

REVIEW OF CONSERVATION AND MANAGEMENT MEASURES RELATING TO TROPICAL TUNAS

PREPARED BY: IOTC SECRETARIAT, 17 MAY 2023

PURPOSE

To encourage participants at the Working Party on Tropical Tunas (WPTT25) Data Preparatory Meeting to review the existing Conservation and Management Measures (CMM) relevant to the three tropical tuna species; 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

Tropical tunas in the Indian Ocean are currently subject to several CMMs adopted by the Commission, including:

Resolution 03/01 *On the limitation of fishing capacity of Contracting Parties and Cooperating Non-Contracting Parties.* This Resolution requires Contracting Parties and Cooperating Non-Contracting Parties (CPCs) which have more than 50 vessels on the 2003 IOTC Record of Vessels, shall limit in 2004 and following years, the number of their fishing vessels larger than 24 meters length overall (hereafter LSFVs) to the number of its fishing vessels registered in 2003 in the IOTC Record of Vessels.

Resolution 05/01 *On Conservation and Management Measures for bigeye tuna.* This Resolution limits CPC catches of bigeye tuna to recent levels reported by the IOTC Scientific Committee. It also limits, by a non-binding request, Taiwan, Province of China to limit their annual bigeye tuna catch in the IOTC area of competence to 35,000 tonnes.

Resolution 14/02 *For the conservation and management of tropical tunas stocks in the IOTC area of competence.* This Resolution removes obsolete and ineffective elements from the previous Resolution 12/13, in particular the month-long closed area following advice from the Scientific Committee that the current closure is likely to be ineffective, as fishing effort will be redirected to other fishing grounds in the Indian Ocean. The positive impacts of the moratorium within the closed area would likely be offset by effort reallocation, as they will result in similar catch rates and total annual catches. In addition, the area closure includes not only the high seas but also part of the EEZ of Somalia, which may be detrimental to the aspirations of Somalia with respect to granting of fishing rights within its EEZ. The revised Resolution retains only those elements related to the already established process for an allocation system or any other relevant measures to be developed to manage tropical tuna stocks.

Resolution 19/02 *Procedures on a Fish Aggregating Devices (FADS) Management Plan.* This Resolution applies 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. 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. It further provides guidelines for preparation of drifting fish aggregating device (DFAD) management plans, guidelines for preparation of anchored fish aggregating device (AFAD) management plans and principles for design and deployment of FADs including FAD marking, tracking and recovery.

Resolution 21/01 *On an Interim Plan for Rebuilding the Indian Ocean Yellowfin Tuna Stock in the IOTC Area of Competence.* This Resolution requires CPCs to reduce their catch of yellowfin tuna. For CPCs whose catches of yellowfin reported for 2014 were above 5000t must reduce their catches of yellowfin by 21 % from the 2014 levels. Coastal states are required to reduce catches by 12% and Small Island Developing States or Least Developed States by 10% compared to 2014 levels. For CPCs with catches of yellowfin tuna in 2014 less than 5000t and their average catches of yellowfin tuna for the period from 2017 to 2019 inclusive, were above 5000t, shall reduce their catches of

yellowfin tuna by 21% compared to 2014 yellowfin tuna catch. Exceptions apply to the aforementioned limits as stipulated in the Resolution. The Resolution further stipulates conditions for over catches of the annual limits, reduction in the number of supply vessels and additional requirements for gillnets.

Resolution 21/03 *On Harvest Control Rules for skipjack tuna in the IOTC area of competence.* This Resolution for a Harvest Control Rule (HCR) for skipjack draws on SC recommendations, including the guidance on reference points. It uses the biomass limit reference point of 20% of the unfished level (BLIM = 0.2B0) and the target biomass reference point of 40% of the unfished level (BTARG = 0.4B0), consistent with the SC advice that reference points based on depletion level should be used for stocks where MSY-based reference points cannot be robustly estimated. In addition, the Resolution provides guidance on the HCR and incorporates a review and the concept of exceptional circumstances.

Resolution 22/03 *On a Management Procedure for Bigeye Tuna in the IOTC Area of Competence.* This Resolution provides a management procedure for the bigeye tuna stock managed by the IOTC with a view of maintaining the stock biomass in the green zone of the Kobe plot (not overfished and not subject to overfishing) while maximizing the average catch from the fishery and reducing the variation in the total allowable catch (TAC) between management periods.

Resolution 23/01 *On Management of Anchored Fish Aggregating Devices (AFADs).* This Resolution provides criteria for the management of Anchored FADs in the Indian Ocean. The Resolution provides a definition for AFAD, outlines the application of the CMM, and then provides specific measures for management. These include the submission of AFAD management plans, reporting of deployment, inspections at sea, location data sharing, and data elements. The Resolution further covers the site selection and construction of AFADs.

Resolution 23/02 *On Management of Drifting Fish Aggregating Devices (DFADs) in the IOTC Area of Competence.* This Resolution provides criteria for the management of Drifting FADs in the Indian Ocean. The Resolution provides a list of definitions associated with DFADs. It then specifies the requirement for a DFAD register and what data should be collected and included in such a register. Specific regulations for DFAD management (such as limits on numbers, deployments, activations etc) are provided as well as the requirement for the submission of DFAD management plans. The Resolution also specifies a DFAD closure period and calls for the SC to provide scientific advice and recommendations to inform the Commission on how this closure could best be implemented (seasonality, duration and possible effects on juvenile populations of tropical tunas). The Resolution further outlines; a DFAD monitoring system; measures for recovery and reporting of lost, discarded and abandoned DFADs; use of non-entangling and biodegradable DFADs; DFAD marking; Data reporting and analysis and lastly; limits on supply and support vessels.

Additional Resolutions were adopted during the 27th Session of the Commission, but these have yet to be formally distributed.

DISCUSSION

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

RECOMMENDATION

That the WPTT **NOTE** paper IOTC–2023–WPTT25–05 which aims to encourage the WPTT to review the existing Conservation and Management Measures (CMMs) relevant to tropical tunas, 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 A: Resolution 03/01 *On the limitation of fishing capacity of Contracting Parties and Cooperating Non-Contracting Parties.*

Appendix B: Resolution 05/01 *On Conservation and Management Measures for bigeye tuna.*

Appendix C: Resolution 14/02 *For the conservation and management of tropical tunas stocks in the IOTC area of competence*

- [Appendix D:](#) Resolution 19/02 *Procedures on a Fish Aggregating Devices (FADS) Management Plan.*
- [Appendix E:](#) Resolution 21/01 *On an Interim Plan for Rebuilding the Indian Ocean Yellowfin Tuna Stock in the IOTC Area of Competence*
- [Appendix F:](#) Resolution 21/03 *On Harvest Control Rules for skipjack tuna in the IOTC area of competence*
- [Appendix G:](#) Resolution 22/03 *On a Management Procedure for Bigeye Tuna in the IOTC Area of Competence.*
- [Appendix H:](#) Resolution 23/01 *On Management of Anchored Fish Aggregating Devices (AFADs).*
- [Appendix I:](#) Resolution 23/02 *On Management of Drifting Fish Aggregating Devices (DFADs) in the IOTC Area of Competence*

APPENDIX A**RESOLUTION 03/01****ON THE LIMITATION OF FISHING CAPACITY OF CONTRACTING PARTIES AND COOPERATING NON-CONTRACTING PARTIES****The Indian Ocean Tuna Commission (IOTC),**

RECALLING the adoption of FAO Agreement to Promote Compliance with International Conservation and Management Measures by Fishing Vessels on the High Seas;

RECOGNISING that paragraph 1 of the Resolution 99/1: 'On the Management of Fishing Capacity and on the Reduction of the Catch of Juvenile Bigeye Tuna by Vessels, including Flag of Convenience Vessels, Fishing for Tropical Tunas in the IOTC area of competence', adopted at the 4th Session of the Commission, stipulate that the 2000 IOTC Session would consider the limitation of the capacity of the fleet of large-scale tuna vessels (greater than 24 m LOA) to the appropriate level;

RECALLING the adoption by IOTC in 2001 of the Resolution 01/04 [superseded by [Resolution 14/01](#)] on limitation of fishing effort of non-Members of IOTC whose vessels fish bigeye tuna;

RECOGNISING that the IOTC Scientific Committee recommended that a reduction in catches of bigeye tuna from all gears should be implemented as soon as possible; that the stock of yellowfin tuna is being exploited close to, or possibly above MSY; and that the level of fishing effort of swordfish should not be increased;

RECOGNISING that FAO International Plan of Action for the Management of the Fishing Capacity (IPOA) provides, in its Objectives and Principles that "States and Regional Fisheries Organisations confronted with an overcapacity problem, where capacity is undermining achievement of long-term sustainability outcomes, should endeavour initially to limit at present level and progressively reduce the fishing capacity applied to affected fisheries";

TAKING INTO ACCOUNT the need to have due regard for the interests of all Members concerned, in conformity with the rights and obligations of those Members under international law and in particular, to the rights and obligations of developing countries of the Indian Ocean rim with respect to entry into the high-seas fisheries in the IOTC area of competence;

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

1. Contracting Parties and Cooperating Non-Contracting Parties (CPCs) which have more than 50 vessels on the 2003 IOTC Record of Vessels, shall limit in 2004 and following years, the number of their fishing vessels larger than 24 meters length overall (hereafter LSFVs) to the number of its fishing vessels registered in 2003 in the IOTC Record of Vessels¹.
2. This limitation of number of vessels shall be commensurate with the corresponding overall tonnage expressed in GRT (Gross Registered Tonnage) or in GT (Gross Tonnage) and, where vessels are replaced, the overall tonnage shall not be exceeded.
3. Other CPCs which have the objective of developing their fleets above those authorisations currently foreseen under administrative processes, will draw up, a fleet development plan in accordance with the provisions of Resolution 02/05 [superseded by Resolution 05/02, then Resolution 07/02, then Resolution 13/02, then Resolution 14/04, then by [Resolution 15/04](#)]. This Plan shall be submitted to the Commission for information and record at the 2004/05 Sessions and should define, *inter alia*, the type, size and origin of the vessels and the programming of their introduction into the fisheries.

¹ Including authorisations currently foreseen under administrative process

4. In relation to the foregoing, the Commission took note of the interests of the developing coastal States, in particular small island developing States and territories within the IOTC Convention Area [area of competence] whose economies depend largely on fisheries.

APPENDIX B**RESOLUTION 05/01
ON CONSERVATION AND MANAGEMENT MEASURES FOR BIGEYE TUNA****The Indian Ocean Tuna Commission (IOTC),**

RECOGNISING the need for action to ensure the achievement of the IOTC's objectives to conserve and manage tuna and tuna-like species in the IOTC area of competence;

RECALLING the adoption by IOTC of Resolution 01/04, [superseded by [Resolution 14/01](#)] in relation to the limitation of fishing capacity on bigeye tuna of Contracting Parties and Cooperating Non-Contracting Parties (CPC's);

ACKNOWLEDGING that the limitation of fishing capacity alone will not be sufficient to limit effort or total catch of tuna and tuna-like species, particularly bigeye tuna;

AWARE that due to illegal activity and underestimation of the total mortality of bigeye tuna the current assessment of the status of the stock is likely to be overly optimistic;

RECOGNISING that the IOTC Scientific Committee has recommended that a reduction in the catches of bigeye tuna from all fishing gears should be implemented as soon as possible;

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

1. Contracting and Cooperating Non-Contracting Parties (CPC's) shall limit their catch of bigeye tuna to their recent levels of catch reported by the IOTC Scientific Committee.
2. The Commission shall request Taiwan, Province of China to limit their annual bigeye tuna catch in the IOTC Area to 35,000 tonnes.
3. At the 10th Session of the Commission shall establish, for a three year period, interim catch levels for CPC's catching more than 1000t of bigeye tuna.
4. CPC's, including developing coastal states, in particular small island developing states and territories, with catches under 1000 tonnes who intend to substantially increase these catches will be allowed to submit 'Fleet Development Plans' during the 3 year interim period referred to in paragraph 3 above.
5. During this three year period the Commission shall develop a mechanism to allocate, for specific time periods, bigeye tuna quotas for all CPC's.
6. Future access to the tuna and tuna-like resources found within the area of competence of the IOTC will, in part, be determined on the level of responsibility shown by CPC's in relation to this measure.
7. The IOTC Scientific Committee be tasked to provide advice, including advice on;
 - the effects of different levels of catch on the SSB (in relation to MSY or other appropriate reference point);
 - the impact of misreported and illegal catch of bigeye tuna on the stock assessment and required levels of catch reduction; and
 - valuation of the impact of different levels of catch reduction by main gear types.
8. In relation to the foregoing, the Commission took note of the developing coastal states, in particular small island developing states and territories within the IOTC convention area [area of competence] whose economies depend largely on fisheries.

APPENDIX C**RESOLUTION 14/02****FOR THE CONSERVATION AND MANAGEMENT OF TROPICAL TUNAS STOCKS IN THE IOTC AREA OF COMPETENCE****The Indian Ocean Tuna Commission (IOTC),**

RECOGNISING that based on past experience in the fishery, the potential production from the resource can be negatively impacted by excessive fishing effort;

TAKING INTO ACCOUNT the available scientific information and advice, in particular the IOTC Scientific Committee conclusions whereby the yellowfin tuna stock might have been over or fully exploited and the bigeye tuna stock may have been fully exploited in recent years; RECOGNISING that during the 12th IOTC scientific meeting held in Seychelles from 30 November to 04 December 2009, the IOTC Scientific Committee recommended that yellowfin tuna and bigeye tuna catches should not exceed the MSY levels which have been estimated at 300,000 tonnes for yellowfin tuna and at 110,000 tonnes for bigeye tuna;

ACKNOWLEDGING that the implementation of a TAC without a quota allocation would result in an inequitable distribution of the catches and fishing opportunities among the IOTC Members and Cooperating Non-Contracting Parties (CPCs) and non-CPCs;

FURTHER RECOGNISING that the tuna artisanal fisheries sector needs strengthening in terms of catch statistics reporting in order to more closely follow the catch situations and notwithstanding improvement in the industrial fishery catch statistics reporting requirements;

NOTING the importance of applying the precautionary approach for the management of the tropical tuna and swordfish stock, in particular yellowfin tuna and bigeye tuna in the Indian Ocean;

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

1. CPCs shall implement the following action plan:
 - a) Establishment of an allocation system (Quota) or any other relevant measures based on the IOTC Scientific Committee recommendations for the main targeted species under the IOTC competence;
 - b) Advise on the best reporting requirement of the artisanal tuna fisheries and implementation of an appropriate data collection system.
2. This Resolution supersedes Resolution 12/13 *For the conservation and management of tropical tunas stocks in the IOTC area of competence.*

APPENDIX D
RESOLUTION 19/02
PROCEDURES ON A FISH AGGREGATING DEVICES (FADS)
MANAGEMENT PLAN

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

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- 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.

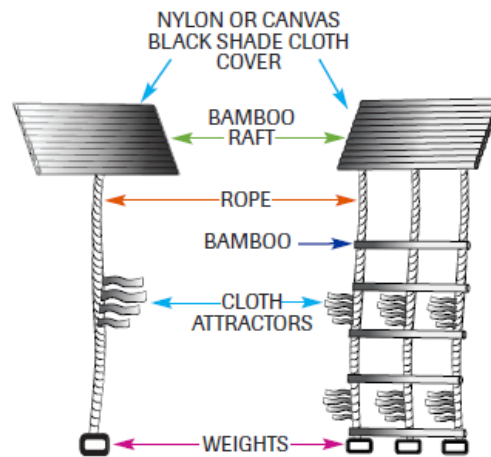
7. AFAD logbook template (data to be collected specified in Annex IV).

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).
- b) 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.

ANNEX V**PRINCIPLES FOR DESIGN AND DEPLOYMENT OF FADS****EXAMPLE OF NON-ENTANGLING FAD**

1. The surface structure of the FAD shall not be covered, or only covered with non-meshed material
2. If a sub-surface component is used, it shall not be made from netting but from non-meshed materials such as ropes or canvas sheets.

APPENDIX E**RESOLUTION 21/01
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(b), 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);

FURTHER RECOGNISING the need to ensure that conservation and management measures do not result in transferring, directly or indirectly, a disproportionate burden of conservation action onto developing States, Article 24(c) of 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 IOTC 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 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;

FURTHER CONSIDERING the management advice of the 23rd session of the Scientific Committee, that given the limitations and uncertainties in the stock assessment and the inability to use K2SM derived from the 2018 yellowfin tuna stock assessment, the catches to be reduced to a level at least below the C_{MSY} estimate (403,000MT) and the need to decrease the fishing mortality from the 2017 level in order to remove overfishing on the stock;

FURTHER CONSIDERING the issues raised in the 23rd session of the Scientific Committee regarding the estimated K2SM probabilities derived from the 2018 stock assessment, and that due to critical errors in projections and estimations in computing probabilities in the K2SM developed in 2018, the K2SM is not suitable to provide management advice;

FURTHER CONSIDERING the SC 2020 advice that Commission should ensure that CPCs take all necessary action to achieve the catch reductions in their fleets as per Resolution 19/01.

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 CPCs within the IOTC area of competence.

2. This resolution will be effective from 1 January 2022. 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

2022.

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. CPCs whose reported catches of yellowfin tuna for 2014 were above 5000t shall reduce their catches of yellowfin tuna by 21% compared to 2014 yellowfin tuna catch, except:
 - a.If those CPCs are Coastal Developing States, they shall reduce their catches of yellowfin tuna by 12% compared to 2014 yellowfin tuna catch;
 - b.If those CPCs are Small Island Developing States or Least Developed States, they shall reduce their catches of yellowfin tuna by 10% compared to 2014 yellowfin tuna catch.
6. CPCs whose reported catches of yellowfin tuna for 2014 were below 5000t and their average catches of yellowfin tuna for the period from 2017 to 2019 inclusive, were above 5000t, shall reduce their catches of yellowfin tuna by 21% compared to 2014 yellowfin tuna catch, except;
 - a.If those CPCs are Coastal Developing States, they shall reduce their catches of yellowfin tuna by 12% compared to average of 2017 – 2019 yellowfin tuna catch;
 - b.If those CPCs are Small Island Developing States or Least Developed States, they shall reduce their catches of yellowfin tuna by 10% compared to average of 2017 – 2019 or 2018 yellowfin tuna catch, whichever is higher.
7. CPCs whose reported catches of yellowfin tuna for 2014 were below 5000t and their average catches of yellowfin tuna for the period from 2017 to 2019 inclusive were between 2000t to 5000t, shall not exceed their maximum reported yellowfin tuna catches between 2017 to 2019.
8. CPCs whose reported catches of yellowfin tuna for 2014 were below 5000t and their average catches of yellowfin tuna for the period from 2017 to 2019 inclusive were below 2000t, shall not exceed their catches above 2000t
9. In respect of paragraph 8, and recalling paragraph 4, for conservation purposes three CPCs have agreed exceptionally for 2022 (or 1 year) not to exceed yellowfin tuna catches at different levels²
10. In applying the catch reductions in paragraph 5, Small Island Developing State CPCs and Least Developed State CPCs can either choose between catches of yellowfin tuna reported for either 2014, or 2015 or their average catches for the period from 2017 to 2019.
11. In applying the catch reductions in paragraph 5 for Distant Water Fishing CPCs, if the average yellowfin tuna catches between 2017 – 2019 were below 10,000t, CPCs shall reduce their yellowfin catch by 13% compared to 2014 levels.

² France (OT) 500t; Philippines 700t; and the United Kingdom 500t.

12. CPCs 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.
13. Any CPC who submits updated catch histories of yellowfin tuna in accordance with IOTC resolution 15/01 and verified by the secretariat and the IOTC Scientific Committee, shall have a right to access yellowfin tuna in accordance with the limits prescribed in the Resolution.

Over catch of annual limit

14. If over catch of an annual limit for a given CPC listed in paragraphs 5 to 11 occurs, catch limits for that CPC shall be reduced as follows:
- a. for over-catch of limits set forth in Resolution 19/01, in 2020 and/or 2021, 100% of that over-catch shall be deducted from following two years limit, and;
 - b. over-catch in 2022 and following years, 100% of that over-catch shall be deducted from the following two years' limit, unless;
 - c. over-catch for that CPC 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.
15. CPCs that are subject to catch reductions due to over-catch shall inform the Commission via the IOTC Compliance Committee, corrective actions taken by the CPC to adhere to the prescribed catch levels, in their implementation Report.
16. The revised limits from paragraph 14 will apply in the following year and CPCs compliance shall be assessed against the revised limits reported to the IOTC Compliance Committee.
17. The tropical tuna data submitted by CPCs in accordance 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)”* shall be reviewed by the Secretariat and discussed by the Scientific Committee for possible inconsistencies. In such cases, the Scientific Committee shall provide the rationale of the detected inconsistencies and justify the choice of the best solution available with regard the scientific analysis to be carried out. Data used for catch limit calculations shall be based on the data reviewed, including possible estimates, by the Secretariat.

Supply Vessels

18. CPCs shall gradually reduce supply vessels³ in purse seine operations targeting tropical tuna, by 31 December 2022 as specified below in (a) and (b). Flag States shall submit the status of reducing the use of supply vessel as part of the report of Implementation to the Compliance Committee.
- a. From 1 January 2022 to 31 December 2024: 3 supply vessels in support of not less than 10 purse seiners, all of the same flag State⁴.
 - b. No CPC is allowed to register any new or additional supply vessel on the IOTC Record of Authorized Vessels-

³ For the purpose of this resolution, the term “supply vessel” includes “support vessel”

⁴ The subparagraph (a) shall not apply to CPCs which use only one supply vessel

19. 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.
20. Complementary to Resolution 15/08 and to Resolution 15/02, CPC/flag States shall report annually before the 1st of 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.

Gillnet

21. 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”*, noting that large-scale driftnets are prohibited in the IOTC Area of Competence from 1 January 2022.
22. CPCs shall set their gillnets at 2m depth from the surface in gillnet fisheries by 2023 to mitigate ecological impacts of gillnets.
23. 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.
24. CPCs shall report the level of implementation of paragraphs 21-23 to the Commission via the Compliance Committee.

Administration

25. The IOTC Secretariat under advice of the Scientific Committee shall prepare and a table of allocated catch limits disaggregated as per the conditions set out in paragraphs 5-11 for following year, in December of the current year.
26. For the purposes of the implementation of this resolution, each CPC shall, by 15 February of the following year, notify to the Executive Secretary the list of vessels, which have fished for yellowfin tuna in the IOTC area of competence for the preceding year.
27. The IOTC Secretariat shall report each year these lists of active vessels to the IOTC Compliance Committee and to the IOTC Scientific Committee in the form of aggregated statistics concerning fishing fleets capacity metrics.
28. 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.
29. Each year, the IOTC 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.

30. The IOTC 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.
31. The IOTC Scientific Committee and its Working Parties shall prioritise the work on the yellowfin tuna management procedure and to provide advice to the Technical Committee on Management Procedures and to enable the Commission to adopt the yellowfin tuna management procedure at the earliest opportunity.
32. The Scientific Committee via its Working Party on Tropical Tunas shall undertake 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.
33. This Resolution supersedes IOTC Resolution 19/01 *On an interim plan for rebuilding the Indian Ocean yellowfin tuna stock*.

APPENDIX F
RESOLUTION 21/03**ON HARVEST CONTROL RULES FOR SKIPJACK TUNA IN THE IOTC AREA OF
COMPETENCE**

Keywords: Skipjack tuna; Reference Points; Harvest Control Rules; Precautionary Approach; Management Strategy Evaluation.

The Indian Ocean Tuna Commission (IOTC),

NOTING Article V, paragraph 2(c), of the IOTC Agreement is to adopt, in accordance with Article IX and on the basis of scientific evidence, Conservation and Management Measures to ensure the conservation of the stocks covered by the Agreement;

BEING MINDFUL of Article XVI of the IOTC Agreement regarding the rights of Coastal States, Article 87 and 116 of the UN Convention of the Law of the Sea regarding the right to fish on the high seas and of 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) regarding recognition of the special requirements of developing states;

RECOGNISING Resolution 12/01 *On the implementation of the precautionary approach* calls on the Indian Ocean Tuna Commission to implement and apply the precautionary approach, in accordance Article 6 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);

RECOGNISING the ongoing discussions on allocation and the need to avoid prejudicing future decision of the Commission;

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 as highlighted in the SIDS Accelerated Modalities of Action (SAMOA) Pathway;

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;

TAKING INTO ACCOUNT the need to have due regard for the interests of all Members concerned, in conformity with the rights and obligations of those Members under international law and in particular, to the rights and obligations for developing countries;

RECALLING Article 6, paragraph 3(b) of UNFSA that calls on States to implement the precautionary approach using the best scientific information available, using stock-specific reference points and outlining the action to be taken if they are exceeded;

FURTHER RECALLING that Article 7.5.3 of the FAO Code of Conduct for Responsible Fisheries also recommends the implementation of stock specific target and limit reference points, inter alia, on the basis of the precautionary approach;

ACKNOWLEDGING that implementing pre-agreed harvest strategies including harvest control rules is considered a critical component of modern fisheries management and international best practices for fisheries management;

FURTHER NOTING that a harvest control rule encompasses a set of well-defined, pre-agreed rules or actions used for determining a management action in response to changes in indicators of stock status with respect to reference points;

NOTING that the Scientific Committee at its 17th Session, recommended the Commission consider an alternative approach to identify biomass limit reference points, such as those based on biomass depletion levels, when the MSY-

based reference points are difficult to estimate. In cases where MSY-based reference points can be robustly estimated, limit reference points may be based around MSY;

FURTHER NOTING that the Scientific Committee also recommended that in cases where MSY-based reference points cannot be robustly estimated, biomass limit reference points be set at 20% of unfished levels ($B_{LIM} = 0.2B_0$);

ACKNOWLEDGING that the IOTC Scientific Committee has initiated a Commission requested process leading to a management strategy evaluation (MSE) process to improve upon the provision of scientific advice on HCRs;

RECALLING obligations and agreements under Resolutions 12/02⁵, 15/01⁶, 15/02⁷, and 15/10⁸;

RECOGNIZING the SC20 advice that the total catches of skipjack tuna in 2018 were 30% larger than the resulting catch limit from the skipjack HCR for the period 2018-2020 (470,029 t);

RECALLING that the 2019 skipjack catch from the Indian Ocean was 547,248t and the maximum catch limit calculated applying the HCR specified in Resolution 16/02 is 513,572t for the period 2021-2023;

FURTHER RECOGNIZING that reaching the management objectives defined in Resolution 16/02 requires that the catch limits adopted by the skipjack HCR are implemented effectively and the need for the Commission to ensure that catches of skipjack tuna during this period do not exceed the agreed limit.

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

Objectives

- 1.To maintain the Indian Ocean Tuna Commission skipjack tuna stock in perpetuity, at levels not less than those capable of producing maximum sustainable yield (MSY) as qualified by relevant environmental and economic factors including the special requirements of Developing Coastal States and Small Island Developing States in the IOTC area of competence and considering the general objectives identified in Resolution 15/10 (or any subsequent revision).
- 2.To use a pre-agreed harvest control rule (HCR) to maintain the skipjack tuna stock at, or above, the target reference point (TRP) and well above the limit reference point (LRP), specified in Resolution 15/10 (or any subsequent revision).

Reference Points

- 3.Consistent with paragraph 2 of Resolution 15/10, the biomass limit reference point, B_{lim} , shall be 20% of unfished spawning biomass⁹ (i.e. $0.2B_0$).
- 4.Consistent with paragraph 3 of Resolution 15/10, the biomass target reference point, B_{targ} , shall be 40% of unfished spawning biomass (i.e. $0.4B_0$).

⁵ 12/02: Data Confidentiality, policy and procedures

⁶ 15/01: On the recording of catch and effort data by fishing vessels in the IOTC Area of competence

⁷ 15/02: Mandatory statistical reporting requirements for IOTC Contracting Parties and Cooperating Non- Contracting Parties (CPCs)

⁸ 15/10: On Target and Limit Reference Points and a decision framework

⁹ The symbol B is used to refer to spawning biomass, the total mass of mature fish, i.e. B_0 , B_{lim} , B_{targ} and B_{curr} all refer to different levels of spawning biomass.

5. The HCR described in paragraphs 6–12 seeks to maintain the skipjack tuna stock biomass at, or above, the target reference point while avoiding the limit reference point.

Harvest Control Rule (HCR)

6. The skipjack tuna stock assessment shall be conducted every three (3) years, with the next stock assessment to occur in 2023. Estimates of 7(a–c) shall be taken from a model-based stock assessment that has been reviewed by the Working Party on Tropical Tunas and endorsed by the Scientific Committee via its advice to the Commission.

7. The skipjack tuna HCR shall recommend a total annual catch limit using the following three (3) values estimated from each skipjack stock assessment. For each value, the reported median from the reference case adopted by the Scientific Committee for advising the Commission shall be used.

- a) The estimate of current spawning stock biomass (B_{curr});
- b) The estimate of the unfished spawning stock biomass (B_0);
- c) The estimate of the equilibrium exploitation rate (E_{targ}) associated with sustaining the stock at B_{targ} .

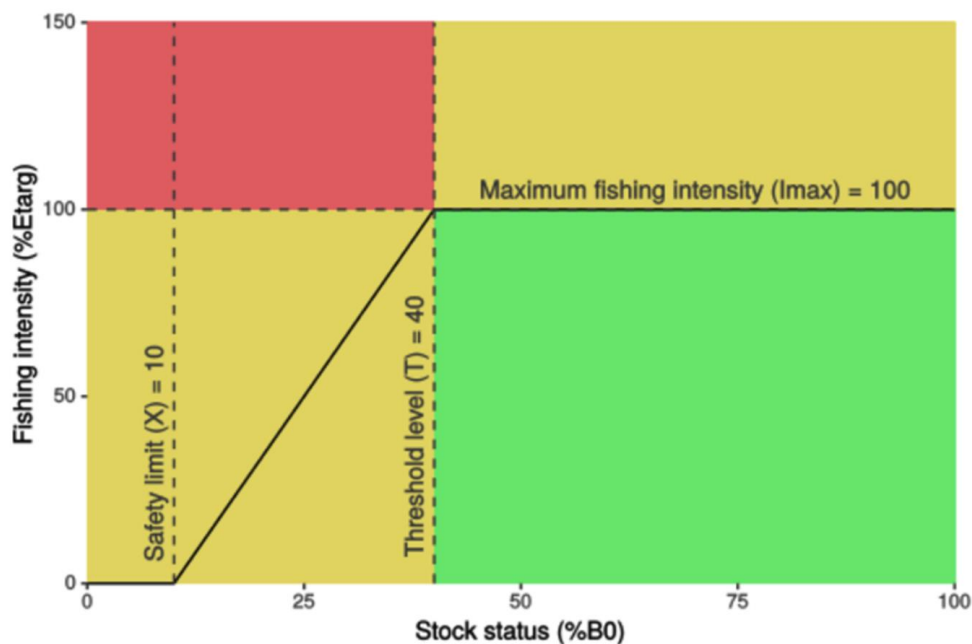
8. The HCR shall have five control parameters set as follows:

- b) Threshold level, the percentage of B_0 below which reductions in fishing mortality are required, $B_{thresh} = 40\%B_0$. If biomass is estimated to be below the threshold level, then fishing mortality reductions, as output by the HCR, will occur.
- c) Maximum fishing intensity, the percentage of E_{targ} that will be applied when the stock status is at, or above, the threshold level $I_{max} = 100\%$. When the stock is at or above the threshold level, then fishing intensity (I) = I_{max}
- d) Safety level, the percentage of B_0 below which non-subsistence catches are set to zero i.e. the non-subsistence¹⁰⁶ fishery is closed $B_{saftey} = 10\%B_0$.
- e) Maximum catch limit (C_{max}), the maximum recommended catch limit = 900,000t. To avoid adverse effects of potentially inaccurate stock assessments, the HCR shall not recommend a catch limit greater than C_{max} . This value is based upon the estimated upper limit of the MSY range in the 2014 skipjack stock assessment.
- f) Maximum change in catch limit (D_{max}), the maximum percentage change in the catch limit = 30%. To enhance the stability of management measures the HCR shall not recommend a catch limit that is 30% higher, or 30% lower, than the previous recommended catch limit.

9. The recommended total annual catch limit shall be set as follows:

¹⁰ 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.

- a) If the current spawning biomass (B_{curr}) is estimated to be at or above the threshold spawning biomass i.e., $B_{curr} \geq 0.4B_0$, then the catch limit shall be set at $[I_{max} \times E_{targ} \times B_{curr}]$
- b) If the current spawning biomass (B_{curr}) is estimated to be below the threshold biomass i.e., $B_{curr} < 0.4B_0$, but greater than the safety level i.e., $B_{curr} > 0.1B_0$, then the catch limit shall be set at $[I \times E_{targ} \times B_{curr}]$. See Table 1 in Appendix 1 for values of fishing intensity (I) for specific B_{curr}/B_0 .
- c) If the spawning biomass is estimated to be at, or below, the safety level, i.e. $B_{curr} \leq 0.1B_0$ then the catch limit shall be at 0 for all fisheries other than subsistence fisheries.
- d) In the case of (a) or (b), the recommended catch limit shall not exceed the maximum catch limit (C_{max}) and shall not increase by more than 30% or decrease by more than 30% from the previous catch limit.
- e) In the case of (c) the recommended catch limit shall always be 0 regardless of the previous catch limit.
10. The HCR described in 8(a-e) produces a relationship between stock status (spawning biomass relative to unfished levels) and fishing intensity (exploitation rate relative to target exploitation rate) as shown below (See Table 1 in **Appendix 1** for specific values):



11. The catch limit shall by default, be implemented in accordance with the allocation scheme agreed for skipjack tuna by the Commission. In the absence of an allocation scheme, the HCR shall be applied as follows:
- a) If the stock is at or above the Threshold level (i.e., $B_{curr} \geq 0.4B_0$), then the HCR shall establish an overall catch limit and catches of skipjack tuna for any given year shall be maintained at or below the overall catch limit established by the HCR.
- b) If the stock falls below the Threshold level (i.e., $B_{curr} < 0.4B_0$), the fishing mortality reductions shall be implemented proportionally by CPCs for catches over 1 percent of the catch limit established by the HCR with due consideration to the aspirations and special requirements of Developing Coastal States and Small Island Developing States.
- c) The Commission may consider to develop and adopt Conservation and Management Measure(s) to ensure catches of skipjack tuna are maintained at or below the overall catch limit established by the

HCR and to apply fishing mortality reductions if the stock falls below the Threshold level (i.e. $B_{curr} < 0.4B_0$), with due consideration to the aspirations and special requirements of Developing Coastal States and Small Island Developing States, no later than the annual session of the IOTC in 2022.

- d) This paragraph shall not pre-empt or prejudice future allocation negotiations.

Review and exceptional circumstances

12. The HCR, including the control parameters, will be reviewed through further Management Strategy Evaluation (MSE).
13. In the case that the estimated spawning biomass falls below the limit reference point, the HCR will be reviewed, and consideration given to replacing it with an alternative HCR specifically designed to meet a rebuilding plan as advised by the Commission.
14. The recommended total annual catch produced by the HCR will be applied continuously as set forth in paragraph 11 above, except in case of exceptional circumstances, such as caused by severe environmental perturbations. In such circumstances, the Scientific Committee shall advise on appropriate measures.

Scientific Advice

15. The IOTC Scientific Committee shall:
- a) Include the LRP and TRP as part of any analysis when undertaking all future assessments of the status of the IOTC skipjack tuna stock.
 - b) Undertake and report to the Commission a model-based skipjack tuna stock assessment every three (3) years, commencing with the next stock assessment in 2023.
 - c) Undertake a programme of work to further refine Management Strategy Evaluation (MSE) for the IOTC skipjack tuna fishery as required in paragraph 12 including, but not limited to,
 - i. Refinement of operating model(s)/ used,
 - ii. Alternative management procedures,
 - iii. Refining performance statistics.

Final Clause

16. The Commission shall review this measure at its annual session in 2022, or before if there is reason and/or evidence to suggest that the skipjack tuna stock is at risk of breaching the LRP.

Appendix 1

Table 1. Values of fishing intensity for alternative levels of estimated stock status (B_{curr}/B_0) produced by the HCR

Stock status (B_{curr}/B_0)	Fishing Intensity (I)		Stock status (B_{curr}/B_0)	Fishing Intensity (I)
At or above 0.40	100%		0.24	46.7%
0.39	96.7%		0.23	43.3%
0.38	93.3%		0.22	40.0%
0.37	90.0%		0.21	36.7%
0.36	86.7%		0.20	33.3%
0.35	83.3%		0.19	30.0%
0.34	80.0%		0.18	26.7%
0.33	76.7%		0.17	23.3%
0.32	73.3%		0.16	20.0%
0.31	70.0%		0.15	16.7%
0.30	66.7%		0.14	13.3%
0.29	63.3%		0.13	10.0%
0.28	60.0%		0.12	6.7%
0.27	56.7%		0.11	3.3%
0.26	53.3%		0.10 or below	0%
0.25	50.0%			

APPENDIX G

RESOLUTION 22/03

ON A MANAGEMENT PROCEDURE FOR BIGEYE TUNA IN THE IOTC AREA OF COMPETENCE

Keywords: *Bigeeye tuna, Management Procedure, Harvest Strategy, Target reference point, MSY.*

The Indian Ocean Tuna Commission (IOTC),

HAVING responsibility for the conservation and optimum utilization of tuna and tuna-like species in the Indian Ocean;

RECOGNISING the need for action to ensure the achievement of IOTC objectives to conserve and manage tuna resources in the IOTC area of competence;

RECOGNISING the adopted management objectives of the Commission set out in Resolution 15/10 are to: 1) maintain the biomass at or above levels required to produce MSY or its proxy, 2) maintain the fishing mortality rate at or below F_{MSY} or its proxy, and 3) avoid the biomass being below B_{LIM} and the fishing mortality rate being above F_{LIM} ;

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

RECOGNISING the special requirements of developing States, particularly Small Island developing States, in Article 24 of the Agreement for the Implementation of the Provisions of the United Nations Convention on the Law of the Sea of 10 December 1982 relating to the Conservation and Management of Straddling Fish Stocks and Highly Migratory Fish Stocks (UNFSA);

RECOGNISING *Resolution 12/01* On the implementation of the precautionary approach calls on the Indian Ocean Tuna Commission to implement and apply the precautionary approach, in accordance with Article 6 of UNFSA;

RECALLING *Resolution 15/10 On Target and Limit Reference Points and a Decision Framework*, which identifies 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; and identifies reference points for IOTC stocks including bigeye tuna;

RECOGNIZING the intent of the Commission to adopt management procedures aimed at achieving the objectives of the IOTC Agreement (Resolution 15/10) aided by advice of the Technical Committee on Management Procedures (TCMP), as established in *Resolution 16/09* and as further expounded in the *Schedule of work for the development of management procedures for key species in the IOTC Area*;

ACKNOWLEDGING the Scientific Committee advice that the most recent stock assessment in 2019 determined bigeye tuna is not overfished but subject to overfishing;

FURTHER CONSIDERING the endorsement of the bigeye tuna operating model by the 24th meeting of the Scientific Committee (December 2021, SC24) and the SC24's advice that the key technical work (management strategy evaluation) required to test the performance of candidate management procedures had been completed;

FURTHER CONSIDERING the advice and recommendations of the 5th Session of the Technical Committee on Management Procedures (TCMP) regarding a management procedure for bigeye tuna which noted that both candidate management procedures for bigeye tuna presented to the TCMP achieved the management objective and recommended the 26th Session of the Commission discuss and select a candidate management procedure for adoption.

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

1. A management procedure for the bigeye tuna stock managed by the IOTC with a view of maintaining the stock biomass in the green zone of the Kobe plot (not overfished and not subject to overfishing) while maximizing the average catch from the fishery and reducing the variation in the total allowable catch (TAC) between management periods.

Management procedure

2. The adopted management procedure for bigeye tuna known as MP1 Harvest is described in Annex I (MP).
3. Consistent with the adopted management objectives of the Commission, the management procedure is designed to achieve:
 - a) a 60% probability that the bigeye tuna spawning stock biomass achieves the target reference point of SB_{MSY}^{11} by 2034-2038;
 - b) the bigeye tuna spawning stock biomass avoids breaching the interim limit reference point specified in Resolution 15/10 with a high probability;
 and operates with the following constraint:
 - c) the maximum increase or decrease in the TAC shall be 15% relative to the previous TAC.

Total Allowable Catch setting

4. The Scientific Committee shall run the MP and advise the Commission of the outcome, including a recommended TAC and any advice on exceptional circumstances in accordance with the Commission endorsed Guidelines for the Provisions of Exceptional Circumstances for IOTC MPs as documented in Appendix 6a of IOTC-2021-SC24-R.
5. The Commission shall adopt the TAC based on the outcome of the MP, unless the Scientific Committee identifies exceptional circumstances that require consideration of alternate management actions to be taken by the Commission.
6. The first TAC derived from the MP shall apply in 2024 and 2025. After 2025, the TAC shall apply in each of the subsequent three years following the year it is set by the Commission¹².
7. The schedule for setting and applying the TAC, beginning the calendar year immediately following adoption of this Resolution, is shown in Annex II.
8. If exceptional circumstances are triggered, the pre-existing TAC shall remain in place until a new TAC or other management action is agreed by the Commission.

TAC allocation

9. Allocation of the TAC among CPCs will take place according to a process agreed external to this measure.
10. The Commission will develop a mechanism to constrain catch to the MP derived TAC for bigeye tuna no later than 2025, if an allocation scheme has not yet been agreed and implemented by the Commission.

¹¹ The spawning stock biomass associated with achieving maximum sustainable yield.

¹² E.g. the Scientific Committee runs the MP in 2022, the TAC is set by the Commission in 2023, the TAC applies in 2024 and 2025. The Scientific Committee runs the MP in 2024, the TAC is set by the Commission in 2025, the TAC applies from 2026-2028.

Review

11. A review of performance of the MP by the Commission and its subcommittees is to occur in 2030. The aim of the review is to ensure the MP is performing as expected and whether there are any conditions that warrant reconditioning the operating models, retuning the existing MP, or consideration of alternate candidate MPs and a new full management strategy evaluation.
12. The Scientific Committee is requested to review, and if necessary, further develop and refine (not later than 2024), the exceptional circumstances guidelines (adopted by SC24 and S26), taking into account, *inter alia*, the need for an appropriate balance between specificity versus flexibility in defining exceptional circumstances, and the appropriate level of robustness to ensure that exceptional circumstances are triggered only when necessary.
13. The IOTC, through the Technical Committee on Management Procedures, is requested to review the need for, and if necessary, develop at latest by 2025, guidance on a range of appropriate management responses should those exceptional circumstances be found to occur.

ANNEX I

DESCRIPTION AND FORMULAE FOR CALCULATING TACS FOR MP1_HARVEST

MP1 Harvest has two data inputs: total catch biomass and spatially aggregated longline CPUE from 1980 to the most recent year of catch data. It then fits a Pella-Tomlinson biomass dynamic model to the CPUE data given the catch biomass. Estimated parameters are carrying capacity (K), intrinsic rate of increase (r), initial biomass depletion (δ), the production curve shape parameter (m), and finally annual biomass B and its stochastic variability σ_B . From these parameters we derive the key variables used in the harvest control rule (HCR):

1. Ratio of fishing mortality to the value which produces MSY (F_{MSY} ratio)
2. Relative biomass or depletion: B/K

The HCR is a simple hockey stick type: for biomass depletion above 0.4 the HCR multiplier (HCR_{mult}) is 1, it decreases to (almost) zero linearly by a biomass depletion of 0.1. The overall fishing mortality used to estimate the TAC is calculated as follows: F_{MSY} ratio x HCR_{mult} x tuning parameter (F_{mult}). This fishing mortality is used in conjunction with the estimated biomass B to calculate the new TAC. A symmetric maximum change of 15% is then applied to calculate the actual recommended TAC. The main suite of equations that define the HCR are as follows:

$$HCR_{mult} = 1 \text{ if } \frac{B_y}{K} \geq 0.4$$

$$HCR_{mult} = \frac{\frac{B_y}{K} - 0.1}{0.3} \text{ if } 0.1 < \frac{B_y}{K} < 0.4$$

$$HCR_{mult} = 0.0001 \text{ if } \frac{B_y}{K} \leq 0.1$$

$$TAC_{new} = B_y(1 - \exp(-F_{mult} \times HCR_{mult} \times F_{MSY} \text{ ratio}))$$

DATA SPECIFICATION

The input data for MP1_Harvest are:

- b) Total catches of bigeye tuna in the IOTC Area of Competence. These are collated by the IOTC Secretariat and prepared annually for the IOTC Working Party on Tropical Tuna. Data used are from 1980 to the most recent year of data available.
- c) Standardised and spatially aggregated longline catch per unit effort (CPUE). These are derived from the joint standardisation analysis approach described in Hoyle *et al* (2019)¹³ applied to catch and effort data from 1980 to the most recent year of data available.

¹³ Hoyle, S., Chang, S.T, Fu, D., Kim, D.N., Lee, S.I., Matsumoto, T., Chassot, E., Yeh, Y.M. 2019. Collaborative study of bigeye and yellowfin tuna CPUE from multiple Indian Ocean longline fleets in 2019, with consideration of discarding. IOTC–2019–WPM10–16.

ANNEX II
SCHEDULE FOR MP IMPLEMENTATION

IOTC COMMITTEE	2022	2023	2024	2025	2026	2027	2028	2029
Commission (May/June)	Select and adopt BET MP	Annual Review of SC advice						
		Set TAC (2024-2025)		Set TAC (2026-2028)				Set TAC (2029-2031)
WPTT and WPM (Oct)	Collate catch data and CPUE series used in MP		Collate data used in MP			Collate data used in MP		
	Consider exceptional circumstances (EC), advise SC		Consider EC			Consider EC		
SC (Dec)	Run MP		Run MP			Run MP		
	Assess* stock status				Assess stock status			Assess stock status
	Annual Review of Exceptional Circumstances							
	Provide TAC advice to the Commission		Provide TAC advice			Provide TAC advice		

- The assessment of stock status has a distinct role and purpose from the management procedure and is not used for TAC advice. It is included in this schedule to identify best practice in the timing of running of the assessment, i.e. in the year after MP TAC decisions have been made.

APPENDIX H

RESOLUTION 23/01

ON MANAGEMENT OF ANCHORED FISH AGGREGATING DEVICES (AFADs)

Keywords: Precautionary Approach, anchored FADs

The Indian Ocean Tuna Commission (IOTC)

BEARING IN MIND that Article 5 of 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) requires coastal States and States fishing 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, as well as information from national and international research programmes;

NOTING that the United Nations Food and Agricultural Organization (FAO) Code of Conduct for Responsible Fisheries 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;

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

COGNIZANT that the operational aspects of anchored FADS and drifting FADS are very different and therefore that the requirements of drifting FAD management, such as those relating to the materials used in FAD construction, monitoring frequency and reporting, would be incompatible with the normal operation of anchored FADS.

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

Definitions

1. 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 and tuna like species for consequent capture.
- b. Anchored Fish Aggregating Devices (AFADs) means a FAD tethered to the bottom of the ocean, usually consisting of a buoy, and is anchored to the bottom of the ocean.

Applications

- 2. This Resolution applies to all CPCs that deploy AFADs for the purpose of fishing for tuna and tuna like species under the IOTC mandate with the exception of recreational fisheries, and without prejudice or undermining the sovereign right of the coastal States and its existing national regulation.
- 3. This resolution shall enter into force on 1 January 2024.

AFAD management

- 4. CPCs shall develop an AFAD Management Plan in accordance with the Guidelines in Annex I and shall submit this AFAD Management Plan to the IOTC Executive Secretary by 1 January 2024.
- 5. AFAD Management Plans shall be reviewed against the Guidelines in Annex I, by the IOTC Compliance Committee and by the IOTC Scientific Committee each in their respective role with the objective to provide advice to CPCs on areas of improvement.

6. CPCs shall submit to the Commission, through the Annual Report of Implementation their progress of their AFAD management plans, including, if necessary, reviews of the previously submitted management plans.
7. Until a scheme to operationalise the FAO Voluntary Guidelines on the Marking of Fishing Gear (VGMFG) is developed, CPCs shall ensure that their vessels only use AFADs that are permanently marked with a Unique National Identification (UNI) number that identifies either the CPC or the vessel(s) that the AFAD belongs to (which ever applicable). The UNI number shall be clearly and permanently marked on the buoy of the AFAD.
8. The details of the new AFADs deployed within the EEZ of the CPCs (date of deployment, GPS position and the UNI number) shall be reported to the IOTC within 21 days of deployment of the AFADs, and its data confidentiality shall be maintained by the Secretariat. CPCs shall also maintain a register of deployed, lost, abandoned, and discarded AFADs and report this data to the IOTC Executive Secretary in their annual Implementation Report.
9. CPCs shall conduct inspections at sea to ensure that the AFADs are clearly and permanently marked with UNI number. CPCs with limited capacity to undertake at sea inspections may implement port inspections to ensure that the AFADs deployed are constructed and marked as per the requirements specified in this Resolution. CPCs shall communicate the number and outcome of inspections (at sea or in port) in their Annual Implementation Report.
10. The AFAD location data provided by the CPCs as required by paragraph 8 of this Resolution shall only be used for the purposes of the Scientific Committee and relevant Working Parties and should not be publicly shared or circulated for any other purpose.
11. CPCs shall submit the data elements provided in Annex II to the IOTC Executive Secretary, consistent with the IOTC standards for the provision of catch and effort data, and this data shall be made available for analysis to the IOTC Scientific Committee on the aggregation level set by 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 requirements for IOTC Members and Cooperating Non-Contracting Parties (CPC's)* (or any subsequent superseding Resolutions), and under the confidentiality rules set by Resolution 12/02 *Data Confidentiality Policy and Procedures* (or any subsequent superseding Resolution).

Site selection and construction of AFADs

12. CPCs shall require that their flag vessels deploying new AFADs or replacing existing ones, take into account the nature and profile of the sea bottom when choosing a site and, where possible, avoid sites with steep slopes to minimise the risk of AFAD loss.
13. CPCs shall ensure that the upper floatation of AFADs is suitable for offshore, high current deployments by using designs which are streamlined to reduce drag and resistance to currents and waves.
14. CPCs shall ensure that only non-entangling and non-mesh materials are used in the sub-surface aggregates of AFADs.
15. CPCs shall encourage to construct AFADs from materials that will ensure increased longevity so that they continue to retain their integrity for the longest lifespan possible. Where sub-surface aggregators are attached to the mooring line of AFADs, CPCs should ensure that these aggregators are constructed from bio-degradable materials.

16. The IOTC Executive Secretary in consultation with the Scientific Committee shall develop a best practice guideline for construction of AFADs and submit it to the Commission for adoption no later than the 29th Annual Session of the IOTC.
17. The IOTC Scientific Committee shall analyse further information, when available, and provide advice on existing, additional or alternative AFAD management options for sustainable fisheries.
18. The IOTC Scientific Committee shall, no later than at its annual session in 2025, provide a set of relevant indicators that would allow monitoring the effects of AFAD fisheries and assessing the efficiency of existing/additional/alternative AFAD management options.
19. The IOTC Scientific Committee shall provide scientific advice by assessing the impact of fishing using AFADs on juvenile tuna mortality and provide advice to the Commission.

ANNEX 1: AFAD Management Plans

AFAD Management Plans shall include:

1. An objective
2. Scope:
 - Description of its application with respect to:
 - a) Vessel types
 - b) AFAD numbers and/or AFAD beacon numbers to be deployed (per AFAD type)
 - c) reporting and/or recording procedures for AFAD deployments
 - d) plans for monitoring and retrieval of lost AFADs
 - e) 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) At-sea 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)
 - b) AFAD markings and identifiers, including AFAD beacons, if any
 - c) lighting requirements, if any
 - d) radar reflectors, if any
 - e) radio buoys, if any (requirement for serial numbers)
 - f) satellite transceivers, if any (requirement for serial numbers)
 - g) echo sounder, if any
5. Applicable areas:
 - a) 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. Methodologies for recording and reporting data specified in Annex II

Annex II: DATA COLLECTION FOR AFADs

- a) Any fishing activity around an AFAD including catch and bycatch, whether retained or discarded dead or alive.

- b) For each activity on an AFAD (including 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 national identification number, beacon ID or any information allowing to identify the owner).

APPENDIX I**RESOLUTION 23/02****ON MANAGEMENT OF DRIFTING FISH AGGREGATING DEVICES (DFADS) IN THE IOTC AREA OF COMPETENCE**

Keywords: DFAD, FAD management, FAD registry, FAD limits, FAD closure period, FAD monitoring system.

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) was adopted in conscience of the need to avoid adverse impacts on the marine environment, preserve biodiversity, maintain the integrity of marine ecosystems and minimise the risk of long-term or irreversible effects of fishing operations;

RECALLING that Articles 5 and 6 of the UNFSA require States to apply the precautionary approach widely to conservation, management and exploitation of highly migratory fish stocks in order to protect the living marine resources and preserve the marine environment;

RECALLING that, in applying the precautionary approach, Article 6 of the UNFSA requires States to be more cautious when information is uncertain, unreliable or inadequate and prohibits the use of an absence of adequate scientific information as a reason for postponing or failing to take conservation and management measures, and that this is reiterated in the United Nations Food and Agricultural Organization (FAO) Code of Conduct for Responsible Fisheries;

RECALLING that, in applying the precautionary approach, Article 6 of the UNFSA requires States to take into account, inter alia, uncertainties relating to the size and productivity of the stocks, levels and distribution of fishing mortality and the impact of fishing activities on non-target and associated or dependent species, as well as existing and predicted oceanic, environmental and socio-economic conditions;

RECALLING that Article 5 of the UNFSA requires States to assess the impacts of fishing, other human activities and environmental factors on target stocks and species belonging to the same ecosystem or associated with or dependent upon the target stocks and to adopt, where necessary, conservation and management measures for species belonging to the same ecosystem or associated with or dependent upon the target stocks, with a view to maintaining or restoring populations of such species above levels at which their reproduction may become seriously threatened;

BEARING IN MIND that Article 5 of the UNFSA requires 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, as well as information from national and international research programmes, and that the FAO Code of Conduct for Responsible Fisheries 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;

MINDFUL of the call upon States, either individually, collectively or through regional fisheries management organisations and arrangements in United Nations General Assembly Resolution 76/71 on Sustainable fisheries of 2021 to collect the necessary data in order to evaluate and closely monitor the use of large-scale fish aggregating devices (FADs) and other devices, 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;

RECALLING that Articles 192 and 194 of the United Nations Convention on the Law of the Sea (UNCLOS) require States to protect and preserve the marine environment and to take, individually or jointly as appropriate, all measures consistent with UNCLOS that are necessary to prevent, reduce and control pollution of the marine environment from any source, and that these measures shall include those necessary to protect and preserve rare or fragile ecosystems as well as the habitat of depleted, threatened or endangered species and other forms of marine life;

RECOGNISING that, in accordance with the UNFSA, FADs under the competence of IOTC must be managed to ensure the sustainability of fishing operations and to avoid adverse impacts on the marine environment, preserve biodiversity, maintain the integrity of marine ecosystems and minimise the risk of long-term or irreversible effects of fishing operations;

CONCERNED of the impact of Abandoned, Lost or Discarded Fishing Gear (ALDFG) and plastic residues in the ocean greatly affecting marine life and the need to facilitate the identification and recovery of such gear;

NOTING that releasing fishing devices into the water, such as FADs, does not contravene to the International Convention for the Prevention of Pollution from Ships (MARPOL) Annex V or the Convention on the Prevention of Marine Pollution by Dumping of Wastes and Other Matter (London Convention) and the Protocol to the Convention on the Prevention of Marine Pollution by Dumping of Wastes and Other Matter (London Protocol) as long as such device is deployed with the intention of later retrieval;

RECOGNISING that, in accordance with MARPOL Annex V and the London Convention and Protocol, FADs under the competence of the IOTC must be managed to ensure that they are exclusively deployed with the intention of later retrieval and that they are not abandoned at sea except in situations of force majeure;

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;

GIVEN that the activities of supply and support vessels and the use of Drifting Fish Aggregating Devices (DFADs) form part of the fishing effort exerted by the purse seine fleet;

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

CONSIDERING the concerns of the 2nd IOTC Ad-hoc Working Group on FADs, on the need for clarity around data submitted to IOTC on FADs;

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 DFADs;

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 DFAD 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, by Resolution 18/08 and then by Resolution 19/02] established procedures on a FAD management plan, including more detailed specifications of catch reporting from DFAD sets, and the development of improved DFAD designs to reduce the incidence of entanglement of non-target species;

NOTING that the IOTC Scientific Committee advised the Commission that only non-entangling DFADs 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 DFAD closure period as well as other measures restricting the use of DFADs in the context of Indian Ocean fisheries and stocks;

NOTING that the 2nd Ad-hoc Working Group on FADs highlighted the gaps, inconsistencies in data collection, reporting and analysis of the DFAD data;

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

Definitions

1. 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 and may aggregate fish.
- b) “Drifting Fish Aggregating Devices (DFADs)” means a FAD not tethered to the bottom of the ocean.
- c) “Log” means a floating object of natural source or accidentally lost from anthropic activities and that was not built and deployed for the purpose of aggregating and/or locating target tuna species for subsequent capture.
- d) “instrumented buoy” means a buoy clearly marked with a unique reference number allowing identification of its owner and equipped with a satellite tracking system to monitor its position.
- e) “activation of a buoy” means the act of initialising satellite communication service, which is done by the buoy supplier company at the request of the buoy owner. The buoy can be transmitting or not, depending if it has been manually switched on.
- f) “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 buoy owner.
- g) “buoy owner” means any legal or natural person, entity or branch, who is paying for the communication service for the buoy associated with a DFAD that is registered on the DFAD Register, and/or who is authorised to receive information from the satellite buoy, as well as to request its activation and/or deactivation.
- h) “reactivation” means the act of re-enabling satellite communications services by the buoy supplier company at the request of the buoy owner.
- i) “abandoned DFAD” means a DFAD that was initially deployed with the intention of later retrieval but that is deliberately left at sea due to force majeure or other reasons.
- j) “lost DFAD” means a DFAD over which the buoy owner has lost control and that cannot be located and/or retrieved by the buoy owner.
- k) “discarded DFAD” means a DFAD that is released at sea without any attempt for further control or recovery by the buoy owner.
- l) “biodegradable materials” means renewable lignocellulosic materials (i.e., plant dry matter - here described as natural material). Those materials shall degrade in normal conditions of the use of DFADs and both be biodegradable in marine environments in accordance with international relevant standards for full biodegradability in marine environments and on land under natural environmental conditions. In addition, the substances resulting from the degradation of these materials shall not be toxic for the marine and coastal ecosystems or include heavy metals in their composition.

Application

2. This Resolution shall apply to Contracting Party and Cooperating Non-Contracting Party (CPC) flag purse seinevessels fishing on DFADs aggregating target tuna species in the IOTC area

of competence as well as associated supply or support vessels.

DFAD Register and Limits

3.The IOTC Executive Secretary shall maintain a register for all DFADs deployed in the IOTC area of competence (DFAD Register). The IOTC Executive Secretary shall provide detailed guidelines and a dedicated technological tool. The DFAD Register shall be effective as of 1 January 2024.

4.CPCs shall submit electronically to the IOTC Executive Secretary, for each of their flag purse seine vessels that is authorised to operate in the IOTC area of competence, after acquisition and before deployment, the following information for inclusion in the DFAD Register:

- a) unique DFAD reference number;
- b) unique instrumented buoy reference number that will allow the identification of its owner attached to the DFAD;
- c) name of the purse seine vessel to which the DFAD is assigned;
- d) name of the buoy owner;
- e) unique IOTC Vessel Register number of the purse seine vessel that is assigned to the instrumented buoy;
- f) flag State of the purse seine vessel that is assigned to the instrumented buoy;
- g) manufacturer of the instrumented buoy;
- h) model name of the instrumented buoy.

5.The maximum number of instrumented buoys that may be registered on the DFAD Register to any purse seine vessel, at any one time, shall not exceed 250 as of 1 January 2024 and 200 as of 1 January 2026 (DFAD Limits). The maximum number of instrumented buoys that may be acquired annually for each purse seine vessel shall not exceed 300. Notwithstanding the completion of any study undertaken at the request of the Commission, the Commission may review the DFAD Limits. This paragraph is without prejudice to the right of CPCs to adopt more stringent DFAD Limits for their flag vessels or within their EEZ.

6.Reactivated instrumented buoys shall not count as new instrumented buoys under the DFAD Limits but shall be counted as part of the original limit of instrumented buoys that is allowed for each purse seine vessel.

7.Flag CPCs shall submit the information under paragraph 4 to the IOTC Executive Secretary at least 24 hours before an instrumented buoy is activated, switched on and deployed at sea on a DFAD or any floating object.

8.CPCs shall promptly notify, after the establishment of their initial DFAD Register record, the IOTC Executive Secretary of any addition to, any deletion from and/or any modification of the information mentioned in paragraph 4 as included in the DFAD Register at any time such changes occur.

9. The IOTC Executive Secretary shall make the DFAD Register available in a secure section the IOTC website that is accessible to CPCs. The IOTC Executive Secretary shall make the data contained in the DFAD Registry available exclusively for purposes of scientific research and monitoring of compliance. For other users, data shall be made available upon written request to the IOTC Executive Secretary following written agreement from the CPC concerned.

DFAD Management

- 10.CPCs shall ensure that only purse seine vessels and associated supply or support vessels use and fish on DFADs in the IOTC area of competence.
- 11.CPCs shall ensure that their flag vessels exclusively deploy instrumented buoys registered to them in the DFAD Register on all DFADs and shall prohibit the use of any other buoys, such as radio buoys.
- 12.CPCs shall ensure that their flag vessels exclusively deploy DFADs with an instrumented buoy that has been activated.
- 13.CPCs shall ensure that their flag vessels do not deploy instrumented buoys on DFADs which were deployed before the entry into force of this Resolution and which do not comply with the requirements of this Resolution.
- 14.CPCs shall ensure that their flag purse seine vessels and associated supply and support vessels encountering DFADs that do not comply with the requirements of this Resolution retrieve such DFADs.
- 15.CPCs shall ensure that their flag purse seine vessels and associated supply and support vessels do not attach their own instrumented buoys to DFADs that are already equipped with the instrumented buoy of another vessel.
- 16.CPCs shall ensure that their flag vessels activate instrumented buoys only when physically present on board the purse seine vessel to which they are registered.
- 17.CPCs shall ensure that their flag vessels record the deployment of each DFAD and their associated instrumented buoy in the appropriate logbook, specifying the instrumented buoy unique reference number and the date, time and geographical coordinates (decimalised degrees) of its deployment.
- 18.Flag CPCs shall ensure that the buoy owner records any deactivation of a previously activated buoy at sea in the logbook, including the unique instrumented buoy reference number, date, time, last geographical coordinates and the reasons for deactivation.
- 19.CPCs shall ensure that their flag vessels reactivate instrumented buoys only once this has been authorised by the flag CPC and once the instrumented buoys have been brought back to port.
- 20.CPCs shall ensure that their flag vessels fishing on DFADs annually submit the number of instrumented buoys assigned to them. This shall include instrumented buoys which have been lost, abandoned and/or discarded by 1° by 1° grid area and month strata and DFAD type.
- 21.CPCs shall ensure that their flag vessels record fishing and fishing-related activities in association with DFADs using the specific data elements found in Annex II (DFAD) in the section of the “FAD-logbook”.
- 22.CPCs shall report any factual information showing reasonable grounds for suspicion of violations against paragraphs 10-21 to the IOTC Executive Secretary.

DFAD Management Plans

23. CPCs with flag vessel fishing on DFADs shall submit to the IOTC Executive Secretary, each year in their Annual Implementation Report, a DFAD Management Plan for the use of DFADs and associated technologies in accordance with the Guidelines for Preparation of FAD Management Plans as provided for DFADs in Annex I.
24. The Management Plans shall include initiatives or surveys to investigate and shall, to the extent possible, minimise the capture of juvenile tropical tuna, in particular bigeye tuna and yellowfin tuna, and non-target species associated with fishing on DFADs. Management Plans shall also include guidelines to prevent the abandonment, discarding and loss of DFADs.
25. The IOTC Compliance Committee and the IOTC Scientific Committee shall analyse the Management Plans and report the results of this analysis to the Commission.

DFAD Closure Period

26. The IOTC Scientific Committee shall provide advice and recommendations no later than 31 December 2023 on appropriate DFAD management options, in particular a DFAD closure, including the area, period and other details, with the objective of achieving a high probability of reducing fishing mortality of juvenile tropical tuna, in particular bigeye and yellowfin tuna. If the IOTC Scientific Committee concludes that it does not currently possess access to sufficient scientific data to provide recommendations to the Commission, it shall provide advice on the data necessary for science-based recommendations.
27. In producing its advice and recommendations, the IOTC Scientific Committee shall take into account, *inter alia*:
 - a) available IOTC fisheries data;
 - b) experiences of implementing similar management measures with similar objectives, including DFAD closures, from other RFMOs; and
 - c) fishing behaviours/patterns in the Indian Ocean, both historically and those anticipated as a consequence of the implementation of any new management measures, including a DFAD closure.
28. The Commission, at its 28th Session in 2024, shall consider the advice and recommendations, if any, from the IOTC Scientific Committee, and take a decision on the adoption of a DFAD closure in accordance with the received advice and recommendations.
29. If the IOTC Scientific Committee concludes that it does not have access to sufficient data to provide the recommendations referred to in paragraph 27 to the Commission, or the Commission, at its 28th Session in 2024, does not adopt a DFAD closure as provided by paragraph 28, CPCs shall, as a precautionary measure, as of 2024, ensure that their flag purse seine vessels fishing for bigeye, yellowfin and skipjack tunas do not fish on, deploy or maintain DFADs in the IOTC area of competence between 00:00hrs (UTC+4) of 1 July and 00:00hrs (UTC+4) 11 September (72 days) each year (DFAD Closure Period). To prevent a disproportionate burden on Small Island Developing States (SIDS) whose economy depends on purse seine fisheries on DFADs, for SIDS, the DFAD Closure Period shall apply exclusively to the high seas of the IOTC area of competence.
30. The IOTC Scientific Committee shall review DFAD closures under paragraphs 27 to 29 at its session in 2027.
31. CPCs shall ensure that, if their flag purse seine vessels and associated supply and support vessels retrieve the electronic equipment on their DFADs during the DFAD Closure Period, they retrieve the entire DFAD and keep it on board the vessel until landed in port or until the end of the DFAD Closure Period.

32. CPCs shall ensure that their flag vessels do not deploy or maintain DFADs during a period of 15 days prior to the beginning of the DFAD Closure Period.
33. CPCs shall ensure that during the DFAD Closure Period, their flag vessels do not conduct any part of a set within five nautical miles of a DFAD, meaning that at no time may the vessel or its fishing gear or tenders be located within five nautical miles of a DFAD while a set is being conducted.
34. CPCs shall ensure that during the DFAD Closure Period their flag purse seine vessels or associated supply or support vessels are not used to aggregate fish, or move aggregated fish, including through the use of underwater lights and chumming.

DFAD Monitoring System

35. In order to support the monitoring of compliance with this Resolution and to improve scientific data collection flag CPCs shall ensure that the instrumented buoy supplier company or their vessels report daily information on all active DFADs in compiled form to the IOTC Executive Secretary with a time delay of at least 30 days, but no longer than 60 days. Such information shall contain:
- a) the geographical location (decimalised degrees);
 - b) the date;
 - c) the time;
 - d) IOTC FAD Registry number;
 - e) the name and IOTC registration number of the vessels assigned to the instrumented buoy.
36. The IOTC Compliance Committee, in support of the IOTC Secretariat, shall work on identifying administrative arrangements and developing rules of procedure, with the aim of establishing a real-time DFAD Monitoring System (DFAD-MS) to be activated by 1 January 2026. The rules of procedure of the DFAD-MS may include, inter alia:
- a) minimum data standards and formats;
 - b) rules on polling of instrumented buoys;
 - c) cost recovery;
 - d) cost sharing;
 - e) measures to prevent tampering; and
 - f) geofencing capabilities.

Recovery and Reporting of Lost, Discarded and Abandoned DFADs

37. CPCs shall ensure that their flag vessels report, within 72 hours, any loss of a DFAD, or parts of a DFAD, owned by them to the flag CPC and the IOTC Executive Secretary. If the loss of a DFAD occurs in the EEZ of a coastal CPC, the flag CPC shall additionally report this information to the relevant coastal CPC within 72 hours of that loss. The report shall contain the following information:

- a) unique reference number of the instrumented buoy;
- b) unique IOTC Vessel registration number and name of the vessel;
- c) construction materials and dimension of the DFAD components, including the raft and subsurface structure;
- d) time when the DFAD or part thereof was lost;
- e) geographical position (degrees, minutes and seconds) where the DFAD or part thereof was lost;
- f) measures taken to retrieve the DFAD or part thereof;
- g) any perceived threats of the imminent beaching of the DFAD;

- h) geographical position (degrees, minutes and seconds) of potential location of beaching; and
 i) plans to recover beached DFADs and how the recovery costs will be collected and shared.

38. CPCs shall ensure that their flag vessels, before reporting the loss of a DFAD, or part of a DFAD, in accordance with paragraph 37, attempt to locate and retrieve such a DFAD as soon as possible and carry equipment on board for these purposes.

39. CPCs shall ensure that if their flag vessels cannot retrieve an active DFAD before it enters the EEZs of a coastal CPC that they report the information provided in paragraph 37 to the relevant coastal CPC within 72 hours after the DFAD has entered its EEZ.

40. CPCs shall ensure that their flag vessels record additional information for all lost, discarded and abandoned DFADs in accordance with Annex II.

Non-entangling and Biodegradable DFADs

41. To reduce the entanglement of sharks, marine turtles or any other species, CPCs shall ensure that the design and construction of any DFADs to be deployed in the IOTC area of competence shall comply with the following specifications in accordance with Annex III:

- a) the use of mesh materials shall be prohibited for any part of a DFAD;
- b) only non-entangling material and designs shall be used; and
- c) the sub-surface structure shall be limited to a length of 50 meters.

42. To reduce the amount of synthetic marine debris, CPCs shall ensure that their flag vessels:

- a) use only DFADs of biodegradability categories I, II and III, as defined in Annex III;
- b) no longer deploy any DFADs of category IV, as defined in Annex III;
- c) as of 1 January 2026, use only DFADs of categories I and II, as defined in Annex III; and
- d) as of 1 January 2027, use only DFADs of category I, as defined in Annex III.

43. CPCs are encouraged to share their experiences and scientific knowledge on the use of biodegradable materials in DFADs.

44. CPCs shall ensure that any observers deployed on their flag purse seine vessels collect detailed information on the DFAD design used and its conformity with the requirements set out in Annex III prior to the deployment of each DFAD.

DFAD Marking

45. Until a scheme to operationalise the FAO Voluntary Guidelines on the Marking of Fishing Gear (VGMFG) is endorsed by the Commission in accordance with the *Proposal of Terms of Reference for developing a scheme to operationalise the FAO Voluntary Guidelines on the Marking of Fishing Gear (VGMFG)*; IOTC–2020–CoC17–14, CPCs shall implement the measures provided for in the following paragraphs.

46. CPCs shall ensure that the instrumented buoy attached to the DFAD contains a physical, unique reference number marking (ID provided by the manufacturer of the instrumented buoy) and marked permanently and clearly visible the vessel's unique IOTC registration number.

47. As of 1st of January 2025, and with the specific objective to collect information on how to mitigate FAD loss and abandonment, in addition to the marking of the instrumented buoy, CPCs shall ensure that each DFAD is permanently marked with a specific IOTC DFAD unique identifier. This IOTC DFAD unique identifier shall be attributed by the Secretariat to the CPC who will communicate them to the master of the vessel. The marking shall be

separate from the instrumented buoy. The standards for the individual marking of DFADs shall be developed by the IOTC Scientific Committee, following preparatory work by the ad hoc working group on FADs and in close collaboration with the Secretariat, at the latest at its 2024 session. These standards shall take into account the requirements of paragraph 42 on DFAD biodegradability to avoid the erasing or loss of the marking and the work to operationalise the FAO Voluntary Guidelines on the Marking of Fishing Gear (VGMFG); IOTC–2020–CoC17–14.

48.CPCs shall ensure that their flag vessels only use DFADs whose raft and the sub-surface structure underneath the raft have a permanent mark showing the unique vessel IOTC registration number attached to it. Each mark must be:

- a) at least 75mm x 65mm in size;
- b) made of durable material; and
- c) securely fixed to the sub-surface structure and not removable.

49.CPCs shall conduct inspections, both at sea and at port, to ensure that their flag vessels comply with gear marking and other requirements. CPCs shall report deployed DFADs found without required markings to the relevant flag CPC and the IOTC Executive Secretary. CPCs shall conduct port State inspections of fishing gear in accordance with the procedures set out in Annex B, paragraph e) of the FAO Agreement on Port State Measures to Prevent, Deter and Eliminate Illegal, Unreported and Unregulated Fishing (PSMA), including with respect to conditions relating to the marking of fishing gear.

Data Reporting and Analysis

50.CPCs shall submit the data elements provided in Annex II 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).

51.The IOTC Scientific Committee will analyse the information and data gathered under this Resolution, when available, and provide scientific advice on additional DFAD management options for consideration by the Commission, including recommendations on the number of DFADs to be operated and new and improved DFAD designs. When assessing the impact of DFADs on the dynamics 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, lost and discarded DFADs.

Purse Seine Vessels, Supply and Support Vessels

52.Flag CPCs shall gradually reduce the number of supply and support vessels to one supply or support vessel per flag CPC by 1 July 2024. Flag CPCs shall submit information on the status of reducing the use of supply and support vessels in their annual Implementation Report.

53.Flag CPCs with more than two purse seine vessels actively operating in the IOTC area of competence each year shall ensure that, after 1 July 2024, no supply or support vessels deploy, maintain or use DFADs in the IOTC area of competence.

Entry Into Force

54.Without prejudice to paragraph 30, this Resolution shall be reviewed by the Commission, at the latest, at its Session in 2028 based on recommendations from the IOTC Scientific Committee.

- 55.The IOTC Scientific Committee shall undertake evaluation of the effectiveness of the measures detailed in this Resolution. If the IOTC Scientific Committee lacks sufficient scientific evidence which may prevent it from formulating management advice on DFADs, it shall provide advice to the Commission.
- 56.With the exception of paragraphs 27 to 30, which shall enter into force immediately after the adoption of this Resolution, this Resolution shall enter into force on 1 January 2024.
- 57.Without prejudice to paragraphs 52 and 53, CPCs not yet involved in purse seine fisheries using DFADs are exempt from the application of this Resolution for a period of 6 months from when their vessels deploy DFADs for the first time.
- 58.The IOTC Executive Secretary shall submit a report, on an annual basis, to the IOTC Compliance Committee on the level of compliance of each CPC with all the obligations under this Resolution.
- 59.Resolution 19/02, *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 Executive Secretary 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 II).

ANNEX II

DATA COLLECTION FOR DFADS

1. For each activity on a DFAD, floating object and/or instrumented buoy, whether followed by a set or not, each fishing, supply vessel shall report the following information:
 - a) Vessel (name and registration number of the fishing, supply vessel)
 - b) Position of the floating object or the buoy at the time of the operation (as the geographic location of the event (Latitude and Longitude) in degrees and minutes)
 - c) Date (as DD/MM/YYYY, day/month/year)
 - d) Type of floating object (as defined in Table 1)
 - e) Type of activity with the floating object
 - f) In the case of floating objects that are DFADs, information on the design characteristics, including the presence of meshing elements, the biodegradability category, the materials and the dimensions. These information are mandatory at the time of DFAD deployment. They should be provided to the extent possible during DFAD visits (i.e. without having to lift the DFAD out of the water)
 - g) the instrumented buoy unique identifier
 - h) the type of buoy activity and, in the case of buoy deactivation, the cause (DFAD is either retrieved from the sea, abandoned or lost)

2. 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 shall report these data aggregated per vessel at 1*1 degree (where applicable) and monthly to the Secretariat.

3. Classification of Floating Objects

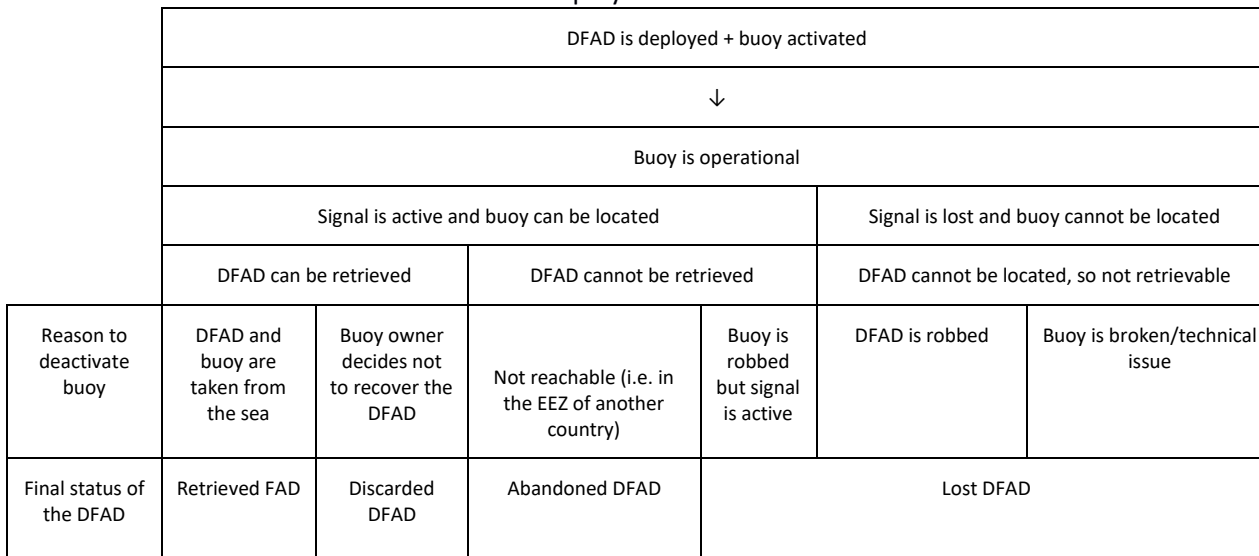
Code	Description	Example	Type of impact
DFAD	Drifting FAD	Bamboo or metal raft	Fishing effort, habitat modification, pollution
AFAD	Anchored FAD	Anchored floating platform	Fishing effort, habitat modification, pollution
FALOG	Artificial log resulting from fishing activities	Nets, wreck, ropes	Fishing effort, pollution
HALOG	Artificial log resulting from other human activities	Wooden board, oil tank	Fishing effort, pollution
ANLOG	Natural log of animal origin	Dead whale	Fishing effort
VNLOG	Natural log of plant origin	Branches, palm leaf	Fishing effort

4. Classification of activities with floating object and buoys

Code	Name	Description
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floating object	Deployment	Deployment of a FAD at sea
	Encounter	Random encounter (without fishing) of a floating object belonging to another vessel or not equipped with a buoy
	Visit	Visit (without fishing) of a floating object (known position, owned by the vessel)
	Consolidation	Deployment of a FAD on a floating object (e.g. to enhance floatability)
	Fishing	Fishing set on the floating object
	Retrieval	Retrieval of the floating object
	Loss	Unvoluntary end of use of the floating object (end of transmission of the buoy)
	Abandonment	Deliberate end of use of the floating object due to a case of force majeure or the floating object is unreachable (buoy still present and able to transmit)
BUOY	Deployment	Deployment (tagging) of a buoy on a floating object already drifting at sea without buoy or deployment of a FAD equipped with a buoy
	Transfer	Replacement of the buoy owned by another vessel by a buoy of the vessel
	Retrieval	Retrieval of the buoy on a floating object drifting at sea
	Loss	Involuntary end of use of the buoy (end of transmission of the buoy)
	Abandonment	Voluntary end of use of the buoy (buoy still able to transmit)

5. Classification of outcome of DFADs deployed



ANNEX III

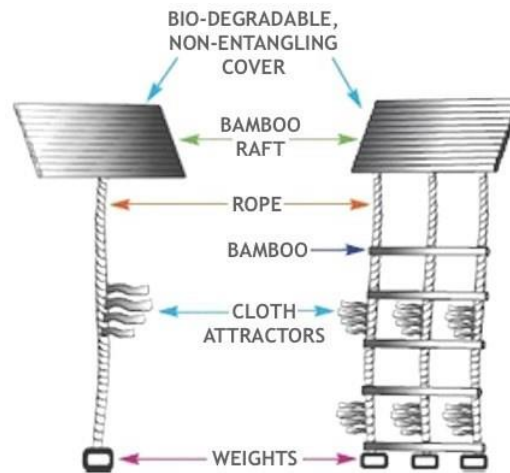
PRINCIPLES FOR NON-ENTANLING AND BIODEGRADABLE
DESIGNS OF DFADS

Figure: Example of a non-entangling, biodegradable FAD

1. The surface structure of the DFAD shall not be covered, or only covered with non-meshed material such as ropes or canvas sheets. No shade cloth or other entangling materials such as netting shall be used in the construction of the raft. The sub-surface structure of DFADs shall not exceed a length of 50 meters.
2. For the purposes of this Resolution, categories of DFAD biodegradability are:

Category I: All parts (i.e., raft and tail and floating components) of the DFAD, with the exception of materials used for the instrumented buoys, are built with biodegradable materials.

Category II: All elements (i.e., raft and tail) of the DFAD, with the exception of materials used for the instrumented buoys and floating components, are built with fully biodegradable materials.

Category III: The tail and other underwater hanging parts of the DFAD are fully biodegradable materials, whilst the raft and materials used for the instrumented buoys are made of non-biodegradable materials.

Category IV: All parts of the DFAD (i.e., raft, tail and instrumented buoy) are built partly or fully with non-biodegradable material.