



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

Busan, Rep. of Korea, 29–30 November 2013

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ACRONYMS

ALB	Albacore
BET	Bigeye tuna
BOBLME	Bay of Bengal Large Marine Ecosystems Project
CCSBT	Commission for the Conservation of Southern Bluefin Tuna
CMM	Conservation and Management Measure (of the IOTC; Resolutions and Recommendations)
CPCs	Contracting parties and cooperating non-contracting parties of the Indian Ocean Tuna Commission
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
MMAF	Ministry of Marine Affairs and Fisheries of Indonesia
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
MSE	Management Strategy Evaluation
NARA	National Aquatic Resources Research and Development Agency of Sri Lanka
OFCF	Overseas Fishery Cooperation Foundation of Japan
RCFMC	Research Centre for Fisheries and Marine Conservation of Indonesia
RFMO	Regional Fisheries Management Organization
SCRS	Standing Committee on Research and Statistics of the ICCAT
Taiwan,China	Taiwan Province of China
VMS	Vessel Monitoring System
WCPFC	Western and Central Pacific Fisheries Commission
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 Ninth Session of the Indian Ocean Tuna Commission's (IOTC) Working Party on Data Collection and Statistics (WPDCS) was held in Busan, Rep. of Korea, from 29 to 30 November 2013. A total of 23 participants attended the Session.

The following are a subset of the complete recommendations from the WPDCS09 to the Scientific Committee, which are provided at Appendix VI.

The WPDCS **RECOMMENDED** that the IOTC Scientific Committee considers to propose amendments to IOTC Resolution 10/02 to the Commission. (WPDCS09.01 (para. 14))

The WPDCS **RECOMMENDED** that the total number of days-at-sea covered by observers *versus* the total number of days-at-sea for each fleet over a year is used to estimate levels of coverage by observers under the Regional Observer Scheme, instead of the number of trips. (WPDCS09.02 (para. 15))

The WPDCS **RECOMMENDED** that India reports a revised time-series of catch and effort for its longline fleet to the IOTC. (WPDCS09.04 (para. 25))

The WPDCS **RECOMMENDED** that Iran reports the available series of catch and effort data for its fisheries as a matter of priority. (WPDCS09.05 (para. 29))

The WPDCS **RECOMMENDED** that the IOTC Secretariat considers funding scientists and statistical officers from non IOC countries to the IOC-SmartFish funded regional Workshop to understand the IOTC Data Requirements, in particular scientists and statistical officers from Iran, Indonesia, and Sri Lanka. (WPDCS09.06 (para. 31))

The WPDCS **RECOMMENDED** that joint work on the documentation of procedures for the collection, processing and reporting of size frequency data continues, based on a template produced by the IOTC Secretariat. (WPDCS09.07 (para. 41))

The WPDCS **RECOMMENDED** that the Commission considers funding of future activities under the Regional Observer Scheme, by allocating specific funds to the implementation of capacity building activities in developing coastal countries of the IOTC Region. (WPDCS09.08 (para. 54))

The WPDCS **NOTED** that Maldives is working with the IOTC Secretariat in the estimation of ratios of catch yellowfin tuna:bigeye tuna for its fisheries, and **RECOMMENDED** that Maldives finalizes this work as soon as possible and reports a new series of catch to the IOTC and the results of this analysis to the next Meeting of the WPDCS and WPTT. (WPDCS09.09 (para. 59))

The WPDCS **AGREED** on the need to select a set of official equations to be used in the preparation of input files for the assessments of stocks of IOTC species and sharks, or other procedures used on those assessments and **RECOMMENDED** that document IOTC–2013–WPDCS09–13 Rev_1 is forwarded to the Working Parties concerned for further consideration. The WPDCS further **RECOMMENDED** that, where possible, the Working Parties contemplate the use of keys to convert from non-standard measurements to standard measurements over deterministic methods. (WPDCS09.10 (para. 67))

The WPDCS **RECOMMENDED** that the IOTC Secretariat creates a template, preferably using MS Excel, to facilitate reporting of the Observer Trip Reports, and makes it available through the IOTC Web Page. (WPDCS09.11 (para. 68))

The WPDCS **NOTED** the plans from the IOTC Secretariat to resume publication of the IOTC Data Summary in electronic form and **RECOMMENDED** that the IOTC Secretariat carries out this work during 2014 and presents the new Web based system to the next meeting of the WPDCS. (WPDCS09.12 (para. 69))

The WPDCS **RECOMMENDED** that the Scientific Committee note the new Chairperson, Dr Emmanuel Chassot (EU-France), of the WPDCS for the next *biennium*. (WPDCS09.13 (para. 72))

1. OPENING OF THE MEETING

1. The Ninth Session of the Indian Ocean Tuna Commission's (IOTC) Working Party on Data Collection and Statistics (WPDCS) was held in Busan, Rep. of Korea, from 29 to 30 November 2013. A total of 23 participants attended the Session. The WPDCS expressed **CONCERN** at the low number of scientists from developing coastal states in attendance at the meeting (eight scientists from five CPCs, including Indonesia, Iran, Malaysia, Mozambique, and Sri Lanka), despite the existence of the Meeting Participation Fund (IOTC Resolution10/05). The list of participants is provided at Appendix I.
2. The meeting was opened on 29 November 2013 by the Chair, Mr. Miguel Herrera, who subsequently welcomed participants to Busan and thanked the Government of the Republic of Korea for the invitation and wonderful arrangements for the Session. The Chair notified participants that his term as Chairperson had already been extended beyond the IOTC Rules of Procedure and as such, the WPDCS would need to consider, and then elect a new Chairperson at the end of the meeting. The Executive Secretary of the IOTC, Mr. Rondolph Payet, addressed the meeting, extending a word of thanks to the Government of Korea for the invitation and arrangements. He noted that, at its 15th Session, the Commission agreed on the need to collect socio-economic data from the fisheries, as specified in Article V of the IOTC Agreement, encouraging the WPDCS to work on a proposal including the type of indicators that may be of interest for the IOTC to collect in the future.

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. OUTCOMES OF THE SCIENTIFIC COMMITTEE AND THE SESSIONS OF THE COMMISSION

4. The WPDCS **NOTED** paper IOTC–2013–WPDCS09–03 which outlined the main outcomes of the Fifteenth Session of the Scientific Committee, and the Seventeenth Session of the Commission, specifically related to the work of the WPDCS.

Fifteenth Session of the Scientific Committee

5. The WPDCS **NOTED** the recommendations of the Fifteenth 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.
6. The WPDCS **NOTED** the importance of small-scale fisheries in many developing coastal states in the IOTC Area, and the high catches reported for those fisheries, **AGREEING** on the need for the IOTC Secretariat to keep assisting countries for which the quality of fisheries statistical systems has been identified as deficient, through the implementation of capacity building activities. In particular, the WPDCS **THANKED** the government of Japan for its continuous support to improving the quality of fisheries statistical systems in countries of the region, through the implementation of Phases I to IV of the IOTC-OFCF Project.
7. The WPDCS **EXPRESSED CONCERN** about the fact that some CPCs are yet to address recommendations from the Scientific Committee, in spite of the amount of time those recommendations have been outstanding. In particular the WPDCS **URGED** India, Indonesia, Iran, Pakistan, and Sri Lanka to collect and report catch-and-effort data for their fisheries, as per the IOTC requirements.

Seventeenth Session of the Commission

8. The WPDCS **NOTED** the 11 Conservation and Management Measures (CMMs) adopted at the Seventeenth Session of the Commission (consisting of 11 Resolutions and 0 Recommendations), and in particular the following Resolutions which have a direct impact on the work of the WPDCS:
 - Resolution 13/02 Concerning the IOTC record of vessels authorised to operate in the IOTC area of competence
 - Resolution 13/03 *On the recording of catch and effort data by fishing vessels in the IOTC area of competence* (not applicable to India due a formal objection received)
 - Resolution 13/08 *Procedures on a fish aggregating devices (FADs) management plan, including more detailed specification of catch reporting from FAD sets, and the*

development of improved FAD designs to reduce the incidence of entanglement of non-target species

- Resolution 13/11 *On a ban on discards of bigeye tuna, skipjack tuna, yellowfin tuna and a recommendation for non-targeted species caught by purse seine vessels in the IOTC area of competence*

9. The WPDCS **NOTED** India's formal objection to IOTC Resolution 13/03, **EXPRESSING CONCERN** that different standards will apply to the fisheries of India and the other IOTC CPCs in the future, in particular standards for sharks and other bycatch. Notwithstanding this, the WPDCS **NOTED** that IOTC Resolution 12/03 still applies to India, **URGING** India to fully implement those requirements.

Previous decisions of the Commission

10. 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.

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

11. 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.
12. The WPDCS **NOTED** that the Commission considered a proposal to revise Resolution 10/02 at its Seventeenth Session but agreement could not be reached and the proposal was deferred until the next meeting of the Commission. 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.
13. 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 implementation of other Resolutions by the Commission, such as Resolution 13/08, contain provisions that require CPCs to report data on FADs to a finer scale of what is currently requested in IOTC Resolution 10/02, **AGREEING** on the need for requirements to be consistent across Resolutions. In addition, the WPDCS **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:
- Adding 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 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.
- 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).
- 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;
- Specify the data requirements for Fish Aggregating Devices, as requested in IOTC Resolution 13/08, which contains provisions calling for IOTC CPCs to collect more detailed information on FADs.

Resolution 11/04 On a regional observer scheme.

14. The WPDCS **NOTED** that using *Number of Trips* as unit of effort to measure coverage by observers may not be appropriate, in particular in the case of longline vessels, for which fishing trips can extend for more than one year and are usually not fully covered by scientific observers. For this reason the WPDCS **AGREED** that the use of alternative units of effort may be appropriate to assess coverage, and **RECOMMENDED** that the total number of days-at-sea covered by observers *versus* the total number of days-at-sea for each fleet over a year is used instead of the number of trips.

4. PROGRESS ON THE RECOMMENDATIONS OF THE WPDCS08 AND RECOMMENDATIONS ISSUING FROM OTHER IOTC WORKING PARTIES

15. The WPDCS **NOTED** paper IOTC–2013–WPDCS09–04 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.
16. 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

17. The WPDCS **CONSIDERED** several recommendations from the Working Parties, and the deliberations from the WPDCS concerning those recommendations have been included in the relevant sections of the Report.

5. PROGRESS REPORT OF THE SECRETARIAT ON DATA RELATED ISSUES

18. The WPDCS **NOTED** paper IOTC–2013–WPDCS09–06 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.
19. 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 Rumpons, in particular yellowfin tuna and bigeye tuna.
 - Catches not reported 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 and longline 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, India, Malaysia, Oman; driftnet fisheries of I.R. Iran and Pakistan; gillnet and longline fishery of Sri Lanka; and pole-and-line fishery of the Maldives.
 - 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.
 - Size data not by the IOTC standards for the driftnet fishery of I.R. Iran and the gillnet and longline fishery of Sri Lanka.
 - 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 trips shall be covered by scientific observers).
20. 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.

Availability of IOTC statistics for 2012

21. The WPDCS **NOTED** the information presented on the status of reporting of data for the year 2012, 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).
22. In this regard the WPDCS was informed that some coastal countries in the IOTC region, such as Iran, use the Lunar (Hijri) Calendar instead of the Gregorian Calendar, which poses difficulties to report data before the deadline, as they have four months instead of six to prepare all information, following the

end of the Lunar year. The WPDCS **NOTED** this issue and **RECOMMENDED** that the countries concerned bring this matter to the attention of the Commission, where required.

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 2012, compared with those estimated in 2011, by the deadline of data reporting (BD: 30 June) and by the time of the WPDCS meeting (WP) are presented.

Statistics available for 2012	Estim. Catch	NC		CE		SF	
		BD	WP	BD	WP	BD	WP
IOTC species (x1,000t)	1,487	651	1,33	643	858	456	636
% Available for 2012		44	90	43	58	31	43
% Available for 2011		62	70	48	56	44	50
Tropical tunas (x1,000t)	782	505	737	505	556	408	455
Temperate tunas (x1,000t)	41	36	39	28	28	22	22
Billfish (x1,000t)	82	39	68	39	52	27	27
Neritic tunas (x1,000t)	583	72	487	71	222	0	133

Nominal catch: Levels of NC that the IOTC Secretariat had to estimate for the year 2012, 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 2012, due to the late reporting of statistics by some parties. Estim. Catch = Total catches estimated for the year 2012

IOTC Data quality scoring system

23. The WPDCS **THANKED** the IOTC Secretariat for its work on a data quality scoring system for data in the IOTC databases and exploratory work on procedures for the estimation of upper and lower bounds of catch for each fishery and time-period based on those scores. The WPDCS **REQUESTED** that, in lack of quantitative measures of uncertainty, such as the precision of the catches, the IOTC Secretariat continue work towards assessing if data quality scores can be used as a proxy to assess upper and lower bounds of catch for IOTC species and, where possible, the main shark species, and presents results to the next meeting of the WPDCS.

General discussion on data issues

24. The WPDCS **NOTED** that India had reported very incomplete catches and effort, and no size data, for its commercial longline fleet, in particular for years before 2011, further **NOTING** that over 60 longliners from India had operated in the Indian Ocean during 2006-07. The WPDCS recalled the recommendation from the WPTT that scientists from Taiwan,China assist India in the estimation of catches of IOTC species and sharks for this fleet, **NOTING** that the majority of those vessels used the flag of Taiwan,China in the past. The WPDCS thanked the scientists from Taiwan,China for offering assistance and **RECOMMENDED** that India reports a revised time-series of catch and effort for its longline fleet, where required, as soon as the review is finalized.
25. The WPDCS **NOTED** that, at present, Indonesia has one of the main longline fisheries in the Indian Ocean and, while it has implemented a logbook system for its longline fishery, to date, Indonesia has not reported catch and effort data for longliners under its flag to the IOTC. The WPDCS further **NOTED** that, at present, many Indonesian longliners are tracked using Vessel Monitoring Systems and **REQUESTED** Indonesia to assess if a combination of logbook data, landing statistics, and VMS records can be used to derive catch and effort statistics for its fleet, and report the results of this work to the next meeting of the WPDCS.
26. The WPDCS **NOTED** that, due to a data processing problem, Indonesia had not reported size data for its longline fishery since 2010, and **REQUESTED** the IOTC Secretariat to assist Indonesia to set-up procedures to report the data missing and facilitate the future reporting of this information by Indonesia.
27. The WPDCS **EXPRESSED CONCERN** at the amount of catches of juvenile 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 has recently strengthened sampling of its coastal fisheries, including those that catch substantial amounts of juvenile and neritic tunas, and **REQUESTED** Indonesia to report the results of this work to the next meeting of the WPDCS. The WPDCS further **NOTED** the plans from the IOTC-OFCF Project to assist Indonesia in the organization of Data Collection Workshops in the Provinces that report a high proportion of the

catches aggregated by gear and/or species, and supervision of sampling activities following the Workshop, and **ENCOURAGED** the IOTC-OFCF Project to report results at the next meeting of the WPDCS.

28. The WPDCS **NOTED** that, to date, Iran has not reported catch and effort data to the IOTC Secretariat as per the IOTC Requirements; and **RECALLED** a recommendation from the WPEB that Iran strengthen its monitoring of catches of sharks from both the logbook and observer programmes. The WPDCS **NOTED** that Iran is setting procedures in its databases that will make it possible to report catch and effort data for its fisheries as per the IOTC standards in the future; The WPDCS **RECOMMENDED** that Iran finalizes this work and reports the available series of catch and effort data for its fisheries as a matter of priority.
29. The WPDCS **NOTED** that, to date, Sri Lanka has not reported data for its offshore fishery by gear and has not reported catch and effort data as per the IOTC Requirements. The WPDCS **NOTED** that Sri Lanka is taking steps to improve the quality of its logbook system **URGING** Sri Lanka to finalize this work as soon as possible and report catch and effort data to the IOTC, as requested. The WPDCS **REQUESTED** Sri Lanka to request assistance from the IOTC Secretariat to conduct this work, where necessary.
30. The WPDCS **NOTED** the difficulties that some countries have to report data to the IOTC as per the required standards, **NOTING** that this lack of reporting originates in some cases from an insufficient understanding of the IOTC Requirements. In this regard the WPDCS **NOTED** that the IOTC Secretariat will receive financial support from the EU-funded IOC-SmartFish Project for the organization of a regional Workshop to understand the IOTC Data Requirements and **RECOMMENDED** that the IOTC Secretariat considers funding scientists and statistical officers from non IOC countries to the Workshop, in particular from Iran, Indonesia, and Sri Lanka.

6. REVIEW OF THE CATCH SERIES OF ALBACORE FOR INDONESIA

31. The WPDCS **NOTED** the new estimates of catches of albacore for the fisheries of Indonesia presented in document IOTC–2013–WPDCS09–INF01 Report of the Indian Ocean Tuna Fisheries of Indonesia Albacore Catch Estimation Workshop.
32. The WPDCS **THANKED** the DGCF of Indonesia for organizing this Workshop and **AGREED** on a new time-series of catches of Albacore for the fisheries of Indonesia, as presented in the Report. While **NOTING** that the new scientific estimates of catch of albacore are close to the previous estimates used by the IOTC for most years, the WPDCS **NOTED** the large changes in the catches recorded for the year 2008, **AGREEING** on the need for the WPTmT to assess the impact that those changes may have on the assessments and ongoing MSE work for albacore.
33. The WPDCS **NOTED** that the review of the scientific catches of albacore was possible due to the information provided by canning factories that cooperate with the International Seafood Sustainability Foundation, and **THANKED** the ISSF for this information; the WPDCS also **REQUESTED** the IOTC Secretariat to continue using this information in future reviews of catch, for the fisheries of Indonesia or other countries.

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

Review of length frequency data from Taiwan, China

34. The WPDCS **NOTED** paper IOTC–2013–WPDCS09–12 Rev_2, which provided a review of length frequency data of the Taiwanese Distant Water Longline Fleet, including the following abstract provided by the authors:

“Taiwan, China has collected one of the longest and most extensive sets of size frequency data of longline fleets operating in the Indian Ocean. According to the Overseas Fisheries Development Council of Taiwan, China (OFDC), since 1980 over 10.6 million tuna specimens have been recorded for lengths by the Taiwanese distant water longline fleet; between 2003 and 2005 alone, size data were collected for over 3.2 million samples. For almost 20 years the fleet has accounted for between 80%-100% of size frequency samples of BET, YFT and ALB from longline fleets published by the IOTC Secretariat. The size data reported by Taiwan, China are also one of the main inputs to the stock assessments of tuna species in the Indian Ocean, in an area where

longliners have contributed over 75% of the total catch of BET, 85% of ALB, and 35% of YFT since the 1950s. Ensuring that the size data are of the highest quality, and understanding the implications of any changes to the collection and processing of the data, are of critical importance.”

Data collection and processing system: Taiwan,China

35. The WPDCS **NOTED** paper IOTC–2013–WPDCS09–08 which detailed the data collection and processing system of statistics for the deep-sea longline fishery of Taiwan,China, including the following abstract provided by the authors:

“A comprehensive data collection and processing system regarding the statistical data of Taiwanese deep-sea tuna longline fisheries has been gradually established since the Overseas Fisheries Development Council (OFDC) took over the duty of data management in 1994. The historical data of Atlantic Ocean is the first part that had been further reviewed and revised. In 1996, the paper “Current status of Taiwan longline fisheries in the Atlantic Ocean (ICCAT-SCRS/1996/155)” was presented in the ICCAT-SCRS meeting as the provisional result of such review. Since any alteration in the fisheries statistics system will possibly have a significant influence on the stock assessment, in 1997, Dr. Peter Miyake, the ICCAT Assistant Executive Secretary, was sent to Taiwan and had cooperated with Taiwanese scientists to conduct an overall survey of Taiwan fisheries statistics system and longline fisheries data of Atlantic Ocean. And, the Commission subsequently produced an official document (ICCAT-SCRS/1997/17) in the 1997 ICCAT-SCRS meeting and provided useful advice for the improvement of our statistics system.” – see paper for full abstract.

Comparison of fish size and average weight: Japan

36. The WPDCS **NOTED** paper IOTC–2013–WPDCS09–09 Rev_1 which provided a comparison of fish size and average weight for tunas caught by Japanese longline in the Indian Ocean based on different sampling or estimation methods, including the following abstract provided by the authors:

“Comparison of fish size for three tuna species (bigeye, yellowfin and albacore tuna) by different sampling methods (commercial and training vessels and scientific observer) for Japanese longline fishery operating in the Indian Ocean was conducted to examine representativeness of size data and to consider how to apply to stock assessment models. Size data by training vessels were main component during the period 1960s-1980s. Size data measured by scientific observers have been main component since mid-2000s especially for bigeye tuna and albacore. Length frequencies of the fish in the same area-quarter strata were usually similar among sampling methods if sufficient number of fish were measured, although some differences were also observed. In several strata a mode of smaller fish was observed only as for the fish measured by training vessels and/or scientific observers. Difference of average weight of the fish between based on catch and effort data and size data was observed by about 5 kg or more for a part of period.”

General discussion

37. The WPDCS **THANKED** the scientists from Japan and Taiwan,China for their efforts on the documentation and review of the procedures used to collect, process, and report length frequency data to the IOTC, and evaluation of the quality of the time-series of length frequency data from their fleets.
38. The WPDCS **NOTED** that the almost lack of small specimens of tropical tunas and albacore sampled for length in vessels flagged in Taiwan,China since 2003, as opposed to previous years, may originate from: (1) 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); (2) strengthening of requirements for the component of the Taiwanese longline fleet directed at southern Bluefin tuna, which operates in Southern waters of the Indian Ocean, leading to an uneven coverage of fishing areas and a likely bias of the length frequency data collected for other species.
39. The WPDCS **NOTED** that, since 1994, Japan has been collecting the catches of IOTC species in logbooks both in number and weight, and **AGREED** that the WPTT and WPB need to explore the value of using average weights derived from this dataset instead of lengths, in the assessments of IOTC species.

40. The WPDCS **RECOMMENDED** that joint work on the documentation of procedures for the collection, processing and reporting of size frequency data continues, based on a template 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.).

8. UPDATE ON NATIONAL STATISTICS SYSTEMS

I.R. Iran data collection system

41. The WPDCS noted paper IOTC–2013–WPDCS09–07 which provided an overview of the fisheries data collection system of I.R. Iran, including the following abstract provided by the authors:

“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. 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.” – see paper for full abstract.

Malaysia data collection system

42. The WPDCS **NOTED** paper IOTC–2013–WPDCS09–10 which provided an overview of the data collection system of Malaysia, including the following abstract provided by the authors:

“Tuna landings in Malaysia consist of neritic tuna and oceanic tuna. For neritic tuna, most of the catches were landed in many fishing ports along the coastline. The fishing ports belong to private companies, fishermen association and government agency. For oceanic tuna, the catches were unloaded in Malaysian International Tuna Port(MITP), Penang and in Port Louis, Mauritius. Since 2011, most of the catches were unloaded in Port Louis, Mauritius as all the longline vessels were operating in the southeast of Indian Ocean. For neritic tuna, the information related to catches, efforts and vessels were recorded by the DoF staff at major landing sites. The sampling program is designated so that the samplings activities will represent the minimum requirement for statistical analysis and this is not only for neritic tuna alone, but also for all the species caught by the fishing vessels.” – see paper for full abstract.

Madagascar data collection system

43. The WPDCS **NOTED** paper IOTC–2013–WPDCS09–15 which outlined the data collection system for tuna by Madagascar, including the following abstract provided by the authors:

“Malagasy longliner flag has been developed within the eastern part of Madagascar EEZ. Regarding the resolution 10/02 of IOTC Madagascar has to cover all fishing statistics of those multiday vessels which have been targeting a fresh tuna and tuna like species. Thus, Ministry of fisheries developed this year a program which intend to undertake data collection related to the fishing activity through the logbook and sampling program at the landing sites. Before carrying out the real data collection at the landing sites, a preliminary expertise should be done in order to better adjusting the data collection method.”

Sri Lanka data collection system

44. The WPDCS **NOTED** paper IOTC–2013–WPDCS09–16 Rev_1 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 specie. 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. At present fishing is carried out mainly in offshore and some numbers in high seas and coastal waters. NARA and DFAR are the key institutions engaged in statistics collection by port sampling. Statistics Unit in the Ministry of Fisheries and Aquatic Resource Development plays the major role in the compilation and reporting of the statistics to fulfil the national and international requirements in collaboration with DFAR and NARA. The PELAGOS database handle by NARA is being used to fulfill the requirements of IOTC (Resolution 10/02) continuously as it consist of catch and effort data according to craft – gear combination, craft type, more wider range of species and size categories, for all major large pelagic varieties.” – see paper for full abstract.

Indonesia data collection system

45. The WPDCS **NOTED** paper IOTC–2013–WPDCS09–17 which provided an overview of the data collection system in Indonesia, including the following abstract provided by the authors:

“Indonesia currently has 11 Fisheries management areas, among those three management areas are lay within IOTC of competence area that is FMA 571, 572 and 573. Indonesia fisheries statistic system has been developed since 1972, until recently realized that some areas are not appropriate in addressing the requirement of data collection from RFMO,s (IOTC, WCPFC, CCSBT) to manage particularly highly migratory species. The Data collection for fisheries statistic is mainly conducted by DGCF_MMAF while scientific monitoring data is conducted under RCFMC-MMAF. Period of data collection is January – December. Indonesia uses a stratified data collection system which includes data collection by the Port Authorities at the landing site, including fishing ports and major landing sites; a catch monitoring programme in ports of Indonesia, in the Indian Ocean side (Benoa, Muara Baru (Jakarta), Cilacap, Palabuhan Ratu), with enumerators sampling the catches and levels of activity of longliners; and a sampling scheme conducted by District officers at the fishing villages. Other data is collected through fishing log book program, observer and VMS scheme. Some areas that still required to be strengthened are supervision and validation on sampling site in all level (District, Province, fishing port) including artisanal fisheries, extend port sampling program, and increase quality of log book data.” – see paper for full abstract.

Mozambique data collection system

46. The WPDCS **RECEIVED** an update on the status of the fisheries in Mozambique and data collection and processing systems currently in place, covering industrial (one longliner), artisanal, and recreational fisheries. The WPDCS **THANKED** Mozambique for this information and **ENCOURAGED** Mozambique to present a document to the next meeting of the WPDCS.

EU-France purse seine data collection system

47. The WPDCS **RECEIVED** an update concerning the changes that EU-France is introducing for its purse seine fleet, which includes the implementation of electronic logbooks on all of its purse seiners; and a gradual increase in the levels of observer coverage on EU-France purse seiners, with the objective of attaining 100% observer coverage in the future. More information is included in Appendix IV.

9. ACTIVITIES TO ASSIST DATA COLLECTION AND PROCESSING IN COASTAL COUNTRIES

9.1 *Reviews of catch time series of main IOTC fisheries*

48. The WPDCS **NOTED** paper IOTC–2013–WPDCS09–14 which outlined the revisions to historical data sets held by the Secretariat, and **REQUESTED** the IOTC Secretariat to present this information to future meetings of the WPDCS.
49. The WPDCS **NOTED** that the time series of catches of some IOTC species and sharks had changed markedly following the reviews conducted by the IOTC Secretariat and **AGREED** on the need for the IOTC Scientific Committee to consider these changes when reviewing the priorities set by the WPTT, WPB, and WPNE concerning the stocks to be assessed in 2014 by each Working Party, where required.
50. The WPDCS **NOTED** an update provided by scientists of EU-France concerning a review of the species composition and length frequency data for purse seiners flagged in EU-France for the period 1981-90, using the logbook data available for that period and length frequency samples for 1990-92. The WPDCS **NOTED** that while a similar review had been conducted for the purse seine fishery of EU-Spain, to date, this information had not been reported to the IOTC, and **REQUESTED** EU-Spain to report the revised dataset to the IOTC Secretariat as soon as possible. The WPDCS also **REQUESTED** the EU to present a document including a description of the methods used for the review and differences between previous and new estimates, as requested by the Commission.
51. The WPDCS **NOTED** that the scientists from EU-France are conducting a review of the catch estimation procedures that are used for EU purse seiners and will report a revised time-series of catches and effort for the fisheries of the EU as soon as this review is finalized. The WPDCS further **NOTED** that, while the review will not affect estimates of total catch for the fishery, changes in the catches of large bigeye tuna on free-schools are expected. The WPDCS **REQUESTED** that the EU completes this review as soon as possible and reports new datasets to the IOTC Secretariat, including datasets for all EU Purse seine fisheries.

9.2 *IOTC Pilot Project*

52. The WPDCS **NOTED** a number of activities that the IOTC Secretariat has implemented using funds from the IOTC Pilot Project, in particular: evaluations of the data collection and processing systems for the coastal fisheries of Mauritius and Seychelles; the implementation of provisions from the IOTC Regional Observer Scheme for the coastal fisheries of Comoros; a review of the time-series of catch for the coastal fisheries of India, Indonesia, and Sri Lanka (covered in document IOTC–2013–WPDCS09–14); and a review of the time series of catches of albacore for the fisheries of Indonesia (covered in Point 6 of this report).
53. The WPDCS **THANKED** the IOTC Secretariat for this information, and **RECOMMENDED** that the Commission considers funding of future activities under the Regional Observer Scheme, by allocating specific funds to the implementation of capacity building activities in developing coastal countries of the IOTC Region.

9.3 *Activities under the IOTC-OFCF Project*

54. The WPDCS **NOTED** paper IOTC–2013–WPDCS09–11 which provided an overview of the IOTC-OFCF activities undertaken in 2013 and future plans from the Project, which include the implementation of Data Collection Workshops in Indonesia and data mining in Thailand and Malaysia.
55. 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.

9.4 *Other activities undertaken by the IOTC Secretariat*

56. The WPDCS **NOTED** that the IOTC Secretariat is also assisting the implementation of activities in the area of data collection and processing using funds from the Indian Ocean Commission-SmartFish Project (Madagascar and Comoros), and Bay of Bengal Large Marine Ecosystems Project (Sri Lanka); and has presented a proposal to the World Bank for the implementation of a new data collection system

in the Maldives, which will use electronic pens and iPADs, and allow the reporting of catches from the fisheries in the Maldives in close-to real time.

57. 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.

10. RECOMMENDATIONS TO IMPROVE THE QUALITY OF THE STATISTICS AT THE IOTC

58. The WPDCS **RECALLED** the recommendation from the IOTC Scientific Committee that the Maldives estimate the quantity of bigeye tuna being caught by its fisheries, in particular those operating around anchored FADs. The WPDCS **NOTED** that Maldives is working with the IOTC Secretariat in the estimation of ratios of catch yellowfin tuna:bigeye tuna for its fisheries, and **RECOMMENDED** that Maldives finalizes this work as soon as possible and reports a new series of catch to the IOTC and the results of this analysis to the next Meeting of the WPDCS and WPTT.
59. The WPDCS **RECALLED** the recommendation from the IOTC Scientific Committee that countries having sampling schemes or planning to implement such schemes, assess the precision of estimates of catches from those schemes considering different levels of coverage and report the results to the WPDCS. The WPDCS **NOTED** that other tuna-RFMOs do not use estimates of precision and **AGREED** on the need to further explore to which extent estimates of precision can be obtained from data collection systems that rely on a combination of data sources, including sampling and reports from the fishing sector, and/or sampling systems that are highly stratified.
60. The WPDCS **RECALLED** a recommendation from the WPB for the IOTC Secretariat to make the necessary provisions to ensure that a staff from the data section of the IOTC Secretariat attend future meetings of the WPB. The WPDCS **AGREED** to defer consideration of this matter to the IOTC Scientific Committee, **NOTING** that consideration of this matter shall take into account the range of data issues affecting the species that will be the focus of each IOTC Working Party in 2014, and following years.

11. OTHER BUSINESS

11.1 Standards for the collection of Socio-Economic data

61. The WPDCS **RECALLED** a request from the Commission at its 16th Session that the IOTC collects socio-economic data to facilitate the work of the Commission in assessing the socio-economic impacts that future management measures implemented by the IOTC may have on its CPCs, in particular CPCs that are developing coastal states in the IOTC Area.
62. The WPDCS **NOTED** that, while the IOTC Secretariat has compiled some data on the prices of the main market species of tunas, no other data have been collected. The WPDCS **AGREED** that the collection of socio-economic data, in particular fish market prices, is useful to estimate the total value of tuna fisheries in the Indian Ocean; and may also be used to assess changes in targeting by some fisheries, driven by changes in the market prices of the species caught by those fisheries.
63. The WPDCS **NOTED** that it may not have the required expertise to assess the type of socio-economic indicators, other than fish prices, that may be useful for the IOTC to collect in the future. In this regard, the WPDCS **AGREED** on the need to carry out a review of the type of information that is available in each IOTC CPC, and the type of socio-economic data to be collected, **NOTING** that external expertise may be required to carry out this work, **AGREEING** to defer this matter to the IOTC Scientific Committee for consideration. The WPDCS further **AGREED** on the need for this review to be informed by the work that other tuna-RFMOs, such as the WCPFC, and ongoing work that the ABNJ Project and the University of Washington (U.S.A.) have undertaken on this area.

11.2 Review of non-standard to standard measurement equations available for IOTC species

64. The WPDCS **NOTED** paper IOTC–2013–WPDCS09–13 Rev_1 which provided biological data on tuna and tuna-like species gathered at the IOTC Secretariat, including the following abstract provided by the authors:
- “Basic biological data on fish size (i.e., minimum, maximum, and mean) and size relationships, including conversions from length-to-weight and from non-standard length-to-standard length,*

are essential for understanding growth rate, age structure, and other aspects of population dynamics. In artisanal and industrial tuna fisheries, tuna, billfish, tuna-like species and by-catch species are processed in many different ways and landed in different states (round, gilled and gutted, etc.). Measurements of actual size (length and weight) are recorded prior to processing only when observers are on-board fishing vessels or when fish are landed whole. Given that processing is common practice, it is essential that accurate and up-to-date information is able to enable conversion of different measures of dressed and undressed fish to whole fish.”

65. The WPDCS **NOTED** also information presented from scientists from the EU-France including length-weight relationships for yellowfin tuna and bigeye tuna derived from data collected from extensive sampling at the canning factory in the Seychelles and through various Projects, including the Indian Ocean-Regional Tuna Tagging Project. The WPDCS **NOTED** that all data used for the estimation of length weight relationships have been reported to the IOTC Secretariat, and **ENCOURAGED** other institutions that collect this information to provide the raw data along with the results of the analysis.
66. The WPDCS **AGREED** on the need to select a set of official equations to be used in the preparation of input files for the assessments of stocks of IOTC species and sharks, or other procedures used on those assessments. The WPDCS **AGREED** that it may be more appropriate that the sets of equations to be used for each stock are selected by the Working Parties responsible for the assessments of those stocks and **RECOMMENDED** that document IOTC–2013–WPDCS09–13 Rev_1 is forwarded to the Working Parties concerned for further consideration. The WPDCS further **REQUESTED** the IOTC Secretariat to publish the official set of equations and the basic data used to derive those equations. The WPDCS further **RECOMMENDED** that, where possible, the Working Parties contemplate the use of keys to convert from non-standard measurements to standard measurements over deterministic methods.

11.3 Dissemination of the IOTC Data and Documents

11.3.1 Status and use of the data reported in Observer Trip Reports

67. The WPDCS **RECALLED** the recommendation from the IOTC Scientific Committee that the observer trip report is submitted in an electronic format and **RECOMMENDED** that the IOTC Secretariat creates a template, preferably using MS Excel, to facilitate reporting of this information, and makes it available through the IOTC Web Page.

11.3.2 IOTC Data Summary

68. The WPDCS **NOTED** the plans from the IOTC Secretariat to resume publication of the IOTC Data Summary in electronic form, including work on the set-up of online querying facilities in the IOTC Web Site, which will allow Web Site users to filter nominal catch and catch-and-effort data using a range of criteria and visualize the output in table or graphic format, including different types of charts, figures, and maps. The WPDCS **AGREED** that this work will facilitate the use of information in the IOTC Databases by the general public, and **RECOMMENDED** that the IOTC Secretariat carries out this work during 2014 and presents the new system to the next meeting of the WPDCS.

11.4 Date and place of the Tenth Session of the WPDCS

69. The WPDCS **NOTED** a recommendation from the WPTT for the WPDCS to convene its next meeting during the first quarter of 2014 and extend its duration so as the on-going review of size frequency statistics from the main longline fleets can be finalized, and results reported for the consideration of the next meeting of the WPTT. In this regard, the WPDCS **NOTED** that the countries concerned may need more time to finalize these reviews and, considering that skipjack tuna will be the focus of the next WPTT, **AGREED** that, while convening a four day meeting of the WPDCS in 2014 is necessary, there is probably no need to move the meeting of the WPDCS to the first quarter of 2014, and **DEFERRED** decision on this matter and the place for the meeting to take place to the IOTC Scientific Committee.

11.5 Election of a Chairperson of the WPDCS for the next biennium

70. The WPDCS **CONSIDERED** candidates for the position of Chairperson of the WPDCS for the next *biennium*. Dr. Emmanuel Chassot was nominated and elected as Chairperson of the WPDCS for the next *biennium*.
71. The WPDCS **RECOMMENDED** that the Scientific Committee note the new Chairperson, Dr. Emmanuel Chassot (EU-France), of the WPDCS for the next *biennium*.

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

72. The WPDCS **RECOMMENDED** that the Scientific Committee consider the consolidated set of recommendations arising from WPDCS09, provided at Appendix VI.
73. The report of the Ninth Session of the Working Party on Data Collection and Statistics (IOTC–2013–WPDCS09–R) was **ADOPTED** on the 1 December 2013.

APPENDIX I

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APPENDIX II

AGENDA FOR THE NINTH WORKING PARTY ON DATA COLLECTION AND STATISTICS

- 1. OPENING OF THE MEETING**
- 2. ADOPTION OF THE AGENDA**
- 3. OUTCOMES OF THE SCIENTIFIC COMMITTEE AND SESSIONS OF THE COMMISSION**
- 4. PROGRESS ON THE RECOMMENDATIONS OF WPDCS08 AND RECOMMENDATIONS ISSUING FROM OTHER IOTC WORKING PARTIES**
- 5. PROGRESS REPORT OF THE SECRETARIAT ON DATA RELATED ISSUES**
- 6. REVIEW OF THE CATCH SERIES OF ALBACORE FOR INDONESIA**
- 7. REVIEW OF LENGTH FREQUENCY DATA FROM LONGLINE FLEETS AND LIKELY IMPACTS ON THE ASSESSMENTS**
- 8. UPDATE ON NATIONAL STATISTICAL SYSTEMS**
- 9. ACTIVITIES TO ASSIST DATA COLLECTION AND PROCESSING IN COASTAL COUNTRIES**
- 10. RECOMMENDATIONS TO IMPROVE THE QUALITY OF THE STATISTICS AT THE IOTC**
- 11. OTHER BUSINESS**
 - 11.1 Review of non-standard to standard measurement equations available for IOTC species
 - 11.2 Dissemination of the IOTC Data and Documents
 - 11.2.1 Status and use of the data reported in Observer Trip Reports
 - 11.2.2 IOTC Data Summary
 - 11.3 Date and place of the Tenth Session of the WPDCS
 - 11.4 Election of Chairperson for the next biennium
 - 11.5 Review of the draft, and adoption of the report of the ninth session of the WPDCS

APPENDIX III
LIST OF DOCUMENTS

Document	Title	Availability
IOTC-2013-WPDCS09-01a	Agenda of the Ninth Working Party on Data Collection and Statistics	✓(30 September 2013)
IOTC-2013-WPDCS09-01b	Annotated agenda of the Ninth Working Party on Data Collection and Statistics	✓ (14 November 2013)
IOTC-2013-WPDCS09-02	List of documents of the Ninth Working Party on Data Collection and Statistics	✓ (14 November 2013)
IOTC-2013-WPDCS09-03	Outcomes of the Fifteenth Session of the Scientific Committee and of the Seventeenth Session of the Commission (Secretariat)	✓ (14 November 2013)
IOTC-2013-WPDCS09-04	Progress made on the recommendations of WPDCS08 (Secretariat)	✓ (14 November 2013)
IOTC-2013-WPDCS09-05	Review of current Conservation and Management Measures relating to data collection and statistics (Secretariat)	✓ (14 November 2013)
IOTC-2013-WPDCS09-06	Report on IOTC Data Collection and Statistics (Secretariat)	✓ (14 November 2013)
IOTC-2013-WPDCS09-07 Rev_1	Fisheries Data Collection System of I.R. Iran (S. Khorshidi)	✓ (28 October 2013) ✓ (1 December 2013)
IOTC-2013-WPDCS09-08	Data Collection and Processing System of Statistics for the Taiwanese Deep-Sea Longline Fishery (Y.-M. Yeh)	✓ (14 November 2013)
IOTC-2013-WPDCS09-09 Rev_1	Comparison of fish size and average weight for tunas caught by Japanese longline in the Indian Ocean based on different sampling or estimation methods (T. Matsumoto)	✓ (16 October 2013) ✓ (25 November 2013)
IOTC-2013-WPDCS09-10	Data Collection System and Tuna Statistical in Malaysia (S. Jamon, S. Basir & E.M. Faizal)	✓ (13 November 2013)
IOTC-2013-WPDCS09-11	IOTC-OFCF Project activities in 2013: Progress Report (Secretariat)	✓ (14 November 2013)
IOTC-2013-WPDCS09-12 Rev_2	Review of length frequency data of the Taiwanese Distant Water Longline Fleet (Secretariat & S. Hoyle)	✓ (14 November 2013) ✓ (21 November 2013) ✓ (26 November 2013)
IOTC-2013-WPDCS09-13 Rev_1	Biological data on tuna and tuna-like species gathered at the IOTC Secretariat: Status Report (Secretariat)	✓ (18 November 2013) ✓ (25 November 2013)
IOTC-2013-WPDCS09-14	Revision to historical data sets held by the Secretariat (Secretariat)	✓ (14 November 2013)
IOTC-2013-WPDCS09-15	Système de collecte de données des palangriers nationaux Malagasy (DM Rahombanjanahary)	✓ (22 November 2013)
IOTC-2013-WPDCS09-16 Rev_1	Fisheries data collection and reporting system in Sri Lanka (R. Maldeniya, L. Perera, P. Premawardane & M. Anupam)	✓ (14 November 2013) ✓ (25 November 2013)
IOTC-2013-WPDCS09-17 Rev_1	Fishery Statistic Data Collection System in Indonesia (Sri Dyah Retnowati & Fayakun Satria)	✓ (20 November 2013) ✓ (28 November 2013)
Information papers		
IOTC-2013-WPDCS09-INF01	Report and documentation of the Indian Ocean Tuna Fisheries of Indonesia Albacore Catch Estimation Workshop (Secretariat)	✓(10 October 2013)

APPENDIX IV**UPDATE ON DATA COLLECTION ACTIVITIES FOR VESSELS FLAGGED IN EU-FRANCE
AND FRANCE OVERSEAS TERRITORIES**

The industrial purse seine fishery is monitored through logbooks (100% coverage), a vessel monitoring system (100% coverage) and port sampling for species composition and length frequency (~95% of trips). In 2011, extension of port sampling coverage has been realized with a sampling team working in Antsiranana (Madagascar) in collaboration with USTA (Unité Statistique Thonière d'Antsiranana) and a sampling team in Port Louis (Mauritius) in collaboration with Albion Fisheries Centre. The purse seine fishery is in the process of using electronic logbooks including mandatory information on FAD operations, 2014 being a year of transition period. The observer program on purse seiners has been stopped mid-2009 for security reasons (piracy) but resumed in 2011 and reached 12 % coverage 2012. Observer coverage is improving progressively and going towards 100%. due to three different but convergent incentives : - industry interest in certification labels, research interest for improving precision of estimates, fisheries administration interest for monitoring of fishing in costal EEZ within fishing agreement.

The longline fishery based in La Réunion is monitored through a logbook system and port sampling. An observer program on longliners has been ongoing since 2007 and auto sampling has been set in place in 2011 for small longliners not able to accommodate observers. The global observer coverage (observer and autosampling) reached 29% in 2012. The small scale fishery of La Réunion is monitored through a statistical sampling scheme based on phone enquiries for effort statistics and stratified catch assessment surveys.

APPENDIX V
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 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; Provincial Data Collection Workshops and supervision of sampling activities (IOTC-OFCF); ongoing
Sri Lanka: Coastal and offshore fisheries	Statistical system strengthened (IOTC-OFCF-BOBLME); ongoing
Yemen: Handline fishery	Use previous estimates and trends in catches for handlines in Oman
India: Commercial longline fishery Coastal fisheries	India and Taiwan,China to cooperate on Taiwanese longliners operated in India and provide revised catch time series Catch from different sources conflicting; India to explain discrepancies
Pakistan: Driftnet fishery	WWF and Pakistan making steps to improve the system, including sampling of catch in port and census; ongoing
Madagascar: Coastal and longline fisheries	Evaluate importance of tuna catch (IOTC-SmartFish); ongoing
Catches of bigeye tuna by baitboat (Maldives) and coastal fisheries (Oman)	Consider Implementation Pilot Sampling to assess species composition and strengthen shore sampling
Catch-and-Effort	
Main Issues	Proposed Actions
<i>Implementation of minimum requirements for operational data (logbook)</i>	
Indonesia: Longline	Status of data collection currently being assessed (IOTC-OFCF)
Sri Lanka: Gillnet and longline fishery	Assess availability of data from NARA's Fisheries Forecasting Project
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)
<i>Catch-and-effort not available for coastal fisheries</i>	
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) Urge countries to implement ROS requirements and report data
Size Frequency	
<i>Data not reported</i>	
Coastal fisheries of India (neritic tunas), Indonesia, and Yemen (yellowfin tuna) Longlines of India	Assist CPCs to understand data requirements and with processing of information and urge them to strictly implement requirements and report data to the IOTC
Driftnets of Pakistan	WWF and Pakistan making steps to improve the system, including sampling of catch in port and census; ongoing
<i>Data poor quality</i>	
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 (Japan and Taiwan,China)
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 VI
**CONSOLIDATED RECOMMENDATIONS OF THE NINTH SESSION OF THE WORKING
PARTY ON DATA COLLECTION AND STATISTICS**

Note: Appendix references refer to the Report of the Ninth Session of the Working Party on Data Collection and statistics (IOTC–2013–WPDCS09–R)

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

WPDCS09.01 (para. 14): The WPDCS **RECOMMENDED** that the IOTC Scientific Committee considers to propose the following amendments to IOTC Resolution 10/02 to the Commission:

- Adding 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 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.
- 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).
- 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;
- Specify the data requirements for Fish Aggregating Devices, as requested in IOTC Resolution 13/08, which contains provisions calling for IOTC CPCs to collect more detailed information on FADs.

Resolution 11/04 On a regional observer scheme.

WPDCS09.02 (para. 15): The WPDCS **NOTED** that using *Number of Trips* as unit of effort to measure coverage by observers may not be appropriate, in particular in the case of longline vessels, for which fishing trips can extend for more than one year and are usually not fully covered by scientific observers. For this reason the WPDCS **AGREED** that the use of alternative units of effort may be appropriate to assess coverage, and **RECOMMENDED** that the total number of days-at-sea covered by observers *versus* the total number of days-at-sea for each fleet over a year is used instead of the number of trips.

Availability of IOTC statistics for 2012

WPDCS09.03 (para. 23): In this regard the WPDCS was informed that some coastal countries in the IOTC region, such as Iran, use the Lunar (Hijri) Calendar instead of the Gregorian Calendar, which poses difficulties to report data before the deadline, as they have four months instead of six to prepare all information, following the end of the Lunar year. The WPDCS **NOTED** this issue and **RECOMMENDED** that the countries concerned bring this matter to the attention of the Commission, where required.

General discussion on data issues

WPDCS09.04 (para. 25): The WPDCS **NOTED** that India had reported very incomplete catches and effort, and no size data, for its commercial longline fleet, in particular for years before 2011, further **NOTING** that over 60 longliners from India had operated in the Indian Ocean during 2006-07. The WPDCS recalled the recommendation from the WPTT that scientists from Taiwan,China assist India in the estimation of catches of IOTC species and sharks for this fleet, **NOTING** that the majority of those vessels used the flag of Taiwan,China in the past. The WPDCS thanked the scientists from Taiwan,China for offering assistance and **RECOMMENDED** that India reports a revised time-series of catch and effort for its longline fleet, where required, as soon as the review is finalized.

WPDCS09.05 (para. 29): The WPDCS **NOTED** that, to date, Iran has not reported catch and effort data to the IOTC Secretariat as per the IOTC Requirements; and **RECALLED** a recommendation from the WPEB that Iran strengthen its monitoring of catches of sharks from both the logbook and observer programmes. The WPDCS **NOTED** that Iran is setting procedures in its databases that will make it possible to report catch and effort data for its fisheries as per the IOTC standards in the future; The WPDCS **RECOMMENDED** that Iran finalizes this work and reports the available series of catch and effort data for its fisheries as a matter of priority.

WPDCS09.06 (para. 31): The WPDCS **NOTED** the difficulties that some countries have to report data to the IOTC as per the required standards, **NOTING** that this lack of reporting originates in some cases from an insufficient understanding of the IOTC Requirements. In this regard the WPDCS **NOTED** that the IOTC Secretariat will receive financial support from the EU-funded IOC-SmartFish Project for the organization of a regional Workshop to understand the IOTC Data Requirements and **RECOMMENDED** that the IOTC Secretariat considers funding scientists and statistical officers from non IOC countries to the Workshop, in particular from Iran, Indonesia, and Sri Lanka.

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

WPDCS09.07 (para. 41): The WPDCS **RECOMMENDED** that joint work on the documentation of procedures for the collection, processing and reporting of size frequency data continues, based on a template 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.).

Pilot Project

WPDCS09.08 (para. 54): The WPDCS **THANKED** the IOTC Secretariat for this information, and **RECOMMENDED** that the Commission considers funding of future activities under the Regional Observer Scheme,

by allocating specific funds to the implementation of capacity building activities in developing coastal countries of the IOTC Region.

Recommendations to improve the quality of the statistics at the IOTC

WPDCS09.09 (para. 59): The WPDCS **RECALLED** the recommendation from the IOTC Scientific Committee that the Maldives estimate the quantity of bigeye tuna being caught by its fisheries, in particular those operating around anchored FADs. The WPDCS **NOTED** that Maldives is working with the IOTC Secretariat in the estimation of ratios of catch yellowfin tuna:bigeye tuna for its fisheries, and **RECOMMENDED** that Maldives finalizes this work as soon as possible and reports a new series of catch to the IOTC and the results of this analysis to the next Meeting of the WPDCS and WPTT.

Review of non-standard to standard measurement equations available for IOTC species

WPDCS09.10 (para. 67): The WPDCS **AGREED** on the need to select a set of official equations to be used in the preparation of input files for the assessments of stocks of IOTC species and sharks, or other procedures used on those assessments. The WPDCS **AGREED** that it may be more appropriate that the sets of equations to be used for each stock are selected by the Working Parties responsible for the assessments of those stocks and **RECOMMENDED** that document IOTC–2013–WPDCS09–13 Rev_1 is forwarded to the Working Parties concerned for further consideration. The WPDCS further **REQUESTED** the IOTC Secretariat to publish the official set of equations and the basic data used to derive those equations. The WPDCS further **RECOMMENDED** that, where possible, the Working Parties contemplate the use of keys to convert from non-standard measurements to standard measurements over deterministic methods.

Status and use of the data reported in Observer Trip Reports

WPDCS09.11 (para. 68): The WPDCS **RECALLED** the recommendation from the IOTC Scientific Committee that the observer trip report is submitted in an electronic format and **RECOMMENDED** that the IOTC Secretariat creates a template, preferably using MS Excel, to facilitate reporting of this information, and makes it available through the IOTC Web Page.

IOTC Data Summary

WPDCS09.12 (para. 69): The WPDCS **NOTED** the plans from the IOTC Secretariat to resume publication of the IOTC Data Summary in electronic form, including work on the set-up of online querying facilities in the IOTC Web Site, which will allow Web Site users to filter nominal catch and catch-and-effort data using a range of criteria and visualize the output in table or graphic format, including different types of charts, figures, and maps. The WPDCS **AGREED** that this work will facilitate the use of information in the IOTC Databases by the general public, and **RECOMMENDED** that the IOTC Secretariat carries out this work during 2014 and presents the new system to the next meeting of the WPDCS.

Election of a Chairperson of the WPDCS for the next biennium

WPDCS09.13 (para. 72): The WPDCS **RECOMMENDED** that the Scientific Committee note the new Chairperson, Dr Emmanuel Chassot (EU-France), of the WPDCS for the next *biennium*.

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

WPDCS09.14 (para. 73): The WPDCS **RECOMMENDED** that the Scientific Committee consider the consolidated set of recommendations arising from WPDCS09, provided at Appendix VI.