

TAC for the midwater fleet for 2017 based on the current OMP

S.J. Johnston and D.S. Butterworth

Marine Resource Assessment and Management Group (MARAM)

Department of Mathematics and Applied Mathematics

University of Cape Town

Rondebosch 7701, South Africa

The current OMP (FISHERIES/2015/MAR/SWG-DEM/03) is used in conjunction with the most recent CPUE series (FISHERIES/2016/SEP/SWG-DEM/50) to provide a Horse Mackerel TAC recommendation for the midwater sector. (Note that this recommendation needs to be considered in conjunction with the question of whether Exceptional Circumstances apply.)

The Catch control rules are as follows:

$$TAC_{y+1} = \Delta_y TAC_y$$

$$\Delta_y = \begin{cases} 1 - X_{decr} & \text{for } I_y < I_{decr} \\ 1 - X_{decr} + \frac{X_{incr} + X_{decr}}{I_{incr} - I_{decr}} (I_y - I_{decr}) & \text{for } I_{decr} \leq I_y < I_{incr} \\ 1 + X_{incr} & \text{for } I_y \geq I_{incr} \end{cases}$$

I_y is related to a weighted average of the last three years of CPUE data which are 1.456 (2013), 0.390 (2014) and 0.181 (2015). Thus

$$I_{2016} = \frac{1/3 \sum_{2013}^{2015} CPUE_y}{1/7 \sum_{2003}^{2009} CPUE_y}$$

$$= \frac{0.6757}{0.996}$$

$$= 0.704$$

Thus as $I_{2016} < I_{decr}$ i.e. (0.704 < 0.84)

$$\Delta_y = 1 - X_{decr} = 1 - 0.15 = 0.85$$

Therefore the TAC recommendation from the OMP is:

$$TAC_{2016} = 0.85 TAC_y = 0.85 (38\ 658) = \mathbf{32\ 859\ tons}$$

Table 1: I_{inc} and I_{dec} values as calculated from the revised midwater MP (using the revised CPUE series in 2014):

| | |
|------------|-------------|
| I_{decr} | 0.84 |
| I_{inc} | 1.01 |
| X_{inc} | 0.1 |
| X_{decr} | 0.15 |