

## REVIEW OF CURRENT CONSERVATION AND MANAGEMENT MEASURES RELATING TO ECOSYSTEMS AND BYCATCH

PREPARED BY: IOTC SECRETARIAT, 9 AUGUST 2013

### PURPOSE

To encourage the Working Party on Ecosystems and Bycatch (WPEB) to review the existing Conservation and Management Measures (CMM) relating to ecosystems and bycatch, noting the CMMs contained in document IOTC–2013–WPEB09–04 adopted by the Commission in 2013; 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

In addition to the CMMs outlined in document IOTC–2013–WPEB09–04, ecosystems and bycatch in the Indian Ocean are currently subject to seven other CMMs adopted by the Commission:

#### Marine turtles:

**Resolution 12/04:** *On the conservation of marine turtles.* This Resolution introduced amendments to Resolution 09/06 On Marine Turtles, by removing the term ‘hard-shelled’ to provide equal protection for all marine turtles in the IOTC area of competence and clarify the data reporting requirements for interactions with marine turtles ([Appendix A](#)).

#### Sharks:

**Resolution 12/09:** *On the conservation of thresher sharks (family Alopiidae) caught in association with fisheries in the IOTC area of competence.* This Resolution prohibits the retention onboard, transshipment, landing, storing, selling or offering for sale any part or whole carcass of the three species of Thresher sharks (family Alopiidae) by all vessels on the IOTC record of authorised vessels. Observers are permitted to collect biological samples (vertebrae, tissues, reproductive tracts, stomachs) from thresher sharks that are dead at haulback ([Appendix C](#)).

**Resolution 05/05:** *Concerning the conservation of sharks caught in association with fisheries managed by IOTC.* This resolution includes minimum reporting requirements for sharks, calls for full utilisation of sharks and includes a ratio of fin-to-body weight for shark fins retained onboard a vessel ([Appendix G](#)).

#### Seabirds:

**Resolution 12/06:** *On reducing the incidental bycatch of seabirds in longline fisheries.* This Resolution harmonises the measure with that adopted by ICCAT in 2011 which lists only three mitigation measures (i.e. night setting with minimum deck lighting, bird scaring lines and line weighting) considered to be effective. The limit of the area in which longline vessels have to implement mitigation measures is south of 25°S to encompass the area of overlap between the distribution area of endangered species of seabirds and the longline fishing grounds ([Appendix B](#)).

**Resolution 10/06:** *On reducing the incidental bycatch of seabirds in longline fisheries.* (not provided as will be superseded by Resolution 12/06 on July 1<sup>st</sup>, 2014).

**Recommendation 05/09:** *On incidental mortality of seabirds* – While not superseded, this Recommendation is considered obsolete (not provided as will be superseded by Resolution 12/06 on July 1<sup>st</sup>, 2014).

#### Data:

**Resolution 10/02:** *Mandatory statistical requirements for IOTC Members and Cooperating non-Contracting Parties (CPC's).* This resolution sets out mandatory minimum requirements for the annual submission of fisheries statistics to the IOTC Secretariat. This resolution applies to all tuna and tuna-like species, including all billfish species ([Appendix F](#)).

**Other:**

**Resolution 12/12:** *To prohibit the use of large-scale driftnets on the high seas in the IOTC area.* This Resolution banned the use of large-scale driftnets (more than 2.5 km long) on the high seas within the IOTC area of competence. Paragraph 6 of this Resolution states that “The IOTC shall periodically assess whether additional measures should be adopted and implemented to ensure that large-scale driftnets are not used on the high seas in the Convention Area. The first such assessment shall take place in 2012.” ([Appendix D](#)).

**Resolution 11/04:** *On a regional observer scheme.* This resolution puts in place a programme comprising national observer schemes to collect verified catch data and other scientific data related to the fisheries for tuna and tuna-like species in the IOTC area. The programme initially covers 5% of the operations of the vessels over 24 m and will include, progressively up to 5% of their operations in 2013, vessel under 24 m that fish outside their EEZs. Artisanal fishing landings shall also be progressively monitored at port by observers. Australia noted that a significant number of vessels less than 24 m long fish on the high seas in the IOTC Area, and the exclusion of these vessels at the start of the programme will result in a considerable loss of valuable information ([Appendix E](#)).

**Recommendation 10/13:** *On the implementation of a ban on discards of skipjack tuna, yellowfin tuna, bigeye tuna, and non targeted species caught by purse seiners.* (not provided as will be superseded by Resolution 13/11 on January 1<sup>st</sup>, 2014).

**DISCUSSION**

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

**RECOMMENDATION**

That the WPEB NOTE paper IOTC–2013–WPEB09–05 which aimed to encourage the WPEB to review the existing Conservation and Management Measures (CMMs) relating to the WPEB, 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 12/04: On the conservation of marine turtles](#)
- Appendix B:** [Resolution 12/06: On reducing the incidental bycatch of seabirds in longline fisheries](#)
- Appendix C:** [Resolution 12/09: On the conservation of thresher sharks \(family Alopiidae\) caught in association with fisheries in the IOTC area of competence](#)
- Appendix D:** [Resolution 12/12: To prohibit the use of large-scale driftnets on the high seas in the IOTC area](#)
- Appendix E:** [Resolution 11/04: On a regional observer scheme](#)
- Appendix F:** [Resolution 10/02 mandatory statistical requirements for IOTC Members and Cooperating non-Contracting Parties \(CPC’s\)](#)
- Appendix G:** [Resolution 05/05: Concerning the conservation of sharks caught in association with fisheries managed by IOTC](#)

## APPENDIX A

### RESOLUTION 12/04

#### ON THE CONSERVATION OF MARINE TURTLES

**The Indian Ocean Tuna Commission (IOTC),**

RECALLING Recommendation 05/08 *On Sea Turtles* and Resolution 09/06 [superseded by [Resolution 12/04](#)] *On Marine Turtles*;

FURTHER RECALLING that marine turtles, including all species in the family Cheloniidae and *Dermochelys coriacea* (leatherback turtles) are listed in Appendix I of the *Convention on International Trade in Endangered Species of Wild Fauna and Flora* (CITES) and that all species of marine turtles are listed on Appendix I or II of *Convention on the Conservation of Migratory Species of Wild Animals*;

AWARE that the populations of the six species of marine turtles under the *Memorandum of Understanding on the Conservation and Management of Marine Turtles and their Habitats of the Indian Ocean and South-East Asia* (IOSEA MoU) are listed as Vulnerable, Endangered or Critically endangered on the International Union for the Conservation of Nature (IUCN) Red List of Threatened Species;

RECOGNISING that the 26<sup>th</sup> FAO–COFI Session in March 2005 adopted the *Guidelines to Reduce Sea Turtle Mortality in Fishing Operations* (hereinafter referred to as “the FAO Guidelines”) and recommended their implementation by regional fisheries bodies and management organisations;

RECOGNISING that some fishing operations carried out in the Indian Ocean can adversely impact marine turtles and the need to implement measures to manage the adverse effects of fishing in the Indian Ocean on marine turtles;

ACKNOWLEDGING the activities undertaken to conserve marine turtles and the habitats on which they depend within the framework of the IOSEA MoU in particular its *Resolution to Promote the Use of Marine Turtle Bycatch Reduction Measures by IOSEA Signatory States* adopted by the Fifth Meeting of the Signatory States;

NOTING the IOTC Scientific Committee’s concern that the lack of data from Contracting Parties and Cooperating Non-Contracting Parties (CPCs) on the interactions and mortality of marine turtles from fisheries under the mandate of the IOTC undermines the ability to estimate levels of marine turtle bycatch and consequently IOTC’s capacity to respond and manage adverse effects of fishing on marine turtles;

FURTHER NOTING the IOTC Scientific Committee’s concern that the expansion of gillnet fishing from traditional fishing grounds into high seas might increase the interaction with marine turtles and lead to increased mortality;

CONVINCED of the need to strengthen Resolution 09/06 [superseded by [Resolution 12/04](#)] *On Marine Turtles* to ensure that the Resolution applies equally to all marine turtle species and that CPCs annually report all interactions and mortalities of marine turtles in fisheries under the mandate of the IOTC;

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

1. This Resolution shall apply to all fishing vessels on the IOTC Record of Fishing Vessels.
2. Contracting Parties and Cooperating Non-Contracting Parties (hereinafter referred to as “CPCs”) will implement, as appropriate, the FAO Guidelines.
3. CPCs shall collect (including through logbooks and observer programs) and provide to the IOTC Secretariat no later than 30 June of the following year in accordance with [Resolution 10/02](#) (or any subsequent revision), all data on their vessels’ interactions with marine turtles. The data shall include the level of logbook or observer coverage and an estimation of total mortality of marine turtles incidentally caught in their fisheries.
4. CPCs shall report to the IOTC Scientific Committee information on successful mitigation measures and other impacts on marine turtles in the IOTC area, such as the deterioration of nesting sites and swallowing of marine debris.
5. CPCs shall report to the Commission in the annual implementation report, in accordance with Article X of the IOTC Agreement, their progress of implementation of the FAO Guidelines and this Resolution.

6. CPCs shall require fishermen on vessels targeting species covered by the IOTC Agreement to bring aboard, if practicable, any captured marine turtle that is comatose or inactive as soon as possible and foster its recovery, including aiding in its resuscitation, before safely returning it to the water. CPCs shall ensure that fishermen are aware of and use proper mitigation, identification, handling and de-hooking techniques and keep on board all necessary equipment for the release of marine turtles, in accordance with handling guidelines in the IOTC Marine Turtle Identification Cards.
7. CPCs with gillnet vessels that fish for species covered by the IOTC Agreement shall:
  - a) Require that operators of such vessels record all incidents involving marine turtles during fishing operations in their logbooks<sup>1</sup> and report such incidents to the appropriate authorities of the CPC.
8. CPCs with longline vessels that fish for species covered by the IOTC Agreement shall:
  - a) Ensure that the operators of all longline vessels carry line cutters and de-hookers in order to facilitate the appropriate handling and prompt release of marine turtles caught or entangled, and that they do so in accordance with IOTC Guidelines. CPCs shall also ensure that operators of such vessels follow the handling guidelines in the IOTC Marine Turtle Identification Cards;
  - b) Where appropriate, encourage the use of whole finfish bait;
  - c) Require that operators of such vessels record all incidents involving marine turtles during fishing operations in their logbooks<sup>2</sup> and report such incidents to the appropriate authorities of the CPC.
9. CPCs with purse seine vessels that fish for species covered by the IOTC Agreement shall:
  - a) Ensure that operators of such vessels, while fishing in the IOTC area:
    - i. To the extent practicable, avoid encirclement of marine turtles, and if a marine turtle is encircled or entangled, take practicable measures to safely release the turtle in accordance with the handling guidelines in the IOTC Marine Turtle Identification Cards;
    - ii. To the extent practicable, release all marine turtles observed entangled in fish aggregating devices (FADs) or other fishing gear;
    - iii. If a marine turtle is entangled in the net, stop net roll as soon as the turtle comes out of the water; disentangle the turtle without injuring it before resuming the net roll; and to the extent practicable, assist the recovery of the turtle before returning it to the water;
    - iv. Carry and employ dip nets, when appropriate, to handle marine turtles.
  - b) Encourage such vessels to adopt FAD designs that reduce the incidence of entanglement of marine turtles according to international standards;
  - c) Require that operators of such vessels record all incidents involving marine turtles during fishing operations in their logbooks<sup>3</sup> and report such incidents to the appropriate authorities of the CPC.
10. All CPCs are requested to:
  - a) Where appropriate undertake research trials of circle hooks, use of whole finfish for bait, alternative FAD designs, alternative handling techniques, gillnet design and fishing practices and other mitigation methods which may improve the mitigation of adverse effects on marine turtles;
  - b) Report the results of these trials to the IOTC Scientific Committee, at least 30 days in advance of the annual meetings of the Scientific Committee.

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<sup>1</sup> This information should include, where possible, details on species, location of capture, conditions, actions taken on board and location of release.

<sup>2</sup> This information should include, where possible, details on species, location of capture, conditions, actions taken on board and location of release

<sup>3</sup> This information should include, where possible, details on species, location of capture, conditions, actions taken on board and location of release

11. The IOTC Scientific Committee shall request the IOTC Working Party on Ecosystems and Bycatch to:
  - a) Develop recommendations on appropriate mitigation measures for gillnet, longline and purse seine fisheries in the IOTC area;
  - b) Develop regional standards covering data collection, data exchange and training;
  - c) Develop improved FAD designs to reduce the incidence of entanglement of marine turtles, including the use of biodegradable materials.

The recommendations of the IOTC Working Party on Ecosystems and Bycatch shall be provided to the IOTC Scientific Committee for consideration at its annual session in 2012. In developing its recommendations, the IOTC Working Party on Ecosystems and Bycatch shall examine and take into account the information provided by CPCs in accordance with paragraph 10 of this measure, other research available on the effectiveness of various mitigation methods in the IOTC area, mitigation measures and guidelines adopted by other relevant organizations and, in particular, those of the Western and Central Pacific Fisheries Commission. The IOTC Working Party on Ecosystems and Bycatch will specifically consider the effects of circle hooks on target species catch rates, marine turtle mortalities and other bycatch species.

12. At its annual session in 2013 the Commission shall consider the recommendations of the IOTC Scientific Committee, 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.
13. In researching new mitigation methods, consideration should be given to ensuring that methods do not cause greater harm than they prevent and do not adversely impact other species (particularly threatened species) and/or the environment.
14. CPCs are encouraged to collaborate with the IOSEA and take into account the IOSEA MoU including the provisions of the Conservation and Management Plan in the implementation of bycatch mitigation measures for marine turtles.
15. The IOTC and IOSEA secretariats are encouraged to intensify their collaboration and exchange of information on marine turtle issues in accordance with the protocols agreed by the Commission.
16. CPCs are encouraged to support developing countries in their implementation of the FAO Guidelines and this Resolution.
17. The IOTC Scientific Committee shall annually review the information reported by CPCs pursuant to this measure and, as necessary, provide recommendations to the Commission on ways to strengthen efforts to reduce marine turtle interactions with IOTC fisheries.
18. This Resolution supersedes Recommendation 05/08 *On Sea Turtles* and Resolution 09/06 *On Marine Turtles*.

## APPENDIX B

### RESOLUTION 12/06

#### ON REDUCING THE INCIDENTAL BYCATCH OF SEABIRDS IN LONGLINE FISHERIES

*(will enter into force on 1 July 2014)*

#### The Indian Ocean Tuna Commission (IOTC),

RECALLING [Resolution 10/06](#) *On reducing incidental bycatch of seabirds in longline fisheries*, and in particular, its paragraph 8;

RECOGNISING the need to strengthen mechanisms to protect seabirds in the Indian Ocean, and to harmonise them with ICCAT measures that will enter into force no later than July 2013;

TAKING INTO ACCOUNT the United Nations Food and Agriculture Organization (FAO) International Plan of Action for Reducing the Incidental Catch of Seabirds in Longline Fisheries (IPOA-Seabirds);

NOTING the recommendations of the IOTC Scientific Committee, in agreement with the IOTC Working Party on Ecosystems and Bycatch (WPEB) on measures to mitigate seabird interactions as outlined in their 2007, 2009 and 2011 Reports;

ACKNOWLEDGING that to date some IOTC Contracting Parties and Cooperating Non-Contracting Parties (hereinafter referred to as “CPCs”) have identified the need for, and have either completed or are near finalising, their National Plan of Action on Seabirds;

RECOGNISING the global concern that some species of seabirds, notably albatrosses and petrels, are threatened with extinction;

NOTING that the Agreement on the Conservation of Albatrosses and Petrels, which opened for signatures at Canberra on 19 June 2001, has entered into force;

NOTING that the ultimate aim of the IOTC and the CPCs is to achieve a zero bycatch of seabirds for fisheries under the purview of the IOTC, especially threatened albatrosses and petrel species in longline fisheries;

BEARING in mind studies undertaken in other longline tuna fisheries, demonstrating the economical benefit of measures to mitigate incidental bycatch of seabirds, by significantly increasing catches of targeted species;

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

1. CPCs shall record data on seabird incidental bycatch by species, notably through scientific observers in accordance with [Resolution 11/04](#) and report these annually. Observers shall to the extent possible take photographs of seabirds caught by fishing vessels and transmit them to national seabird experts or to the IOTC Secretariat, for confirmation of identification.
2. CPCs that have not fully implemented the provisions of the IOTC Regional Observer Scheme outlined in paragraph 2 of [Resolution 11/04](#) shall report seabird incidental bycatch through logbooks, including details of species, if possible.
3. CPCs shall provide to the Commission as part of their annual reports, information on how they are implementing this measure.
4. CPCs shall seek to achieve reductions in levels of seabird bycatch across all fishing areas, seasons, and fisheries through the use of effective mitigation measures, while giving due consideration to the safety of crew members and the practicability of mitigation measures.
5. In the area south of 25 degrees South latitude, CPCs shall ensure that all longline vessels use at least two of the three mitigation measures in **Table 1**. These measures should also be considered for implementation in other areas, as appropriate, consistent with scientific advice.
6. Mitigation measures used pursuant to paragraph 5 shall conform to the minimum technical standards for these measures, as shown in **Table 1**.

7. The design and deployment for bird scaring lines should also meet the additional specifications provided in **Annex I**.
8. The IOTC Scientific Committee, based notably on the work of the WPEB and information from CPCs, will analyse the impact of this Resolution on seabird bycatch no later than for the 2016 meeting of the Commission. It shall advise the Commission on any modifications that are required, based on experience to date of the operation of the Resolution and/or further international studies, research or advice on best practice on the issue, in order to make the Resolution more effective.
9. The Commission should hold a workshop in the intersessional period before the entry into force of this Resolution to facilitate its implementation, particularly focusing on how to address safety and practical concerns. CPCs shall ensure that fishers make a trial of the safety and practicality of these measures for review at the workshops with a view of resolving their concerns and assuring the orderly implementation, including training for and adaptation to these measures. A second workshop should be held, if necessary to explain the science, theory and application of the line weighting measure.
10. This Resolution shall enter into force on 1 July 2014.
11. As of 1 July 2014, the Resolution 10/06 *on reducing incidental bycatch of seabirds in longline fisheries* and the Recommendation 05/09 *on incidental mortality of seabirds* are superseded by this Resolution.

**Table 1. Mitigation measures**

Mitigation	Description	Specification
Night setting with minimum deck lighting	No setting between nautical dawn and before nautical dusk.  Deck lighting to be kept to a minimum.	Nautical dusk and nautical dawn are defined as set out in the Nautical Almanac tables for relevant latitude, local time and date.  Minimum deck lighting should not breach minimum standards for safety and navigation.
Bird-scaring lines (Tori lines)	Bird-scaring lines shall be deployed during the entire longline setting to deter birds from approaching the branch line.	For vessels greater than or equal to 35 m: <ul style="list-style-type: none"> <li>• Deploy at least 1 bird-scaring line. Where practical, vessels are encouraged to use a second tori pole and bird scaring line at times of high bird abundance or activity; both tori lines should be deployed simultaneously, one on each side of the line being set.</li> <li>• Aerial extent of bird-scaring lines must be greater than or equal to 100 m.</li> <li>• Long streamers of sufficient length to reach the sea surface in calm conditions must be used.</li> <li>• Long streamers must be at intervals of no more than 5m.</li> </ul> For vessels less than 35 m: <ul style="list-style-type: none"> <li>• Deploy at least 1 bird-scaring line.</li> <li>• Aerial extent must be greater than or equal to 75 m.</li> <li>• Long and/or short (but greater than 1 m in length) streamers must be used and placed at intervals as follows: <ul style="list-style-type: none"> <li>○ Short: intervals of no more than 2 m.</li> <li>○ Long: intervals of no more than 5 m for the first 55 m of bird scaring line.</li> </ul> </li> </ul> Additional design and deployment guidelines for bird-scaring lines are provided in <b>Annex I</b> of this Resolution.
Line weighting	Line weights to be deployed on the snood prior to setting.	Greater than a total of 45 g attached within 1 m of the hook or; Greater than a total of 60 g attached within 3.5 m of the hook or; Greater than a total of 98 g weight attached within 4 m of the hook.

## ANNEX I

**Supplemental Guidelines for Design and Deployment of Tori Lines****Preamble**

Minimum technical standards for deployment of tori lines are found in **Table 1** of this Resolution, and are not repeated here. These supplemental guidelines are designed to assist in the preparation and implementation of tori line regulations for longline vessels. While these guidelines are relatively explicit, improvement in tori line effectiveness through experimentation is encouraged, within the requirements of **Table 1** in the Resolution. The guidelines take into account environmental and operational variables such as weather conditions, setting speed and ship size, all of which influence tori line performance and design in protecting baits from birds. Tori line design and use may change to take account of these variables provided that line performance is not compromised. On-going improvement in tori line design is envisaged and consequently review of these guidelines should be undertaken in the future.

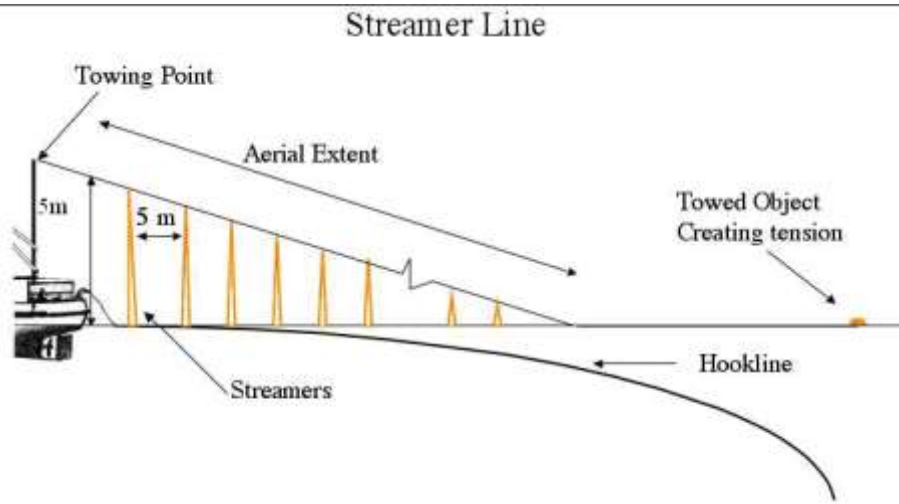
**Tori line design** (see **Figure 1**)

1. An appropriate towed device on the section of the tori line in the water can improve the aerial extension.
2. The above water section of the line should be sufficiently light that its movement is unpredictable to avoid habituation by birds and sufficiently heavy to avoid deflection of the line by wind.
3. The line is best attached to the vessel with a robust barrel swivel to reduce tangling of the line.
4. The streamers should be made of material that is conspicuous and produces an unpredictable lively action (e.g. strong fine line sheathed in red polyurethane tubing) suspended from a robust three-way swivel (that again reduces tangles) attached to the tori line.
5. Each streamer should consist of two or more strands.
6. Each streamer pair should be detachable by means of a clip so that line stowage is more efficient.

**Deployment of tori lines**

1. The line should be suspended from a pole affixed to the vessel. The tori pole should be set as high as possible so that the line protects bait a good distance astern of the vessel and will not tangle with fishing gear. Greater pole height provides greater bait protection. For example, a height of around 7 m above the water line can give about 100 m of bait protection.
2. If vessels use only one tori line it should be set to windward of sinking baits. If baited hooks are set outboard of the wake, the streamer line attachment point to the vessel should be positioned several meters outboard of the side of the vessel that baits are deployed. If vessels use two tori lines, baited hooks should be deployed within the area bounded by the two tori lines.
3. Deployment of multiple tori lines is encouraged to provide even greater protection of baits from birds.
4. Because there is the potential for line breakage and tangling, spare tori lines should be carried onboard to replace damaged lines and to ensure fishing operations can continue uninterrupted. Breakaways can be incorporated into the tori line to minimize safety and operational problems should a longline float foul or tangle with the in-water extent of a streamer line.
5. When fishers use a bait casting machine (BCM), they must ensure coordination of tori line and machine by: i) ensuring the BCM throws directly under the tori line protection, and ii) when using a BCM (or multiple BCMs) that allows throwing to both port and starboard, two tori lines should be used.
6. When casting branchline by hand, fishers should ensure that the baited hooks and coiled branchline sections are cast under the tori line protection, avoiding the propeller turbulence which may slow the sink rate.
7. Fishers are encouraged to install manual, electric or hydraulic winches to improve ease of deployment and retrieval of tori lines.





**Figure 1.** Diagram of Bird Scaring Streamer Line.

## APPENDIX C

### RESOLUTION 12/09

#### ON THE CONSERVATION OF THRESHER SHARKS (FAMILY ALOPIIDAE) CAUGHT IN ASSOCIATION WITH FISHERIES IN THE IOTC AREA OF COMPETENCE

**The Indian Ocean Tuna Commission (IOTC),**

RECALLING that the IOTC [Resolution 05/05](#) concerning the conservation of sharks caught in association with fisheries managed by IOTC;

CONSIDERING that thresher sharks of the family Alopiidae are caught as bycatch in the IOTC area of competence;

NOTING that at its 2009 meeting, the IOTC Working Party on Ecosystems and Bycatch recognised that full stock assessments on sharks may not be possible because of data limitations and that it is essential that some stock assessment evaluation should be carried out;

NOTING that the international scientific community points out that the bigeye thresher shark (*Alopias superciliosus*) is particularly endangered and vulnerable;

CONSIDERING that it is difficult to differentiate between the various species of thresher sharks without taking them onboard and that such action might jeopardise the survival of the captured individuals;

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

1. This measure shall apply to all fishing vessels on the IOTC Record of Authorised Vessels.
2. Fishing Vessels flying the flag of an IOTC Member or Cooperating Non-Contracting Party (CPCs) are prohibited from retaining on board, transshipping, landing, storing, selling or offering for sale any part or whole carcass of thresher sharks of all the species of the family Alopiidae, with the exception of paragraph 7.
3. CPCs shall require vessels flying their flag to promptly release unharmed, to the extent practicable, thresher sharks when brought along side for taking on board the vessel.
4. CPCs shall encourage their fishers to record and report incidental catches as well as live releases. These data will be then kept at the IOTC Secretariat.
5. Recreational and sport fishing shall release alive all caught animals of thresher sharks of all the species of the family Alopiidae. In no circumstances specimen shall be retained on board, transhipped, landed, stored, sold or offered for sale. The CPCs shall ensure that both recreational and sport fishermen carrying out fishing with high risk of catching thresher sharks are equipped with instruments suitable to release alive the animals.
6. CPCs shall, where possible, implement research on sharks of the species *Alopias* spp, in the Convention area in order to identify potential nursery areas. Based on this research, CPCs shall consider additional management measures, as appropriate.
7. Scientific observers shall be allowed to collect biological samples (vertebrae, tissues, reproductive tracts, stomachs, skin samples, spiral valves, jaws, whole and skeletonised specimens for taxonomic works and museum collections) from thresher sharks that are dead at haulback, provided that the samples are part of the research project approved by the IOTC Scientific Committee (or IOTC Working Party on Ecosystems and Bycatch (WPEB)). In order to obtain the approval, a detailed document outlining the purpose of the work, number and type of samples intended to be collected and the spatio-temporal distribution of the sampling work must be included in the proposal. Annual progress of the work and a final report on completion of the project shall be presented to the IOTC WPEB and the IOTC Scientific Committee.
8. The Contracting Parties, Cooperating Non-Contracting Parties, especially those directing fishing activities for sharks, shall submit data for sharks, as required by IOTC data reporting procedures.
9. This Resolution supersedes Resolution 10/12 *On the Conservation of Thresher Sharks (Family Alopiidae) Caught in Association with Fisheries in the IOTC Area of Competence*.

**APPENDIX D****RESOLUTION 12/12****TO PROHIBIT THE USE OF LARGE-SCALE DRIFTNETS ON THE HIGH SEAS IN THE IOTC AREA****The Indian Ocean Tuna Commission (IOTC),**

RECALLING that the United Nations General Assembly (UNGA) Resolution 46/215 calls for a global moratorium on large-scale high seas driftnet fishing;

NOTING that a number of vessels continue to engage in large-scale high seas driftnet fishing in the Indian Ocean area (IOTC area of competence);

MINDFUL that any vessel fishing with large-scale driftnets on the high seas in the IOTC area of competence, or configured to conduct large-scale high seas driftnet operations, has the capacity to take species of concern to the IOTC and is likely to undermine the effectiveness of IOTC Conservation and Management Measures;

NOTING with concern that recent information indicates that such vessels are interacting more frequently with highly migratory species, such as tunas, swordfish, sharks, and other species covered by the IOTC Agreement; and that associated “ghost fishing” by lost or discarded driftnets have serious detrimental effects on these species of concern and the marine environment;

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

1. The use of large-scale driftnets<sup>1</sup> on the high seas within the IOTC area of competence shall be prohibited.
2. Each Contracting Party and Cooperating Non-Contracting party (hereinafter referred to as CPCs) shall take all measures necessary to prohibit their fishing vessels from using large-scale driftnets while on the high seas in the IOTC area of competence.
3. A CPC-flagged fishing vessel will be presumed to have used large-scale driftnets on the high seas in the IOTC area of competence if it is found operating on the high seas in the IOTC area of competence and is configured<sup>2</sup> to use large-scale driftnets.
4. Paragraph 3 shall not apply to a CPC-flagged vessel duly authorised to use large-scale driftnets in their EEZs. While on the high seas in the IOTC area of competence all of such driftnets and related fishing equipment shall be stowed or secured in such a manner that they are not readily available to be used for fishing.
5. CPCs shall include in their Annual Reports a summary of monitoring, control, and surveillance actions related to large-scale driftnet fishing on the high seas in the IOTC area of competence.
6. The IOTC shall periodically assess whether additional measures should be adopted and implemented to ensure that large-scale driftnets are not used on the high seas in the IOTC area of competence. The first such assessment shall take place in 2013.
7. Nothing in this measure shall prevent CPCs from applying more stringent measures to regulate the use of large-scale driftnets.
8. This Resolution supersedes Resolution 09/05 *to prohibit the use of large-scale driftnets on the high seas in the IOTC area.*

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<sup>1</sup> “Large-scale driftnets” are defined as gillnets or other nets or a combination of nets that are more than 2.5 kilometers in length whose purpose is to enmesh, entrap, or entangle fish by drifting on the surface of, or in, the water column.

<sup>2</sup> “Configured” to use large-scale drift-nets means having on board assembled gear that collectively would allow the vessel to deploy and retrieve large-scale driftnets.

## APPENDIX E

### RESOLUTION 11/04 ON A REGIONAL OBSERVER SCHEME

#### The Indian Ocean Tuna Commission (IOTC),

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

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

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

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

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

UNDERLINING that the adoption of this measure is intended to help support the implementation of Conservation and Management Measures as well as scientific research for tuna and tuna-like species;

CONSIDERING the provisions set forth in Resolution 10/04 *On A Regional Observer Scheme*, adopted by the Commission;

CONSIDERING the deliberations of the 12<sup>th</sup> Session of the IOTC Scientific Committee held in Victoria, Seychelles from 30 November to 4 December 2009

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

#### Objective

1. The objective of the IOTC observer scheme shall be to collect verified catch data and other scientific data related to the fisheries for tuna and tuna-like species in the IOTC area of competence.

#### Observer Scheme

2. In order to improve the collection of scientific data, at least 5 % of the number of operations/sets for each gear type by the fleet of each CPC while fishing in the IOTC area of competence of 24 meters overall length and over, and under 24 meters if they fish outside their Exclusive Economic Zone (EEZ) shall be covered by this observer scheme. For vessels under 24 meters if they fish outside their EEZ, the above mentioned coverage should be achieved progressively by January 2013.
3. When purse seiners are carrying an observer<sup>3</sup> as stated in paragraph 1, this observer shall also monitor the catches at unloading to identify the composition of bigeye tuna catches. The requirement for the observer to monitor catches at unloading is not applicable to CPCs already having a sampling scheme, with at least the coverage set out in paragraph 2.
4. The number of the artisanal fishing vessels landings shall also be monitored at the landing place by field samplers<sup>4</sup>. The indicative level of the coverage of the artisanal fishing vessels should progressively increase towards 5% of the total levels of vessel activity (i.e. total number of vessel trips or total number of vessels active).
5. CPCs shall:

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<sup>3</sup> Observer: a person who collects information on board fishing vessels. Observer programmes can be used for quantifying species composition of target species, bycatch, by-products and dead discards, collecting tag returns, etc.

<sup>4</sup> Field sampler: a person who collects information on land during the unloading of fishing vessels. Field sampling programmes can be used for quantifying catch, retained bycatch, collecting tag returns, etc.

- a) Have the primary responsibility to obtain qualified observers. Each CPC may choose to use either deployed national or non-national of the flag State of the vessel on which they are deployed;
  - b) Endeavour that the minimum level of coverage is met and that the observed vessels are a representative sample of the gear types active in their fleet;
  - c) Take all necessary measures to ensure that observers are able to carry out their duties in a competent and safe manner;
  - d) Endeavour to ensure that the observers alternate vessels between their assignments. Observers are not to perform duties, other than those described in paragraphs 10 and 11 below;
  - e) Ensure that the vessel on which an observer is placed shall provide suitable food and lodging during the observer's deployment at the same level as the officers, where possible. Vessel masters shall ensure that all necessary cooperation is extended to observers in order for them to carry out their duties safely including providing access, as required, to the retained catch, and catch which is intended to be discarded.
6. The cost of the observer scheme in paragraph 2 and 3 shall be met by each CPC.
7. The sampling scheme referred in paragraph 4 will be covered by the Commission's accumulated funds and voluntary contribution on a provisional basis. The Commission will consider an alternative for the financing of this scheme.
8. If the coverage referred in paragraphs 2 and 3 is not met by a CPC, any other CPC may, subject to the consent of the CPC who has not met its coverage, place an observer to fulfil the tasks defined in the paragraphs 1 and 2 until that CPC provides a replacement or the target coverage level is met.
9. CPCs shall provide to the IOTC Executive Secretary and the IOTC Scientific Committee annually a report of the number of vessels monitored and the coverage achieved by gear type in accordance with the provisions of this Resolution.
10. Observers shall:
- a) Record and report fishing activities, verify positions of the vessel;
  - b) Observe and estimate catches as far as possible with a view to identifying catch composition and monitoring discards, by-catches and size frequency;
  - c) Record the gear type, mesh size and attachments employed by the master;
  - d) Collect information to enable the cross-checking of entries made to the logbooks (species composition and quantities, live and processed weight and location, where available); and
  - e) Carry out such scientific work (for example, collecting samples), as requested by the IOTC Scientific Committee.
11. The observer shall, within 30 days of completion of each trip, provide a report to the CPCs of the vessel. The CPCs shall send within 150 days at the latest each report, as far as continuous flow of report from observer placed on the longline fleet is ensured, which is recommended to be provided with 1°x1° format to the IOTC Executive Secretary, who shall make the report available to the IOTC Scientific Committee upon request. In a case where the vessel is fishing in the EEZ of a coastal State, the report shall equally be submitted to that coastal State.
12. The confidentiality rules set out in the Resolution 98/02 **[superseded by [Resolution 12/02](#)]** *Data confidentiality policy and procedures* for fine-scale data shall apply.
13. Field samplers shall monitor catches at the landing place with a view to estimating catch-at-size by type of boat, gear and species, or carry out such scientific work as requested by the IOTC Scientific Committee.
14. The funds available from the IOTC balance of funds may be used to support the implementation of this programme in developing States, notably the training of observers and field samplers.
15. The elements of the Observer Scheme, notably those regarding its coverage, are subject to review and revision, as appropriate, for application in 2012 and subsequent years. Basing on the experience of other Tuna

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RFMOs, the IOTC Scientific Committee will elaborate an observer working manual, a template to be used for reporting (including minimum data fields) and a training program.

16. This Resolution supersedes Resolution 10/04 *On A Regional Observer Scheme*.

## APPENDIX F

### RESOLUTION 10/02

#### MANDATORY STATISTICAL REQUIREMENTS FOR IOTC MEMBERS AND COOPERATING NON-CONTRACTING PARTIES (CPC'S)

##### The Indian Ocean Tuna Commission (IOTC)

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

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

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

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

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

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

CONSIDERING the provisions set forth in Resolution 08/01 [superseded by [Resolution 10/02](#)] on *mandatory statistical requirements for IOTC Members and Cooperating Non-Contracting parties (CPCs)*, adopted by the Commission in 2008;

CONSIDERING the deliberations of the 12<sup>th</sup> Session of the IOTC Scientific Committee held in Victoria, Seychelles from 30 November to 4 December 2009;

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

1. CPC's shall provide the following information to the IOTC Secretariat according to the timelines specified in paragraph 6:
2. **Nominal catch data:**  
Estimates of the total annual catch by species and gear for all species under the IOTC mandate.
3. **Catch and effort data:**
  - a) **For surface fisheries:** catch weight by species and fishing effort shall be provided by 1° grid area and month strata. Purse seine fishery data shall be stratified by fishing mode (e.g. free swimming schools or

schools in association with floating objects). The data shall be extrapolated to the total national monthly catches for each gear. Documents describing the extrapolation procedures (including raising factors corresponding to the logbook coverage) shall also be submitted routinely.

- b) **Longline fisheries:** catch by species, in numbers or weight, and effort as the number of hooks deployed shall be provided by 5° grid area and month strata. Documents describing the extrapolation procedures (including raising factors corresponding to the logbook coverage) shall also be submitted routinely. For the work of relevant working parties under the IOTC Scientific Committee, longline data should be of a resolution of 1° grid area and month or finer. These data would be for the exclusive use of IOTC scientists, subject to the approval of the data owners and IOTC Resolution 98/02 [superseded by [Resolution 12/02](#)] *Data confidentiality policy and procedures*, and should be provided for scientific use in a timely fashion.
- c) **For coastal fisheries:** available catch by species, fishing gear and fishing effort shall be submitted frequently and may be provided using an alternative geographical area if it better represents the fishery concerned.

These provisions, applicable to tuna and tuna-like species, shall also be applicable to the most commonly caught shark species and, where possible, to the less common shark species. CPC's are also encouraged to record and provide data on species other than sharks and tunas taken as bycatch.

#### 4. Size data:

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

- 5. 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, the following data shall be provided:
  - a) The number and characteristics of supply vessels: (i) operating under their flag, (ii) assisting purse seine vessels operating under their flag, or (iii) licensed to operate in their exclusive economic zones, and that have been present in the IOTC Area;
  - b) Number of days at sea by supply vessels by 1° grid area and month to be reported by the flag state of the supply vessel;
  - c) The total number and type of FADs set by the supply vessel and purse seine fleet per quarter. Types of FADs are defined as 1) drifting log or debris, 2) drifting raft or fad with a net, 3) drifting raft or fad without a net, 4) other (e.g. Payao, dead animal etc). All types monitored by a tracking system.

These data would be for the exclusive use of IOTC scientists, subject to the approval of the data owners and Resolution 98/02 [superseded by [Resolution 12/02](#)] *Data confidentiality policy and procedures*, and should be provided in a timely fashion.

#### 6. Timeliness of data submission to the IOTC Secretariat:

- a) Longline fleets operating in the high seas shall provide provisional data for the previous year no later than 30 June. Final data shall be submitted no later than 30 December;
- b) All other fleets (including supply vessels) shall submit their final data for the previous year no later than 30 June;



- c) In case where the final statistics cannot be submitted by that date, at least preliminary statistics should be provided. Beyond a delay of two years, all revisions of historical data should be formally reported and duly justified. These reports should be made on forms provided by the IOTC Secretariat and reviewed by the IOTC Scientific Committee. The IOTC Scientific Committee will advise the IOTC Secretariat if revisions are then accepted for scientific use.
7. This Resolution supersedes Resolution 08/01 on *Mandatory statistical requirements for IOTC Members and Cooperating Non-Contracting parties (CPCs)*.

**APPENDIX G****RESOLUTION 05/05****CONCERNING THE CONSERVATION OF SHARKS CAUGHT IN ASSOCIATION WITH FISHERIES  
MANAGED BY IOTC****The Indian Ocean Tuna Commission (IOTC),**

RECALLING that the United Nations Food and Agriculture Organisation (FAO) International Plan of Action of Sharks calls on States, within the framework of their respective competencies and consistent with international law, to cooperate through regional fisheries organisations with a view to ensuring the sustainability of shark stocks as well as to adopt a National Plan of Action for the conservation and management of sharks (defined as elasmobranchs);

CONSIDERING that many sharks are part of pelagic ecosystems in the IOTC area, and that tunas and tuna-like species are captured in fisheries targeting sharks;

RECOGNISING the need to collect data on catch, effort, discards and trade, as well as information on the biological parameters of many species, in order to conserve and manage sharks;

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

1. Contracting Parties, Cooperating Non-Contracting Parties (CPCs) shall annually report data for catches of sharks, in accordance with IOTC data reporting procedures, including available historical data.
2. In 2006 the IOTC Scientific Committee (in collaboration with the IOTC Working Party on Ecosystems and Bycatch) provide preliminary advice on the stock status of key shark species and propose a research plan and timeline for a comprehensive assessment of these stocks.
3. CPCs shall take the necessary measures to require that their fishermen fully utilise their entire catches of sharks. Full utilisation is defined as retention by the fishing vessel of all parts of the shark excepting head, guts and skins, to the point of first landing.
4. CPCs shall require their vessels to not have onboard fins that total more than 5 % of the weight of sharks onboard, up to the first point of landing. CPCs that currently do not require fins and carcasses to be offloaded together at the point of first landing shall take the necessary measures to ensure compliance with the 5 % ratio through certification, monitoring by an observer, or other appropriate measures.
5. The ratio of fin-to-body weight of sharks described in paragraph 4 shall be reviewed by the IOTC Scientific Committee and reported back to the Commission in 2006 for revision, if necessary.
6. Fishing vessels are prohibited from retaining on board, transshipping or landing any fins harvested in contravention of this Resolution.
7. In fisheries that are not directed at sharks, CPCs shall encourage the release of live sharks, especially juveniles and pregnant sharks, to the extent possible, that are caught incidentally and are not used for food and/or subsistence.
8. CPCs shall, where possible, undertake research to identify ways to make fishing gears more selective (such as the implications of avoiding the use of wire traces).
9. CPCs shall, where possible, conduct research to identify shark nursery areas.
10. The Commission shall consider appropriate assistance to developing CPCs for the collection of data on their shark catches.
11. This Resolution applies only to sharks caught in association with fisheries managed by the IOTC.
12. This provision to apply without prejudice to many artisanal fisheries which traditionally do not discard carcasses.