South Coast Rock Lobster TAC for the 2016/17 season[1]

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Summary

Application of OMP-2014 results in a TAC recommendation of 331 MT for the 2016/17 season (which reflects a 3% decrease from the 2015/16 TAC). Exceptional Circumstances are considered not to apply.

Introduction

OMP-2014 was developed in 2014 to be used to set the TAC for South Coast Rock Lobster for the 2014-2017 seasons. This OMP was a "target-based" OMP, and as with the previous OMP (OMP-2008) has a median target spawning biomass $B^{sp}_{2025}/B^{sp}_{2006}$ of 1.20 when simulation tested. i.e. a spawning biomass increase in median terms of 20% over the 2006-2025 period.

The operating model which was used to simulation test OMP-2014 is model RC1 reported in Johnston (2013). Johnston and Butterworth (2015) provided an update to the operating model, in order to check the assessment in 2015 was not considerably different from the operating model used to simulation test OMP-2014.

OMP-2014 fixed the initial TAC for the first season (2014) at 359 MT.

OMP-2014

The TAC setting algorithm for OMP-2014

The algorithm used to recommend the TAC for the South Coast Rock Lobster fishery for season *y*+1 is:

$$TAC_{y+1} = TAC_y[1 + \alpha \frac{\overline{CPUE}_y - CPUE_{targ}}{CPUE_{targ}}] \quad (1)$$

where $\overline{CPUE}_y$ is a measure of recent CPUE and is calculated as follows:

$$\overline{CPUE}_y = \frac{1}{3}\sum_{y'=y-3}^{y-1}\sum_{A=1}^{3}\lambda_A CPUE^A_{y'} \quad (2)$$

where

$CPUE^A_{y'}$ is the GLM standardised CPUE for area *A* in year y' and

the CPUE weighting factors, $\lambda_{A1E}, \lambda_{A1W}$ and λ_{A2+3} relate to the proportion of the overall biomass in each the three fishing areas, and were calculated using estimated values of q and B^{exp} for 2011 from the RC1 model to be:

[1] Note that the split season 2016/17 (for example) is sometimes referenced as 2016 later in this document

$$\lambda_{A1E} = 0.003$$
$$\lambda_{A1W} = 0.128$$
$$\lambda_{A2+3} = 0.868$$

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$CPUE_{targ}$ = **1.22 –** this value results in the median *Bsp*(2025/2006)=1.30, the selected biomass target for OMP-2014 under the RC1 operating model.

Note that TAC_y is the TAC set (not the catch taken) in season *y*.

The tuning parameter α controls how responsive the OMP is to CPUE deviations from the CPUE target, and for OMP-2014 is set to be 1.0.

Note that the TAC for season *y*+1 is to be based upon the CPUE series that ends in season *y*-1, i.e. the TAC recommendation for the 2016/17 season would be based on a CPUE series that ended with the most recent CPUE value available at the time the TAC recommendation was required (August 2016) which would be here the 2014/15 season.

Inter-annual TAC constraint

A rule to restrict the inter-annual TAC variation to no more than 5% up or down from season to season is applied as in previous OMPs, i.e.:

$$\text{if } TAC_{y+1} > 1.05TAC_y \qquad TAC_{y+1} = 1.05TAC_y \tag{3}$$
$$\text{if } TAC_{y+1} < 0.95TAC_y \qquad TAC_{y+1} = 0.95TAC_y$$

TAC for first season (2014)

The TAC for the first season that OMP-2014 is implemented (2014) is set at a 5% increase over the TAC for the previous 2013 season. Thus TAC(2014) is fixed at 359 MT. The inter-annual rules described in the section above will come into play from the 2015 season onwards.

Maximum CAP on TAC

A maximum cap on TAC in any year in the future is set at 450 MT.

The TAC calculation for the 2016/17 season

Glazer (2016) provides the updated CPUE indices for the South Coast Rock lobster to include the 2014 season (see addendum of FISHERIES/2016/AUG/SWG_SCRL/02).

where $\overline{CPUE}_y$ is a measure of recent CPUE and is calculated as follows:

$$\overline{CPUE}_y = \frac{1}{3}\sum_{y'=y-3}^{y-1}\sum_{A=1}^{3}\lambda_A CPUE_{y'}^{A} \tag{4}$$

where

$CPUE_{y'}^{A}$, is the GLM standardised CPUE for area *A* in year y' and

the CPUE weighting factors, $\lambda_{A1E}, \lambda_{A1W}$ and λ_{A2+3} relate to the proportion of the overall biomass in each the three fishing areas, and were calculated using estimated values of q and B^{exp} for 2011 from the RC1 model to be:

$$\lambda_{A1E} = 0.003$$
$$\lambda_{A1W} = 0.128$$
$$\lambda_{A2+3} = 0.868$$

Thus

$$\overline{\overline{CPUE}}_{2015} = 1.186$$

And

$$TAC_{2016} = TAC_{2015}[1 + \alpha \frac{\overline{CPUE}_y - CPUE_{targ}}{CPUE_{targ}}]$$

$$TAC_{2016} = 341[1 + 1.0 \frac{1.186 - 1.22}{1.22}]$$

$$TAC_{2016} = 341[1 - 0.02787]$$

$$TAC_{2016} = 332\ MT$$

This is a 3% TAC reduction.

The rule to restrict the inter-annual TAC variation to no more than 5% up or down from season to season is applied as in previous OMPs, i.e.:

$$\text{if } TAC_{y+1} > 1.05TAC_y \qquad TAC_{y+1} = 1.05TAC_y \tag{5}$$
$$\text{if } TAC_{y+1} < 0.95TAC_y \qquad TAC_{y+1} = 0.95TAC_y$$

These rules are thus not invoked (as 3% is less than 5% decrease).

Thus TAC_{2016} = 332 MT.

Exceptional Circumstances

FISHERIES/2016/JAN/SWG_SCRL/01 provides a recommendation of a metarule (metarule MR4) which should be adopted formally as part of OMP-2014. Assuming this metarule is accepted as part of OMP-2014, no Exceptional Circumstances rules will be invoked for the 2016/17 season.

References

Glazer, J.P. 2016. South Coast Rock Lobster standardized CPUE indices per Area. DAFF document, FISHERIES/2016/AUG/SWG_SCRL/02.

Johnston, S.J. and D.S. Butterworth. 2015. 2015 updated South Coast Rock Lobster assessment results. DAFF document, FISHERIES/2015/JUL/SWG-SCRL/04.

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