

Exceptional Circumstances in Area 7 (Dassen Island) for the 2013/14 season

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FISHERIES/2013/FEB/02/WCRL/03 provides a full description of the current OMP-2011 re-tuned for the setting of TACs for the west coast rock lobster fishery. Part of the OMP are rules that determine when “Exceptional Circumstances” are to be invoked:

Low Abundance rule

$J_{area,y}$ is an index of recent resource performance for that super-area, relative to recent (2005-2009) levels, which is calculated for each super-area using the resource indices available for that super-area. The equations used for calculating $J_{area,y}$ are given below.

If $J_{area,y} < X_{crit}^{area}$ then Exceptional Circumstances are invoked for that super-area and year (y). Evaluations will then be carried out by the Working Group which

- a) will ensure that catches in the super-area concerned are set appreciably lower than would have been the case under the OMP; and
- b) will examine whether any of the catch left from that super-area can be safely transferred to other super-areas until the time of the next OMP review.

The values of X_{crit}^{area} to be used are:

$$X_{crit}^{A1+2} = 0.7$$

$$X_{crit}^{A3+4} = 0.85$$

$$X_{crit}^{A5+6} = 0.7$$

$$X_{crit}^{A7} = 0.8$$

$$X_{crit}^{A8+} = 0.7$$

Method used for calculating $J_{area,y}$ values for input to the Low Abundance rule

The EC rule requires a single index for each super-area using the available trap CPUE, hoop CPUE and FIMS for each season in the future.

STEP 1: For each super-area for which data are assumed to be available in the future, there will be for each season Y (here trap CPUE is used as an example):

$$CPUE_y^{trap,A1-2}, CPUE_y^{trap,A3-4}, CPUE_y^{trap,A5-6}, CPUE_y^{trap,A7}, CPUE_y^{trap,A8}$$

STEP 2: Evaluate the geometric means of the CPUEs (and FIMS) for the super-area concerned (here we use A1-2 as used as an example) over the year period 2005...2009.

STEP 3: Re-normalise the CPUEs series as follows (e.g. for traps in Area A1-2):

$$CPUE_y^{trap,A1-2} \Rightarrow X_y^{trap,A1-2} = \frac{CPUE_y^{trap,A1-2}}{\text{Geometric mean}(CPUE_y^{trap,A1-2}; y = 2005...2009)} \quad (1)$$

STEP 4: Calculate a combined index for each area as follows (including only the pertinent indices):

$$J_{area,Y}^* = (w_{area}^{trap} X_Y^{trap,area} + w_{area}^{hoop} X_Y^{hoop,area} + w_{area}^{FIMS} X_Y^{FIMS,area}) / (w_{area}^{trap} + w_{area}^{hoop} + w_{area}^{FIMS}) \quad (2)$$

Where the weights are as given in Table 1.

Finally, $J_{area,Y}$ is calculated as the geometric mean of the three most recent years,

$$J_{area,Y} = e^{[\sum_{T=Y-1}^{T=Y-3} \ln(J_{area,T}^*)] / 3} \quad (3)$$

Calculation of $J_{A7,2013}$

Table 1: The weighting (w) values for each gear and super-area, when combining abundance indices over super-areas.

	W_A^{trap}	W_A^{hoop}	W_A^{FIMS}
A1-2	-	0.034	-
A3-4	-	0.231	0.214
A5-6	-	0.187	0.173
A7	0.174	-	0.107
A8	0.826	0.548	0.507

Table 2: Updated Trap and FIMS CPUE for Area 7. Note that the 2012 trap CPUE value (from Glazer 2013) is preliminary as the season has not yet been completed, though little more catching is expected.

	Trap CPUE	FIMS CPUE	$X_Y^{trap,A\&}$	$X_Y^{FIMS,A\&}$	$J_{A7,Y}^*$	$J_{A7,Y}$
2005	0.652	15.790				
2006	0.802	13.960				
2007	0.486	21.880				
2008	0.392	9.665				
2009	0.617	5.089				
2010	0.989	3.487	1.728	0.293	1.182	
2011	0.344	2.890	0.601	0.243	0.465	
2012	0.322	1.590	0.562	0.134	0.399	0.603

Thus, as $J_{A7,y} < X_{crit}^{A7}$ ($0.603 < 0.800$), it is virtually certain that Exceptional Circumstances will need to be invoked for Area 7 for the 2013/14 season.

Reference

Glazer, J.P. 2013. Area 7 standardized CPUE indices in the West Coast rock lobster fishery. FISHERIES/2013/May/SWG-WCRL/04.

Figure 1: A7 trap and FIMS CPUE since 2005.

