

INTER-AMERICAN TROPICAL TUNA COMMISSION

100<sup>TH</sup> MEETING

Phoenix, Arizona, USA

1-5 August 2022

PROPOSAL IATTC-100 J-1

SUBMITTED BY ECUADOR

**HARVEST CONTROL RULES FOR TROPICAL TUNAS (YELLOWFIN, BIGEYE, AND SKIPJACK)**

The Inter-American Tropical Tuna Commission (IATTC), gathered in ~~La Jolla, California~~ Phoenix, Arizona (USA), on the occasion of its ~~90<sup>th</sup>~~ 100<sup>th</sup> meeting:

*Aware* of its responsibility regarding the scientific study of tunas and tuna-like species in its Convention Area, and for adopting conservation and management measures for those resources, and

*Recognizing* that the sustainability of the resource can be reduced if the increase in fishing effort is considerable, and

*Aware* that the capacity of the purse-seine fleets fishing for tunas in the Convention Area continues to increase, and

*Bearing in mind* that Article 7.5.3a of the Code of Conduct for Responsible Fishing indicates that regional fisheries management organisations (RFMOs) should determine stock-specific target reference points, and, at the same time, the action to be taken if they are exceeded, and

*Bearing in mind also* that Article 7.5.3b of the Code of Conduct for Responsible Fishing indicates that RFMOs should determine stock-specific limit reference points, and, at the same time, the action to be taken if they are exceeded; when a limit reference point is approached, measures should be taken to ensure that it will not be exceeded, and

*Taking note* of the variety of opinions that exist regarding the appropriate target reference points relating to the level of fishing mortality or the level of biomass that allow the long-term sustainable exploitation of the fish stocks, with the best possible catches; and on appropriate limit reference points related to the maximum values of fishing mortality or the minimum values of biomass, which should not be exceeded, and

*Recognizing* that, for the fishery for tropical tunas in the Convention Area, decision rules based on the precautionary principle will have to be developed to ensure that management objectives are achieved, including those deriving from the limit and target reference points adopted, and

*Bearing in mind* that, on the basis of the best available scientific information and the precautionary approach, the IATTC has used as an operational harvest control rule (HCR) limiting fishing mortality ( $F$ ) at levels that do not exceed the level corresponding to the maximum sustainable yield (MSY), and

*Considering* that the Commission, during its 87<sup>th</sup> annual meeting, adopted interim limit and target reference points for yellowfin tuna and bigeye tuna, and

*Bearing in mind* that the IATTC scientific staff indicates in Document SAC-07-07g, that the appropriateness of the operational HCR currently used with regard to the limit reference points has not been investigated in depth; therefore a more comprehensive management strategy evaluation (MSE) is necessary to evaluate the HCR; and alternative HCRs should be considered that include hard and soft limit reference points, that use reference points based on biomass, and that establish well-defined scientific management recommendations in the case that the reference points are exceeded,

Resolves as follows:

1. For the purposes of this Resolution, the following definitions<sup>1</sup> apply:
  - a. A limit reference point is a conservation reference point based on a level of spawning biomass ( $S_{LIMIT}$ ) or fishing mortality ( $F_{LIMIT}$ ) that should be avoided because going beyond it could endanger the sustainability of the stock;  $F_{0.5R0}$  and  $S_{0.5R0}$  assuming steepness  $h = 0.75$  were adopted by the 87<sup>th</sup> meeting of the IATTC as interim limit reference points for tropical tunas in the EPO.
  - b. A target reference point is a management objective based on a level of spawning biomass ( $S_{TARGET}$ ) or a fishing mortality rate ( $F_{TARGET}$ ) that should be achieved and maintained, and shall be defined as:
    - $S_{MSY}$  and  $F_{MSY}$  respectively, when they can be reliably estimated (or otherwise specified) from parameters estimated within the assessment model.
    - $S_{proxy-MSY}$  and  $F_{proxy-MSY}$  respectively, when they cannot be reliably estimated (or otherwise specified) from parameters estimated within the assessment model.
  - c. The selection of the proxies for  $S_{MSY}$  and  $F_{MSY}$  must take into account the uncertainty in the assessment model and the resilience (or lack thereof) of the species.
  - d. The proxy reference points shall be interim target reference points until a reliable parametric estimate is obtained from the assessment model.
  - ~~e.~~  $S_{MSY}$  and  $F_{MSY}$  were adopted by the 87<sup>th</sup> meeting of the IATTC as interim target reference points for tropical tunas in the EPO.
  - ~~f.~~ Harvest Control Rules (HCRs) are decision rules that aim to achieve the target reference point and avoid the limit reference point by specifying pre-agreed management actions.
2. The recommendations of the IATTC scientific staff on conservation measures for the stocks of tropical tunas (yellowfin, bigeye, and skipjack), shall take as their technical basis the limit and target reference points adopted provisionally.
3. The harvest control rule (HCR) recommended by the scientific staff for the purse-seine fishery for tropical tunas shall be adopted, in accordance with the following principles:
  - a. The scientific recommendations for establishing management measures in the fisheries for tropical tunas, such as closures, which can be established for multiple years, shall attempt to prevent the fishing mortality rate ( $F$ ) from exceeding the best estimate of the rate corresponding to the maximum sustainable yield ( $F_{MSY}$ ) for the species that requires the strictest management.
  - b. If the probability that  $F$  will exceed the limit reference point ( $F_{LIMIT}$ ) is greater than 10%, as soon as is practical management measures shall be established that have a probability of at least 50% of reducing  $F$  to the target level ( $F_{MSY}$ ) or less, and a probability of less than 10% that  $F$  will exceed  $F_{LIMIT}$ .
  - c. If the probability that the spawning biomass ( $S$ ) is below the limit reference point ( $S_{LIMIT}$ ) is greater than 10%, as soon as is practical management measures shall be established that have a probability of at least 50% of restoring  $S$  to the target level (dynamic  $S_{MSY}$ ) or greater, and a probability of less than 10% that  $S$  will descend to below  $S_{LIMIT}$  in a period of two generations of the stock or five years, whichever is greater.

<sup>1</sup> Other definitions:

$F_{MSY}$ : fishing mortality rate corresponding to the maximum sustainable yield; adopted at the 87<sup>th</sup> meeting of the IATTC;

$F_{proxy-MSY}$ : fishing mortality rate proxy of maximum sustainable yield;

~~$S_{MSY}$~~   $S_{MSY}$ : spawning biomass corresponding to the maximum sustainable yield; adopted at the 87<sup>th</sup> meeting of the IATTC;

$S_{proxy-MSY}$ : spawning biomass proxy of maximum sustainable yield;

$S_{0.5r0}$ : spawning biomass corresponding to that which produces a 50% reduction in recruitment as calculated in a Beverton-Holt spawner-recruit model with steepness of 0.75;

$F_{0.5R0}$ : fishing mortality that causes spawning biomass to be reduced to  $S_{0.5r0}$

- d. For fisheries that use gears other than purse-seine nets, the recommendations by the IATTC scientific staff on additional management measures shall be as consistent as possible with those adopted for the purse-seine fishery, while taking account of the impact of those fisheries on the species compared with that of purse-seine fishery.
4. The scientific staff of the Commission shall carry out additional assessments of these HCRs and alternatives, which shall be presented to the Scientific Advisory Committee for examination in order to allow the Commission to adopt a permanent HCR.
5. The IATTC shall continue to promote, encourage, and insist on compatibility between the conservation and management measures adopted by the IATTC and the Western and Central Pacific Fisheries Commission (WCPFC) in their objectives and efficacy with regard to the tropical tuna stocks.
6. The Director shall communicate this Resolution to the Secretariat of the WCPFC.