



**SCIENTIFIC COMMITTEE
TWENTY-SECOND REGULAR SESSION**
11-19 August 2026
Apia, Samoa (Hybrid)

DEVELOPMENT OF EARLY WARNING TOOLS AND EXPANDED CLIMATE IMPACT ASSESSMENTS

WCPFC-SC22-2026-EB-IP03

11 July 2026

Submitted by Simon Nicol¹, Max Gillespie², Campbell Davies³

¹ Pacific Community

² Pacific Islands Forum Fisheries Agency

³ CSIRO

Recommendations

SC22 is advised of the following:

- If the Scientific Committee and Commission wish to develop early warning tools further, it would be efficient to establish an SC project, or revise the ToRs of P121, to facilitate access to WCPFC-held data by project participants (subject to standard WCPFC data request and data confidentiality practices).
- If the Scientific Committee wishes to apply existing tools to incorporate a climate change component into CMM evaluations, it should budget approximately USD 50,000 per evaluation.
- The WCPFC may wish to resource non-RTP countries or territories (e.g. WPEA countries) to participate in RTP-tailored workshops.
- Request the SSP and Secretariat to prepare a more detailed workplan for the development of early warning tools for 2028 and onwards to be considered by SC23.

Early Warning Tools

WCPFC22, as an outcome of their discussions around the Climate Change Vulnerability Assessment, tasked the SSP and the WCPFC Secretariat to explore the development of early warning tools to anticipate climate-driven changes and encouraged CCM support for associated data and resource needs. (paragraph 351 (WCPFC22 Summary Report (11 March 2026))). WCPFC-SC22 is advised that the following activities align with this tasking:

1. Project 121 (Ecosystem and Climate Indicators) implements an annual work program to prepare indicators that track oceanographic climate trends in the WCPFC jurisdiction. These indicators provide WCPFC with the extent and speed of environmental change in the jurisdiction (see **WCPFC-SC22-2026/EB-IP-01**).
2. Project 62 (SEAPODYM simulation modelling) applies the SEAPODYM model to tuna stocks in the WCPFC jurisdiction, principally to explore the impacts of climate change. An outcome of this work provides WCPFC with early warning on the impacts of climate change in the twenty + year time horizon (see **WCPFC-SC22-2026/EB-IP-04**).
3. Climate Science to Ensure Pacific Tuna Access (CSEPTA, Government of New Zealand) was a SPC implemented project to establish the foundations for the Green Climate Fund “Regional Tuna Project (RTP)” - a 7 year investment that assists the Cook Islands, Fiji, Kiribati, Marshall Islands, Micronesia (Federated States of), Nauru, Niue, Palau, Papua New Guinea, Samoa, Solomon Islands, Tonga, Tuvalu, and Vanuatu with preparing adaptations to maintain the benefits they receive from tuna fisheries (see below). This work has provided a robust framework for preparing species distribution models using WCPFC fisheries data for secondary and bycatch species (see **WCPFC-SC22-2026/EB-IP-11**). These models which are amendable for projecting future climate conditions and integrates animal and fishery dynamics –are well suited to evaluating CMMs performance under the impacts of climate change in addition to providing early warning for these species.

4. The application of the Ecosystem Traits Index (see **WCPFC-SC22-2026/EB-IP-02**), if further developed, will facilitate the simulation of climate change impacts on ecosystem status.
5. The RTP, which commenced in July 2025 with SPC, FFA and CSIRO providing technical support for its implementation. The RTP includes the following early warning work:
 - a. Current impacts of climate change on Pacific tuna resources;
 - b. Estimation of the impacts of climate change on Pacific economies and livelihoods;
 - c. Expand the baselines (from those established under CSEPTA) of climate tolerances for ecosystem and species traits;
 - d. Improved skill in ENSO and ocean state forecasting to twelve-eighteen months;
 - e. Tailored workshops on climate and climate change impacts on tuna and pelagic ecosystems and adaptation options.