ANNEX 09

25th Meeting of the
International Scientific Committee for Tuna
and Tuna-Like Species in the North Pacific Ocean
Busan, Republic of Korea
June 17-20, 2025

Draft Terms of Reference for the External peer review of the 2024 ISC Pacific Bluefin tuna Stock Assessment

June 2025

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Background

The Pacific bluefin tuna (*Thunnus orientalis*, hereafter PBF) is a highly migratory species of great economic importance, predominantly found in the North Pacific Ocean. The PBF Working Group (PBFWG) of the International Scientific Committee for Tuna and Tuna-like Species in the North Pacific Ocean (ISC) has been responsible for assessing stock status through regular stock assessments conducted every two years since 2004. These assessments involve compiling fishery statistics and biological information using an appropriate stock assessment platform, estimating population parameters, reconstructing historical stock dynamics, summarizing stock status, forecasting the population under various harvesting scenarios, and developing conservation information for fishery management.

All ISC assessments are the result of collaboration and thorough discussions within its species working group, which includes scientists from multiple member countries as well as from other organizations. The results of the PBF assessment and projection are submitted to two Pacific tuna regional fisheries management organizations (RFMOs), the Western and Central Pacific Fisheries Commission (WCPFC) and the Inter-American Tropical Tuna Commission (IATTC), for review and serve as the basis for management actions (i.e., the Conservation and Management Measures (CMM) of the WCPFC and the IATTC resolution).

In addition to this regular process, the 2012 ISC PBF assessment was formally reviewed by external peers (see 2013 review reports from the Center for Independent Experts). Several suggestions raised by the external panel were addressed in the 2016 and subsequent assessments, resulting in great improvements to the assessment.

It is also expected that the outcomes and recommendations from the external peer review of the ISC 2024 PBF stock assessment will lead to further improvements in future PBF assessments, starting with the next assessment scheduled for 2027 under the 3-year cycle. This Terms of Reference (TOR) outlines the objectives and scope for the external peer review of the ISC 2024 PBF stock assessment based on the peer review process approved by the ISC Plenary in 2024.

Objectives

The purpose of the review of the ISC 2024 PBF assessment is to provide information that will improve the analyses used for providing management advice based on the best available science.

To this end, the goals and objectives of this review are to:

1. Conduct a peer review of the 2024 PBF stock assessment in accordance with the guidelines described in "Process for the Independent Review of ISC Stock Assessments".
2. Based on the terms of reference (TOR) outlined below, provide both short-term and long-term recommendations to improve future assessments scheduled for 2027 and beyond, including but not limited to data inputs, modeling approaches, and addressing uncertainty, etc.
3. In cooperation with PBFWG members, identify options for future research and data collection that will improve the future assessments.

Terms of Reference

The external panel's evaluation of the 2024 stock assessment is summarized according to the TORs below.

- TOR 1: Review the biological assumptions of the PBF assessment and provide practical recommendations taking into account the best available life history information for this species (e.g., length-weight relationship, maturity, natural mortality, growth, and stock-recruitment relationship).
- TOR 2: Review Pacific bluefin tuna fisheries and available data, especially with regards to catch, size composition, and the abundance indices used in the current assessment, and provide practical recommendations on data curation, analytical methods, how to integrate the data into the assessment, and new data collection methods.
- TOR 3: Review the model configurations (e.g., fleet structure, selectivity) and provide practical recommendations on modeling approaches to address deficiencies in input data and explore alternative model settings to improve future assessments.
- TOR 4: Review the model diagnostics and results, with particular attention to the treatment of the uncertainty and provide practical recommendations.
- TOR 5: Suggest research priorities to improve current knowledge of essential population and fishery dynamics, with the identification of priorities to improve near-term assessments.
- TOR 6: Comment on whether the stock assessment methods, results, and assessment decision process are clearly and accurately presented in the meeting reports and the stock assessment report.

Report

The Review Panel's report, at least its executive summary, should be drafted and presented at the end of the review meeting to facilitate discussion on identifying future research priorities. The final report will be completed within one month after the review meeting and be submitted to the

ISC by the chair of the review meeting. The review report may, but not limited to, represent a consensus report of the review panel members.

Review Materials and Additional analysis

The Review Panel will be provided access to the 2024 assessment model, associated model diagnostics, sensitivity models, relevant meeting reports, the assessment report, and relevant information cited within the assessment report.

Since the purpose of the meeting is to conduct a technical review of the assessment methodology, the Panel may request a reasonable number of sensitivity runs or additional analyses. However, any such requests must be clear, explicit, and feasible to be completed within the time available during the meeting by the assessment team. These requests should be listed individually in the Panel's report, along with their rationale and the corresponding responses.