

INTER-AMERICAN TROPICAL TUNA COMMISSION

94<sup>TH</sup> MEETING

Bilbao, Spain, 22-26 July 2019

PROPOSAL IATTC-94 M-1

SUBMITTED BY ECUADOR

RESOLUTION FOR A PILOT PROJECT OF SORTING-GRID  
EXPERIMENTS

EXPLANATORY MEMORANDUM

The Inter-American Tropical Tuna Commission (IATTC) urged governments to reduce incidental mortality of juvenile tunas through Resolution C-04-05 (REV 2), where Article 1, paragraph b.i. states: *"Develop technology for releasing juvenile tunas, particularly sorting grids."*

Ecuador, concerned about maintaining the sustainability of the tuna resource, in June 2008 undertook to develop its own study on sorting grids, which would be adopted for its tuna purse-seine fleet. Through Ministerial Agreement 133 from July 2008, it was provided that all Ecuadorian Class-6 (>364 t) tuna purse-seine vessels will install a sorting grid in their purse-seine nets. Ecuador's Under-secretariat of Marine Resources experimented with six models of sorting grids between 2009 and 2011 to evaluate their effectiveness and suitability for use in fishing operations. It was concluded that the sorting grid represents a good alternative, since its practical and effective use could be demonstrated in the context of normal fishing operations and it is suggested that investigations be conducted on the behavior of the fish within the purse-seine net and the survival of the fish that are released through the sorting grid.

The Scientific Advisory Committee, at its eighth meeting in May 2017, made the following recommendation to the Commission:

*"The SAC recommends that the scientific staff prepare a strategic science plan for the 2018-2022 period, which includes clear objectives, specific priorities, strategies, actions, responsibilities, and resources, including a tentative budget."*

In accordance with this recommendation, the staff developed a Strategic Science Plan (SSP), which establishes objectives, activities, and research priorities for the 2019-2023 period. The SSP classifies seven main research areas called Themes, and each Theme is divided into Strategic Goals. The fourth theme, **Ecological impacts of fishing: assessment and mitigation**, includes within its goals project M.1.b. **Test sorting grids**.

The Inter-American Tropical Tuna Commission convened the "Workshop on analysis and improvement of the use and function of sorting grids for juvenile tunas and bycatch species in the purse-seine fishery for tunas in the eastern Pacific Ocean" on 8 and 9 April 2019 in Manta, Ecuador, the results of which were presented in report BYC-09-INF-A in May 2019.

## RESOLUTION C-19-XX

### RESOLUTION FOR A PILOT PROJECT OF SORTING-GRID EXPERIMENTS

The Inter-American Tropical Tuna Commission (IATTC), gathered in Bilbao, Spain, on the occasion of its 94<sup>th</sup> Meeting:

*Agrees the following:*

#### 1. TITLE

Pilot Project of Sorting-Grid Experiments

#### 2. OBJECTIVE

Conduct sorting-grid experiments on purse-seine vessels in order to reduce bycatches of small fish (tunas and others).

#### 3. BACKGROUND INFORMATION AND RATIONALE

Mitigating the ecological impacts of the tuna purse-seine fishery is of great importance for fisheries management in the EPO; releasing small individuals of any species (target and non-target) through techniques and fishing gear technologies would reduce the impacts of fishing operations and improve the sustainability of the fishery.

Sorting grids allow the escape of small individuals that can pass through the mesh of the grid in a purse-seine net. These may include: small tunas of all species and individuals of other species associated with FADs.

Many purse-seine vessels carry sorting grids, of different models and dimensions, to allow fish to escape, but their use has not been well documented. Some captains do not submerge them 100%, others might take them out of the water in order not to lose potential catches.

During the "Workshop on analysis and improvement of the use and function of sorting grids for juvenile tunas and bycatch species in the purse-seine fishery for tunas in the eastern Pacific Ocean" held on 8 and 9 April 2019 in Manta, participants discussed the different types and models of sorting grids used in other fisheries of the world that were presented. After discussing the pros and cons of the different options, most agreed that the current design used (4 m x 3 m rectangular shape) by the Ecuadorian fleet was rather adequate and that perhaps it could be improved with some modifications.

It was proposed to carry out an experiment with two prototype models of grids defined at the workshop and involving four tuna vessels (two vessels per model) or more that wish to participate. In addition, it was proposed to put additional grids that could go in the section of the net before the sack.

To evaluate the effectiveness of sorting grids, a two-phase experiment could be considered:

- a) Estimate which species and sizes leave the net.
- b) Estimate the survival of those that escape.

For a), the main options are:

- To use a small net outside the grid to catch the fish that leave the net.
- To use visual records of observers or scientists located near the grid.

- To use video cameras focused on the net.
- To compare the catches in sets with and without the grid.

For **b)**, it is much more complex. To estimate the survival of those that escape, we need to track their condition over a period of several weeks. Therefore, this pilot project would not include this phase.

#### **4. DESCRIPTION OF PROPOSED ACTIVITIES**

This Pilot Project of Sorting-Grid Experiments would be mainly focused on ensuring consistent results; the grids should be as similar as possible (materials, design, etc.) and their location in the net and mode of use should be directly comparable, considering the differences between the vessels.

The characteristics of the grids, location and date of testing would be:

- Materials: Grid frame (7/8" Samson rope), 5/16" polyethylene mesh (Tenax plus); meshes are inserted and reinforced with nylon string and coated with organic resin.
- The dimensions (length and depth) of the two grid models would be as follows: One grid of 4 m x 4 m and another one of 5 m x 4 m.
- Mesh: (width - height) 9 cm x 10 cm.
- Vertical location of the grid: Under the valance, same location near the foredeck.
- Horizontal location of the grid: It will be defined once we know the configuration according to the maneuver of the participating vessels.
- Test date: During the closure period.

#### **Experiment:**

##### **a) Single sorting grid experiment in the sack area:**

- a.1) One 4 m x 4 m grid with 9 cm x 10 cm mesh in the sack area.
- a.2) One 5 m x 4 m grid with 9 cm x 10 cm mesh in the sack area.

##### **b) Main grid experiment with additional auxiliary grids:**

- b.1) One 4 m x 4 m grid in the sack, plus a 4 m x 2 m grid in the part before the sack, both with 9 cm x 10 cm mesh.
- b.2) One 4 m x 4 m grid in the sack, plus two 4 m x 2 m grids in the part before the sack, all with 9 cm x 10 cm mesh.

As a first step, the escape of fish will be estimated with an auxiliary net placed outside the net to recapture the fish that escaped. To prevent the auxiliary net from blocking the exit, it may be necessary to add floats and weights to keep this net open. The catches of other purse-seine vessels fishing in the same time and area can be used as controls. The sets of the four purse-seine vessels over a period of months (which is suggested to be within the closure periods) will be analyzed to decide the need for an additional period.

Establish, with two or more purse-seine vessels, a commitment to cooperate by leaving the grid completely submerged in all sets.

Monitor the use of the grid in all sets with video cameras. Use a speedboat with a researcher aboard to film the escape through the grid. This initial pilot project will seek to measure the amount and characteristics of the escaped fish, not their survival. Evaluate the significance of the releases, assuming survival. If significant, design a project to measure survival in a floating cage. Discuss ways to improve their operation with captains, if necessary.

## 5. REPORTS

The activities and results of the project would be reported in IATTC quarterly and annual reports and in oral presentations at scientific meetings.

## 6. FUNDING

The IATTC would carry out this Pilot Project of Sorting-Grid Experiments in collaboration with the Industry, according to the work plans that combine research activities from different parts of the SSP already funded.

## 7. BUDGET

Construction of (4) main and (2) auxiliary prototype grids	\$ 15.000,00
Research team (Ecuador), days at sea	\$ 15.000,00
Cameras, equipment, etc.	\$ 15.000,00
<b>Total</b>	<b>\$ 45.000,00</b>

## REFERENCES

RESOLUTION C-04-05 (REV 2) CONSOLIDATED RESOLUTION ON BYCATCH

*REDUCCIÓN DE LA MORTALIDAD DE ATUNES PEQUEÑOS EN OPERACIONES DE PESCA UTILIZANDO REJILLAS EXCLUIDORAS*, “Ríos, B.F and Sondheimer, F.” Under-secretariat of Marine Resources, Ministry of Agriculture, Livestock, Aquaculture and Fisheries. Manta, Manabí, Ecuador. June 2011.

DOCUMENT IATTC-93-06a, IATTC STRATEGIC SCIENCE PLAN, 2019-2023

DOCUMENT -INF-A Report of the workshop on analysis and improvement of the use and function of sorting grids