



REPORT OF THE 20TH SESSION OF THE IOTC WORKING PARTY ON DATA COLLECTION AND STATISTICS

Cape Town, South Africa – Cape Town Lodge Hotel and Conference Centre, 26
– 30 November 2024

DISTRIBUTION:	BIBLIOGRAPHIC ENTRY
Participants in the Session Members of the Commission Other interested Nations and International Organisations FAO Fisheries Department FAO Regional Fishery Officers	IOTC–WPDCS20 2024. Report of the 20 th Session of the IOTC Working Party on Data Collection and Statistics, Cape Town, South Africa / Online, 26 – 30 November 2024. <i>IOTC–2024–WPDCS20_Rev1-R[E]: 42 pp.</i>

The designations employed and the presentation of material in this publication and its lists do not imply the expression of any opinion whatsoever on the part of the Indian Ocean Tuna Commission (IOTC) or the Food and Agriculture Organization (FAO) of the United Nations concerning the legal or development status of any country, territory, city or area or of its authorities, or concerning the delimitation of its frontiers or boundaries.

This work is copyright. Fair dealing for study, research, news reporting, criticism or review is permitted. Selected passages, tables or diagrams may be reproduced for such purposes provided acknowledgment of the source is included. Major extracts or the entire document may not be reproduced by any process without the written permission of the Executive Secretary, IOTC.

The Indian Ocean Tuna Commission has exercised due care and skill in the preparation and compilation of the information and data set out in this publication. Notwithstanding, the Indian Ocean Tuna Commission, employees and advisers disclaim all liability, including liability for negligence, for any loss, damage, injury, expense or cost incurred by any person as a result of accessing, using or relying upon any of the information or data set out in this publication to the maximum extent permitted by law.

Contact details:

Indian Ocean Tuna Commission
Blend Seychelles
PO Box 1011
Providence, Mahé, Seychelles
Ph: +248 4225 494
Fax: +248 4224 364
Email: IOTC-secretariat@fao.org
Website: <http://www.iotc.org>

ACRONYMS

ABNJ	Areas Beyond National Jurisdiction
AFAD	Anchored Fish Aggregating Device
ALDFG	Abandoned, Lost or otherwise Discarded Fishing Gear
ALB	Albacore
ANABAC	Asociación Nacional de Armadores de Buques Atuneros Congeladores
BET	Bigeye tuna
BLM	Black marlin
BLT	Bullet tuna
BRIN	National Research and Innovation Agency (Indonesia)
BUM	Blue marlin
CCSBT	Commission for the Conservation of Southern Bluefin Tuna
CSIC	Consejo Superior de Investigaciones Científica (Spain)
CMFRI	Central Marine Fisheries Research Institute (India)
CMM	Conservation and Management Measure (of the IOTC; Resolutions and Recommendations)
COM	Narrow-barred Spanish mackerel
CPCs	Contracting parties and cooperating non-contracting parties of the IOTC
CPUE	Catch Per Unit of Effort
CWP	Coordinating Working Party on Fishery Statistics
DAFF	Department of Agriculture, Fisheries and Forestry (Australia)
DGCF	Directorate General of Capture Fisheries (Indonesia)
DFAD	Drifting fish aggregating device
DFAR	Department of Fisheries and Aquatic Resources (Sri Lanka)
DFOB	Drifting floating object
DOF	Department of Fisheries (Bangladesh, Malaysia, Thailand)
DOI	Digital Object Identifier
DSFA	Deep Sea Fishing Authority (Tanzania)
EEZ	Exclusive Economic Zone
EM	Electronic Monitoring
EMS	Electronic Monitoring System
ERA	Ecological Risk Assessment
ERS	Electronic Reporting System
ETP	Endangered, Threatened, and Protected species
EU	European Union
FAD	Fish Aggregating Device
FAO	Food and Agriculture Organization of the United Nations
FIRMS	Fisheries and Resources Monitoring System
FOB	Floating Object
FRA	Fisheries Research and Education Agency (Japan)
FRI	Frigate tuna
FSI	Fishery Survey of India (India)
GEF	Global Environmental Facility
GUT	Indo-Pacific king mackerel
GTA	FIRMS Global Tuna Atlas
IATTC	Inter-American Tropical Tuna Commission
ICCAT	International Commission for the Conservation of Atlantic Tunas
ICAR	Indian Council of Agricultural Research (India)
IEO	Instituto Español de Oceanografía (EU, Spain)
IFREMER	Institut Français de Recherche pour l'Exploitation de la Mer (EU, France)
IFSRI	Iranian Fisheries Science Research Institute (I.R. Iran)
IOC	Indian Ocean Commission
IOTC	Indian Ocean Tuna Commission
IPBU	Institut Pertanian Bogor University (Indonesia)

IRD	Institut de Recherche pour le Développement (EU,France)
I.R. Iran	Islamic Republic of Iran
ISSF	International Seafood Sustainability Foundation
IWC	International Whaling Commission
JTFCA	Japan Tuna Fisheries Cooperative Association (Japan)
KAW	Kawakawa
KFS	Kenya Fisheries Service (Kenya)
KOSFA	Korea Overseas Fisheries Association (Tuna Long-Line Fisheries Committee)
LOA	Length overall
LOT	Longtail tuna
MLS	Striped marlin
MAFWR	Ministry of Agriculture, Fisheries and Water Resources (Oman)
MAR	Ministry of Animal Resources (Sudan)
MFBE	Ministry of Fisheries and Blue Economy (Somalia)
MFOR	Ministry of Fisheries and Ocean Resources (Maldives)
MLF	Ministry of Livestock and Fisheries (Tanzania)
MMAF	Ministry of Marine Affairs and Fisheries (Indonesia)
MMRI	Maldives Marine Research Institute (Maldives)
NARA	National Aquatic Resources Research and Development Agency (Sri Lanka)
NFA	National Fisheries Administration (Mozambique)
NIFS	National Institute of Fisheries Science (Korea)
NJA	National Jurisdiction Areas
NRIFS	National Research Institute of Fisheries Science (Japan)
OFCF	Overseas Fishery Cooperation Foundation (Japan)
OFDC	Overseas Fisheries Development Council (Taiwan,China)
OPAGAC	Organización de Productores de Atún Congelado (EU,Spain)
PEW	The Pew Charitable Trusts
RAV	IOTC Record of Authorised Vessels
RFMO	Regional Fisheries Management Organization
ROS	Regional Observer Scheme
SC	IOTC Scientific Committee
SFA	Seychelles Fisheries Authority (Seychelles)
SFA (fish)	Indo-Pacific sailfish
SFACT	Sustainable Fisheries and Community Trust
SHILAT	Iran Fisheries Organization (I.R. Iran)
SIOFA	Southern Indian Ocean Fisheries Agreement
SSI	Species of Special Interest
SWO	Swordfish
TNC	The Nature Conservancy
TTA	Taiwan Deep Sea Tuna Long-Line Boatowners and Exporters Association (Taiwan,China)
TUMST	Tokyo University of Marine Science and Technology (Japan)
VMS	Vessel Monitoring System
WCS	Wildlife Conservation Society
WPB	Working Party on Billfish of the IOTC
WPDCS	Working Party on Data Collection and Statistics of the IOTC
WPEB	Working Party on Ecosystems and Bycatch of the IOTC
WPTmT	Working Party on Temperate Tunas of the IOTC
WPNT	Working Party on Neritic Tunas of the IOTC
WPTT	Working Party on Tropical Tunas of the IOTC
WGFAD	Ad hoc Working Group on FADs
WGEMS	Ad hoc Working Group on Electronic Monitoring Standards
WCPFC	Western and Central Pacific Fisheries Commission
WWF	World Wide Fund for nature
YFT	Yellowfin tuna

STANDARDISATION OF IOTC WORKING PARTY AND SCIENTIFIC COMMITTEE REPORT

TERMINOLOGY

SC16.07 (para. 23) The SC **ADOPTED** the reporting terminology contained in Appendix IV and **RECOMMENDED** that the Commission considers adopting the standardised IOTC Report terminology, to further improve the clarity of information sharing from, and among its subsidiary bodies.

How to interpret terminology contained in this report

Level 1: From a subsidiary body of the Commission to the next level in the structure of the Commission:

RECOMMENDED, RECOMMENDATION: Any conclusion or request for an action to be undertaken, from a subsidiary body of the Commission (Committee or Working Party), which is to be formally provided to the next level in the structure of the Commission for its consideration/endorsement (e.g. from a Working Party to the Scientific Committee; from a Committee to the Commission). The intention is that the higher body will consider the recommended action for endorsement under its own mandate if the subsidiary body does not already have the required mandate. Ideally this should be task specific and contain a timeframe for completion.

Level 2: From a subsidiary body of the Commission to a CPC, the Secretariat, or other body (not the Commission) to carry out a specified task:

REQUESTED: This term should only be used by a subsidiary body of the Commission if it does not wish to have the request formally adopted/endorsed by the next level in the structure of the Commission. For example, if a committee wishes to seek additional input from a CPC on a particular topic but does not wish to formalise the request beyond the mandate of the Committee, it may request that a set action be undertaken. Ideally this should be task specific and contain a timeframe for the completion.

Level 3: General terms to be used for consistency:

AGREED: Any point of discussion from a meeting which the IOTC body considers to be an agreed course of action covered by its mandate, which has not already been dealt with under Level 1 or level 2 above; a general point of agreement among delegations/participants of a meeting which does not need to be considered/adopted by the next level in the Commission's structure.

NOTED/NOTING: Any point of discussion from a meeting which the IOTC body considers to be important enough to record in a meeting report for future reference.

Any other term: Any other term may be used in addition to the Level 3 terms to highlight to the readers of IOTC reports the importance of the relevant paragraph. However, other terms used are considered for explanatory/informational purposes only and shall have no higher rating within the reporting terminology hierarchy than Level 3, described above (e.g. **CONSIDERED; URGED; ACKNOWLEDGED**).

TABLE OF CONTENTS

ACRONYMS.....	3
STANDARDISATION OF IOTC WORKING PARTY AND SCIENTIFIC COMMITTEE REPORT TERMINOLOGY	5
TABLE OF CONTENTS	6
EXECUTIVE SUMMARY	7
1. Opening of the meeting	9
2. Adoption of the agenda and arrangements for the session	9
3. The IOTC Process: outcomes, updates, and progress.....	9
3.1. Outcomes of the Scientific Committee and Commission’s last meetings	9
3.2. Review of Conservation and Management Measures (CMMs) relevant to the WPDCS	11
4. Progress of IOTC data collection and reporting.....	12
4.1. IOTC data section activities.....	12
4.1.1. Updates on data-related requests from Working Parties.....	12
4.1.2. Progress and improvements in IOTC Data, including capacity-building activities.....	13
4.2. IOTC data overview	14
4.3. Improving the definition of IOTC coastal fisheries.....	14
4.4. Improving the management of morphometric and biological data at the Secretariat	15
5. Updates on national statistical systems.....	15
5.1. Updates on the status of national data collection systems.....	15
6. Regional Observer Scheme	24
6.1. Finalisation of the review of ROS data fields	24
6.2. Updates on the status of the ROS and its pilot project	25
6.3. Electronic Monitoring Systems in support of the IOTC ROS	25
WPDCS Programme of Work.....	28
6.4. Revision of the WPDCS programme of Work 2025-2029	28
Other business	28
6.5. Date and place of the 21 st and 22 nd Sessions of the WPDCS: 2025 & 2026.....	28
Adoption of the report.....	28
6.6. Review of the draft, and adoption of the report of the 20 th Session of the WPDCS	28
APPENDIX I LIST OF PARTICIPANTS	29
APPENDIX II AGENDA FOR THE 20 TH WORKING PARTY ON DATA COLLECTION AND STATISTICS	32
APPENDIX III LIST OF DOCUMENTS	34
APPENDIX IV MAIN ISSUES IDENTIFIED BY THE WPDCS AND ACTIONS PROPOSED TO ADDRESS THEM.....	35
APPENDIX V WORKING PARTY ON DATA COLLECTION AND STATISTICS PROGRAMME OF WORK (2025–2029)	38
APPENDIX VI CONSOLIDATED RECOMMENDATIONS OF THE 20 TH SESSION OF THE WORKING PARTY ON DATA COLLECTION AND STATISTICS	41

EXECUTIVE SUMMARY

The 20th Session of the Indian Ocean Tuna Commission's (IOTC) Working Party on Data Collection and Statistics (WPDCS) was held in hybrid format in Cape Town (South Africa) and online, from the 26th to the 30th of November of 2024. A total of 111 participants (55 in 2023, 117 in 2022, 94 in 2021, 76 in 2020) attended the Session, of which 33 attended in person and 78 registered to attend remotely.

The following is a subset of the complete recommendations and decisions from the WPDCS20 to the Scientific Committee, which are provided at [Appendix VI](#).

The IOTC Process: outcomes, updates, and progress

Rec. WPDCS20.01 (para 16):

NOTING a lack of clarity and inconsistencies in certain CMMs, the WPDCS **RECOMMENDED** that the SC consider and endorse the following revisions for submission to the Commission:

- Res. [15/01](#). Annex 2 should be revised to align with the provisions of Res. 15/02, which mandates data collection and reporting at the species level, regardless of the fishing gear used
- Res. [15/02](#). The spatial resolution of geo-referenced catch, effort, and size frequency data for coastal fisheries should be clearly defined and aligned, i.e., size-frequency data shall be provided using an alternative geographical area if it better represents the fishery concerned.
- Res. [19/07](#). The content, format, and timeline for datasets to be collected and reported by the chartering CPC should be clearly specified
- Res. [24/02](#). The reporting of buoy purchases to the IOTC and their incorporation into the compliance assessment procedure should be clearly specified
- Res. [24/04](#).
 - The spatio-temporal resolution of reported observer data should be aligned with the IOTC observer reporting templates and standards, as originally established in 21/04.
 - The timeliness for reporting fisheries observer reports and data collected through the ROS should be harmonised with those for the main IOTC datasets. Specifically, each CPC shall submit observer data collected during a year to the IOTC Secretariat by 30 June of the following year. For longline fisheries, final data shall be submitted no later than 30 December.

Rec. WPDCS20.02 (para 21):

The WPDCS **ACKNOWLEDGED** the benefits of a climate-ocean web portal for the IOTC Area of Competence and **RECOMMENDED** the development and implementation of the online digital Indian Ocean Atlas in 2025.

Updates on national statistical systems

Rec. WPDCS20.03 (para 103):

The WPDCS **ENDORSED** the methodology and results used to re-estimate Indonesia's historical catches for the period 1950–2022 and **RECOMMENDED** that the SC also endorse them.

Regional Observer Scheme

Rec. WPDCS20.04 (para 132):

The WPDCS **RECOMMENDED**:

- That the SC **ENDORSE** the following revised lists of ROS minimum data fields (including their stated collection and reporting requirement) for purse seine, longline, and pole and line (include associated "general" fields) provided as an XLSX spreadsheet available here: [IOTC-2024-SC27-DATA01](#).
- That the SC **ENDORSE** the revised collection and reporting requirement categories as follows:

- Mandatory – mandatory for collection and reporting
- Optional – optional for collection and reporting
- That the SC **ENDORSE** the revised ROS data fields (and associated collection and reporting requirements) as a living document, for which CPCs can, if necessary, in future years, bring forward proposals for amendments or improvements, to the WPDCS and SC for review.
- That the SC **ADVISE** the Commission to take actions for all CPCs to ensure that the Record of Authorised Vessels (RAV) details are completely accurate and up to date.

Rec. WPDCS20.05 (para 140):

The WPDCS **DISCUSSED** and **REVISED** the summary on best practices guidelines for safe handling and release of small cetaceans and **RECOMMENDED** the SC to advise the Commission to consider these guidelines when developing conservation measures for cetaceans.

1. Opening of the meeting

1. The 20th Session of the Indian Ocean Tuna Commission's (IOTC) Working Party on Data Collection and Statistics (WPDCS20) was held as a hybrid meeting from the 26th of November to the 30th of November 2024, with in-person participants attending the Session at the Cape Town Lodge Hotel and Conference Centre, South Africa, and online participants connecting through the Zoom platform. A total of 110 participants (55 in 2023, 117 in 2022, 94 in 2021, 76 in 2020) attended the Session, of which 33 in person and 77 remotely. The list of participants is provided at [Appendix I](#). The meeting was opened on 26th of November 2024 by the Chairperson, Dr. Julien Barde (EU,France), who welcomed participants to the meeting and proceeded with the arrangements for the session.

2. Adoption of the agenda and arrangements for the session

2. The WPDCS **ADOPTED** the Agenda provided at [Appendix II](#). The documents presented to the WPDCS20 are listed in [Appendix III](#).

3. The IOTC Process: outcomes, updates, and progress

3.1. Outcomes of the Scientific Committee and Commission's last meetings

3. The WPDCS **NOTED** paper [IOTC-2024-WPDCS20-03](#) which outlined the main outcomes of the 26th Session of the Scientific Committee (SC26) specifically related to the work of the WPDCS.
4. The WPDCS **NOTED** that CPCs will need additional time to implement the data reporting obligations pertaining to Res. [23/01](#), **ACKNOWLEDGING** that some CPCs are in the process of gathering the required information. For example, France indicated the current difficulty faced in Reunion Island to link catch to unique AFAD identifiers, the Maldives reported the information while they are working on strengthening its AFAD data collection and reporting mechanisms, and Indonesia is collaborating with provincial governments to establish regulations, despite facing social conflicts among fishers.
5. The WPDCS also **NOTED** Oman's objection to Resolution [24/02](#), **EXPRESSING** concerns regarding the collection of FAD data and the challenges faced by CPCs that have been unable to implement the resolution after one year.
6. The WPDCS further **NOTED**, the concern raised of difficulties related to ship owners having to report FAD activities directly to the Secretariat.

Report of the Secretariat – Activities in support of the IOTC science process in 2023

- (Para. 15) The SC **NOTED** how both these activities hold sensitive data assets (e.g., raised time-area catches for the five major IOTC species, and detailed catches by vessel), whose public release would be of great importance for the IOTC, and **AGREED** on the need to identify mechanisms that will guarantee data confidentiality and clarify the limits of applicability and caveats of all released information.

Comment: The specificities of data confidentiality and dissemination to be considered for complementing or updating Resolution [12/02](#) were not discussed during the WPDCS. However, it was acknowledged that the catch-raising process, as endorsed by the Commission through the TCAC, would require comprehensive technical documentation. Additionally, ongoing efforts to improve metadata are essential for clearly defining the data contents and their limits of application.

Report of the 13th Session of the Working Party on Neritic Tunas (WPNT13)

- (Para. 43) The SC **ENDORSED** the development of a large-scale regional sampling program focusing on the collection of size-frequency data and tissue samples from coastal fisheries and also including the collection of morphometric data required to develop robust conversion factors, length-length and length-weight

relationships. To this end, several Members expressed their interest to share samples in order to build on the stock structure project conducted and presented in 2020 ([IOTC-2020-WPNT10-10](#)).

- (para 47) **NOTING** how issues in species identification are common for neritic tunas and seerfish in several fisheries and that this affects the accuracy of the time series of catch which are the main input for the assessment models, the SC **ENDORSED** the organisation of training workshops for fish species identification

Comment: The WPDCS **NOTED** that a regional workshop on species identification and sampling will be organised in Sri Lanka from 9 to 13 December 2024, involving scientists from several CPCs in the western Indian Ocean. The workshop will also include a training component on biological sampling and sample management to support future regional sampling programmes (see [section 4.1](#)).

Report of the 25th Session of the Working Party on Tropical Tunas (WPTT25)

- (Para. 84) The SC **ACKNOWLEDGED** the significance of longline CPUE in the assessment but **NOTED** that there are still many problems with these CPUE indices, such as the unresolved impact of piracy. The SC suggested looking into the possibility of developing indices for other fisheries, like the gillnet fishery. It was noted, nevertheless, that the official gillnet data held by the Secretariat are insufficient for CPUE standardization since they lack geo-reference information and are not operational level. The SC **NOTED** that while some nations (like I.R. Iran) have gillnet data suitable for deriving CPUE indices, these data are typically restricted to coastal waters. Additionally, the Indian Ocean is home to a variety of gillnet fisheries where the data may be different. The SC **SUGGESTED** that some consultancy work be utilised to assess whether developing gillnet CPUE across the Indian Ocean is feasible.

Response: The WPDCS **NOTED** that a Data Support Mission was carried out in Sri Lanka in September 2024 with a consultant to assess the availability of catch and effort data for developing CPUE indices for skipjack and yellowfin tunas caught in the Sri Lankan gillnet fishery.

7. The WPDCS **NOTED** paper [IOTC-2024-WPDCS20-04](#) which outlined the main outcomes of the 28th Session of the Commission (S28).
8. The WPDCS **NOTED** the nine Conservation and Management Measures (CMMs) adopted at the 28th Session of the Commission (consisting of 10 Resolutions and 1 Recommendation) as listed below:
 - Resolution [24/01](#) *On climate change as it relates to the Indian Ocean Tuna Commission*
 - Resolution [24/02](#) *On management of drifting fish aggregating devices (FADs) in the IOTC area of competence*
 - Resolution [24/03](#) *On establishment of a list of vessels presumed to have carried out illegal, unreported and unregulated fishing in the IOTC area of competence*
 - Resolution [24/04](#) *On a Regional Observer Scheme*
 - Resolution [24/05](#) *On establishing a programme for transshipment by large-scale fishing vessels*
 - Resolution [24/06](#) *On a ban on discards of bigeye tuna, skipjack tuna, yellowfin tuna, and non-targeted species caught by vessels in the IOTC Record of Authorisation that Operate in the IOTC area of competence*
 - Resolution [24/07](#) *On a Management Procedure for skipjack tuna in the IOTC area of competence*
 - Resolution [24/08](#) *On a Management Procedure for swordfish in the IOTC area of competence*
 - Resolution [24/09](#) *To promote compliance by nationals of Contracting Parties and Cooperating Non-Contracting Parties with IOTC Conservation and Management Measures*
 - Resolution [24/10](#) *On the Promotion of the Implementation of IOTC Conservation and Management Measures*
 - Recommendation [24/11](#) *On Marine Pollution*
9. The WPDCS **NOTED** that, pursuant to Article IX.4 of the IOTC Agreement, the above-mentioned Conservation and Management Measures shall become binding on Members 120 days from the date of the notification communicated by the Secretariat.

10. Participants to WPDCS20 were **ENCOURAGED** to familiarise themselves with the adopted Resolutions, especially those most relevant to the WPDCS.

3.2. Review of Conservation and Management Measures (CMMs) relevant to the WPDCS

11. The WPDCS **NOTED** paper [IOTC-2024-WPDCS20-05](#) which encouraged participants at the WPDCS20 to review some of the existing CMMs relevant to the WPDCS, providing an overview of current data-related CMMs, along with the key data reporting obligations content and specific reporting forms developed by the Secretariat for each dataset. Additionally, the paper highlights potential inconsistencies in some CMMs and challenges faced by the CPCs in collecting and reporting data to the IOTC, supporting the WPDCS's work in reviewing CMMs and providing clear, science-based recommendations for the Scientific Committee's (SC) consideration. Reporting requirements related to the monitoring of landings and transshipments of fish products in fishing ports (Resolution [16/11](#)) and transshipments at sea (Resolution [23/05](#)) are not included in this document as they pertain to compliance purposes.
12. The WPDCS **NOTED** that CPCs should recognize the distinction between artisanal and coastal fisheries, while **ACKNOWLEDGING** the lack of clear definitions for these terms. Furthermore, it was emphasized that clear definitions for subsistence and commercial fisheries are necessary, as these terms are not currently used in the IOTC framework.
13. The WPDCS further **NOTED** that using operational areas, such as National Jurisdiction Areas (NJA) or Areas beyond National Jurisdiction (ABNJ), and vessel size to define fishery categories could cause confusion, as vessels may operate in various areas regardless of size.
14. The WPDCS **NOTED** that the definition of fishery types may vary depending on compliance and scientific needs. However, the Scientific Committee (SC) requires consistency and less ambiguity in the terminology. **NOTING** that, if the SC considers coastal fisheries to fall within EEZ or NJA areas, the term "artisanal" may no longer be applicable (see document [IOTC-2024-WPDCS20-INF02](#)).
15. Additionally, the WPDCS **ACKNOWLEDGED** that clarifying fishery terms will benefit the WPSE, as CPCs will need a clear understanding of the fishery classification for their socio-economic if recommendations are to be set.
16. **NOTING** a lack of clarity and inconsistencies in certain CMMs, the WPDCS **RECOMMENDED** that the SC consider and endorse the following revisions for submission to the Commission:
- Res. [15/01](#). Annex 2 should be revised to align with the provisions of Res. 15/02, which mandates data collection and reporting at the species level, regardless of the fishing gear used
 - Res. [15/02](#). The spatial resolution of geo-referenced catch, effort, and size frequency data for coastal fisheries should be clearly defined and aligned, i.e., size-frequency data shall be provided using an alternative geographical area if it better represents the fishery concerned.
 - Res. [19/07](#). The content, format, and timeline for datasets to be collected and reported by the chartering CPC should be clearly specified
 - Res. [24/02](#). The reporting of buoy purchases to the IOTC and their incorporation into the compliance assessment procedure should be clearly specified
 - Res. [24/04](#).
 - The spatio-temporal resolution of reported observer data should be aligned with the IOTC observer reporting templates and standards, as originally established in 21/04.
 - The timeliness for reporting fisheries observer reports and data collected through the ROS should be harmonised with those for the main IOTC datasets. Specifically, each CPC shall submit observer data collected during a year to the IOTC Secretariat by 30 June of the following year. For longline fisheries, final data shall be submitted no later than 30 December.

17. The WPDCS **NOTED** paper [IOTC-2024-WPDCS20-27](#) on the online digital ocean atlas for the Indian Ocean to study the impacts of climate change and variability on tuna fisheries with the following abstract provided by the authors:
- "Resolution 24/01 of the IOTC, adopted at the 28th session of the Commission, calls for a better integration of ocean and climate change information in the development of conservation and management measures. In this context, a design for a digital ocean atlas (IODA) covering the area of competence of the IOTC is proposed. The atlas would produce interactively maps, time series, transects, space-time plots (hovmoller) and vertical profiles, from a set of 18 physical and biogeochemical oceanic variables, from surface to 900 m in depth. The set of functionalities of the IODA was enhanced by the feedback received at WPEB20 and WPTT26. Different options are discussed on the required datasets to optimize the disk space. A schedule for the development of the atlas project is presented, spanning approximately 6 months. The Fisheries and Aquatic Resource Department of Sri Lanka is candidate to host the server and deploy a dedicated IT team to perform the maintenance of the system and to have IODA running routinely. This proposal has matured during 2024 and is presented at the current session of the WPDCS20 for final discussions and endorsement, in order to be considered by the Scientific Committee in 2024 as a valuable project to develop in 2025".*
18. The WPDCS **NOTED** that developing the atlas project will require an estimated budget of approximately 40,000 to 50,000 US dollars. This figure excludes the server costs, which has raised concerns among some CPCs about potential increases in recurrent expenses. Additionally, it was emphasised that the project budget should include provisions for ongoing maintenance costs.
19. The WPDCS **NOTED** that the Marine Spatial Plan (MSP) was the final product of the Seychelles Ocean atlas, **ACKNOWLEDGING** that the IODA tool will be valuable for implementing IOTC resolutions related to climate change and socio-economic issues.
20. Furthermore, WPDCS **NOTED** that Sri Lanka has agreed to host the server, **CONSIDERING** that several options are available for the app, including integrating it with the FAO Shiny App, and furthermore, ensuring that the app is not dependent on a single server.
21. The WPDCS **ACKNOWLEDGED** the benefits of a climate-ocean web portal for the IOTC Area of Competence and **RECOMMENDED** the development and implementation of the online digital Indian Ocean Atlas in 2025.

4. Progress of IOTC data collection and reporting

4.1. IOTC data section activities

4.1.1. Updates on data-related requests from Working Parties

22. The WPDCS **NOTED** the list of data-related requests made by the SC at its 26th session, as well as by other Working Parties, which were to be addressed during the meeting (see Appendix II of document [IOTC-2024-WPDCS20-07_Rev1](#)).
23. The WPDCS **NOTED** that the absence of a Data Coordinator from March to November 2024 significantly impacted the management of the ROS data, as well as the development and maintenance of associated tools. This hindered both the updating of the ROS database and automation of observer data description (see document [IOTC-2024-WPDCS20-20_Rev2](#)).
24. The WPDCS **NOTED** that the Secretariat is developing an optimal approach to collate, manage, and disseminate information on fish morphometrics, with the aim of proposing a voluntary reporting form in the first semester of 2025 (see document [IOTC-2024-WPDCS20-11](#)).
25. The WPDCS **ACKNOWLEDGED** that species identification for certain tuna and tuna-like species remains a challenge in some IOTC fisheries, impacting species-specific catch estimates. The WPDCS **AGREED** that Artificial

Intelligence (AI)-based tools could enhance the accuracy of species composition data and should be incorporated into the monitoring and/or processing of tuna fisheries (see section [4.1.2](#)).

26. The WPDCS **NOTED** the request from the WPEB regarding the collection of detailed branchline configuration information, which will be addressed during the meeting's time slots allocated to the ROS data fields (see [section 6.1](#)).

4.1.2. Progress and improvements in IOTC Data, including capacity-building activities

27. The WPDCS **NOTED** paper [IOTC-2024-WPDCS20-07_Rev1](#) with detailed information about data section activities performed along the year.
28. The WPDCS **ACKNOWLEDGED** the various types of assistance the data section of the Secretariat provided to CPCs in 2024, namely, technical support through in-country missions to help CPCs meet IOTC data requirements, technical meetings with other fisheries partners, and the participation in external meetings with other fisheries organisations.
29. The WPDCS **NOTED** the importance of providing feedback to CPCs, currently done automatically through validators, but **RECOGNISED** the need for more detailed feedback on submission issues and status of reporting data sets. **NOTING** that many CPCs face challenges with data collection, which is often not addressed by the technical support provided.
30. The WPDCS also **SUGGESTED** that the Secretariat consider offering support grouped by CPCs, where feasible.
31. The WPDCS **NOTED** the difficulties many CPCs face in identifying species and mentioned that a second species identification workshop is planned to be held in Indonesia next year. The species identification workshops will also address the identification of small IOTC species, including neritic species.
32. The WPDCS **NOTED** paper [IOTC-2024-WPDCS20-08](#) on the progress of IOTC-OFCF Project for JFY2024 activities and planned activities for JFY2025 (OFCF) with the following abstract:

"The IOTC-OFCF Japan Project is conducted by the IOTC Secretariat and OFCF Japan (Overseas Fishery Cooperation Foundation of Japan) and has been implemented since JFY2002. The project is supported by the Fisheries Agency of Japan. The objectives are: (1) to improve the accuracy of tuna and tuna-like fishery statistics and information provided by IOTC coastal States (2) to develop capacity in the collection, management and reporting of tuna fishery statistics by IOTC coastal States".

33. The WPDCS **THANKED** OFCF for initiating species identification at various development stages and for comparing species using videos. **NOTING** that the project's further development will include single-species photos at different stages, with plans for this to be completed between 2026 and 2027.
34. **CONSIDERING** that many coastal fisheries face challenges in identifying small tuna, the WPDCS **NOTED** the need for assistance from the developers to provide additional photos that describe small tuna species. The WPDCS **ACKNOWLEDGED** that obtaining these photos is difficult due to the limited sampling of small tuna. **NOTING** that the first species identification workshop in Sri Lanka is expected to yield more photos of small tuna species.
35. The WPDCS **NOTED** that species comparison in videos should focus on those that are very similar in their juvenile stages, such as comparing longtail and yellowfin tunas. **NOTING** that fish in various conditions should be considered in these comparisons.
36. The WPDCS **NOTED** the lack of information on immature fish landed as chunk, emphasizing that this will require stakeholders capable of handling genetic analysis or taxonomy. Furthermore, it was **SUGGESTED** that CPCs conducting these analyses should contribute by providing images.
37. **CONSIDERING** the use of AI for fish identification, the WPDCS **NOTED** that AI would require substantial training to ensure accurate analysis. **NOTING** that a similar discussion took place during the WPEB regarding using images from EM for machine learning to identify and distinguish tuna species and other species.

38. The WPDCS further **NOTED** that various institutions are currently collecting species photos, and various companies with AI systems for species identification, such as MARLIN from India and Fishnet.AI from The Nature Conservancy (TNC) and **SUGGESTED** that the IOTC Secretariat liaise with already established companies to explore the use of their photo collections for identification purposes.
39. **ACKNOWLEDGING** the need for repositories of species photos, the WPDCS **ENCOURAGED** each CPC to build its own repository for this purpose.
40. The WPDCS **NOTED** paper [IOTC-2024-WPDCS20-26](#) on the IOTC data of relevance to SIOFA, reporting and usage challenges.
41. The WPDCS **NOTED** that not all species of interest to SIOFA are of the same relevance to IOTC. It was also **NOTED** that many of the species reported as bycatch to IOTC are SIOFA species, and these data may be incomplete.
42. The WPDCS further **NOTED** that while the same fleets are registered with both IOTC and SIOFA, different vessels may operate under the two organisations due to varying target species. **NOTING** that IOTC vessels could catch limited SIOFA species, which restricts data sharing between the organisations.
43. The WPDCS **SUGGESTED** that there should be harmonisation of reporting requirements between IOTC and SIOFA to reduce the reporting workload for CPCs, **NOTING** that some CPCs are already using the same logbook to collect data for both organisations.
44. The WPDCS **NOTED** paper [IOTC-2024-WPDCS20-09](#) on the report on IOTC data collection and statistics and **THANKED** the Secretariat for reviewing the availability and quality of the reporting data.
45. The WPDCS **NOTED** that several CPCs submitted datasets for the statistical year 2023 using the new reporting systems, including some that had not attended the training workshops, and **ENCOURAGED** others to adopt these systems. The new systems offer greater flexibility and assist in validating datasets prior to submission.
46. The WPDCS **NOTED** the ongoing lack of size-frequency data, particularly for billfish and neritic species, which appears to be primarily due to the absence of established sampling systems.
47. The WPDCS **ACKNOWLEDGED** that obtaining size measurements of billfish at landing sites may be hindered by fish dressing practices and **ENCOURAGED** CPCs to explore sampling opportunities through collaborations with fishers, such as self-collection initiatives (see document [IOTC-2024-WPDCS20-24](#)).
48. The WPDCS **NOTED** discrepancies between certain data submissions and the data presented in the report. It was **ACKNOWLEDGED** that these discrepancies were due to the Secretariat requiring clarification on specific submissions, leading to delays in data processing.

4.2. IOTC data overview

4.3. Improving the definition of IOTC coastal fisheries

49. The WPDCS **NOTED** paper [IOTC-2024-WPDCS20-10](#) on the results of the application the FAO matrix approach and IOTC fisheries wizard for the characterization of coastal fisheries.
50. The WPDCS **NOTED** that 98 fishing units were identified using the FAO matrix approach in relation with the fisheries from Bangladesh, Comoros, EU, France-Mayotte, Indonesia, Kenya, Maldives, Pakistan, Seychelles, Sri Lanka, South Africa, Tanzania, and Thailand.
51. The WPDCS **NOTED** that the results obtained suggest a differentiation of two main clusters identifying a threshold that can potentially explain the scale characterisation of IOTC fisheries.
52. The WPDCS **NOTED** that as part of the regional data workshop's outcomes 158 fisheries from Bangladesh, Comoros, China, European Union, Indonesia, India, Iran, Kenya, Madagascar, Maldives, Mozambique, Malaysia, Oman, Seychelles, Sri Lanka, Somalia, Tanzania, and Thailand were identified using the IOTC fisheries identification wizard.

53. The WPDCS **NOTED** that the application of the matrix approach together with the IOTC wizard mapping, allowed the identification of the subsistence segment, **RECALLING** the relevance of the subsistence fisheries in relation with some CMMs and the allocation criteria scheme.

4.4. Improving the management of morphometric and biological data at the Secretariat

54. The WPDCS **NOTED** paper [IOTC-2024-WPDCS20-11](#) on the development of a database on fish biology and ecology to support the IOTC science process.
55. The WPDCS **NOTED** that the Secretariat has conducted a literature review on the most common morphometric relationships for tuna, tuna-like species, and pelagic sharks monitored by the IOTC. These relationships (including shapes and parameters) have been incorporated into the data review papers presented at each Working Party.
56. The WPDCS **ACKNOWLEDGED** that some of the IOTC reference relationships may be derived from other oceans, that information on sample size and design may be missing in certain cases, and that multiple relationships may exist for a single species.
57. The WPDCS **NOTED** that the current relationships between fork length and round weight for frigate and bullet tunas are identical and based on an IPTP published in 1989. The WPDCS **QUERIED** whether the original sample data could be recovered and **NOTED** that all data, if available, were lost during the relocation of the IOTC Secretariat headquarters to its new location in Providence, Seychelles, in early 2021.
58. The WPDCS **AGREED** that all morphometric relationships for species under IOTC management should be updated and, where possible, derived from data collected in the Indian Ocean, accounting for variations in factors such as space, time, gear, and sex, where these factors are shown to be significant.
59. The WPDCS **AGREED** on the value of sharing individual morphometric data to support the development of IOTC length-length and length-weight relationships, **NOTING** that this initiative could begin on a voluntary basis with the scientific institutes involved in research and monitoring within the IOTC area.
60. The WPDCS **THANKED** the institutes and scientist who have already shared data with the Secretariat for albacore (see document [IOTC-2022-WPTmT08\(AS\)-06_Rev2](#)) and certain shark species, **NOTING** that the work on sharks is expected to be presented at the next WPEB.
61. The WPDCS **NOTED** that a thorough screening and selection process was applied to the data provided by Taiwan, China, for albacore and **THANKED** the scientists involved for their efforts, as well as for offering further assistance and support where needed.
62. The WPDCS **ACKNOWLEDGED** the potential redundancy between this data flow and the morphometric data that may be collected as part of the ROS and submitted to the Secretariat. It was **AGREED** that a procedure should be developed to ensure the traceability of these datasets within the IOTC data management system.
63. The WPDCS **ACKNOWLEDGED** the need to develop proper metadata for the morphometric datasets to ensure a comprehensive description of the data used in developing conversion factors and morphometric relationships, as well as to enhance their discoverability. It was **NOTED** that these data should not be disseminated by the Secretariat without the explicit agreement of the CPCs or the independent scientists who provided them.

5. Updates on national statistical systems

5.1. Updates on the status of national data collection systems

64. The WPDCS **NOTED** paper [IOTC-2024-WPDCS20-12](#) on Iran's measures to improve catch and effort data in 2023, with the following abstract provided by the authors:

"This document presents summary information about fisheries statistical data in Iran, accordance with IOTC resolutions and recommendations concerning the mandatory minimum data to be submitted to IOTC, as well as basic actions to improve the data collection system, with the approvals and recommendations of the Scientific Committee and WPDCS. In 2023 the total fish production in Iran was 1,418,215 tonnes, comprising 639,936 tonnes from aquaculture and 778,279 tonnes from catch, this catch included 741,308 tonnes (95%) from southern waters, and 36,971 tonnes (5%) from northern waters. The total catch in southern waters can be distributed as 606,899 tonnes (82%) attributed to Persian Gulf and Oman Sea as coastal fisheries, 134,408 tonnes (18%) from the high seas (outside of Iran's EEZ in western Indian Ocean). More than 14,000 artisanal fishing vessels are active. For better collaboration with the IOTC, significant efforts have been made to extract all necessary outputs required to meet the concerned IOTC, resolutions. The development of our data collection system and software is in progress to meet mandatory minimum statistical requirements and report catch and effort data by gear, coastal fishing grounds, and high seas fishery to the IOTC. We have taken various actions to implement the resolutions and recommendations of the Scientific Committee and IOTC." (see paper for full abstract)

65. The WPDCS **ACKNOWLEDGED** the considerable efforts made by I.R. Iran to implement a logbook programme for gillnet fisheries, including the organisation of training courses to educate fishers on completing the logbook, while **NOTING** that some weaknesses remain in the recorded data.
66. The WPDCS further **NOTED** that the unit of fishing effort for Iranian gillnets reported to the Secretariat is based on fishing trips. However, the duration of these trips varies significantly, ranging from a single day for small boats operating in coastal areas to up to 90 days for larger vessels operating in the high seas. This variation has resulted in inconsistencies in the measurement of fishing effort.
67. The WPDCS **SUGGESTED** that I.R. Iran consider revising its historical effort data by expressing estimates in fishing days, where possible, **NOTING** that the progressive implementation of the logbook programme will enhance data accuracy.
68. The WPDCS further **NOTED** that I.R. Iran plans to implement onboard sampling to collect size data.
69. The WPDCS **NOTED** that Iranian gillnetters target multiple species, with sharks occasionally caught as bycatch. The WPDCS further **NOTED** an increase in catches of tuna species, while catches of sharks showed a declining trend between 2014 and 2023, **ACKNOWLEDGING** that the decline in shark catches is attributed to the ban on fishing methods targeting sharks.
70. The WPDCS **NOTED** paper [IOTC-2024-WPDCS20-14](#) on data collection of handline fishery from Thai-flagged fishing vessels in the Western Indian Ocean, with the following abstract provided by the authors:
- "Data on handline fishery from a Thai-flagged fishing vessel were collected by an onboard observer during a fishing trip between April and May 2024 to identify fishing grounds and analyze total catch and length of species managed by the IOTC. The main fishing gear used by the vessel was otter board trawl, with handline as secondary gear. The study found that, among 42 days of handline fishing, IOTC-managed species was caught on 14 days, with all 14 days being observed. The fishing grounds were found in the high seas of the western Indian Ocean between latitude 09° 41' and 10° 33' south and longitude 61° 13' and 61° 48' east. The target species of the handline fishery were trevallies and snappers. Kawakawa (*Euthynnus affinis*) was the only one IOTC-managed species caught accidentally as bycatch. The total catch was 130.8 kg. The fork length ranged from 59 – 79 cm with an average of 66.31 cm. This study is the first to focus on a Thai fishing vessel using handline to catch IOTC-managed species."*
71. The WPDCS **NOTED** that kawakawa is a bycatch species of this fishery targeting grouper and snapper.
72. The WPDCS **NOTED** the fishing activities occurs in the Saya de Malha Bank which is a Joint Management Area between the Seychelles and Mauritius (included in the high seas).

73. The WPDCS **NOTED** paper [IOTC-2024-WPDCS20-15](#): Review of Oman’s data collection system and statistics and retrospective analysis 2014-2023, with the following abstract provided by the authors:

“In the last meeting of the 26th Session of the Working Party on Tropical Tunas Data Preparatory Meeting, Oman reported that “is internally reviewing its sampling protocol, with adjustments to data from 2014 where catches may have been underestimated”, in particular, in relation to yellowfin catches, as was included in the Minutes of the Meeting. During the last months and until now, the Department of Fisheries Statistics and Information of the Ministry of Agriculture, Fisheries and Water Resources, Directorate General of Fisheries Research, (hereinafter, the “MAFWR”), has been working on this task with a view to present a full report to the WP of Data Collection and Statistics to take place in Cape Town by the end of November 2024. In this respect, an Omani Delegation of the MAFWR travelled to the IOTC headquarters at the end of July 2024 and held working sessions with the IOTC Data Officers. As a next step MAFWR hired the services of an external data expert, Dr Constantine Stamatopoulos, a senior fisheries consultant in fisheries data and statistics (hereinafter, the “External Expert”), whose CV is attached. His terms of reference were to prepare and present a Preliminary Report at the 26th Session of the WPTT (Seychelles, 28 October – 2 November 2024), conduct a retrospective data analysis for 2014-2023 and present a full Report at the WPDCS and the Scientific Committee (end November - early December 2024). This document has been prepared by the External Expert with the support of the MAFWR, with a view of presenting the results of a review of Oman’s fisheries statistical programme with specific focus on artisanal fisheries. The review started in August 2024. It evaluated the current data collection system and verified its compliance with regional and international standards. It also evaluated the related Oracle database and the statistical reports resulting from the collected information and data. Based on these findings a catch/effort analysis has been conducted, followed by a retrospective revision of catch/effort figures for 2014-2023.”

74. The WPDCS **NOTED** that an Omani Delegation of the MAFWR had travelled to the IOTC headquarters at the end of July 2024 to hold working sessions with the IOTC Data Officers. As a next step MAFWR hired the services of an external data and statistics expert.
75. The WPDCS **NOTED** that review started in August 2024. It has evaluated the current data collection system and verified its compliance with regional and international standards. It also evaluated the related Oracle database and the statistical reports resulting from the collected information and data. Based on these findings a catch/effort analysis has been conducted with a view to set up the methodology to prepare a retrospective analysis with a view to update the reported catches provided by Oman to the IOTC on tuna and tuna-like species for the period 2014-2023.
76. The WPDCS **NOTED** the external expert recommendations to improve its fisheries data and statistical programme for artisanal fleets, including:
- Generalization of the monthly effort scheme which is used at present for certain fleet segments (dhows). The approach is easy, more robust, more accurate and achieves good accuracy with less data collection effort. This could be mentioned as a medium-term plan.
 - Introduction of "rapid fleet surveys", by means of which only boat/gear counts will be collected, rather than the full boat datasets.
 - Make the Oracle estimator more transparent and freer of built-in conditions. and continue the periodic cross-checking of Oracle estimations using alternative and independent statistical utilities.
77. The WPDCS **ACKNOWLEDGED** the hiring of external data and statistics experts by Oman was a positive step to assist Oman to identify the reasons of the relevant variations of reported catches to the IOTC in recent years, in particular yellowfin tuna.
78. The WPDCS **NOTED** that a justification for the increased catch was the rapid rise in boat engine days (referred to as fishing days). Figure 3 in the report indicates that, starting from 2019, the total number of fishing days in

the Omani fleet increased from 1.64 million days to 1.95 million days by 2022. This includes a rise of 300,000 fishing days from 2019 to 2020, equating to an additional 23 days per vessel per year compared to the average fishing effort in 2018.

79. The WPDCS **NOTED** that 80% of fishers work in other sectors at the same time, and that during COVID while other sectors were closed, fishing activity was allowed, which could further explain the observed increase in catches. The WPDCS **NOTED** that the fishing fleet is segmented into 16 different types of vessel/gear categories. Sampling and estimates are conducted independently for each statistical entity consisting of a vessel/gear, month and region. The first variables to estimate are fishing effort and overall CPUE; these estimates derive from different but parallel surveys. The overall CPUE derives from sample landings. Effort is estimated on the basis of the proportion of boats found active and two extrapolation factors representing total number of boats and total active days respectively. The species composition is estimated using the estimated total catch and the species proportions found in the landing samples.
80. On the other hand, the report highlights that catch increases are observed only over 2014-2016 due to the prevailing upward factor of updated fleet data. In 2017-2023 the catches show a decrease, because of the general downward revision of fishing effort. The WPDCS **NOTED** that the estimator uses an unrestricted approach that tends to overestimate fishing effort. Two retrospective analyses were conducted separately for 2014-2016 and for 2017-2023, respectively. For 2017-2023 the only revision concerned the downward adjustment of fishing effort. For 2014-2016 the same effort adjustment applied along with an upward (and prevailing) adjustment due to the use of updated fleet data.
81. The WPDCS **NOTED** that the 2015 census also reflects the situation of the fleet in 2014 so that is why this census was used for 2014. For the 2025 census, no major changes are expected so there is no need to revise the figures. The WPDCS **NOTED** that fishing effort is invariably measured in boat/gear days at sea, without considering shorter time segments such as hours. It was clarified that although finer temporal units for fishing effort would improve the accuracy of estimates, such an approach would not be feasible under the present sampling and extrapolation schemes.
82. The WPDCS **NOTED** that the revised estimate of fishing effort accounts for four Fridays and an additional day, as opposed to only two Fridays considered in the “unrestricted” estimation. This revision also includes updates to the fleet database for pre-2016 data to ensure more accurate estimates. These adjustments have been applied across the aggregated Omani fishing fleet, comprising approximately 14,000 fishing units. However, in the absence of detailed information on fleet segmentation—such as specific areas and types of fleets targeting yellowfin tuna—it is challenging to substantiate the observed increase in yellowfin tuna production. The external data and statistics expert added that while the first type of effort revision has applied on the entire fleet, the second and third types have applied separately for each fleet segment, since the updated fleet data provide numbers of fishing units by month, geographical location, and fleet segment. Therefore, yellowfin increases follow the adjustments made to the boats/gears that target it.
83. The WPDCS **SUGGESTED** to use a bootstrap or jack-knife approach to estimate the uncertainty on the catch estimates. An option could be to draw within the total number of boats randomly and then bootstrap this process to get the uncertainty on the estimates. Another approach could be to use the data from half of the boats to predict the estimates for the other half of the boats and hence estimate the precision. In South Africa, this method for estimating total catch is applied exactly with similar sampling programs.
84. The WPDCS **NOTED** from an analysis performed during the meeting that changes in environmental conditions (chlorophyll concentration) may not explain the upward trend in the catches of yellowfin tuna over the period.
85. The WPDCS **NOTED** that deriving CPUE by fleet segments (vessel category, gear, region) and target species would represent a significant improvement to understand trends in species catch, especially tuna and tuna-like species of concern to IOTC. It was explained that the primary objective of the document is to present a high-level, global overview of the methodology and, disaggregated information and specific examples were intentionally omitted for clarity. However, such information can be provided in the future, as the database is well-structured and

capable of generating these details upon request. Hence WPDCS **ENCOURAGED** results of such analysis be made available in future papers.

86. The WPDCS **NOTED** that the Omani system produces a number of statistical indicators relating to the reliability of estimates, including sampling accuracy. This indicator measures the closeness of an estimate to the population mean and is computed separately for CPUEs and fishing effort. The calculation of accuracy follows two different approaches, depending on the population size. In each case the result is two-dimensional, representing accuracy in space and time respectively.
87. The WPDCS **ASKED** about the effect of the distribution of the target population to the resulting estimates. It was clarified that different distribution types do have an impact on the estimates in terms of variance-based conclusions, but that they do not affect the accuracy of estimated means.
88. The WPDCS **NOTED** the sampling programme and the estimation is stratified in a combination of monthly period, region, boat gear type. All sampling and estimates do take into account the temporal variation, but not at a finer resolution than the month.
89. The WPDCS **NOTED** socio-economic data could help to support the estimation. For example, the records at custom show the presented data seem in agreement with this increase. The WPDCS **SUGGESTED** to also include in the methodology the potential impact of socio-economic data, that may also justify the huge increase of reported catches in particular, for years 2022 and 2021 (such the increase of the consumption or the exports). The authors stated that information of the Trade and Customs Departments can be used to check. In Oman, there is an ongoing project for a digital agricultural census that links different entities.
90. The WPDCS **NOTED** enumerators are collecting data for each boat and gear and should collect from the beginning of the day until they get the required sample for the type of gear. The WPDCS **NOTED** most of the data collectors are from the area and know the landing times. They are required to be present during the landing times of the boats to record the data as required of them until the required samples of fishing gears (5 nets - 6 lines and hooks, etc.) are completed.
91. The WPDCS **NOTED** Oman plans for improving its fisheries data and statistical programme for artisanal fleets, including:
- Stepwise generalization of monthly effort approach, thus solving the problem with active days
 - Introducing the practice of “rapid” frame surveys to obtain counts of fishing units annually. (This recommendation can be compensated for after the boat license data update is completed in the new licenses system)
 - Wherever applicable introducing the practice of “mini-census” for strategic species
 - Supplementary data editing tools will be developed to easily remedy eventual data problems
 - Increase the reporting capacity of the database and data dissemination services and cover some possible IOTC forms
 - Enhanced the Oracle database with supplementary data integrity and data security functions
 - With reference to the review and retrospective re-estimation of production, Omna will work on the entire species for different types of fleets, whether artisanal, coastal or industrial fleet, in the coming months, and Oman hopes to complete by the end of March 2025.
92. The WPDCS **ACKNOWLEDGED** the amount of work carried out to provide the estimate and clarified the way they are obtained. The WPDCS **ENCOURAGED** Oman to provide the reporting forms to the IOTC Secretariat regarding retained and discarded catch as well as effort and spatial data.
93. The WPDCS **NOTED** that Oman is reviewing the coding of its fishery according to the wizard and tools available on the IOTC website before placing it within the outputs of the Oracle database to improve reporting and save time, effort and the lack of specialized staff to fill out such forms. And Oman is grateful to the IOTC Secretariat for its support whenever required.

94. The WPDCS **ENCOURAGED** Oman to continue working in the retrospective analysis of reported catches for the period 2014-2023, with the support of external experts and the IOTC Secretariat and, in particular, to identify the reasons for the relevant increases of reported catches of yellowfin tuna.
95. The WPDCS **ENCOURAGED** Oman to provide the required data to the Secretariat utilizing the data collation methodologies developed as part of the outputs.
96. The WPDCS **NOTED** paper [IOTC-2024-WPDCS20-16](#) on the review of the re-estimation methodology of Indonesia's annual catch data in IOTC for the period 1950-2022, with the following abstract provided by the authors:

“Catch data is essential in building a robust fisheries management strategy. However, in some Regional Fisheries Management Organization (RFMO) e.g., Indian Ocean Tuna Commission (IOTC), requires data to be verified by RFMO to ensure the catch composition by gear reflects scientific observation from logbooks. However, such methods sometimes create a substantial difference between reported national catch in the country's national report and those presented in the IOTC datasets. Like what happened in Indonesia, in particular affecting the yellowfin tuna catch. The re-estimation undertaken by the IOTC Secretariat resulted in a 40% decrease from Indonesia's original catch report. This substantial discrepancy necessitated a collaborative re-estimation process with the IOTC Secretariat to rectify the situation. Since the Indian Ocean yellowfin tuna stock has been estimated to be overfished and subject to overfishing since 2015, catch reduction was an inevitable solution for guiding it back into recovery. Nevertheless, if the re-estimated data by IOTC were to be used as the basis for catch reductions, it would not accurately represent the actual situation, given that Indonesia possesses the largest ocean area and fishing capacity among IOTC members. Indonesia appreciates the effort taken by IOTC Secretariat to work with Indonesia on developing a new methodology based on the best data available from the robust logbook to produce data catch for the period of 2010-2021. Both parties agreed that the historic re-estimation methodology was somewhat confusing and unreliable as it was based on an outdated study, thus an updated version with more recent and robust datasets is submitted in this report. Ten-join/assistance meetings (virtual and in person) with the IOTC staff were held during 2021-2024 to follow up the WPDCS recommendation and the SC. This report provided an in-depth study on how to conduct recalculation on the Indonesian tuna datasets, emphasizing the use of reliable data source, increased coherence, and reduced uncertainties. Once this approach has been accepted by WPDCS and endorsed by the SC, this methodology will be used as the foundation for estimating Indonesian catches for the 1950–2022 periods.”

97. The WPDCS **CONGRATULATED** the authors for their work and **ACKNOWLEDGED** the progress made to provide revised estimates of Indonesian annual catch by species / gear.
98. The WPDCS **NOTED** that the historical catch composition (2010-2012) was used to extrapolate the series before 2010 while substantial changes in environmental conditions and fishing patterns may have occurred.
99. The WPDCS **NOTED** that this methodology was adopted because there is no additional usable information and the need to conserve aggregated catch as previously reported in 1-RC.
100. The WPDCS **NOTED** these new estimates address the SC request and show consistency in the time series although substantial discrepancies can be observed for some species. The WPDCS also **NOTED** these data have been used as a sensitivity run in the most recent stock YFT assessment and no major inconsistencies have been noticed.
101. The WPDCS **NOTED** e-logbooks represent about 40% of logbook data in 2019 with an increasing trend in this percentage over the last years. The e-logbooks are used for vessels >30 t.
102. The WPDCS **NOTED** this methodology has not been applied to bycatch species so far.

103. The WPDCS **ENDORSED** the methodology and results used to re-estimate Indonesia's historical catches for the period 1950–2022 and **RECOMMENDED** that the SC also endorse them.
104. The WPDCS **NOTED** paper [IOTC-2024-WPDCS20-17](#) on the reconstruction of the artisanal fisheries catch data of Tanzania (1950-2023) for improved resource management, with the following abstract provided by the authors:

“Artisanal fisheries continue to be vital for food security and sustainability, employment, and economic well-being in Tanzania's coastal communities. However, underreporting has plagued these fisheries for decades, stemming from fragmented data collection systems, geographic challenges, reporting species to family level (not species level) and inadequate inclusion of all fishing methods, including spot fishing targeting tuna species. This paper explores the necessity of reconstructing the missing catch data from artisanal fisheries in Tanzania, underscoring historical and structural factors that have led to consistent underreporting. We stress the importance of comprehensive and harmonised data collection and management for adherence to national, regional and international obligations and regional conservation and management efforts. The paper highlights the implications of improved data reporting to the Indian Ocean Tuna Commission (IOTC) and the Food and Agriculture Organization of the United Nations (FAO) and the benefits of addressing data gaps for sustainable fisheries management in Tanzania.”

105. The WPDCS **THANKED** the authors for this work and fully support this approach **RECALLING** the importance of information on historical catches. The WPDCS **NOTED** recent changes in catch composition and past issues with inconsistencies (potential double counting with Zanzibar).
106. The WPDCS **NOTED** that data recording was voluntary and **QUERIED** the authors on how they intended to maintain the data collection in the long term. The authors explained that a six-year project would begin in 2025, with the goal of making this programme routine.
107. The WPDCS **NOTED** the data are open, and any help checking the information is welcome.
108. The WPDCS **NOTED** enumerators are part of the BMUs, and they also help fishers register and record their data on a voluntary basis. District fisheries officers also get and check the data before sending it to the central database at the Ministry level. District fisheries officers who are close to the BMUs are also involved in training and awareness.
109. The WPDCS **NOTED** paper [IOTC-2024-WPDCS20-18](#) on Bridging data gaps in Kenya's artisanal fisheries: Leveraging citizen science and technology for sustainable management, with the following abstract provided by the authors:

“Kenya's artisanal fisheries are vital for coastal livelihoods but face significant data collection challenges that hinder sustainable management. This study assesses the primary obstacles, including underreporting, the use of non-designated landing sites, and reliance on illegal fishing practices, which exacerbate data gaps and contribute to Illegal, Unreported, and Unregulated (IUU) fishing. Through structured survey data from 41 of the 212 mapped landing sites, this research quantifies these challenges and explores how citizen science and technology can improve data accuracy. Findings reveal that 59.5% of fishers do not regularly report their catches, largely due to perceived lack of benefit, distrust in authorities, and logistical constraints. Seasonal variations, particularly during the southeast monsoon (April to September), contribute to an estimated 30% underreporting of total catches. Furthermore, 54% of fishers operate at non-designated sites, with 15% engaging in direct sales at sea to bypass data collection. 35.1% of fishers engage in night fishing, a key factor in data invisibility, as early morning landings occur before enumerators arrive, particularly impacting tuna and other pelagic stocks assessments. Technology offers promising solutions; 78.4% of fishers own smartphones, and 75.7% express willingness to adopt mobile reporting tools. However, actual mobile app usage remains low at 16.2%, limited by factors such as internet access and data costs. A positive correlation between smartphone ownership and reporting willingness suggests strong potential for technology integration, particularly in regions like Mombasa and Kilifi, where smartphone penetration is 77.8%. Engaging

Beach Management Units (BMUs) through citizen science initiatives could also improve data coverage, as 70.3% of respondents are BMU members and 56.8% see BMUs as crucial for data collection. To bridge data gaps, the study recommends implementing a centralized fisheries data management system for real-time reporting, enabling consistent data collection from remote sites and off-hours. Such a system would streamline data access, enhance transparency, and support effective fisheries management decisions. Combined with geo-tagged mobile reporting and strengthened BMU capacity, these advancements offer a robust pathway toward sustainable management of Kenya's artisanal fisheries. Future efforts should focus on piloting these solutions to assess their effectiveness in real-world settings, with continuous data updates to support data-driven decision-making in fisheries management."

110. The WPDCS **CONGRATULATED** the authors for their work and the approach developed.
111. The WPDCS **NOTED** that the problem for data transfer through the internet is not an issue at sea as the app can work with an offline mode. The main issue is the availability of the internet at the landing sites.
112. The WPDCS **NOTED** the smartphone provided are not given to the fishers but paid back over time and can be locked if not.
113. The WPDCS **NOTED** there is currently no database and support is needed for training to develop and improve the database and related R Shiny apps.
114. The WPDCS **NOTED** that as for now, night fishing is not observed by enumerators while it can be a major component of artisanal fishing. Underreporting can also be an issue but overall, fishers are cooperating well. No regulations or laws seem necessary to enforce declaration.
115. The WPDCS **NOTED** Tanzania has developed a database that is also used by Kenya, Uganda, and Congo and is now planned to be used in Zambia and Mozambique. This could potentially be applied in Kenya. However, the others noted that they are aware of it, but it might be difficult to apply to the Kenyan context with a large number of fishing landing sites and fishers as well as unregistered landing sites.
116. The WPDCS **MENTIONED** the use of Calipseo and Open Artfish would be supported by IOTC. The WPDCS **NOTED** an automatic script to extract the data and create an export following IOTC forms would be very useful. It was **SUGGESTED** to include this support and training in the Programme of Work of WPDCS. The precise needs are yet to be defined. On the technical side, Calipseo does not include modules which would be adapted to the Kenyan context (BMUs). Training on how to develop this module in Calipseo and training on reporting parts would be appreciated.
117. The WPDCS **NOTED** fishers in Kenya are not collecting data at the moment. Fisheries officers are collecting the data. Over the 212 landing sites. 30 landing sites are sampled. A citizen science approach to equip the fishers at BMU would be an interesting way to improve the quality of the fisheries data.
118. The WPDCS **NOTED** that during the WPNT, Kenyan fisheries officers used the eCAST system. The authors explained eCAST was only used for inland fisheries and aquaculture, but issues were encountered. There is a need for a database tailored for the Kenyan context.
119. The WPDCS **ENCOURAGED** Kenya to continue improving the data collection process with the support the IOTC Secretariat.
120. The WPDCS **NOTED** paper [IOTC-2024-WPDCS20-19](#) on the introduction of Length conversion factors for billfish species caught by Sri Lankan multiday fishermen in Indian ocean to mitigate data submission issues, with the following abstract provided by the authors:

"Sri Lanka's billfish fishery targets high-value pelagic species like swordfish, marlin, and sailfish, primarily as by-catch in tuna fisheries using longlines and, to a lesser extent, gillnets. Billfish catches peak seasonally, influenced by monsoon-driven migrations closer to the coast. While the catch serves local and export markets, Sri Lanka must comply with the Indian Ocean Tuna Commission (IOTC)

requirements, including reporting size frequency data (Resolution 15/02). Data collection involves measuring length types such as fork length (FL) or lower jaw-fork length (LJFL). Challenges arise when billfish are sectioned at sea, complicating accurate data collection during port sampling. Therefore, an alternative method to establish length-length relationships is proposed to improve data accuracy and fulfill IOTC standards despite sectioned landings. An attempt made to derive these relationships using the measurements taken from various sources of Black marlin, Blue Marlin and sailfish. Results indicated that there are significant linear relationships of different length and girth measurements of Black marline, Blue Marline and Sailfish laded by Sri Lankan Fishermen. Therefore, it is recommended to use Length from base of the anal fin to the base of the caudal lobe and Girth measurement via beginning of 1st anal fin to generate the Upper jaw-total length and eye orbit fork length in the case of availability of the part of these three types of fish species in order to use these length details for the management purposes.”

121. The WPDCS **NOTED** that skippers under crew-based observer scheme and onboard observers were asked to measure the lengths and weights of billfish before they are dressed onboard and to provide photographic evidence were also used.
122. The WPDCS **NOTED** that experts are deployed to examine the pictures to ensure accuracy.
123. The WPDCS **NOTED** that the results indicated that it is possible to derive formulas to predict lengths between ACL and AG with the JITL and eye-to-fork length (or eye-orbit fork length; EF) for black marlin, blue marlin and Indo-Pacific sailfish.
124. The WPDCS **NOTED** the presentation [IOTC-2024-WPDCS-20-INF03](#) on the Estimation of Marine Fishery Resources in India: Methodology and Way Forward, with the following abstract provided by the authors:

“India has a well-established data collection and estimation system for generating information on species-wise and fishing gear-wise marine fishery resource landings and fishing efforts for different maritime states every month using skilled observers in fish landing ports. The method was developed by ICAR-Central Marine Fisheries Research Institute (CMFRI) jointly with ICAR-Indian Agricultural Statistics Research Institute (IASRI) following a scientific sampling scheme named Stratified Multistage Random Sampling Design (SMRSD), where stratification is done over space and time. This system of data collection and estimation has been in vogue since 1960. The department of fisheries, Govt. of India through coastal state fisheries departments along with CMFRI leads efforts to estimate marine fish landings, which covers 1,547 landing centres spread across India’s extensive coastline. The sampling frame was created by gathering information on marine fishing villages, landing centres, crafts, and gears, among other things, and it is updated regularly to reflect changes in the sector through all India frame surveys. Species-wise catch, fishing effort, details of fishing crafts and gears and other related information are collected through this sampling scheme. This sampling design has been successfully performing while evolving ever since and has been accredited by international institutions like FAO. The Fishery Survey of India (FSI) complements this effort by deploying specialized vessels for exploratory surveys within India’s Exclusive Economic Zone (EEZ). These surveys assess demersal, pelagic, and oceanic resources, collecting data on stock abundance, biomass, and environmental parameters essential for sustainable fisheries management. India has integrated advanced technological solutions to enhance its fisheries data collection and analysis. The Fish Catch Survey and Analysis (FCSA) software enables real-time reporting and management of fish catch and effort data, significantly improving efficiency and accuracy. The MARLIN@CMFRI, a mobile app developed as a gateway for comprehensive media sharing, which allows the public to effortlessly upload photos of marine fish species encountered in the vast expanse of the Indian EEZ, leading to the development of a rich visual repository of marine fishery resources. To further support sustainability, India has implemented various conservation and management measures, including the deployment of artificial reefs, regulatory frameworks for gear and vessel management, and conservation initiatives like closed fishing seasons and mesh size regulations. Collectively, these efforts demonstrate India’s commitment to integrating traditional

fisheries practices with modern scientific approaches to promote ecological balance, enhance fishers' livelihoods, and ensure the long-term sustainability of its marine fisheries resources."

125. The WPDCS **CONGRATULATED** the authors for their comprehensive work and **ACKNOWLEDGED** the significant advancements made in the data collection and estimation of marine fish landings in India.
126. The WPDCS **NOTED** that the closure of the fishery for a period of 61 days for mechanized vessels is based on the spawning seasons of key marine species, which align with the monsoon period in the region.
127. The WPDCS **NOTED** that the Fishery Survey of India (FSI) now possesses an extended time series of Catch Per Unit Effort (CPUE) data for yellowfin tuna, derived from surveys conducted by FSI's dedicated longliner vessels.
128. The WPDCS **NOTED** that catch data available from the surveys carried out by the Indian scientific longliners indicate that the records are minimal.

6. Regional Observer Scheme

6.1. Finalisation of the review of ROS data fields

129. The WPDCS **REQUESTED** that the IOTC Secretariat carefully review the recommended ROS data field lists intersessionally to check and identify if there are any problematic issues arising from the revised fields, for either the revision of collection or reporting forms, or for the overall IOTC ROS database management. The IOTC Secretariat should inform the WPDCS of any issues, out of session and prior to the 2025 Commission meeting.
130. The WPDCS **AGREED** that Secretariat and WPDCS should undertake an online intersessional review in collaboration with the relevant CPCs (i.e. those who use specific gears) to check and where necessary amend field definitions to ensure that they appropriately recognise (where necessary) the potential use of additional ROS data collection tools (e.g., EM and port sampling) and are otherwise also clear and easy to understand for observers.
131. **NOTING** that ROS data is generally provided to IOTC once a year by CPCs rather than trip by trip throughout the year as required in Res. [24/04](#). Moreover, **CONSIDERING** that the process of validating and sending individual observed trip data throughout the year is inconvenient and tedious for both CPCs and the IOTC Secretariat, the WPDCS **AGREED** that CPCs could provide ROS data once a year, and to align the submission deadline with the other required data provision, hence 30th June. This modification should be reflected in the revision of paragraph 18 in Res. [24/04](#) as suggested below. This will ensure that relevant information pertaining to vessels whose fishing operations have been observed under the ROS can be integrated and utilised with ROS data for future scientific analyses and advice developed to inform Commission decision making.
132. The WPDCS **RECOMMENDED**:
- That the SC **ENDORSE** the revised lists of ROS minimum data fields (including their stated collection and reporting requirement) for purse seine, longline and pole and line (include associated "general" fields) provided as an XLSX spreadsheet available here: [IOTC-2024-SC27-DATA01](#).
 - That the SC **ENDORSE** the revised collection and reporting requirement categories as follows:
 - Mandatory – mandatory for collection and reporting
 - Optional – optional for collection and reporting
 - That the SC **ENDORSE** the revised ROS data fields (and associated collection and reporting requirements) as a living document, for which CPCs can, if necessary, in future years, bring forward proposals for amendments or improvements, to the WPDCS and SC for review.
 - That the SC advise the Commission to take actions for all CPCs to ensure that the Record of Authorised Vessels (RAV) details are completely accurate and up to date.

6.2. Updates on the status of the ROS and its pilot project

133. The WPDCS **NOTED** paper [IOTC-2024-WPDCS20-20_Rev2](#) on the updates on the ROS data status.
134. The WPDCS **NOTED** the detailed information provided about the multiple format submissions, **RECALLING** that the ROS structured format, i.e., .ros files (produced by the ROS e-collection tool and managed by the ROS national databases) and the ROS data reporting format, i.e., .xlsx files (MS Excel workbooks, in tabular form) are the accepted formats that can be used to ensure the incorporation in the ROS Regional Database and future updates as soon as information is received by the IOTC Secretariat.
135. The WPDCS **NOTED** that the data currently available in the IOTC ROS regional database cover 56% of all ROS trip data provided to the Secretariat (3044 trips occurring in years between 2012 and 2023) and work is underway to finalize a batch processor that could integrate observer data provided through the new IOTC ROS forms.
136. The WPDCS **NOTED** the estimation of the level of effort covered by observers between 2019 and 2023 for industrial longline and purse seine vessels and **AKNOWLEDGE** the provision of previously incomplete data for some fleets, and the efforts made by some CPCs to redeploy on-board observers after the COVID restrictions period.
137. The WPDCS **NOTED** paper [IOTC-2024-WPDCS20-21](#) on the summary on best practices guidance for the safe handling and release of cetaceans.
138. The WPDCS **NOTED** the document includes summaries on the rationale and instructions for best practice for handling and releasing bycaught small cetaceans that are brought along-side longlines, purse seiners and gillnet vessels, as well as for those bycaught animals that are accidentally or intentionally brought aboard, respectively.
139. The WPDCS **NOTED** that the guidelines, from which this summary was produced, have been reviewed by over 20 experts consulted by the International Whaling Commission (IWC), the Convention on Migratory Species (CMS- including its daughter agreements, ASCOBANS and ACCOBAMS), and have been endorsed by the IWC's Scientific Committee.
140. The WPDCS **DISCUSSED** and **REVISED** the summary on best practices guidelines for safe handling and release of small cetaceans and **RECOMMENDED** the SC to advise the Commission to consider these guidelines when developing conservation measures for cetaceans.

6.3. Electronic Monitoring Systems in support of the IOTC ROS

141. The WPDCS **NOTED** paper [IOTC-2024-WPDCS20-22](#) on EM in action: Case study and results from Seychelles, with the following abstract provided by the authors:

“The paper outlines the Seychelles' implementation of electronic monitoring (EM) in the fishing industry, aligning with IOTC's Resolution 23/08 to enhance data collection under the Regional Observer Scheme (ROS). Since launching its EM pilot in 2016, Seychelles has focused on purse seine and longline fleets, achieving significant support, especially among domestic purse seine operators. EM adoption is set to expand under forthcoming fisheries legislation. The Seychelles Fisheries Authority (SFA) oversees a dedicated Data Review Center, where analysts handle data from EM systems, including reviewing footage, producing trip reports, and tracking vessel compliance with a color-coded risk system. Although some industry resistance persists, the data is instrumental for compliance and enforcement. Seychelles aims to align its processes with IOTC ROS requirements, sharing templates and leveraging EM data to promote sustainability and transparency in regional fisheries.”

142. The WPDCS **THANKED** the authors and **NOTED** the EM system deployed in Seychelles can be different from other places which can lead to difficulties for interoperability. The authors explained they are working with different companies. They try to set a system compatible with other systems and it is a work in progress.
143. The WPDCS **NOTED** that the Seychelles EM project primarily focuses on collecting compliance data, rather than scientific data.

144. The WPDCS **NOTED** that the Seychelles EM systems are designed to compensate for the absence of human observers, particularly on longline vessels, in order to meet the ROS data reporting requirements.
145. The WPDCS **NOTED** that Seychelles is collaborating with other partners to establish a repository for EM data, **CONSIDERING** that cloud storage could be options for long time storage.
146. The WPDCS **NOTED** that the EM system. Which is still in the pilot phase, currently takes one week to analyse data from a single trip. It was further **NOTED** that human resource constraints pose a challenge.
147. The WPDCS **NOTED** that the EM project is not yet linked to the EM systems already in place on some Seychelles and foreign vessels operating in Seychelles waters, **NOTING** that there are no plans to duplicate existing efforts.
148. The WPDCS **NOTED** that the analysis focuses on FADs, bycatch, and estimates of target species, and efforts are underway to implement super-sampling techniques to enhance accuracy.
149. The WPDCS **NOTED** that there are still some legal issues before Seychelles could fully implement the EM system on all vessels, **ACKNOWLEDGING** that the trial is still on voluntary basis.
150. The WPDCS **NOTED** paper [IOTC-2024-WPDCS20-23](#) on Industrial Fisheries Electronic Monitoring in the Indian Ocean; The Kenya Pilot study, with the following abstract provided by the authors:
- “With IOTC’s Resolution 23/08, Electronic Monitoring (EM) can be used to support Regional Observer Scheme (ROS) data collection requirements. Kenya is undertaking a Pilot EM project to evaluate the requirements for full implementation in the industrial fishing fleet. This report provides the progress and experience gathered from the Pilot project. The management of fisheries worldwide depend on data from log books collected by fisheries authorities from the fishers, portside inspections, scientific surveys or onboard human observers, to evaluate the status of the fishery. The data collection through these approaches is costly in terms of human capacity, often incomplete, biased and vulnerable to manipulation due to the vested interest of those involved. Thus, the use of fishery-dependent data in determining the status of fish stocks has been questioned (Cotter & Pilling, 2007). In particular, logbook data often does not include information on all fish caught, since catch that is discarded at sea represent a large proportion of the total catch (Uhlmann et al., 2014; Ulleweit, Stransky, & Panten, 2010). Misreporting may also occur when fishers under-report the catch and by-catch in quota-limited fisheries (Borges, 2015). Without effective monitoring and enforcement, fisheries will struggle to reach sustainability. Most fisheries in the world lack reliable data on what happens on-the-water to inform and implement science-based management.”*
151. The WPDCS **NOTED** that 20% of the EM trips were reviewed and it was explained that standard protocols were used to detect outliers.
152. The WPDCS **ASKED** if the length and weight information and other biological data were integrated to the EM system. It was confirmed this information are all included in the EM data.
153. The WPDCS **ASKED** about the size of the longline fleet in the pilot study (coastal or industrial). The pilot study is indeed deployed on an industrial longliner, and more information can be shared later for technical specifications. The WPDCS **ASKED** if the data can be transmitted to IOTC after being reviewed and it was confirmed that these data can be shared.
154. The WPDCS **ASKED** how often the videos are being sent and the period of the videostream. It was explained the videos are transferred in real time and operating 24h.
155. The WPDCS **ASKED** if pollution can be identified with the EM system and what type of pollution occurs. The author explained that plastic pollution was observed.
156. The WPDCS **ASKED** if discrepancies can be identified between humans and EM systems and if concurrent observations can be collected. The authors explained it is a preliminary approach and data collected from EM are the ones not collected by observers. It is indeed hard to get 100% match between EM and observer. Differences are however minor.

157. The WPDCS **NOTED** the system is capable of identifying the potential non-compliances by fishers.
158. The WPDCS **NOTED** this pilot approach includes some longliners for now to investigate the feasibility of expanding this programme to a full coverage of the fleet.
159. The WPDCS **NOTED** paper [IOTC-2024-WPDCS20-24](#) on A Crew-based Observer protocol alternate for on-board data collection in compliance with Resolution [24/04](#) On A regional observer scheme effectively deployed on artisanal and semi-industrial multi-day fisheries boats in the Indian Ocean by Sri Lanka, with the following abstract provided by the authors:
- “Sri Lanka faces challenges in meeting IOTC (Indian Ocean Tuna Commission) observer scheme resolutions due to the small size and design of its artisanal and semi-industrial multi-day fishing vessels. Over 99% of Sri Lanka's fishing fleet is less than 24 meters in length. These vessels represent more than 30% of the total IOTC-registered vessels but are unsuitable for deploying scientific observers or electronic monitoring systems mandated by IOTC Resolutions 22/04 and 23/08. To address this, Sri Lanka implemented a Crew-based Observer (CbO) protocol as an alternative data collection method. Initiated in 2018 under the Sri Lanka Longline Fisheries Improvement Project, the CbO program trains vessel skippers and crew to independently collect verifiable fisheries and scientific data. From 2018 to 2024, the program deployed 43 observers across 94 trips, recording extensive data on trips, gear, operations, and catch. The CbO protocol includes pre-departure briefings to gather vessel and trip information and post-arrival debriefings to compile operation and catch data. Equipped with GPS-enabled cameras, observers record fish weights and other critical data. This protocol complies with IOTC Resolution 15/01, achieving 100% of data reporting requirements per trip and significant coverage for longline and gillnet operations. CbO deployments are cost-effective, requiring only basic equipment and costing less than the cost of deploying a scientific observer. In conclusion, the CbO protocol effectively addresses the challenges of observer deployment for small-scale fishing vessels, ensuring compliance with IOTC data collection standards while highlighting the need for further adaptations for comprehensive fisheries management.”*
160. The WPDCS **CONGRATULATED** the authors for this work on the crew-based Observer protocol.
161. The WPDCS **NOTED** this programme targets the longline and gillnet fleet as a first step and can be extended to ringnet vessels in the future. However, it is a small-scale fishery which is not operating in high seas.
162. The WPDCS **NOTED** morphometric measurements are also automatically collected. As noted by WPB, some fish are landed dressed, and it would be useful to collect length frequencies for these fish using this approach. The authors explained pictures of billfish are collected too (500 pictures) and it is possible to predict the external length for these species (BLM, SFA, BUM). Outputs of this activity was presented to the WPDCS 20 under section 05.
163. The WPDCS **NOTED** this data collection is paid to fishers for this first phase to facilitate implementation as an incentive to participate.
164. The WPDCS **NOTED** training of the crew member and skippers are done by the department before leaving at sea.
165. The WPDCS **NOTED** EM trials in previous years and the next steps are to calibrate the information from skippers, observers and EM for a few trips. 3 vessels have been applying the approach as a pilot but there are still some difficulties to extract the information needed. It was NOTED another 2 sets of equipment are ready and will help to carry out more trips. Results will be presented during the next WPDCS.
166. The WPDCS **NOTED** issues to install the system onboard. In particular, the system was causing issues with the electrical system onboard. Another issue came from the capacity to review the videos provided by the equipment provider. From this experience, it was also explained the need for adaptation to local constraints.

167. The WPDCS **ENCOURAGED** Sri Lanka to carry out the crew-based observer protocol to be considered as the alternative method to widen the ROS coverage for the semi-industrial vessels operated by Sri Lanka.

WPDCS Programme of Work

6.4. Revision of the WPDCS programme of Work 2025-2029

168. The WPDCS **NOTED** paper [IOTC-2024-WPDCS20-25](#) which provides an opportunity to discuss and revise the WPDCS Programme of Work (2025-2029), by considering the specific requests of the Commission, Scientific Committee, and the resources available to the Secretariat and CPCs.
169. The WPDCS **RECALLED** that the SC, at its 18th Session, made the following request to its Working Parties:
- “The SC REQUESTED that during all future Working Party meetings, each group not only develop a Draft Program of Work for the next five years containing low, medium, and high priority projects, but that all High Priority projects are ranked. The intention is that the SC would then be able to review the rankings and develop a consolidated list of the highest priority projects to meet the needs of the Commission. Where possible, budget estimates should be determined, as well as the identification of potential funding sources.”* (SC18. Para 154)
170. The WPDCS **RECALLED** that the Chairperson and Vice-Chairperson of the WPDCS shall consult with the Secretariat to develop Terms of Reference (TOR) for each of the high priority projects that are yet to be funded, for circulation to potential funding sources.
171. The WPDCS **RECOMMENDED** that the SC consider and endorse the WPDCS Programme of Work (2025-2029), as detailed in [Appendix V](#).

Other business

6.5. Date and place of the 21st and 22nd Sessions of the WPDCS: 2025 & 2026

172. The WPDCS **AGREED** that the working party should continue to be held back-to-back with the SC, as usual, and therefore **ACKNOWLEDGED** that the exact dates and location of its 21st session will depend on whether CPCs will express their interest in hosting the next session.

Table 4. Draft meeting schedule for the WPDCS (2025 and 2026)

Meeting	2025			2026		
	No.	Date	Location	No.	Date	Location
Working Party on Data Collection and Statistics (WPDCS)	21 st	TBD	TBD	22 nd	TBD	TBD

Adoption of the report

6.6. Review of the draft, and adoption of the report of the 20th Session of the WPDCS

173. The WPDCS **NOTED** that the report would be adopted via correspondence, and that a set of draft recommendations will be presented at the SC27 for its endorsement.
174. The WPDCS **RECOMMENDED** that the Scientific Committee consider the consolidated set of recommendations arising from WPDCS20, as detailed in [Appendix VI](#).

APPENDIX I

LIST OF PARTICIPANTS

Chairpersons						
Title	First name	Last name	Affiliation†	Country	e-mail	A
Dr	Julien	Barde	IRD	France (EU)	julien.barde@ird.fr	P
Dr	Nuwan	Gunawardane	DFAR	Sri Lanka	nuwan.dfar@gmail.com	P
Participants from national institutions						
Title	First name	Last name	Affiliation†	Country	e-mail	A
Mr	Mohammed	Adam	MAR	Sudan	msuleimanabbakar@gmail.com	R
Mr	Al Moatasam	Al Habsi	MAFWR	Oman	muatasim4@hotmail.com	R
Mr	Yasser	Al Musalhi	MAFWR	Oman	Yaser.almuselhi@mafwr.gov.om	R
Dr	Nekane	Alzorriz	ANABAC	Spain (EU)	nekane@anabac.org	R
Mr	Muhammad	Anas	MMAF	Indonesia	mykalambe@yahoo.com	P
Ms	Nur Hidayah	Asgnari	DOFM	Malaysia	hidayahasgnari@dof.gov.my	R
Ms	Cindy	Assan	SFA	Seychelles	cassan@sfa.sc	P
Dr	Sylvain	Bonhommeau	Ifremer	France (EU)	sylvain.bonhommeau@ifremer.fr	P
Ms	Karine	Briand	IRD	France (EU)	karine.briand@ird.fr	R
Dr	Don	Bromhead	ABARES	Australia	Don.Bromhead@aff.gov.au	P
Mr	Antonio	Cuambe	NFAM	Mozambique	kechane@gmail.com	R
Dr	Brooke	D'Alberto	DAFF	Australia	brooke.dalberto@aff.gov.au	R
Dr	Antoine	Duparc	IRD	France (EU)	antoine.duparc@ird.fr	R
Mr	MD Hassan	Filow	MFBE	Somalia	filow@mfbe.gov.so	R
Mr	Théotime	Fily	IRD	France (EU)	theotime.fily@ird.fr	R
Mr	Laurent	Floc'h	IRD	France (EU)	laurent.floch@ird.fr	R
Dr	José Ramón	García Gallardo	MAFWR	Oman	ramon@g-gallardolegal.eu	P
Dr	Maitane	Grande	AZTI	Spain (EU)	mgrande@azti.es	R
Ms	Maleeha	Haleem	MFOR	Maldives	maleeha.haleem@fisheries.gov.mv	R
Ms	Riana	Handayani	MMAF	Indonesia	daya139@yahoo.co.id	P
Ms	Hety	Hartaty	BRIN	Indonesia	hhartaty@gmail.com	R
Mr	Miguel	Herrera	OPAGAC	Seychelles	miguel.herrera@opagac.org	R
Ms	Prompan	Hiranmongkorat	DOF	Thailand	prompan.hiranmongkolrat@gmail.com	R
Dr	Taha	Imzilen	IRD	France (EU)	taha.imzilen@ird.fr	R
Dr	Indra	Jaya	IPBU	Indonesia	indrajaya@apps.ipb.ac.id	P
Dr	Jayasankar	Jayaraman	ICAR-CMFRI	India	jjsankar@icar.gov.in	R
Dr	Maria José	Juan Jordá	IEO-CSIC	Spain (EU)	mjuan.jorda@ieo.csic.es	R
Dr	Mini	K.G.	ICAR-CMFRI	India	minikg02@gmail.com	R
Mr	Yusuke	Kakutani	OFCE	Japan	kakutani@ofcf.or.jp	R
Dr	MD Khaled	Kanak	DOF	Bangladesh	mkkanak2003@yahoo.com	R
Dr	Farhad	Kaymaram	IFSRI	I.R. Iran	farhadkaymaram@gmail.com	R
Mr	MD Moazzam	Khan	WWF	Pakistan	mmoazzamkhan@gmail.com	R
Mr	Sabah	Khorshidi Nergi	SHILAT	I.R. Iran	skh981@yahoo.com	R
Mr	Owen	Kibona	MLF	Tanzania	owenmwajeka@yahoo.com	R
Ms	Beatrice	Kinyua	SFACT	Kenya	beatrice.kinyua@sfact.org	R
Dr	Toshihide	Kitakado	TUMST	Japan	kitakado@kaiyodai.ac.jp	P
Dr	Silambarasan	Krishnan	FSI	India	silambuplankton@hotmail.com	R
Mr	Naomasa	Kugimoto	OFCE	Japan	kugimoto@ofcf.or.jp	R
Ms	Chonticha	Kumyoo	DOF	Thailand	chonticha.dof@gmail.com	R
Dr	Somy	Kuriakose	ICAR-CMFRI	India	somycmfri@gmail.com	R
Mr	Suraj	Kuruppuge	DFAR	Sri Lanka	ksckdumidi@gmail.com	R
Dr	Haewon	Lee	NIFS	Korea	roundsea@korea.kr	R
Dr	Jung-hyun	Lim	NIFS	Korea	jhlim1@korea.kr	R

Title	First name	Last name	Affiliation†	Country	e-mail	A
Mr	Vincent	Lucas	SFA	Seychelles	vlucas@sfa.sc	R
Ms	Juliette	Lucas	SFA	Seychelles	jlucas@sfa.sc	P
Mr	Ariyaratna	Manage	DFAR	Sri Lanka	mma_fi@yahoo.com	P
Dr	Francis	Marsac	IRD	France (EU)	francis.marsac@ird.fr	R
Dr	Takayuki	Matsumoto	NRIFSF	Japan	matsumoto_takayuki77@fra.go.jp	P
Ms	Yuka	Matsuzawa	FRA	Japan	yuka_matsuzawa450@maff.go.jp	R
Dr	Alexandra	Maufroy	ORTHONGEL	France (EU)	amaufroy@orthongel.fr	P
Mr	Ranwel	Mbukwah	DSFA	Tanzania	ranwel.mbukwah@dsfa.go.tz	R
Dr	Muktha	Menon	ICAR-CMFRI	India	muktham@gmail.com	R
Mr	Abdirizak A.	Mohamed	MFBE	Somalia	engaacwiye15@gmail.com	R
Ms	Esther	Mollier	IRD	France (EU)	esther.mollier@ird.fr	R
Ms	Tumu	Mussa	DSFA	Tanzania	tumu.mussa@dsfa.go.tz	R
Mr	Stephen	Ndegwa	KFS	Kenya	ndegwafish@yahoo.com	R
Ms	Hawwa	Nizar	MFOR	Maldives	raufath.nizar@fisheries.gov.mv	R
Dr	Pavarot	Noranarttragoon	DOF	Thailand	pavarotn@gmail.com	P
Mr	Zachary	Ogari	KFS	Kenya	zachzach13@gmail.com	P
Dr	Abdul Azeez	P	ICAR-CMFRI	India	azeez.cr7@gmail.com	R
Dr	Heewon	Park	NIFS	Korea	heewon81@korea.kr	R
Dr	Jeong-Ho	Park	NIFS	Korea	marinebio@korea.kr	R
Mr	Dinesh	Peiris	DFAR	Sri Lanka	dineshdar@gmail.com	R
Mr	Pedro	Pires	NFA	Mozambique	ppires1969@gmail.com	R
Mr	Krisna Fery	Rahmantya	MMAF	Indonesia	krisnafr@gmail.com	P
Mrs	Maria Lourdes	Ramos Alonso	IEO-CSIC	Spain (EU)	mlourdes.ramos@ieo.csic.es	R
Mr	Mbukwah	Ranwel	DSFA	Tanzania	ranwel.mbukwah@dsfa.go.tz	R
Mr	Jon	Ruiz	AZTI	Spain (EU)	jruiz@azti.es	R
Dr	Philippe	Sabarros	IRD	France (EU)	philippe.sabarros@ird.fr	R
Ms	Chidchanok	Sangnitidaj	DOF	Thailand	Sangnitidaj@gmail.com	R
Ms	Saraswati	Saraswati	MMAF	Indonesia	cacasaras@gmail.com	P
Mr	Umair	Shahid	WWF	Pakistan	ushahid@wwf.org.pk	R
Ms	Mariyam	Shama	MMRI	Maldives	mariyam.shama@mmri.gov.mv	R
Dr	Nazia	Sher	NIMA	Pakistan	dr.naziaedu@yahoo.com	R
Mr	Mohamed	Shimal	MMRI	Maldives	mohamed.shimal@mmri.gov.mv	R
Dr	Mathew	Silas	DSFA	Tanzania	mathew.silas@dsfa.go.tz	P
Dr	Emmanuel	Skewe	DSFA	Tanzania	emmanuel.sweke@dsfa.go.tz	R
Dr	Constantine	Stamatopoulos	MAFWR	Oman	cstamat@gmail.com	P
Dr	Fujino	Tadanori	OFCE	Japan	ofcf.fujino@gmail.com	R
Mr	Rahul Kumar	Tailor	FSI	India	rt311280@gmail.com	R
Mr	Amod	Tamhane	FSI	India	tamhane.av@fsi.gov.in	R
Mr	Weerapol	Thitipongtrakul	DOF	Thailand	weerapol.t@gmail.com	R
Dr	Muneharu	Tokimura	OFCE	Japan	tokimura@ofcf.or.jp	R
Dr	Sachiko	Tsuji	NRIFSF	Japan	sachiko27tsuji@gmail.com	R
Dr	Yuji	Uozumi	JTFCA	Japan	uozumi@japantuna.or.jp	R
Dr	Arezo	Vahabnezhad	IFSRI	I.R. Iran	avn9400@gmail.com	R
Dr	Sijo P	Varghese	FSI	India	varghesefsi@hotmail.com	R
Dr	Eldho	Varghese	ICAR-CMFRI	India	eldhoiasri@gmail.com	P
Mrs	Melanie	Williamson	CapFish	South Africa	melanie@capfish.co.za	R
Mr	Ren-Fen	Wu	OFDC	Taiwan,China	fan@ofdc.org.tw	P
Dr	Saleh	Yahya	DSFA	Tanzania	saleh.yahya@dsfa.go.tz	R
Participants from international organisations						

Title	First name	Last name	Affiliation†	e-mail	A
Mr	James	Geehan	FAO	james.geehan@fao.org	R
Dr	Glen	Holmes	PEW	gholmes@pewtrusts.org	R
Ms	Ali	Hood	Shark Trust	ali@sharktrust.org	R
Mrs	Emily	Langley	TNC	emily.langley@tnc.org	R
Dr	Hilario	Murua	ISSF	hmurua@iss-foundation.org	P
Dr	Cecilia	Passadore	IWC	cecilia.passadore@iwc.int	R
Mr	Pierre	Peries	SIOFA	pierre.peries@siofa.org	P
Dr	Helen	Wade	Birdlife International	helen.wade@rspb.org.uk	R
Secretariat staff					
Title	First name	Last name	Role	e-mail	A
Dr	Emmanuel	Chassot	Data coordinator	emmanuel.chassot@fao.org	P
Dr	Paul	De Bruyn	Executive Secretary	paul.debruyn@fao.org	R
Mrs	Cynthia	Fernandez-Diaz	Fishery officer	cynthia.fernandezdiaz@fao.org	P
Mr	Dan	Fu	Science manager	dan.fu@fao.org	P
Ms	Lauren	Nelson	Fishery officer	lauren.nelson@fao.org	R
Ms	Lucia	Pierre	Data assistant	lucia.pierre@fao.org	P

†Affiliation codes available from report [acronyms](#); Attendance: **P** – in person, **R** – remote

APPENDIX II

AGENDA FOR THE 20TH WORKING PARTY ON DATA COLLECTION AND STATISTICS

Date: 26th – 28th November 2024

Location: Mumbai, India / Hybrid

Platform: Zoom

Time: 9:00 – 17:00 (Mumbai time, GMT+05:30)

Chair: Dr Julien Barde (EU,France); **Vice-Chair:** Dr Nuwan Gunawardane (Sri Lanka)

1. **OPENING OF THE MEETING** (Chair)
2. **ADOPTION OF THE AGENDA AND ARRANGEMENTS FOR THE SESSION** (Chairs)
3. **THE IOTC PROCESS: OUTCOMES, UPDATES AND PROGRESS** (Secretariat)
 - 3.1. Outcomes of the 25th Session of the Scientific Committee and of the 27th Session of the Commission
 - 3.2. Review of Conservation and Management Measures (CMMs) relevant to the WPDCS
 - 3.3. Progress on the recommendations of WPDCS18
4. **REVIEW OF DATA REQUIREMENTS IN CONSERVATION AND MANAGEMENT MEASURES RELEVANT TO THE WPDCS** (Secretariat)
 - 4.1. Data recording (logbooks)
 - 4.1.1. Res. 15/01 *On the recording of catch and effort data by fishing vessels in the IOTC area of competence*
 - 4.2. Data reporting (to the Secretariat)
 - 4.2.1. Res. 15/02 *On mandatory statistical reporting requirements for IOTC Contracting Parties and Cooperating Non-Contracting Parties (CPCs)*
 - 4.2.2. Res. 19/02 *Procedures on a fish aggregating devices (FADs) management plan*
 - 4.2.3. Res. 19/07 *On vessels chartering in the IOTC area of competence*
 - 4.2.4. Res. 21/01 *On an interim plan for rebuilding the Indian Ocean yellowfin tuna stock in the IOTC area of competence*
 - 4.2.5. Res. 23/01 *On the management of Anchored Fish Aggregating Devices (AFADs)*
5. **PROGRESS REPORT OF THE SECRETARIAT ON DATA RELATED ISSUES** (Secretariat)
 - 5.1. Secretariat report
 - 5.2. Updates on data-related requests from other Working Parties (Secretariat)
 - 5.3. Dissemination of IOTC reference data, datasets, and documents
 - 5.3.1. Res. 12/02 *Data confidentiality policy and procedures*
6. **UPDATES ON NATIONAL STATISTICAL SYSTEMS** (CPCs)
 - 6.1. Updates on the status of national data collection systems
 - 6.2. Overview of data processing procedures and proposed revisions of historical data
 - 6.3. Main challenges encountered in reporting mandatory statistics to the Secretariat
7. **GLOBAL FISHERIES INFORMATION SYSTEMS AND DATA MANAGEMENT BEST PRACTICES** (Chairs & Secretariat)
8. **REGIONAL OBSERVER SCHEME** (Secretariat & CPCs)

- 8.1. Updates on the status of the ROS and its Pilot Project
- 8.2. Electronic Monitoring Systems in support of the IOTC ROS
- 9. **CAPACITY BUILDING ACTIVITIES: DATA COLLECTION AND PROCESSING IN COASTAL COUNTRIES** (Chairs & Secretariat)
- 10. **WPDCS PROGRAMME OF WORK** (Chairs & Secretariat)
 - 10.1. Revision of the WPDCS Programme of Work 2024–2027
- 11. **OTHER BUSINESS**
 - 11.1. Election of the Chairperson and Vice-Chairperson of the WPDCS for the next biennium (Secretariat)
 - 11.2. Date and place of the 20th and 21st sessions of the WPDCS: 2024 & 2025 (Chairs)
- 12. **ADOPTION OF THE REPORT**
 - 12.1. Review of the draft, and adoption of the report of the 19th session of the WPDCS (Chairs)

APPENDIX III

LIST OF DOCUMENTS

Meeting Documents	Title	Authors
IOTC-2024-WPDCS20-01a	Agenda of the 20 th WPDCS	IOTC Secretariat
IOTC-2024-WPDCS20-01b	Annotated agenda of the 20 th WPDCS	IOTC Secretariat
IOTC-2024-WPDCS20-02	List of documents of the 20 th WPDCS	IOTC Secretariat
IOTC-2024-WPDCS20-03	Outcomes of the 26 th session of the SC	IOTC Secretariat
IOTC-2024-WPDCS20-04	Outcomes of the 28 th session of the Commission (IOTC Secretariat)	IOTC Secretariat
IOTC-2024-WPDCS20-05	Review of current data-related Conservation and Management Measures	IOTC Secretariat
IOTC-2024-WPDCS20-06	Updated calculations of yellowfin tuna catch limits for 2024 / 2025	IOTC Secretariat
IOTC-2024-WPDCS20-07	Report on IOTC data section activities	IOTC Secretariat
IOTC-2024-WPDCS20-08	Report on progress of IOTC-OFCF Project for JFY2024 activities and planned activities for JFY2025	OFCF
IOTC-2024-WPDCS20-09	Report on IOTC data collection and statistics	IOTC Secretariat
IOTC-2024-WPDCS20-10	Overview of data and information available on IOTC coastal fisheries	IOTC Secretariat
IOTC-2024-WPDCS20-11	Development of a database on fish biology and ecology to support the IOTC science process	IOTC Secretariat
IOTC-2024-WPDCS20-12	Iran's measures to improve catch & effort data in 2023	Sabah Khorshidi
IOTC-2024-WPDCS20-13	Strengthening Somalia's fisheries management in the IOTC data and reporting framework	Withdrawn
IOTC-2024-WPDCS20-14	Data collection of handline fishery from Thai-flagged fishing vessels in the Western Indian Ocean	Permnak and Noranarttragoon
IOTC-2024-WPDCS20-15	Review of Oman's data collection system and statistics and retrospective analysis 2014-2023	Stamatopoulos et al.
IOTC-2024-WPDCS20-16	Report on the review of the re-estimation methodology of Indonesia's annual catch data in IOTC for the period 1950-2022	MMAF and BRIN
IOTC-2024-WPDCS20-17	From shadows to clarity: Reconstructing the artisanal fisheries catch data of Tanzania (1950-2023) for improved resource management	Silas et al.
IOTC-2024-WPDCS20-18	Bridging Data Gaps in Kenya's Artisanal Fisheries: Leveraging Citizen Science and Technology for Sustainable Management	Ogari et al.
IOTC-2024-WPDCS20-19	Introduction of length conversion factors for billfish species caught by Sri Lankan multiday fishermen in Indian ocean to mitigate data submission issues	Gunawardane et al.
IOTC-2024-WPDCS20-20	Updates on the ROS data status	IOTC Secretariat
IOTC-2024-WPDCS20-21	Summary on best practices guidance for the safe handling and release of cetaceans	IWC & CMS
IOTC-2024-WPDCS20-22	EM in action: Case study and results from Seychelles	SFA
IOTC-2024-WPDCS20-23	EM in action: Case study and results from Kenya	Kimani et al.
IOTC-2024-WPDCS20-24	Crew based observer protocol as an alternative to the scientific observer scheme on small-scale multiday fisheries boats in the Indian Ocean operated by Sri Lanka	Gunawardane et al.
IOTC-2024-WPDCS20-25	Revision of the WPDCS Programme of Work	IOTC Secretariat
IOTC-2024-WPDCS20-26	IOTC data of relevance to SIOFA, reporting and usage challenges	Pieres
IOTC-2024-WPDCS20-27	An online digital ocean atlas for the Indian Ocean to study the impacts of climate change and variability on tuna fisheries	Marsac et al.

Information papers	Title	Authors
IOTC-2024-WPDCS20-INF01	Validating IOTC candidate ecoregions through a comparative analysis of main tuna and tuna-like species and fishing fleets	Idárraga-Garcés et al.
IOTC-2024-WPDCS20-INF02	Elements of Terminology for Marine Areas	Blondel
IOTC-2024-WPDCS20-INF03	Estimation of Marine Fishery Resources in India: Methodology and Way Forward	Varghese

APPENDIX IV

MAIN ISSUES IDENTIFIED BY THE WPDCS AND ACTIONS PROPOSED TO ADDRESS THEM

(see document [IOTC-2024-WPDCS20-09_Rev2](#))**Table A1.** Key issues identified for the retained catch (RC) data, including the CPCs and fisheries concerned, and the actions proposed

Dataset	CPCs	Fisheries	Key issues	Proposed actions
RC	India	Coastal fisheries	Catches are reported for various regions by fisheries, rather than aggregated by main IOTC areas, as required for RC. Aggregated catches of shark species. No data reported for 2022	The presentation by India during WPDCS19 indicated that an integrated fisheries management system is being developed, which could potentially provide the data required by the resolutions. However, this will entail continued engagement with the Secretariat to assist India in formulating and refining the data
	Indonesia		Interannual variability in official estimates of total catch and species composition, multiple data submissions every year	Continue ad hoc collaboration with institutes involved in fisheries monitoring and reporting and support for sampling of artisanal fisheries (e.g., species identification) and data management
	I.R. Iran, Pakistan	Drifting gillnet fisheries	Possible double-counting of catch due to vessels that may be registered in Pakistan and I.R. Iran	Fisheries administrations from Pakistan and I.R. Iran to work closely to identify the vessels that are registered in both countries, and reporting their activities in both countries
	Kenya	Coastal fisheries, Industrial fisheries	Lack of knowledge on industrial fisheries activities. Issues with data collection, including catch and effort and size data for coastal fisheries	Liaise with Kenya, with the assistance of Compliance expert to help Kenya to implement the requirement of resolutions 15/01 and 15/02
	Pakistan	Drifting gillnet fishery	Additional validation of latest revised catch series. No data reported for 2022	Liaise with Pakistan in terms of support for appraisal of the data
	Madagascar	Coastal fisheries, longline fisheries	Issues with data collection, including catch and effort and size data. Ending of the World Bank project in 2021 led to discontinuation of data collection, where no data for coastal fisheries reported since 2021	Madagascar requested assistance to review and continuation of the sampling of artisanal fisheries (dependent on staff / funds available?). Liaise with FAO to assess possible options for combined interventions in the country
	Somalia	Coastal fisheries	Lack of national data collection systems, including catch and effort and size data	Support to national initiatives (e.g., Fisheries Data Collection Working Group) for the validation of databases and data collection programmes
	Yemen	Handline fishery	Retained catches from FAO which have recently updated, which include changes in catches of some IOTC species	Liaise with FAO regional office and Statistics team of the Fisheries Division

Table A2. Key issues identified for the catch and effort (CE) data, including the CPCs and fisheries concerned, and the actions proposed

Dataset	CPCs	Fisheries	Key issues	Proposed actions
CE	All	Most fisheries	Data either not submitted, or falls short of the IOTC data reporting requirements	Implement minimum data requirements for sharks/species? (noting that those for India are different as it has objected to the logbook Resolution)
		Coastal fisheries	Many CPCs have failed to report catches and effort per month for their coastal fisheries	As a minimum, request CPCs to report catches and fishing by species, gear, and month, in addition to the total numbers of fishing craft operated by gear, and month (or year).
	Oman	Longline fisheries	Data either not submitted, or falls short of the IOTC data reporting requirements	Oman held a two-day visit at the Secretariat with the data section to further understand the gaps. Continuous collaboration between Oman and the Secretariat is required to improve the quality of data reported by Oman
	Indonesia	Industrial longline fisheries	Inconsistency between logbook and VMS; Low logbook coverage, particularly for small scale fisheries. Irregularities in fisheries catch	IOTC to encourage strengthening management and validation of logbook data – particularly inconsistencies with VMS data and issues of low reporting rates of submitted logbooks (<10% in recent years)
	Oman	Handline and gillnet fisheries	Lack of reporting by the requirement standard due to data management	Oman held a two-day visit at the Secretariat with the data section to further understand the gaps. Continuous collaboration between Oman and the Secretariat is required to improve the quality of data reported by Oman
	Pakistan	Drifting gillnet fishery	Data not submitted	As part of the IOTC Data Compliance and Support missions, provide assistance to CPCs to understand the IOTC data requirements and processing of information and urge them to implement requirements and report data to the IOTC; for Pakistan gillnetters, appraisal of the capacity of the local crew-based data collection database to provide reliable catch and effort (as well as size-frequency) data to the Secretariat
	Madagascar	Coastal fisheries	Issues with data collection, inconsistency and not fully covering all areas. Discontinuation of the world bank project, no data collected in 2022	Madagascar requested assistance to review and continuation of the sampling of artisanal fisheries (dependent on staff / funds available?). Liaise with FAO to assess possible options for combined interventions in the country

Table A3: Key issues identified for the size-frequency (SF) data, including the CPCs and fisheries concerned, and the actions proposed

Dataset	CPCs	Fisheries	Key issues	Proposed actions
SF	India, Indonesia, Malaysia, Oman, Yemen	Coastal fisheries	No or very few size frequency data reported	Assist CPCs to understand data requirements, and provide support to pilot sampling and processing of fisheries data and urge them to strictly implement IOTC mandatory data reporting requirements
	I.R. Iran	Drifting gillnet fishery	Historical data not by IOTC standards	The IOTC Secretariat to collaborate with I.R. Iran on assessing whether historical (prior to 2023) size data could be reprocessed to be broken down by fishing grounds and fisheries
	Japan, Taiwan, China	Longline fisheries	Catch and effort and size data conflicting over the time series.	Follow-up of recommendations resulting from the consultancy conducted in 2020-2021
	Japan		No sampling since 2021	Follow-up to see why the lack of size data collection
	Pakistan	Drifting gillnet fishery	No or very few size-frequency data reported	IOTC Secretariat liaising with Pakistan in terms of possible assistance for data entry, processing, and submission of data via the Pakistan government, as data could be collected by observers on board vessels

Table A4: Key issues identified for the Regional Observer Scheme (ROS) data, including the CPCs and fisheries concerned, and the actions proposed

Dataset	CPCs	Fisheries	Key issues	Proposed actions
ROS	All	Longline and surface fisheries	Low levels of implementation and reporting	Organize ROS training and workshops to assist CPCs with implementation of the ROS data collection and reporting requirements, also under the activities of the ROS Pilot Project (training programme).
			Information reported in formats not suitable for data extraction	Explore ways of facilitating reporting of data using the IOTC ROS electronic tools and data reporting forms
		Coastal fisheries	Low levels of implementation and reporting	Extension of EMS pilot project to other countries besides Sri Lanka
	Strengthen data collection mechanisms at landing sites (in-port observers, alternative data collection mechanisms)			
Sri Lanka	Coastal and offshore fisheries	Partial implementation of ROS requirements	IOTC Secretariat to continue supporting the adoption of the ROS standards and tools; possible follow-up on EMS trial projects dependent on funding. Follow-up on the pilot study of EMS in Sri Lanka for coastal fisheries for which there are difficulties placing on-board observers	

Table A5: Key issues identified for the socio-economic (SE) data, including the CPCs and fisheries concerned, and the actions proposed

Dataset	CPCs	Fisheries	Key issues	Proposed actions
Socio-Economic	All	All	Limited data available, and collated within the IOTC database	Following the WPSE01, the Secretariat will work closely with CPCs, in formulating the format for collecting socio-economic data. Furthermore, liaise with FAO and other institutes (e.g., FFA, World Bank) to access open repositories of fish sale price, import and export data, and national indicators (e.g., Gross Domestic Product). Encourage CPCs to report information of fish prices (local sale, export, import prices)

APPENDIX V

WORKING PARTY ON DATA COLLECTION AND STATISTICS PROGRAMME OF WORK (2025–2029)

The Programme 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 its Working Parties:

Table A6. Priority topics for obtaining the information necessary to deliver the necessary advice to the Commission

Topic		Sub-topic and project	2025	2026	2027	2028	2029	
1	Coastal fisheries data collection	1.1*	Data support missions to assist the implementation of data collection and sampling activities for fisheries insufficiently sampled. Recommended actions include designing sampling guidelines for IOTC fisheries. Priority to be given to the following countries / fisheries:					
		<ul style="list-style-type: none"> • Indonesia • Pakistan • I.R. Iran • Kenya • Tanzania • Comoros • Madagascar 						
		1.2	Biological sampling workshop, including species identification and genetics sampling					
2	Data access and dissemination	2.1*	Ocean-climate information: develop an online digital ocean atlas for the IOTC area of competence, linked by the IOTC website; develop indicators on ocean-climate status to be linked to the atlas portal, along with educational resources					
		2.2						Biological information: collaborate with CPCs to Review, analyse, and manage of biological data and information
		2.3						Improve accessibility of IOTC scientific products and digital assets through standard metadata and DOI (e.g., remote workshops)
		2.4						Establish a photo and imagery tool library and archive and develop associated reporting guidelines
3	Compliance with IOTC data reporting requirements	3.1	Drafting of indicators to assess performance of IOTC CPCs against IOTC Data Requirements; evaluation of performance of IOTC CPCs with those Requirements; development of plans of action to address the issues identified, including timeframe of implementation and follow-up activities required. Priority to be given to the following CPCs / fisheries					

	<ul style="list-style-type: none"> • Indonesia • India • Pakistan • Oman • Tanzania • Other (as required / determined) 					
3.2*	Workshops to clarify data reporting requirements ¹ and support preparation of annual submissions					
3.3	Support the documentation of sampling protocols and processing ²					
		2025	2026	2027	2028	2029

¹ Recommended by the CoC; **regular annual webinars / workshops to be held from 2025 onwards with each CPCs (or group of CPCs) prior to the approaching of the data reporting deadline**

² Secretariat to finalise the template, CPC to provide information

Table A7. All other topics of relevance to the WPDCS Programme of Work (2025-2029)

Topic	Sub-topic and project	Timings				
		2025	2026	2027	2028	2029
4 Support for the implementation of the IOTC Regional Observer Scheme (ROS)	4.1 ROS e-tools					
	5.1.1 Review and update ROS e-tools according to the new ROS data standards	Funding available				
	4.1.2 Support the adoption of the ROS e-Reporting and ROS national database tools by countries not having any existing observer data collection and management system in place					
	4.2 ROS Regional Database					
	4.2.1 Review and update the ROS database structure					
	4.2.2 Incorporate all historical observer data currently available in other proprietary data formats (e.g., ObServe, ST09, and other custom observer forms)					
	4.3 ROS Electronic Monitoring Systems					
	5.3.1 Implement pilot EMS system on gillnet / coastal longline vessels for fleets insufficiently covered by on-board observers, possibly by providing support through remote / in-person meetings ³					
	4.4 Evaluate the combination of alternative data collection systems and protocols for the collection of scientific observer data for artisanal and coastal fisheries, with an initial expert to develop protocols and guidelines for minimum data collection requirements in coastal fisheries, including through EMS systems through a regional workshop					
	4.5 Review and update ROS training materials to the CPCs					

³ Sri Lanka EMS, training and setup of data exchange

APPENDIX VI

CONSOLIDATED RECOMMENDATIONS OF THE 20TH SESSION OF THE WORKING PARTY ON DATA COLLECTION AND STATISTICS

Note: Appendix references refer to the Report of the 20th Session of the Working Party on Data Collection and Statistics (IOTC-2024-WPDCS20-R)

The IOTC Process: outcomes, updates, and progress

Rec. WPDCS20.01 (para 16):

NOTING a lack of clarity and inconsistencies in certain CMMs, the WPDCS **RECOMMENDED** that the SC consider and endorse the following revisions for submission to the Commission:

- Res. [15/01](#). Annex 2 should be revised to align with the provisions of Res. 15/02, which mandates data collection and reporting at the species level, regardless of the fishing gear used
- Res. [15/02](#). The spatial resolution of geo-referenced catch, effort, and size frequency data for coastal fisheries should be clearly defined and aligned, i.e., size-frequency data shall be provided using an alternative geographical area if it better represents the fishery concerned.
- Res. [19/07](#). The content, format, and timeline for datasets to be collected and reported by the chartering CPC should be clearly specified
- Res. [24/02](#). The reporting of buoy purchases to the IOTC and their incorporation into the compliance assessment procedure should be clearly specified
- Res. [24/04](#).
 - The spatio-temporal resolution of reported observer data should be aligned with the IOTC observer reporting templates and standards, as originally established in 21/04.
 - The timeliness for reporting fisheries observer reports and data collected through the ROS should be harmonised with those for the main IOTC datasets. Specifically, each CPC shall submit observer data collected during a year to the IOTC Secretariat by 30 June of the following year. For longline fisheries, final data shall be submitted no later than 30 December.

Rec. WPDCS20.02 (para 21):

The WPDCS **ACKNOWLEDGED** the benefits of a climate-ocean web portal for the IOTC Area of Competence and **RECOMMENDED** the development and implementation of the online digital Indian Ocean Atlas in 2025.

Updates on national statistical systems

Rec. WPDCS20.03 (para 103):

The WPDCS **ENDORSED** the methodology and results used to re-estimate Indonesia's historical catches for the period 1950–2022 and **RECOMMENDED** that the SC also endorse them.

Regional Observer Scheme

Rec. WPDCS20.04 (para 132):

The WPDCS **RECOMMENDED**:

- That the SC **ENDORSE** the following revised lists of ROS minimum data fields (including their stated collection and reporting requirement) for purse seine, longline, and pole and line (include associated “general” fields) provided as an XLSX spreadsheet available here: [IOTC-2024-SC27-DATA01](#).
- That the SC **ENDORSE** the revised collection and reporting requirement categories as follows:
 - Mandatory – mandatory for collection and reporting

- Optional – optional for collection and reporting
- That the SC **ENDORSE** the revised ROS data fields (and associated collection and reporting requirements) as a living document, for which CPCs can, if necessary, in future years, bring forward proposals for amendments or improvements, to the WPDCS and SC for review.
- That the SC **ADVISE** the Commission to take actions for all CPCs to ensure that the Record of Authorised Vessels (RAV) details are completely accurate and up to date.

Rec. WPDCS20.05 (para 140):

The WPDCS **DISCUSSED** and **REVISED** the summary on best practices guidelines for safe handling and release of small cetaceans and **RECOMMENDED** the SC to advise the Commission to consider these guidelines when developing conservation measures for cetaceans

Programme of Work

Rec. WPDCS20.06 (para 171):

The WPDCS **RECOMMENDED** that the SC consider and endorse the WPDCS Programme of Work (2025–2029).

Rec. WPDCS20.07 (para 174):

The WPDCS **RECOMMENDED** that the SC consider the consolidated set of recommendations arising from WPDCS20.