Food and Agriculture Organization of the United Nations

Indian Ocean Tuna Commission
Commission des Thons de l'Ocean Indien
iotc ctoi

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ON MANAGEMENT OF FISH AGGREGATING DEVICES IN THE IOTC AREA OF COMPETANCE

Submitted by: Kenya, Sri Lanka, Maldives, Mozambique, Pakistan, Somalia, South Africa, Indonesia, Tanzania

Explanatory Memorandum

The proposed amendments are to strengthen Resolution 19/02 to mitigate the ecological impacts associated with drifting FADs, especially its stranding, damage to coral reefs, and inshore habitats and its contribution to marine debris. It is also aimed to reduce juveniles of tropical tuna and to facilitate rebuilding of Indian Ocean yellowfin tuna – Resolution 19/01

From the 2017 Scientific Committee report, it was requested that FAD ownership should form part of the mandatory information to be collected by IOTC as this was considered necessary to model and report the tracking status of all FADs. This aspect is strengthened and revised in this proposal.

Noting that IOTC, along with other tuna RFMOs, recommended and adopted resolutions to promote reduction of the amount of synthetic marine debris using natural or biodegradable materials for drifting FADs, the proposal also strengthen addressing of this this issue.

Cf Resolution 19/02.

RESOLUTION 21/XX
ON MANAGEMENT OF FISH AGGREGATING DEVICES (FADS) IN THE IOTC AREA OF COMPETENCE

Keywords: FAD, FAD Management, FAD monitoring, 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) was adopted in conscience of the need to avoid adverse impacts on the marine environment, preserve biodiversity, maintain the integrity of marine ecosystems and minimize 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;

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 the United Nations Food and Agricultural Organization (FAO) Code of Conduct for Responsible Fisheries provides that States should apply the precautionary approach widely to conservation, management and exploitation of living aquatic resources in order to protect them and preserve the aquatic environment and that the absence of adequate scientific information should not be used as a reason for postponing or failing to take conservation and management measures;

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;

MINDFUL of the call upon States, either individually, collectively or through regional fisheries management organisations and arrangements in 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 (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;

NOTING 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;

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;

RECALLING that the measures taken in accordance with Article 194 UNCLOS 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;

RECALLING that Annex V of the International Convention for the Prevention of Pollution from Ships (MARPOL), which serves the purpose of implementing Article 194 UNCLOS, seeks to eliminate and reduce the amount of garbage, including fishing gear, being discharged into the sea from ships and that it applies to all vessels;

RECALLING that 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, 1972 (London Protocol) require States to prohibit the intentional dumping of wastes and other matter into the sea;

NOTING that fishing gear that is released into the water, such as FADs, traps and static nets, does not contravene MARPOL Annex V or the London Convention and Protocol as long as such gear is deployed with the intention of later retrieval;

FURTHER NOTING that the deliberate abandonment of FADs in the sea would contravene MARPOL Annex V or the London Convention and Protocol except in situations of *force majeure*;

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;

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;

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 minimize the risk of long-term or irreversible effects of fishing operations;

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*;

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;

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, then 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 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 measures restricting the use of DFADs in the context of Indian Ocean fisheries and stocks;

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 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.

k) "Abandoned DFAD" means a DFAD over which the owner/operator has control and that could be retrieved by the owner/operator, but that is deliberately left at sea due to *force majeure* or other reasons.

l) "Lost DFAD" means a DFAD over which the owner/operator has no control and that cannot be located and/or retrieved by the owner/operator.

m) "Discarded DFAD" means a DFAD that is released at sea without any attempt for further control or recovery by the owner/operator.

n) "Biodegradable materials" means any materials capable of being naturally decomposed within a short amount of time by bacteria or other living organisms that naturally occur in the marine environment and thereby avoiding pollution.

Application

2. This Resolution shall apply to CPCs having flag purse seine vessels fishing on DFADs, equipped with instrumented buoys for the purpose of aggregating target tuna species, in the IOTC area of competence.

3. This Resolution requires the use of instrumented buoys on all DFADs and prohibits the use of any other buoys, such as radio buoys.

FAD limits and management

4. CPCs shall ensure that only purse seine vessels and associated supply or support vessels use DFADs in the IOTC area of competence.

5. CPCs shall ensure that their flag vessels comply with the following DFAD limits:

a) The maximum number of operational buoys followed by any purse seine vessel shall be 250 at any time.

b) The maximum number of instrumented buoys that may be acquired annually for each purse seine vessel shall be 400.

c) The maximum number of instrumented buoys (buoy in stock and operational buoy) for each purse seine vessel shall be 400 at any time.

6. CPCs shall ensure that their flag vessels make instrumented buoys operational only when physically present on board the purse seine vessel to which they belong or its associated supply or support vessel. CPCs shall further ensure that their flag vessels record the event in the appropriate logbook, specifying the instrumented buoy unique identification number and the date, time and geographical coordinates of its deployment.

7. CPCs may adopt lower limits than those provided in paragraph 5 for their flag vessels. Further, CPCs may adopt lower limits for DFADs deployed in their EEZs than those provided in paragraph 5. CPCs shall review their adopted limits to ensure that such limits do not exceed the limits fixed by the Commission.

8. CPCs shall ensure that, as from the effective date of this Resolution, their flag purse seine vessels already in operation do not exceed the maximum numbers of operational and instrumented buoys at any one time as provided in paragraph 5.

9. CPCs shall ensure that their flag vessels declare to their respective CPC the number of instrumented buoys onboard, including each unique identifier of the instrumented buoy before and after each fishing trip.

10. CPCs shall ensure that their flag vessels reactivate instrumented buoys only once this has been authorized by the flag CPC and once the instrumented buoys have been brought back to port, either by the vessel tracking the buoy or associated supply or support vessel or by another vessel.

11. 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 provided in paragraph 5.

12. CPCs shall require their flag vessels fishing on DFADs to annually submit the number of operational buoys followed by the vessel, lost, abandoned, discarded 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 provided in Resolution 12/02 (or any subsequent superseding Resolution).

13. CPCs shall ensure that their flag vessels record fishing and fishing-related 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".

14. CPCs having flag vessels fishing on DFADs shall submit, to the Commission, on an annual basis, Fish Aggregating Device (FAD) Management Plans in accordance with the Guidelines for Preparation of FAD Management Plans as provided for DFADs in Annex I and AFADs in Annex II.

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

16. The Management Plans shall include initiatives or surveys to investigate and shall, 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 abandonment, discarding and loss of FADs.

17. CPCs shall also ensure that their flag vessels record fishing activities in association with FADs using the specific data elements found in Annex III (DFAD) and Annex IV (AFAD).

18. CPCs shall submit to the Commission, 60 days before the Annual Meeting, a report on the progress of their Management Plans, including, if necessary, reviews of the initially submitted Management Plans, and including reviews of the application of the principles provided in Annex III.

Non-entangling and biodegradable DFADs

19. To reduce the entanglement of sharks, marine turtles or any other non-target species, CPCs shall require their flag vessels to use non-entangling designs and non-mesh materials in the construction of FADs as provided in Annex V.

20. To reduce the amount of synthetic marine debris, CPCs shall ensure that their flag vessels use only biodegradable DFADs in accordance with the guidelines provided in Annex V.

21. To further reduce the ecosystem impacts of DFADs, CPCs shall ensure that the sub-surface structure of DFADs used by their flag vessels is limited to a length of 50 meters.

Data reporting and analysis

22. CPCs shall submit the data elements provided 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, Lost and Discarded DFADs.

Supply and Support Vessels

24. CPCs shall gradually reduce supply vessels[1] in purse seine operations targeting tropical tuna, by 31st December 2022 as specified below. 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) No CPC is allowed to register any new or additional supply vessel on the IOTC Record of Authorized Vessels[2].

    b) A single purse seine vessel shall not be supported by more than one single supply vessel of the same CPC flag State at any point of time.

DFAD Tracking and Recovery Procedures

25. In order to support the monitoring of compliance with the limits provided in paragraph 5, while protecting business confidential data, CPCs shall ensure that real-time information is reported on the geographical location (in degrees, minutes and seconds), the date, the instrumented buoy ID and the name and registration number of the assigned vessels to the Executive Secretary, or an authorized independent third party appointed by the Commission, of each operational buoy when it is activated or deactivated. CPCs shall ensure that real-time information on the geographical location (in degrees, minutes and seconds) is reported in a format and method specified by the Secretariat, or an authorized independent third party appointed by the Commission, of each operational buoy in 6-hourly intervals.

26. In addition, the information made available under paragraph 25 (including all submissions dating back to 1 January 2020) will be able to be used to support scientific analysis [eg. on the use and impact of FADs], including by the working group on FADs, in line with the confidentiality rules set by Resolution 12/02.

27. The Secretariat shall submit a report, on an annual basis, to the IOTC Compliance Committee on the level of compliance of each CPC with the limits provided in paragraph 5 and on the details of Abandoned, Discarded and Lost DFADs, including the DFAD owner and the date and position of abandonment, discarding or loss.

28. This Resolution shall be reviewed by the Commission, at the latest, at its Session in 2022, based on recommendations from the IOTC Scientific Committee.

29. This Resolution shall enter into force on 1 September 2021.

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.

[2] ~~The subparagraphs (a) and (b) shall not apply to CPCsflag States which use only one supply vessel~~

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 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 Executive Secretary 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

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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 Executive Secretary.

c) CPCs shall ensure that their flag vessels record the following information for all lost, abandoned and lost DFADs:
   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. time when the DFAD or part thereof was lost
   viii. measures taken to retrieve the DFAD or part thereof

ANNEX IV
DATA COLLECTION FOR AFADS

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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,

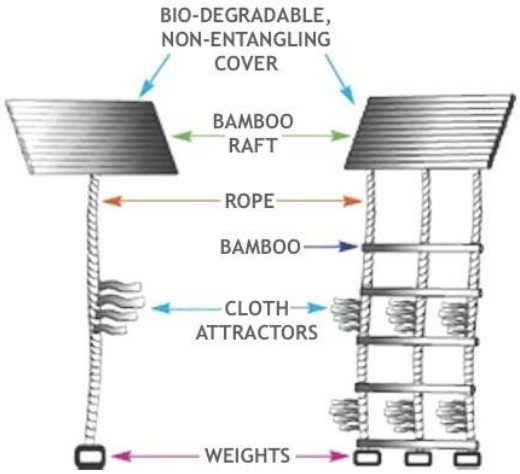
   i. Position (as the geographic location of the event (Latitude and Longitude) in degrees and minutes)
   ii. Date (as DD/MM/YYYY, day/month/year)
   iii. AFAD identifier (i.e. AFAD Marking or beacon ID or any information allowing to identify the owner).

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



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