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Tuna Spatial Stock Structure : Management Implications

Identifying the Spatial Stock Structure of Tropical Pacific Tuna Stocks

@SPC

Tuesday 9th October, 2018

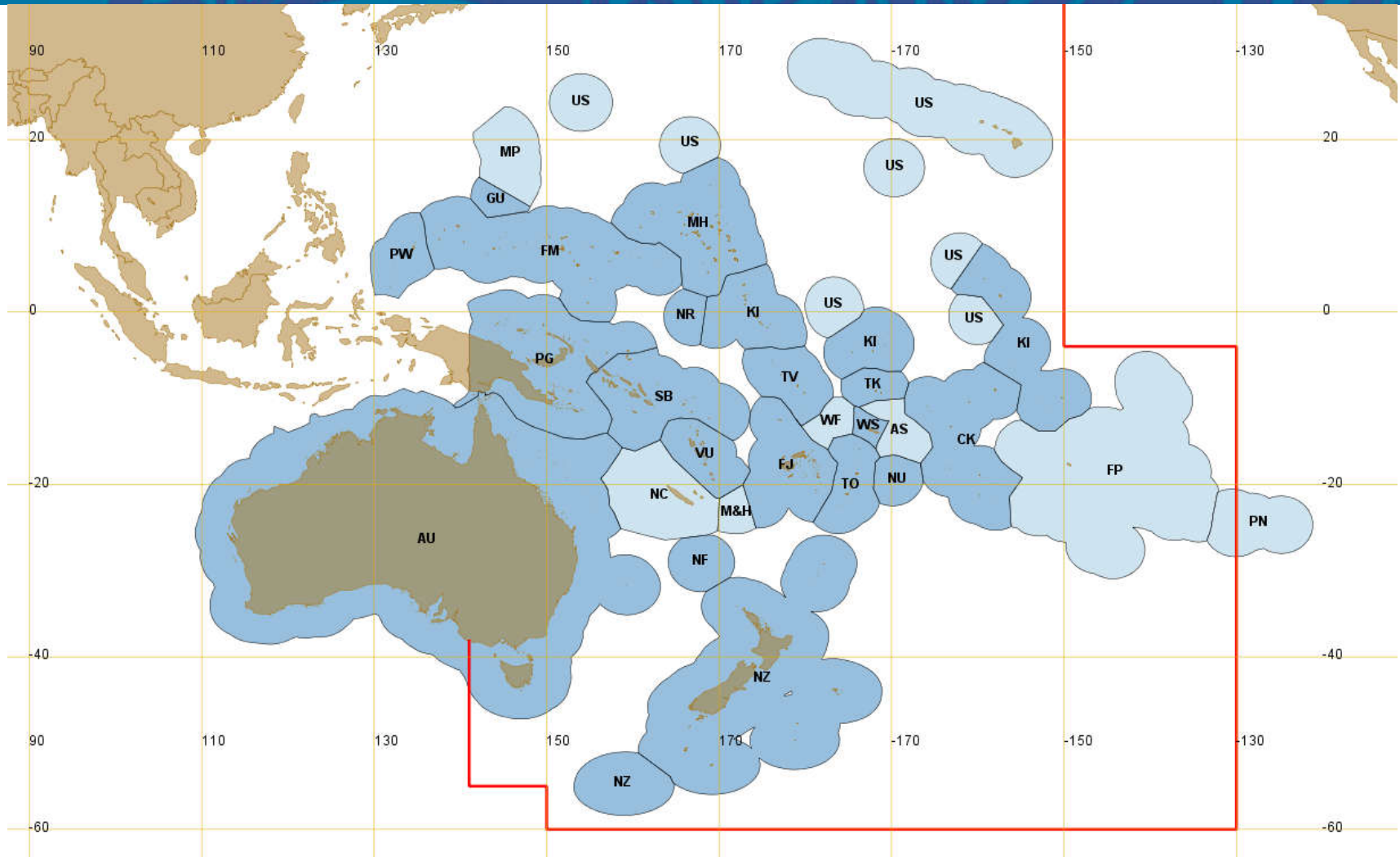
Noumea

NEW CALEDONIA



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WCPFC area and FFA EEZs





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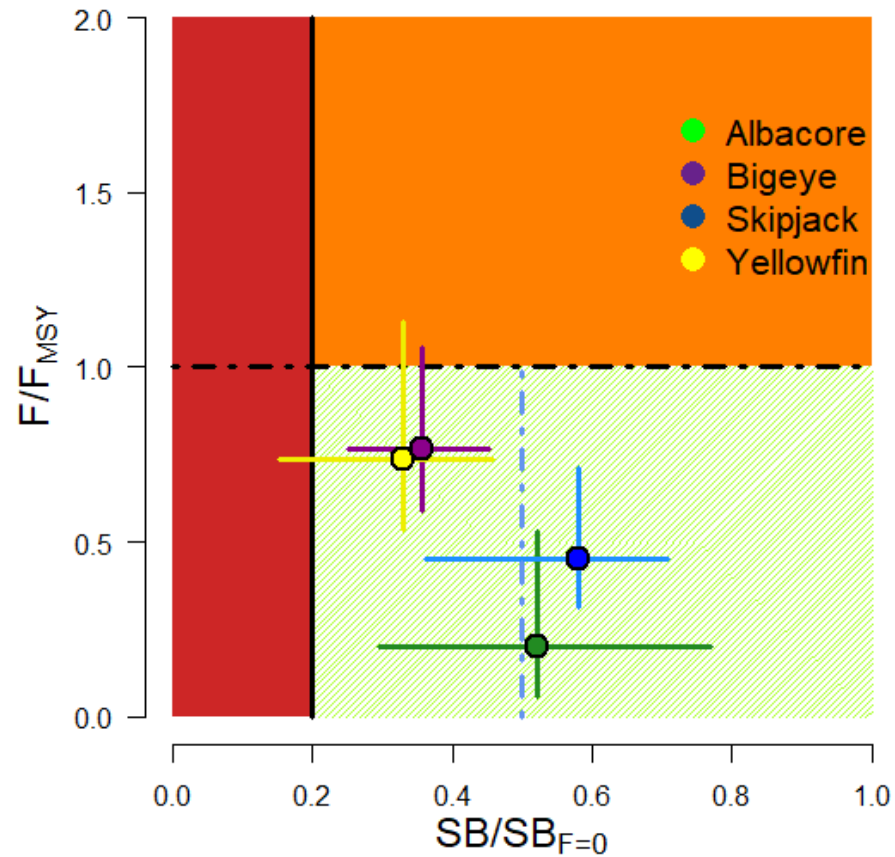
The stock as a fundamental unit of management

When it comes to stock structure, transboundary fishery managers are primarily concerned with the question: Will fishing in *this* jurisdiction impact fishing in *that* jurisdiction?



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Harvest Strategy Approach and stock definition

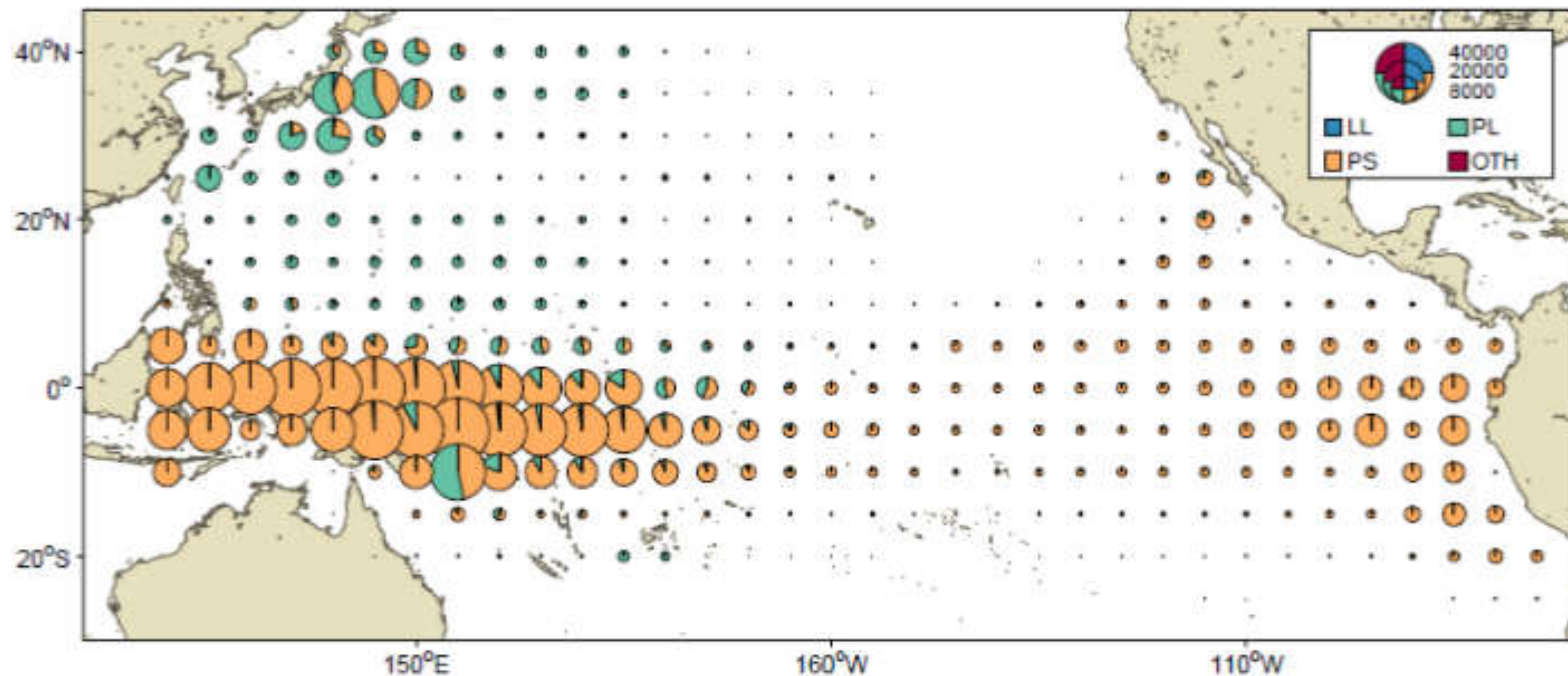




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Example 1

Skipjack tuna – connectivity between the western and central tropical Pacific, and northwest Pacific.
Are there separate skipjack stocks in Japan and PNA waters?





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Example: 2

Yellowfin tuna – is there more than one stock in the WCPO?

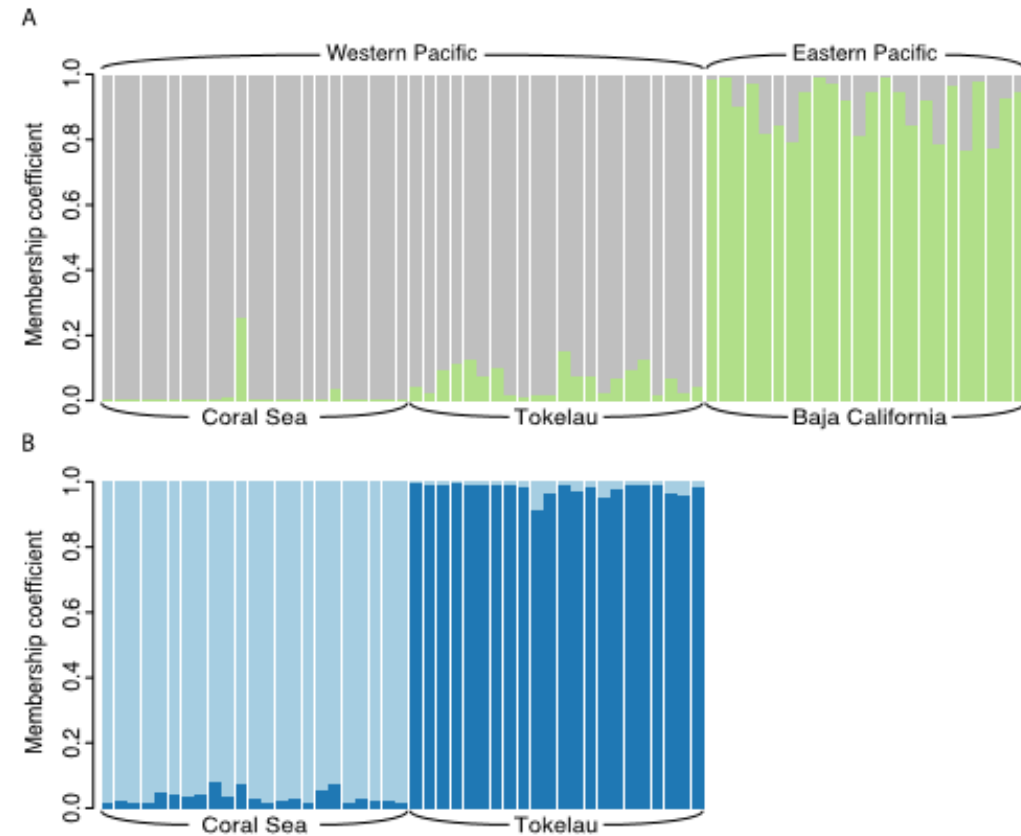


Figure 2. Results from analysis using STRUCTURE, indicating probability of membership coefficient of individuals to each of the sampling locations based on the analysis of loci putatively under positive selection. Panel-(A) 1st round of STRUCTURE analysis. Panel-(B) 2nd round of STRUCTURE analysis.



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Implications of getting it wrong

Broadly-based, inclusive, stock definitions probably carry less management risk than narrower definitions – at least in transboundary pelagic fisheries.

To borrow a euphemism from taxonomy – safer to be a “lumper” than a “splitter”?



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Comparative stock status and catch, by ocean

Catch and stock status by Ocean

