Assumptions to be made regarding west coast rock lobster poaching trends in recent years and future scenarios

S.J. Johnston

MARAM, Department of Mathematics and Applied Mathematics, University of Cape Town

---

Assumptions made in 2011 when developing current OMP

Assumed "historic level" applied to 1990-2008

- 100 MT for A3-6 and 400 MT for A8+ (Total = 500 MT), or
- 50 MT for A3-6 and 200 MT for A8+ (Total = 250 MT)

2010+ : A3-6 change relative to 2008 of either 0% or -50%

2010+ : A8 change relative to 2008 of either 0% , +50% or +100%

[The above 2010+ choices were based on the OLRAC poaching analyses FISHERIES/AUG/2011/SWG-WCRL/50]

Six scenarios to cover different options were:

	Scenario 1	**Scenario 2**	**Scenario 3**	**Scenario 4**	**Scenario 5**	**Scenario6**	**Average**
Weighting	40	10	20	20	5	5	100
2-yr % change for A3-6	-50	-50	-50	0	0	0	
2-yr % change for A8+	+50	0	+100	+50	0	+100	
% change in total amount poached	+30	-10	+70	+40	0	+80	+37

The above scenarios were used when tuning the OMP-2011.

Updated 20313 assumptions

Both the OLRAC (FISHERIES/2013/AUG/SWG-WCRL/?) and MARAM (FISHERIES/2013/Aug/SWG-WCRL/?) updated analyses of the west coast rock lobster policing effort and confiscation data were assessed. It was found that both analyses produced similar overall results, and the results were similar to those produced in 2011. The results show a moderate decrease in poaching in the northern area, and a fairly large increase in poaching in the south (Area 8+). Taking all results into consideration, and acknowledging that the results provide only a fairly rough indication of the trends, it was proposed that the assumptions regarding recent poaching trends and future scenarios be only slightly modified from those assumed in 2011. The following assumptions are proposed:

Assume historic level applies to 1990-2008 (i.e. unchanged from 2011 assumption)

- 100 MT for A3-6 and 400 MT for A8+ (Total = 500 MT), or
- 50 MT for A3-6 and 200 MT for A8+ (Total = 250 MT)

2012+ : A3-6 change relative to 2008 of either 0% or -50%

2012+ : A8 change relative to 2008 of either +25%, +75% or +125%

Although the most recent analyses of the poaching data indicate slightly larger measures of poaching "decrease" in the northern areas, it was proposed that it was best to stick with the 0% change and -50% change options for A3-6. The changes to the A8+ poaching trend estiamtes were more substantial, and it was decided that the three choices for recent and future poaching levels for A8+ be updated slightly from 0%, +50 and +100% to +25%, +75% and +125%.

The six scenarios to cover different options (with different weights) defined are:

	Scenario 1	**Scenario 2**	**Scenario 3**	**Scenario 4**	**Scenario 5**	**Scenario6**	**Weighted Average**
Weighting	40	10	20	20	5	5	100
4-yr % change for A3-6	-50	-50	-50	0	0	0	-35%
4-yr % change for A8+	+75	+25	+125	+75	+25	+125	+80
% change in total amount poached	+50	+10	+90	+60	+20	+100	+57

Note: The total poaching split between the northern areas (A3-6) and the southern area (A8+) of 0.20 and 0.80 respectively remain unchanged.

NB: In order to create a single assumption to be used as a RC for the Operating Models, the weighted average value of -35% for A3-6 and +80% for A8+ will be assumed.

Recent Hawks confiscations

It was decided that the recent Hawks data on the poaching tonnage from a particular operator should be taken into account in the updated assessments of the resource. It is also assumed that this operation will not continue into the future.

The total tonnage (in MT) needs to be split between the super-areas. We traditionally assume the total poaching to be split A1+2=1.5% , A3+4=2.5%, A5+6=2.5%, A7=15% and A8+=80%. Information from the Hawks is that this operation was in the northern areas – this rules out A7 and A8+. The total tonnage will thus be spit 50:50 between A3+4 and A5+6.

	HAWKS total (MT)	**A3+4**	**A5+6**
2004	58.063	29.032	29.032
2005	31.252	15.626	15.626
2006	22.399	11.200	11.200
2007	41.648	20.824	20.824
2008	60.343	30.172	30.172
2009	47.131	23.566	23.566
2010	118.818	59.41	59.41
2011	*54.236**	*27.118**	*27.118**
2012	*54.236**	*27.118**	*27.118**

$*$ the average of the 2004-2010 values is assumed for the 2011 and 2012 seasons.