
**ON HARVEST CONTROL RULES FOR SKIPJACK TUNA IN THE IOTC AREA OF
COMPETENCE**

SUBMITTED BY: EUROPEAN UNION

The Indian Ocean Tuna Commission (IOTC),

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

BEING MINDFUL of Article XVI of the IOTC Agreement regarding the rights of Coastal States, Article 87 and 116 of the UN Convention of the Law of the Sea regarding the right to fish on the high seas and of Article 24 of the Agreement for the Implementation of the Provisions of the United Nations Convention of the Law of the Sea of December 1982 relating to the Conservation and Management of Straddling Fish Stocks and Highly Migratory Fish Stocks (UNFSA) regarding recognition of the special requirements of developing states;

RECOGNISING Resolution 12/01 *On the implementation of the precautionary approach* calls on the Indian Ocean Tuna Commission to implement and apply the precautionary approach, in accordance Article 6 of the Agreement for the Implementation of the Provisions of the United Nations Convention of the Law of the Sea of December 1982 relating to the Conservation and Management of Straddling Fish Stocks and Highly Migratory Fish Stocks (UNFSA);

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

FURTHER CONSIDERING the call by the United Nations General Assembly Resolution 70/75 upon the states to increase the reliance on scientific advice in developing, adopting and implementing conservation and management measures and to take into account the special requirements of developing states, including Small Island developing States as highlighted in the SIDS Accelerated Modalities of Action (SAMOA) Pathway;

CONSIDERING the recommendations adopted by the KOBE II, held in San Sebastian, Spain, June 23 – July 3 2009; implementing where appropriate a freeze on fishing capacity on a fishery by fishery basis and such a freeze should not constrain the access to, development of, and benefit from sustainable tuna fisheries by developing coastal States;

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

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

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

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

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

NOTING that the Scientific Committee at its 17th Session, recommended the Commission consider an alternative approach to identify biomass limit reference points, such as those based on biomass depletion levels, when the MSY-based reference points are difficult to estimate. In cases where MSY-based reference points can be robustly estimated, limit reference points may be based around MSY;

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

ACKNOWLEDGING that the IOTC Scientific Committee diagnoses that the stock status is not overfished nor subject to overfishing and that the application of the adopted Harvesting Control Rule provides a catch limit, for the period 2021-2023, of 513,572 tonnes;

NOTING the advice of the IOTC Scientific Committee that the Commission needs to ensure that catches of skipjack tuna do not exceed the agreed limit of 513,572t

RECOGNISING that the increasing trend in catches has reached levels, in the period 2017-2019, beyond the new agreed limit of 513,572t and that such levels might put in question the sustainability over time of Skipjack fishery in the Indian Ocean.

NOTING that paragraph 128 of the report of the 21st IOTC Scientific Committee in 2018 indicates that the Harvesting Control Rule has been MSE tested with an implementation error of 15%

RECOGNIZING that the objectives of Resolution 16/02 is to maintain the IOTC Skipjack tuna stock in perpetuity, at levels not less than those capable of producing maximum sustainable yield (MSY) and that the biomass target reference point corresponds to the 40% of unfished spawning biomass (i.e. 0.4B₀) which is substantially higher than the B_{msy} level (corresponding to 0.22B₀)

FURTHER NOTING that a clear payback mechanism has to be introduced to ensure that possible overall catch overshooting are timely detected and counteracted in line with the provisions of this resolution.

CONSIDERING THAT highly migratory tropical tunas live in all regions of the Indian Ocean, from the coastal areas to the high sea, and are harvested by all kind of fishing vessels, from the subsistence and coastal artisanal fisheries to industrial fisheries, a sound management for the sustainable harvesting of this stock shall involve all the different components in an equitable manner;

CONSIDERING the multispecies nature of tropical tuna fisheries and variability between gears, regions and period of the year, it is advisable to task the IOTC scientific committee to identify a specific coefficient(s) expressing the minimum ratio of skipjack tuna annual catches to the total volume in metric tons of tropical tuna catches by fishery with the aim to provide some quantitative guidance helping the CPCs in their internal validation of tropical tuna catches by species recorded by their fishing fleets thus improving the reliability of data reported to the IOTC;

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

RECALLING obligations and agreements under Resolutions 12/02^[1], 15/01^[2], 15/02^[3], and 15/10^[4];

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

Objectives

1

To maintain the Indian Ocean Tuna Commission Skipjack tuna stock in perpetuity, at levels not less than those capable of producing maximum sustainable yield (MSY) as qualified by relevant environmental and economic factors including the special requirements of Developing Coastal States and Small Island Developing States in the IOTC area of competence and considering the general objectives identified in Resolution 15/10 (or any subsequent revision).

2

To use a pre-agreed harvest control rule (HCR) to maintain the Skipjack tuna stock at, or above, the target reference point (TRP) and well above the limit reference point (LRP), specified in Resolution 15/10 (or any subsequent revision).

Reference Points

3

Consistent with paragraph 2 of Resolution 15/10, the biomass limit reference point, B_{lim} , shall be 20% of unfished spawning biomass^[5] (i.e. $0.2B_0$).

4

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

5

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

Harvest Control Rule (HCR)

6

The Skipjack tuna stock assessment shall be conducted every three (3) years, with the next stock assessment to occur in 2017. Estimates of 7(a–c) shall be taken from a model-based stock assessment that has been reviewed by the Working Party on Tropical Tunas and endorsed by the Scientific Committee via its advice to the Commission.

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

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

8

The HCR shall have five control parameters set as follows:

- a) Threshold level, the percentage of B_0 below which reductions in fishing mortality are required, $B_{thresh} = 40\%B_0$. If biomass is estimated to be below the threshold level, then fishing mortality reductions, as output by the HCR, will occur.
- b) Maximum fishing intensity, the percentage of E_{targ} that will be applied when the stock status is at, or above, the threshold level $I_{max} = 100\%$. When the stock is at or above the threshold level, then fishing intensity (I) = I_{max} .
- c) Safety level, the percentage of B_0 below which non-subsistence catches are set to zero i.e. the non-subsistence fishery is closed $B_{safety} = 10\%B_0$.
- d) Maximum catch limit (C_{max}), the maximum recommended catch limit = 900,000t. To avoid adverse effects of potentially inaccurate stock assessments, the HCR shall not recommend a catch

limit greater than C_{max} . This value is based upon the estimated upper limit of the MSY range in the 2014 Skipjack stock assessment.

e) Maximum change in catch limit (D_{max}), the maximum percentage change in the catch limit = 30%. To enhance the stability of management measures the HCR shall not recommend a catch limit that is 30% higher, or 30% lower, than the previous recommended catch limit.

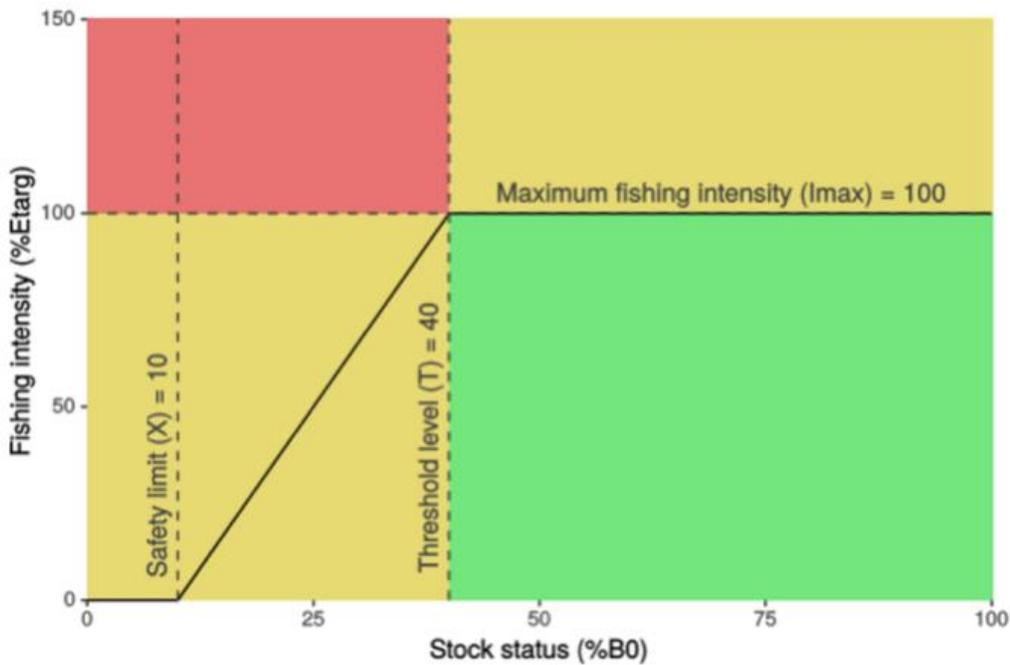
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The recommended total annual catch limit shall be set as follows:

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

10

The HCR described in 8(a-e) produces a relationship between stock status (spawning biomass relative to unfished levels) and fishing intensity (exploitation rate relative to target exploitation rate) as shown below (See Table 1 in Appendix 1 for specific values):



11

The catch limit shall by default, be implemented in accordance with the allocation scheme agreed for Skipjack tuna by the Commission. In the absence of an allocation scheme, the HCR shall be applied as follows:

- a) If the stock is at or above the Threshold level (i.e., $B_{curr} \geq 0.4B_0$), then the HCR shall establish an overall catch limit.
- b) If the stock falls below the Threshold level (i.e., $B_{curr} < 0.4B_0$), the fishing mortality reductions shall be implemented proportionally by CPCs for catches over 1 percent of the catch limit established by the HCR with due consideration to the aspirations and special requirements of Developing Coastal States and Small Island Developing States.
- c) This paragraph shall not pre-empt or prejudice future allocation negotiations.

Review and exceptional circumstances

12

The HCR, including the control parameters, will be reviewed through further Management Strategy Evaluation (MSE), but no later than 2021 (i.e. five years from its implementation). Subject to the result of that review the current HCR may be refined or replaced with an alternative HCR.

13

In the case that the estimated spawning biomass falls below the limit reference point, the HCR will be reviewed, and consideration given to replacing it with an alternative HCR specifically designed to meet a rebuilding plan as advised by the Commission.

14

The recommended total annual catch produced by the HCR will be applied continuously as set forth in paragraph 11 above, except in case of exceptional circumstances, such as caused by severe environmental perturbations. In such circumstances, the Scientific Committee shall advise on appropriate measures.

14 bis – Implementation of the total annual catch limits

- a) For the year 2022 and 2023, with a view to counteract the likely risk of overshooting the catch limit of 513.572 MT a specific mechanism shall be implemented against the average level of catches reported by CPCs for the years 2018-2019.
- b) CPC whose average catches of skipjack reported for the period 2018-2019 were above 5000 MT shall reduce their skipjack catches in 2022 by 10% from the 2018-2019 levels.
- c) Unless agreed otherwise during the IOTC annual meeting of 2022, CPC whose average catches of skipjack reported for the years 2018-2019 were above 5000 MT shall reduce their skipjack catches in 2023 by an additional 10% from the 2018-2019 levels.
- d) In consideration of their aspirations and special requirements, Developing Coastal States and Small Island Developing States, when implementing sub-paragraphs 14bis b) and c) shall reduce their level of skipjack catches by 7% in 2022 and by an additional 7% in 2023 from the 2018-2019 levels.
- e) CPCs not subject to catch reduction under sub-paragraphs 14 bis b), c) and d) shall endeavor to maintain their annual catches of skipjack within the average level reported for the period 2018-2019 and in no circumstance shall increase their average catches by more than 1000 MT.
- f) Possible increases of catches under sub-paragraph 14 f) shall be allocated only to the flagged vessels of the concerned CPCs and cannot be transferred to fishing vessels of other CPCs
- g) Any CPC that have not respected the catch reductions established in sub-paragraphs 14 b), c), d), e) and f) in a given year, shall implement, in the following year, an additional reduction corresponding to 100% of the over-catch.

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

Scientific Advice

15

The IOTC Scientific Committee shall:

- a) Include the LRP and TRP both relative to the unexploited biomass (B0) and biomass at the Maximum Sustainable Yield (Bmsy) as part of any analysis when undertaking all future assessments of the status of the IOTC Skipjack tuna stock.
- b) Undertake and report to the Commission a model-based Skipjack tuna stock assessment every three (3) years, commencing with the next stock assessment in 2023.
- c) continue to establish the scientific basis, through MSE testing, to advise the Commission on advanced candidate management procedures, integrating input control, output control, and current catch limitation measures, to restore or maintain tropical tuna stocks at or above the adopted TRP levels able to deliver maximum sustainable yields. In particular, undertake a programme of work to further refine Management Strategy Evaluation (MSE) for the IOTC Skipjack tuna fishery as required in paragraph 12 including, but not limited to,
 - i. Refinement of operating model(s)/ used,
 - ii. Evaluation of alternative management procedures (empirical and model based) including also, input measures for purse seine fisheries
 - iii. Exploring alternative options for TRP and LRP relative to B0 and Bmsy.
 - iv. Refining performance statistics.
- d) develop criteria and process for the identification of exceptional circumstances to ensure that exceptional circumstances are triggered only when necessary.

15bis

The IOTC Scientific Committee shall advice, at latest by its 2022 session, on the minimum ratios, including their variability, expressing the relative importance of skipjack tuna annual catches to the total volume in metric tons of tropical tuna catches by fishery on the basis of the data provided for the time period 2014 -2020. The IOTC Scientific Committee shall advice on the soundness and relevance of such minimum ratios to be used as a tool to manage tropical tuna catches, notably as a minimum value when reporting skipjack tuna catches

Final Clause

16

The Commission shall review this measure at its annual session in 2024, or before if there is reason and/or evidence to suggest that the Skipjack tuna stock is at risk of breaching the LRP.

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