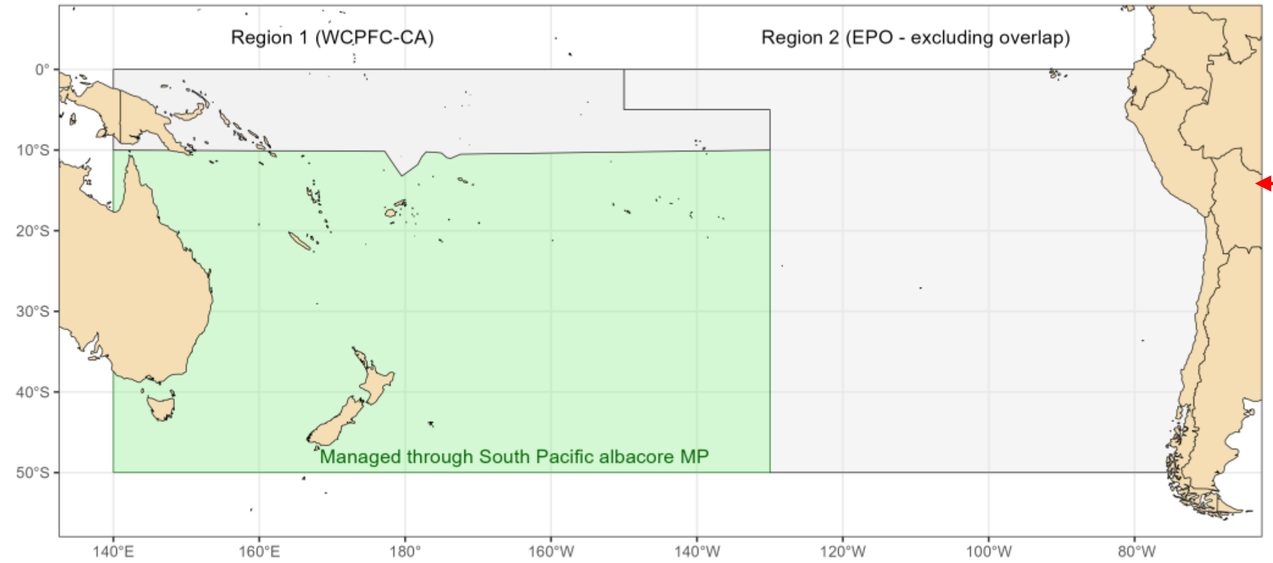
South Pacific albacore management procedure evaluations

WCPFC22-2025-21

WCPFC22 2025
Manila, Philippines
SPC-OFP

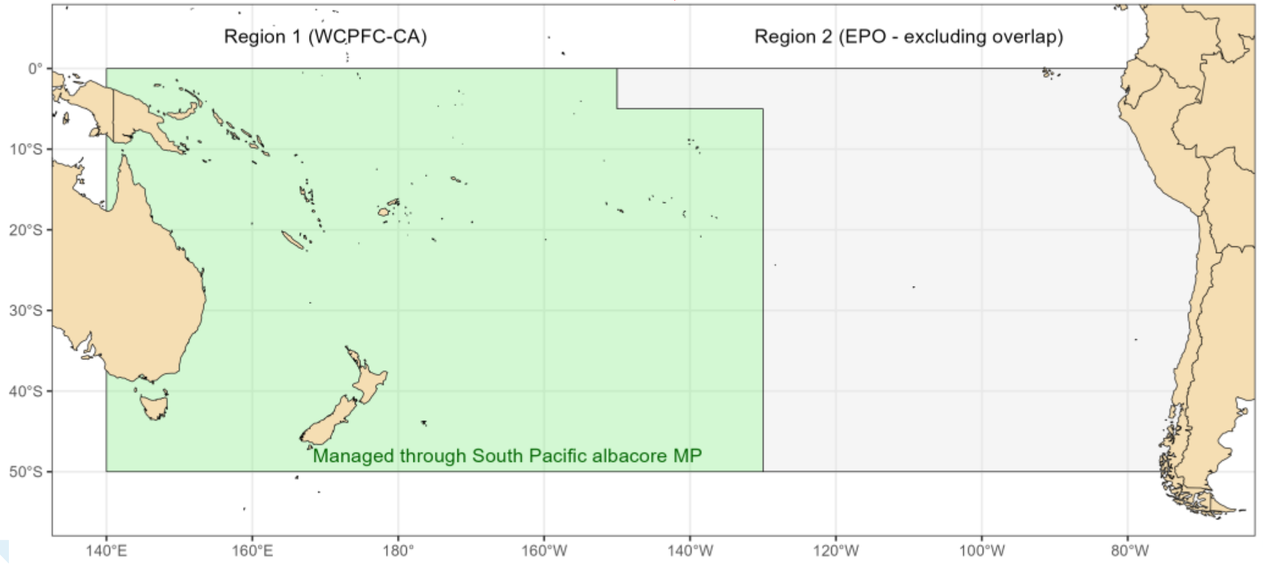
Two evaluation streams based on spatial range of MP



(a) The MP applies to all fisheries operating south of 10°S in the WCPFC-CA, excluding those operating in the slivers of the EEZs of Tokelau and Tuvalu that are south of 10°S.

Results unaffected by inclusion / exclusion of TK & TV.
Focus on this stream.

Presented to WCPFC21 in 2024.
No further work done and results remain available.

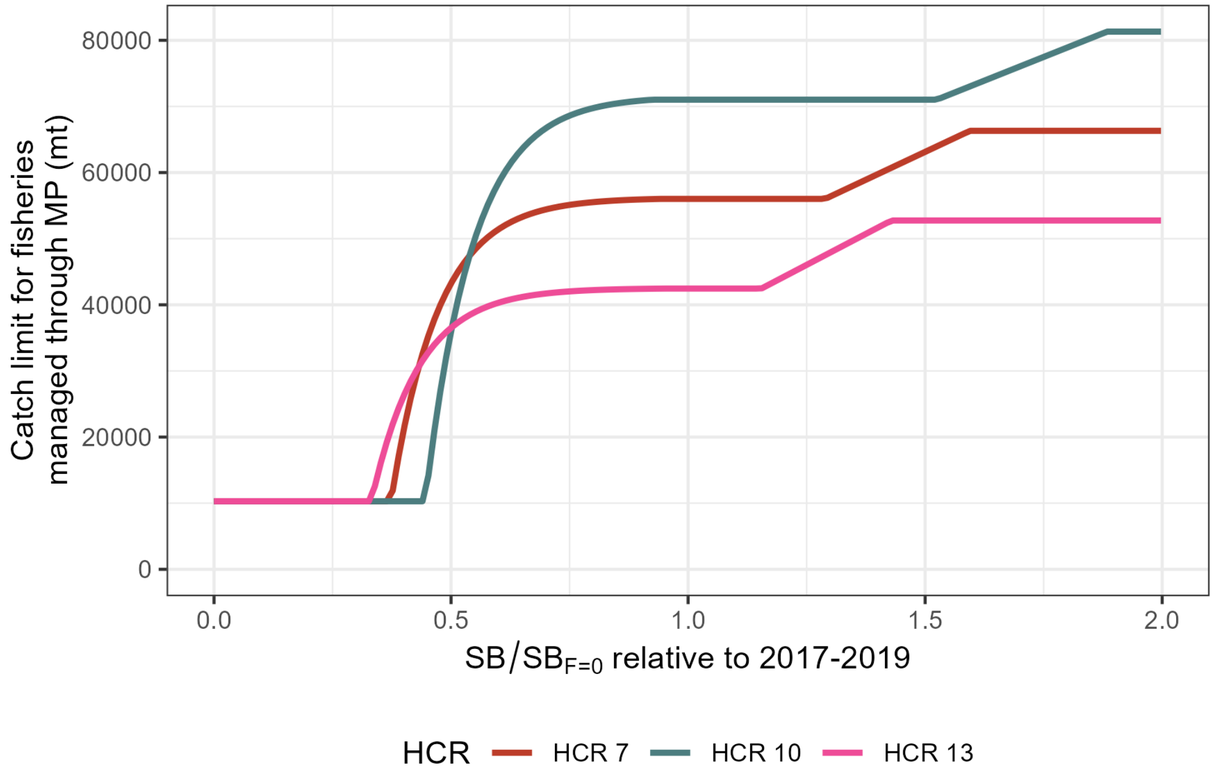


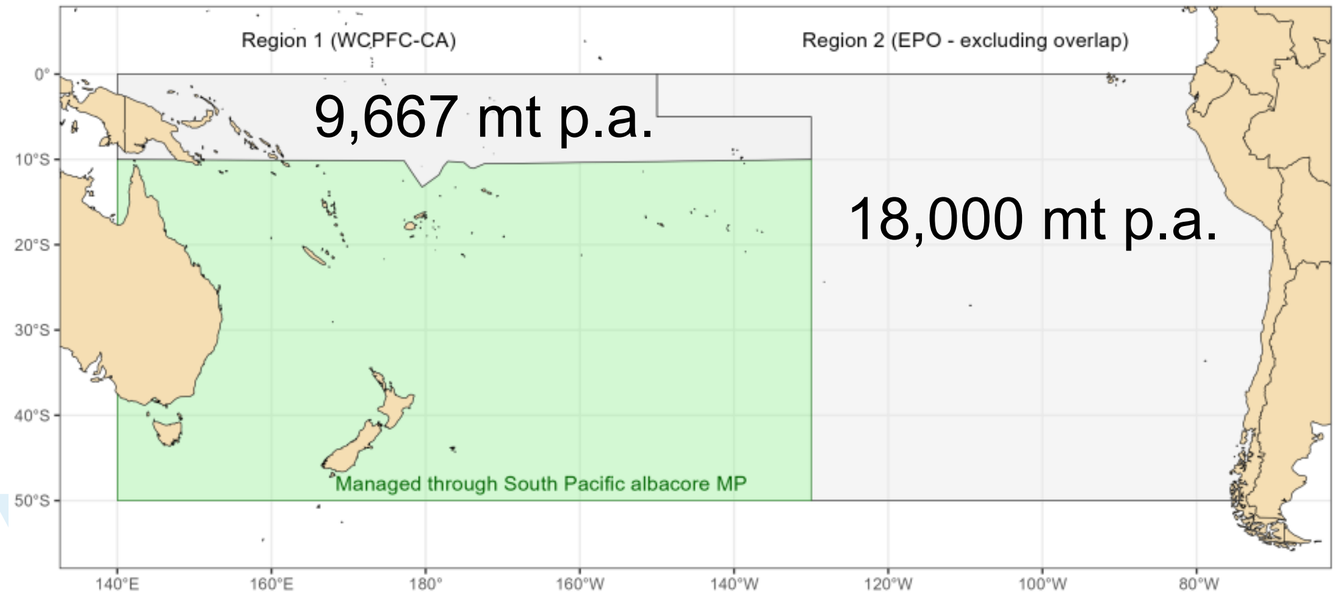
(b) The MP applies to all fisheries operating south of the equator in the WCPFC-CA.

SPAMWS02 agreed to no longer consider third stream: MP applies to all fisheries operating south of 10°S *including* TK and TV.

HCRs

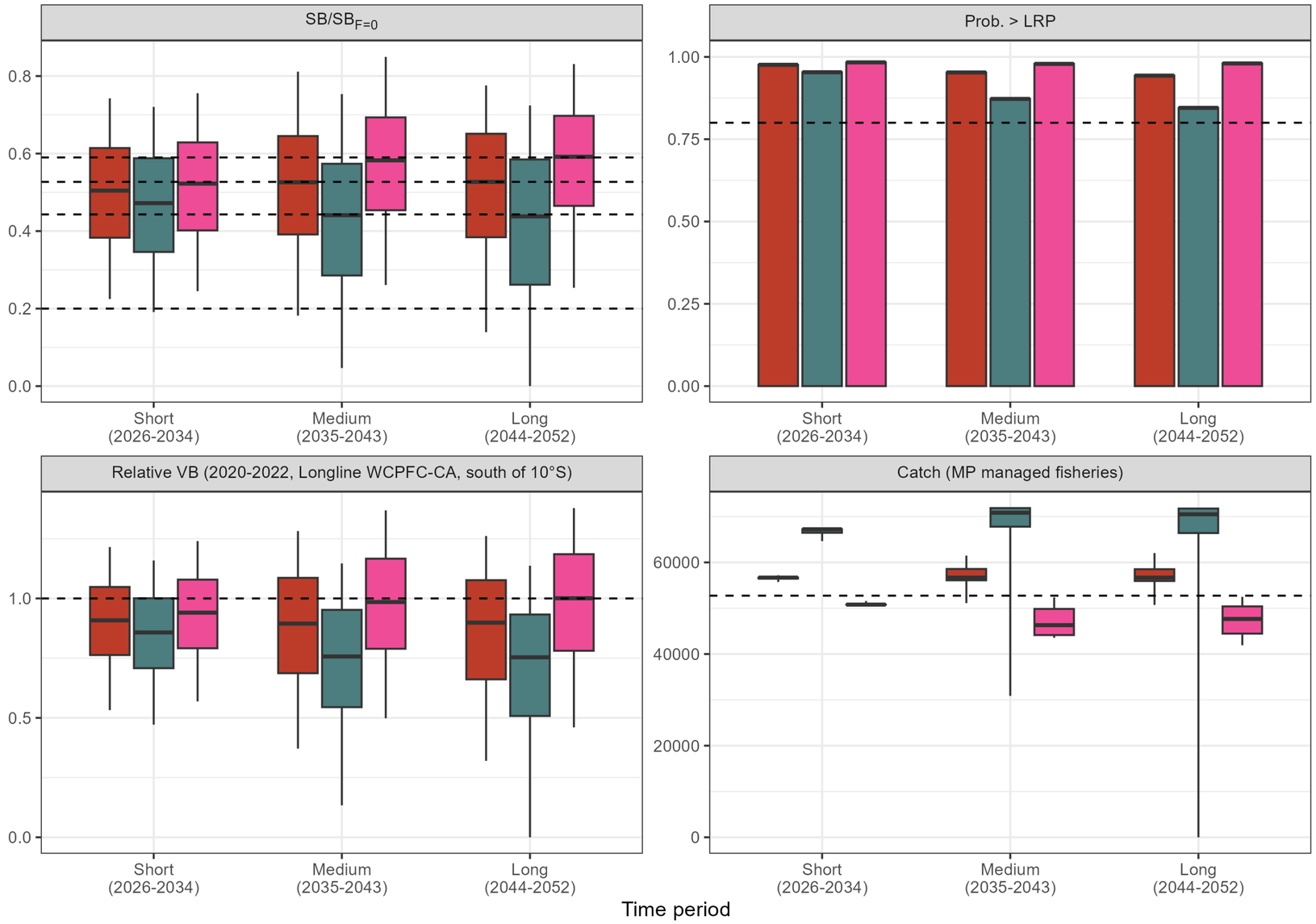
- Following SPAMWS02 three main MPs with same assumptions.
  - All three are catch-based.
  - How MP output is implemented can be catch or effort, e.g. convert MP catch output to effort limit.
- Assumptions tested through sensitivity tests.
- Additional MP evaluations have different assumptions.
- Full results are in the paper, including all the work requested by SPAMWS01 and SC21.
- https://ofp-sam.shinyapps.io/SPAMPLE/





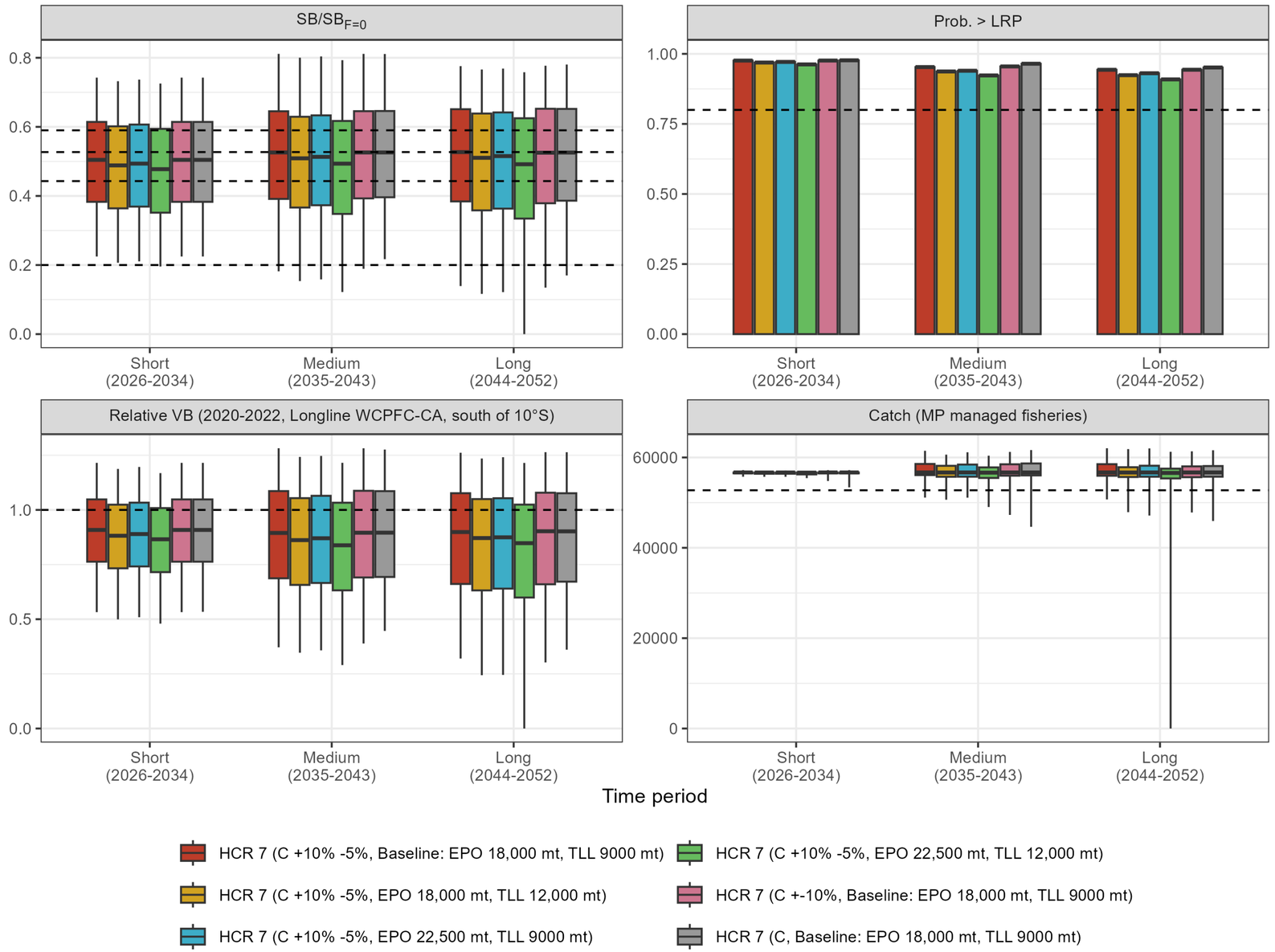
HCR	Constraint	Target
HCR 7	+10% -5%	Interim TRP
HCR 10	+10% -5%	Lower TRP
HCR 13	+10% -5%	Upper TRP

Main results



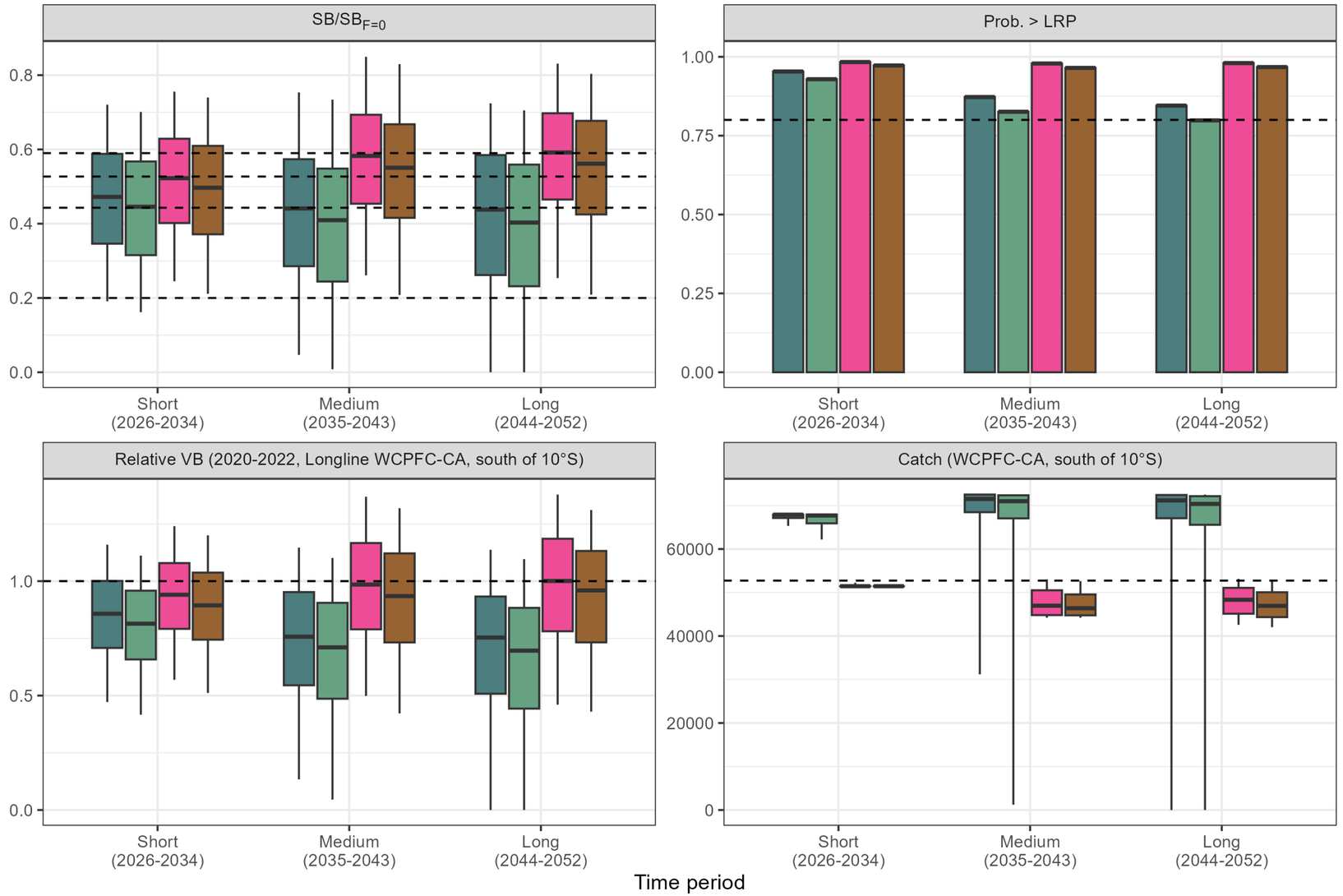
- Long-term SB/SB$_{F=0}$ at TRPs.
- Probability > LRP is above 0.8 (WCPFC requirement).
  - HCR 10 noticeably lower probability > LRP: 0.85 in the long-term, i.e. 15% of falling below LRP.
- Vulnerable biomass (VB) proxy for catch rates.
- Higher the SB/SB$_{F=0}$, the higher the catch-rate.
- Plotting the new indicator: catch of fisheries managed through the MP.
- Trade off between catch and catch-rate.

Sensitivity tests



- Based on HCR 7 (+10% -5%).
- Explores alternative assumptions about catches in EPO and 0-10°S. (TLL), and level of constraint.
- Does MP still perform as expected if assumptions change?
- Small impact on SB/SB$_{F=0}$, VB and catch.
- High probability of > LRP.
- HCR not tuned (unlike ‘additional’ MPs).

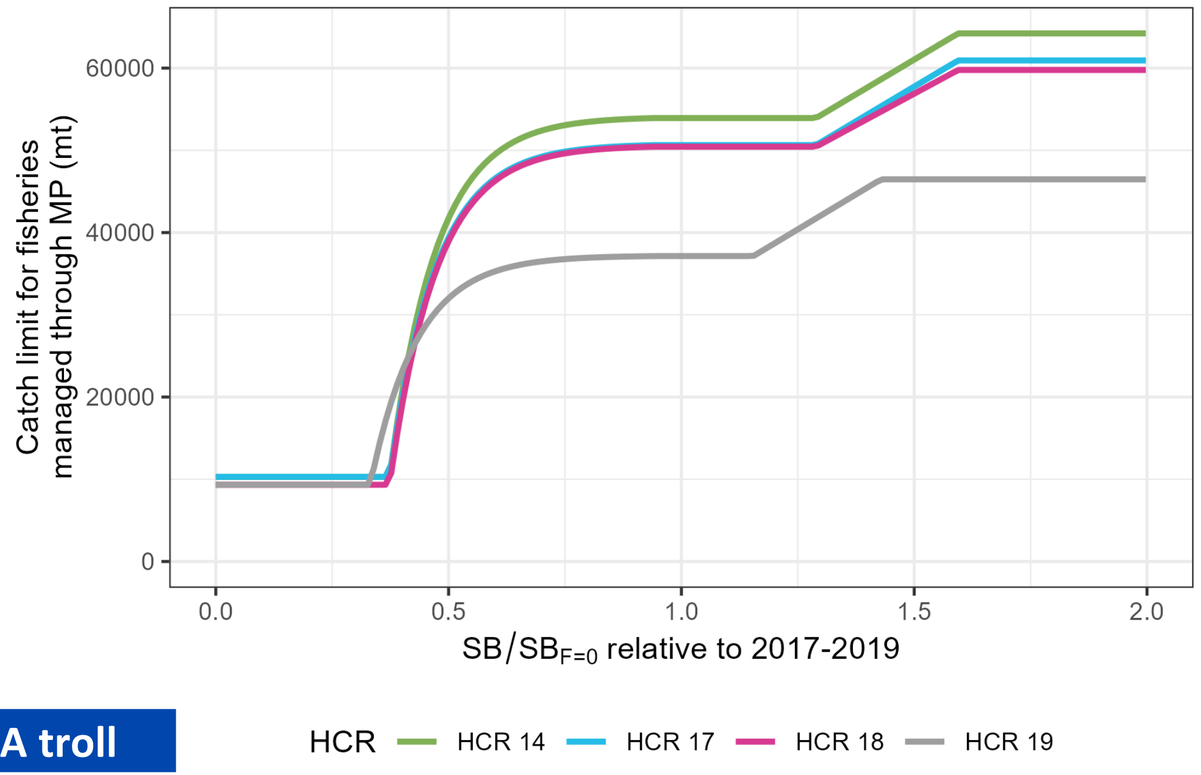
Additional sensitivity tests



- Remaining main MPs tested with highest EPO and TLL assumptions.
- Small impact on SB/SB$_{F=0}$, VB and catch.
- HCR 10 has probability of > LRP of 0.8 under the higher assumptions.

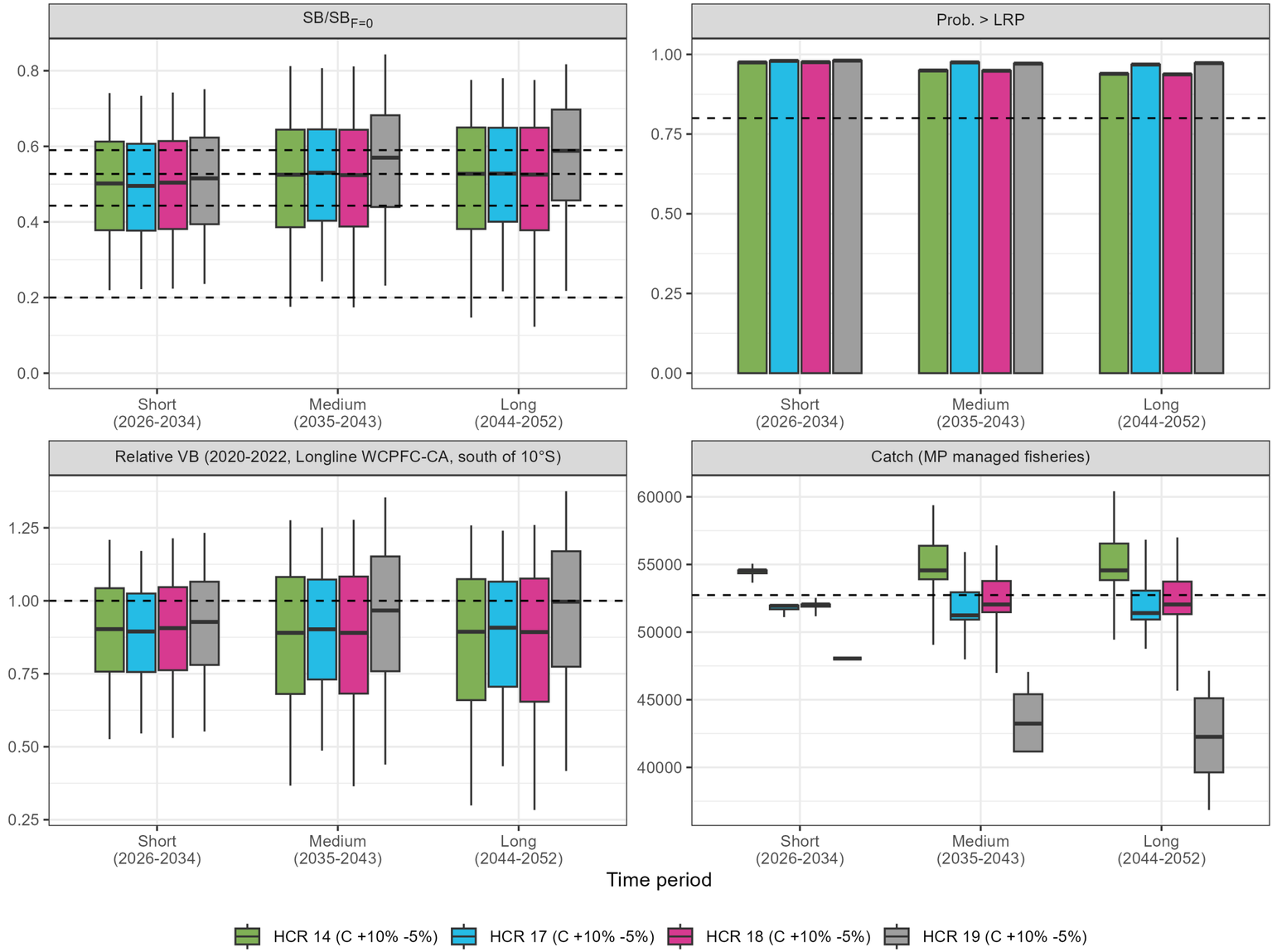
Additional catch-based MPs

- SPAMWS02 agreed to consider four ‘additional’ MPs.
- Evaluated using different underlying assumptions to main results.
- Tuned to achieve specific target (iTRP or upper TRP) under those assumptions.
- Same constraint (+10% -5%).
- Different to sensitivity tests.
- Care taken when comparing results as these are specific evaluations.



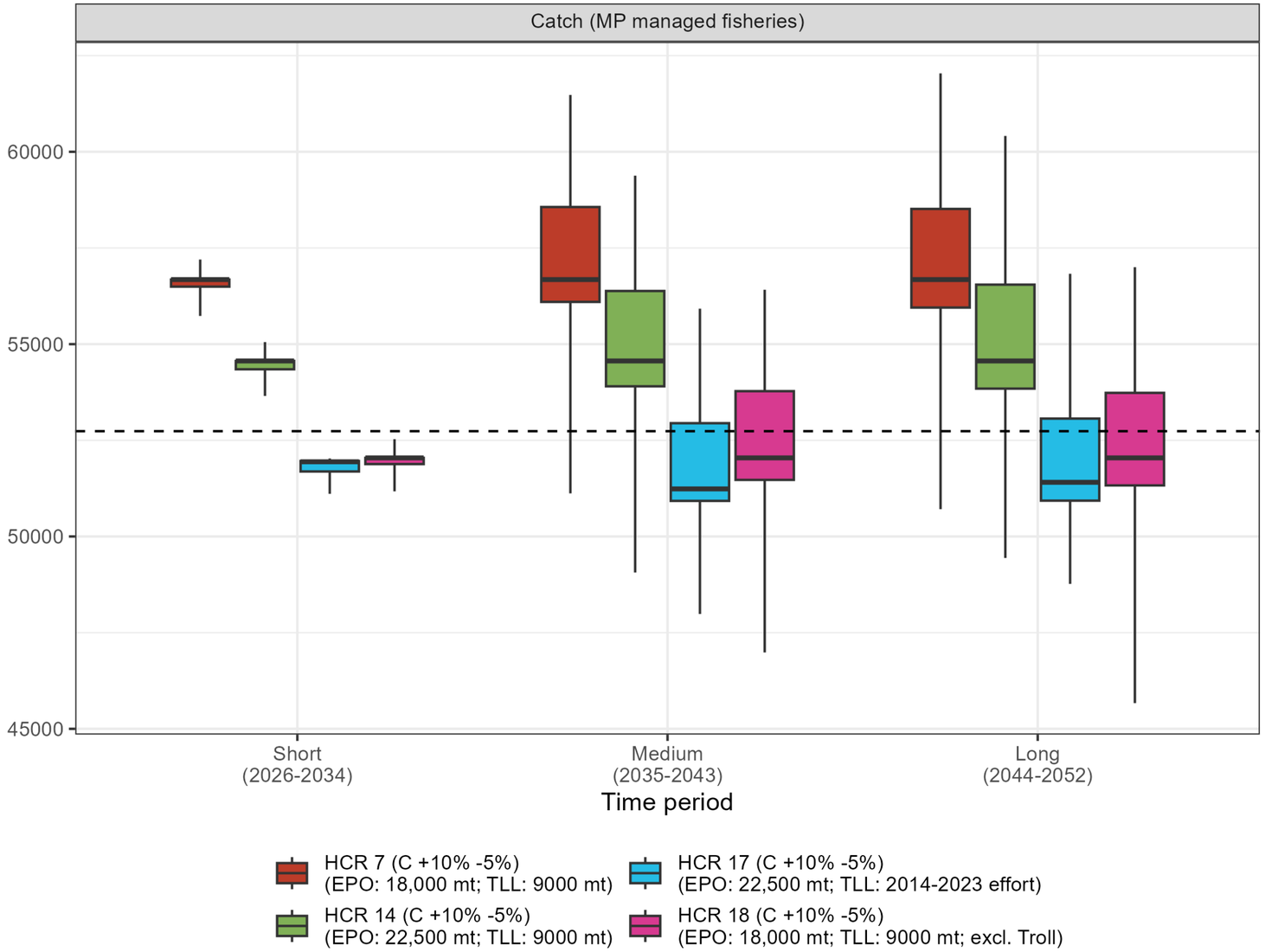
HCR	Target	EPO catch (mt)	TLL	WCPFC-CA troll
HCR 14	iTRP	22,500	9,000 mt	Included
HCR 17	iTRP	22,500	144 million hooks	Included
HCR 18	iTRP	18,000	9,000 mt	Excluded
HCR 19	Upper TRP	18,000	9,000 mt	Excluded

Additional MP evaluations



- Not sensitivity tests.
- Results are a combination of the HCR shape and the different underlying assumptions.
- Careful comparing results.
- Similar VB and SB/SB$_{F=0}$ as objective is iTRP (except HCR 19)
- High probability of > LRP
- Main difference is in expected catch (catch of fisheries managed through MP is shown here).

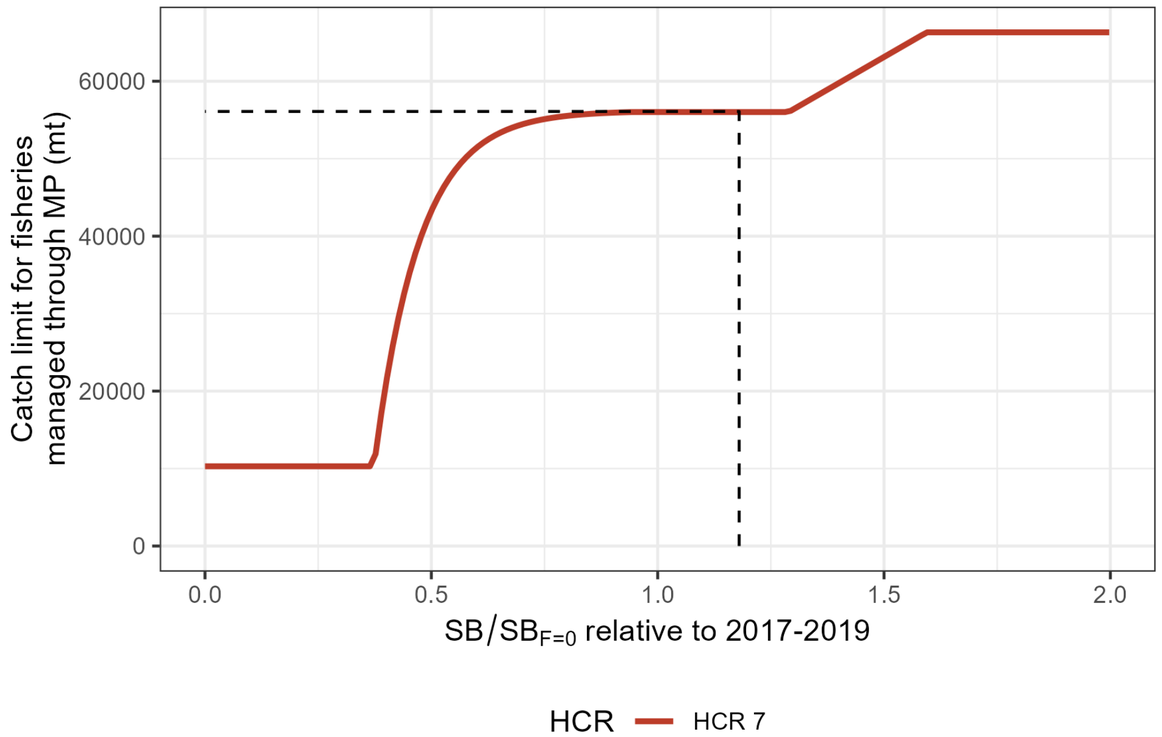
Catch of fisheries managed through MP



- Some MPs tuned to achieve iTRP.
- Difference in performance is a result of underlying assumptions:
  - Albacore catches in EPO and TLL (0-10°S region); excluding troll fisheries from MP.
- HCR 7: highest catch for those fisheries under MP.
- To achieve same iTRP under the different assumptions, less catch is available for fisheries managed through the MP.
- More catch is assumed to be in the EPO or 0-10°S regions of the WCPFC-CA or in the troll fishery.

Running the MP with real data

- Data up to 2023.
- Run estimation method with data:
  - Result: 1.180
  - ($SB/SB_{F=0}$ 2021-23 relative to $SB/SB_{F=0}$ 2017-19)
- Put value into HCR to get catch limit.
- Constraint restricts change from ‘last’ catch (2023).
- Apply constraint (if any) to give catch limit for management period 2026-2028.



HCR	New scalar (unconstrained)	New output (unconstrained)	New output (constrained)
HCR 7 (C +10% -5%)	1.088	56,000 mt	56,000 mt
HCR 10 (C +10% -5%)	1.380	71,000 mt	57,100 mt
HCR 13 (C +10% -5%)	0.843	43,400 mt	49,400 mt

Acknowledgements

We gratefully acknowledge funding for this work from the New Zealand Ministry of Foreign Affairs and Trade (MFAT) funded project “Sustainable Pacific Fisheries”.