PROCEDURES ON A FISH AGGREGATING DEVICES (FADS) MANAGEMENT PLAN, INCLUDING A LIMITATION ON THE NUMBER OF FADS, MORE DETAILED SPECIFICATIONS OF CATCH REPORTING FROM FAD SETS, AND THE DEVELOPMENT OF IMPROVED FAD DESIGNS TO REDUCE THE INCIDENCE OF ENTANGLEMENT OF NON-TARGET SPECIES

SUBMITTED BY: MALDIVES, 22 APRIL 2016

Explanatory Memorandum

This proposal seeks to revise the Resolution 15/08, Procedures on a Fish Aggregating Devices (FADs) Management Plan, including a limitation on the number of FADs, more detailed specifications of catch reporting from FAD sets, and the development of improved FAD designs to reduce the incidence of entanglement of non-target species.

The aim of the proposal is to reduce the number of Drifting Fish Aggregating Devices (DFADs) that are deployed by fishing vessels to precautionary levels that ensure sustainability of the fish stocks in the Indian Ocean. It is common knowledge today that DFADs are a threat to the marine ecosystem. They are known to attract a number of bycatch species (including sharks, turtles and dolphins) and juvenile tuna resulting a high levels of discards and/or systematic over fishing of juvenile tuna. Moreover, many island states in the Indian Ocean are now faced with the adverse impacts of DFADS that are getting beached and entangled in the delicate coral reefs. Despite of the sophisticated tracking devices on these DFADs, the vessels that deploy them are not taking steps to rectify beaching events and the numbers of DFADs washing up on reefs and other sensitive coastal habitats are on the rise in recent years.

Furthermore, it is widely acknowledged that the current limit of 550 DFADs per purse seiner is not science-based and is well above the estimates of use of DFADs by most purse seine vessels. This limit therefore allows for significant increases in overall deployments. This constitutes a substantial fishing capacity that can be potentially added to the fishery in the future as the number of DFADs in the Indian Ocean proliferates, leading to further adverse impacts on the environment and fish stocks. Currently there are 102 purse seine vessels of GRT 273 and over in the IOTC record of Active Vessels as of now (April, 2016). With a limit of 550 FADs per vessel, the total number of active DFADs in the Indian Ocean could potentially reach **56,550,** with an allowance for an additional 56,550 to be deployed to replace DFADs that become inactive.

According to the most recent yellowfin tuna stock assessment endorsed by the Scientific Committee in 2015, the yellowfin tuna stocks are currently subject to overfishing and are overfished. The potential increase in the number of FADs in the Indian Ocean in a fishery that is already unsustainable is concerning and should be reversed so yellowfin tuna stocks can start to rebuild. Decreasing the number of DFADs will also reduce the impacts of beaching events on the coastal states, which currently bear the clean-up costs.

To address these issues the commission has endorsed the formation of an Ad-Hoc Working Group on FADs. However, the Ad-hoc WG has not functioned as anticipated, and given the endorsement of the commission to adopt a Precautionary Approach to fisheries management this proposal is seeking to address the issue of DFADs by cutting down on the number of DFADs that are deployed and ensuring that there is an accountability mechanism in place to offset the adverse impacts of Indian Ocean beaching events.

RESOLUTION 16/XX ~~15/08~~

PROCEDURES ON A FISH AGGREGATING DEVICES (FADS) MANAGEMENT PLAN, INCLUDING A LIMITATION ON THE NUMBER OF FADS, MORE DETAILED SPECIFICATIONS OF CATCH REPORTING FROM FAD SETS, AND THE DEVELOPMENT OF IMPROVED FAD DESIGNS TO REDUCE THE INCIDENCE OF ENTANGLEMENT OF NON-TARGET SPECIES

Keywords: Fish aggregating device (FAD); Non-target species; purse seine; DFADs

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 all gears deployed to target resources 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;

AWAREthat 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]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. 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 tuna target species, in the IOTC area of competence.

2. This Resolution defines an instrumented buoy as a buoy with a clearly marked reference number allowing its identification and equipped with a satellite tracking system to monitor its position. Other buoys, such as radio buoys used on DFADs, not meeting this definition, shall be gradually phased out by 1 January 2017.

3. This Resolution sets the maximum number of instrumented buoys active and followed by any purse seine vessels at ~~550~~ 250 instrumented buoys at any one time, the active number being calculated as the number of active buoys operated by a purse seine vessel. The number of instrumented buoys that shall be acquired annually for each purse seine vessel is set at no more than 500~~1100~~.

4. The maximum number of active DFADs that can be deployed by purse seine fishing vessels shall be reviewed by the Ad-hoc Working Group on FADs, established and mandated by Resolution 15/09 (On a Fish Aggregating Devices (FADs) Working Group), and shall take into account the status of the stocks

5. The maximum number of instrumented buoys specified in Article 3 of this resolution, that are active and tracked by any purse seine vessel shall be reviewed based on the assessments of the Ad-hoc Working Group on FADs.

6. In an instance where the Ad-hoc Working Group on FADs fails to make a concrete decision on the maximum number of instrumented buoys allowed at any one time, or in the absence of the Ad-hoc Working Group, the maximum number of instrumented buoys active and tracked by any purse seine vessel shall remain as specified in Article 3 of this Resolution until such time the Scientific Committee recommends additional measures on DFAD management.

~~4.~~7. A CPC may adopt a lower limit than the one set out in paragraph 3 for vessels flying its flag. Further, any CPC may adopt a lower limit for DFADs deployed in its EEZ than that stated in paragraph 3. The CPC shall review the adopted limit to ensure that such limit is not more than the limit fixed by the Commission.

~~5.~~8. 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 instrumented buoys set in paragraph 3.

~~6.~~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 3.

~~7.~~10. The flag State shall ensure that no more than:

a) 250 ~~550~~ instrumented buoys are active at sea at any one time in relation to each of its vessels through such measures as for example the verification of telecommunication bills; and

b) 500~~1100~~ instrumented buoys may be acquired annually by each of its fishing vessel.

~~8.~~11. CPCs shall require vessels flying their flag and fishing on DFADs to submit by1 January 2017~~2016~~, the

provisional purchase order for 20172016 of instrumented buoys for their purse seine vessels under the confidentiality rules set by Resolution 12/02 (or any subsequent superseding Resolution).

9.12. CPCs shall require vessels flying their flag and fishing on DFADs to submit, by the end of 2017 2016 the number of instrumented buoys activated, deactivated and active on each quarter during 20172016 its purse seine vessel under the confidentiality rules set by Resolution 12/02 (or any subsequent superseding Resolution).

10.13. All CPCs shall ensure that all fishing vessels as referred to in paragraph 1 shall record fishing activities in association with FADs using the specific data elements found in **Annex I** (DFAD) and **Annex II** (AFAD) in the section of the "FAD-logbook".

11.14. CPCs having vessels fishing on FADs shall submit, to the Commission, on an annual basis, Management Plans for the use of FADs by each of their purse seine vessels covered at paragraph 1. Due to their specificity in terms of users, number deployed, 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 meet the Suggested Guidelines for Preparation for FAD Management Plans by each CPC as provided for DFADs in **Annex I**and AFADs in **Annex II**. For the purpose of this Resolution, the term Fish Aggregating Device means drifting (DFAD) or anchored floating or submerged objects (AFAD) deployed for the purpose of aggregating target tuna species.

12.15. The Management Plans shall be analysed by the IOTC Compliance Committee.

13.16. All CPCs shall ensure that all fishing vessels as referred to in paragraph 1 shall record fishing activities in association with FADs using the specific data elements found in **Annex I** (DFAD) and **Annex II** (AFAD) in the section of the "FAD-logbook".

14.17. 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. To reduce the entanglement of sharks, marine turtles or any other species, the design and deployment of FADs shall be based on the principles set out in **Annex III**, which will be applied gradually from 2014. From 2015 on, CPCs shall submit to the Commission, 60 days before the Annual Meeting, a report on the progress of the management plans of FADs, including reviews of the initially submitted Management Plans, and including reviews of the application of the principles set out in **Annex III**.

15.18. 2016, CPCs shall submit the data elements prescribed in **Annex I** and **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). 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 and the phasing out of FAD designs that do not prevent the entanglement of sharks, marine turtles and other species. 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).

16.19. From January 2016, CPCs shall require all artificial FADs deployed or modified by their flagged fishing vessels in the IOTC area of competence to be marked in accordance with a detailed marking scheme, e.g. including FAD marking or beacon ID. The marking scheme shall be developed and considered for adoption by the Commission at its regular annual session in 2016, based on recommendations from the IOTC Scientific Committee as requested by the Commission. The marking scheme should take into account, as a minimum, the following:

a) All artificial FADs shall be marked with a unique identification number, based on a specific numbering system and format to be adopted by the Commission;

b) The marking should be easy to read before the vessel operator engages in any artificial FAD related activity (e.g. setting on the artificial FAD, retrieving the artificial FAD, servicing the artificial FAD, fishing on the artificial FAD), but if not visible for any reason, (time of day, weather, etc.), the vessel operator shall ensure to obtain the unique artificial FAD identifier as soon as feasible;

c) The marking should be easy to apply to the artificial FAD, but should be applied in such a manner that it will not become unreadable or disassociated with the artificial FAD.

~~17.~~20. Resolution 15~~13~~/08 *Procedures on a fish aggregating devices (FADs) management plan, including more detailed specification of catch reporting from FAD sets, and the development of improved FAD designs to reduce the incidence of entanglement of non-target species* 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

- catch reportingfrom DFADsets(consistentwiththe Standardsfortheprovision of Catch and EffortData)setoutin Resolution 15/03),including:

a) Any visiton a DFAD*

b) For each visitona DFAD, whetherfollowed ornotbyaset
   i. position,
   ii. date,
   iii. DFADidentifier(i.e., D FADMarkingorbeaconIDoranyinformationallowingto identifythe owner),
   iv. DFADtype (driftingnaturalFAD, driftingartificialFAD),
   v. DFADdesigncharacteristics(dimensionandmaterialofthefloatingpartandofthe underwaterhangingstructure),
   vi. typeofthevisit(deployment,hauling,retrieving,loss,interventiononelectronic equipment).

c) If the visitisfollowedbya set,theresults ofthe setinterms ofcatchand bycatch.

* Other FADs encountered at–sea should be monitored in accordance with each CPCs' domestic regulations.

ANNEX II

GUIDELINES FORPREPARATIONOFANCHOREDFISHAGGREGATINGDEVICE(AFAD) MANAGEMENTPLANS

To support obligations in respect of the AFAD Management Plan (AFAD–MP) to be submitted to the IOTC SecretariatbyCPCs with fleets fishingin the IOTCarea ofcompetence,associatedto AFADs, AFAD– MP should include:

1. An objective

2. Scope:

   Descriptionofitsapplication withrespectto:

   a) Vessel types

   b) AFADnumbers and/or AFADs beacons numbersto bedeployed(per AFADtype)

   c) reportingproceduresforAFADdeployment

   d) distancesbetween AFADs

   e) incidentalbycatch reduction and utilisation policy

   f) consideration ofinteractionwith othergeartypes

   g) the establishment of inventoriesof 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 formonitoringandretrievalof lostAFADs

   i) statement or policy on "AFAD ownership"

3. Institutionalarrangements formanagementofthe AFADManagementPlans:

   a) Institutionalresponsibilities

   b) Regulations applicabletothe settingand use of AFADs

   c) AFAD repairs, maintenance rules and replacementpolicy

   d) Data collection system

   e) reportingobligations

4. AFADconstructionspecificationsandrequirements:

   a) AFADdesign characteristics (a description ofboth thefloatingstructureandthe underwaterstructure, with specialemphasison anynettingmaterials used)

   b) Anchorage used formooring

   c) AFADmarkings and identifiers,including AFADbeacons ifany

   d) Lightingrequirements ifany

   e) radarreflectors

   f) visible distance

   g) radio buoys ifany (requirement forserialnumbers)

   h) satellitetransceivers(requirement forserialnumbers)

   i) echo sounder

5. Applicable areas

   a) Coordinatesofmooringsites, if applicable

   b) Detailsofanyclosed areasе.g., shippinglanes, MarineProtected Areas,reservesetc.

6. Means formonitoringand reviewingimplementation of the AFAD–MP

   AFAD logbook

   − Catch reportingfrom AFADsets(consistentwiththe Standardsfortheprovision of Catch and EffortData)setoutin Resolution 15/03), including:

   a) Any visitin a AFAD.

   b) For each visitona AFAD, whetherfollowed ornotby a set or other fishing activities,the,

      i. position;

      ii. date;

      iii. AFADidentifier(i.e.,FADMarkingorbeaconIDoranyinformationallowingto identifythe owner).

   c) If the visitisfollowedbya set or other fishing activities,theresults ofthe setinterms ofcatchand bycatch.

ANNEX III

PRINCIPLES FOR DESIGN AND DEPLOYMENT OF FADS

1. The surface structure of the FAD should not be covered, or only covered with non-meshed material.

2. If a sub-surface component is used, it should not be made from netting but from non-meshed materials such as ropes or canvas sheets.

3. To reduce the amount of synthetic marine debris, the use of natural or biodegradable materials (such as hessian canvas, hemp ropes, etc.) for drifting FADs should be promoted.