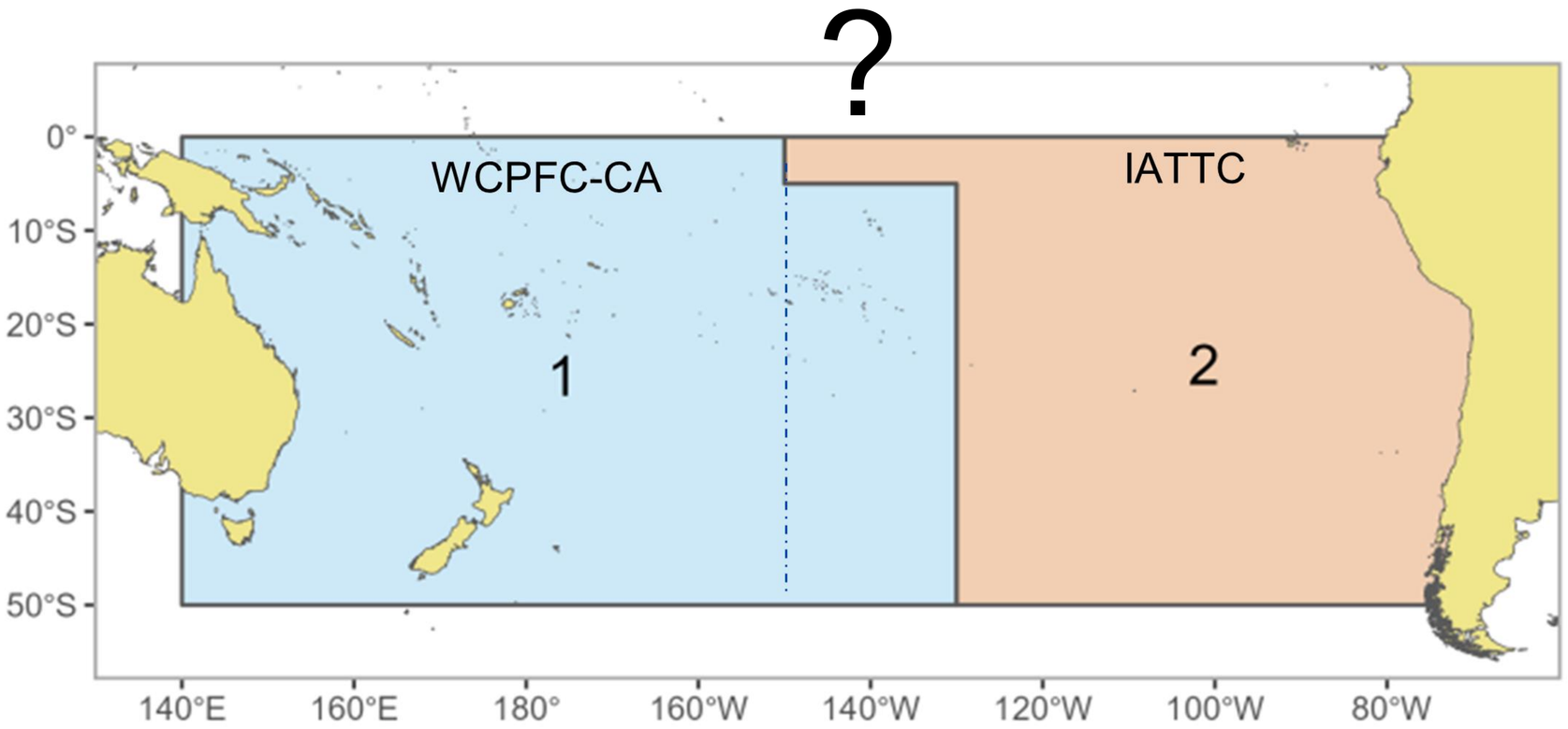
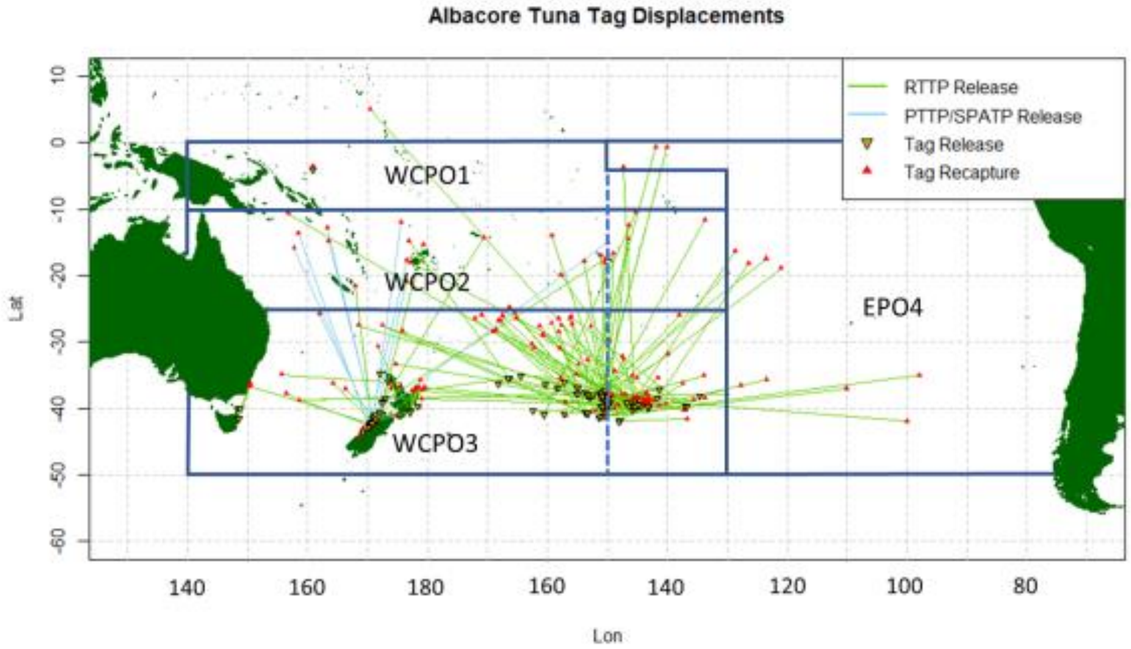
South Pacific albacore 2027 stock assessment scope

SPAJWG01 – Agenda item 5.1
18-19 March 2026

Agenda item 5.1

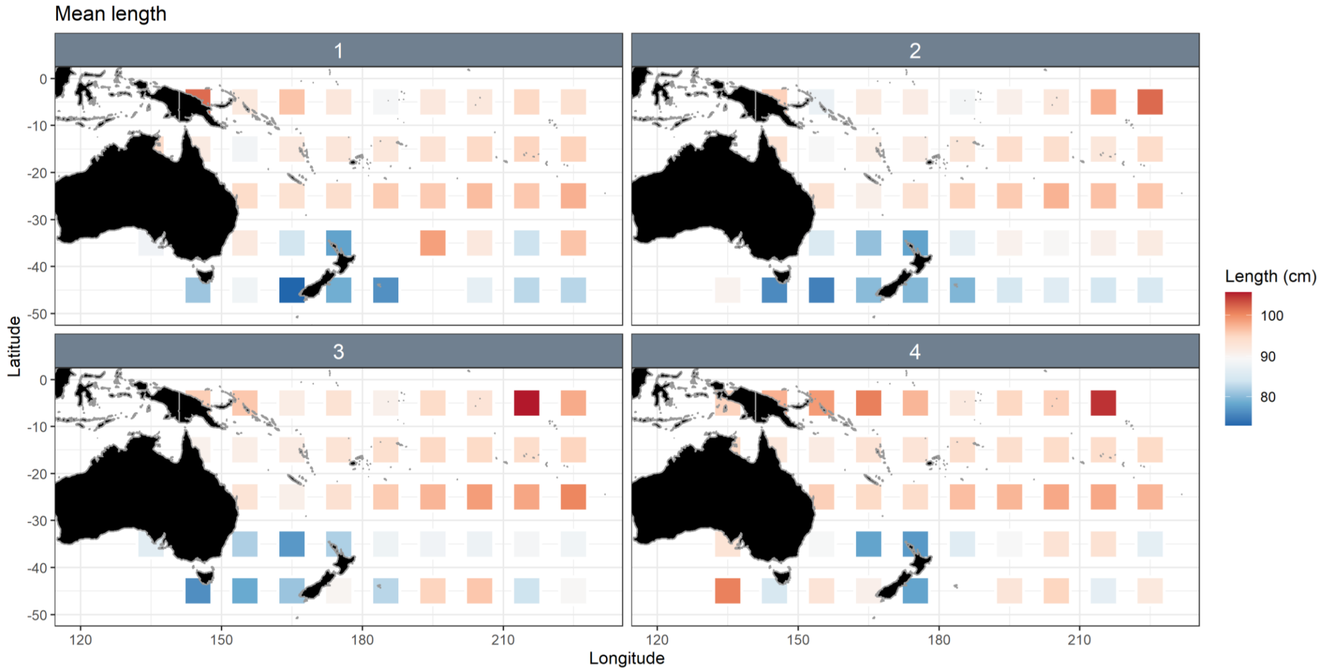
Next stock assessment 2027, final data year is 2025



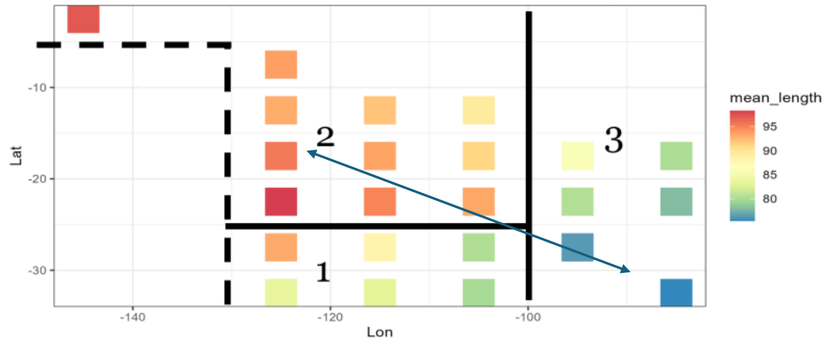


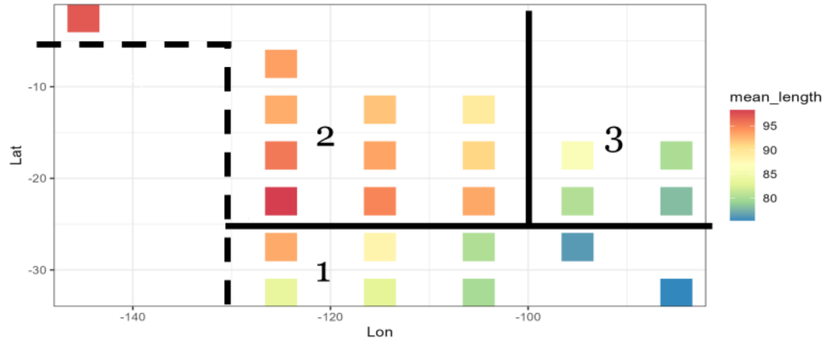
Population structure?

Size data WCPFC-CA



Size data IATTC-CA





Population structure - genetics?

Western and Central Pacific Fisheries Commission

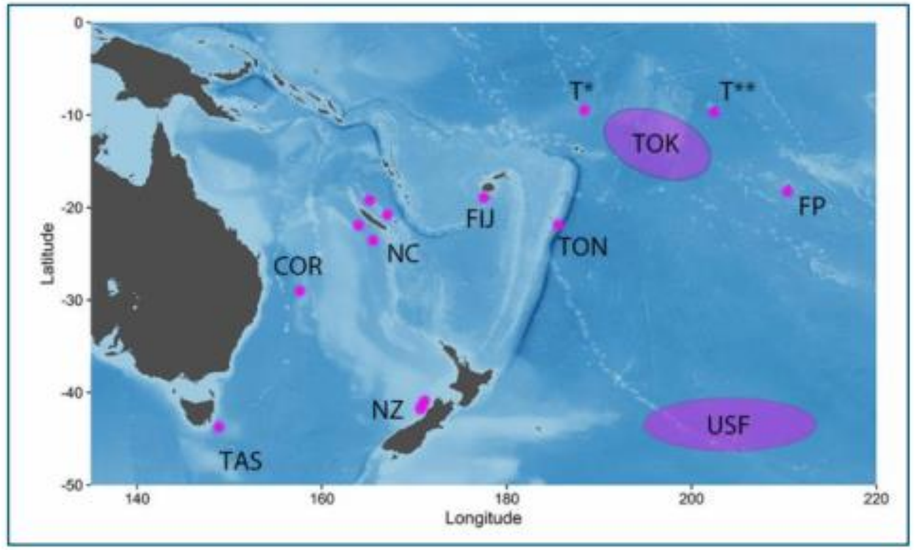
SCIENTIFIC COMMITTEE
TWENTY-FIRST REGULAR SESSION

Nuku'alofa, Tonga
13 – 21 August 2025

Population genetics and connectivity of albacore tuna in the Western and Central Pacific Ocean to inform sampling design and marker development for close-kin mark-recapture (CKMR)

WCPFC-SC21-2025/SA-WP-10

SPC and CSIRO



Analysis of genetic markers (SNPs) presents strong evidence to refute the null hypothesis of a single panmictic population of SPA in the WCPO. The identification of three clearly separated groups in the DAPC cluster indicates restricted gene flow among a minimum of three genetically distinct groups. The clear separation observed between clusters is indicative of minimal to no genetic connectivity among the three putative populations. Individuals assigned

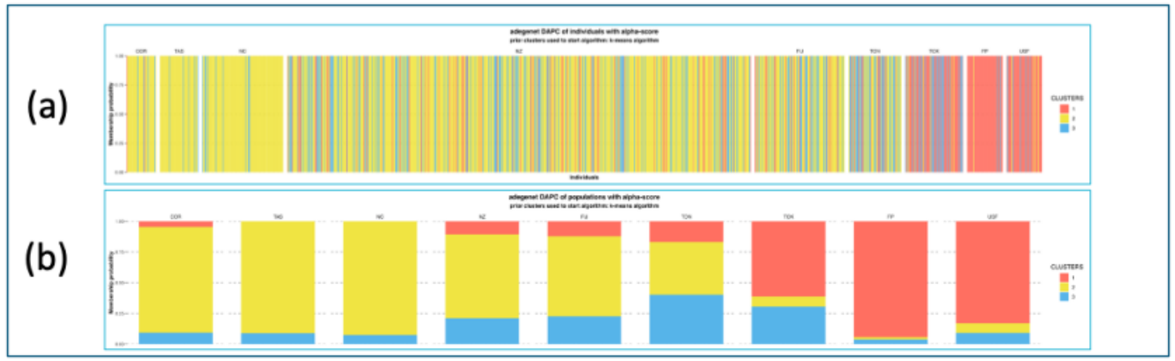


Figure 4. (a) DAPC barplots of individual fish indicating the probability of assignment of an individual to one of three K genetic groupings. The high probability of individual assignment is indicated by the solid colour of individual bars. (b) Average cumulative proportions of each of the three identified genetic groups in each sampling region.

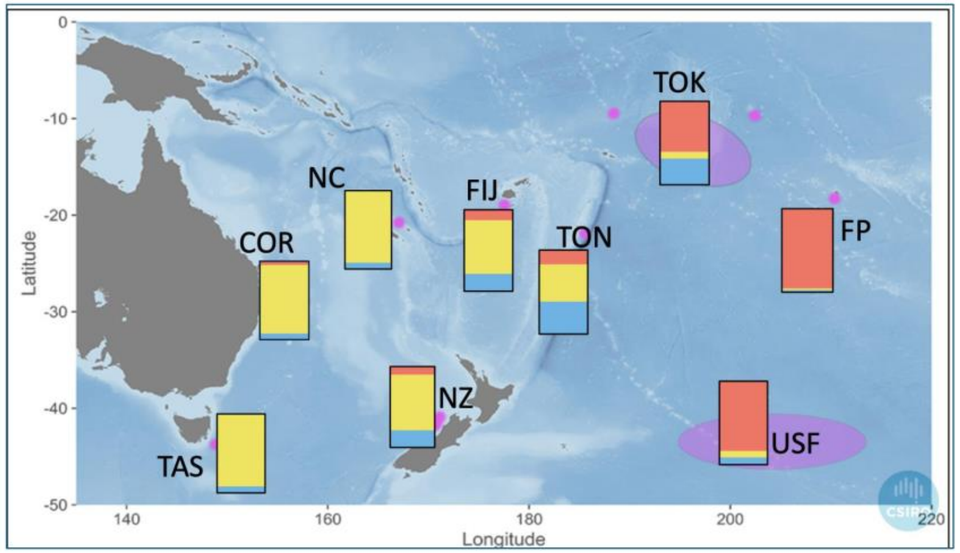
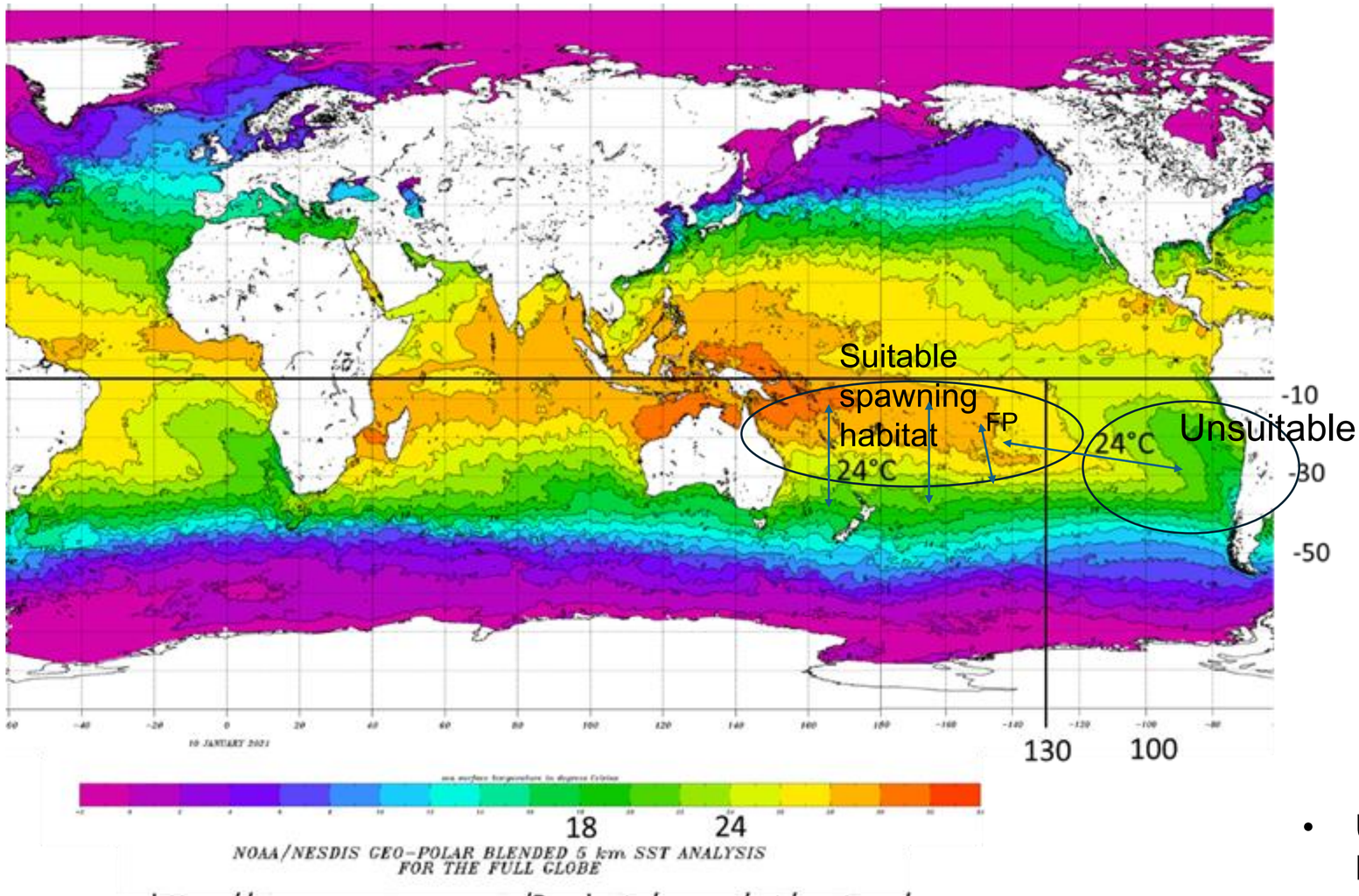


Figure 5. Geographic plot of cumulative DAPC plots indicating proportion of each of the three identified genetic groups for each sampling location. Each bar plot has been plotted at the approximate geographical catch location. Bar plot labels follow area codes listed in Table 1. For convenience, actual proportions values are reported in Table 2.



https://www.ospo.noaa.gov/Products/ocean/sst/contour/

There is more to this story = needs EPO samples

- Unlikely to expect much spawning in the EPO south of equator??
- Is the EPO population spillover from spawning mostly occurring in eastern WCPO and overlap ?

Ongoing studies of population structure

- Three genetic groups have been shown that have some intermixing, but currently no EPO samples
- Samples from EPO have been collected by China and now need analysis
- But these samples are from the western EPO, close to French Polynesia, need more samples from eastern EPO to complete the coverage of the south Pacific
- Hypothesis: EPO might be linked to French Polynesia, but not linked to central and western WCPO – needs confirmation

Implications for 2027 assessment

- Propose to maintain a south Pacific wide assessment with limited changes compared to 2024
- Explore separate models for the EPO and WCPO (with/without overlap region)
- Close Kin Mark Recapture (CKMR) population estimate for the WCPFC-CA is likely to be available in 2027 (compare to the WCPO region) – uncertain what influence this will have on final modelling choices
- Continue to collaborate with IATTC scientists on assessment work, particularly data inputs from EPO region and CPUE analysis
- **2030** assessment expected to the first assessment with full integration of CKMR, spatial extent of the assessment will need further review based on new genetic analysis – possibility that WCPFC only needs a WCPFC-CA assessment.

Questions