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Calculation of Broadbill Swordfish RBCC in 2025

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1 Executive Summary

Given the recently modified Harvest Strategy for Broadbill Swordfish an RBCC is calculated for this species. The previous TAC was 1,047 tonnes and the calculated RBCC is also 1,047 tonnes - **no change**. The four year moving average value from 2021–2024 (the key input to the harvest strategy) is still below the lower buffer zone. The reason no decrease in RBCC has occurred is because of the modification to the original Harvest Strategy that takes explicit account of the fact that current catches are well below RBCC. The fact that the current low catches are further below the unmodified RBCC than the RBCC is below the current TAC means no actual reduction in the overall TAC is required. Given the previously identified Exceptional Circumstance (catches well below TACs) is now accounted for in the Harvest Strategy itself, and observed CPUE is well within the range simulated in the Management Strategy Evaluation work, we therefore recommend an RBCC of 1,047 tonnes for the 2026 fishing season.

2 Background

The AFMA Commission adopted the Harvest Strategy for Broadbill Swordfish which was developed under the direction of the TTRAG and TTMAC over the last few years. Given unprecedented low levels of catch well below the TAC over the last couple of years during the COVID pandemic a modification to the Broadbill Swordfish HS was developed within TTRAG and TTMAC. Given the annual agreed cycle for this Harvest Strategy a TAC for Broadbill Swordfish is required for 2025 and this paper details:

1. A reminder of the modified Harvest Control Rule (HCR)
2. The standardised CPUE index used in the HCR
3. The RBCC calculated using the modified Harvest Strategy
4. A brief consideration of any potential invocation of Exceptional Circumstances

3 Broadbill Swordfish Harvest Strategy

The general form of the HCR used in the Broadbill Swordfish Harvest Strategy can be seen in Figure 3.1. A single index is used (in this case the sub-adult standardised CPUE index) to calculate a scalar multiplier (on y-axis of Figure 3.1) which is applied to the current TAC to get the new proposed RBCC.

The CPUE index used in the Broadbill Swordfish harvest strategy is the previously agreed sub-adult standardised CPUE index - specifically the index calculated using the R based platform used and presented at the previous TTRAG [1]. In the Harvest Strategy a 4 year mean (i.e. from 2021–2024) was used as the reference mean index to be used as an input to the HCR. The RBCC scalar is then calculated subject to the constraint that the change in RBCC cannot exceed 10% either up or down. In addition to this constraint the modified HS accounts for the amount by which the fleet is catching below the actual RBCC. In the event of a predicted decrease in the RBCC if (a) current catches are further below the RBCC than the RBCC is below the current TAC there is *no change*; (b) current catches are not further below the RBCC than it is below the TAC the residual difference is discounted from the TAC reduction; (c) if the RBCC is below current catches then the full TAC decrease is applied. No alterations are made in the event of TAC increases.

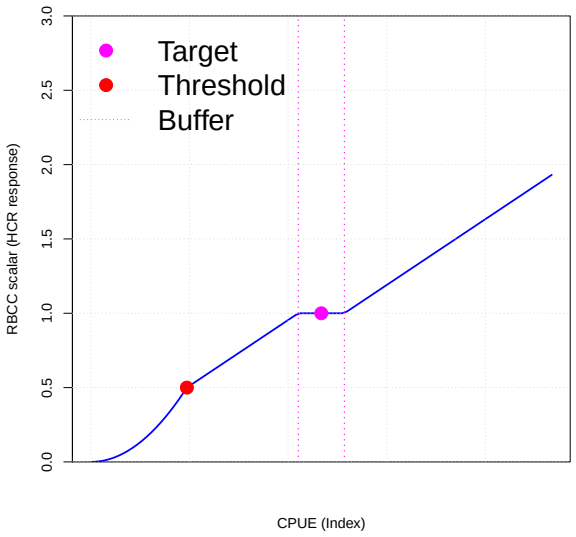

Figure 3.1: *General functional form of the Broadbill Swordfish Harvest Strategy.*

4 TAC calculation

The mean sub-adult standardised CPUE for the years 2021–2024 - correctly rescaled by the mean of the 1998-2018 index used in the MSE work - was 0.69. This is *below* the lower buffer of 0.8 in the HCR which means a decrease in the RBCC will be the result. For reference, the "tuned" target CPUE - the longer-term target CPUE the Harvest Strategy will try to work to attain is almost two times higher than the current average value.

The actual value of the RBCC multiplier is 0.9 - the maximum 10% permitted. If not for the maximum change constraint the reduction would have been a factor of 0.81 as can be seen in Figure 4.1. Figure 4.1 details a graphical summary of the actual adopted HCR used for Broadbill Swordfish, as well as where the current mean CPUE is situated and the associated proposed RBCC multiplier. However, because current catches are further below the initial RBCC than it is below the current TAC, the recommended RBCC is 1,047 tonnes (no change).

5 Exceptional Circumstances

The consideration of Exceptional Circumstances (EC) is an important part of the full MSE-tested Harvest Strategy process but in essence is simple:

1. Are the current data, conditions and relevant parameters meaningfully different to what we simulated, hypothesised, and assumed when testing?
2. If so, what - if anything - should be done about it?

The Harvest Strategy was tested conditional on the assumption that the future we simulated actually comes to pass in terms of the data and other factors that we see when we implement the HS in reality. If conditions appear outside of that range we cannot say that the HS is robust to those conditions seen as we never tested against them. The previously discussed meta-rules process is how we deal with unforseen events via a pragmatic process. It does not try and codify rules for all eventualities - this is a kind of infinite regress eventually; it simply states that if EC is

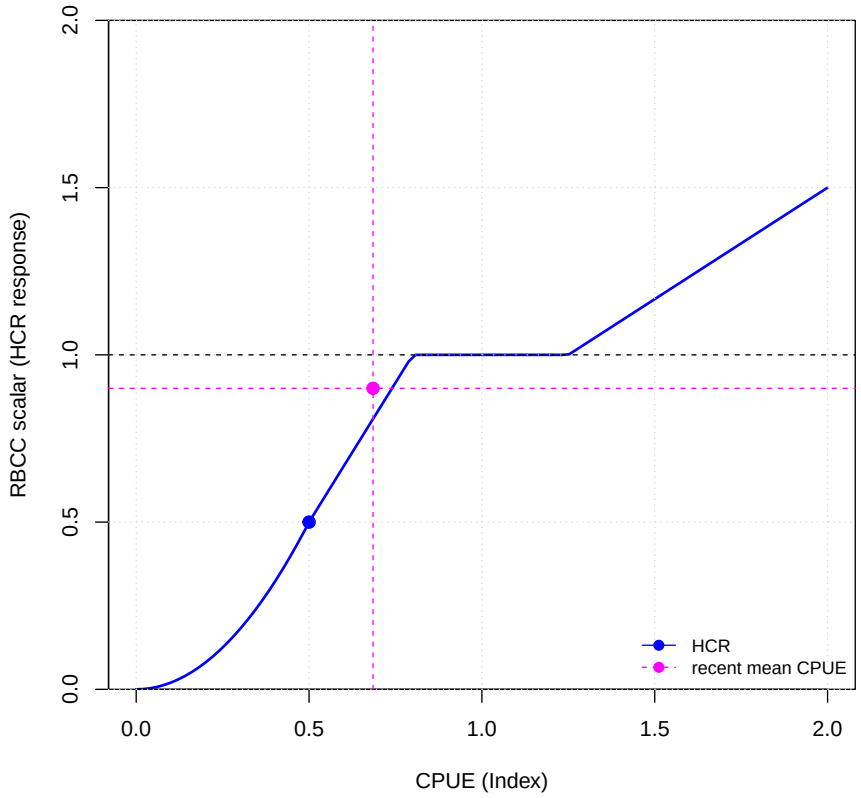

Figure 4.1: *Adopted HCR for Broadbill Swordfish (blue) and the observed mean recent sub-adult standardised CPUE and the associated RBCC multiplier (magenta).*

triggered, the relevant group (TTRAG in this case) will discuss what - if anything - needs to be done.

The most recent CPUE data falls well within the bounds of that simulated in the updated MSE work [2]. The previously identified Exceptional Circumstance - catches well below the TAC and in excess of the level tested in the original MSE - has been included explicitly in the modified Harvest Strategy. Given the 2025 assessment [3] we see no obvious major shift in the either the biological or stock status understanding for this population. We therefore recommend that no Exceptional Circumstances have been identified and the calculated RBCC can be recommended for consideration.

References

[1] Williams, A., Cooper, S., and Tremblay-Boyer, L. (2025) Summary of catch and effort information for Australian longline fishing operations in the Eastern Tuna and Billfish Fishery–1998 to 2024. *TTRAG, July, 2025*

[2] Hillary, R.M. (2022) Evaluation of proposed modification to Swordfish Harvest Strategy. *TTRAG, July, 2022*

[3] Day, J. *et al.*(2025) Stock assessment of swordfish in the southwest Pacific Ocean: 2025.

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