MARAM work progress from February 2018 to March 2019, and future plans

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The last Tristan MSC audit was February 2018. Since that meeting MARAM have produced the following documents.

MARAM document list (documents since the 2018 MSC audit)

1. Johnston, S.J. and Butterworth, D.S. 2018. Updated 2018 GLMM standardised lobster CPUE from the Tristan da Cunha outer group of islands. MARAM document: MARAM/TRISTAN/2018/MAR/04: 14pp.
2. Johnston, S.J. and Butterworth, D.S. 2018. Updated (and rescaled) Tristan GLM-standardised lobster CPUE to take account of data for the 2017 season. MARAM document: MARAM/TRISTAN/2018/MAY/05: 10pp.
3. Johnston, S.J. and Butterworth, D.S. 2018. 2018 GLMM-standardised Tristan lobster CPUE compared with the current OMP target levels (Itar). MARAM document: MARAM/TRISTAN/2018/MAY/06: 3pp.
4. Butterworth, D.S. and Johnston, S.J. 2018. Recommendations on rock lobster TACs for Tristan and Nightingale Islands for the 2018/19 season. MARAM document: MARAM/TRISTAN/2018/JUL/07: 5pp.
5. Johnston, S.J. and Butterworth, D.S. 2018. Updated 2018 Inaccessible and Gough island assessments. MARAM document: MARAM/TRISTAN/2018/JUL/08: 20pp.
6. Johnston, S.J. and Butterworth, D.S. 2018. Initial updated 2018 OMPs for the Inaccessible and Gough islands. MARAM document: MARAM/TRISTAN/2018/JUL/09: 15pp.
7. Butterworth, D.S. and Johnston, S.J. 2018. Recommendations on rock lobster TACs for the Tristan group of islands for the 2018/19 season. MARAM document: MARAM/TRISTAN/2018/SEP/10: 8pp.
8. Butterworth, D.S. and Johnston, S.J. 2018. Summary of recommendations on rock lobster TACs for the Tristan group of islands for the 2018/19 season. MARAM document: MARAM/TRISTAN/2018/SEP/11: 1pp.
9. Johnston, S.J. and Butterworth, D.S. 2019. Updated 2019 GLMM- standardised lobster CPUE from the Tristan da Cunha group of islands. MARAM document: MARAM/TRISTAN/2019/FEB/01: 16pp.
10. Johnston, S.J. 2019. Tristan Group biomass survey (Leg 1) results including data from the 2018 season. MARAM document: MARAM/TRISTAN/2019/JAN/02: 15pp.

11. Johnston, S.J. and Butterworth, D.S. 2019. Shifts in catch-at-length proportions for the Tristan group lobster fisheries. MARAM document: MARAM/TRISTAN/2019/APR/03: 1pp.

Important new work involved developing new OMPs for Inaccessible and Gough (see MARAM/TRISTAN/2018/JUL/09 and MARAM/TRISTAN/2018/SEP/10).

Inaccessible and Gough OMPs 2018

These OMPs are based on the same structure as that for the Tristan and Nightingale OMPs developed in 2017. There is a target-based rule based on the recent commercial CPUE, *viz.*:

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

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 index, and

α is a tuning parameter – the larger the α value, the more "responsive" the OMP is to changes in the catch rate in the future.

A rule to control the inter-annual TAC variation is also applied. The baseline % TAC change relative to the previous year ("max V%") is restricted to a maximum of either up 5% down 5%:

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

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

As for the other OMPs that have been developed, a precautionary metarule rule is also incorporated into the OMP, where the 5% TAC decrease constraint is increased to up to 20% if the (catch rate) index drops below a threshold (Ilim) level.

The final Inaccessible OMP accepted has:

I^{tar} the CPUE target index of 5.0 kg/trap,

α is 2.5,

max V%   5% up and 5% down, and

Ilim   3.0 kg/trap.

The final Gough OMP accepted has:

I^{tar} the CPUE target index of 6.0 kg/trap,

α   is 10,

max V%   5% up and 5% down, and

Ilim   3.0 kg/trap.

The table below summarises the rock lobster OMP development and implementation schedule for Tristan rock lobster.

Island	Current OMP development	Used for setting TACs in these years	OMP updates
Inaccessible	2018	2018-2020	2018, 2021
Gough	2018	2018-2020	2018, 2021
Tristan	2017	2017-2019	2020, 2023
Nightingale	2017	2017-2019	2020, 2023

This year the following work will be undertaken using the data from the most recent 2018 season.

1) Analysis of Biomass survey data (biomass index, catch-at-length, percentage-females in catch, mean size of catch). See MARAM/TRISTAN/2019/JAN/02.
2) Analysis of catch-at-length data collected from the fishery by observers (as well as discard %). To come.
3) GLM analyses of the CPUE data (to provide inputs into the OMPs). See MARAM/TRISTAN/2019/FEB/01 for outer islands GLM analyses. Tristan GLM to come.
4) Analysis of nominal Geosearcher CPUE data for Tristan. To come.
5) Provision of TAC recommendations using updated results from 3) and current OMPs.

Question: Given the strong indication of a shift in the catch-at-length data from Tristan, should MARAM update the Tristan assessment this year, or wait until next year?