

# Next generation tuna assessment software

*Entering the design stage*

Arni Magnusson, Nick Davies,  
Graham Pilling, Paul Hamer, Mark Maunder

CAPAM Workshop  
9–11 December 2025



## The need for new tuna assessment software

MULTIFAN-CL (MFCL) has been used in SPC tuna assessments since 1990s

MFCL team (Dave Fournier, John Hampton, Nick Davies) retiring in the 2020s

Development of new features is slowing down

Resources are being allocated to succession plans

Stock Synthesis is on a similar trajectory, but both will be maintained as long as necessary

## Partnership between SPC, IATTC, DTU

Long-standing partnership between SPC and IATTC: Western, Central, and Eastern Pacific tuna and billfish

Comparable datasets, comparable challenges, overlapping distribution range, regular peer reviews of methodology

For future software considerations, it would be highly beneficial for SPC to use the same software as IATTC for our tuna assessments

The Technical University of Denmark (DTU) is developing, in collaboration with IATTC and SPC, a spatio-temporal model for analyzing tagging data, producing abundance indices

# Evaluation of software for tuna assessments

Stock Synthesis, Gadget, CASAL, SBT, FIMS

Presented to the WCPFC Scientific Committee in 2025:

<https://github.com/PacificCommunity/ofp-sam-transition-plan>

Main conclusion: develop new software specifically for tuna assessments

## New tuna model

The SPC scoping project has reached out to IATTC regularly to discuss future software for tuna assessments

In July 2025, Mark Maunder proposed an initial design of a platform that could be developed for tuna assessments:

- ▶ New codebase in RTMB that will be relatively small, easy to modify and extend
- ▶ Keeping it simple, just focusing on the priority needs of tuna assessments
- ▶ Random effects, useful for allowing processes to vary in time and possibly between regions

SPC will present a project proposal in August 2026 for funding the development of the next generation tuna model



Pacific  
Community  
Communauté  
du Pacifique



**CAPAM**

<https://github.com/PacificCommunity/ofp-sam-transition-plan>