

Scenarios reflecting the likely range of scenarios for west coast rock lobster poaching trends in recent and future years

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Introduction

In order to undertake stock assessment analyses for the different west coast rock lobster stocks, which provide the Operating Models (OMs) used for Operational Management Procedure (OMP) testing, estimates of past annual catches are required. This means that scenarios regarding the levels of poaching in each of the five super-areas into which the resource is divided need to be developed, where these scenarios must span the plausible range of what these levels might have been. Similarly, when projecting the resource into the future during the simulation testing of candidate OMPs for the resource, a range of scenarios need to be developed to cover the likely range of future levels of poaching, as for acceptability any candidate OMP must evidence robust performance across this range. This is achieved, in part, through “feedback control”: the OMP adjusts catches in response to trends in indices of abundance provided by monitoring data such as CPUE.

These scenarios are difficult to develop, as estimates of poaching are extremely difficult to obtain, and the best that can be done is to examine all available data on confiscations and policing effort to update previous inferences. The database of these data has recently been updated to include data up to March 2013. The rationale is to develop a range of scenarios that cover the most likely possible range of poaching in the resource. As the OMP has a “feedback control” nature, if the estimates of poaching are incorrect, this will be seen in the resource indices that are collected annually e.g. CPUE.

The proposals put forward below were developed at a Task Group meeting held on 19/07/2013 and attended by [A. Cockroft, D. van Zyl, S. Johnston, M. Bergh, E. Thompson, T. Kom and E. Kosa.

Scenarios considered in 2011 when developing current OMP

Assumed annual “historic level” of poaching applied to 1990-2008¹

- 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%

¹ The convention here is that, for example, the year 2008 refers to the split season 2008/2009

[The above 2010+ choices were made by the WCRL SWG based on the OLRAC and MARAM poaching analyses which are listed in FISHERIES/AUG/2011/SWG-WCRL/50.]

Table 1: Six scenarios to cover different options for 2010+ compared to 2008 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 developing OMP-2011.

Updated 2013 scenarios

Both the OLRAC (FISHERIES/2013/AUG/SWG-WCRL/19) and MARAM (FISHERIES/2013/AUG/SWG-WCRL/18) updated analyses of the west coast rock lobster policing effort and confiscation data were reviewed. It was found that both analyses produced similar overall results, and that these were similar to those produced in 2011. The results show a sizeable 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 is proposed that the scenarios regarding recent poaching trends and future scenarios be only slightly modified from those developed in 2011. The following updated scenarios are proposed:

Assumed 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%

Linear changes will be assumed to apply between 2008 and 2012 for all options.

Although the most recent analyses of the poaching data indicate slightly larger measures of poaching “decrease” in the northern areas (since the 2011 analyses), it was not considered a large enough change to warrant altering the previous assumptions., and thus the 0% change and -50% change options for A3-6 remain. The changes to the A8+ poaching trend estimates were more substantial, and it was

proposed that the three choices for recent and future poaching levels for A8+ should be updated slightly from 0%, +50 and +100% to +25%, +75% and +125%.

Table 2: The proposed six updated scenarios to cover the most likely options (with their different weights as before) defined are consequently:

	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 remains unchanged.

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

Recent Hawks confiscations

It was proposed 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 as an addition to the amounts above. It is also proposed to assume that this additional poaching 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 poaching operation was in the northern areas – this rules out A7 and A8+. The total tonnage is thus proposed to be split 50:50 between A3+4 and A5+6.

Table 3: Hawks confiscations estimates.

	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	<i>54.236*</i>	<i>27.118*</i>	<i>27.118*</i>
2012	<i>54.236*</i>	<i>27.118*</i>	<i>27.118*</i>

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