Report of the Tenth Session of the IOTC Working Party on Data Collection and Statistics

Eden Island, Seychelles, 2–4 December 2014

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ACRONYMS

ALB	Albacore
ABNJ	Areas Beyond National Jurisdiction
BET	Bigeye tuna
BOBLME	Bay of Bengal Large Marine Ecosystems Project
CMM	Conservation and Management Measure (of the IOTC; Resolutions and Recommendations)
CPCs	Contracting parties and cooperating non-contracting parties of the IOTC
DGCF	Directorate General of Capture Fisheries of Indonesia
DFAR	Department of Fisheries and Aquatic Resources of Sri Lanka
EEZ	Exclusive Economic Zone
EU	European Union
FAD	Fish aggregating device
FMA	Fisheries Management Area
GEF	Global Environmental Facility
ICCAT	International Commission for the Conservation of Atlantic Tunas
IOC	Indian Ocean Commission
IOTC	Indian Ocean Tuna Commission
I.R. Iran	Islamic Republic of Iran
ISSF	International Seafood Sustainability Foundation
IFDCS	Iran Fishery Data Collection System
NARA	National Aquatic Resources Research and Development Agency of Sri Lanka
OFCF	Overseas Fishery Cooperation Foundation of Japan
RFMO	Regional Fisheries Management Organization
ROS	Regional Observer Scheme
Taiwan,China	Taiwan Province of China
USTA	*Unité Statistique Thonière d'Antsiranana*
VMS	Vessel Monitoring System
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
WTmT	Working Party on Temperate Tunas of the IOTC
WPNE	Working Party on Neritic Tunas of the IOTC
WPTT	Working Party on Tropical Tunas of the IOTC
WWF	World Wide Fund for Nature
YFT	Yellowfin tuna

HOW TO INTERPRET TERMINOLOGY CONTAINED IN THIS REPORT

Level 1: **RECOMMENDED, RECOMMENDATION**: Any conclusion from a subsidiary body of the Commission 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). The intention is that the higher body will consider the recommended action for endorsement.

Level 2: **REQUESTED**: A request from an IOTC body to a particular CPC, the IOTC Secretariat, or other body (not the Commission) to carry out a specified task. Ideally this should be highly specific and contain a timeframe for the completion of the task.

Level 3: **AGREED**: Any point of discussion from a meeting which the IOTC body considers to be an agreed course of action for the IOTC body, or a general point of agreement among participants of the meeting.

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 perpetuity.

Any other term: Any other term may be used in addition to the above key terms to highlight to the reader the importance of the relevant paragraph in a report. However, other terms used are considered for explanatory/informational purposes only and have no rating within the reporting terminology hierarchy described above (e.g. **CONSIDERED**; **URGED**; **ACKNOWLEDGED**).

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EXECUTIVE SUMMARY

The Tenth Session of the Indian Ocean Tuna Commission's (IOTC) Working Party on Data Collection and Statistics (WPDCS) was held in Eden Island, Seychelles, from 2 to 4 December 2014. A total of 30 participants attended the Session.

The following are a subset of the complete recommendations and decisions from the WPDCS10 to the Scientific Committee, which are provided at Appendix VIII.

The WPDCS **RECOMMENDED** that the IOTC Scientific Committee considers endorsing the data review process agreed by the WPDCS. (WPDCS10.01 (para. 19))

The WPDCS **RECOMMENDED** that the alternative catches estimated for the longline fishery of India are maintained until India provides a revised time-series for its fleet. (WPDCS10.02 (para. 20))

The WPDCS **RECOMMENDED** that the reasons for the very low levels of tags recovered from longliners be further explored. (WPDCS10.03 (para. 25))

The WPDCS **RECOMMENDED** that Iran make the necessary arrangements to report catch-and-effort data to the IOTC, and size frequency data by IOTC grid, and implement provisions of the Regional Observer Scheme, and **REQUESTED** Iran to seek assistance from the IOTC Secretariat with these tasks, where required. (WPDCS10.04 (para. 28))

The WPDCS **RECOMMENDED** that Sri Lanka makes the necessary arrangements to report a complete set of catch-and-effort data to the IOTC, and implement provisions of the Regional Observer Scheme, and **REQUESTED** the IOTC Secretariat to continue assisting Sri Lanka with these tasks, where necessary. (WPDCS10.05 (para. 33))

The WPDCS could not agree on a definition of fisheries directed at IOTC species and **AGREED** to defer consideration of this matter. The WPDCS **RECOMMENDED** that the CPCs concerned present reports to the next WPDCS for their fisheries that contain both the catches of IOTC species and other species, and **AGREED** to reconsider this issue as soon as this information is available. (WPDCS10.06 (para. 40))

The WPDCS **ENDORSED** the recommendation from the Workshop for the IOTC Secretariat to send Data Support Missions to the countries concerned and **REQUESTED** that the Secretariat reports progress on the results of the missions undertaken during 2015 at the next meeting of the WPDCS. The WPDCS **AGREED** that further progress on Compliance with IOTC data requirements be revised at future sessions of the WPDCS and **RECOMMENDED** that all CPCs make every possible effort to send officers to future meetings of the WPDCS. (WPDCS10.07 (para. 41))

The WPDCS **RECOMMENDED** that the IOTC Scientific Committee considers to propose amendments to IOTC Resolution 10/02 to the Commission. (WPDCS10.08 (para. 44))

The WPDCS **RECOMMENDED** that the Scientific Committee considers endorsing the new observer trip report templates, as presented in Appendix VI. (WPDCS10.09 (para. 47))

The WPDCS **RECOMMENDED** that provisions in Resolution 10/02 are amended to include a requirement for longline fleets to report effort in terms of both number of hooks and number of sets. The WPDCS further **RECOMMENDED** that reporting of effort in terms of number of sets is also requested from surface purse seine fleets in addition to the current requirements to report effort as fishing days. (WPDCS10.10 (para. 49))

The WPDCS **NOTED** that the IOTC Secretariat is in the process of hiring a Consultant to undertake a review of the Compendium of IOTC Resolutions and **RECOMMENDED** that the IOTC Secretariat ensures that provisions in IOTC resolutions containing data requirements are thoroughly revised by the Consultant and results presented to the IOTC Scientific Committee as soon as this work is finalized. (WPDCS10.11 (para. 50))

The WPDCS **RECOMMENDED** further analysis to fully understand the recent changes in length composition reported by Taiwan,China – in particular whether there have been changes to the sampling protocols and selection of fish for sampling – (WPDCS10.12 (para. 57))

The WDCS **AGREED** that additional work is required by Japan, and **RECOMMENDED** that this work is undertaken in collaboration with the IOTC Secretariat, to understand the lack of coherence in the historical time series between the size frequency data, and catch-and-effort and nominal catch reported by Japanese longline vessels. (WPDCS10.13 (para. 60))

The WPDCS **RECOMMENDED** that joint work on the documentation of procedures for the collection, processing and reporting of size frequency data from longline fleets continues, based on a template to be produced by the IOTC Secretariat. (WPDCS10.14 (para. 61))

The WPDCS **RECOMMENDED** that the Commission consider making reporting of fishing capacity mandatory if an estimate of total fishing capacity is required. (WPDCS10.15 (para. 63))

The WPDCS **RECOMMENDED** that the Commission consider allocating more funds to capacity building activities in the future. (WPDCS10.16 (para. 68))

The WPDCS **AGREED** that high priority be given to Data Collection and Reporting Standards and the Regional Observer Scheme given the continued lack of compliance and reporting of fisheries statistics and Observer data to the IOTC Secretariat; in addition to a Review of the Size Data for Longline Fisheries to resolve the ongoing issues related to discrepancies between the size-frequency data, and catch-and-effort and nominal catch for the Asian longline fleets in particular. The WPDCS **RECOMMENDED** that the IOTC Scientific Committee considers implementation of the activities listed in **Table 2** (details provided in Appendix VII) as per the priorities identified by the WPDCS. (WPDCS10.17 (para. 70))

The WPDCS **RECOMMENDED** that the Scientific Committee considers electing a new Vice-chairperson of the WPDCS for the next *biennium.* (WPDCS10.18 (para. 73))

The WPDCS **RECOMMENDED** that the Scientific Committee consider the consolidated set of recommendations arising from WPDCS10, provided at Appendix VIII. (WPDCS10.19 (para. 76))

In addition, the WPDCS **AGREED** to **DEFER CONSIDERATION** of the following issues to the IOTC Scientific Committee:

The WPDCS **AGREED** that it may be required to move the deadline to a date earlier in the year so as data for the previous year can be included in the assessments that all IOTC Working Parties undertake. (…) The WPDCS **AGREED** to **DEFER** consideration of this matter to the Scientific Committee. (WPDCS10 (para. 45))

The WPDCS **CONSIDERED** the following options with regards to future annual meetings of the WPDCS: (i) Continue as per the current arrangements having the meeting before the SC; (ii) Having the meeting before the WPNT to enhance participation of scientists from coastal countries; (iii) Alternating meetings according to the above two options. The WPDCS **DEFERRED** consideration of this matter and time and place of the next WPDCS meeting to the Scientific Committee. (WPDCS10 (para. 74-75))

1. OPENING OF THE MEETING

1. The Tenth Session of the Indian Ocean Tuna Commission's (IOTC) Working Party on Data Collection and Statistics (WPDCS) was held in Eden Island, Seychelles, from 2 to 4 December 2014. A total of 30 participants attended the Session. The WPDCS expressed **CONCERN** at the low number of scientists from developing coastal states in attendance at the meeting (ten scientists from seven CPCs, including Comoros, Iran, Kenya, Madagascar, Mozambique, Seychelles, and Sri Lanka). The WPDCS **NOTED** that only limited funding was available to support participation of scientists from developing CPCs to the WPDCS as funds from the Meeting Participation Fund (IOTC Resolution10/05) had been fully utilised. The WPDCS further **NOTED** that the IOC-SmartFish Project had provided support for the participation of scientists from Madagascar and Comoros and the GEF-ABNJ Project for Iran and Sri Lanka, thanking them for their support. The list of participants is provided at Appendix I.

2. The meeting was opened on 2 December 2014 by the Chair, Dr. Emmanuel Chassot, who subsequently welcomed participants to Seychelles and thanked the IOTC Secretariat for the arrangements for the Session. The Chair **NOTED** that the WPDCS will need to elect a new vice-Chair at the end of the meeting as the current vice-Chair, Dr. Pierre Chavance, will be retiring in 2015.

2. ADOPTION OF THE AGENDA AND ARRANGEMENT FOR THE SESSION

3. The WPDCS **ADOPTED** the Agenda provided at Appendix II. The documents presented to the WPDCS are listed in Appendix III.

3. THE IOTC PROCESS: OUTCOMES, UPDATES AND PROGRESS

3.1 *Outcomes of the 16th Session of the Scientific Committee and of the 18th Session of the Commission*

4. The WPDCS **NOTED** paper IOTC–2014–WPDCS10–03 Rev1 which outlined the main outcomes of the Sixteenth Session of the Scientific Committee, and the Eighteenth Session of the Commission, specifically related to the work of the WPDCS.

Sixteenth Session of the Scientific Committee

5. The WPDCS **NOTED** the recommendations of the Sixteenth Session of the Scientific Committee on data collection and statistics and on the regional observer scheme and agreed to consider how best to progress these issues at the present meeting.

Eighteenth Session of the Commission

6. The WPDCS **NOTED** the 7 Conservation and Management Measures (CMMs) adopted at the Seventeenth Session of the Commission (consisting of 6 Resolutions and 1 Recommendation), and in particular the following Resolutions which have a direct impact on the work of the WPDCS:
   - Resolution 14/04 Concerning the IOTC record of vessels authorised to operate in the IOTC area of competence
   - Resolution 14/05 *Concerning a record of licensed foreign vessels fishing for IOTC species in the IOTC area of competence and access agreement information*
   - Resolution 14/06 *On establishing a programme for transhipment by large-scale fishing vessels*
   - Recommendation 14/07 *To standardise the presentation of scientific information in the annual Scientific Committee report and in Working Party reports*

3.2 *Review of Conservation and Management Measures relevant to the WPDCS*

7. The WPDCS **NOTED** paper IOTC–2013–WPDCS09–05 which aimed to encourage the WPDCS to review the existing Conservation and Management Measures (CMMs) on data collection and statistics, and as necessary to 1) provide recommendations to the Scientific Committee on whether modifications may be required; and 2) recommend whether other CMMs may be required.

8. The WPDCS **RECALLED** that during it last Session it proposed amendments to IOTC Resolution 10/02 *Mandatory statistical requirements for IOTC Members and Cooperating Non-Contracting Parties (CPC's)* and **NOTED** that, at its 18th Session, the Commission had deferred consideration of a proposal to amend the existing data requirements on the grounds that a more thorough review of the data requirements in that proposal and those in IOTC Resolution 13/08 (*procedures on a fish aggregating devices (FADs) management plan, including more detailed specifications of catch*

reporting from FAD sets, and the development of improved FAD designs to reduce the incidence of entanglement of non-target species) was required. The WPDCS **AGREED** to revise data requirements on both resolutions and recommend changes for the consideration of the Commission as part of the discussions under Agenda item 7.

3.3 *Progress on the Recommendations of the WPDCS09*

9. The WPDCS **NOTED** paper IOTC–2014–WPDCS10–04 which provided an update on the progress made in implementing the recommendations from the previous WPDCS meeting, and provided alternative recommendations taking into account progress made, for the consideration and potential endorsement by participants.

10. The WPDCS **AGREED** to a set of revised recommendations that are provided throughout this report and in the consolidated list of recommendations, for the consideration of the Scientific Committee.

Recommendations from other IOTC Working Parties

11. The WPDCS **CONSIDERED** recommendations from the WPEB and SC relevant to the WPDCS, and the deliberations from the WPDCS concerning those recommendations have been included in the relevant sections of the Report.

4. PROGRESS REPORT OF THE SECRETARIAT ON DATA RELATED ISSUES

4.1 *IOTC Secretariat Report*

12. The WPDCS **NOTED** paper IOTC–2014–WPDCS10–06 which provided an overview of the status of data holdings in the IOTC Secretariat, in particular statistics of catch, effort, size frequency and other biological data for IOTC species, sharks, and other species that are caught incidentally by fisheries directed at IOTC species.

13. The WPDCS expressed **CONCERN** at the status of the datasets available at the IOTC Secretariat for some of the important fleets that operate in the Indian Ocean, in particular, but not limited to:
    - Marked changes in total catches and species and gear composition reported for the coastal fisheries of Indonesia in recent years; and uncertainty concerning the levels of catch of juvenile tunas around anchored FADs (*Rumpons*), in particular yellowfin tuna and bigeye tuna.
    - Catches reported are not broken by gear: gillnet and longline fishery of Sri Lanka.
    - Uncertain estimates of total catch for the commercial longline fishery of India; driftnet fishery of Pakistan; handline fishery of Yemen; and coastal fisheries of Madagascar.
    - Catches not reported by species: requirement to estimate the catches of bigeye tuna on the majority of coastal fisheries, such as the pole-and-line fishery in the Maldives.
    - Very poor reporting of data on the level of discards of tuna and tuna-like species, and incidentally caught species, across the majority of fisheries and time periods.
    - Insufficient implementation of minimum requirements for operational catch-and-effort data, which compromise reporting of catch-and-effort statistics to the IOTC: longline fisheries of Indonesia and India; driftnet fisheries of I.R. Iran and Pakistan; gillnet and longline fishery of Sri Lanka.
    - Poor reporting of catch-and-effort data, especially for neritic tuna species: all coastal fisheries, in particular those operating in India and Indonesia.
    - Lack of size frequency data from the longline fishery of India; and the driftnet fishery of Pakistan.
    - Levels of coverage for Japan and quality of the size data available for longliners flagged in Taiwan,China in recent years.
    - Lack of size frequency data from many coastal fisheries, in particular those operating in Yemen, Indonesia, and India.
    - Levels of reporting of observer trip reports below those recommended by the Commission (a minimum of 5% of the total number of fishing operations shall be covered by scientific observers).

14. Noting that the above fisheries catch a substantial quantity of IOTC species (around 25% of the catches of all IOTC species combined are considered to be uncertain), the WPDCS **URGED** all of the CPCs listed to address the issues identified, and to report progress made at the next WPDCS. In this regard, the WPDCS **ENDORSED** the proposal from the IOTC Secretariat to undertake the actions to address

the issues for each fishery, as provided in Appendix IV, and **AGREED** to prioritize activities when discussing the Programme of Work of the WPDCS (Agenda item 9).

Availability of IOTC statistics for 2013

15. The WPDCS **NOTED** the information presented on the status of reporting of data for the year 2013, a summary of which is reproduced in Table 1. The WPDCS expressed **CONCERN** at the quantity of catch that the IOTC Secretariat has to estimate before each of the IOTC working party meetings, noting that these estimates would not be required if data were reported on time by all CPCs. In this regard, the WPDCS urged all CPCs having fisheries in the Indian Ocean to make the necessary arrangements so that data are reported before the deadline for data submission (30 June each year).

16. The WPDCS **NOTED** that Table 1 contains only information for the last two years and **AGREED** that including a longer series may be useful to assess timeliness of reporting of statistics by IOTC CPCs over several years, and **REQUESTED** the IOTC Secretariat to make this information available in the future.

Table 1. Levels of reporting of nominal catches (**NC**), catch-and-effort (**CE**), and size frequency statistics (**SF**) at the IOTC Secretariat for the year 2013, compared with those estimated in 2012, by the deadline of data reporting (**BD**: 30 June) and by the time of the WPDCS meeting (**WP**) are presented.

Statistics available for 2013	Estim. Catch	NC		CE		SF	
		BD	WP	BD	WP	BD	WP
IOTC species (x1,000t)	1,695	1,254	1,503	681	814	805	834
%Available for 2013		**74**	**89**	**40**	**48**	**48**	**49**
%Available for 2012		44	90	43	58	31	43
Tropical tunas (x1,000t)	935	789	866	573	650	625	625
Temperate tunas (x1,000t)	44	41	42	30	31	29	29
Billfish (x1,000t)	94	64	78	38	41	24	24
Neritic tunas (x1,000t)	621	359	517	41	92	128	157

Nominal catch: Levels of NC that the IOTC Secretariat had to estimate for the year 2013, due to the late reporting of statistics by some parties. Catch-and-effort and size frequency data: Levels of catch for which CE and SF data were not available for the year 2013, due to the late reporting of statistics by some parties. Estim. Catch = Total catches estimated for the year 2013

Major revisions to datasets conducted by the IOTC Secretariat during 2014

17. The WPDCS **NOTED** paper IOTC–2014–WPDCS10–INF02 which summarizes the major data reviews conducted by the IOTC Secretariat during 2014 and changes to the time-series of catches for IOTC and other species.

18. The WPDCS **NOTED** that the IOTC Secretariat keeps a record of data reviews, including documentation on the data sources and procedures used for each review, and **ENCOURAGED** the IOTC Secretariat to continue documenting these procedures as much as possible and, where possible, involve the flag countries concerned in this process.

19. The WPDCS **NOTED** that some CPCs provide little or nil feedback regarding clarification of the data issues identified by the IOTC Secretariat or the Working Parties, following communications from the IOTC Secretariat or actions recommended by the Working Parties. It was **AGREED** that when this occurs and the IOTC Secretariat has access to alternative information, the Secretariat shall continue attempts to putting together best scientific estimates of catch for those fisheries, using the information available, and present those estimates to the Working Parties and Scientific Committee for further review and endorsement. In this regard the WPDCS **AGREED** to the data review process presented in Appendix V and **RECOMMENDED** that the IOTC Scientific Committee considers endorsing this approach.

General discussion on data issues

20. The WPDCS **RECALLED** its recommendation that scientists from Taiwan,China assist India in the estimation of catches of IOTC species and sharks for India's longline fleet, in particular for the years 2006 and 2007. The WPDCS **NOTED** that while India had indicated that it will not work with external institutions to revise catch estimates for its fishery India had not provided revised catches for its longline fleet. In light of this, the WPDCS **RECALLED** that the Scientific Committee had endorsed

the alternative catches estimated for this component and **RECOMMENDED** that these estimates are maintained until India provide a revised time-series for its fleet.

21. The WPDCS **RECALLED** its recommendation that Indonesia reports catch and effort data for its longline fleet to the IOTC, and NOTED that, to date, Indonesia has not reported this information. The WPDCS **NOTED** that Indonesian longliners are operating both in coastal waters and on the high seas, in particular the southeast Indian Ocean. The WPDCS **URGED** Indonesia to report this information as its longline fleet is one of the main longline fisheries in the Indian Ocean.

22. The WPDCS **EXPRESSED CONCERN** at the amount of catches of small bigeye tuna and yellowfin tuna and the catches of neritic tunas that are not reported by species, **NOTING** that aggregation of catches by species is a major problem for the coastal fisheries of Indonesia which Indonesia needs to address as soon as possible. The WPDCS **NOTED** that Indonesia is receiving assistance from the IOTC Secretariat to strengthen sampling of its coastal fisheries, including those that catch substantial amounts of small yellowfin and bigeye and neritic tunas, and **REQUESTED** Indonesia to report the results of this work to future meetings of the WPDCS and relevant species Working Parties.

23. The WPDCS **NOTED** that there is very little information available on discards and this compromises the use of this information in combination with the nominal catch data in the assessments of IOTC species. The WPDCS **URGED** CPCs to produce estimates of total discards taken by their fisheries and report this information to the IOTC as a matter of priority.

4.2 *Dissemination of IOTC Datasets and documents*

24. The WPDCS **NOTED** the work that the IOTC Secretariat has been coordinating to incorporate new online querying tools in the IOTC Web Page that will allow querying of nominal catch, fishing craft, and catch-and-effort data from the IOTC Database. The WPDCS **NOTED** that the tools presented will facilitate access to data in the IOTC databases and some graphical representation of that information, including through charts and maps, and **ENCOURAGED** the IOTC Secretariat to finalize this work and report progress to the next meeting of the WPDCS.

25. The WPDCS **RECEIVED** and update on the status of the IOTC tagging database and new tags recovered during 2013-14. It was **NOTED** that while recoveries from longline fisheries remain at very low levels: only one yellowfin tuna was recovered on longliners against the sixteen yellowfin tuna recovered on purse seiners. The WPDCS **NOTED** that such poor rates of recovery by longliners may be due to various reasons, in particular a low reporting rate by longliners. The WPDCS **RECOMMENDED** that this issue is further explored.

5. UPDATE ON NATIONAL STATISTICS SYSTEMS

I.R. Iran data collection system

26. The WPDCS noted paper IOTC–2014–WPDCS10–12 which provided on overview of the fisheries data collection system of I.R. Iran, including the following abstract provided by the author:

> *"This document presents an update on the status of data collection and processing systems in Iran, including data on the number of fishing vessels and their catches, effort, and length frequency data collected in port. Details on the status of the fisheries statistical software of Iran are also included. The fisheries statistical system currently used in Iran, also called the Iran Fishery Data Collection System (IFDCS), was set up in 1994, to facilitate the collection of the data required to better assist fishery management in Iran. In addition, in 2001 Iran extended the data collection system to incorporate routine collection of size frequency data from the fisheries. Port sampling was further strengthened in 2012 to allow for a better species breakdown of catches, to include swordfish, marlins, main species of sharks, and other species, including collection of length samples for these species. The fisheries information system of Iran has been upgraded in repeated occasions and currently uses a SQL Server database engine, and an interface that was built using Delphi. The Fisheries administration of Iran organizes Workshops regularly in order to train both data input staff and enumerators under the programme. Iran has also implemented a logbook system and will report this information to the IOTC as soon as it is available"* – see paper for full abstract.

27. The WPDCS **CONGRATULATED** Iran for its efforts to improve sampling in port and **NOTED** that the changes introduced by Iran have allowed for a more precise reporting of catches by species in 2012

and 2013, in particular catches of bigeye tuna, billfish, and sharks. In addition, Iran has also strengthened sampling for length to levels in line with those recommended by the Commission.

28. Notwithstanding the above, the WPDCS **NOTED** that, while Iran has implemented a logbook programme for its drifting gillnet fisheries, to date no catch and effort data have been reported to the IOTC. The WPDCS further **NOTED** that Iran is yet to implement provisions of the Regional Observer Scheme, in particular boarding of observers on its industrial purse seine and drifting gillnet fleets, and provision of observer trip reports to the IOTC. In this regard the WPDCS **RECOMMENDED** that Iran make the necessary arrangements to report catch-and-effort data to the IOTC, and size frequency data by IOTC grid, and implement provisions of the Regional Observer Scheme, and **REQUESTED** Iran to seek assistance from the IOTC Secretariat with these tasks, where required.

Madagascar data collection system

29. The WPDCS **NOTED** paper IOTC–2014–WPDCS10–13 which outlined the data collection system for tuna by Madagascar, including the following abstract provided by the authors:

"*A fleet of small-scale longliners have been operating in Madagascar since 2007, with the number of longliners increasing over the years. The present document covers the activities of longliners based in Sainte Marie, which the 'Unite Statistique Thonier d'Antsiranana (USTA)' is monitoring since 2013. The data collection system includes collection of logbook data and sampling in port, including sampling of catches and length frequency data. The majority of the catches reported for 2013 by longliners based in Sainte Marie were made of bigeye tuna, albacore and swordfish (the three species combined accounting for 88% of the total catches). The data collection and management system in place needs further strengthening and the USTA may need to seek external assistance to address the issues it has identified* ". – see paper for full abstract.

30. The WPDCS **NOTED** that the statistics for the longline fishery based in Madagascar are still incomplete for 2013 due to incomplete reporting of logbooks by the skippers of longliners and problems in accessing the observer database where these data are stored. The WPDCS **ENCOURAGED** Madagascar to retrieve this information and, where necessary, seek advice from the IOTC Secretariat regarding the type of database and procedures that can be used to manage the data collected by this fishery.

Sri Lanka data collection system

31. The WPDCS **NOTED** paper IOTC–2014–WPDCS10–14 which provided an overview of the fisheries data collection and reporting system in Sri Lanka, including the following abstract provided by the authors"

"*The large pelagic fisheries of Sri Lanka mainly target tuna and tuna like species. Over the past years, fisheries have undergone many changes with respect to technological development and also the expansion of the fishing range more towards offshore and deep sea areas. Data collection is undertaken by the National Aquatic Resources Research and Development Agency and the Department of Fisheries and Aquatic Resources of Sri Lanka and includes sampling in port and data collection at-sea through logbooks. Sri Lanka has also initiated arrangements for the implementation of the IOTC Regional Observer Scheme, for which it will receive technical support from the IOTC Secretariat*." – see paper for full abstract.

32. The WPDCS **NOTED** the progress reported by Sri Lanka concerning its data collection and processing systems, in particular as regards the monitoring of Sri Lanka's coastal fisheries. The WPDCS further **NOTED** that the IOTC database contains a long series of size frequency data for Sri Lanka, as these data have been reported regularly by Sri Lanka, and **ENCOURAGED** Sri Lanka to continue providing this information in the future.

33. The WPDCS further **NOTED** that to date Sri Lanka has not reported catch-and-effort data according to the standards or observer trip reports to the IOTC for its high seas fleet, which uses a combination of gillnets and longlines. In this regard the WPDCS **RECOMMENDED** that Sri Lanka makes the necessary arrangements to report a complete set of catch-and-effort data to the IOTC, and implement provisions of the Regional Observer Scheme, and **REQUESTED** the IOTC Secretariat to continue assisting Sri Lanka with these tasks, where necessary.

EU purse seine fleet

34. The WPDCS **RECEIVED** an update on the sampling activities conducted by the EU at the cannery in the Seychelles. Overall, over 35,000 fishes have been sampled at the Seychelles cannery during 1987-2014 to collect morphometric data and information on the reproduction of the main market species of tropical tunas harvested in the Indian Ocean. While large yellowfin tuna was the focus of sampling in the past, since January 2014 the sampling has been extended to also cover juvenile specimens of yellowfin tuna, skipjack tuna and bigeye tuna. For the majority of the fish the data collected includes the day and fishing area where the specimen was caught, which was retrieved from the logbook of the purse seiner concerned. The data collected are useful to derive length-weight conversion keys, identify spawning grounds, and monitor long-term changes in fish condition. A generic database is currently in development to host different types of biological data and provide free open-access to the data so as to promote comparative analyses between populations, species, and areas.

35. The WPDCS **NOTED** the cannery data presented were all from defrosted fish and that there is a small negative bias in defrosted fish weight compared with the weight of frozen fish. The WPDCS **REQUESTED** that the EU presents a document including the results of this work at the next meeting of the WPDCS.

36. The WPDCS **ENCOURAGED** all CPCs to share their length-frequency data with the IOTC Secretariat and **REQUESTED** that this information is made available through the IOTC Web Page.

37. The WPDCS **RECEIVED** an update on the work that EU has undertaken to assess the mixing of large and small fish in purse seine sets directed at free-swimming schools. The poor fit of the length frequency data in the previous Multifan-CL yellowfin tuna assessment may be due to a bias in data collection and processing originating from the presence of small and large yellowfin tuna on free-swimming schools. EU scientists analysed more than 6,500 multispecies samples collected in port during the unloading of European purse seiners, over the period 1990-2013, all containing more than 50 yellowfin tuna. The results show that 16% of the samples contain specimens less than 10 kg, across all time periods investigated. The magnitude of catches of small yellowfin tuna varies depending on the year and area. The Mozambique Channel is characterized by highly variable size histograms with average length varying between 50-140 cm, without any dominant size profile. Overall, the data indicate that sometimes juveniles of yellowfin tuna and also bigeye and skipjack tunas are associated with large individuals which might be due to associative behaviour.

6. REPORT OF THE REGIONAL WORKSHOP TO SUPPORT COMPLIANCE WITH IOTC REQUIREMENTS FOR THE COLLECTION AND REPORTING OF FISHERIES DATA TO THE IOTC

38. The WPDCS **NOTED** the Report of the Regional Workshop to Support Compliance with IOTC Requirements for the Collection and Reporting of Fisheries Data to the IOTC (IOTC–2014–WPDCS10–07), and summary of main decisions and recommendation by the Workshop presented by the IOTC Secretariat.

39. In particular, the WPDCS **NOTED** the following recommendations from the Workshop:
    - Need to provide definitions for coastal, surface and longline fisheries in IOTC Resolution 10/02, in particular the type of vessels and gears that are covered by each type of fishery;
    - Need to define separate requirements in Resolution 10/02 for fisheries that target or catch substantial amounts of IOTC species of main species of sharks, as identified by the Commission, and those for which IOTC species represent a bycatch and catches of IOTC species are not significant;
    - Need to harmonize the type of data resolution requested in Resolution 10/02 for coastal fisheries across data types, in particular catch-and-effort and size data.

40. The WPDCS could not agree on a definition of fisheries directed at IOTC species and **AGREED** to defer consideration of this matter. The WPDCS **RECOMMENDED** that the CPCs concerned present reports to the next WPDCS for their fisheries that contain both the catches of IOTC species and other species, and **AGREED** to reconsider this issue as soon as this information is available.

41. The WPDCS **ENDORSED** the recommendation from the Workshop for the IOTC Secretariat to send Data Support Missions to the countries concerned and **REQUESTED** that the Secretariat reports progress on the results of the missions undertaken during 2015 at the next meeting of the WPDCS. The

WPDCS **AGREED** that further progress on Compliance with IOTC data requirements be revised at future sessions of the WPDCS and **RECOMMENDED** that all CPCs make every possible effort to send officers to future meetings of the WPDCS.

7. REVIEW OF DATA REQUIREMENTS IN CONSERVATION AND MANAGEMENT MEASURES RELEVANT TO THE WPDCS

7.1 ***Resolution 10/02 Mandatory statistical requirements for IOTC Members and Cooperating Non-Contracting Parties (CPC's).***

42. The WPDCS **NOTED** that the levels of reporting from some CPCs have not improved over the years, **AGREEING** that the WPDCS shall set the focus on addressing the reasons for non-compliance and propose the implementation of activities to improve compliance with the current requirements rather than extending those requirements.

43. The WPDCS **NOTED** that though consideration of a proposal to amend IOTC Resolution 10/02 was deferred in 2013, the Commission did not re-consider this proposal in 2014. The proposed revision aimed to introduce amendments to Resolution 10/02 by including a list of the most commonly caught elasmobranch species for which nominal catch data could be reported as part of the statistical requirement for IOTC CPCs. In addition, the amendments aimed to clarify the definitions of various terms used in the requirements, such as the definitions of fishing gears, and improve the completeness of the fisheries data by including new obligations on data reporting on marine turtles and seabirds, and to make requirements for FADs consistent with those existing in IOTC Resolution 13/08.

44. Notwithstanding the above, the WPDCS **NOTED** that, while there are different requirements in IOTC Resolution 10/02 for surface, longline, and coastal fisheries, the type and size of fishing vessels to which those requirements apply are not specified in the Resolution. The WPDCS further **NOTED** that the information that is currently requested for support vessels involves reporting of the same information by the flag countries and other parties, **AGREEING** that, from a technical point of view, the responsibility of reporting of this information should lie with the flag country of the vessels that receive assistance from the support vessel, irrespective of the flag of the support vessel. In view of the issues covered above, the WPDCS **RECOMMENDED** that the IOTC Scientific Committee considers to propose the following amendments to IOTC Resolution 10/02 to the Commission:

- Adopting the following definitions in order to clarify the type of fisheries, area and species covered by Resolution 10/02:
    i. Longline fisheries: Fisheries undertaken by vessels in the IOTC Record of Authorized Vessels that use longline gear.
    ii. Surface fisheries: All fisheries undertaken by vessels in the IOTC Record of Authorized Vessels other than longline fisheries; in particular purse seine, pole-and-line, and gillnet fisheries.
    iii. Coastal fisheries: Fisheries other than longline or surface, as defined above, also called artisanal fisheries.
    iv. IOTC Area of Competence: as described in Annex A of the IOTC Agreement.
    v. Species: refers to all species under the IOTC mandate as described in Annex B of the IOTC Agreement, and the most commonly caught elasmobranch species, as defined by the Commission in IOTC Resolution 13/03 or any subsequent revisions of this Resolution.
    vi. Support vessels: Any types of vessels that operate in support of the fishing activities of purse seine vessels.
- Specify the requirements for Nominal Catch data, including:
    i. Changing the term Nominal by Total;
    ii. Change the time-period resolution of Total catch data from Year to Quarter, in order to be able to assess the seasonality of fisheries, in particular those that do not report catch-and-effort data;

iii. Request separate reports for retained catches (in live weight) and discards (in live weight or number), as per the above resolution.

- Specify the requirements for Catch and effort data, including:
  i. Surface fisheries: Extend the requirements to report catch and effort data by type of fishing mode to other fisheries that use FADs, drifting or anchored; and ensure that the effort units reported are consistent with those requested in Resolution 13/03 or any subsequent revisions to such Resolution;
  ii. Coastal fisheries: Specify the time-period to be used to report this information, preferably Month.
- Harmonize the type of data resolution that is requested for coastal fisheries t, in particular for catch-and-effort and size data; for data to be reported by month and landing area.
- Specify that Size Frequency data shall be reported according to the procedures described in the IOTC Guidelines for the Reporting of Fisheries Statistics (instead of those set out by the IOTC Scientific Committee, as recorded in the present Resolution).
- Specify the requirements for data on supply vessels, including:
  i. Change the term Supply to Support (Support Vessels);
  ii. Indicate that data on the activities of support vessels shall be reported by the flag country of the vessels that receive the assistance of the support vessel (and not by the flag country or other parties);
  iii. Request the name of the purse seiners that receive assistance from each support vessel;

45. The WPDCS **NOTED** that at present deadlines for the submission of data are set to 30th June the year following the one for which catches are reported, including preliminary data for longline fisheries and final data for all other fisheries. The WPDCS **AGREED** that it may be required to move the deadline to a date earlier in the year so as data for the previous year can be included in the assessments that all IOTC Working Parties undertake. However, some participants indicated it is unlikely that they can report data earlier considering the arrangements presently in place for data collection in their countries. The WPDCS **AGREED** to **DEFER** consideration of this matter to the Scientific Committee.

7.2 ***Resolution 11/04 On a regional observer scheme.***

46. The WPDCS **NOTED** paper IOTC–2014–WPDCS10–10 Rev1 which presents progress in the implementation of the IOTC Regional Observe Scheme and a proposal to amend the observer trip report templates for the different fisheries.

47. The WPDCS discussed and modified the templates presented for each fishery and **AGREED** to new templates, which are presented in Appendix VI. The WPDCS **RECOMMENDED** that the Scientific Committee considers endorsing the new observer trip report templates, as presented in Appendix VI.

48. The WPDCS **NOTED** paper IOTC–2014–WPDCS10–11 Rev2 which provided levels of observer coverage on longliners flagged in Japan, estimated using the number of longline sets observed over the total number of sets reported by the fishery. The WPDCS further **NOTED** that this paper calls for the WPDCS to withdraw its recommendation in 2013 that the number of days at sea is used instead of the number of sets to assess levels of coverage for longline fleets under the ROS. The WPDCS further **NOTED** that the Commission had not endorsed this recommendation and therefore IOTC Resolution 11/04 remains unchanged, and **AGREED** that this recommendation should be removed.

49. Notwithstanding the above, the WPDCS **NOTED** that the units of effort requested for longliners in IOTC Resolution 10/02 and 11/04 are not consistent as the former requests numbers of hooks and the latter numbers of sets. In this regard the WPDCS **RECOMMENDED** that provisions in Resolution 10/02 are amended to include a requirement for longline fleets to report effort in terms of both number of hooks and number of sets. The WPDCS further **RECOMMENDED** that reporting of effort in terms of number of sets is also requested from surface purse seine fleets in addition to the current requirements to report effort as fishing days.

7.3 General discussion about IOTC data requirements (Resolutions 10/02, 11/04, 13/03, and 13/08).

50. The WPDCS **EXPRESSED CONCERN** that the Commission has adopted various measures that call for IOTC CPCs to report data for their fisheries using different terminology and data resolution and **AGREED** on the need for the Commission to harmonize the data requirements and wording used across all resolutions. In this regard, the WPDCS **NOTED** that the IOTC Secretariat is in the process of hiring a Consultant to undertake a review of the Compendium of IOTC Resolutions and **RECOMMENDED** that the IOTC Secretariat ensures that data provisions in these resolutions are thoroughly revised by the Consultant and results presented to the IOTC Scientific Committee as soon as this work is finalized.

8. REVIEW OF LENGTH FREQUENCY DATA FROM LONGLINE FLEETS AND LIKELY IMPACTS ON THE ASSESSMENTS

Review of length frequency data from Taiwan,China

51. The WPDCS **NOTED** paper IOTC–2014–WPDCS10–INF03, which provided a response to questions raised by WPDCS09 and SC16 regarding the length frequency data of the Taiwanese Distant Water Longline Fleet, including the following abstract provided by the authors:

> *"This report is to reply to the request made by SC16 concerning the lack of specimens of small size from the samples for Taiwanese longline fleet. Since this issue concerns the length sampling data of multi species, including bigeye tuna and albacore, this year we focused on reviewing the bigeye tuna length data collection as a starting point of this issue. Under the sampling protocol unchanged, the reduction of albacore targeting fishing fleet caused the length specimens to decrease sharply, and the increasing logbook recovery of bigeye tuna targeting fleet with more length measurements collected from this fleet caused the aggregated length measurements of bigeye tuna to skew toward large size on average. We also used the length-weight relationship derived from observer data to convert the weight samplings collected from logbook to verify the length measurements of logbook data. There's no significant discrepancy between the length measurements and converted length estimated from weight measurement."*

Information on fish size and average weight for tunas caught by Japanese longline in the Indian Ocean.

52. The WPDCS also **NOTED** a presentation by Japan, 'Some information on fish size and average weight for tunas caught by Japanese longline in the Indian Ocean', which provided an overview of the availability of size data from Japanese longliners and sampling protocols.

General discussion

53. The WPDCS **THANKED** the scientists from Japan and Taiwan,China for their efforts to respond to comments from the WPDCS and the SC regarding discrepancies in the length frequency data reported to the IOTC.

54. The WPDCS **NOTED** that the lack of smaller sized specimens of tropical tunas and albacore sampled for length in vessels flagged in Taiwan,China since 2003, as compared to previous years, are likely to be the main explanation for recent increases in average weight.

55. The WPDCS **ACKNOWLEDGED** that the decrease in samples of smaller sized BET and YFT specimens reported by Taiwan,China may, in part, be due to a decline in fishing activity and number of samples collected from conventional longliners targeting albacore, operating south of 20°S, and which are generally associated with smaller sized tropical tunas (as opposed to samples of larger sized specimens associated with super freezer tuna longline fleets operating in tropical waters operating north of 20°S).

56. The WPDCS **NOTED**, however, that the relatively minor importance of samples from conventional longliners targeting albacore (i.e., <10%) are unlikely to fully account for the sudden decrease in samples of smaller sized fish and increase in average weights of tropical tunas since the early 2000s, or explain the discrepancies noted between average weights derived from the size frequency data and catch-and-effort during years of the highest levels of sampling coverage.

57. The WPDCS **RECOMMENDED** further analysis to fully understand the recent changes in length composition reported by Taiwan,China – in particular whether there have been changes to the sampling protocols and selection of fish for sampling – and **RECALLED** comments from WPDCS09 that the decline in number of samples of small specimens of tropical tunas in particular may originate from

high grading of catch onboard Taiwanese longliners following the implementation of quotas on the Taiwanese longline fleet in the Indian Ocean (i.e. only large specimens from the catch measured for length).

58. The WPDCS also **NOTED** that size frequency samples collected on deep-freezing longline vessels under the flag of Seychelles would be useful to compare with the main Taiwanese fleet to assess the recent changes in length composition, and **URGED** Seychelles to submit the complete dataset of size frequency samples for 2009 and 2010 which are currently only partially recorded in the IOTC Secretariat database.

59. Regarding the Japanese longline size frequency data, WPDCS **NOTED** the analysis by the Secretariat highlighting inconsistences in the average weights recorded for grids in which size frequency samples are available, and other grids, for which the available catch in numbers (catch-and-effort) and weight (nominal catch) was used. It was **NOTED** that differences are highest on years where levels of sampling coverage were also highest, particularly during the 1980s.

60. The WDCS **AGREED** that additional work is required by Japan, and **RECOMMENDED** that this work is undertaken in collaboration with the IOTC Secretariat, to understand the lack of coherence in the historical time series between the size frequency data, and catch-and-effort and nominal catch reported by Japanese longline vessels.

61. In both cases of the Japanese and Taiwanese size-frequency data, the WPDCS identified further analysis as a high priority for the WPDCS Programme of Work, given the potential impact on stock assessment, and **RECALLED** the recommendation from the WPDCS [WPDCS09.05 (para.40)] for joint work on the documentation of procedures for the collection, processing and reporting of size frequency data continues, based on a template to be produced by the IOTC Secretariat, in particular:

    - Full description of the type of sampling platforms used (e.g. commercial boats, research boats, training boats, etc.), and collecting sources (e.g. fishermen, researchers, scientific observers, etc.)
    - Full description of the sampling protocols used, on each (e.g. full enumeration of every set, every other set, first 30 fish from each set sampled for size, etc.), by type of sampling platform and collecting source.
    - Type of measurements collected (e.g. gilled-and-gutted weight, fork length, etc.) and measurement tools used (calliper, measuring board, measuring tape, scale, etc.) by type of sampling platform, collecting source, and species.
    - Type of time-area stratification used for each species (e.g. quarter and defined area) and procedures used for the estimation of sampled weights in each stratum, including all equations used for the conversion of non-standard measurements into standard measurements, by species (e.g. deterministic conversion using a single length weight equation for all areas and time periods, etc.).
    - Description of any other procedures which involve the use of length frequency data (e.g. estimation of weights from the numbers reported in logbooks and substitution scheme in the case that lengths are not available in areas where there are catches and effort recorded, etc.).

9. REVIEW OF ESTIMATES OF INPUT FISHING CAPACITY

62. The WPDCS **NOTED** the recommendation by the IOTC Scientific Committee at its Sixteenth Session that the WPDCS review the estimates of input fishing capacity presented by the IOTC Secretariat (IOTC-2014-WPDCS10-INF01). The WPDCS **NOTED** that the request from the Scientific Committee was driven by comments from India and Malaysia that the estimates of numbers of vessels for the artisanal fisheries of both countries need further review. However, the WPDCS **NOTED** that none of the countries had provided updates since the last meeting of the WPDCS and **AGREED** to defer consideration of this matter until this information is provided by the countries concerned.

63. The WPDCS **NOTED** that while there are currently forms available for the reporting of fishing capacity in the IOTC area of competence, the majority of CPCs do not report his information for its coastal fisheries. The WPDCS **RECOMMENDED** that the Commission consider making reporting mandatory if an estimate of total fishing capacity is required.

10. CAPACITY BUILDING ACTIVITIES: DATA COLLECTION AND PROCESSING IN COASTAL COUNTRIES, AND COMPLIANCE WITH MINIMUM REQUIREMENTS

64. The WPDCS **NOTED** paper IOTC–2014–WPDCS10–08 which provided an overview of the capacity building activities the IOTC Secretariat have been involved with since the last meeting of the WPDCS.

65. The WPDCS **THANKED** the IOTC-OFCF Project for its continuous support to the enhancement of data collection and processing systems in developing countries of the IOTC and **ENCOURAGED** the OFCF to extend support in the future.

66. The WPDCS **NOTED** that the IOTC Secretariat is also assisting the implementation of activities in the area of data collection, management and reporting, in cooperation with the Indian Ocean Commission-SmartFish Project and Bay of Bengal Large Marine Ecosystems Project, which have provided financial support in 2014. In addition, the IOTC Secretariat is cooperating with activities under the Global Environmental Facility Areas Beyond National Jurisdiction Project.

67. The WPDCS **NOTED** that capacity building activities are not always successful in the countries in which they are implemented. This is especially the case of countries that receive financial and technical support for the implementation of data collection activities but fail to secure the funds necessary to maintain these activities once that support is discontinued. In this regard, the WPDCS **URGED** all countries that receive support from the IOTC to ensure continuation of these activities into the future. The WPDCS further **NOTED** that the IOTC Secretariat assess continuation of activities by the countries through follow-up missions to those countries or other means and **REQUESTED** that the Secretariat prepare this information and presents it at the next meeting of the WPDCS.

68. The WPDCS **THANKED** the IOTC Secretariat for this information and **REQUESTED** the IOTC Secretariat to report progress at the next meeting of the WPDCS and continue efforts to identify external funding for the implementation of capacity building activities in the IOTC region. Notwithstanding this, the WPDCS **AGREED** that, while external funding is helping the work of the Commission, funds allocated by the Commission to capacity building are still too low, considering the range of issues identified by the WPDCS, and **RECOMMENDED** that the Commission consider allocating more funds to these activities in the future.

11. WPDCS PROGRAMME OF WORK

69. The WPDCS **NOTED** the draft Programme of Work 2015-2019 (Appendix A, IOTC–2014–WPDCS10–09 Rev1) and **AGREED** the draft list of activities (Table 2).

70. The WPDCS **AGREED** that high priority be given to Data Collection and Reporting Standards and the Regional Observer Scheme given the continued lack of compliance and reporting of fisheries statistics and Observer data to the IOTC Secretariat; in addition to a Review of the Size Data for Longline Fisheries to resolve the ongoing issues related to discrepancies between the size-frequency data, and catch-and-effort and nominal catch for the Asian longline fleets in particular. The WPDCS **RECOMMENDED** that the IOTC Scientific Committee considers implementation of the activities listed in Table 2 (details provided in Appendix VII) as per the priorities identified by the WPDCS.

Table 2. High priority topics, by project for data collection and statistics in the Indian Ocean.

Topic	Sub-topic and project	Rank
Data Collection Standards Regional Observer Scheme	Artisanal & Industrial Fisheries	1
Review Size Data Longline Fisheries	Assistance to historical review of length frequency data for longline fisheries, in particular longliners from Taiwan,China and Japan.	2
Compliance with IOTC Data Requirements	Data Support Missions	3

Topic	Sub-topic and project	Rank
Assistance to Implementation of logbook systems and data collection on FADs	Assist developing coastal IOTC CPCs in the implementation of logbook systems on industrial vessels under their flag, in particular: development of logbooks and guidelines for its completion, including provisions for FADs, as per IOTC Resolution 13/08; training of local staff; assistance to data management and reporting.	4
Implementation Data Collection Sport Fisheries	Produce a catalogue of sport fisheries in the Indian Ocean; facilitate collection and reporting of data from sport clubs; training of local staff.	5
IOTC Data Summary	Development of Web Based online querying procedures for nominal catch, fishing craft, and catch-and-effort data.	6

12. OTHER BUSINESS

12.1 *Review of the catch series of Albacore for Indonesia*

71. The WPDCS **RECALLED** the review of the catch series of albacore that the DGCF of Indonesia and the IOTC Secretariat had conducted to address a recommendation from the Scientific Committee, which covered the years 2003-12, and **NOTED** that the new scientific estimates of catch had been endorsed by Indonesia and the IOTC Scientific Committee. It was further **NOTED** that the catches of albacore reported by Indonesia for 2013, at around 16,000 tons, represent the highest catch over the time series and are in contradiction with data received from canning factories cooperating with the International Seafood Sustainability Foundation (around 5,000 tons). In light of this, the WPDCS **REQUESTED** Indonesia to work with the IOTC Secretariat to revise the catches of albacore in 2013.

12.2 *Election of a Vice-Chair for the next biennium*

72. The WPDCS **CONSIDERED** candidates for the position of Vice-chairperson of the WPDCS for the next *biennium*. The WPDCS **AGREED** to **DEFER** consideration of this matter to the IOTC Scientific Committee as the WPDCS was unable to find a candidate at the meeting.

73. The WPDCS **RECOMMENDED** that the Scientific Committee considers electing a new Vice-chairperson of the WPDCS for the next *biennium.*

12.3 *Date and place of the Eleventh Session of the WPDCS*

74. The WPDCS **CONSIDERED** the following options with regards to future annual meetings of the WPDCS:

- Continue as per the current arrangements having the meeting before the SC
- Having the meeting before the WPNT to enhance participation of scientists from coastal countries
- Alternating meetings according to the above two options

75. The WPDCS **DEFERRED** consideration of this matter and time and place of the next WPDCS meeting to the Scientific Committee.

12.4 *Review of the draft, and adoption of the report of the Tenth session of the WPDCS*

76. The WPDCS **RECOMMENDED** that the Scientific Committee consider the consolidated set of recommendations arising from WPDCS10, provided at Appendix VIII.

77. The report of the Tenth Session of the Working Party on Data Collection and Statistics (IOTC–2014–WPDCS10–R) was **ADOPTED** on the 4 December 2014.

APPENDIX I
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APPENDIX II
AGENDA FOR THE TENTH WORKING PARTY ON DATA COLLECTION AND STATISTICS

1. **OPENING OF THE MEETING**
2. **ADOPTION OF THE AGENDA AND ARRANGEMENTS FOR THE SESSION**
3. **THE IOTC PROCESS: OUTCOMES, UPDATES AND PROGRESS**
4. **PROGRESS REPORT OF THE SECRETARIAT ON DATA RELATED ISSUES**
5. **UPDATE ON NATIONAL STATISTICAL SYSTEMS**
6. **REPORT OF THE REGIONAL WORKSHOP TO SUPPORT COMPLIANCE WITH IOTC REQUIREMENTS FOR THE COLLECTION AND REPORTING OF FISHERIES DATA TO THE IOTC**
7. **REVIEW OF DATA REQUIREMENTS IN CONSERVATION AND MANAGEMENT MEASURES RELEVANT TO THE WPDCS**
8. **REVIEW OF LENGTH FREQUENCY DATA FROM LONGLINE FLEETS AND LIKELY IMPACTS ON THE ASSESSMENTS**
9. **REVIEW OF ESTIMATES OF INPUT FISHING CAPACITY**
10. **CAPACITY BUILDING ACTIVITIES: DATA COLLECTION AND PROCESSING IN COASTAL COUNTRIES, AND COMPLIANCE WITH MINIMUM REQUIREMENTS**
11. **WPDCS PROGRAM OF WORK**
12. **OTHER BUSINESS**
    - 12.1 Review of the catch series of albacore for Indonesia
    - 12.2 Date and place of the 11th Session of the WPDCS: 2015 or 2016
    - 12.3 Review of the draft, and adoption of the report of the 10th Session of the WPDCS

APPENDIX III
LIST OF DOCUMENTS

Document	Title	Availability
IOTC–2014–WPDCS10–01a	Draft: Agenda of the 10th Working Party on Data Collection and Statistics	✓(3 September 2014) ✓(11 November 2014) ✓(21 November 2014)
IOTC–2014–WPDCS10–01b	Draft: Annotated agenda of the 10th Working Party on Data Collection and Statistics	✓(25 November 2014) ✓(01 December 2014)
IOTC–2014–WPDCS10–02	Draft: List of documents of the 10th Working Party on Data Collection and Statistics	✓(11 November 2014) ✓(25 November 2014) ✓(01 December 2014)
IOTC–2014–WPDCS10–03 Rev1	Outcomes of the 16th Session of the Scientific Committee and of the 18th Session of the Commission (IOTC Secretariat)	✓(11 November 2014) ✓(25 November 2014)
IOTC–2014–WPDCS10–04	Progress made on the recommendations of WPDCS09 (IOTC Secretariat)	✓(14 November 2014)
IOTC–2014–WPDCS10–05 Rev1	Review of current Conservation and Management Measures relating to the WPDCS (IOTC Secretariat)	✓(11 November 2014) ✓(25 November 2014)
IOTC–2014–WPDCS10–06 Rev1	Report on IOTC Data Collection and Statistics (IOTC Secretariat)	✓(18 November 2014) ✓(21 November 2014)
IOTC–2014–WPDCS10–07	Report of the Regional Workshop to Support Compliance with IOTC Requirements for the Collection and Reporting of Fisheries Data to the IOTC (IOTC Secretariat)	✓(14 November 2014)
IOTC–2014–WPDCS10–08	IOTC Capacity Building Activities in Support of developing coastal IOTC CPCs (IOTC Secretariat)	✓(20 November 2014)
IOTC–2014–WPDCS10–09 Rev1	WPDCS Draft Priorities WPDCS (IOTC Secretariat)	✓(24 November 2014) ✓(25 November 2014)
IOTC–2014–WPDCS10–10 Rev1	Update on the implementation of the IOTC Regional Observer Scheme (IOTC Secretariat)	✓(21 November 2014) ✓(01 December 2014)
IOTC–2014–WPDCS10–11 Rev2	Proposal to use "number of operations" to compute observer coverages for Japanese tuna longline fisheries operated in the Indian Ocean (T. Nishida)	✓(23 November 2014) ✓(26 November 2014) ✓(28 November 2014)
IOTC–2014–WPDCS10–12 Rev2	A Review of IRAN Fisheries Data & Statistics with emphasis tuna fishes (S. Khorshidi Nergi)	✓(23 November 2014) ✓(30 November 2014) ✓(03 December 2014)
IOTC–2014–WPDCS10–13	Evolution du systeme de collecte de donnees des palangriers Nationaux (cas de Sainte Marie) MADAGASCAR (D.L. Joachim)	✓(01 December 2014)
IOTC–2014–WPDCS10–14 Rev2	Data collection and reporting system of Sri Lanka; Where it was and where it now (L. Perera & R. Maldeniya)	✓(02 December 2014) ✓(03 December 2014)
Information papers		
IOTC–2014–WPDCS10–INF01	G. Moreno & Herrera, M. (IOTC Secretariat), 2013. Estimation of fishing capacity by tuna fishing fleets in the Indian Ocean. Report presented at the 16th Session of the Scientific Committee of the Indian Ocean Tuna Commission. Busan, Republic of Korea, 2–6 December 2013. IOTC–2013–SC16–INF04	✓(21 November 2014)
IOTC–2014–WPDCS10–INF02	Data revisions to nominal catch for IOTC species (IOTC Secretariat)	✓(27 November 2014)
IOTC–2014–WPDCS10–INF03	The review on the BET length data collection of Taiwanese large scale tuna longline fishery (Lisa Chang, Hung-I Liu and Ren-Fen Wu)	✓(02 December 2014)
IOTC–2014–WPDCS10–INF04	Long-term monitoring of the biology of tropical tunas through routine sampling at the cannery of Victoria, Seychelles (Chassot E, Esparon J, Tirant A, Dewals P, Delgado de Molina A, Areso JJA, Bodin N)	✓(03 December 2014)
IOTC–2014–WPDCS10–INF05	Are there small yellowfin caught by purse seiners in free-swimming schools? (Chassot E, Floch L.)	✓(03 December 2014)
IOTC–2014–WPDCS10–INF06	TOR Online querying procedures IOTC Web Page (IOTC Secretariat)	✓(25 November 2014)

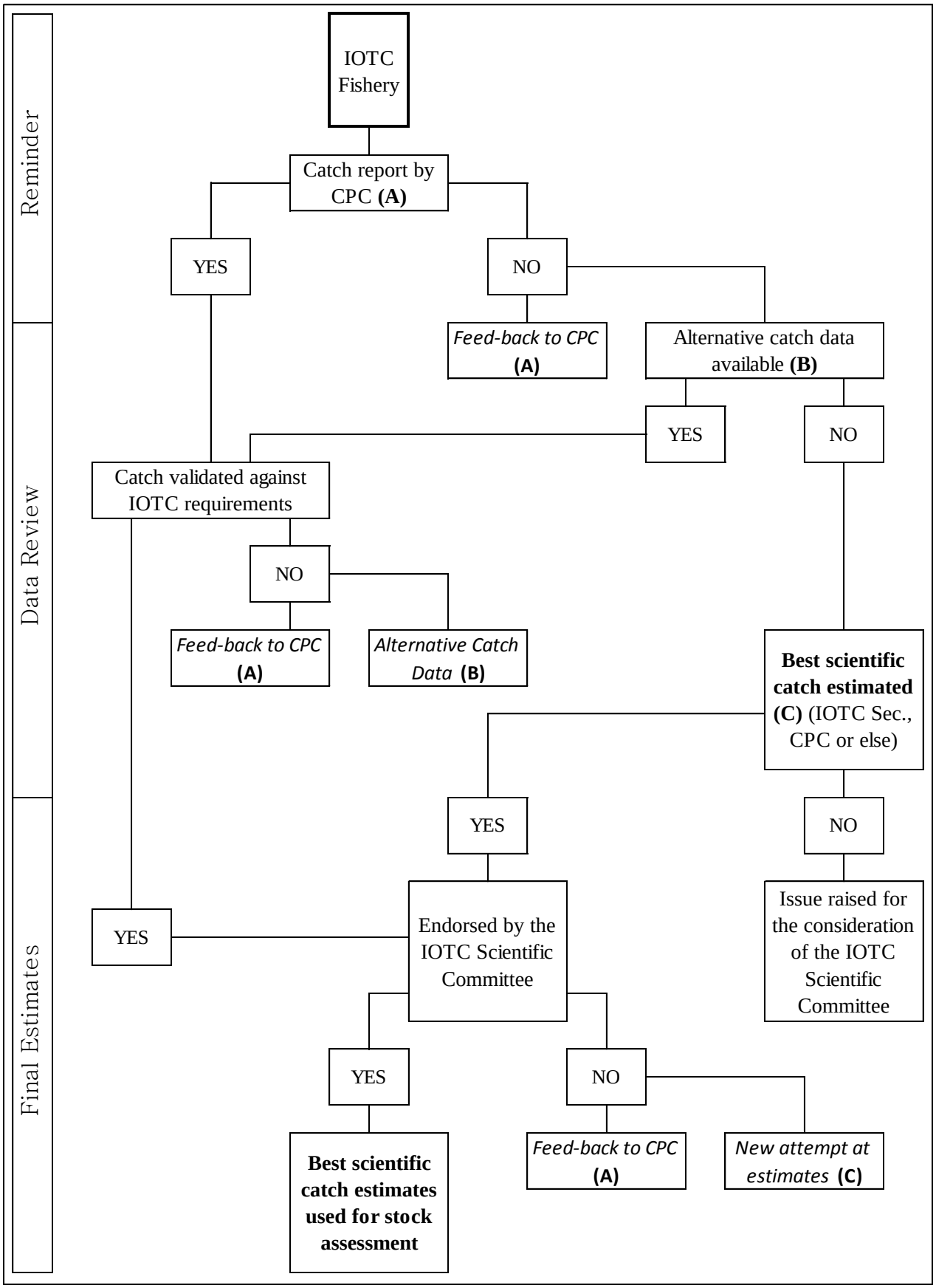
Document	Title	Availability
IOTC–2014–WPDCS10–INF07	Mandatory statistical reporting requirements for IOTC members and cooperating non-contracting Parties (CPC's) (Submitted by: European Union, 05 April 2013)	✓(25 November 2014)
IOTC–2014–WPDCS10–INF08	Recommendation by ICCAT on Penalties Applicable in case of Non Fulfilment of Reporting Obligations	✓(25 November 2014)
IOTC–2014–WPDCS10–INF09	Investigating the influence of length–frequency data on the stock Assessment of Indian Ocean bigeye tuna (R.Sharma *et al.*)	✓(03 December 2014)

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

Nominal catches	
Main Issues	**Proposed Actions**
Indonesia: Total catch of Artisanal fisheries Species composition: Catch of juvenile tunas around anchored FADs (*rumpons*)	Assess if large increase in catch in recent years is a product of implementation of new sampling design and time-series need to be corrected; Catch estimates corrected in 2014 Provincial Data Collection Workshops (IOTC-OFCF); Pilot sampling activities (IOTC-BOBLME-DGCF); both ongoing
Sri Lanka: Coastal and offshore fisheries	Statistical system strengthened (IOTC-OFCF-BOBLME); support to data management ongoing
Yemen: Handline fishery	Use previous estimates and trends in catches for handlines in Oman
India: Commercial longline fishery Coastal fisheries	India has indicated that the IOTC shall use official figures irrespective of how incomplete the may be; to be discussed by the IOTC Scientific Committee Catch from different sources conflicting; as above
Pakistan: Driftnet fishery	ABNJ-WWF Project initiated in 2014
Madagascar: Coastal and longline fisheries	Need to attempt estimate catch using the data available (support IOTC-SmartFish 2013-14)
Catches of bigeye tuna by baitboat (Maldives) and coastal fisheries (Malaysia)	Consider Implementation Pilot Sampling to assess species composition and strengthen shore sampling
Catch-and-Effort	
Main Issues	**Proposed Actions**
Implementation of minimum requirements for operational data (logbook)	
Indonesia: Longline	Need to strengthen management and validation of logbook data
Sri Lanka: Gillnet and longline fishery	Need to strengthen management and validation of logbook data
India & Malaysia & Oman Longlines Iran & Pakistan: Driftnets Maldives: Pole-and-line	Data falls short of requirements: Assist CPCs to understand data requirements and with processing of information and urge them to strictly implement requirements and report data to the IOTC
Most fisheries	Implement minimum data requirements for sharks (noting that those for India are different as it has objected the logbook Resolution)
Catch-and-effort not available for coastal fisheries	
Many CPCs have failed to report catches and effort per month for their coastal fisheries	As a minimum request reports of catch by species, gear, and month and total numbers of fishing craft operated by gear, and month (or year) Propose requirements for the reporting of fishing craft statistics

Observer Programmes	
Main Issues	**Proposed Actions**
Observer reports: Very poor rates of reporting	Explore ways to facilitate reporting of data (e.g. web based reports) Organize Training and Workshops to assist CPCs Urge countries to implement ROS requirements and report data
Size Frequency	
Data not reported	
Coastal fisheries of India, Indonesia, Thailand, Malaysia, Oman, and Yemen Longlines of India	Data Mining/assist CPCs to understand data requirements/support to pilot sampling and with processing of information and urge them to strictly implement requirements and report data to the IOTC
Driftnets of Pakistan	ABNJ-WWF Project initiated in 2014
Data poor quality	
Longline fisheries of Japan and Taiwan,China: Catch-and-effort and size data conflicting over the time series	Analysis of length frequency data ongoing Effects of changes in gear selectivity Discrepancies in length data in the last decade (Taiwan,China) Lack of small sizes in the samples (Taiwan,China) and inconsistent allocation of lengths to size bins
Data not by IOTC standards for the gillnet & longline fishery of Sri Lanka and the driftnet fishery of Iran	Assist CPCs to understand data requirements and with processing of information and urge them to strictly implement requirements and report data to the IOTC
Socio-Economic Data	
Little data available	Propose standards for the reporting of data, as requested in the IOTC Agreement

APPENDIX V
PROCESS RECOMMENDED BY THE WPDCS TO OBTAIN BEST SCIENTIFIC ESTIMATES OF CATCH FOR THE ASSESSMENTS OF IOTC SPECIES



The above flow chart presents the decision tree (top to bottom) to be used by the IOTC to obtain the best scientific estimates of catch to be used in the stock assessments of IOTC species, as agreed by the WPDCS.

APPENDIX VI
DRAFT OBSERVER TRIP REPORT TEMPLATES PROPOSED BY THE WPDCS

Indian Ocean Tuna Commission
Trip information - LL

Trip number									
Observer and deployment details									
Observer Name					Employment Organisation name				
IOTC registration No.					Employment Organisation Address				
Nationality									
Boarding date and time					Disembarkation date and time				
DD	MM	YYYY	hh	mm	DD	MM	YYYY	hh	mm
Boarding location					Disembarkation location				
Port name	Latitude	(units)	Longitude	(units)	Port name	Latitude	(units)	Longitude	(units)
Remarks									

Vessel Details						
Vessel Name		Flag		Gross Tonnage (GT)		
IOTC No.		Port of Registration		Overall Length (m)		
Radio Call Sign		Vessel Type		Fish storage capacity (m³)		
Blast freezer capacity (m³)		Main Fishing Gear				

Refrigeration methods available onboard	
1	
2	
3	
4	
Fish storage method	

Vessel Electronic equipment						
	Acoustic equipment	Position fixing equipment	Vessel Monitoring System	Radars	Communications equipment	Plotters
Type						
Remarks:						

Trip Details									
Departure of vessel from port (date and time)					Arrival of vessel at port (date and time)				
DD	MM	YYYY	hh	mm	DD	MM	YYYY	hh	mm
Departure location					Arrival location				
Port name	Latitude	(units)	Longitude	(units)	Port name	Latitude	(units)	Longitude	(units)
Remarks									

	DD	MM	YYYY	hh	mm
Date start fishing					
Date end fishing					
Total time lost		reason			

Total no.operations/sets		Details of sampling	
No. observed operations		strategy (if <100% of sets	

Gear details (LL)			
Longline type		Mainline material	
Line setter		Mainline length	
Bait casting machine		Line hauler	
Bait hooked twice		Length floatline (m)	
Length shark lines (m)			

Tori lines					
Tori line length		Streamer length		Attached height	
Streamer type		Streamers per line		Number towed objects	

General hauling information	
Method of stunning	
Depredation device used	

Remarks	

Indian Ocean Tuna Commission
Operation information - LL

IOTC Trip number		IOTC operation/set number	

Operation details (LL)

Set start date and time					**Set start location**				
DD	MM	YYYY	hh	mm	Latitude	(units)	Longitude		(units)
Target species									
Remarks									

Line setting

Length mainline set		No. hooks between floats		Line set type	
No. floats set		No. hooks set		Branchline set interval (m)	
Shallowest hook depth		No. light sticks			
Deepest hook depth		No. shark lines set			

Branchlines

Type A

	Section 1	Section 2	Section 3	Section 4 (leader)
Material				
Diameter				
Length				

Type B

	Section 1	Section 2	Section 3	Section 4 (leader)
Material				
Diameter				
Length				

Type C

	Section 1	Section 2	Section 3	Section 4 (leader)
Material				
Diameter				
Length				

Type D

	Section 1	Section 2	Section 3	Section 4 (leader)
Material				
Diameter				
Length				

Branchline				
Type	A	B	C	D
No. set				

Bait			
Type			
Species			
Ratio			
Dye colour			

Hooks	A	B	C	D
Type				
Number set				

Bycatch mitigation measures used

Low light night setting		Underwater setting	
No. Tori lines deployed		Other bycatch mitigation measures used (e.g. offal management,bird curtain etc)	
Branchline weighting (g)			
Distance weight from hook (cm)			

Haul

Haul start date and time					**Haul start location**			
DD	MM	YY	hh	mm	Latitude	(units)	Longitude	(units)
Bird scaring device used during haul				No. retrieved hooks observed				
				No. hooks retrieved				

Leader type	A	B	C	D
No. bite-off per leader type				

Sampling details

Indian Ocean Tuna Commission
Catch information - LL

Form ID		Catch details																							(Discards only)		
IOTC Trip number	IOTC operation/set number	Species code	Fate	Weight (pre-processed, live/whole/round)	Weight code (post-processing)	Weight (post-processing)	Length code 1	Length 1	Length code 2	Length 2	Sex	Maturity stage	Sample collected	Scar	Dep	Hook type	Bait type	Leader type	Hooking location	Tag release	Tag recovery	Tag no.	Tag type	Tag finder	Condition of discard (when released)	Release details	Comments
Remarks																											

One fish entry per line
Blue data fields indicates the subsample of fish for which biological measurements are taken
Green data fields indicate optional items to be entered where possible

Indian Ocean Tuna Commission
Trip information - PS

Trip number		

Observer and deployment details									
Observer Name					Employment Organisation name				
IOTC registration No.					Employment Organisation Address				
Nationality									
Boarding date and time					Disembarkation date and time				
DD	MM	YYYY	hh	mm	DD	MM	YYYY	hh	mm
Boarding location					Disembarkation location				
Port name	Latitude	(units)	Longitude	(units)	Port name	Latitude	(units)	Longitude	(units)
Remarks									

Vessel Details					
Vessel Name		Flag		Gross Tonnage (GT)	
IOTC No.		Port of Registration		Overall Length (m)	
Radio Call Sign		Vessel Type		Fish storage capacity (m³)	
Blast freezer capacity (m³)		Main Fishing Gear			

Refrigeration methods available onboard	
1	
2	
3	
4	
Fish storage method	

Vessel Electronic equipment						
	Acoustic equipment	Position fixing equipment	Vessel Monitoring System	Radars	Communications equipment	Plotters
Type						
Remarks:						

Trip Details									
Departure of vessel from port (date and time)					Arrival of vessel at port (date and time)				
DD	MM	YYYY	hh	mm	DD	MM	YYYY	hh	mm
Departure location					Arrival location				
Port name	Latitude	(units)	Longitude	(units)	Port name	Latitude	(units)	Longitude	(units)
Remarks									

	DD	MM	YYYY	hh	mm
Date start searching					
Date end searching					
Total time lost		reason			

Total no.operations/sets		Details of sampling strategy (if <100% of sets were observed)	
No. observed operations			
No. FADs deployed			
No. FADS investigated			

Gear details (PS)					
Net					
Max. length		Max. depth		Stretched mesh	
Brail size				Power block	
Other (e.g. presence of escape panel)				Purse winch	
Support vessel Y/N					
Remarks					

Indian Ocean Tuna Commission
Operation information - PS

IOTC Trip number	
Set number	

Operation details (PS)

Set date and time (start of set)					Set location			
DD	MM	YYYY	hh	mm	Latitude	(units)	Longitude	(units)

School association	

Sampling details

Sampling method	
Species sampled	

Remarks

Catch details | (Discards only) | **Sampling details**

Species code	Fate	Number	Weight code	Weight (kg)	Condition (when released)	Release details	Comments	Sampling	Sampling coverage %

Remarks

Indian Ocean Tuna Commission
Biological sample - PS

Sampling details

Form ID		Catch details														
IOTC Trip number	IOTC operation/set number	Species code	Number	Weight code	Weight	Length code	Length	Sex	Maturity stage	Sample collected	Scar	Tag release	Tag recovery	Tag no.	Tag type	Tag finder

Remarks

Indian Ocean Tuna Commission
Trip information - PL

Trip number		

Observer and deployment details			
Observer Name		Employment Organisation name	
IOTC registration No.		Employment Organisation Address	
Nationality			

Boarding date and time					Disembarkation date and time				
DD	MM	YYYY	hh	mm	DD	MM	YYYY	hh	mm

Boarding location					Disembarkation location				
Port name	Latitude	(units)	Longitude	(units)	Port name	Latitude	(units)	Longitude	(units)

Remarks	

Vessel Details						
Vessel Name		Flag			Gross Tonnage (GT)	
IOTC No.		Port of Registration			Overall Length (m)	
Radio Call Sign		Vessel Type			Fish storage capacity (m^3)	
Main Fishing Gear						

Refrigeration methods available onboard	
1	
2	
3	
4	
Fish storage method	

Vessel Electronic equipment						
	Acoustic equipment	Position fixing equipment	Vessel Monitoring System	Radars	Communications equipment	Plotters
Type						
Remarks:						

Trip Details									
Departure of vessel from port (date and time)					Arrival of vessel at port (date and time)				
DD	MM	YYYY	hh	mm	DD	MM	YYYY	hh	mm
Departure location					Arrival location				
Port name	Latitude	(units)	Longitude	(units)	Port name	Latitude	(units)	Longitude	(units)
Remarks									

	DD	MM	YYYY	hh	mm
Date start searching for target species					
Date end searching for target species					
Total time lost		reason			

Total no.fishing events		Details of sampling strategy if <100% of fishing events observed	
No. FADs deployed			
No. FADS investigated			

Gear details (PL/HL)	
Max. no. operational poles (automatic)	
Max. no. operational poles (manual)	

Bait details			
Total volume of bait tanks		Time spent bait fishing	
Total quantity of bait used during the trip			

Remarks	

Indian Ocean Tuna Commission
Operation information - PL

IOTC Trip number	
IOTC Operation number	

Operation details (PL)

Set date and time (start of fishing event)					Set start location (location at start of fishing event)			
DD	MM	YYYY	hh	mm	Latitude	(units)	Longitude	(units)

School association		Target species	
No. manual poles used		No. hooks lost	
No. auto poles used		No. lines observed	

Sampling details

Bait/lures		**Hooks**			
Bait type		Type			
Bait species		Number			
Weight of bait used					
Synthetic lure					

Remarks

Indian Ocean Tuna Commission
Catch information - PL

Form ID		Catch details																						(Discards only)		
IOTC Trip number	IOTC operation/set number	Species code	Fate	Weight (round live weight)	Weight code (post-processing)	Weight (post-processing)	Length code 1	Length 1	Length code 2	Length 2	Sex	Maturity stage	Sample collected	Scar	Hook type	Bait type	Leader type	Hooking location	Tag release	Tag recovery	Tag no.	Tag type	Tag finder	Condition (when released)	Release details	Comments
Remarks																										

One fish entry per line
Blue data fields indicates the subsample of fish for which biological measurements are taken
Green data fields indicate optional items to be entered where possible

Indian Ocean Tuna Commission
Trip information - GN

Trip number		

Observer and deployment details			
Observer Name		Employment Organisation name	
IOTC registration No.		Employment Organisation Address	
Nationality			

Boarding date and time					Disembarkation date and time				
DD	MM	YYYY	hh	mm	DD	MM	YYYY	hh	mm
Boarding location					**Disembarkation location**				
Port name	Latitude	(units)	Longitude	(units)	Port name	Latitude	(units)	Longitude	(units)
Remarks									

Vessel Details					
Vessel Name		Flag		Gross Tonnage (GT)	
IOTC No.		Port of Registration		Overall Length (m)	
Radio Call Sign		Vessel Type		Fish storage capacity (m³)	
Main Fishing Gear					

Refrigeration methods available onboard	
1	
2	
3	
4	
Fish storage method	

Vessel Electronic equipment						
	Acoustic equipment	Position fixing equipment	Vessel Monitoring System	Radars	Communications equipment	Plotters
Type						
Remarks:						

Trip Details									
Departure of vessel from port (date and time)					Arrival of vessel at port (date and time)				
DD	MM	YYYY	hh	mm	DD	MM	YYYY	hh	mm
Departure location					Arrival location				
Port name	Latitude	(units)	Longitude	(units)	Port name	Latitude	(units)	Longitude	(units)
Remarks									

	DD	MM	YYYY	hh	mm
Date start fishing					
Date end fishing					
Total time lost		reason			

Total no.operations/sets		Sampling details (if	
No. observed operations		<100% of sets were	

Gear details (GN)					
Total no. nets onboard		Float type		Sinker weight	
Net drum/ hauler		Sinker type			

Net details	Net type 1	Net type 2	Net type 3	Net type 4	Net type 5
No. of net panels					
Net material					
Net length (m)					
Net depth (m)					
Stretched mesh size					
Total no. nets					

Remarks	

Indian Ocean Tuna Commission
Operation information - GN

IOTC Trip number	
IOTC Operation number	

Operation details (GN)

Set start date and time					Haul start date and time				
DD	MM	YYYY	hh	mm	DD	MM	YYYY	hh	mm

Set start location				Haul start location			
Latitude	(units)	Longitude	(units)	Latitude	(units)	Longitude	(units)

Remarks	

Net details

Set type		Hanging ratio	
Vertical set		No. panels retrieved	
Net type (code from Trip form)		No. panels observed	
No. weights used		No. floats used	
Net configuration			

Sampling details

Remarks

Indian Ocean Tuna Commission
Catch information - GN

Form ID		**Catch details**																	(Discards only)		
IOTC Trip number	IOTC operation/set number	Species code	Fate	Weight code	Weight	Length code	Length	Net material	Mesh size	Method of capture	Sex	Maturity stage	Sample collected	Scar	Dep	Recovered Tag no.	Tag type	Tag finder	Condition (when released)	Release details	Comments
Remarks																					

One fish entry per line

Blue data fields indicates the subsample of fish for which biological measurements are taken

Green data fields indicate optional items to be entered where possible

APPENDIX VII
WPDCS PROGRAMME OF WORK (2015–2019)

The following is the Draft List of Priorities for the Development of a Program of Work by the IOTC WPDCS (2015–2019) and is based on the specific requests of the Commission and Scientific Committee. The Draft List of Priorities is presented in Table A, noting that the Programme of Work and timeline for implementation would be developed by the SC once it has agreed to the priority projects across all of its Working Parties:

Table A. High priority topics, by project for data collection and statistics in the Indian Ocean.

Topic	Sub-topic and project	Rank
Data Collection Standards ROS	Artisanal Fisheries: ➢ Develop minima data requirements for the routine collection of data at the landing place, through sampling by enumerators ➢ Develop General Guidelines for data collection from artisanal fisheries; including development of a set of indicators to be used to assess the quality of data collection and management systems for artisanal fisheries ➢ Develop/Amend Fisheries specific data collection protocols, by country, where necessary ➢ Assist implementation of pilot sampling activities in countries/fisheries not/insufficiently sampled in the past; priority to be given to the following fisheries: 1. Coastal fisheries of Indonesia 2. Coastal fisheries of India 3. Coastal fisheries of Pakistan 4. Coastal fisheries of Sri Lanka 5. Coastal fisheries of Yemen 6. Coastal fisheries of Madagascar 7. Coastal fisheries of Comoros 8. Coastal fisheries of Tanzania 9. Coastal fisheries of Thailand 10. Coastal fisheries of Malaysia	1
	Industrial fisheries: ➢ Develop General Guidelines for data collection by at-sea observers; including development of a set of indicators to be used to assess the quality of data collection and management systems for industrial fisheries ➢ Organize a Regional Workshop on the Implementation of the IOTC Regional Observer Scheme (all IOTC CPCs having industrial fisheries) ➢ Develop/Amend fisheries specific at-sea observer data collection protocols, by country, where necessary ➢ Assist implementation of at-sea observer programmes in countries/fisheries not/insufficiently monitored in the past; including: • Evaluation of existing observer programmes and arrangements • Coordination of country/fishery specific Training Sessions and Workshops on the ROS • Assistance to data management and reporting Priority to be given to the following fisheries: 1. Iran (driftnet; purse seine) 2. Sri Lanka (purse seine; drifting gillnet & longline) 3. Indonesia (longline) 4. Pakistan (driftnet) 5. India (longline) 6. Mauritius (purse seine; longline) 7. Malaysia (longline)	
Review Size Data Longline Fisheries	Assistance to historical review of length frequency data for longline fisheries, in particular longliners from Taiwan,China and Japan.	2

Topic	Sub-topic and project	Rank
Compliance with IOTC Data Requirements	Data Support Missions ➢ Identification 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 fisheries: 1. Iran 2. India 3. Pakistan 4. Yemen 5. Madagascar 6. Mozambique 7. Mauritius 8. Sri Lanka 9. Indonesia	3
Assistance to Implementation of logbook systems and data collection on FADs	Assist developing coastal IOTC CPCs in the implementation of logbook systems on industrial vessels under their flag, in particular: development of logbooks and guidelines for its completion, including provisions for FADs, as per IOTC Resolution 13/08; training of local staff; assistance to data management and reporting. Priority to be given to the following fisheries: 1. Iran (driftnet; purse seine) 2. Sri Lanka (purse seine; drifting gillnet & longline) 3. Indonesia (longline) 4. Pakistan (driftnet) 5. India (longline) 6. Mauritius (purse seine; longline) 7. Malaysia (longline)	4
Implementation Data Collection Sport Fisheries	Produce a catalogue of sport fisheries in the Indian Ocean; facilitate collection and reporting of data from sport clubs; training of local staff.	5
IOTC Data Summary	Development of Web Based online querying procedures for nominal catch, fishing craft, and catch-and-effort data.	6

APPENDIX VIII
CONSOLIDATED RECOMMENDATIONS OF THE TENTH SESSION OF THE WORKING PARTY ON DATA COLLECTION AND STATISTICS

Note: Appendix references refer to the Report of the Tenth Session of the Working Party on Data Collection and statistics (IOTC–2014–WPDCS10–R)

General discussion on data issues

WPDCS10.01 (para. 19): The WPDCS **NOTED** that some CPCs provide little or nil feedback regarding clarification of the data issues identified by the IOTC Secretariat or the Working Parties, following communications from the IOTC Secretariat or actions recommended by the Working Parties. It was **AGREED** that when this occurs and the IOTC Secretariat has access to alternative information, the Secretariat shall continue attempts to putting together best scientific estimates of catch for those fisheries, using the information available, and present those estimates to the Working Parties and Scientific Committee for further review and endorsement. In this regard the WPDCS **AGREED** to the data review process presented in Appendix V and **RECOMMENDED** that the IOTC Scientific Committee considers endorsing this approach.

WPDCS10.02 (para. 20): The WPDCS **RECALLED** its recommendation that scientists from Taiwan,China assist India in the estimation of catches of IOTC species and sharks for India's longline fleet, in particular for the years 2006 and 2007. The WPDCS **NOTED** that while India had indicated that it will not work with external institutions to revise catch estimates for its fishery India had not provided revised catches for its longline fleet. In light of this, the WPDCS **RECALLED** that the Scientific Committee had endorsed the alternative catches estimated for this component and **RECOMMENDED** that these estimates are maintained until India provide a revised time-series for its fleet.

WPDCS10.03 (para. 25): The WPDCS received and update on the status of the IOTC tagging database and new tags recovered during 2013-14. It was **NOTED** that while recoveries from longline fisheries remain at very low levels: only one yellowfin tuna was recovered on longliners against the sixteen yellowfin tuna recovered on purse seiners. The WPDCS **NOTED** that such poor rates of recovery by longliners may be due to various reasons, in particular a low reporting rate by longliners. The WPDCS **RECOMMENDED** that this issue is further explored.

National statistical systems

WPDCS10.04 (para. 28): (…) the WPDCS **NOTED** that, while Iran has implemented a logbook programme for its drifting gillnet fisheries, to date no catch and effort data have been reported to the IOTC. The WPDCS further **NOTED** that Iran is yet to implement provisions of the Regional Observer Scheme, in particular boarding of observers on its industrial purse seine and drifting gillnet fleets, and provision of observer trip reports to the IOTC. In this regard the WPDCS **RECOMMENDED** that Iran make the necessary arrangements to report catch-and-effort data to the IOTC, and size frequency data by IOTC grid, and implement provisions of the Regional Observer Scheme, and **REQUESTED** Iran to seek assistance from the IOTC Secretariat with these tasks, where required.

WPDCS10.05 (para. 33): The WPDCS further **NOTED** that to date Sri Lanka has not reported catch-and-effort data according to the standards or observer trip reports to the IOTC for its high seas fleet, which uses a combination of gillnets and longlines. In this regard the WPDCS **RECOMMENDED** that Sri Lanka makes the necessary arrangements to report a complete set of catch-and-effort data to the IOTC, and implement provisions of the Regional Observer Scheme, and **REQUESTED** the IOTC Secretariat to continue assisting Sri Lanka with these tasks, where necessary.

Report from the Workshop on Compliance with IOTC Data Requirements

WPDCS10.06 (para. 40): The WPDCS could not agree on a definition of fisheries directed at IOTC species and **AGREED** to defer consideration of this matter. The WPDCS **RECOMMENDED** that the CPCs concerned present reports to the next WPDCS for their fisheries that contain both the catches of IOTC species and other species, and **AGREED** to reconsider this issue as soon as this information is available.

WPDCS10.07 (para. 41): The WPDCS **ENDORSED** the recommendation from the Workshop for the IOTC Secretariat to send Data Support Missions to the countries concerned and **REQUESTED** that the Secretariat reports progress on the results of the missions undertaken during 2015 at the next meeting of the WPDCS. The WPDCS **AGREED** that further progress on Compliance with IOTC data requirements be revised at future sessions of the WPDCS and **RECOMMENDED** that all CPCs make every possible effort to send officers to future meetings of the WPDCS.

Resolution 10/02 Mandatory statistical requirements for IOTC Members and Cooperating Non-Contracting Parties

WPDCS10.08 (para. 44): (…) the WPDCS **RECOMMENDED** that the IOTC Scientific Committee considers to propose the following amendments to IOTC Resolution 10/02 to the Commission:

- Adopting the following definitions in order to clarify the type of fisheries, area and species covered by Resolution 10/02:

  - Longline fisheries: Fisheries undertaken by vessels in the IOTC Record of Authorized Vessels that use longline gear.
  - Surface fisheries: All fisheries undertaken by vessels in the IOTC Record of Authorized Vessels other than longline fisheries; in particular purse seine, pole-and-line, and gillnet fisheries.
  - Coastal fisheries: Fisheries other than longline or surface, as defined above, also called artisanal fisheries.
  - IOTC Area of Competence: as described in Annex A of the IOTC Agreement.
  - Species: refers to all species under the IOTC mandate as described in Annex B of the IOTC Agreement, and the most commonly caught elasmobranch species, as defined by the Commission in IOTC Resolution 13/03 or any subsequent revisions of this Resolution.
  - Support vessels: Any types of vessels that operate in support of the fishing activities of purse seine vessels.
- Specify the requirements for Nominal Catch data, including:
  - Changing the term Nominal by Total;
  - Change the time-period resolution of Total catch data from Year to Quarter, in order to be able to assess the seasonality of fisheries, in particular those that do not report catch-and-effort data;
  - Request separate reports for retained catches (in live weight) and discards (in live weight or number), as per the above resolution.
- Specify the requirements for Catch and effort data, including:
  - Surface fisheries: Extend the requirements to report catch and effort data by type of fishing mode to other fisheries that use FADs, drifting or anchored; and ensure that the effort units reported are consistent with those requested in Resolution 13/03 or any subsequent revisions to such Resolution;
  - Coastal fisheries: Specify the time-period to be used to report this information, preferably Month.
- Harmonize the type of data resolution that is requested for coastal fisheries t, in particular for catch-and-effort and size data; for data to be reported by month and landing area.
- Specify that Size Frequency data shall be reported according to the procedures described in the IOTC Guidelines for the Reporting of Fisheries Statistics (instead of those set out by the IOTC Scientific Committee, as recorded in the present Resolution).
- Specify the requirements for data on supply vessels, including:
  - Change the term Supply to Support (Support Vessels);
  - Indicate that data on the activities of support vessels shall be reported by the flag country of the vessels that receive the assistance of the support vessel (and not by the flag country or other parties);
  - Request the name of the purse seiners that receive assistance from each support vessel;

Resolution 11/04 On a regional observer scheme

WPDCS10.09 (para. 47): The WPDCS discussed and modified the templates presented for each fishery and **AGREED** to new templates, which are presented in Appendix VI. The WPDCS **RECOMMENDED** that the Scientific Committee considers endorsing the new observer trip report templates, as presented in Appendix VI.

WPDCS10.10 (para. 49): (…) the WPDCS **NOTED** that the units of effort requested for longliners in IOTC Resolution 10/02 and 11/04 are not consistent as the former requests numbers of hooks and the latter numbers of sets. In this regard the WPDCS **RECOMMENDED** that provisions in Resolution 10/02 are amended to include a requirement for longline fleets to report effort in terms of both number of hooks and number of sets. The WPDCS further **RECOMMENDED** that reporting of effort in terms of number of sets is also requested from surface purse seine fleets in addition to the current requirements to report effort as fishing days.

General discussion about IOTC data requirements (Resolutions 10/02, 11/04, 13/03, and 13/08)

WPDCS10.11 (para. 50): The WPDCS **EXPRESSED CONCERN** that the Commission has adopted various measures that call for IOTC CPCs to report data for their fisheries using different terminology and data resolution and **AGREED** on the need for the Commission to harmonize the data requirements and wording used across all resolutions. In this regard, the WPDCS **NOTED** that the IOTC Secretariat is in the process of hiring a Consultant to undertake a review of the Compendium of IOTC Resolutions and **RECOMMENDED** that the IOTC Secretariat ensures that data provisions in these resolutions are thoroughly revised by the Consultant and presented to the IOTC Scientific Committee as soon as this work is finalized.

Review of length frequency data from longline fleets and likely impacts on the assessments

WPDCS10.12 (para. 57): The WPDCS **RECOMMENDED** further analysis to fully understand the recent changes in length composition reported by Taiwan,China – in particular whether there have been changes to the sampling protocols and selection of fish for sampling – and **RECALLED** comments from WPDCS09 that the decline in number of samples of small specimens of tropical tunas in particular may originate from high grading of catch onboard Taiwanese longliners following the implementation of quotas on the Taiwanese longline fleet in the Indian Ocean (i.e. only large specimens from the catch measured for length).

WPDCS10.13 (para. 60): The WDCS **AGREED** that additional work is required by Japan, and **RECOMMENDED** that this work is undertaken in collaboration with the IOTC Secretariat, to understand the lack of coherence in the historical time series between the size frequency data, and catch-and-effort and nominal catch reported by Japanese longline vessels.

WPDCS10.14 (para. 61): In both cases of the Japanese and Taiwanese size-frequency data, the WPDCS identified further analysis as a high priority for the WPDCS Programme of Work, given the potential impact on stock assessment, and **RECALLED** the recommendation from the WPDCS [WPDCS09.05 (para.40)] for joint work on the documentation of procedures for the collection, processing and reporting of size frequency data continues, based on a template to be produced by the IOTC Secretariat, in particular:

- Full description of the type of sampling platforms used (e.g. commercial boats, research boats, training boats, etc.), and collecting sources (e.g. fishermen, researchers, scientific observers, etc.)
- Full description of the sampling protocols used, on each (e.g. full enumeration of every set, every other set, first 30 fish from each set sampled for size, etc.), by type of sampling platform and collecting source.
- Type of measurements collected (e.g. gilled-and-gutted weight, fork length, etc.) and measurement tools used (calliper, measuring board, measuring tape, scale, etc.) by type of sampling platform, collecting source, and species.
- Type of time-area stratification used for each species (e.g. quarter and defined area) and procedures used for the estimation of sampled weights in each stratum, including all equations used for the conversion of non-standard measurements into standard measurements, by species (e.g. deterministic conversion using a single length weight equation for all areas and time periods, etc.).
- Description of any other procedures which involve the use of length frequency data (e.g. estimation of weights from the numbers reported in logbooks and substitution scheme in the case that lengths are not available in areas where there are catches and effort recorded, etc.).

Review of Estimates of Input Fishing Capacity

WPDCS10.15 (para. 63): The WPDCS **NOTED** that while there are currently forms available for the reporting of fishing capacity in the IOTC area of competence, the majority of CPCs do not report his information for its coastal fisheries. The WPDCS **RECOMMENDED** that the Commission consider making reporting mandatory if an estimate of total fishing capacity is required.

Capacity building activities

WPDCS10.16 (para. 68): (…) the WPDCS **AGREED** that, while external funding is helping the work of the Commission, funds allocated by the Commission to capacity building are still too low, considering the range of issues identified by the WPDCS, and **RECOMMENDED** that the Commission consider allocating more funds to these activities in the future.

WPDCS Programme of Work

WPDCS10.17 (para. 70): The WPDCS **AGREED** that high priority be given to Data Collection and Reporting Standards and the Regional Observer Scheme given the continued lack of compliance and reporting of fisheries statistics and Observer data to the IOTC Secretariat; in addition to a Review of the Size Data for Longline Fisheries to resolve the ongoing issues related to discrepancies between the size-frequency data, and catch-and-effort and nominal catch for the Asian longline fleets in particular. The WPDCS **RECOMMENDED** that the IOTC Scientific Committee considers implementation of the activities listed in Table 2 (details provided in Appendix VII) as per the priorities identified by the WPDCS.

Election of a Vice-Chair for the next biennium

WPDCS10.17 (para. 73): The WPDCS **RECOMMENDED** that the Scientific Committee considers electing a new Vice-chairperson of the WPDCS for the next *biennium.*

Review of the draft, and adoption of the report of the Ninth session of the WPDCS

WPDCS10.18 (para. 76): The WPDCS **RECOMMENDED** that the Scientific Committee consider the consolidated set of recommendations arising from WPDCS10, provided at Appendix VIII.