SCIENTIFIC COMMITTEE
NINETEENTH REGULAR SESSION
Koror, Palau
16–24 August 2023

An online tool for exploring the South Pacific albacore operating model grid

WCPFC-SC19-2023/MI-IP-03
28th July 2023

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Executive Summary

Developing the grid of operating models (OMs) for Management Strategy Evaluation (MSE) to test the performance of candidate management procedures (MPs) against multiple sources of uncertainty is a key element of the harvest strategy approach.

The proposed grid of OMs is described in SC19-MI-WP-04 (Scott et al., 2023). To assist in the communication of South Pacific albacore OMs, an interactive R-Shiny tool has been developed (South Pacific Albacore Operating Model): https://ofp-sam.shinyapps.io/spa-oms/.

This tool is similar to the one that was developed to explore the OMs used in the WCPO skipjack MSE (Scott et al., 2020). The aim of the tool is to allow users to explore the diagnostics and outputs from the OM fits.

The diagnostics and outputs are broken down into several categories:

- Model consistency - inspects the internal consistency of the model and evaluates if it is appropriate to use the model for projections;
- Fits to data sources - to inspect how well the observed data that was used to fit the model is being predicted by the model. This include fits to the catch size distribution;
- Model outputs - other parameters estimated by the model, such as selectivity and natural mortality; and
- Estimates of stock status - including metrics used for the provision of management advice, such as estimates of biomass.

Some of the diagnostics and outputs are useful for comparing across multiple models (to identify outliers etc.), and some are useful for inspecting a single model.

The online tool will continue to be updated with further diagnostics and model summaries. Note that the grid of models shown in version 0.0.1 (dated 28/07/2023) are based on the 2021 stock assessment. The grid will be updated as work progresses.

Acknowledgments

We gratefully acknowledge funding for this work from the New Zealand Ministry of Foreign Affairs and Trade (MFAT) funded project “Pacific Tuna Management Strategy Evaluation”. In addition we thank the Center for High Throughput Computing (CHTC UW-Madison) for generously providing access to their computing resources.

1 References

Scott, F., Scott, R., Yao, N., Singh, J., Ducharme-Barthe, N., and Vincent, M. (2020). Developing a set of diagnostics and outputs for MULTIFAN-CL stock assessments. Technical Report WCPFC-SC16-2020/MI-IP-07, 12–20 August 2020.

Scott, R., Yao, N., Scott, F., and Natadra, R. (2023). Operating models for South Pacific albacore MSE. Technical Report WCPFC-SC19-2023/MI-WP-04, Koror, Palau, 16–24 August 2022.