
PROGRESS OF THE INDIAN OCEAN ALBACORE MANAGEMENT STRATEGY EVALUATION

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PURPOSE

To inform participants at the 10th Technical Committee on Management Procedure (TCMP10) of the progress of the Indian ocean albacore management strategy evaluation.

BACKGROUND

IOTC Resolution 15/10 requested the IOTC Scientific Committee to develop and assess, through the management strategy evaluation (MSE) process, the performance of Management Procedures (MPs) and Harvest Control Rules (HCRs) to achieve Target Reference Points (TRPs) on average and avoid the Limit Reference Points (LRPs) with a high probability, taking into account the levels of uncertainty in the stock assessments for priority species. In recent years, substantial progress has been made in MSE initiatives for key commercial species such as tuna and billfish. These efforts have led to the successful adoption of MPs for species like skipjack tuna, bigeye tuna, and swordfish.

Work to develop MPs for albacore tuna through MSE has been ongoing since 2015, with the early stages focusing on developing a suitable operating model (OM) as the basis for evaluating candidate MPs. Until recently, the OM was based on the Stock Synthesis model of albacore tuna assessment, with an expanded parameter axis grid to capture a much wider range of uncertainty. However, significant changes in the structure and configuration of the stock synthesis model over time warranted the need to revise and recondition the OM. As a result, progress in determining and agreeing on the final set of OMs has been prolonged.

In 2024, with the support of an EU Grant, the MSE, conducted through a consultancy between IOTC and Wageningen Marine Research, reached a milestone for albacore tuna with the successful development of an innovative method to implement the OM. The new OM has been conditioned using more recent data within an estimation scheme built on emerging Approximate Bayesian Computation and Synthetic Likelihood concepts, which solved the problems encountered with the previous set based directly on the stock assessment. The aim is to generate a probability distribution of current abundance, mortality, and status that is consistent with both the available data and a suite of possible prior states of nature defined beforehand, some of which are informed by the stock assessment results. This set of recent dynamics can then be used to project the stock into the future and test the candidate MPs. The axes of uncertainty included in the assembled OMs for albacore cover those previously explored in the stock assessment-based OMs. The OMs are intended to characterize the dynamics and uncertainty of the current stock, rather than reconstruct its entire history. The methodology and OMs have been reviewed by the Working Party on Temperate Tuna (WPTmT), the Working Party on Methods (WPM), and the Scientific Committee (SC). These reviews ensure that the OMs are robust and sufficient to capture the major uncertainties. The SC has endorsed the operating models as the basis for simulation testing, which is essential for assessing and refining candidate MPs.

The MSE for albacore tuna continued in 2025 with support from the IOTC main budget. The MSE aims to identify the most effective MPs for maintaining healthy albacore tuna populations while achieving the Commission's management objectives. The work includes evaluating two different candidate Management Procedure (MP) types, similar to approaches used for other IOTC stocks. The first candidate is an empirical MP that tracks changes in the Longline CPUE index. The second candidate MP being tested is based on a surplus production (or biomass dynamics) model fitted to the LL CPUE index. Following proposals made for other stocks and previous discussions by the TCMP, three management objectives are considered for tuning the two candidate MP types: achieving 50%, 60%, and 70% probabilities of the stock falling within the green quadrant of the Kobe plot. An initial review of candidate management procedures was conducted at the WPM meeting in October 2025 (IOTC-2025-WPM16-11). However, a series of circumstances, including revisions of the historical data employed in OM conditioning, affected the ability of the modellers to complete this work as initially planned this year. As such, a full evaluation of candidate MPs could not be completed before the WPM meeting. Although further work was conducted after the WPM to progress the MP evaluation, by the end of 2025, the management procedure was not sufficiently advanced for consideration by the TCMP/Commission for adoption.



DISCUSSION

A detailed report of the progress and current status of the Indian Ocean albacore MSE was provided in IOTC-2026-TCMP10-INF03, which also outlined the proposed future steps, with regards to finalizing the MSE process and helping the Commission evaluate the candidate MPs, along with associated robustness tests, towards the adoption of an MP for the Indian Ocean albacore.

RECOMMENDATION/S

That the TCMP:

- 1) **NOTE** paper IOTC-2026-TCMP10-04, which outlined the progress of the Indian Ocean albacore tuna management strategy evaluation on Management Procedure, and AGREE to consider how best to advise on the future direction of the albacore tuna MSE work.