REVIEW OF CURRENT CONSERVATION AND MANAGEMENT MEASURES RELATING TO TEMPERATE TUNA SPECIES

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PURPOSE

To encourage participants at the 6th Working Party on Temperate Tunas (WPTmT06) to review some of the existing Conservation and Management Measures (CMM) relating to temperate tunas, noting the CMMs contained in document IOTC–2016–WPTmT06–04; and as necessary to 1) provide recommendations to the Scientific Committee on whether modifications may be required; and 2) recommend whether other CMMs may be required.

BACKGROUND

In addition to the CMMs outlined in document IOTC–2016–WPTmT06–04, temperate tunas in the Indian Ocean are currently subject to several other Conservation and Management Measures adopted by the Commission. In an attempt to focus the efforts of the WPTmT, it is our aim to have participants annually review one of the key CMMs based on scientific advice, or which match current requests from the Commission. At next year's meeting, an alternative CMM may be presented for discussion.

Resolution 13/09 *On the conservation of albacore caught in the IOTC area of competence.* This Resolution requires the Scientific Committee to assess the coverage and the quality of catch and effort data made available by CPCs targeting albacore, and to advise the Commission before the end of 2014 on target and limit reference points (LRPs, TRPs) which may be used when assessing the albacore stock status and when evaluating potential management measures. In addition, the Scientific Committee, through its Working Parties on Temperate Tunas (WPTmT) and on Methods (WPM), is required to examine and evaluate potential management measures which would allow the achievement of the conservation and optimal utilization of the albacore stock.

Resolution 15/10 *On target and reference points and a decision framework*. This Resolution introduces amendments to Resolution 13/10 by including a possibility for the IOTC Scientific Committee to use possible alternatives to MSY-based reference points when they are considered as insufficiently robust. The proposal refers to B_0-based reference points, where B_0 is generally considered either as the historical biomass before the beginning of the fishing activities or as the biomass under the assumption of a termination of any fishing activities. In addition, considering these reference points, the Resolution introduces management objectives and a work program which would allow the IOTC Scientific Committee to discuss projections and outlooks associated to possible management options, more particularly when implementing Management Strategy Evaluations. This Resolution supersedes Resolution 13/10.

DISCUSSION

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

RECOMMENDATION

Noting the information contained in working paper IOTC–2016–WPTmT06–04, the WPTmT should aim to provide recommendations to the SC that 1) address any requests from the Commission, 2) outline whether changes to Resolutions 13/09 and 15/10 may be required, and/or 3) to recommend whether other CMMs may be required.

APPENDICES

Appendix A: Resolution 13/09 *On the conservation of albacore caught in the IOTC area of competence*

Appendix B: Resolution 15/10 *On target and reference points and a decision framework*

APPENDIX A

RESOLUTION 13/09

ON THE CONSERVATION OF ALBACORE CAUGHT IN THE IOTC AREA OF COMPETENCE

The Indian Ocean Tuna Commission (IOTC),

CONSIDERING that albacore (*Thunnus alalunga*) is one of the most important species managed by IOTC;

NOTING that the IOTC Working Party on Temperate Tunas and the IOTC Scientific Committee recognised that the current level of catches is likely to result in further declines in albacore biomass, productivity and catch-per-unit-effort (CPUE);

FURTHER NOTING that the impacts of the piracy in western Indian Ocean have resulted in the displacement of a substantial portion of the longline fishing effort into the traditional albacore fishing grounds in the southern and eastern Indian Ocean and therefore it is likely that catch-and-effort on albacore will decline in the future unless management action is taken;

BEARING IN MIND that the albacore stock in the Indian Ocean is currently subject to overfishing (current fishing mortality > fishing mortality allowing the stock to deliver MSY) and that the fishing mortality rate needs to be reduced below the 2010 level to ensure that the fishing mortality in 2020 does not exceed the fishing mortality allowing the stock to deliver MSY;

CONSIDERING the recommendations of the 15th Session of the IOTC Scientific Committee held in Mahé, Seychelles from 13–15 December 2012;

ADOPTS in accordance with paragraph 1 of Article IX of the IOTC Agreement, that the Commission shall request the IOTC Scientific Committee:

1. To compile, review, discuss and assess, during the year 2014 and with the support of all the concerned CPCs, the coverage and the quality of all available data on catches and fishing effort related to albacore fisheries in the IOTC area of competence;

2. Through its IOTC Working Party on Temperate Tunas (WPTmT), to examine in relevant 2014 sessions the state of albacore stock, by considering even common working sessions with the ICCAT scientific community to improve the knowledge on the interrelation between the Indian Ocean and Atlantic albacore populations; and

3. To advise the Commission, by end of 2014 at the latest:

    a) On Target Reference Points (TRPs) and Limit Reference Points (LRPs) used when assessing the albacore stock status and when establishing the Kobe plot and Kobe matrices;

    b) On potential management measures having been examined through the Management Strategy Evaluation (MSE) process. These management measures will therefore have to ensure the achievement of the conservation and optimal utilisation of stocks as laid down in article V of the Agreement for the establishment of the IOTC and more particularly to ensure that, in as short a period as possible and no later than 2020, (i) the fishing mortality rate does not exceed the fishing mortality rate allowing the stock to deliver MSY and (ii) the spawning biomass is maintained at or above its MSY level.

APPENDIX B

RESOLUTION 15/10

ON TARGET AND LIMIT REFERENCE POINTS AND A DECISION FRAMEWORK

Keywords: Limit reference points, management strategy evaluation, Kobe plot, maximum sustainable yield.

The Indian Ocean Tuna Commission (IOTC),

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

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

RECALLING that Article 6, paragraph 3, of the Agreement for the Implementation of the Provisions of the United Nations Convention of the Law of the Sea of December 1982 relating to the Conservation and Management of Straddling Fish Stocks and Highly Migratory Fish Stocks (UNFSA), establishes the application of precautionary reference points as a general principle for sound fisheries management;

FURTHER RECALLING that Annex II of UNFSA provides guidelines for the application of precautionary reference points in the conservation and management of straddling fish stocks and highly migratory fish stocks, including the adoption of provisional reference points when information for establishing reference points is absent or poor;

NOTING that the Scientific Committee noted that the interim limit reference points contained in Resolution 13/10 [superseded by Resolution 15/10] are not consistent with FAO and UNFSA guidelines;

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

NOTING that recommendations 37 and 38 of the Performance Review Panel, adopted by the Commission as Resolution 09/01, indicate that pending the amendment or replacement of the IOTC Agreement to incorporate modern fisheries management principles, the Commission should implement the precautionary approach including, *inter alia*, precautionary reference points, as set forth in the UNFSA;

NOTING Resolution 12/01 *On the implementation of the precautionary approach* that recommends adoption of provisional reference points, and that the IOTC Scientific Committee proposed provisional values at its 14th Session;

RECALLING ALSO that the IOTC Scientific Committee commenced a process leading to a management strategy evaluation (MSE) process to improve upon the provision of scientific advice on Harvest Control Rules (HCRs);

HIGHLIGHTING that the IOTC Scientific Committee is now in a position to provide advice on stock status relative to reference points for several stocks of tropical, temperate or neritic tunas and billfish;

FURTHER NOTING that the IOTC Scientific Committee at its 17th Session made recommendations on possible alternates to limit and target reference points derived from B_{MSY} and F_{MSY}, when those are considered as insufficiently robust, that are derived from proportions of B_0, being the estimated virgin biomass;

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

ACKNOWLEDGING that continuing dialog between scientists and managers is necessary to define appropriate HCRs for the IOTC tuna and tuna-like stocks;

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

Interim Target and Limit Reference Points (TRPs and LRPs)

1. When assessing stock status and providing recommendations to the Commission, the IOTC Scientific Committee should, where possible, apply MSY-based target and limit reference points for tuna and tuna-like species and in particular the interim reference points agreed by the Commission in 2013 for albacore, swordfish and the three (3) tropical tunas (bigeye tuna, skipjack tuna, yellowfin tuna) (per Resolution 13/10 *On interim target and limit reference points and a decision framework*) [superseded by Resolution 15/10]), as listed in **Table 1**. B_{MSY} refers to the biomass level for the stock that would produce the Maximum Sustainable Yield; F_{MSY} refers to the level of fishing mortality that produces the Maximum Sustainable Yield.

Table 1. Interim target and limit reference points.

Stock	Target Reference Point	Limit Reference Point
Albacore Yellowfin tuna Swordfish	$B_{TARGET} = B_{MSY}$; $F_{TARGET} = F_{MSY}$	$B_{LIM} = 0.40\ B_{MSY}$ $F_{LIM} = 1.40\ F_{MSY}$
Bigeye tuna	$B_{TARGET} = B_{MSY}$ $F_{TARGET} = F_{MSY}$	$B_{LIM} = 0.50\ B_{MSY}$ $F_{LIM} = 1.30\ F_{MSY}$
Skipjack tuna	$B_{TARGET} = B_{MSY}$ $F_{TARGET} = F_{MSY}$	$B_{LIM} = 0.40\ B_{MSY}$ $F_{LIM} = 1.50\ F_{MSY}$

Alternate interim Target and Limit Reference Points

2. Where the IOTC Scientific Committee considers that MSY-based reference points cannot be robustly estimated, biomass limit reference points will be set at a rate of B_0. Unless the IOTC Scientific Committee advises the Commission of more suitable limit reference point for a particular species, by default, the interim B_{LIM} will be set at 0.2 B_0 and fishing mortality rate limit reference point at $F_{0.2\ Bo}$ (the value corresponding to this biomass limit reference point). These interim limit reference points will be reviewed no later than 2018.

3. Where the IOTC Scientific Committee considers that MSY-based reference points cannot be robustly estimated, target reference points based on the depletion proportion (i.e. reference points with respect to the ratio of current biomass to B_0, B_0 being the virgin biomass estimate) should be used as a basis for B_{TARGET} and F_{TARGET}, as follows:

   a) the interim biomass target reference point B_{TARGET} could be set at a ratio of B_0, the virgin biomass;

   b) the interim fishing mortality rate target reference point F_{TARGET} could be set at a level consistent with the target biomass reference point, the fishing mortality rate corresponding then to the adopted ratio of B_0, the virgin biomass).

4. These target and limit reference points, referred to in paragraphs 1, 2 and 3, shall be further reviewed by the IOTC Scientific Committee according to the program of work at **Annex 1** and in accordance with paragraph 6. The results shall be presented to the Commission for adoption of species-specific reference points.

5. The IOTC Scientific Committee shall continue to provide advice on the status of stocks and on recommendations for management measures in relation to the reference points referred to in paragraphs 1, 2 and 3, where available, until the Commission adopts other reference points that achieve the IOTC's conservation and management objectives and are consistent with paragraph 6.

6. The IOTC Scientific Committee shall recommend to the Commission for its consideration options for harvest control rules for IOTC species in relation to agreed reference points and, in doing so, shall take into account:

   a) the provisions set forth in the UNFSA and in Article V of the IOTC Agreement;

   b) the following objectives and any other objective identified through the Science and Management Dialogue process designed in Resolution 14/03 (or any revision thereof) and agreed thereafter by the Commission:

      i. Maintain the biomass at or above levels required to produce MSY or its proxy and maintain the fishing mortality rate at or below F_{MSY} or its proxy;

      ii. Avoid the biomass being below B_{LIM} and the fishing mortality rate being above F_{LIM};

   c) the following guidelines:

i. For a stock where the assessed status places it within the lower right (green) quadrant of the Kobe Plot, aim to maintain the stock with a high probability within this quadrant;

ii. For a stock where the assessed status places it within the upper right (orange) quadrant of the Kobe Plot, aim to end overfishing with a high probability in as short a period as possible;

iii. For a stock where the assessed status places it within the lower left (yellow) quadrant of the Kobe plot, aim to rebuild these stocks in as short a period as possible;

iv. For a stock where the assessed status places it within the upper left quadrant (red), aim to end overfishing with a high probability and to rebuild the biomass of the stock in as short a period as possible.

Final Clauses

7. Bearing in mind Article 64 of UNCLOS and Article 8 of UNFSA, the entirety of this Resolution is subject to Article XVI (Coastal States' Rights) of the IOTC Agreement for the Establishment of the Indian Ocean Tuna Commission, and Articles 87 and 116 of the UN Convention of the Law of the Sea regarding the right to fish on the high seas;

8. The IOTC Scientific Committee is requested to evaluate the performance of any harvest control rules with respect to the species specific target and limit reference points adopted for IOTC species, but not later than 10 years following their adoption, and the Commission will consider, as appropriate and consistent with the scientific advice, these harvest control rules.

9. As soon as advice from the IOTC Scientific Committee regarding the appropriateness of TRPs and LRPs, as required under **Annex 1**, is available to the Commission, and where possible no later than at the IOTC Commission meeting in 2020, this Resolution will be reviewed with the view to adopting revised TRPs and LRPs.

10. This Resolution supersedes Resolution 13/10 *On interim target and limit reference points and a decision framework.*