

## SC 12 – WP 14

### **EVALUATION WORKSHOP OF METHODOLOGIES FOR THE IMPLEMENTATION OF AGE READINGS IN OTOLITHS OF JACK MACKEREL ( *TRACHURUS MURPHYI* ) AMONG THE AGE AND GROWTH LABORATORIES OF THE SPRFMO**

#### PROPOSED TERMS OF REFERENCE

#### PERU - CHILE

##### **I. Introduction**

During the first plenary session of the 12th meeting of the SPRFMO Scientific Committee, which is being held in Lima, Peru, from September 30 to October 5, 2024, the delegations of Chile and Peru presented proposals for technical terms of reference (documents SC12\_JM09 and SC12-WP04) to hold a workshop on jack mackerel otolith reading among the age and growth laboratories of the organization's member countries. After reviewing the proposals, both delegations saw it as appropriate to agree on the terms of reference for the workshop and present it in an additional document, which will be presented at the plenary for discussion and approval by SPRFMO members.

These agreements include the evaluation of age reading methodologies, which includes the review of dating and processing techniques, the analysis of new techniques, the performance of otolith processing tests and the interpretation of growth marks, analysis of the implementation of an otolith imaging protocol for morphometric analysis, and the examination of validation criteria using microstructures through tests of the techniques. This will allow, through subsequent joint work, to standardize the criteria for determining the age of jack mackerel, with the aim of achieving a more precise estimation of growth parameters.

In this context, this document contains the proposal agreed between the delegations of Peru and Chile on the terms of reference for the implementation of the otolith workshop within the framework of SPRFMO. The activities to be carried out jointly by the age and growth laboratories of the organization are detailed. In addition, it is suggested that all or part of the process be accompanied by an external specialist, jointly selected, according to the needs that should be covered to ensure a clear scheme in the application of the methods.

##### **II. Workshop objectives**

The objective of the workshop is to evaluate the methodologies for determining the age of *T. murphyi* otoliths among the age and growth laboratories of the SPRFMO member countries for the standardization of age reading criteria, according to:

- A. Discussion of the methodologies of the preparation and implementation process
- B. Discussion of the protocol for taking images
- C. Discussion of age validation criteria

### III. Workshop organization

The workshop is planned to be held in person at a SPRFMO member age and growth laboratory. To do so, a virtual meeting must be previously arranged to evaluate the workshop work plan. The workshop will address 3 main objectives, as follows:

**A. Discussion of methodologies for age reading:** This objective focuses on analyzing the methods and techniques used in sample preparation, as well as the criteria applied in reading age in otoliths. The purpose is to identify and evaluate the main difficulties associated with processing and interpretation, as well as to propose new alternatives or improvements in the techniques used. Processing trials are also planned to be carried out with a view to standardizing the procedures.

**B. Discussion of the imaging protocol:** This objective is focused on establishing a standardized protocol for obtaining images of whole otoliths, which will subsequently facilitate the morphological and morphometric characterization of the samples. These in turn will allow a spatial differentiation of the structure throughout its distribution area and a better spatial understanding of the otolith structure.

**C. Discussion of validation criteria:** This objective is aimed at evaluating the techniques used in age validation and interpretation through the analysis of otolith microstructure. As part of this process, a trial of these techniques and interpretations will be carried out, using both unprocessed and preprocessed samples. The activity should be accompanied by the participation of an external expert, previously selected by consensus among the workshop participants.

The diagnosis of these objectives will allow us to formulate medium-term goals in the joint validation processes and the unification of criteria for determining the age of jack mackerel.

### IV. Activity calendar

Table 1: Workshop plan for evaluating methodologies for implementation in otolith age readings of jack mackerel *T. murphyi* Nov 2024

Targets	Activities	Mode	Aug	Set	Oct	Nov	Dec
Preparation of the TDR	Workshop coordination	Virtual	x	x			
	Workshop agreements at the SC SPRFMO plenary session	In-person			x		
Discussion of methodologies for age reading	Previous coordination to the in-person workshop	Virtual					x
	Methodological review of age determination in jack mackerel	In-person					x
	Otolith processing techniques in the context of the SPRFMO	In-person					x
	Implementation of alternative processing techniques	In-person					x
Discussion of the protocol for taking otolith images	Discussion of the protocol for taking otolith images	In-person					x
Discussion of age validation criteria	Evaluation of the techniques used in the age validation processes	In-person					x
Presentation of the final report	Writing of the final report	Virtual					x

### V. Workshop report and documents

A report containing the workshop's outcomes will be prepared in collaboration with SPRFMO members.