

RECOMMENDATIONS ON ROCK LOBSTER TACs FOR THE TRISTAN OUTER GROUP OF ISLANDS FOR THE 2014/15¹ SEASON

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Executive Summary

OMPs have recently been accepted as the immediate basis to recommend TACs for Inaccessible and Gough. Given that for both islands the recent catch rates have been above the associated OMP's target catch rate, the OMPs indicate increases to the TACs for both islands for the 2014 season:

Inaccessible: 70 MT to 73 MT

Gough: 95 MT to 100 MT

High catch rates continue at Nightingale, with the reasons for these remaining unclear. These rates do not indicate any reasons for reducing the 2013 catch of 65 MT, but caution remains needed as the possible negative impact on recruitment of the Oliva oil spill is still to be felt in the fishery as those recruits have still to reach catchable size. Accordingly the TAC recommended for the 2014 season is:

Nightingale: 65 MT

Inaccessible and Gough

Introduction

An OMP has been developed and utilized for setting the TAC at the main Tristan island since the 2013 season. Johnston and Butterworth (2014a) provides details of the calculation of the 2014 TAC recommendation (161.32 rounded to 161 MT) for Tristan using the Tristan OMP.

¹ The convention used here is that the split season (eg 2014/15) is referred to as the "2014" season.

OMPs have recently been developed and agreed upon for both Inaccessible and Gough islands. Johnston and Butterworth (2014b) provides details of the OMP candidates considered. For Inaccessible the “CMP3+metarule 2” is the final agreed OMP, and for Gough “CMP20+metarule1” is the final agreed OMP. Both these OMPs are similar to the Tristan OMP, being target-based OMPs, with the TAC setting formula being of the form:

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

where

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

I^{tar} is the CPUE target (4 for Inaccessible and 4.5 initially for Gough, dropping to 2.8 in 2017)

and

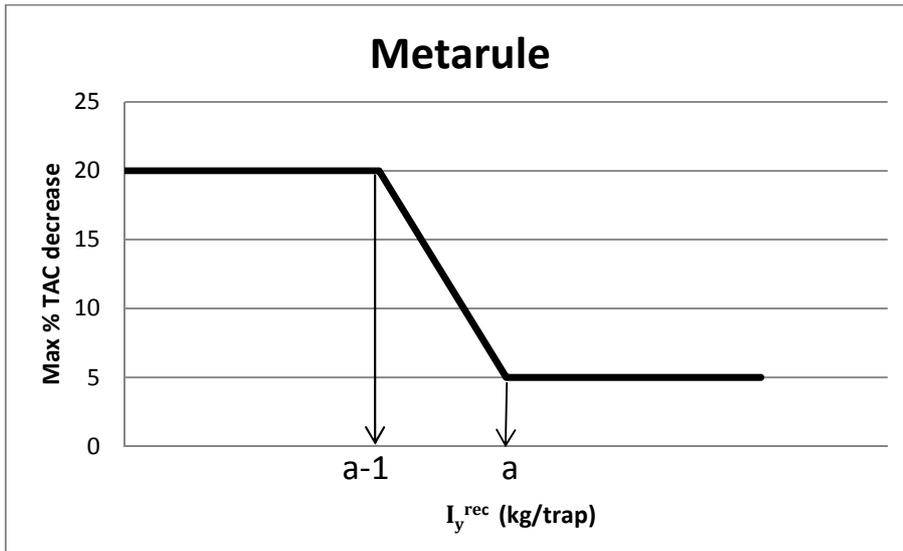
α is the tuning parameter (2.5 for Inaccessible and 10 for Gough).

A rule to control the inter-annual TAC variation is also applied. Normally the percentage TAC change relative to the previous year 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 $TAC_{y+1} = 1.05TAC_y$

However, in addition a precautionary metarule for both Inaccessible and Gough may be applied, where the 5% TAC decrease constraint is increased to up to 20% if the (catch rate) index drops below a threshold level. This metarule allows for the TAC to be reduced further than the usual maximum 5% decrease, as shown in the figure below:



For Inaccessible, a is set at 4 kg/trap, and for Gough a is set at 1.5 kg/trap.

GLM analyses including the most recent (2013) season's CPUE longline data have recently been completed (Johnston, Butterworth and Brandao 2014). These analyses provide the input data used in setting the TACs for the 2014 season for Inaccessible and Gough. Table 1 reports the values used in the calculation of the I_y^{rec} values.

Inaccessible TAC for 2014

The calculation of the 2014 TAC for Inaccessible is as follows:

$$TAC_{2014} = TAC_{2013} + \alpha(I_{2013}^{rec} - I^{tar})$$

$$TAC_{2014} = TAC_{2013} + 2.5(I_{2013}^{rec} - 4)$$

$$TAC_{2014} = 70 + 2.5(5.153 - 4)$$

$$TAC_{2014} = 72.88 \text{ MT}$$

As this TAC value is neither more or less than a 5% deviation from the previous TAC, nor does the I_{2013}^{rec} value fall below the metarule threshold level (4 kg/trap), the final TAC recommended for Inaccessible for the 2014 season is 72.88 rounded to **73 MT**

Gough TAC for 2014

The calculation of the 2014 TAC for Gough is similar, and as follows:

$$TAC_{2014} = TAC_{2013} + \alpha(I_{2013}^{rec} - I^{tar})$$

$$TAC_{2014} = TAC_{2013} + 10(I_{2013}^{rec} - 4.5)$$

$$TAC_{2014} = 95 + 10(5.877 - 4.5)$$

$$TAC_{2014} = 108.77$$

As this TAC value is more than a 5% increase from the previous TAC, the TAC is adjusted to equal a 5% increase over the 95 MT, which is 99.75 MT. The I_{2013}^{rec} value does not fall below the metarule threshold level (1.5 kg/trap), so that the final TAC recommended for Gough for 2014 is 99.75 rounded to **100 MT**.

Nightingale

Introduction

In last year's advice, it was pointed out that the situation at Nightingale was unclear given the unexpectedly high CPUE that had been experienced over the immediately preceding season. The need to see how these CPUEs might change over the immediate future was stressed. It was hoped that the reasons for these high values would become more evident to allow a reliable assessment to be conducted. The advice given was to set a PUCL (Precautionary Upper Catch Limit) of **40 MT**, which was to be increased during the season on the basis of a comparison of the catch rates achieved to those from immediately before the Oliva incident. Specific rules were pre-set to govern the increase to be permitted. In the event the catch rates achieved were such as allowed to maximum increase permitted by those rules, which was to **65 MT**.

Nightingale TAC for 2014

Table 2 compares the nominal catch rates achieved at Nightingale over the last two seasons with those immediately before the Oliva incident (March 2011) as well as the Biomass survey abundance indices for the same seasons. As in the 2012 season, the 2013 CPUE is much higher than was the case before the incident and the survey result is also higher. The reasons for this remain unclear. In these circumstances, the development of an OMP for Nightingale remains premature. Certainly given the continued very high catch rates (hardly impacted by the 2013 season catch of 65 MT), there would hardly be any justification for a 2014 season TAC of less than 65 MT. On the other hand, if the Oliva oil spill did indeed impact recruitment negatively, that impact is still to be felt in the fishery because of the time needed for those lobsters to grow to catchable size. It would therefore be premature, in our view, to consider increasing the TAC beyond this 65 MT amount, at least until the extent of the possible oil-related impact on the fishery becomes clear in the near future. Furthermore, a longer period of catch rate monitoring seems necessary before the reasons for the recent high values might become more evident.

Given the above, the TAC recommended for Nightingale for the 2014 season is **65 MT**.

References

Johnston, S.J. and D.S. Butterworth. 2014a. The TAC for Tristan da Cunha island rock lobster for the 2014 season as calculated using the current OMP. MARAM document, MARAM/TRISTAN/2014/JUN/09.

Johnston, S.J. and D.S. Butterworth. 2014b. Initial OMP candidates for the Inaccessible and Gough rock lobster fisheries. MARAM document, MARAM/TRISTAN/2014/FEB/03.

Johnston, S.J., Brandao, A. and D.S. Butterworth. 2014. GLMM- and GLM-standardised lobster CPUE from the Tristan da Cunha group of islands for the 1997-2013 period. MARAM document, MARAM/TRISTAN/2014/MAY/08.

Table 1: The updated (2014) GLMM CPUE (kg/trap) for Inaccessible and Gough to be used for the I_{2013}^{rec} calculations.

	Inaccessible	Gough
2011	3.729	6.580
2012	5.677	6.030
2013	6.054	5.012
Average (I_{2013}^{rec})	5.153	5.877

Table 2: Recent Nominal CPUE values for the longline fishery and biomass survey results for Nightingale.

Season	Nominal longline CPUE	Biomass survey (Leg1) indices (recorded Aug/Sep each year)
2008	4.827	
2009	4.237	16.31
2010	4.862	14.00
2011*	-	4.63
2012	9.62	18.10
2013	13.42	23.50

*Oliva incident occurred March 2011