

REVIEW OF CONSERVATION AND MANAGEMENT MEASURES RELATING TO DATA AND STATISTICS

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Purpose

To encourage participants at the 16th Working Party on Data Collection and Statistics (WPDCS15) to review the existing Conservation and Management Measures (CMM) relating to data collection and statistics, noting the CMMs referred to in document IOTC-2019-WPDCS15-04; 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.

Background

IOTC fisheries are currently subject to a range of other data/statistical CMMs adopted by the Commission. In an attempt to focus the efforts of the WPDCS participants may wish to annually review several of the key CMMs which are clearly based on scientific advice, or which match current requests from the Commission. The following are a list of the key CMMs for the consideration of the WPDCS. At the next meeting, a range of other CMMs may be presented for discussion.

Resolution 15/02 On mandatory statistical reporting requirements for IOTC Contracting Parties and Cooperating Non-Contracting Parties (CPCs)

This resolution updates the requirements set forth by Resolution 10/02 (that it supersedes) in terms of frequency, structure, and overall completeness of the mandatory statistical data to be submitted by CPCs to the IOTC Secretariat. In particular, it recommends an increase in the recording frequency for total catches that is expected to be brought up to a quarterly basis when possible. Furthermore, given the urgent need of improving the quality of the assessments on the status of endangered marine species, it highlights the need to provide relevant data in accordance with past resolutions dealing with incidental bycatch reduction and conservation measures.

Additionally, it states the need to collect and share - with the due confidentiality policies applied by the Secretariat - all FAD-related data from purse seine fleets in order to increase the quality and completeness of the fishing efforts information ([Appendix I](#)).

Resolution 16/04 On the implementation of a pilot project in view of promoting the Regional Observer Scheme of IOTC

This resolution proposes the creation of a pilot project aiming to enhance the implementation of the Resolution 11/04 on a Regional Observer Scheme and to raise the level of compliance to the implementation of Resolutions 15/01 and 15/02, respectively on the recording of catch and effort data by fishing vessels in the IOTC area of competence and on mandatory statistical reporting requirements for IOTC Contracting Parties and Cooperating non-Contracting parties (CPCs) ([Appendix II](#)).

Resolution 18/07 On measures applicable in case of non-fulfilment of reporting obligations in the IOTC

This resolution proposes to address the long-standing issue of non-reporting of nominal catches (including lack of explicit reporting of zero-catches) by preventing involved CPCs from retaining concerned species for the year following the lack or incomplete reporting until data is received by the IOTC Secretariat. Also, to facilitate reporting of zero catches, this Resolution requests the inclusion of the dedicated form [1_DR](#) to complement the already existing Form [1_RC](#).

The new form will contain a matrix by IOTC species as well as by the most commonly caught elasmobranch species, through which CPCs can indicate where they have had (positive) catches or no catches (zero landings + zero discards) for a particular species/gear combination. The Commission reserves the rights to expand the matrix to include additional species under the competence of IOTC as well as stock/gear combinations as appropriate ([Appendix III](#)).

Resolution 19/01 *On an interim plan for rebuilding the Indian Ocean yellowfin tuna stock in the IOTC Area of competence*

This resolution updates the requirements set forth by Resolution 18/01 (that it supersedes) by introducing means to manage the over-catch of annual limits, including the introduction of penalty mechanisms to be applied, at different levels, starting from 2020 to those fleets for which over-catch has occurred in the three consecutive years of 2017-2018-2019 and / or from 2020 onwards.

Also, the resolution further reduces the maximum number of supply vessels that can support at any point of time a purse seine vessel from the same flag state, and introduces the additional requirement for CPCs to report (by March 2020¹) the number of FADs that were deployed in 2018 and 2019 by purse seine vessels and associated supply vessels, by 1x1 degrees grid.

Finally, without introducing further prejudice to the gradual phase-out of conventional gillnet fishing vessels, the resolution encourages flag states to increase the observer coverage on board of such vessels by 10%, also by using alternative data collection mechanisms (electronic or human) whose effectiveness will be ultimately verified by the IOTC Scientific Committee in 2023 ([Appendix IV](#)).

Resolution 19/02 *Procedures on a fish aggregating devices (FADs) management plan*

This resolution updates the requirements set forth by Resolution 18/08 (that it supersedes) by introducing a stricter limit in the maximum number of operational buoys followed by any purse seine vessel (now set to 300 at any one time) and also reducing to 500 the maximum number of instrumented buoys that may be acquired annually for each purse seine vessel, with the assumption that no purse seine vessel shall have more than 500 instrumented buoys (buoy in stock and operational buoy) at any time.

Furthermore, the resolution re-iterates that CPCs shall submit the data elements prescribed in Annex III and Annex IV to the Commission (consistent with the IOTC standards for the provision of catch and effort data, using form [3_FA](#)) and introduces the additional requirement that, starting 1 January 2020, CPCs report, or require their vessels to report, daily information on all active FADs to the Secretariat and that such information shall contain the date, instrumented buoy ID, assigned vessel and daily position, to be compiled at monthly intervals and submitted with a time delay of at least 60 days (but no longer than 90 days), with the new form [3_BU](#) specifically designed to support these additional reporting requirements ([Appendix V](#)).

Resolution 19/03 *On the conservation of mobulid species caught in association with fisheries in the IOTC area of competence*

This resolution has been implemented as a countermeasure to the recently noted decline of these species across the Indian Ocean: in response, the SC recommended several management actions (e.g., no-retention measures) as well as requesting CPCs to report the information and data on interactions (i.e. number of discards and releases) with mobulid rays by vessels through logbooks and / or through observer programs.

This resolution calls for such data to be provided to the IOTC Secretariat by 30 June of the following year, according to the timelines specified in Resolution 15/02, and also explicitly requires CPCs to develop – with assistance from the IOTC Secretariat, where required – sampling plans for the monitoring of the mobulid rays catches by the subsistence and artisanal fisheries.

The sampling plans, including their scientific and operational rationale, are to be reported in the national reports to the Scientific Committee starting in 2020 ([Appendix VI](#)).

¹ Although the original text of the Resolution indicates March 2019, which is clearly a typo

Discussion

As part of best practice, the WPDCS is obliged to review existing CMMs and consider whether their data/science-based components need to be updated. If this is the case, then the WPDCS should provide clear, science-based recommendations for the Scientific Committee's consideration.

Recommendation

That the WPDCS **NOTE** paper IOTC–2020–WPDCS16–05 which aimed to encourage the WPDCS to review the existing Conservation and Management Measures (CMMs) relating to data 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.

Appendices

- Appendix I:** [Resolution 15/02 on mandatory statistical reporting requirements for IOTC Contracting Parties and Cooperating Non-Contracting Parties \(CPCs\)](#)
- Appendix II:** [Resolution 16/04 On the implementation of a pilot project in view of promoting the Regional Observer Scheme of IOTC](#)
- Appendix III:** [Resolution 18/07 On measures applicable in case of non-fulfilment of reporting obligations in the IOTC](#)
- Appendix IV:** [Resolution 19/01 On an interim plan for rebuilding the Indian Ocean yellowfin tuna stock in the IOTC Area of competence](#)
- Appendix V:** [Resolution 19/02 Procedures on a fish aggregating devices \(FADs\) management plan](#)
- Appendix VI:** [Resolution 19/03 On the conservation of mobulid species caught in association with fisheries in the IOTC area of competence](#)

Resolution 15/02

On mandatory statistical reporting requirements for IOTC Contracting Parties and Cooperating Non-Contracting Parties (CPCs)

Keywords: Data reporting; total catch; catch and effort; size data; fish aggregating devices (FAD); surface fisheries; longline fisheries; coastal fisheries

The Indian Ocean Tuna Commission (IOTC)

GIVEN that the Agreement for the implementation of the Provisions of the United Nations Convention on the Law of the Sea relating to the Conservation and Management of Straddling Fish Stocks and Highly Migratory Fish Stocks (UNFSA) encourages coastal States and fishing States on the high seas to collect and share, in a timely manner, complete and accurate data concerning fishing activities on, inter alia, vessel position, catch of target and non-target species and fishing effort;

NOTING that the United Nations Food and Agricultural Organisation (FAO) Code of Conduct for Responsible Fishing provides that States should compile fishery-related and other supporting scientific data relating to fish stocks covered by subregional or regional fisheries management organisations and provide them in a timely manner to the organization;

RECALLING the commitment made by Contracting Parties under Article V of the IOTC Agreement to keep under review the conditions and trends of the stocks and to gather, analyse and disseminate scientific information, catch and effort statistics and other data relevant to the conservation and management of the stocks and to fisheries based on the stocks covered by the Agreement;

COGNISANT that the above commitment can only be achieved when Contracting Parties meet the requirements of Article XI of the IOTC Agreement i.e. to provide statistical and other data and information to minimum specifications and in a timely manner;

ACKNOWLEDGING that the IOTC Scientific Committee has repeatedly stressed the importance of the timeliness of data submissions;

GIVEN that the activities of support vessels and the use of Fish Aggregating Devices (FAD) are an integral part of the fishing effort exerted by the purse seine fleet;

CONSIDERING the provisions set forth in Resolution 15/02 on *mandatory statistical reporting requirements for IOTC Contracting Parties and Cooperating Non-Contracting Parties (CPCs)*, adopted by the Commission in 2015;

NOTING the Scientific Committee's concern that the lack of data from CPC fisheries under the mandate of the IOTC on the mortality of marine turtles and marine mammals undermines the ability to estimate levels of marine turtle and marine mammals bycatch and consequently the IOTC's capacity to respond and prevent adverse effects of fishing on these marine species;

FURTHER NOTING the Scientific Committee's concern about the impossibility to undertake assessments on the status of seabirds in the Indian Ocean, while acknowledging that some species are currently critically endangered, and that the lack of reporting of seabird interactions by CPCs seriously undermines the ability of IOTC to respond and prevent adverse effects of fishing on seabirds;

CONSIDERING the recommendations of the 17th Session of the IOTC Scientific Committee;

FURTHER CONSIDERING the call upon States, either individually, collectively or through regional fisheries management organisations and arrangements included in the United Nations General Assembly Resolution 67/79 on sustainable fisheries to collect the necessary data in order to evaluate and closely monitor the use of fish aggregating devices and their effects on tuna resources and tuna behaviour and associated and dependent species, to improve management procedures to monitor the number, type and use of such devices and to mitigate possible negative effects on the ecosystem, including on juveniles and the incidental bycatch of non-target species, particularly sharks and turtles;

ADOPTS, in accordance with the provisions of Article IX, paragraph 1 of the IOTC Agreement, the following:

1. Contracting Parties and Cooperating Non-Contracting Parties (CPCs) shall provide the following information to the IOTC Secretariat according to the timelines specified in paragraph 7:
2. **Total catch data:**

Estimates of the total catch by species and gear, if possible quarterly, that shall be submitted annually as referred in paragraph 7 (separated, whenever possible, by retained catches in live weight and by discards in live weight or numbers) for all species under the IOTC mandate as well as the most commonly caught elasmobranch species according to records of catches and incidents as established in Resolution 15/01 *on the recording of catch and effort data by fishing vessels in the IOTC area of competence* (or any subsequent superseding Resolution).
3. Concerning cetaceans, seabirds and marine turtles data should be provided as stated in Resolutions 13/04 *on Conservation of Cetaceans*, Resolution 12/06 *on reduction the incidental bycatch of seabirds in longline fisheries* and Resolution 12/04 *on the conservation of marine turtles* (or any subsequent superseding resolutions).
4. **Catch and effort data²:**
 - a) **For surface fisheries:** catch weight by species and fishing effort shall be provided by 1° grid area and month strata. Purse seine and pole and line fisheries data shall be stratified by fishing mode (e.g. free-swimming schools or schools in association with floating objects). The data shall be extrapolated to the total national monthly catches for each gear. Documents describing the extrapolation procedures (including raising factors corresponding to the logbook coverage) shall also be submitted routinely. Effort units reported should be consistent with those effort requirements of Resolution 15/01 (or any subsequent superseding revision).
 - b) **Longline fisheries:** catch by species, in numbers or weight, and effort as the number of hooks deployed shall be provided by 5° grid area and month strata. Documents describing the extrapolation procedures (including raising factors corresponding to the logbook coverage) shall also be submitted routinely. For the work of relevant working parties under the IOTC Scientific Committee, longline data should be of a resolution of 1° grid area and month or finer. These data would be for the exclusive use of IOTC Scientific Committee and its Working Parties, subject to the approval of the data owners and IOTC Resolution 12/02 *Data confidentiality policy and procedures*, and should be provided for scientific use only in a timely fashion. Effort units reported should be consistent with those effort requirements of Resolution 15/01 or any subsequent revision of such resolution.
 - c) **For coastal fisheries:** catches by species that shall be submitted annually as referred in paragraph 7, fishing gear and fishing effort shall be submitted frequently and may be provided using an alternative geographical area if it better represents the fishery concerned. Effort units reported should be consistent with those effort requirements of Resolution 15/01 (or any subsequent superseding revision).

Provisions on catch and effort data, applicable to tuna and tuna-like species, shall also be applicable to the most commonly caught elasmobranch species according to records of catches and incidents as established in Resolution 15/01 *on the recording of catch and effort by fishing vessels in the IOTC area of competence* (or any subsequent superseding Resolution).
5. **Size data:**

² *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, gillnet fisheries, handline, and trolling vessels.

Coastal fisheries: Fisheries other than longline or surface, as defined above, also called artisanal fisheries.

Size data shall be provided for all gears and for all species according to paragraph 4 and following the guidelines set out by the procedures described in the *Guidelines for the reporting of fisheries statistics to the IOTC*. Size sampling shall be run under strict and well described random sampling schemes which are necessary to provide unbiased figures of the sizes taken. Sampling coverage shall be set to at least one fish measured by ton caught, by species and type of fishery, with samples being representative of all the periods and areas fished. Alternatively, size data for longline fleets may be provided as part of the Regional Observer Scheme where such fleets have at least 5% observer coverage of all fishing operations. Length data by species, including the total number of fish measured, shall be submitted by a 5° grid area by month, by gear and fishing mode (e.g. free swimming schools or schools in association with floating objects for the purse seiners). Documents covering sampling and raising procedures shall also be provided, by species and type of fishery.

6. Given that the activities of purse seine supply vessels and the use of **Fish Aggregating Devices (FAD)** are an integral part of the fishing effort exerted by the purse seine fleet, the following data shall be provided by CPCs:

- a) The number and characteristics of purse seine supply vessels: (i) operating under their flag, (ii) assisting purse seine vessels operating under their flag, or (iii) licensed to operate in their exclusive economic zones, and that have been present in the IOTC area of competence;
- b) Number of days at sea by purse seine and purse seine supply vessels by 1° grid area and month to be reported by the flag state of the supply vessel;
- c) The total number set by the purse seine and purse seine supply vessels per quarter, as well as:
 - i. The positions, dates at the time of setting, FAD identifier and FAD type (i.e. drifting log or debris, drifting raft or fad with a net, drifting raft or FAD without a net, anchored FADs and other FADs e.g. Payao, dead animal etc.);
 - ii. The FAD design characteristics of each FAD (consistent with Annex 1 to Resolution 15/08 *Procedures on a fishing aggregating devices (FADs) management Plan, including a limitation on the number of FADS, 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*).

These data would be for the exclusive use of IOTC Scientific Committee and its Working Parties, subject to the approval of the data owners and in accordance with Resolution 12/02 *Data confidentiality policy and procedures*, and should be provided in a timely fashion.

7. **Timeliness of data submission to the IOTC Secretariat:**

- a) Longline fleets operating in the high seas shall provide provisional data for the previous year no later than 30 June. Final data shall be submitted no later than 30 December;
- b) All other fleets (including supply vessels) shall submit their final data for the previous year no later than 30 June;
- c) In case where the final statistics cannot be submitted by that date, at least preliminary statistics should be provided. Beyond a delay of two years, all revisions of historical data should be formally reported and duly justified. These reports should be made on forms provided by the IOTC Secretariat and reviewed by the IOTC Scientific Committee. The IOTC Scientific Committee will advise the IOTC Secretariat if revisions are then accepted for scientific use.

8. This Resolution supersedes Resolution 10/02 on *mandatory statistical requirements for IOTC Members and Cooperating Non-Contracting Parties (CPCs)*.

Resolution 16/04

On the implementation of a pilot project in view of promoting the Regional Observer Scheme of IOTC

Keywords: Regional Observer Scheme;

The Indian Ocean Tuna Commission (IOTC),

TAKING INTO ACCOUNT the need to increase the scientific information, in particular to provide the IOTC Scientific Committee working material in order to improve the management of the tuna and tuna-like species fished in the Indian Ocean;

REITERATING the responsibilities of Flag States to ensure that their vessels conduct their fishing activities in a responsible manner, fully respecting IOTC Conservation and Management Measures;

CONSIDERING the need for action to ensure the effectiveness of the IOTC objectives;

CONSIDERING the obligation of all IOTC Contracting Parties and Cooperating Non-Contracting Parties (hereinafter CPCs) to fully comply with the IOTC Conservation and Management Measures;

AWARE of the necessity for sustained efforts by CPCs to ensure the enforcement of IOTC's Conservation and Management Measures, and the need to encourage Non-CPCs to abide by these measures;

UNDERLINING that the adoption of this measure is intended to promote the implementation of the Resolution 11/04 *on a Regional Observer Scheme*;

CONSIDERING the deliberations of the 18th Session of the IOTC Scientific Committee held in Bali, Indonesia from 23-27 November 2015, notably that CPCs should comply with IOTC data requirements as requested per Resolution 15/01 and 15/02, respectively *on the recording of catch and effort data by fishing vessels in the IOTC area of competence* and *on mandatory statistical reporting requirements for IOTC Contracting Parties and Cooperating Non-Contracting parties (CPCs)*, given the gaps in available information in the IOTC database and the importance of basic fishery data in order to assess the status of stocks and for the provision of sound management advice.

ADOPTS, in accordance with the provisions of Article IX, paragraph 1 of the IOTC Agreement, the following:

1. Create a pilot project aiming to enhance the implementation of the Resolution 11/04 *on a Regional Observer Scheme* and to raise the level of compliance to the implementation of Resolutions 15/01 and 15/02, respectively *on the recording of catch and effort data by fishing vessels in the IOTC area of competence* and *on mandatory statistical reporting requirements for IOTC Contracting Parties and Cooperating non-Contracting parties (CPCs)*.
2. This pilot project will be funded through IOTC budget and/or from voluntary contributions. The pilot project will be prepared taking into account the following elements:
 - a) Identification and selection of voluntary participatory Contracting Parties or Cooperating Non-Contracting Parties (CPCs). Participatory CPCs should indicate their vessels that will participate in the project.
 - b) Terms of Reference (ToR) and selection of scientific observers, according to provisions of the Resolutions 11/04, 15/01 and 15/02.
 - c) Definition of an Action Plan for the observers work, including indicatively, a working calendar and an area of activity.
 - d) Mid-term review and a final term review, the latter should include recommendation on how to expand the experiences and results of the pilot project to all IOTC area of competence.
 - e) Cooperation coordination mechanism between CPCs participating in the project.
 - f) Complementarity with the Regional Observer Scheme actions already in place.
3. The IOTC Scientific Committee will draft guidelines regarding the ToR and work of observers, and an indicative budget for approval by the Commission in 2017. This project will focus on developing states,

with priority given to promote the implementation of the ROS to small island developing states (SIDS) and least developed countries (LDC).

4. Contracting Parties will provide their comments and suggestions within one month after the IOTC Executive Secretary transmission of the draft project, following the Scientific Committee.
5. The revised draft proposal, including a detailed budget, will be submitted to the Compliance Committee and to the Standing Committee on Administration and Finance for review, and submitted for consideration and approval at the annual meeting of the Commission in 2017.
6. The pilot project will explore the possibilities offered by electronic observation and observation in port.
7. The Scientific Committee will evaluate whether electronic observation or observation in port can be used to collect data matching IOTC standards. Scientific Committee will also propose minimum standards for the implementation of Electronic observation systems and how they can be used to increase levels of observer coverage for Indian Ocean fisheries.
8. The pilot project will not preclude any Regional Observer Scheme's actions already implemented by Contracting Parties or Cooperating non-Contracting Parties and respective fleets.

Annex I

Minimal requirements for observers

Scientific observers

1. Without prejudice to whatever specific training and qualifications are recommended by the Scientific Committee, the designated observers shall have the following qualifications to accomplish their tasks:
 - a) a satisfactory knowledge of the IOTC Conservation and Management Measures;
 - b) the ability to observe and record information accurately;
 - c) a satisfactory knowledge of the language of the flag of the vessel observed;
 - d) sufficient experience to identify species and fishing gear;
 - e) proven training in security and survival at sea.
2. Observers shall:
 - a) record and report upon the fishing activities carried out;
 - b) observe and estimate catches and check consistency with entries made in the logbook;
 - c) note the position of the vessel when engaged in catching activity;
 - d) carry out scientific work such as collecting of IOTC mandatory statistical information and fulfilment of logbooks;
 - e) report the results of these duties on the fishing vessel in the observers report to the flag state fishing authority,
 - f) submit the observer report to Flag State authorities within 30 days from the end of the period of observation;
 - g) treat as confidential all information with respect to the fishing and transshipment operations of the fishing vessels and accept this requirement in writing as a condition of appointment as an observer;
 - h) comply with requirements established in the laws and regulations of the flag State which exercises jurisdiction over the vessel to which the observer is assigned;
 - i) respect the hierarchy and general rules of behaviour which apply to all vessel personnel, provided such rules do not interfere with the duties of the observer under this program, and with the obligations of vessel personnel.

Obligations of the Master

3. The Master shall allow observers to:
 - a) visit the fishing vessel, if weather conditions permit, and to have access to vessel staff and to the gear and equipment but not interfering with the equipment on-board;
 - b) have access to the equipment listed below, if present on the vessels to which they are assigned, in order to facilitate the carrying out of their duties. This shall be done on a request basis. The equipment concerns
 - i) satellite navigation equipment; (consultation only)
 - ii) radar display viewing screens when in use; (consultation only)
 - iii) electronic means of communication;
 - c) Observers shall be provided with accommodation, including lodging, food and adequate sanitary facilities, equal to those of officers;
 - d) Observers shall be provided with adequate space on the bridge or pilot house for clerical work, as well as space on deck adequate for carrying out observer duties;

Obligations of the Flag State

4. The Flag States shall ensure that masters, crew and vessel owners do not obstruct, intimidate, interfere with, influence, bribe or attempt to bribe an observer in the performance of his/her duties.
5. No later than two months upon completion of a fishing trip, observer reports will be sent to the IOTC secretariat, who shall manage and keep record of the mentioned observer's reports in a manner consistent with IOTC confidentiality requirements, and will submit copies of the observer reports to the Scientific Committee.
6. Data collected in any Coastal State EEZ will also be provided to the Coastal State authorities within the same delays and conditions of the previous paragraph.

Mutual recognition of observers

The observers selected to participate in this pilot project will be recognised by all CPCs participating in the project.

Resolution 18/07

On measures applicable in case of non-fulfilment of reporting obligations in the IOTC

Keywords: Reporting obligations; data submission; incomplete data; catch

The Indian Ocean Tuna Commission (IOTC),

GIVEN that following Article XI of the Agreement for the establishment of the IOTC, Contracting Parties agree to provide statistical and other data and information that the Commission may need for the purposes of this Agreement and that nominal catch data, Catch and effort data, size data and fish aggregating devices data should be submitted annually to the IOTC Secretariat by 30 June the year following the fishing activities;

RECALLING Resolutions by IOTC on the Deadlines, Procedures for Data Submission and Statistical Reporting Obligations, notably Resolutions [15/02](#), [15/01](#), [14/05](#), [12/04](#), 10/11 [superseded by [Resolution 16/11](#)], [11/04](#), [10/08](#) and [01/06](#);

RECOGNISING that funding is available from the Commission for developing CPCs to improve their data collection and submission capabilities;

TAKING INTO ACCOUNT that the Scientific Committee (IOTC–2015–SC18–R) noted with concern the lack of information submitted by CPCs on total catches, catch and effort and size data for various IOTC species, despite their mandatory reporting status, and requested that CPCs comply with IOTC data requirements, given the gaps in available information in the IOTC database and the importance of basic fishery data in order to assess the status of stocks and for the provision of sound management advice;

CONSIDERING that the Scientific Committee recommended that the Commission develop penalty mechanisms through the IOTC Compliance Committee to improve compliance by CPCs that do not currently comply with the submission of basic fishery data requirements as stated in Resolutions [15/01](#) and [15/02](#);

NOTING that incomplete reporting or no data reporting and that, despite the adoption of numerous measures intended to address the matter, lack of compliance with reporting obligations is still a problem for the Scientific Committee and for the Commission;

NOTING that several stocks remain not assessed and some others are assessed with substantial uncertainty, which lead to important risks of depletion of some IOTC species and negative impact in the ecosystem;

FURTHER NOTING that, in order that all IOTC fisheries should be managed in line with the principles of the precautionary approach, it is necessary to take measures aimed at eliminating or reducing non-reporting and misreporting;

ADOPTS in accordance with paragraph 1 of Article IX of the IOTC Agreement, that:

1. CPCs shall include information in their Annual Reports (*Report of Implementation*) on actions taken to implement their reporting obligations for all IOTC fisheries, including shark species caught in association with IOTC fisheries, in particular steps taken to improve their data collection for direct and incidental catches.
2. The IOTC Compliance Committee shall review Actions taken by CPCs, as described in paragraph 1, shall be reviewed annually by IOTC Compliance Committee.
3. Following the review carried out by the Compliance Committee, the Commission at its annual session, according to the guidelines attached (**Annex I**), and after having given due consideration to the relevant information provided by the concerned CPCs in these cases, may consider to prohibit CPCs that did not report nominal catch data (exclusively), including zero catches, for one or more species for a given year, in accordance with the [Resolution 15/02](#), paragraph 2 (or any subsequent revision), from retaining such species as of the year following the lack or incomplete reporting until such data have been received by the IOTC Secretariat. Priority shall be given to situations of repeated non-compliance. Any CPC unable to meet these reporting obligations owing to engagement in civil conflict shall be exempt from this measure. The CPC concerned will work with the IOTC Secretariat to identify and implement possible alternative methods for data collection, using established FAO data collection methods.

4. To facilitate the reporting of zero catches as required under paragraph 1 of Annex I of this Resolution, the following procedure shall apply:
 - a) as part of the IOTC 1RC electronic form used to report nominal catches, the Secretariat shall include a matrix by IOTC species as well as the most commonly caught elasmobranch species according to records of catches and incidents as established in Resolution 15/01 *on the recording of catch and effort data by fishing vessels in the IOTC area of competence (or any subsequent superseding Resolution)* and main IOTC gear groups on the basis of the format set out in Annex II of this Resolution
 - b) CPCs, as part of their total catch data reporting, shall complete the cells in the matrix with either a value of 'one' (1) to indicate where that CPC had catches (positive catch) for a particular species/gear combination or a value of 'zero' (0) to indicate where that CPC had no catches (zero landings + zero discards) for a particular species/gear combination.
 - c) The "Catch columns" section of the electronic Form 1RC shall only include reports of positive catches.
5. The Commission may consider expanding the matrix to include additional species under the competence of IOTC as well as stock/gear combinations as appropriate.
6. This Resolution supersedes Resolution 16/06 *On Measures Applicable in case of non-fulfilment of reporting Obligations in the IOTC*

Resolution 19/01

On an interim plan for rebuilding the Indian Ocean yellowfin tuna stock in the IOTC Area of competence

Keywords: Yellowfin tuna, Kobe Process, MSY, Precautionary Approach

The Indian Ocean Tuna Commission (IOTC),

CONSIDERING the objectives of the Commission to maintain stocks in perpetuity and with high probability, at levels not less than those capable of producing their maximum sustainable yield as qualified by relevant environmental and economic factors including the special requirements of developing States in the IOTC area of competence;

BEING MINDFUL of Article XVI of the IOTC Agreement regarding the rights of Coastal States and of Article 87 and 116 of the UN Convention of the Law of the Sea regarding the right to fish on the high seas;

RECOGNISING the special requirements of the developing States, particularly Small Island developing States in Article 24, of the Agreement for the Implementation of the Provisions of the United Nations Convention of the Law of the Sea of December 1982, relating to the Conservation and Management of Straddling Fish Stocks and Highly Migratory Fish Stocks (UNFSA);

RECALLING that Article 5, of UNFSA entitles the conservation and management of highly migratory fish stocks are based on best scientific evidence available and with special reference to Resolution 15/10 for a stock where the assessed status places it within the red quadrant, and with an aim to end overfishing with a high probability and to rebuild the biomass of the stock in as short time as possible;

FURTHER RECALLING that Article 6, of UNFSA and IOTC Resolution 12/01 *On the implementation of the precautionary approach*, requires the States to be cautious during the application of precautionary approach when information is uncertain, unreliable or inadequate and this should not be a reason for postponing or failing to take conservation and management measures;

CONSIDERING the recommendations adopted by the KOBE II, held in San Sebastian, Spain, June 23 – July 3 2009; implementing where appropriate a freeze on fishing capacity on a fishery by fishery basis and such a freeze should not constrain the access to, development of, and benefit from sustainable tuna fisheries by developing coastal States;

FURTHER CONSIDERING the recommendations adopted by the KOBE III, held in La Jolla, California, 12- 14 July 2011; considering the status of the stocks, each RFMO should consider a scheme for reduction of overcapacity in a way that does not constrain the access to, development of, and benefit from sustainable tuna fisheries, including on the high seas, by developing coastal States, in particular Small Island Developing States, territories, and States with small and vulnerable economies; and Transfer of capacity from developed fishing members to developing coastal fishing members within its area of competence where appropriate;

FURTHER CONSIDERING the report by International Council for the Exploration of Sea and FAO Working Group on Fishing Technology and Fish Behaviour (2006), Gillnets are considered to be one of the least catch controllable and least environmentally sustainable gears;

FURTHER CONSIDERING the recommendations of the 18th Scientific Committee held in Bali, Indonesia, 23 – 27 November 2015 and the 21st session of the Scientific Committee held in Seychelles, 3 – 7 December 2018, that the catches of yellowfin tuna have to be reduced by 20% of the 2017 levels to recover the stocks to levels above the interim target reference points with 50% probability by 2027 as specified in Kobe II Strategy Matrix;

FURTHER CONSIDERING the management advice of the 21st session of the Scientific Committee on the limitations and uncertainties in the stock assessment;

FURTHER CONSIDERING the concern of the 20th Session of the Working Party for Tropical Tuna held in Seychelles, 29 October – 3 November 2018, the change in strategy by increase of usage of FADs by the purse seine vessels to maintain catch level targets has led to a substantial increase of juvenile yellowfin tuna and bigeye tuna;

NOTING THAT supply vessels contribute to the increase in effort and capacity of purse seiners and that the number of supply vessels has increased significantly over the years;

FURTHER CONSIDERING the call by the United Nations General Assembly Resolution 70/75 upon the States to increase the reliance on scientific advice in developing, adopting and implementing conservation and management measures and to take into account the special requirements of developing States, including Small Island Developing States (SIDS) as highlighted in the SIDS Accelerated Modalities of Action (SAMOA) Pathway;

NOTING THAT Article V.2b of the Agreement for the Establishment of the Indian Ocean Tuna Commission give full recognition to the special interests and needs of Members in the region that are developing countries, in relation to the conservation and management and optimum utilization of stocks covered by this Agreement and encouraging development of fisheries based on such stocks;

FURTHER NOTING THAT Article V.2d requires the Commission to keep under review the economic and social aspects of the fisheries based on the stocks covered by this Agreement bearing in mind, in particular, the interests of developing coastal States. This includes ensuring that conservation and management measures adopted by it do not result in transferring, directly or indirectly, a disproportionate burden of conservation action onto developing States, especially Small Island Developing States;

RECOGNIZING FURTHER the interactions that occur between the fisheries for yellowfin, skipjack and bigeye tuna;

CONSIDERING paragraph 12 of Resolution 16/01 [superseded by Resolution 17/01, then by Resolution 18/01] that allows the Commission to review this Interim Plan before 2019;

ADOPTS, in accordance with the provisions of Article IX, paragraph 1 of the IOTC Agreement, the following:

Application

1. This resolution shall apply to all fishing vessels targeting tuna and tuna like species in the Indian Ocean of 24 meters overall length and over, and those under 24 meters if they fish outside the EEZ of their flag State, within the IOTC Area of Competence.
2. The measures contained within this Resolution shall be considered as interim measure and will be reviewed by the Commission no later than at its annual Session in 2020.
3. Notwithstanding paragraph 2, this Resolution shall be reviewed when a formal Management Procedure for the management of the yellowfin tuna stock is adopted by the Commission and in effect.
4. Nothing in this resolution shall pre-empt or prejudice future allocation of fishing opportunities.

Catch limits

5. **Purse seine:** CPCs whose purse seine catches of yellowfin reported for 2014 were above 5000 MT to reduce their purse seine catches of yellowfin by 15 % from the 2014 levels.
6. **Gillnet:** CPCs whose Gillnet catches of yellowfin reported for 2014 were above 2000 MT to reduce their Gillnet catches of yellowfin by 10 % from the 2014 levels.
7. **Longline:** CPCs whose Longline catches of yellowfin reported for 2014 were above 5000 MT to reduce their Longline catches of yellowfin by 10 % from the 2014 levels.
8. **CPCs' other gears:** CPCs whose catches of yellowfin from other gears reported for 2014 were above 5000 MT to reduce their other gear catches of yellowfin by 5 % from the 2014 levels.
9. In applying the catch reductions by gears in provisions in paragraph 5, 6, 7 and 8, Small Island Developing States and Least Developed Countries can either choose between catches of yellowfin tuna reported for either 2014 or 2015. For such CPCs Paragraph 13(a) is applicable over the accumulated catch in 2018 and 2019.
10. Exceptionally for 2019 and 2020, Small Island Developing States CPCs that contributed less than 4% of the total yellowfin catch of the Indian Ocean in 2017, shall reduce their purse seine catch by 7.5% of 2018 levels.
11. Any CPC to whom para 5-10 do not apply and whose catches exceeded the threshold limits in any subsequent year (from 2017), shall reduce their catches to the levels prescribed for that particular gear as mentioned in paragraphs 5, 6, 7 and 8.

12. Flag States will determine appropriate methods for achieving these catch reductions, which could include capacity reductions, effort limits, etc., and will report to the IOTC Secretariat in their Implementation Report every year.

Over catch of annual limit

13. If over-catch of an annual limit for a given fleet of a CPC listed in paragraph 5 to 10 occurs, catch limits for that fleet shall be reduced as follows:
- If the accumulated catch in 2017, 2018 and 2019 exceeds the sum of the catch limit³ for 2017, 2018 and 2019 the excess (over-catch) shall be deducted from the 2021 catch limit.
 - For 2020 and following years, 100% of that over-catch shall be deducted from the following two years limit; unless
 - Over-catch for that fleet has occurred in two or more consecutive years, in which case 125% of the over-catch shall be deducted from the following two years limit.
14. CPCs shall inform the Commission via the IOTC Compliance Committee, any reductions in the following year because of over catch in paragraph 13 in their implementation Report.
15. The revised limits will apply in the following year and CPCs compliance shall be assessed against the revised limits reported to the IOTC Compliance Committee.

Supply Vessels

16. CPCs shall gradually reduce supply vessels⁴ by 31 December 2022 as specified below in (a), (b), and (c). Flag States shall submit the status of reducing the use of supply vessel as part of the report of Implementation to the Compliance Committee.
- From 1 January 2018 to 31 December 2019: 1 supply vessel in support of not less than 2 purse seiners, all of the same flag State⁵.
 - From 1 January 2020 to 31 December 2020: 2 supply vessels in support of not less than 5 purse seiners, all of the same flag State³.
 - No CPC is allowed to register any new or additional supply vessel on the IOTC Record of Authorized Vessels after 31 December 2017.
17. A single purse seine vessel shall not be supported by more than one single supply vessel of the same flag State at any point of time.
18. Complementary to Resolution 15/08 (superseded by Resolution 17/08, then by Resolution 18/08, then by Resolution 19/02) and to Resolution 15/02, CPC flag States shall report annually before the 1 January for the coming year of operations which Purse seiners are served by each supply vessel. This information will be published on IOTC website so as to be accessible to all CPCs and is mandatory.
19. CPCs shall report by 1 March 2019, the number of FADs that were deployed in 2018 and 2019 by purse seine vessels and associated supply vessels per 1°x1° grid.

Gillnet

20. Without prejudice to Article 16 of the IOTC Agreement, CPCs shall encourage phasing out or convert gillnet fishing vessels to other gears, considering the huge ecological impact of these gears and fast track the implementation of Resolution 17/07 *On the Prohibition to use large-scale driftnets in the IOTC*.
21. CPCs shall set their gillnets at 2m depth from the surface in gillnet fisheries by 2023 to mitigate ecological impacts of gillnets.

³ Catch of Indonesia is based on the national reports submitted to the Scientific Committee

⁴ For the purpose of this resolution, the term "supply vessel" includes "support vessel"

⁵ The subparagraphs (a) and (b) shall not apply to flag States which use only one supply vessel

22. CPCs are encouraged to increase their observer coverage or field sampling in gillnet fishing vessels by 10% using alternative data collection methodologies (electronic or human) verified by the IOTC Scientific Committee by 2023.
23. CPCs shall report the level of implementation of para 21 - 23 to the IOTC Commission via the Compliance Committee.

Administration

24. The IOTC Secretariat, under advice of the Scientific Committee, shall prepare and circulate a table of allocated catch limits disaggregated as per the conditions set out in paragraphs 5 – 10 for preceding year, in December of the current year.
25. CPCs shall monitor the yellowfin tuna catches from their vessels in conformity with Resolution 15/01 *On the recording of catch and effort data by fishing vessels in the IOTC area of competence* and Resolution 15/02 *Mandatory statistical reporting requirements for IOTC Contracting Parties and Cooperating Non Contracting Parties (CPCs)* and will provide a summary of most-recent yellowfin catches for the consideration of the IOTC Compliance Committee.
26. For the purposes of the implementation of this resolution, CPCs shall submit their catches of yellowfin disaggregated for vessel 24 m overall length and over, and those under 24 m if they fish outside the EEZ as per resolution 15/02.
27. Each year, the Compliance Committee shall evaluate the level of compliance with the reporting obligations and the catch limits deriving from this Resolution and shall make recommendations to the Commission accordingly.
28. The Scientific Committee via its Working Party on Tropical Tunas shall implement the “Workplan to improve current assessment of yellowfin tuna” and shall advise the Commission the financial and administrative requirements to further strengthen the work undertaken to minimize the issues and complexities regarding yellowfin tuna stock assessment.
29. The Scientific Committee via its Working Party on Tropical Tunas shall in 2019 undertake an evaluation of the effectiveness of the measures detailed in this Resolution, taking into account all sources of fishing mortality possible aiming at returning and maintaining biomass levels at the Commission’s target level.
30. This Resolution supersedes IOTC Resolution 18/01 *On an interim plan for rebuilding the Indian Ocean yellowfin tuna stock*.

Resolution 19/02

Procedures on a fish aggregating devices (FADs) management plan, including a limitation on the number of FADs, 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

Keywords: FAD, active instrumented buoy.

The Indian Ocean Tuna Commission (IOTC),

BEARING IN MIND that the Agreement for the implementation of the Provisions of the United Nations Convention on the Law of the Sea relating to the Conservation and Management of Straddling Fish Stocks and Highly Migratory Fish Stocks (UNFSA) encourages coastal States and fishing States on the high seas to collect and share, in a timely manner, complete and accurate data concerning fishing activities on, inter alia, vessel position, catch of target and non-target species and fishing effort;

MINDFUL of the call upon States, either individually, collectively or through regional fisheries management organisations and arrangements in the United Nations General Assembly Resolution 67/79 on Sustainable fisheries to collect the necessary data in order to evaluate and closely monitor the use of large-scale fish aggregating devices and others, as appropriate, and their effects on tuna resources and tuna behaviour and associated and dependent species, to improve management procedures to monitor the number, type and use of such devices and to mitigate possible negative effects on the ecosystem, including on juveniles and the incidental bycatch of non-target species, particularly sharks and marine turtles;

NOTING that the United Nations Food and Agricultural Organization (FAO) Code of Conduct for Responsible Fishing provides that States should compile fishery-related and other supporting scientific data relating to fish stocks covered by sub-regional or regional fisheries management organisations and provide them in a timely manner to the organisation;

RECOGNISING that Fish Aggregating Devices under the competence of IOTC should be managed to ensure the sustainability of fishing operations;

GIVEN that the activities of supply vessels and the use of Fish Aggregating Devices (FAD) are an integral part of the fishing effort exerted by the purse seine fleet;

AWARE that the Commission is committed to adopt Conservation and Management Measures to reduce juvenile Bigeye tuna and Yellowfin tuna mortalities from fishing effort on Fish Aggregating Devices (FADs);

RECALLING that [Resolution 12/04](#) established that the Commission at its annual session in 2013 should consider the recommendations of the IOTC Scientific Committee as regards the development of improved FAD designs to reduce the incidence of entanglement of marine turtles, including the use of biodegradable materials, together with socio-economic considerations, with a view to adopting further measures to mitigate interactions with marine turtles in fisheries covered by the IOTC Agreement;

RECALLING that Resolution 13/08 [superseded by Resolution 15/08, by Resolution 17/08, then by [Resolution 18/08](#)] established procedures on a fish aggregating device (FAD) 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;

NOTING that the IOTC Scientific Committee advised the Commission that only non-entangling FADs, both drifting and anchored, should be designed and deployed to prevent the entanglement of sharks, marine turtles and other species;

NOTING that the IOTC Scientific Committee advised the Commission to conduct an investigation of the feasibility and impacts of a temporary FAD closure as well as other measures in the context of Indian Ocean fisheries and stocks;

RECALLING that the objective of the IOTC Agreement is to ensure, through appropriate management, the conservation and optimum utilisation of stocks covered by the mentioned Agreement and encouraging sustainable development of fisheries based on such stocks and minimising the level of bycatch;

ADOPTS, in accordance with the provisions of Article IX, paragraph 1 of the IOTC Agreement, the following:

1. Definitions

For the purpose of this Resolution:

- a) Fish Aggregating Device (FAD) means a permanent, semi-permanent or temporary object, structure or device of any material, man-made or natural, which is deployed and/or tracked, for the purpose of aggregating target tuna species for consequent capture.
 - b) Drifting Fish Aggregating Devices (DFADs) means a FAD not tethered to the bottom of the ocean. A DFAD typically has a floating structure (such as a bamboo or metal raft with buoyancy provided by buoys, corks, etc.) and a submerged structure (made of old netting, canvass, ropes, etc.).
 - c) Anchored Fish Aggregating Devices (AFADs) means a FAD tethered to the bottom of the ocean. It usually consists of a very large buoy and anchored to the bottom of the ocean with a chain.
 - d) Instrumented buoy means a buoy with a clearly marked with a unique reference number allowing identification of its owner and equipped with a satellite tracking system to monitor its position.
 - e) Operational buoy means any instrumented buoy, previously activated, switched on and deployed at sea on a drifting FAD or log, which transmit position and any other available information such as eco-sounder estimates.
 - f) Activation of a buoy means the act of initializing satellite communication service, which is done by the buoy supplier company at the request of the vessel owner or manager.
 - g) Deactivation of a buoy means the act of cancelling satellite communications service, which is done by the buoy supplier company at the request of the vessel owner or manager.
 - h) Buoy owner means any legal or natural person, entity or branch, who is paying for the communication service for the buoy associated with a FAD, and/or who is authorized to receive information from the satellite buoy, as well as to request its activation and/or deactivation.
 - i) Reactivation: the act of re-enabling satellite communications services by the buoy supplier company at the request of the buoy owner or manager.
 - j) Buoy in stock means an instrumented buoy acquired by the owner which has not been made operational.
2. This Resolution shall apply to CPCs having purse seine vessels and fishing on Drifting Fish Aggregating Devices (DFADs), equipped with instrumented buoys for the purpose of aggregating target tuna species, in the IOTC area of competence. Only purse seiners and associated supply or support vessels are allowed to deploy DFADs in the IOTC Area of Competence.
3. This resolution requires the use of instrumented buoy, as per the above definition, on all DFADs and prohibits the use of any other buoys, such as radio buoys, not meeting this definition.
4. This Resolution sets the maximum number of operational buoys followed by any purse seine vessel at 300 at any one time. The number of instrumented buoys that may be acquired annually for each purse seine vessel is set at no more than 500. No purse seine vessel shall have more than 500 instrumented buoys (buoy in stock and operational buoy) at any time. An instrumented buoy shall be made operational only when physically present on board the purse-seine vessel to which it belongs or its associated supply or support vessel, and the event shall be recorded in the appropriate logbook, specifying the instrumented buoy unique identification number and the date, time and geographical coordinates of its deployment.
5. A CPC may adopt a lower limit than the one set out in paragraph 4 for vessels flying its flag. Further, any CPC may adopt a lower limit for DFADs deployed in its EEZ than that stated in paragraph 4. The CPC shall review the adopted limit to ensure that such limit is not more than the limit fixed by the Commission.

6. CPCs shall ensure that as from the effective date of this Resolution, each of its purse seiners already in operation does not exceed the maximum number of operational and instrumented buoys at any one time as set out in paragraph 4.
7. All purse seine vessel, supply or support vessel shall declare to its respective CPC, the number of instrumented buoys onboard, including each unique identifier of the instrumented buoy before and after each fishing trip.
8. Reactivation of an instrumented buoy shall only be possible once it has been brought back to port, either by the vessel tracking the buoy/ associated supply or support vessel or by another vessel and has been authorized by the CPC.
9. Notwithstanding the completion of any study undertaken at the request of the Commission including the study to be undertaken by the Working Group adopted at Resolution 15/09 in relation to FADs, the Commission may review the maximum number of instrumented buoys set out in paragraph 4.
10. CPCs shall require vessels flying their flag and fishing on DFADs to annually submit the number of operational buoys followed by vessel, lost and transferred (total number of DFADs tagged at sea, by deploying an instrumented buoy on a log or another vessel DFAD already in the water) by 1° by 1° grid area and month strata and DFAD type under the confidentiality rules set by Resolution 12/02 (or any subsequent superseding Resolution).
11. All CPCs shall ensure that all fishing vessels as referred to in paragraph 2 shall record fishing activities in association with FADs using the specific data elements found in Annex III (DFAD) and Annex IV (AFAD) in the section of the "FAD-logbook".
12. CPCs having vessels flying their flag and fishing on FADs shall submit, to the Commission, on an annual basis, Management Plans for the use of FADs. Due to their specificity in terms of users, type of boat/vessel involved, fishing method and gear used and materials used in their construction, the Management Plans and Reporting Requirements for Drifting FADs (DFAD) and Anchored FADs (AFAD) shall be addressed separately for the purposes of this Resolution. The Plans shall at a minimum follow the Guidelines for Preparation for FAD Management Plans by each CPC as provided for DFADs in Annex I and AFADs in Annex II.
13. The Management Plans shall be analysed by the IOTC Compliance Committee.
14. The Management Plans shall include initiatives or surveys to investigate, and to the extent possible minimise the capture of small bigeye tuna and yellowfin tuna and non-target species associated with fishing on FADs. Management Plans shall also include guidelines to prevent, to the extent possible, the loss or abandonment of FADs.
15. In addition to the Management Plans, all CPCs shall ensure that all fishing vessels flying their flag and fishing on FADs, including supply vessels, shall record fishing activities in association with FADs using the specific data elements found in Annex III (DFAD) and Annex IV (AFAD).
16. CPCs shall submit to the Commission, 60 days before the Annual Meeting, a report on the progress of the management plans of FADs, including, if necessary, reviews of the initially submitted Management Plans, and including reviews of the application of the principles set out in Annex III.

Non-entangling and biodegradable FADs

17. To reduce the entanglement of sharks, marine turtles or any other species, CPCs shall require their flagged vessels to use non-entangling designs and materials in the construction of FADs as outlined in Annex V.
18. To reduce the amount of synthetic marine debris, the use of natural or biodegradable materials in FAD construction should be promoted. CPCs shall encourage their flag vessels to use biodegradable FADs in accordance with the guidelines at Annex V with a view to transitioning to the use of biodegradable FADs, with the exception of materials used for the instrumented buoys, by their flag vessel from 1 January 2022. CPCs shall, from 1 January 2022, encourage their flag vessels to remove from the water, retain onboard and only dispose of in port, all traditional FADs encountered (e.g. those made of entangling materials or

designs). The reference year prescribed above shall be reviewed in light of the Scientific Committee's recommendation pursuant to Resolution 18/04 *On BioFAD experimental project*.

19. CPCs are encouraged to conduct trials using biodegradable materials to facilitate the transition to the use of only biodegradable material for DFADS construction by their flagged vessels. The results of such trials shall be presented to the Scientific Committee who shall continue to review research results on the use of biodegradable material on FADs and shall provide specific recommendations to the Commission as appropriate.

FAD Marking

20. A new marking scheme shall be developed by the ad-hoc FAD working group and shall be considered by the Commission at its regular annual session in 2020.
21. Until the marking scheme referred to in paragraph 20 is adopted, CPCs shall ensure that the instrumented buoy attached to the DFAD contain a physical, unique reference number marking (ID provided by the manufacturer of the instrumented buoy) and the vessel unique IOTC registration number clearly visible.

Data reporting and analysis

22. CPCs shall submit the data elements prescribed in Annex III and Annex IV to the Commission, consistent with the IOTC standards for the provision of catch and effort data, and these data shall be made available for analysis to the IOTC Scientific Committee on the aggregation level set by Resolution 15/02 (or any subsequent superseding Resolution), and under the confidentiality rules set by Resolution 12/02 (or any subsequent superseding Resolution).
23. The IOTC Scientific Committee will analyse the information, when available, and provide scientific advice on additional FAD management options for consideration by the Commission, including recommendations on the number of FADs to be operated, the use of biodegradable materials in new and improved FADs design. When assessing the impact of FADs on the dynamic and distribution of targeted fish stocks and associated species and on the ecosystem, the IOTC Scientific Committee will, where relevant, use all available data on abandoned FADs (i.e. FADs without a beacon or which have drifted outside the fishing zone).

FAD Tracking and Recovery Procedures

24. In order to support the monitoring of compliance with the limitation established in Paragraph 4, while protecting business confidential data, the instrumented buoy supplier company or the CPCs shall, starting 1 January 2020, report, or require their vessels to report, daily information on all active FADs to the Secretariat. Such information shall contain, date, instrumented buoy ID, assigned vessel and daily position, which shall be compiled at monthly intervals, to be submitted with a time delay of at least 60 days, but no longer than 90 days.
25. The Commission shall establish a DFAD tracking and recovery policy at its annual session in 2021, on the basis of recommendations from the ad-hoc FAD working group. The policy shall define DFAD tracking, reporting of lost DFADs, arrangements to alert coastal States of derelict/lost DFADs at risk of beaching in near real-time, how and who recovers the DFADs, how the recovery costs are collected and shared.
26. The IOTC Secretariat shall submit a report, on an annual basis, to the IOTC Compliance Committee on the level of compliance of each CPC with operational buoy limits, annual limits of instrumented buoys purchased.
27. This resolution shall be reviewed by the Commission, at the latest, at its session in 2022, based on recommendations from the Scientific Committee.
28. This resolution shall enter into force on 1 January 2020.
29. Resolution 18/08 *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* is superseded by this Resolution.

Annex I

Guidelines For Preparation Of Drifting Fish Aggregating Device (DFAD) Management Plans

To support obligations in respect of the DFAD Management Plan (DFAD–MP) to be submitted to the IOTC Secretariat by CPCs with fleets fishing in the IOTC area of competence, associated to DFADs, DFAD–MP should include:

1. An objective
2. Scope

Description of its application with respect to:

- vessel-types and support and tender vessels
 - DFAD numbers and DFADs beacon numbers to be deployed
 - reporting procedures for DFAD deployment
 - incidental bycatch reduction and utilisation policy
 - consideration of interaction with other gear types
 - plans for monitoring and retrieval of lost DFADs
 - statement or policy on “DFAD ownership”
3. Institutional arrangements for management of the DFAD Management Plans:
 - institutional responsibilities
 - application processes for DFAD and /or DFAD beacons deployment approval
 - obligations of vessel owners and masters in respect of DFAD and /or DFAD beacons deployment and use
 - DFAD and/or DFADs beacons replacement policy
 - reporting obligations
 4. DFAD construction specifications and requirements:
 - DFAD design characteristics (a description)
 - DFAD markings and identifiers, including DFADs beacons
 - lighting requirements
 - radar reflectors
 - visible distance
 - radio buoys (requirement for serial numbers)
 - satellite transceivers (requirement for serial numbers)
 5. Applicable areas:
 - Details of any closed areas or periods e.g. territorial waters, shipping lanes, proximity to artisanal fisheries, etc.
 6. Applicable period for the DFAD–MP.
 7. Means for monitoring and reviewing implementation of the DFAD–MP.
 8. DFAD logbook template (data to be collected specified in Annex III).

Annex II

Guidelines For Preparation Of Anchored Fish Aggregating Device (AFAD) Management Plans

To support obligations in respect of the AFAD Management Plan (AFAD–MP) to be submitted to the IOTC Secretariat by CPCs with fleets fishing in the IOTC area of competence, associated to AFADs, AFAD– MP should include:

1. An objective

2. Scope:

Description of its application with respect to:

- a) vessel types
 - b) AFAD numbers and/or AFADs beacons numbers to be deployed (per AFAD type)
 - c) reporting procedures for AFAD deployment
 - d) distances between AFADs
 - e) incidental bycatch reduction and utilisation policy
 - f) consideration of interaction with other gear types
 - g) the establishment of inventories of the AFADs deployed, detailing AFAD identifiers, characteristics and equipment of each AFAD as laid down in point 4 of the present Annex, coordinates of the AFAD's mooring sites, date of set, lost and reset
 - h) plans for monitoring and retrieval of lost AFADs
 - i) statement or policy on "AFAD ownership"
3. Institutional arrangements for management of the AFAD Management Plans:
- a) institutional responsibilities
 - b) regulations applicable to the setting and use of AFADs
 - c) AFAD repairs, maintenance rules and replacement policy
 - d) data collection system
 - e) reporting obligations
4. AFAD construction specifications and requirements:
- a) AFAD design characteristics (a description of both the floating structure and the underwater structure, with special emphasis on any netting materials used)
 - b) anchorage used for mooring
 - c) AFAD markings and identifiers, including AFAD beacons if any
 - d) lighting requirements if any
 - e) radar reflectors
 - f) visible distance
 - g) radio buoys if any (requirement for serial numbers)
 - h) satellite transceivers (requirement for serial numbers)
 - i) echo sounder
5. Applicable areas:
- a) coordinates of mooring sites, if applicable
 - b) details of any closed areas e.g., shipping lanes, Marine Protected Areas, reserves etc.
6. Means for monitoring and reviewing implementation of the AFAD–MP.

7. AFAD logbook template (data to be collected specified in Annex IV).

Annex III
Data collection for DFADs

- a) For each activity on a DFAD, whether followed by a set or not, each fishing, support and supply vessel to report the following information:
- i. Vessel (name and registration number of the fishing, support or supply vessel)
 - ii. Position (as the geographic location of the event (Latitude and Longitude) in degrees and minutes)
 - iii. Date (as DD/MM/YYYY, day/month/year)
 - iv. DFAD identifier (DFAD or beacon ID)
 - v. DFAD type (drifting natural FAD, drifting artificial FAD),
 - vi. DFAD design characteristics
 - Dimension and material of the floating part and of the underwater hanging structure
 - vii. Type of the activity, (visit deployment, hauling, retrieving, loss, intervention to service electronic equipment).

If the visit is followed by a set, the results of the set in terms of catch and bycatch, whether retained or discarded dead or alive. CPCs to report this data aggregated per vessel at 1*1 degree (where applicable) and monthly to the Secretariat

Annex IV
Data Collection for AFADs

- a) Any activity around an AFAD.
- b) For each activity on an AFAD (repair, intervention consolidation, etc.), whether followed or not by a set or other fishing activities, the,
- i. Position (as the geographic location of the event (Latitude and Longitude) in degrees and minutes)
 - ii. Date (as DD/MM/YYYY, day/month/year)
 - iii. AFAD identifier (i.e. AFAD Marking or beacon ID or any information allowing to identify the owner).
- c) If the visit is followed by a set or other fishing activities, the results of the set in terms of catch and bycatch, whether retained or discarded dead or alive.

Resolution 19/03

On the conservation of mobulid species caught in association with fisheries in the IOTC area of competence

Keywords: Mobula Rays, Manta Rays, Conservation,

The Indian Ocean Tuna Commission (IOTC),

RECOGNISING Resolution 12/01 On the implementation of the Precautionary Approach calls on IOTC Contracting Parties and Cooperating Non-Contracting Parties to apply the precautionary approach when managing tuna and tuna-like species in accordance with Article 5 of the United Nations Fish Stocks Agreement and that, for sound fisheries management, such an approach applies also within areas under national jurisdiction;

RECALLING IOTC Resolution 05/05 *Concerning the conservation of sharks caught in association with fisheries managed by IOTC* [superseded by Resolution 17/05];

CONSIDERING that the species of the family Mobulidae, which includes manta rays and mobula rays (hereinafter mobulid rays), are extremely vulnerable to overfishing as they are slow-growing, late sexual maturity, have long gestation periods, and often give birth to only a few pups;

RECOGNISING the ecological and cultural significance of mobulid rays in the Indian Ocean;

CONCERNED about the possible impacts on these species by the different fisheries occurring from coastal areas to the high seas;

CONSIDERING that the United Nations Food and Agriculture Organization (FAO) International Plan of Action for Sharks calls on States to cooperate through regional fisheries management organizations to ensure the sustainability of shark stocks;

CONCERNED by the lack of complete and accurate data reporting concerning fishing activities on non-targeted species;

RECOGNIZING the need to improve the collection of species-specific data on catch, catch rates, release, discards, and trade as a basis for improving the conservation and management of mobulid rays stocks;

NOTING that the mobulid rays are listed in Appendix I and Appendix II of the Convention on the Conservation of Migratory Species of Wild Animals (CMS) and the range States to a migratory species shall endeavour to strictly protect them;

FURTHER NOTING that the mobulid rays are also listed in Appendix II of the Convention on International Trade in Endangered Species of Wild Fauna and Flora (CITES) for which trade shall be closely controlled under specific conditions including, inter alia, that trade will not be detrimental to the survival of the species in the wild;

ACKNOWLEDGING that the Scientific Committee (SC21) recently noted the declines of these species across the Indian Ocean and RECOMMEND that management actions, such as no-retention measures amongst other, are required and must be immediately adopted;

ADOPTS, in accordance with the provisions of Article IX, paragraph 1 of the IOTC Agreement, the following:

This Resolution shall apply to all fishing vessels flying the flag of a Contracting Party or Cooperating Non-Contracting Party (hereinafter referred to collectively as CPCs), and on the IOTC record of fishing vessels or authorized to fish for tuna and tuna like species managed by the IOTC.

1. CPCs shall prohibit all vessels from intentionally setting any gear type for targeted fishing of mobulid rays in the IOTC Area of Competence, if the animal is sighted prior to commencement of the set.
2. CPCs shall prohibit all vessels retaining onboard, transshipping, landing, storing, any part or whole carcass of mobulid rays caught in the IOTC Area of Competence.

3. Provisions of paragraphs 2 and 3 above do not apply to fishing vessels carrying out subsistence fishery⁶ that, anyhow, shall not be selling or offering for sale any part or whole carcass of mobulid rays.
4. CPCs shall require all their fishing vessels, other than those carrying out subsistence fishery, to promptly release alive and unharmed, to the extent practicable, mobulid rays as soon as they are seen in the net, on the hook, or on the deck, and do it in a manner that will result in the least possible harm to the individuals captured. The handling procedures detailed in Annex I, while taking into consideration the safety of the crew shall be implemented and followed.
5. Notwithstanding paragraph 3, in the case of mobulid rays that are unintentionally caught by and frozen as part of a purse seine vessel's operation, the vessel must surrender the whole mobulid ray to the responsible governmental authorities, or other competent authority, or discard them at the point of landing. Mobulid rays surrendered in this manner may not be sold or bartered but may be donated for purposes of domestic human consumption.
6. Notwithstanding paragraph 3, in the case of mobulid rays that are unintentionally caught by artisanal fishing⁷, the vessel should report the information on the accidental catch to the responsible governmental authorities, or other competent authority, at the point of landing. Mobulid rays unintentionally caught may only be used for purposes of local consumption. This derogation will expire in 1 January 2022.
7. CPCs shall report the information and data collected on interactions (i.e. number of discards and releases) with mobulid rays by vessels through logbooks and/or through observer programs. The data shall be provided to the IOTC Secretariat by 30 June of the following year, and according to the timelines specified in Resolution 15/02 (or any subsequent revision).
8. CPCs shall ensure that fishermen are aware of and use proper mitigation, identification, handling and releasing techniques and keep on board all necessary equipment for the release of mobulid rays in accordance with the handling guidelines of Annex 1.
9. Recreational and sport fishing shall release alive all caught mobulid rays and shall not be entitled to retaining onboard, transshipping, landing, storing, selling, or offering for sale any part or whole carcass of mobulid rays.
10. CPCs, unless clearly demonstrate that intentional and/or incidental catches of mobulids do not occur in their fisheries, shall develop, with the assistance from the IOTC Secretariat where required, sampling plans for the monitoring of the mobulid rays catches by the subsistence and artisanal fisheries. The sampling plans, including their scientific and operational rationale, shall be reported in the national scientific reports to the Scientific Committee, starting in 2020, which will provide its advice on their soundness by 2021 at the latest. The sampling plans, where required, will be implemented by the CPCs from 2022 onward taking into account the Scientific Committee advice.
11. CPCs are encouraged to investigate at-vessel and post-release mortality in mobulids including, but not exclusively, the application of satellite tagging programs that may be provisioned primarily through the national support complementing possible funds allocation from the IOTC to investigate the effectiveness of this measure.
12. The IOTC Scientific Committee shall review the status of *Mobula spp.* in the IOTC Area of Competence and provide management advice to the Commission in 2023 also to identify possible hot-spots for conservation and management of mobulids within and beyond EEZs. Moreover, the IOTC Scientific Committee is requested to provide, whenever considered adequate on the basis of evolving knowledge and scientific advice, further improvements to the handling procedures detailed in Annex 1.

⁶ A subsistence fishery is a fishery where the fish caught are consumed directly by the families of the fishers rather than being bought by middle-(wo)men and sold at the next larger market, per the FAO Guidelines for the routine collection of capture fishery data. FAO Fisheries Technical Paper. No. 382. Rome, FAO. 1999. 113p.

⁷ Artisanal fishing: fisheries other than longline or surface fisheries (i.e. purse seines, pole & line, gillnet fisheries, hand-line and trolling vessels), registered in the IOTC Record of Authorized Vessels (DEFINITION in footnote 1 of Res. 15/02).

13. Scientific observers shall be allowed to collect biological samples of mobulid rays caught in the IOTC Area of Competence that are dead at haul-back, provided that the samples are a part of a research project approved by the IOTC Scientific Committee. In order to obtain the approval, a detailed document outlining the purpose of the work, number of samples intended to be collected and the spatio-temporal distribution of the sampling effort must be included in the proposal. Annual progress of the work and a final report on completion shall be presented to the SC.

ANNEX 1

Live release handling procedures

1. Prohibit the gaffing of rays.
2. Prohibit the lifting of rays by the gill slits or spiracles.
3. Prohibit the punching of holes through the bodies of rays (e.g. to pass a cable through for lifting the ray).
4. Rays too large to be lifted safely by hand shall be, to the extent possible, brailed out of the net using best available method such as those recommended in document IOTC-2012-WPEB08-INF07.

Large rays that cannot be released safely before being landed on deck, shall be returned to the water as soon as possible, preferably utilizing a ramp from the deck connecting to an opening on the side of the boat, or if no such ramp is available, lowered with a sling or net.