

# Agenda Item 3.3 WP05 Bigeye Tuna Management Procedure Evaluations for BMW02

WCPFC BMW2  
Honolulu, Hawaii (Hybrid)

SPC-OFP  
1-2 October 2026

# Introduction

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- MSE evaluations performed for the four spatial ranges and four candidate TRPs.
  - Using the updated OMs, updated nuclear grids and hence new HCR designs.
  - Assumptions made for catches in fisheries not under BET MP control.
- Spatial range
  - TLL incl HW LL fleet
  - TLL excl HW LL fleet
  - WCPO wide
  - WCPO wide excluding SIDS
- TRPs
  - 0.94 x 2012-2015 SB depletion
  - 0.94 x 2012-2015 SB depletion (60% threshold)
  - 0.94 x 2012-2015 SB depletion (70% threshold)
  - 1.06 x 2012-2015 SB depletion

# Approach

- Each TRP and spatial/fishery scenario has a unique MP (pairs of HCRs).

Table 2: The MPs that have been designed to achieve the different targets under the different bigeye MP spatial/fishery scenarios.

| Scenario          | Lower TRP | 60% above lower<br>TRP | 70% above lower<br>TRP | Upper TRP |
|-------------------|-----------|------------------------|------------------------|-----------|
| TLL (excl. HW)    | MP 17     | MP 18                  | MP 19                  | MP 20     |
| TLL (incl. HW)    | MP 13     | MP 14                  | MP 15                  | MP 16     |
| WCPO (excl. SIDS) | MP 5      | MP 6                   | MP 7                   | MP 8      |
| WCPO wide         | MP 9      | MP 10                  | MP 11                  | MP 12     |

- 3 year management period, data lag of 2 years.
  - E.g. first run in 2027, data up to 2025, sets fishing levels for 2028-2030.
- MP Outputs: FAD open period, LL catch limit (for fisheries under control).
  - No other allocation considerations.
  - LL catch limit can be implemented through effort control.
  - Potential to convert to catch scalar for WCPO excl. SIDS scenario.

# MSE assumptions

- Negotiate LL/PS levels consistent with desired TRP every 3 year management period.
- Modelling: look at a range of HCR pairs within the 0-3 month FAD closure range defined by WCPFC22.
- 3 HCR pairs defined to 'bracket' possibilities (many other options within the 'arc of possibilities' could be selected).
  - 'FAD favoured', 'Longline favoured', 'Intermediate' (see table).
- Evaluate three times:
  - 'Randomly' select between these three HCR pairs – mimic negotiation between these options.
  - Boundary cases (e.g. FAD favoured or longline favoured only) – mimic negotiation leading to constant 'extreme' outcomes.

Table 3: EEZ and high seas FAD open periods for the three sets of HCR pairs for each MP.

| HCR pair          | EEZ FAD open period (months) | High seas FAD open period (months) |
|-------------------|------------------------------|------------------------------------|
| FAD favoured      | 12.0                         | 12.0                               |
| Intermediate      | 10.5                         | 9.5                                |
| Longline favoured | 9.0                          | 7.0                                |

# Results

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- Most of the requested Performance Indicators provided.
- Focus results on:
  - Different TRP objectives.
  - Different spatial/fishery ranges.
- Presenting results from 'random' selection (not edge cases).
- Full results are in the tables in the supporting information.
- Lots of results...

# Results – TRP: depletion

- Lower TRP (more depleted), greater risk of falling below LRP.
  - But all MPs maintained probability > LRP above 80%.
- Not all TRP levels achieved on average – not always on the Hillary step of the HCR.
- Lower TRP (with 70% threshold) implies average depletion above upper TRP.

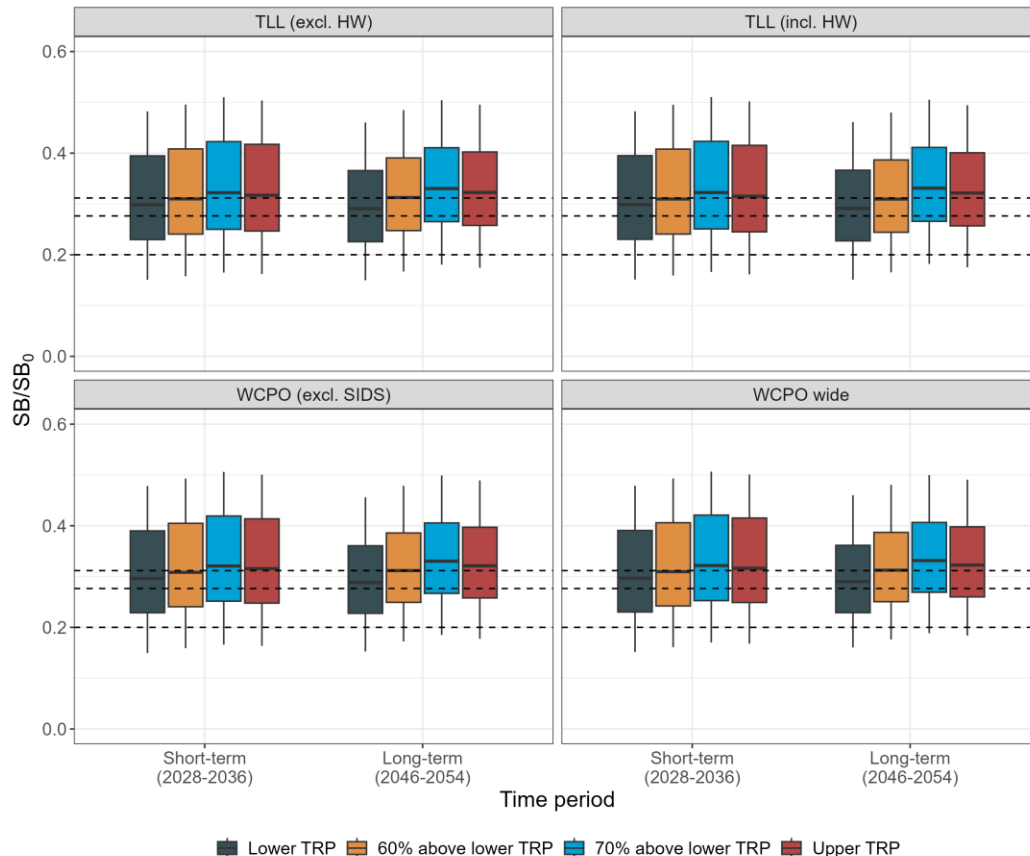
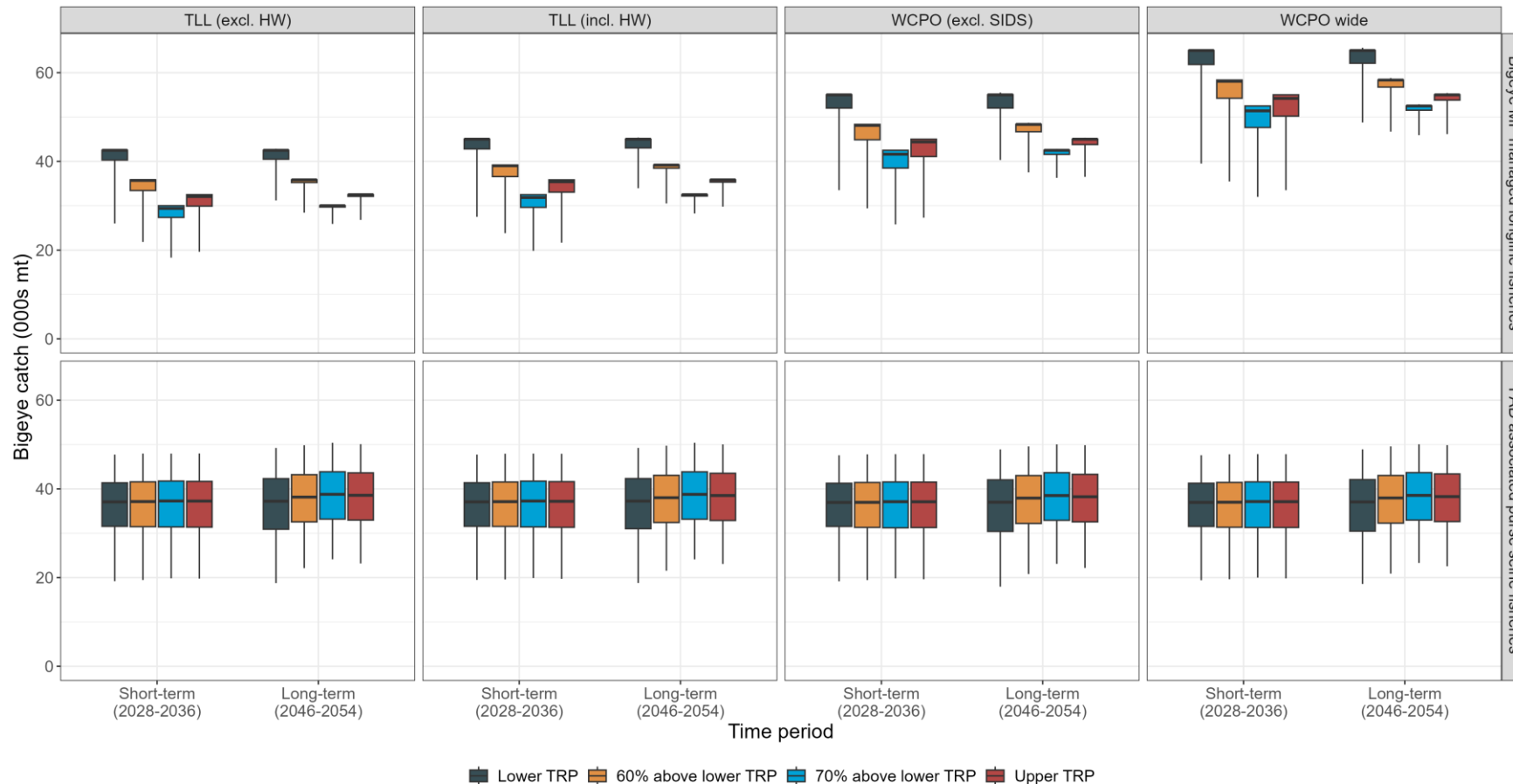


Table 4: Probability of being above the LRP in the long-term, for each TRP objective and spatial/fishery scenario for the ‘random’ HCR pair scenario.

| Target              | TLL (excl. HW) | TLL (incl. HW) | WCPO (excl. SIDS) | WCPO wide |
|---------------------|----------------|----------------|-------------------|-----------|
| Lower TRP           | 0.88           | 0.88           | 0.88              | 0.89      |
| 60% above lower TRP | 0.93           | 0.92           | 0.93              | 0.94      |
| 70% above lower TRP | 0.95           | 0.96           | 0.96              | 0.96      |
| Upper TRP           | 0.95           | 0.94           | 0.95              | 0.95      |

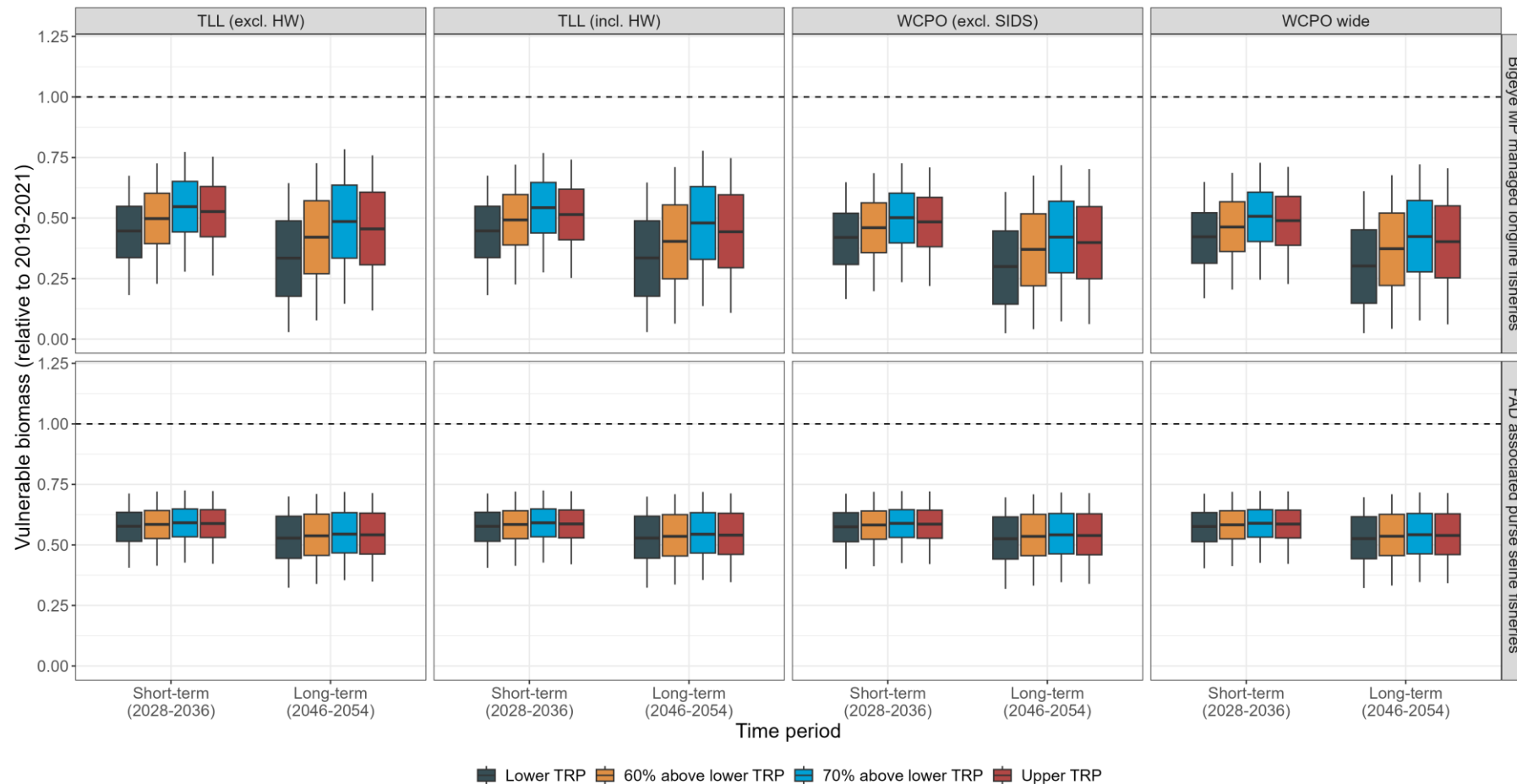
# Results – TRP: catches

- Lower TRP implies higher LL catch levels on average (within spatial range).
- Small impact on PS – lower TRP implies marginally lower PS catch.
  - Note PS catch range (uncertainty) influenced by HCR output of effort.



# Results – TRP: vulnerable biomass

- Tropical region vulnerable biomass below 2019-2021 levels.
- Relative VB higher for less depleted TRPs, particularly for LL.



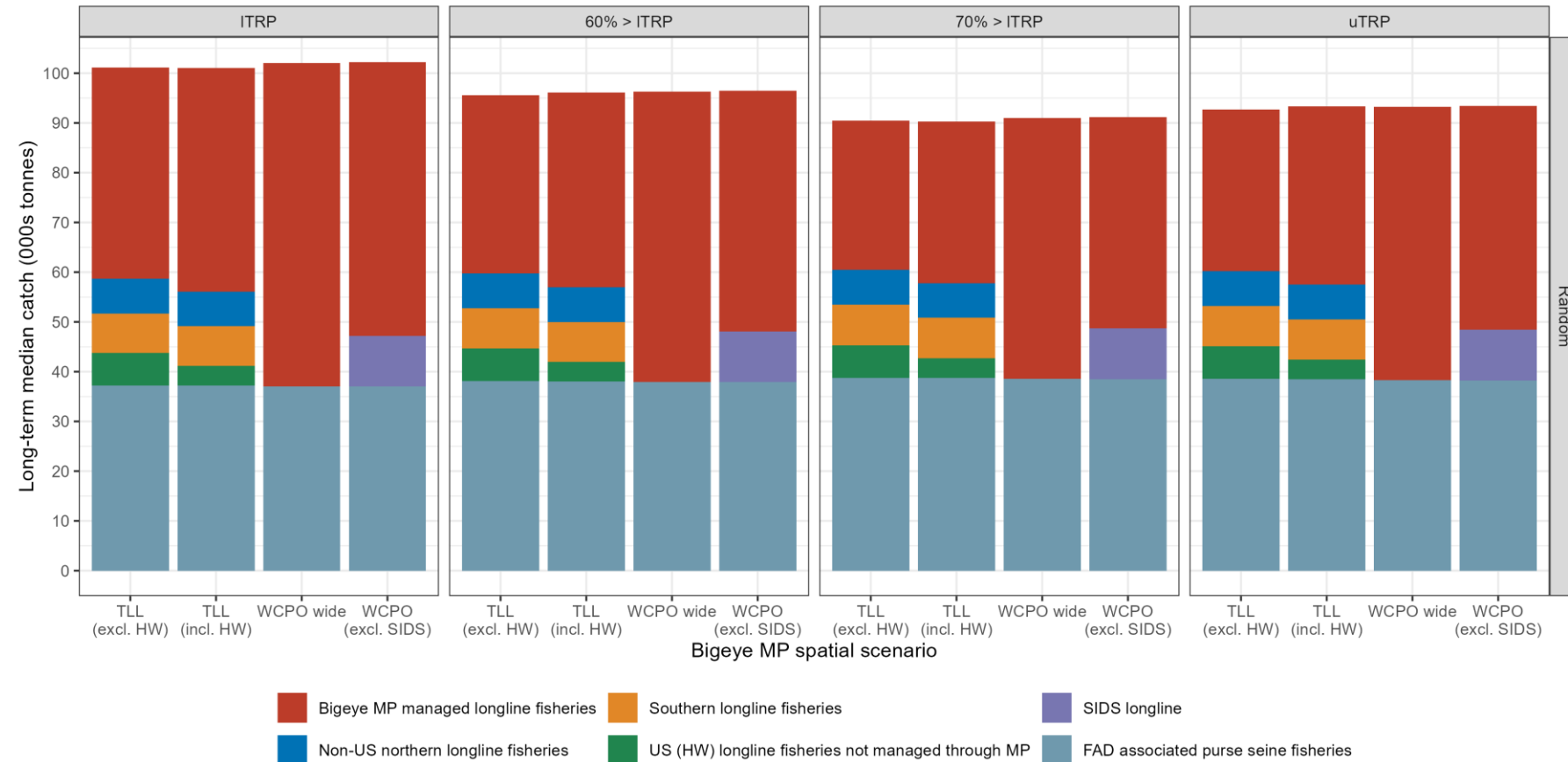
# Results – TRP: catch/effort variability

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- Strongly influenced by the assumptiond made in modelling.
  - Examining the ‘marginal cases’ (always LL or FAD favoured) = reduced variability.
  - Random HCR scenario = most variability.
    - May not be seen in case where things are negotiated?
    - No constraints currently specified.

# Results – Spatial/fishery range

- Has little impact on biological indicators (probability > LRP, depletion).
- Care when reviewing fishery indicators as different fisheries managed through MP.
- Partially driven by assumptions of fixed catch/effort for fisheries not managed by MP.
- Changes with TRP.



# BMW02 request

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- Consider the results and whether number of options being examined can be reduced
  - E.g.: 1-2 spatial ranges, 1-2 TRPs
- Necessary to allow prioritised further work (alternative HCR formulations, sensitivity analyses) to be performed prior to WCPFC23