** that Table 3 has been developed by the SC and working party Chairs to provide more specific direction to the IOTC Secretariat and the SC Chair as to the priorities of the SC so that, if and when external funding becomes available intersessionally, it is possible to clearly prioritise across all working parties based on the objectives of the SC (as agreed in IOTC–2014–SC17–R, para. 179).
- (Para. 180) 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](#).

Commission

At Sessions of the Commission, Conservation and Management Measures adopted contained elements that call on the Scientific Committee, via the WPEB, to undertake specific tasks. These requests will need to be incorporated into a revised Program of Work for the WPEB:

Resolution 12/12 To prohibit the use of large-scale driftnets on the high seas in the IOTC area

(para. 1) The use of large-scale driftnets¹ on the high seas within the IOTC area of competence shall be prohibited.

(para. 6) The IOTC shall periodically assess whether additional measures should be adopted and implemented to ensure that large-scale driftnets are not used on the high seas in the IOTC area of competence. The first such assessment shall take place in 2013.

Resolution 11/04 On a regional observer scheme

(para. 15) The elements of the Observer Scheme, notably those regarding its coverage, are subject to review and revision, as appropriate, for application in 2012 and subsequent years. Basing on the experience of other Tuna RFMOs, the IOTC Scientific Committee will elaborate an observer working manual, a template to be used for reporting (including minimum data fields) and a training program.

Resolution 18/02 On Management Measures for the Conservation of Blue Shark Caught in Association with IOTC Fisheries

(para 5) CPCs are encouraged to undertake scientific research on blue shark that would provide information on key biological/ecological/behavioural characteristics, life-history, migrations, post-release survival and guidelines for safe release and identification of nursery grounds, as well as improving fishing practices. Such information shall be made available to the Working Party on Ecosystem and Bycatch and Scientific Committee through working documents and the national Annual Reports

(para 6) In light of the results of the next stock assessment of blue shark in 2021, the Scientific Committee shall provide advice, if possible, on options for candidate limit, threshold and target reference points for the conservation and management of this species in the IOTC Convention area.

(para 7) The Scientific Committee shall also provide advice, at the latest by 2021, on potential management options for ensuring long-term sustainability of the stock, such as mitigation measures to reduce the mortality of blue shark, improving selectivity of fishing gears, spatial/temporal closures or minimum conservation sizes.

Resolution 18/04 On BioFAD Experimental Project

(para 5) The Project Consortium will make available to the IOTC Scientific Committee the results of the project at the latest two months in advance of its 2020 meeting. The Scientific Committee will analyse the outcomes of the project and provide scientific advice on possible additional FAD management options for consideration by the Commission in 2021.

Resolution 19/02 On a FAD management plan

(para 5) A CPC may adopt a lower limit than the one set out in paragraph 4 for vessels flying its flag. Further, any CPC may adopt a lower limit for DFADs deployed in its EEZ than that stated in paragraph 4. The CPC shall review the adopted limit to ensure that such limit is not more than the limit fixed by the Commission.

(para 19) CPCs are encouraged to conduct trials using biodegradable materials to facilitate the transition to the use of only biodegradable material for DFADS construction by their flagged vessels. The results of such trials shall be presented to the Scientific Committee who shall continue to review research results on the

¹ “Large-scale driftnets” are defined as gillnets or other nets or a combination of nets that are more than 2.5 kilometres in length whose purpose is to enmesh, entrap, or entangle fish by drifting on the surface of, or in, the water column.

use of biodegradable material on FADs and shall provide specific recommendations to the Commission as appropriate.

(para 23) The IOTC Scientific Committee will analyse the information, when available, and provide scientific advice on additional FAD management options for consideration by the Commission, including recommendations on the number of FADs to be operated, the use of biodegradable materials in new and improved FADs design. When assessing the impact of FADs on the dynamic and distribution of targeted fish stocks and associated species and on the ecosystem, the IOTC Scientific Committee will, where relevant, use all available data on abandoned FADs (i.e., FADs without a beacon or which have drifted outside the fishing zone).

Resolution 19/03 On the conservation of mobulid species caught in association with fisheries in the IOTC Area of Competence

(para 11) CPCs, unless clearly demonstrate that intentional and/or incidental catches of mobulids do not occur in their fisheries, shall develop, with the assistance from the IOTC Secretariat where required, sampling plans for the monitoring of the mobulid rays catches by the subsistence and artisanal fisheries. The sampling plans, including their scientific and operational rationale, shall be reported in the national scientific reports to the Scientific Committee, starting in 2020, which will provide its advice on their soundness by 2021 at the latest. The sampling plans, where required, will be implemented by the CPCs from 2022 onward taking into account the Scientific Committee advice.

(para 13) The IOTC Scientific Committee shall review the status of *Mobula* spp. in the IOTC Area of Competence and provide management advice to the Commission in 2023 also to identify possible hot-spots for conservation and management of mobulids within and beyond EEZs. Moreover, the IOTC Scientific Committee is requested to provide, whenever considered adequate on the basis of evolving knowledge and scientific advice, further improvements to the handling procedures detailed in Annex 1.

Resolution 19/05 On a ban on discards of bigeye tuna, skipjack tuna, yellowfin tuna, and non-targeted species caught by purse seine vessels in the IOTC Area of Competence

(para 6) The IOTC Scientific Committee, the IOTC Working Party on Tropical Tunas, and the IOTC Working Party on Ecosystems and Bycatch shall as a matter of priority:

- a) act on its recommendation in the Report of the 18th Session of the IOTC Scientific Committee and undertake work to examine the benefits of retaining non-targeted species catches, other than those prohibited via IOTC Resolution, and present its recommendations to the 22nd Annual Session of the Commission. The work should take into account all species that are usually discarded on all major gears (i.e., purse-seines, longlines and gillnets), and should look at fisheries that take place both on the high seas and in coastal countries and the feasibility of both retraining on-board and processing of the associated landings.

On the Working Party of Ecosystems and Bycatch and the status of sharks

(para. 40) The Commission **NOTED** the status of sharks presented in the Scientific Committee report and **REQUESTED** the SC, via its Working Party on Ecosystems and Bycatch, to develop research plans for the species most vulnerable and/or data deficient (such as shortfin mako, oceanic whitetip), to inform future decisions on action required to address data deficiencies, declining stocks, and the overall need for improved management of interactions with those species in IOTC fisheries.

DISCUSSION

Participants at the WPEB18 are requested to consider the priorities set by the Commission via its Conservation and Management Measures, and the Scientific Committee, and revise its Program of Work to match those priorities.

RECOMMENDATION/S

That the WPEB:

- 1) **NOTE** paper IOTC–2022–WPEB18–10, which encouraged the WPEB to further develop and refine its Program of Work for 2022–2026 to align with the requests and directives from the Commission and Scientific Committee.

- 2) **RECOMMEND** a revised Program of Work for 2023–2027 to the Scientific Committee for its consideration and potential endorsement.

WORKING PARTY ON ECOSYSTEMS AND BYCATCH PROGRAM OF WORK (2022–2026)

The Program of Work consists of the following, noting that a timeline for implementation would be developed by the SC once it has agreed to the priority projects across all of its Working Parties:

- **Table 1:** Priority topics for obtaining the information necessary to develop stock status indicators for bycatch in the Indian Ocean; and
- **Table 2:** Stock assessment schedule.

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

Topic in order of priority	Sub-topic and project	Timing				
		2023	2024	2025	2026	2027
1. Stock structure (connectivity and diversity)	1.1 Genetic research to determine the connectivity of select shark species throughout their distribution (including in adjacent Pacific and Atlantic waters as appropriate) and the effective population size. This may include Next Generation Sequencing (NGS), Nuclear markers (i.e., microsatellite) as well as other components of close-kin mark recapture studies (CKMR).					
2. Biological and ecological information (incl. parameters for stock assessment)	2.1 Age and growth research (Priority species: blue shark (BSH), shortfin mako shark (SMA) and oceanic whitetip shark (OCS); silky shark (FAL))					
	2.1.1 CPCs to provide further research reports on shark biology, namely age and growth studies including through the use of vertebrae or other means, either from data collected through observer programs or other research programs. Research started in Sri Lanka. Could look at IOTC priority species					

<p>2.3 Reproduction research Priority species: blue shark (BSH), shortfin mako shark (SMA) and oceanic whitetip shark (OCS), and silky shark (FAL)</p>					
<p>2.4 Ecological Risk Assessment (cetaceans)</p>					
<p>3. Connectivity, movements, habitat use and post release mortality</p>	<p>Electronic tags (PSATs, SPOT, Splash MiniPAT) to assess the efficiency of management resolutions on non-retention species (BSH in LL, marine turtles and rays in GIL and PS, whale sharks) and to determine connectivity, movement rates and mortality estimates.</p>				

Other Future Research Requirements (not in order of priority)						
Topic	Sub-topic and project	2023	2024	2025	2026	2027
<p>1. Fisheries data collection</p>	<p>1.1 Historical data mining for the key species and IOTC fleets (e.g., as artisanal gillnet and longline coastal fisheries) including (Workshops – leader?):</p> <p>1.1.1 Capacity building of fisheries observers (including the provision of ID guides, training, etc. Fishing gear guides from SPC)</p> <p>1.1.2 Historical data mining for the key species, including the collection of information about catch, effort and spatial distribution of those species and fleets catching them</p> <p>1.2 Implementation of the Pilot Project (Resolution 16/04) for the Regional Observer Scheme</p>					

	1.2.1 Definition of minimum standards and development of a training package for the ROS to be reviewed and rolled out in voluntary CPCs (Sri Lanka, I.R. Iran, Tanzania)					
	1.2.2 Development of a Regional Observer database and population with historic observer data					
	1.2.3 Development, piloting and implementation of an electronic reporting tool to facilitate data reporting					
	1.2.4 Development and trial of Electronic Monitoring Systems for gillnet fleets					
	1.2.5 Port sampling protocols for artisanal fisheries					
	1.3 Review the status of manta and mobula rays and their interaction with IOTC fisheries. Evaluation of data availability and data gaps. Include ID guide revision and translation. ID guides to be updated with help of CPC scientists					
2. Bycatch mitigation measures	Undertake a series of gear specific workshops focusing on multi-taxa bycatch issues					
	Develop studies on bycatch mitigation measures (operational, technological aspects and best practices)					
	2.1 Sharks					
	a) Harmonise and finalise guidelines and protocols for safe handling and release of sharks and rays caught in IOTC fisheries					
	2.2 Sea turtles					
	2.2.1 Res. 12/04 (para. 11) Part I. The IOTC Scientific Committee shall request the IOTC Working Party on Ecosystems and Bycatch to:					
	a) Develop recommendations on appropriate mitigation measures for gillnet, longline and purse					

<p>seine fisheries in the IOTC area; [mostly completed for LL and PS]</p>					
<p>b) Develop regional standards covering data collection, data exchange and training</p>					
<p>2.2.2 Res. 12/04 (para. 17) The IOTC Scientific Committee shall annually review the information reported by CPCs pursuant to this measure and, as necessary, provide recommendations to the Commission on ways to strengthen efforts to reduce marine turtle interactions with IOTC fisheries.</p>					
<p>2.2.3 Regional workshop to review the effectiveness of marine turtle mitigation measures</p>					
<p>2.2.4 Harmonise and finalise guidelines and protocols for safe handling and release of sea turtles caught in IOTC fisheries</p>					
<p>2.3 Seabirds 2.3.1 Res. 12/06 (para. 8) The IOTC Scientific Committee, based notably on the work of the WPEB and information from CPCs, will analyse the impact of this Resolution on seabird bycatch no later than for the 2016 meeting of the Commission. It shall advise the Commission on any modifications that are required, based on experience to date of the operation of the Resolution and/or further international studies, research or advice on best practice on the issue, in order to make the Resolution more effective.</p>					

2.3.2 Bycatch assessment for seabirds taking into account the information from the various ongoing initiatives in the IO and adjacent oceans					
2.3.3 Study on cryptic mortality of seabirds in tuna LL fisheries.					
2.3.4 Study post release survival rates for seabirds and harmonise and finalise guidelines and protocols for safe handling and release of seabirds caught in IOTC fisheries					
2.4 Cetaceans					
2.4.1 Collate all data available on bycatch of key species interacting with all tuna fisheries in the IOTC area (tuna drift gillnets, longlines, purse seines)					
2.4.2 Collaborate with other organisations on the assessment of marine mammal abundance and collect data on marine mammal bycatch interactions with gillnets across the IOTC region					
2.4.3 Testing mitigation methods for cetacean bycatch in tuna drift gillnet fisheries					
2.4.4 Harmonise and finalise guidelines and protocols for safe handling and release of cetaceans caught in IOTC fisheries					
2.4.5. Intersessional meeting to discuss cetacean guidelines, ERA, Data gaps.					

3. CPUE standardisation / Stock Assessment / Other indicators	3.1 Develop standardised CPUE series for each key shark species and fishery in the Indian Ocean					
	3.1.1 Development of CPUE guidelines for standardisation of CPC data.					
	3.1.2 Blue shark: Priority fleets: TWN,CHN LL, EU,Spain LL, Japan LL; Indonesia LL; EU,Portugal LL					
	3.1.3 Shortfin mako shark: Priority fleets: Longline and Gillnet fleets					
	3.1.4 Oceanic whitetip shark: Priority fleets: Longline fleets; purse seine fleets					
	3.1.5 Silky shark: Priority fleets: Purse seine fleets					
	3.2 Joint CPUE standardization across the main LL fleets for silky shark, using detailed operational data					
	3.3 Stock assessment and other indicators					
4. Bycatch and discards	4.1 Review proposal on retention of non-targeted species					
	4.1.1 The Commission requested that the Scientific Committee review proposal IOTC–2014– S18–PropL Rev_1, and to make recommendations on the benefits of retaining non-targeted species catches, other than those prohibited via IOTC Resolutions, for consideration at the 19 th Session of the Commission. (S18 Report, para. 143). Noting the lack of expertise and resources at the WPEB and the short timeframe to fulfil this task, the SC RECOMMENDED that a consultant be hired to conduct this work and present the results at the next WPEB meeting. The following tasks, necessary to address this issue, should be considered for the terms of reference, taking into account all species that are usually discarded on all major gears					

<p>(i.e., purse-seines, longlines and gillnets), and fisheries that take place on the high seas and in coastal countries EEZs:</p>					
<p>i) Estimate species-specific quantities of discards to assess the importance and potential of this new product supply, integrating data available at the Secretariat from the regional observer programs,</p>					
<p>ii) Assess the species-specific percentage of discards that is captured dead versus alive, as well as the post-release mortality of species that are discarded alive, in order to estimate what will be the added fishing mortality to the populations, based on the best current information,</p> <p>iii) Assess the feasibility of full retention, taking into account the specificities of the fleets that operate with different gears and their fishing practices (e.g., transshipment, onboard storage capacity).</p>					
<p>iv) Assess the capacity of the landing port facilities to handle and process this catch.</p>					
<p>v) Assess the socio-economic impacts of retaining non-target species, including the feasibility to market those species that are usually not retained by those gears,</p>					
<p>vi) Assess the benefits in terms of improving the catch statistics through port-sampling programmes,</p>					

<p>vii) Evaluate the impacts of full retention on the conditions of work and data quality collected by onboard scientific observers, making sure that there is a strict distinction between scientific observer tasks and compliance issues.</p>					
<p>5. Ecosystems</p> <p>5.1 Develop a plan for Ecosystem Approach to Fisheries (EAF) approaches in the IOTC, in conjunction with the Common Oceans Tuna Project.</p> <p>5.1.2 Workshop for CPCs on continuing efforts to the development of an EAF including delineation of candidate eco regions within IOTC.</p> <p>5.1.3 Practical Implementation of EBFM with the development and testing of ecosystem report cards.</p> <p>5.1.4 Evaluation of EBFM plan in IOTC area of competence by the WPEB to review its elements components and make any corrective measures.</p> <p>5.2 Assessing the impacts of climate change and socio-economic factors on IOTC fisheries</p> <p>5.3 Evaluate alternative approaches to ERAs to assess ecological risk</p> <p>5.4 Progress on Climate webpage on IOTC website and liaise with WPDCS for technical implementation</p>					

Table 2. Draft: Assessment schedule for the IOTC Working Party on Ecosystems and Bycatch 2023–2027 (adapted from IOTC–2021–SC24–R).

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

Working Party on Ecosystems and Bycatch					
Species	2023	2024	2025	2026	2027
Blue shark	–	–	Data preparatory meeting Full assessment	-	–
Oceanic whitetip shark	–	Data preparation	Indicator analysis	-	Data preparation
Scalloped hammerhead shark	–	–	–	-	–
Shortfin mako shark		Data preparatory meeting Full assessment	–	-	Data preparatory meeting Full assessment
Silky shark	Assessment*	-	–	Assessment*	-
Bigeye thresher shark	-	–	–	Assessment*	–
Pelagic thresher shark	-	–	–	Assessment*	–
Porbeagle shark	Assessment*	–	–	-	–
Mobulid Rays	-	Interactions/ Indicators	–	-	Interactions/ Indicators
Marine turtles	Indicators	–	–	-	–
Seabirds	–	–	–	Review of mitigation measures in Res. 12/06	–
Marine Mammals	–	–	Review of mitigation measures	-	–
Ecosystem Based Fisheries Management (EBFM) approaches	ongoing	ongoing	ongoing	ongoing	ongoing