

Revised CMP results for VAR6, VAR5.5 and Var5.

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Summary

This document provides an update of the current CMPs being developed for the management of Tristan rock lobster at Gough island, following updates to the underlying assessment model.

Following results presented in MARAM/TRISTAN/2021/JUN/09 which reported CMP results for three different Itar values (6.0 kg/trap, 5.5 kg/trap and 5.0 kg/trap), this document provides **revised** results which take into account the revised underlying operating model (stock assessment) presented in MARAM/TRISTAN/2021/JUN/11.

Note that as in document 09, it is again recommended that the modification to the OMP formula which uses an α value of 4 is used, as this allows for a flatter TAC trajectory (especially for CMP Var5.5).

To recap, the revised underlying operating model now has the following features:

- 1) Caps the size of the σ value (an indication of how well the model fits to the data) for both the model fit to commercial CPUE data and to the survey data at $\sigma \geq 0.15$. Previous versions resulted in inappropriately low values of σ associated with the commercial CPUE fit.
 - 2) Fits to the 2020 commercial CPUE data (previous fit omitted this value as not available at the time)
 - 3) Fits to the 2020 discard % value.
 - 4) Assumes catch for 2020 is 81t (not 100t as earlier assumed).
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- The expected TAC trajectories for each CMP are relatively flat (i.e. do not have the feature of an increase then a decrease).
 - Var6 results in decreasing TACs over time.
 - Var5.5 results in a fairly flat TAC trajectory over time.
 - Va 5 results in a slightly increasing TAC trajectory over time (whilst still resulting in the final biomass being at a healthy 0.78K.)
 - Catch rates are expected to decline over the next 10 years.
 - Recall that OMP-2014 had an Itar=4 kg/trap and OMP-2018 has an Itar=6 kg/trap.
 - The next set of CMP results will
 - a) Include the biomass survey index in the OMP formula (in a similar manner to that for Tristan)
 - b) Show not only median trajectories, but also the 5th and 95th percentiles (to give a better feel for the expected range of results)
 - c) Show expected results for not only the baseline (as has been shown so far) but for a wide range of robustness tests which will incorporate various areas of uncertainty, including for possible additional juvenile mortality as a result of the oil spill associated with the GeoSearcher loss.

MARAM/TRISTAN/2021/JUL/12

Table 1: Comparison of **Gough** candidate OMP variants expected performance results. All statistics reported below are median values unless otherwise stated.

CMP	I^{tar} (kg/trap)	α	CR(2022) (kg/trap)	CR(2032) (kg/trap)	TAC(2021)* (MT)	$C_{ave\ 5^*}$ (MT)	$C_{ave\ 10^*}$ (MT)	Lower 5%ile $C_{ave\ 10^*}$	Median and Lower 5%ile $B_{sp}(2033/K)$
OMP-2018 [#]	6.0	10	3.86	4.28	95	82	89	89	0.66 (0.33)
VAR6 ($\alpha=4$) Itar=6.0 kg/trap Add 15t rollovers TAC(2021)<=100t	6.0	4	6.05	5.21	100+5=105*	99+3=102*	94+1.5=95.5*	97+1.5=98.5*	0.81 (0.48)
VAR5.5 ($\alpha=4$) Itar=5.5 kg/trap Add 15t rollovers TAC(2021)<=100t	5.5	4	6.03	4.75	100+5=105*	103+3=106*	105+1.5=106.5*	97+1.5=98.5*	0.78 (0.46)
VAR5 ($\alpha=4$) Itar=5.0 kg/trap Add 15t rollovers TAC(2021)<=100t	5.0	4	6.02	4.23	100+5=105*	107+3=110*	112+1.5=113.5*	104+1.5=105.5*	0.76 (0.46)

*Here the first figure is the OMP TAC, the second is the rollover amount, the final is the combination of the two.

Table 3: Predicted median TAC values (MT) for the first 10 seasons (2021-2030) for the different CMP variants.

	2021*	2022*	2023*	2024	2025	2026	2027	2028	2029	2030
VAR6 ($\alpha=4$) Itar=6.0 kg/trap Add 15t rollovers TAC(2021) \leq 100t	100+5= 105	99+5= 104	99+5= 104	99	98	97	95	95	95	93
VAR5.5 ($\alpha=4$) Itar=5.5 kg/trap Add 15t rollovers TAC(2021) \leq 100t	100+5= 105	101+5= =106	103+5= =108	105	106	106	107	107	107	106
VAR5 ($\alpha=4$) Itar=5.0 kg/trap Add 15t rollovers TAC(2021) \leq 100t	100+5= 105	100+5= =105	103+5= =108	107	111	114	115	116	117	118

*Here the first figure is the OMP TAC, the second is the rollover amount, the final is the combination of the two.

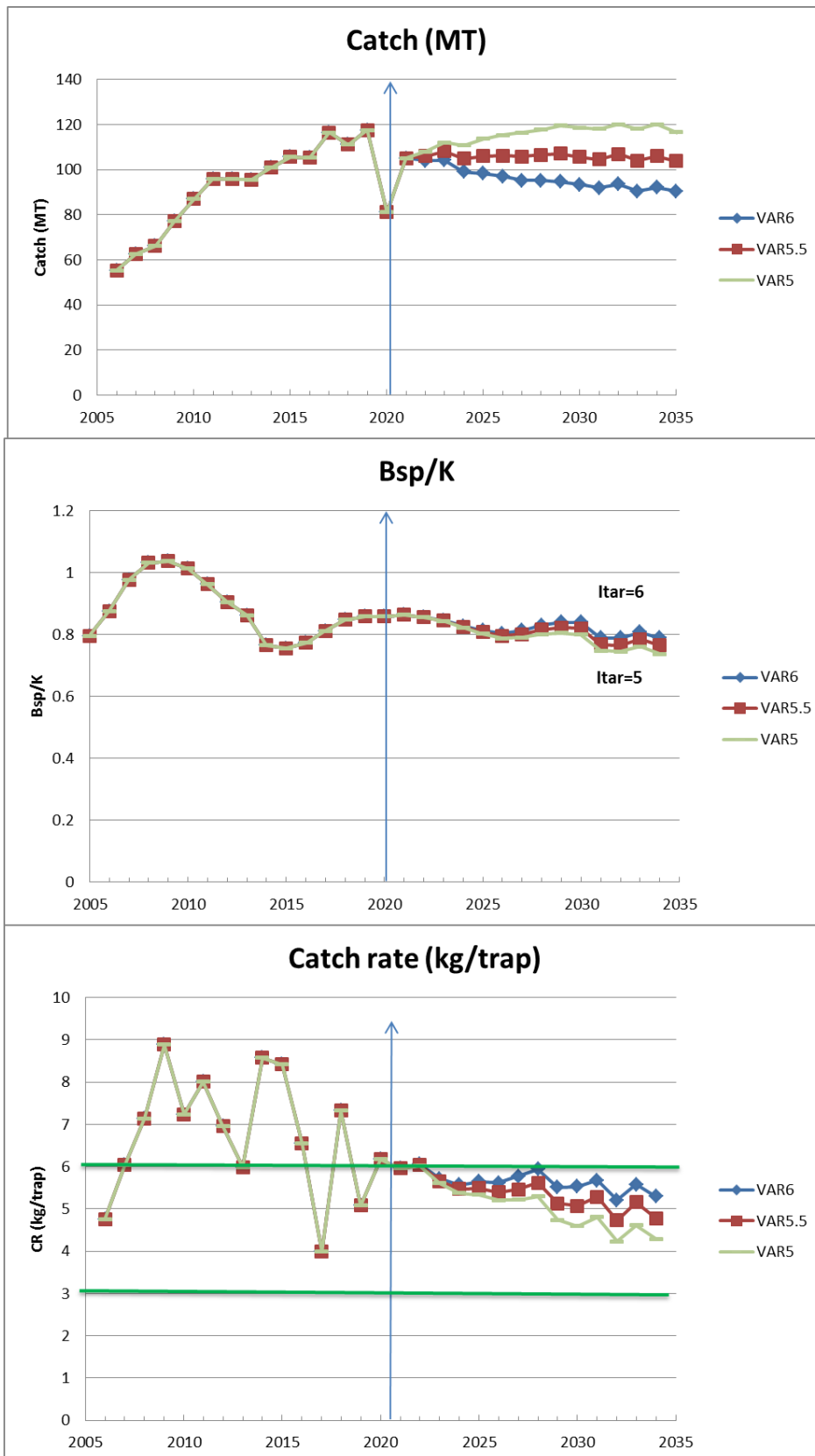


Figure 1: The revised Catch (MT), Bsp/K and catch rate (kg/trap) trajectories for each of the CMP variants (where $\alpha=4$). (Note that the Catch of 81MT taken in 2020 is reflected in the catch plot, but the OMP algorithm uses TAC and hence an initial input value of TAC(2020)=100 MT.) The top plot of Catches also INCLUDES a 5t rollover for 2021-2023 seasons.