Output from the South African Hake OMP-2010 for the 2012 TAC recommendation

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Abstract

The TAC output from the South African hake OMP-2010 for 2012 is **144 671 t**.

The 2012 TAC recommendation for the South African hake resource is computed in terms of the 2010 OMP (Rademeyer *et al*., 2010) as follows:

$$C_y^{spp} = w_y C_{y-1}^{*spp}\left[1+\lambda_{up/down}\left(s_y^{spp}-T_y^{spp}\right)\right]+\left(1-w_y\right)\left[a^{spp}+b^{spp}\left(J_y^{spp}-1\right)-Pen_y^{spp}\right] \qquad (1)$$

The computations input a TAC of 131 780 thousand tons for 2011. As specified in the OMP, this is disaggregated by species assuming the 2010 species-split of the catches, i.e. 81.05% (106 800 t) *M. paradoxus* and 18.95% (24 980 t) *M. capensis* to provide the C_{y-1}^{*spp} values for input to equation (1).

The GLM-standardised CPUE series (Glazer, 2011) and survey biomass abundance estimates (Durholtz, 2011 and Fairweather, 2011) used as inputs to the OMP are shown in Table 1 and the resulting trends in Fig. 1. The updated series fall within the 95% PI's projected for the Reference Set under OMP-2010 (Fig. 2). Note that the results from surveys carried out with the *Africana* with new gear have been rescaled to take the calibration factor into account (this involves dividing new gear estimates by 0.95 for *M. paradoxus* and 0.80 for *M. capensis*), as specified in the OMP (Rademeyer *et al*., 2010)); the 'true' estimates are shown in parenthesis in Table 1.

The recent annual trend, s_y, computed from a specified weighted average of the CPUE and survey slopes is 7.49% for *M. paradoxus* and 12.47% for *M. capensis*.

The following parameters are also year dependent:

$w_{2012} = 1$, $T_{2012}^{para} = 0.75\%$ and $T_{2012}^{cap} = 0\%$.

Since $w_{2012} = 1$,we have:

$$(1 - w_{2012})\left[a^{spp} + b^{spp}\left(J_y^{spp} - 1\right) - Pen_y^{spp}\right] = 0$$

Thus the *M. paradoxus* contribution to the TAC is:

$$C_{2012}^{para} = 106804t\left[1 + 1.25(7.49\% - 0.75\%)\right] = 115802t$$

and the *M. capensis* contribution:

$$C_{2012}^{cap} = 24976t\left[1 + 1.25(12.47\% - 0\%)\right] = 28869t$$

The total 2012 TAC output from the OMP is therefore **144 671 t**. This represents an increase of 9.78% from the 2011 TAC of 131 780 t, and so is not impacted by the OMP constraint that TACs not change by more than 10% per year.

References

Durholtz D. 2011. Report of the January 2011 West coast demersal survey. Unpublished report: FISHERIES/2011/MAR/SWG-DEM/02. 26pp.

Fearweather T. 2011. Draft report of the April 2011 south coast demersal abundance survey. Unpublished report: FISHERIES/2011/MAY/SWG-DEM/18. 26pp.

Glazer JP. 2011. Updated offshore hake species-specific standardized CPUE indices. Unpublished report: FISHERIES/2011/SEPT/SWG-DEM/xx.

Rademeyer RA, Fairweather T, Glazer JP, Leslie RL and Butterworth DS. 2010. The 2010 Operational Management Procedure for the South African Merluccius paradoxus and M. capensis Resources. Unpublished report: FISHERIES/2010/OCTOBER/DEM59.

Table 1: GLM standardised CPUE series and West coast summer and south coast autumn survey abundance estimates used as input in the 2012 TAC computations. Note that the abundance estimates in bold incorporate the calibration factors agreed for OMP application as they are for surveys in which the new gear was used on the *Africana*. The values in parentheses are the actual estimates obtained from these surveys with the new gear.

	M. paradoxus						*M. capensis*					
	WC CPUE	SC CPUE	WC summer survey		SC autumn survey		WC CPUE	SC CPUE	WC summer survey		SC autumn survey	
2005	2.2070	1.3147	**301.49**	(286.42)	**28.01**	(26.60)	0.4899	1.4922	**88.73**	(70.98)	**96.17**	(76.93)
2006	2.3588	1.3704	315.31		34.80		0.5589	1.1864	88.42		130.90	
2007	2.8036	1.4444	**413.49**	(392.81)	**136.47**	(129.65)	0.6004	1.0386	**102.84**	(82.27)	**88.68**	(70.94)
2008	3.4555	1.3928	**259.52**	(246.54)	**41.58**	(39.50)	0.5034	1.6265	**63.60**	(50.88)	**135.24**	(108.20)
2009	3.5360	1.6088	**347.62**	(330.24)	**108.25**	(102.83)	1.0071	2.9647	**219.11**	(175.29)	**155.01**	(124.00)
2010	3.5523	1.8871	592.57		169.56		0.9874	2.4638	164.66		184.96	
2011			**365.35**	(347.08)	**25.37**	(24.11)			**111.60**	(89.28)	**146.53**	(117.22)

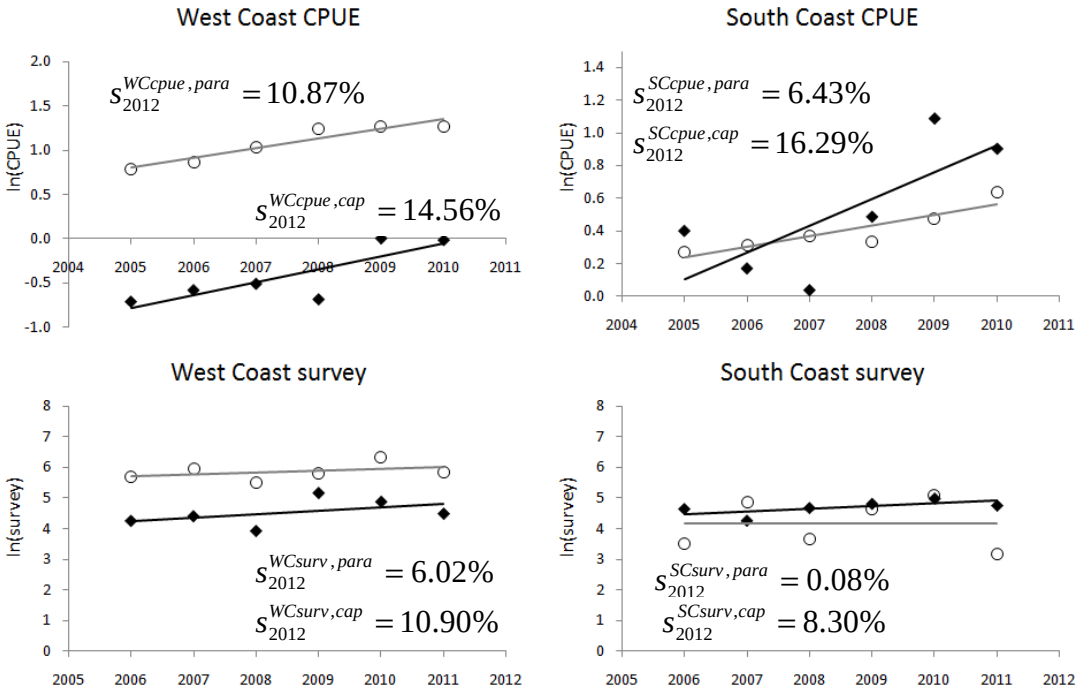

Fig. 1: Recent trends in the GLM-standardised CPUE and survey abundance indices for *M. paradoxus* (open circles) and *M. capensis* (black diamonds) which are used in the TAC computation. The survey abundance estimates shown incorporates the calibration factors specified in the OMP for the years in which the new gear was used on the *Africana*.

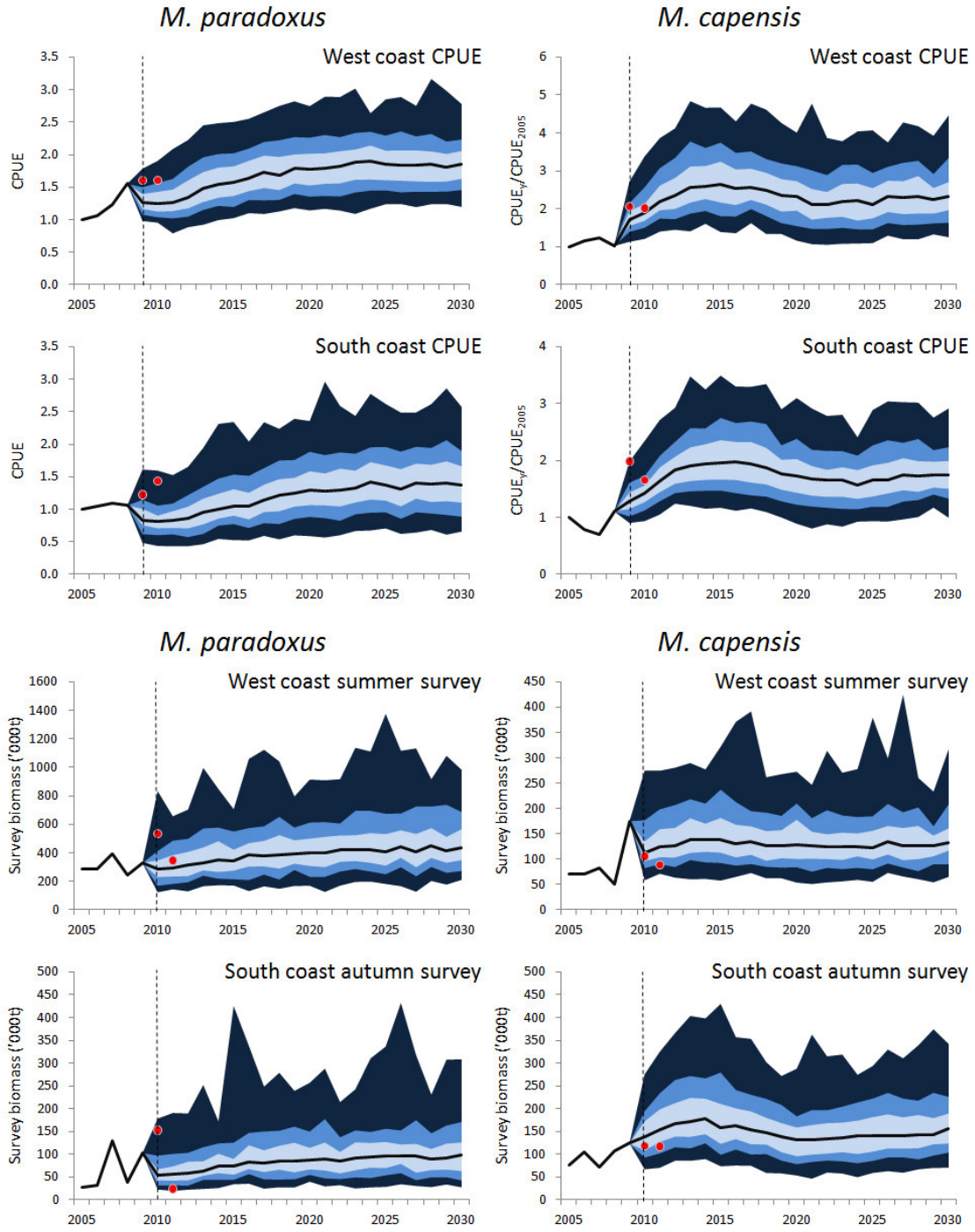

Fig. 2: Projections (95%, 75%, 50% PI and medians) for the Reference Set under OMP-2010 compared with the most recent two years' resource abundance index data. The red dots show the new data points.