Food and Agriculture Organization of the United Nations

Indian Ocean Tuna Commission
Commission des Thons de l'Ocean Indien
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IOTC–2020–SC23–05 [E]

DRAFT: REPORT OF THE SECRETARIAT – ACTIVITES IN SUPPORT OF THE IOTC SCIENCE PROCESS IN 2020

PREPARED BY: IOTC SECRETARIAT, 03 NOVEMBER 2020

PURPOSE

To inform the Scientific Committee (SC) of work undertaken by the IOTC Secretariat in 2020 in support of the IOTC Science process, endorsed by the Commission.

DISCUSSION

Staffing

Fisheries Officer, Ms. Lauren Nelson, started at the IOTC Secretariat in May 2020.

Fisheries Officer, Dr Emmanuel Chassot, started at the IOTC Secretariat in June 2020.

IOTC meetings – Working parties

In 2020, seven (7) Working Party meetings were organised and facilitated by the IOTC Secretariat (Table 1). The current Chairs and Vice-Chairs for each Committee and Working Party are provided in Appendix I.

Appendix II lists the documents produced by the IOTC Secretariat in support of Working Party meetings held in 2020. In addition, the IOTC Secretariat produced revised Executive Summaries for all of the IOTC stocks, as well as for sharks, seabirds, marine turtles and cetaceans in association with various experts, totalling 26 Executive Summaries.

The IOTC Secretariat facilitated the participation of invited experts that were selected to attend each of the Working Party meetings in 2020. The names and affiliations of each of the Invited Experts are provided in Table 1.

Table 1. Working party meetings and Invited Experts in 2020

Working Party	Date and place	Name	Affiliation
Tropical tunas (Data preparatory)	22-24 June, Virtual	Nil	Nil
Neritic Tunas	6–8 July, Virtual	Nil	Nil
Billfish	2–4 September, Virtual	Nil	Nil
Ecosystems and Bycatch	7–10 September, Virtual	Nil	Nil
Methods	14–15 October, Virtual	Nil	Nil
Tropical Tunas (Assessment meeting)	19-23 October, Virtual	Dr Michael Schirripa	NOAA, USA
Data Collection and Statistics	30 November – 3 December, Virtual	Nil	Nil

IOTC meetings – Meeting Participation Fund

The IOTC Meeting Participation Fund (MPF) has been utilised for the indicated scientific meetings and/or Working Parties indicated in Table 1. Due to the Covid-19 pandemic in 2020 and the impossibility of international travel, no physical meetings were held in 2020. Noting that the intention of the MPF was to utilise the funds, as a first priority, to support the participation of scientists from developing Members in scientific meetings of the IOTC, the lack of physical meetings resulted in no MPF applications this year. This is compared with 2019(77), 2018(46), 2017(64), 2016 (67), 2015 (53) and 2014 (50). Previously there were 58 in 2013, 46 in 2012, 33 in 2011 and 19 in 2010 (Table 2).

Table 2. Scientific Meetings held in 2020, prior to the 23rd Session of the IOTC Scientific Committee meeting. Numbers in brackets represent numbers for the previous Working Party meetings.

Working Party	Date and place of most recent meeting	No. of participants							Meeting Participation Fund							No. of documents (and for the previous meeting)
		2014	2015	2016	2017	2018	2019	2020	2014	2015	2016	2017	2018	2019	2020	
Neritic Tunas	6–8 July, Virtual	37	31	20	26	18	18	43	13	9	8	8	6	6	0	Total: 19 (20) Working papers: 16 (19) Information papers: 3 (1)
Temperate Tunas	14-17 January 2019, Malaysia 23–26 July 2019, Japan	27	-	29	-	-	19 23	-	3	-	4	-	-	1 4	-	Total: 43 (29) Working papers: 38 (29) Information papers: 5 (0)
Billfish	2–4 September, Virtual	21	23	18	25	20	25	55	4	9[1]	6	8	5	9	0	Total: 22 (29) Working papers: 20 (28) Information papers: 2 (1)
Ecosystems and Bycatch	7–10 September, Virtual	37	38	37	39	40	41	108	5	8[2]	8	7	7	13	0	Total: 35 (68) Working papers: 26 (51) Information papers: 9 (17)
Methods	14–15 October, Virtual	34	26	29	27	23	37	55	3[3]	6[4]	9	5	2	7	0	Total: 16 (28) Working papers: 14 (25) Information papers: 2 (3)
Tropical Tunas	22-24 June, Virtual 19-23 October, Virtual	53	44	47	48	57	68	62 111	6	6	6	10	7	13	0 0	Total: 50 (60) Working papers: 36 (55) Information papers: 14 (5)
Data Collection and Statistics	30 November – 3 December, Virtual	30	20	32	45	52	41	TBD	1	4	6	10	7	9	0	Total: X (33) Working papers: X (26) Information papers: X (7)
Scientific Committee	7 – 11 December, Virtual	62	71	78	63	73	43	TBD	15	13	18	13	12	15	0	Working papers: X (15) Executive Summaries: 26 (26) Information papers: X (5)

[1] 2 scientists attended both the WPB and WPEB;
[2] 2 scientists attended both the WPB and WPEB
[3] 3 scientists attended both the WPM and SC
[4] Funded by the ABNJ tuna project

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Data-related activities – General

A large proportion of the IOTC Data Section staff time is devoted to the acquisition and editing of the data required under the IOTC Resolutions. These data are utilised in support of scientific analyses necessary for the assessment of the status of stocks and in monitoring compliance of CPCs with respect to currently standing data reporting requirements.

The IOTC databases are constantly revised and updated, and the migration towards a fully integrated IOTC data repository is under way. The new integrated IOTC data repository will improve all aspects related to data dissemination and exchange, including proper attribution of metadata to all managed datasets, and is being extended to accommodate for several new ancillary data sources such as cannery sales data, daily buoy positions, scientific observer data provided as part of the ROS workflow, e-PSM data as well as to ensure ease of integration with the e-MARIS platform[5].

Work is also under way to improve the range of fisheries indicators currently included in the dedicated papers on data and statistics presented at each working party, as well as the *Online Query Service* that allows users to filter and query several of the main IOTC data sets.

The regular suite of core datasets has been produced and supplied to all scientists engaged in stock assessment activities, reports on the status of all IOTC databases were produced for the relevant Working Parties and SC and for the preparation of the Country Reports of the Compliance Committee. No new information has been incorporated in the IOTTP tagging dataset.

Data-related activities – Capacity building and other initiatives

The IOTC Secretariat continues to facilitate or provide direct support to developing coastal states using funds from the IOTC capacity building budget or other collaborating agencies. In particular, the Overseas Fishery Cooperation Foundation of Japan (OFCF) has provided resources and advice for the strengthening of data collection systems in more than 20 countries in the region since its inception in 2002.

The IOTC Secretariat has also cooperated with COI-*SmartFish*, the BOBLME Project, the ABNJ Project, the ISSF, and other initiatives in recent years in the coordination and execution of capacity building activities in developing coastal states of the Indian Ocean. In addition, the IOTC Secretariat is also working collaboratively with NOAA, CMS, IOSEA, WWF-Pakistan, WWF-USA and SIOTI on capacity building activities to support the implementation of the Regional Observer Scheme in developing coastal states.

Table 3 provides a summary of the main capacity building activities undertaken since the end of SC22, which can be broadly categorised into the following activities:

a. Data compliance and support missions: these are aimed at facilitating improvements in the validation and reporting of core statistical datasets to the IOTC Secretariat (i.e., nominal catches, catch-and-effort, and size data), to assess current shortcomings concerning the collection and management of fisheries data, and to agree on a plan of action with the CPC required to deliver improvements on the levels of reporting. In 2020, due to the insurgence of the CoViD-19 pandemic and the consequent restrictions on travel, no direct support on these matters has been provided to CPCs through on-site missions although staff members from the data Section of the IOTC Secretariat participated remotely to the annual sessions of the EU-sponsored *Regional Coordination Group on Large Pelagics* (RCGLP, 25-26 June 2020) and *Data Collection Liaison Meeting* (24-25 September 2020).

b. Technical assistance missions: including capacity building in data collection, support for the development of national fisheries databases and statistical systems, or other issues related to fisheries data management. In 2020, due to the insurgence of the CoViD-19 pandemic and the consequent restrictions on travel, no direct support on these matters has been provided to CPCs through on-site missions, although some activities were carried on through remote meetings, such as providing support to the development of the

[5] https://www.iotc.org/documents/emaris-technical-specifications

IFAD concept note for the Agriculture and Fisheries Development Programme of the United Republic of Tanzania, as well as contributing to the phase VI of the IOTC-OFCF collaborative project for strengthening and improving statistical systems for tuna resources in the Indian Ocean, which mainly focuses on providing updated species ID guides in Portuguese for distribution across interested stakeholders in Mozambique.

c. Support for implementation of the Regional Observer Scheme and implementation of the ROS Pilot Project: ROS-related capacity building activities cover a number of components, including further development and improvements of the IOTC ROS e-tools, as well as studies on the implementation of electronic monitoring systems (EMS) on small-scale fisheries. In February 2020, a workshop on the adoption of the ROS e-tools was delivered to Kenya as part of the ROS pilot project training undergoing in the country, while online support was provided to Sri Lanka observers to help them further familiarize with the data entry tools. Still in Sri Lanka, procurement of EMS equipment for the designated 6 gillnet/longline vessels was finalized: the planned activities, though, had to be put on forced halt due to the logistic limitations caused by the CoViD pandemic, and are expected to resume as soon as the situation will allow. In April 2020 a *Letter of Agreement* with ISSF was finalized with the purpose of identifying minimum standards for the design and implementation of EMS in Indian Ocean tuna fisheries, whose preliminary results are expected to be presented during the Working Party on Data Collection and Statistics and eventually at this session of the SC. Finally, work on direct integration of ObServe data within the ROS regional database has resumed in collaboration with scientists from IRD.

Below is a provisional list of the capacity building activities planned for 2021, conditional to the release of travel bans to and from all targeted countries:

a. Continue with the implementation of the IOTC Regional Observer Scheme and development of the ROS Pilot Project, including provisions of support to the service provider that started implementing the observer training programme in six pilot countries since mid-2019.

b. ROS e-monitoring in Sri Lanka: the formal commencement of EMS monitored trips was in September 2019, but several technical issues (high battery drain, interference with onboard radios, etc.) and delays in provision of the remaining batch of EMS equipment have prevented a proper testing on the field. To resume as soon as possible.

c. Regional Observer Scheme e-tools: follow-up workshops scheduled for Sri Lanka and other target CPCs (Kenya, Mauritius) following the re-commencement of regular observer deployment activities.

d. Development of an observer-based Albacore sampling program across the Indian Ocean, with collaboration of key CPCs important for catches of the species (e.g., Japan, Taiwan,China, Indonesia, Mauritius). Subject to confirmation of funds and availability of CPCs.

e. Data compliance and support missions (priority countries to be confirmed).

Table 3. Activities of the IOTC Secretariat in relation to science and data related capacity building activities in the Indian Ocean in 2020.

Country	Date	Executing Agencies / Staff	Description of activities
Kenya	Feb 2020	IOTC Data Coordinator	ROS Pilot Project activities (ROS e-tools): Hands-on training on the adoption of the IOTC ROS electronic tools for data collection, reporting and management during the ROS Pilot Project training in Mombasa.
Tanzania (remote)	June 2020	IOTC Data Coordinator IOTC Compliance Manager	Agriculture and Fisheries Development Programme of the United Republic of Tanzania: Contribute to the refinement of the initial concept note from IFAD, in particular by providing details on data collection and reporting requirements expressed by current IOTC resolutions, and by describing artisanal data collection use cases from other CPCs.
Sri Lanka (remote)	Sep 2020	IOTC Science Manager IOTC Data Coordinator Marine Instruments~~;~~ AZTI-Tecnalia	ROS Pilot Project activities (EMS): Assess the status of implementation of the EMS trial on-board selected small-scale coastal gillnet/longline vessels, in particular for what concern: i) Finalization of the installation of EMS onboard 6 gillnet / longline vessels selected for the pilot trials; ii) Assessment of current EMS data collection procedures and identification of the technical issues (complete or partial data loss) encountered during the pilot trials.

Other data activities (2020)

CLAV: The IOTC Secretariat is responsible for the coordination of activities concerning the global Consolidated List of Authorized Vessels (CLAV), a regularly updated list including the authorized vessels of the five t-RFMOs. Collaboration between the IOTC Secretariat and FAO-FIPS continued in 2020. Since 2015, the CLAV has been further enhanced using funds from the FAO Common Oceans/ABNJ Tuna Project. The main objective of the CLAV component of the Project is ensuring that updates of the CLAV occur in as close-to real time as possible in the future;

FIRMS Global Tuna Atlas: The IOTC continues with its contribution to the provision of updated and harmonized geo-referenced monthly catches and total catches of main IOTC species to the Global Tuna Atlas. The resulting product (which is now fully integrated within the FAO FIRMS framework) provides a combined global overview of the extent and magnitude of commercial tuna fisheries across all major oceans, including data sourced from the five tRFMOs.

Regional Observer Scheme: A full update on progress with the implementation of the ROS Pilot Project is provided in paper IOTC-2020-SC23-07. Key areas of progress this year include:

- A consultancy project and expert peer review workshop was held to review the standards. The outcomes were presented to the SC in 2018 and Draft standards were endorsed by the Commission in 2019.
- A substantial amount of data has now been entered into the Regional Observer Database through the support of two consultancy projects.
- Further training in the *electronic data collection and management interface* has been carried out in Mauritius, Sri Lanka and Kenya.
- Equipment has been procured for the Electronic Monitoring Systems trial project for small-scale fisheries in Sri Lanka
- A contract has been awarded for the development of training materials and supporting national observer schemes in six IOTC CPCs between 2019 and 2020, although the actual delivery times are expected to be postponed due to the temporary interruption of the project due to causes of *force-majeure*.

Processing of cannery sales data from ISSF-affiliated companies: since 2010, the IOTC Secretariat has been receiving quarterly summaries of the products offloaded at several canneries associated with the International Seafood Sustainability Foundation (ISSF). The highly variable nature of the data formats used by each company, together with the lack of dedicated personnel for its processing, has prevented a proper utilisation of this valuable information. Starting from Q2 2020, the IOTC Secretariat has put forward an initiative that aims at cleaning-up all data submissions received so far, and eventually produce a preliminary analysis of the species composition estimated from cannery data to assess how this compares with official submissions from all involved IOTC CPCs. A master's student from the Department of Environmental sciences of the University of Seychelles is also in the process of analysing this same information to cross-validate official sources of information available to tRFMOs; improve the understanding of the extent of tuna fishery activities, assess the levels of worldwide tuna trading and identify potential trends in commercial size categories of traded fish.

Science activities (2020)

CPC contributions to the Scientific Work of the IOTC: These contributions, as requested in Para 16 of IOTC-2018-SC21-R are provided in Appendix III

IOTC Species ID guides: Work is ongoing to translate, typeset, format and print the IOTC Species ID guides into the priority languages identified by the SC. The current set of identification guides available is provided here: www.iotc.org/science/species-identification-cards.

Cetacean by-catch: The IOTC secretariat participated in a pre-meeting workshop of the WPEB to discuss cetacean by-catch issues in the Indian Ocean. The meeting was also facilitated by the IWC who provided expert consultation and input to the workshop.

Bigeye thresher shark tagging: A consortium has been established to work jointly on a tagging project to evaluate the post-release mortality of bigeye thresher sharks and the effectiveness of the no retention measure in Resolution 12/09. Scientists are working with observers to deploy tags on sharks released according to routine practices from the fleets of Japan, China, Taiwan,China, EU,Portugal, EU,France and South Africa. Fifty-four pop-up archival satellite tags have been purchased and are in the process of being deployed. An update was due to be provided in IOTC-2020-WPEB16-INF01 but this was withdrawn at the request of one of the collaborators. Instead a verbal update was provided and reflected in IOTC-2020-WPEB16-R.

Skipjack and yellowfin tuna stock assessment: The IOTC stock assessment scientist carried out a stock assessment of skipjack tuna (1950-2019) using stock synthesis III. Given the substantial uncertainties associated with the input parameters, a reference grid of 24 models was used. The results indicated that the stock is currently not overfished nor is it subject to overfishing. The IOTC Stock assessment scientist also provided input into the updated yellowfin tuna assessment carried out using SS3 although he was not the principal modeller in this case. The updated yellowfin assessment was not considered for management advice in 2020.

Swordfish stock assessment: The IOTC stock assessment scientist carried out a stock assessment of Swordfish (1950-2019) using stock synthesis III. Given the substantial uncertainties associated with the input parameters, a reference grid of 24 models was used. The results indicated that the stock is currently not overfished nor is it subject to overfishing.

Yellowfin and bigeye tuna MSE: A Stock Assessment consultant (Dale Kolody) funded by a contribution from Australia conducted MSE for yellowfin and bigeye tuna. This voluntary contribution by Australia has provided ongoing funding for this work through to 2021.

Skipjack MSE: A Stock Assessment consultant (Charles Edwards) funded by the IOTC regular budget, conducted MSE for skipjack tuna. The consultant is working to update the skipjack harvest control rule and develop a fully specified MP based on the updated stock assessment for the species.

Albacore MSE: A Stock Assessment consultant (Iago Mosqueira) funded by the IOTC regular budget, conducted MSE for albacore tuna. The consultant is working to update OM based on the updated stock assessment for the species.

Swordfish MSE: A PhD student partially funded by an EU grant administered by the IOTC secretariat as well as funding from the IOTC regular budget continued the work on swordfish MSE.

Population Structure of IOTC species in the Indian Ocean: In 2020 the stock structure project was completed, and the results presented to various IOTC working parties. The work has been conducted by a consortium led by CSIRO and managed by the IOTC Secretariat.

Biological Sampling Project: In 2020 a Contract was signed with a Consortium led by AZTI Tecnalia for the development and implementation of a sampling scheme to support the collection of biological samples and conduct analysis on these samples to provide improved estimates of age, growth and reproduction of tropical tunas, swordfish, and blue sharks for the Indian Ocean.

Other Scientific work funded by EU Grants: In addition to several of the components described above, the IOTC secretariat managed several additional scientific initiatives funded by EU grants. These included –

- Spatially Explicit Operating Models and Biological Parameters (using tagging data) – Presented to the WPTT(AS) - IOTC-2020-WPTT22(AS)-19
- Review of data collection and processing systems for size data from longline fleets in the Indian Ocean – Ongoing
- Implementation for the ROS as well as E-Monitoring (See document IOTC-2020-SC23-07).
- The results of the scoping study for the application of CKMR for a shark species in the Indian Ocean, led by AZTI Tecnalia was presented to the WPEB (IOTC-2020-WPEB16-13).
- The IOTC Secretariat initiated a project with two key objectives, namely to: (i) identify where and by which gears mobulid rays are most likely to be caught in IOTC fisheries, and (ii) develop awareness materials on best practices for the safe handling and release of mobulid rays. This was conducted through an external consultancy and presented to the WPEB (IOTC-2020-WPEB16-19).

Joint tRFMO activities

Joint tuna RFMO Bycatch Working Group meeting: In December 2019 the IOTC Secretariat attended and chaired the meeting of this working group. The aim of the workshop was to provide advice and support for issues of common interested related to elasmobranch research and management.

IOTC publications and information products

Documents

In 2020, the Secretariat produced 59 (71 in 2019, 62 in 2018, 59 in 2017, 74 in 2016 and 59 in 2015) papers/reports (Appendix II) in support of the IOTC Science process, not including the reports of the various working parties (7) or the species Executive Summaries (26).

IOTC Website

The IOTC website continues to be a portal for communicating science related information to a variety of audiences. The Secretariat completed development of a new website in 2015, as requested by the Commission, which include:

- **Stock assessment**: Input and output files for yellowfin tuna stock assessments.
- **Species ID guides:** translated versions are being made available online, as they are produced.

and is in the process of linking the publicly disseminated executive summaries of all IOTC species with the corresponding entries in the FAO / FIRMS stocks and fisheries map viewer as well as with the FAO / FIRMS Global Record of Stocks and Fisheries (GRSF) to enhance information sharing and standardized access to stock statuses and related resources. In addition, new pages were added to the IOTC webpage in 2020 to provide information on the various projects overseen and coordinated by the IOTC secretariat

Recommendation

That the Scientific Committee **NOTE** paper IOTC–2020–SC23–05 which provides the report of the IOTC Secretariat for 2020, including the updates provided on the Recommendations and Requests directed to the IOTC Secretariat for implementation in 2020.

Appendices

Appendix I: List of Chairs, Vice-Chairs and their respective terms for IOTC Science meetings.

Appendix II: Papers from the IOTC Secretariat (or co-authorship) submitted to the IOTC Working Parties or Scientific Committee in 2020.

Appendix III: IOTC Extra-Budgetary Funded Projects related to Science

APPENDIX I
List of Chairs, Vice-Chairs and their respective terms for the IOTC Scientific Committee and its subsidiary bodies

Group	Chair/Vice-Chair	Chair	CPC/Affiliation	1st Term commencement date	Term expiration date (End date is until replacement is elected)	Comments
SC	Chair	Dr Toshihide Kitakado	Japan	10–Dec–19	End of SC in 2021	1st term
	Vice-Chair	Dr Denham Parker	South Africa	10–Dec–19	End of SC in 2021	1st term
WPB	Chair	Dr Denham Parker	South Africa	12–Sept–19	End of WPB in 2021	1st term
	Vice-Chair	Dr Jie Cao	China	12–Sep–19	End of WPB in 2021	1st term
WPTmT	Chair	Dr Jiangfeng Zhu	China	26–July–19	End of WPTmT in 2022	2nd term
	Vice-Chair	Dr Toshihide Kitakado	Japan	26–July–19	End of WPTmT in 2022	2nd term
WPTT	Chair	Dr Gorka Merino	EU,Spain	03–Nov–18	End of WPTT in 2020	1st term
	Vice-Chair	Dr Shiham Adam	Maldives, Rep. of	13–Nov–18	End of WPTT in 2020	1st term
WPEB	Chair	Dr Sylvain Bonhommeau	EU,France	08–Sept–17	End of WPEB in 2021	2nd term
	Vice-Chair	Dr Mohamed Koya; Dr Mariana Tolotti	India / EU France	7–Sept–19	End of WPEB in 2021	1st term
WPNT	Chair	Ms Ririk Sulistyaningsih	Indonesia	5–July–19	End of WPNT in 2019	1st term
	Vice-Chair	Dr Farhad Kaymaram	I.R. Iran	5–July–19	End of WPNT in 2021	1st term
WPDCS	Chair	Mr Stephen Ndegwa	Kenya	28–Nov–17	End of WPDCS in 2019	1st term
	Vice-Chair	Dr Julien Barde	EU,France	28–Nov–17	End of WPDCS in 2019	1st term
WPM	Chair	Dr Hilario Murua	ISSF	19–Oct–19	End of WPM in 2021	1st term
	Vice-Chair	Ms Daniela Rosa	EU,Portugal	19–Oct–19	End of WPM in 2021	1st term

APPENDIX II
Papers from the IOTC Secretariat (or co-authorship) submitted to the IOTC Working Parties or Scientific Committee in 2020

Document number	Title
22nd Working Party on Tropical Tuna (WPTT): Data preparatory meeting	
IOTC–2020–WPTT22(DP)–03	Outcomes of the 22nd Session of the Scientific Committee (IOTC Secretariat)
IOTC–2020–WPTT22(DP)–05	Review of Conservation and Management Measures relevant to tropical tunas (IOTC Secretariat)
IOTC–2020–WPTT22(DP)–06	Progress made on the recommendations of WPTT21 (IOTC Secretariat)
IOTC–2020–WPTT22(DP)–07	Outcomes of the 3rd Session of the Technical Committee on management Procedures (IOTC Secretariat)
IOTC–2020–WPTT22(DP)–08	Review of the statistical data and fishery trends for tropical tunas (IOTC Secretariat)
IOTC–2020–WPTT22(DP)–09	Revision of the WPTT Program of Work (2021–2025) (IOTC Secretariat)
IOTC–2020–WPTT22(DP)–10	Tag Data Processing for IOTC Tropical Tuna Assessments (IOTC Secretariat)
IOTC–2020–WPTT22(DP)–INF07	Review of size data from Indian Ocean longline fleets, and its utility for stock assessment (Hoyle S, Chang S-T, Fu D, Geehan J, Kim D-N, Lee S-I, Matsumoto T, Yeh Y-M and Wu R-F.).
10th Session of the IOTC Working Party on Neritic Tunas	
IOTC–2020–WPNT10–03	Outcomes of the 22nd Session of the Scientific Committee (IOTC Secretariat)
IOTC–2020–WPNT10–04	Outcomes of the 23nd Session of the Commission (IOTC Secretariat)
IOTC–2020–WPNT10–05	Review of current Conservation and Management Measures relating to neritic tuna species (IOTC Secretariat)
IOTC–2020–WPNT10–06	Progress made on the recommendations and requests of WPNT09 and SC22 (IOTC Secretariat)
IOTC–2020–WPNT10-07	Review of the statistical data available for the neritic tuna species (IOTC Secretariat)
IOTC–2020–WPNT10–08	Revision of the WPNT Program of Work (2021–2025) (IOTC Secretariat)
IOTC–2020–WPNT10–13	Assessment of Indian Ocean longtail tuna using data-limited methods (IOTC secretariat)
IOTC–2020–WPNT10–14	Assessment of Indian Ocean narrow-barred Spanish mackerel using data-limited methods (IOTC secretariat)
IOTC–2020–WPNT10–15	Assessment of Indian Ocean kawaka using data-limited methods (IOTC secretariat)
16th Session of the Working Party on Ecosystems and Bycatch	
IOTC-2020-WPEB16-03	Outcomes of the 22nd Session of the Scientific Committee (IOTC Secretariat)
IOTC-2020-WPEB16-04	Outcomes of the 23rd Session of the Commission (IOTC Secretariat)
IOTC-2020-WPEB16-05	Review of Conservation and Management Measures relevant to ecosystems and bycatch (IOTC Secretariat)
IOTC-2020-WPEB16-06	Progress made on the recommendations and requests of WPEB15 and SC22 (IOTC Secretariat)
IOTC-2020-WPEB16-07	Review of the statistical data and fishery trends for ecosystems and bycatch species (IOTC Secretariat)
IOTC-2020-WPEB16-08	Update on the implementation of the IOTC Regional Observer Scheme (IOTC Secretariat)
IOTC-2020-WPEB16-09	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 (IOTC Secretariat)
IOTC-2020-WPEB16-10	Revision of the WPEB Program of Work (2020–2024) (IOTC Secretariat & Chairperson)
IOTC-2020-WPEB16-17	Preliminary Modelling for the Stock Assessment of Shortfin Mako Shark, *Isurus oxyrinchus* using CMSY and JABBA (Bonhommeau S, Chassot E, Barde J, de Bruyn P, Fiorellato F, Nelson L, and Fu D. and Nieblas A.E.)
IOTC-2020-WPEB16-19	A review of mobulid ray interactions with fisheries for tuna and tuna-like species in the Indian Ocean (Martin S)
18th Session of the IOTC Working Party on Billfish	
IOTC-2020-WPB18-03	Outcomes of the 22nd Session of the Scientific Committee (IOTC Secretariat)
IOTC-2020-WPB18-04	Outcomes of the 23rd Session of the Commission (IOTC Secretariat)
IOTC-2020-WPB18-05	Review of Conservation and Management Measures relevant to billfish (IOTC Secretariat)
IOTC-2020-WPB18-06	Progress made on the recommendations and requests of WPB17 and SC22 (IOTC Secretariat)

IOTC-2020-WPB18-07	Review of the statistical data and fishery trends for billfish species (IOTC Secretariat)
IOTC-2020-WPB18-08	Revision of the WPB Program of Work (2020-2024) (IOTC Secretariat)
IOTC-2020-WPB18-16	Preliminary Indian Ocean Swordfish Stock Assessment 1950-2018 (Stock Synthesis) (Fu D)
11th Working Party on Methods	
IOTC–2020–WPM11–02	List of documents of the 11th Working Party on Methods
IOTC–2020–WPM11–03	Outcomes of the 22nd Session of the Scientific Committee (IOTC Secretariat)
IOTC–2020–WPM11–04	Outcomes of the 23rd Session of the Commission (IOTC Secretariat)
IOTC–2020–WPM11–05	Review of Conservation and Management Measures relating to methods (IOTC Secretariat)
IOTC–2020–WPM11–06	Progress made on the recommendations and requests of WPM10 and SC22 (IOTC Secretariat)
IOTC–2020–WPM11–07	Revision of the WPM Program of Work (2020–2024) (IOTC Secretariat & Chairpersons)
22nd Session of the Working Party on Tropical Tunas: Assessment Meeting	
IOTC–2020–WPTT22(AS)–03	Review of the statistical data and fishery trends for tropical tunas (IOTC Secretariat)
IOTC–2020–WPTT22(AS)–04	Revision of the WPTT Program of Work (2021–2025) (IOTC Secretariat)
IOTC–2020–WPTT22(AS)–10	Preliminary Indian Ocean Skipjack Stock Assessment (Stock Synthesis) (Fu D)
IOTC–2020–WPTT22(AS)–21	Preliminary Stock Assessment for Yellowfin Tuna in the Indian Ocean: Hypothesis and Diagnostics (Urtizberea A, Cardinale M, Methot R, Fu D, Fernández C, Winker H, Kitakado T, Merino G).
15th Working Party on Data Collection and Statistics	
IOTC–2020–WPDCS15–03	Outcomes of the 22nd Session of the Scientific Committee (IOTC Secretariat)
IOTC–2020–WPDCS15–04	Outcomes of the 24th Session of the Commission (IOTC Secretariat)
IOTC–2020–WPDCS15–05	Review of current Conservation and Management Measures relating to the WPDCS (IOTC Secretariat)
IOTC–2020–WPDCS15–06	Progress on the recommendations of WPDCS14 (IOTC Secretariat)
IOTC–2020–WPDCS15–07	Report on IOTC Data Collection and Statistics (IOTC Secretariat)
IOTC–2020–WPDCS15–08	IOTC capacity building activities in support of developing coastal IOTC CPCs (IOTC Secretariat)
IOTC–2020–WPDCS15–09	Revision of the WPDCS Program of Work (2021–2025) (IOTC Secretariat, Chairperson & Vice-Chairperson)
21st Session of the Scientific Committee	
IOTC–2020–SC23–03	Outcomes of the 24th Session of the Commission (IOTC Secretariat)
IOTC–2020–SC23–04	Previous decisions of the Commission (IOTC Secretariat)
IOTC–2020–SC23–05	Report of the Secretariat – Activities in support of the IOTC science process in 2019 (IOTC Secretariat)
IOTC–2020–SC23–06	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 (IOTC Secretariat)
IOTC–2020–SC23–07	2020: Update on the implementation of the regional observer scheme (IOTC Secretariat)
IOTC–2020–SC23–08	Revision of the program of work (2021–2025) for the IOTC science process (IOTC Secretariat)
IOTC–2020–SC23–09	Proposed schedule of Working Party and Scientific Committee meetings for 2021 and 2022 (IOTC Secretariat)
IOTC–2020–SC23–10	Progress on recommendations from SC21 (IOTC Secretariat)

APPENDIX III
IOTC Extra-Budgetary Funded Projects related to Science

Project No.	Area of Work	Donor	Description	Total Funding Amount US$	Start Date	End date
GCP/INT/233/EC	Stock Assessment	EC	Population structure of IOTC species in the Indian Ocean: Estimation with next generation sequencing technologies and Otolith micro-chemistry	1,529,487	01/03/2015	30/06/2020
GCP/INT/256/EC	Capacity Building	EC	Assistance to foster compliance-technical assistance to developing countries to improve implementation of at-sea observer scheme and data collection	159,515	22/12/2015	31/12/2017
GCP/INT/258/EC	Science	EC	Support to the Scientific Committee Programme of Work	634,872	01/06/2016	30/04/2018
GCP/INT/305/EC	Science	EC	Support to the Scientific Committee Programme of Work (2018)	721,153	01/01/2018	30/03/2021
GCP/INT/322/EC	Science	EC	Support to the implementation of the IOTC ROS (2018)	850,682	01/10/2018	30/12/2021
GCP/GLO/983/EC	Science	EC	Support to the Scientific Committee Programme of Work (2019)	392,136	01/01/2019	30/06/2020
GCP/GLO/053/EC	Science	EC	Support to the Scientific Committee Programme of Work – Aspects of the Biology of IOTC Species	318,986	01/01/2020	31/12/2021
MPF Extra-budgetary	Meetings	China	Extra funds for meeting participation	20,000	01/01/2018	31/12/2018
MPF Extra-budgetary	Meetings	Australia	Extra funds for meeting participation	30,842	01/01/2018	31/12/2018
Extra-budgetary	Science	Australia	Australia's contribution to IOTCs management strategy evaluation	205,000	01/07/2019	31/12/2020