

The TAC for Tristan da Cunha island rock lobster for the 2014¹ season as calculated using the current OMP

S.J. Johnston and D.S. Butterworth

MARAM

Department of Mathematics and Applied Mathematics

University of Cape Town

In 2013 an operational management procedure (OMP) for the Tristan da Cunha rock lobster fishery was adopted. The selected OMP is a target-based OMP based on the recent commercial powerboat CPUE. The details of the selected OMP may be found in Johnston and Butterworth (2013), and are summarised below.

Tristan OMP

The OMP is a target-based rule based on the recent commercial CPUE, viz.:

$$TAC_{y+1} = TAC_y + \alpha(I_y^{rec} - I^{tar}) \quad (1)$$

where

I_y^{rec} is the average CPUE over the last three seasons ($y-2, y-1, y$),

I^{tar} is the CPUE target index of 1.163 (the average GLM-standardized 2010-2012 CPUE), and

$$\alpha = 25$$

A rule to control the inter-annual TAC variation is also applied. The % TAC change relative to the previous season is restricted to a maximum of either up 5% down 5%, i.e.:

If $TAC_{y+1} < 0.95TAC_y$ then $TAC_{y+1} = 0.95TAC_y$

If $TAC_{y+1} > 1.05TAC_y$ then $TAC_{y+1} = 1.05TAC_y$

Note that for the final selected OMP is was also decided to fix the TAC for the first season for which the OMP was applied (2013) to 165 MT.

The relevant input data to be used in setting the 2014 TAC are reported in Table 1. These are the recently updated GLM-standardised CPUE values for the seasons 2011, 2012 and 2013 (see Johnston *et al.* 2014).

¹ The season 2014 refers to here as the split season 2014/2015. The Tristan fishing season is assumed to start in July each year.

2014 TAC calculation

$$I_y^{rec} \text{ is the average GLM-standardised CPUE over the last three seasons (2011-2013)}$$

$$= \text{average of 1.151, 0.992 and 0.905}$$

$$= 1.016$$

$$TAC_{y+1} = TAC_y + \alpha(I_y^{rec} - I^{tar})$$

Thus

$$TAC_{2014} = TAC_{2013} + 25(I_y^{rec} - 1.163)$$

$$TAC_{2014} = 165 + 25(1.016 - 1.163)$$

$$TAC_{2014} = 161.32 \text{ MT}$$

The recommended TAC for Tristan da Cunha island for the 2014 season is thus 161.32 MT.

References

Johnston, S.J. and D.S. Butterworth. 2013. An operational management procedure for the Tristan da Cunha rock lobster fishery. Document MARAM/TRSTAN/2013/OCT/14.

Johnston, S.J., Brandão, A. and Butterworth, D.S. 2014. Updated GLMM- and GLM-standardised lobster CPUE from the Tristan da Cunha group of islands. Document MARAM/Tristan/2014/JUN/08.

Table 1: Updated GLM-standardised CPUE for Tristan.

Season	GLM CPUE
2011	1.151
2012	0.992
2013	0.905
Average	1.016