

**SUMMARY OF KEY ISSUES FOR DISCUSSION AT THE INTERNATIONAL WORKSHOP
REGARDING THE ESTIMATION OF THE MAGNITUDE AND TRENDS OF POACHING OF WEST
COAST ROCK LOBSTER**

S.J. Johnston and D.S. Butterworth
MARAM, UCT

Summary

Reasons are provided for the current importance of estimates of the extent and trends in poaching of west coast rock lobster. This is followed by brief descriptions of the main sources of data available and how they are analysed. DAFF MCS information of confiscations and policing effort provides estimates of poaching trends, while TRAFFIC analyses of international export and import data are used to assess magnitude. Current estimates of resource trends and how these depend on estimates of poaching are summarised.

Introduction

A major source of uncertainty facing the successful management of the West Coast rock lobster fishery is poaching. Indications are that recently at least, the extent of annual poaching has grown to the same order as the legal take. Thus it becomes important to quantify past trends and the current magnitude of poaching for:

- a) reliable assessments;
- b) conditioning operating models (OMs) for Operational Management Procedure (OMP) testing; and
- c) developing plausible assumptions for poaching trends in the future.

In the past, estimates of rock lobster poaching have been very coarse, but were also of less importance as these were thought to be appreciably lower than commercial catches and not to show marked trends over time. However, when the resource assessment was updated in 2016, various sources of information available at that time suggested that this might no longer be the case, necessitating a more careful evaluation.

Sources of data to be used to assess levels and trends in poaching

In 2015, given the likely red listing of west coast rock lobster by WWF's SASSI, the development of a fishery conservation plan was initiated. As part of this endeavour, WWF developed a contact with a commercial entity, Amahlo, which had had success in assisting to reduce rampant copper cable thefts by persons from poor communities. Appendix A provides more details of what was considered, but eventually the initiative did not proceed.

That special initiative aside, three different data streams have been available to guide the West Coast Rock Lobster Scientific Working Group (WCRL SWG) in regard to poaching trends.

- i) Poaching confiscation data and compliance effort from DAFF's MCS; unfortunately these data do not link the type of compliance effort associated with each case of confiscation.
- ii) TRAFFIC data: export data/information collected and analysed by Markus Burgener and colleagues at TRAFFIC.
- iii) Data on quantities allowed for export as provided on export permits.

A series of documents with analyses of these data ensued, which were discussed by the WCRL SWG at its March 2016 and following meetings. These documents, and the essence of their conclusions, are summarised below.

GLM analyses applied to the confiscations data (MARAM/IWS/DEC/2017/WCRL/P3)

In July 2016 a GLM was applied to compliance data on confiscations (and abandonments) and on policing effort to estimate recent trends in the amount of rock lobster that is poached (MARAM/IWS/DEC/2017/WCRL/P3).

As with abalone, the ratio of confiscations to policing effort is assumed to be proportional to the extent of poaching.

Because of the limited nature of these data, spatial disaggregation was possible only at a north (A3-A6) and south (A8+) level (see Figure 1). A tentative suggestion (provided by the task team appointed to consider these analyses) for poaching trends relative to 2008 for the northern region was a decrease from 1.0 to 0.3 from 2008 to 2012, with a subsequent increase to 0.5 by 2015. For the southern region the corresponding figures for the same periods (both increases) are from 1.0 to 2.0 and 4.0 (see Figures 1 and 2 of MARAM/IWS/DEC/2017/WCRL/P3).

Further summaries of confiscation data (MARAM/DEC/2017/WCRL/P4)

Summary statistics derived from confiscations and policing effort data were presented with implications for the inferred trends in west coast rock lobster poaching levels. The results showed that different weightings of effort data did not materially change the trends in estimated poaching levels, as shown in Figure 3 of WCRL/P4) and that the relative efficiencies of policing effort in areas A3-6 are very much higher compared to A8+, by a factor of between 2 and 4. The authors therefore argued that contemporary assumptions about the proportion of poaching in A8+ needed to be revised and reduced.

TRAFFIC analyses of trade and landings data MARAM/DEC/2017/WCRL/P5

These analyses consider international trade in lobster from South Africa and reported lobster landings in South Africa for the period 2000 - 2015. Comparisons are made between South African exports of lobster to the World, World imports of lobster from South Africa, and lobster landings. These analyses are intended to provide insight into international trade dynamics for lobster caught illegally in South Africa. Differences between South African exports and landings are used to estimate the magnitude of poaching in absolute terms.

Consolidated outcome in August 2016

Following the presentation to the WCRL SWG by a task team of possible poaching trends to be considered, a number of agreements were reached (see MARAM/IWS/DEC/2017/WCRL/P3). Most of the focus was on the set of future poaching scenarios proposed. A set of 10 possible scenarios was defined for the 2008+ poaching trends both in the north and the south – each scenario was accorded a weight (based on expert judgement in the SWG) to represent the relative plausibility of that scenario (and by considering all poaching data sources). See Figure 2.

Further consolidation for assessment purposes in 2016

Initial updates of the 2016 assessments for WCRL MARAM/IWS/2017/DEC/WCRL/BG2 used the updated poaching scenarios of MARAM/IWS/DEC/2017/WCRL/P6. In this document, it was shown that the 10 different future poaching scenarios defined could be broken down into three main groups (see pgs 14-15 of that document) (high, medium and low scenarios). The authors reported results for one scenario in each group; these were Scenarios 1, 5, and 10 (note that the weighted average of all 10 scenarios is very close to Scenario 5!). The SWG agreed that the ten poaching increase trend scenarios should be reduced to three (Scenarios 1, 5 and 10) (see Figure 3).

A series of projections under the three future poaching scenarios was reported in MARAM/IWS/DEC/2017/WCRL/BG3. Table 1 reports the exploitable male biomass in 2021 relative 2006 for each of these future poaching scenarios, and for a range of future constant catches. This ratio served as the basis to summarise results because the previously agreed recovery target for the resource was of a 35% increase in this biomass from 2006 to 2021.

Following presentation of the MARAM/IWS/DEC/2017/WCRL/BG3 results (for the three poaching scenarios) it was agreed by the SWG (on 19 August 2016) that the central poaching **Scenario 5** should be used as the basis for projections and recommendations for the following (2016/17) season.

Further work in 2017

For administrative reasons, no further detailed rock lobster analyses were possible in 2017, so that management advice had to be based on the analyses conducted the previous year, coupled with inspection of updates of data to include those from the recent 12 month period.

MARAM/IWS/DEC/2017/WCRL/BG4 – an analysis of trends in west coast rock lobster poaching and effort data was presented to the SWG. The purpose of this analysis was to confirm that the assumptions for future poaching in the projection period that was reported for the assessment conducted in 2016 remained reasonable, since the TAC recommendations for the 2017/18 season had to be based on those projections since no updated results were available. The overall conclusion from this exercise was that there was no basis to change the assumption made the previous year of future poaching continuing as a level of some 1500 tons for the projection period. This exercise also resolved an outstanding issue from the previous year, when a surprisingly low number of confiscations for the then most recent (January-March) period in 2016 had been evident. This was explained by DAFF’s MCS to have been the result of a temporary major crackdown by police on poaching activities as part of a major Oceans program Operation Phakisa.

MARAM/IWS/DEC/2017/WCRL/BG5 reports biomass trajectories under different future catch scenarios. In 2016 the SWG recommended to two-step reduction in the TAC over the next two seasons (2016/17 and 2017/18). Trajectories are shown both under this recommendation (“SWG 2-step”) and under the eventual decision by DAFF in 2016 not to reduce the TAC for 2016/17 at least (“DAFF”).

Overall perspective

Figure 4 shows trajectories of the male exploitable biomass of together with the legal catch and estimated poaching removals from the resource since 1950. This indicates the increasing role poaching has come to play in the recent dynamics of the resource.

Reference List

Anon. 2016. WCRL SWG agreements on WCRL poaching trends. MARAM/IWS/DEC/2017/WCRL/P6. (FISHERIES/2016/JUL/SWG-WCRL/23)

Brandao, A., Johnston, S. and Butterworth, D.S. 2016. Trends in policing effort and the number of confiscations for west coast lobster. MARAM/IWS/DEC/2017/WCRL/P3. (FISHERIES/2016/JUL/SWG-WCRL/10condensed)

Endert, J. and Burgener, M. 2016. A preliminary analysis of South African lobster landing and trade records. MARAM/IWS/DEC/2017/WCRL/P5. (FISHERIES/2017/JUL/WCRL/22 condensed)

Johnston, S.J. 2017. Biomass trajectories under different future catch scenarios. MARAM/IWS/DEC/2017/WCRL/BG5. (FISHERIES/2017/JUL/WCRL/06)

Johnston, S.J. and Butterworth, D.S. 2016. Initial updated 2016 assessments for West Coast rock lobster and some initial constant catch projections. MARAM/IWS/DEC/2017/WCRL/BG2. (FISHERIES/2016/AUG/SWG/WCRL/24condensed)

Johnston, S.J. and Butterworth, D.S. 2016. Further projections of the west coast rock lobster resource for a range of future constant catch and poaching scenarios. MARAM/IWS/DEC/2017/WCRL/BG3. (FISHERIES/2016/AUG/SWG/WCRL/32condensed)

OLRAC-SPS. 2016. Summary statistics derived from confiscations and policing effort data with implications for the inferred trends in west coast rock lobster IUU fishing levels. MARAM/IWS/DEC/2017/WCRL/P4. (FISHERIES/2016/JUL/SWG/WCRL/21)

Van Zyl, D, Glazer, JP, and Butterworth, D.S. 2017. Analyses of trends in West Coast Rock Lobster poaching and policing effort data. MARAM/IWS/DEC/2017/WCRL/BG4. (FISHERIES/2017/AUG/SWG/WCRL/12)

Table 1: B75m(2021/2006) for the **TOTAL resource** for various poaching scenarios and future TAC options from 2016 (from MARAM/IWS/DEC/2017/WCRL/BG3).

Constant Catch TACs	Scenario 1	Scenario 5	Scenario 10
0 MT	1.153	1.263	1.605
370 MT	1.091	1.198	1.430
790 MT	0.994	1.095	1.328
890 MT	0.970	1.070	1.303
1270 MT	0.883	0.976	1.210

Figure 1: West coast rock lobster fishing Zones and Areas

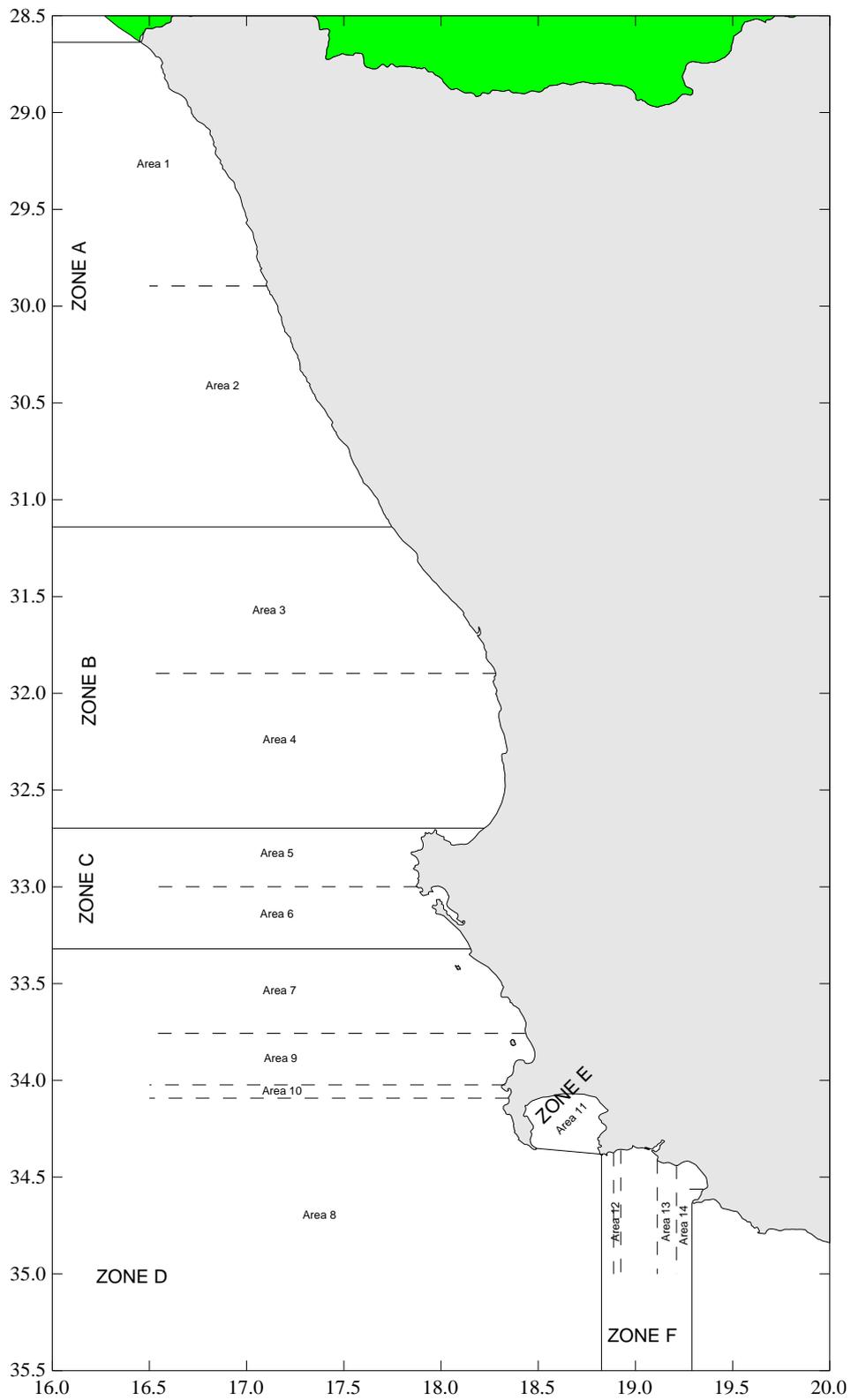


Figure 2: The 10 future poaching scenarios as consolidated from the GLM and TRAFFIC analyses.

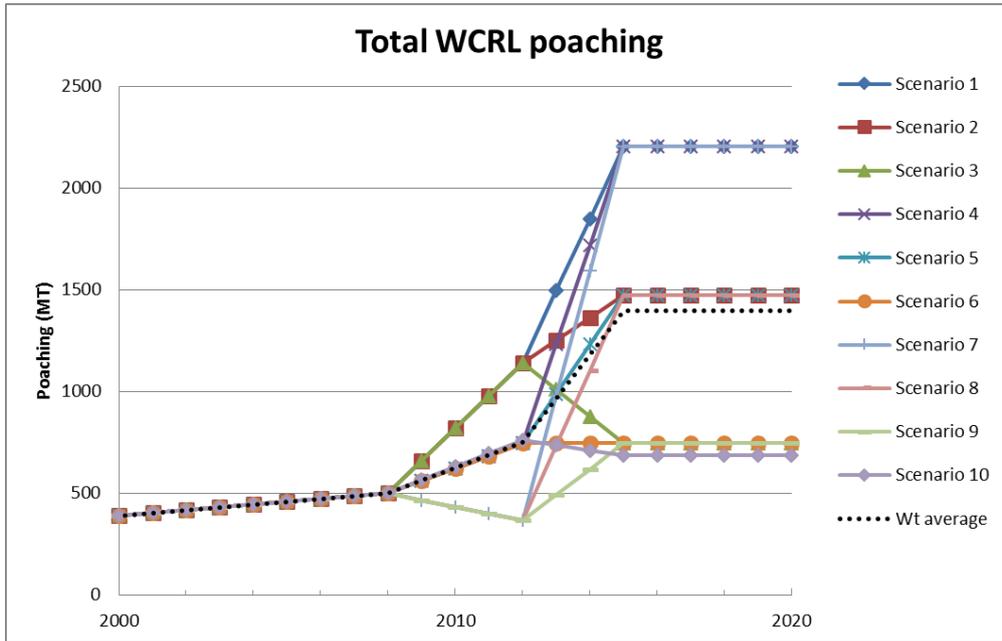


Figure 3: The three poaching scenarios on which the SWG focused for projections.

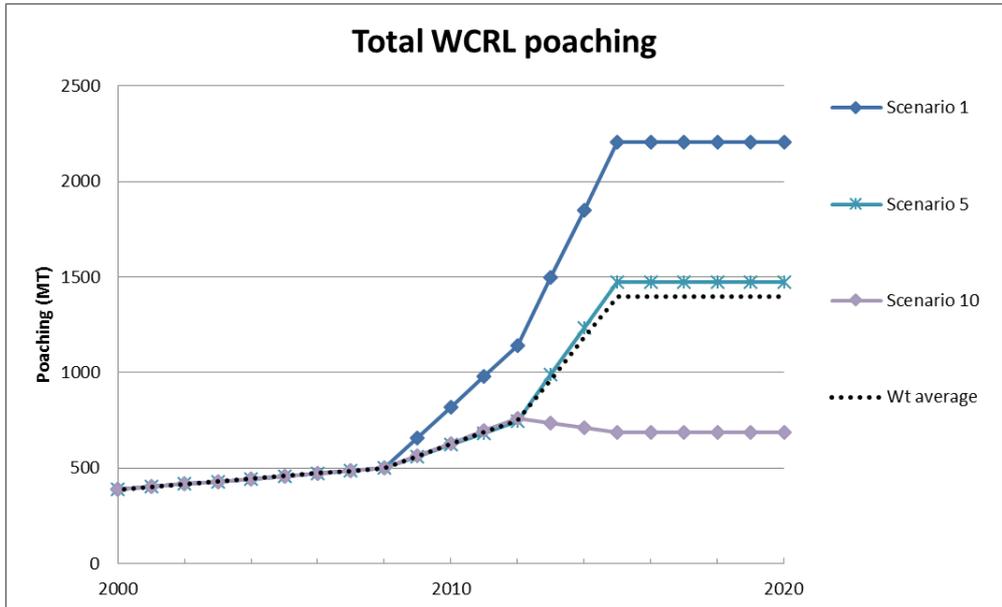
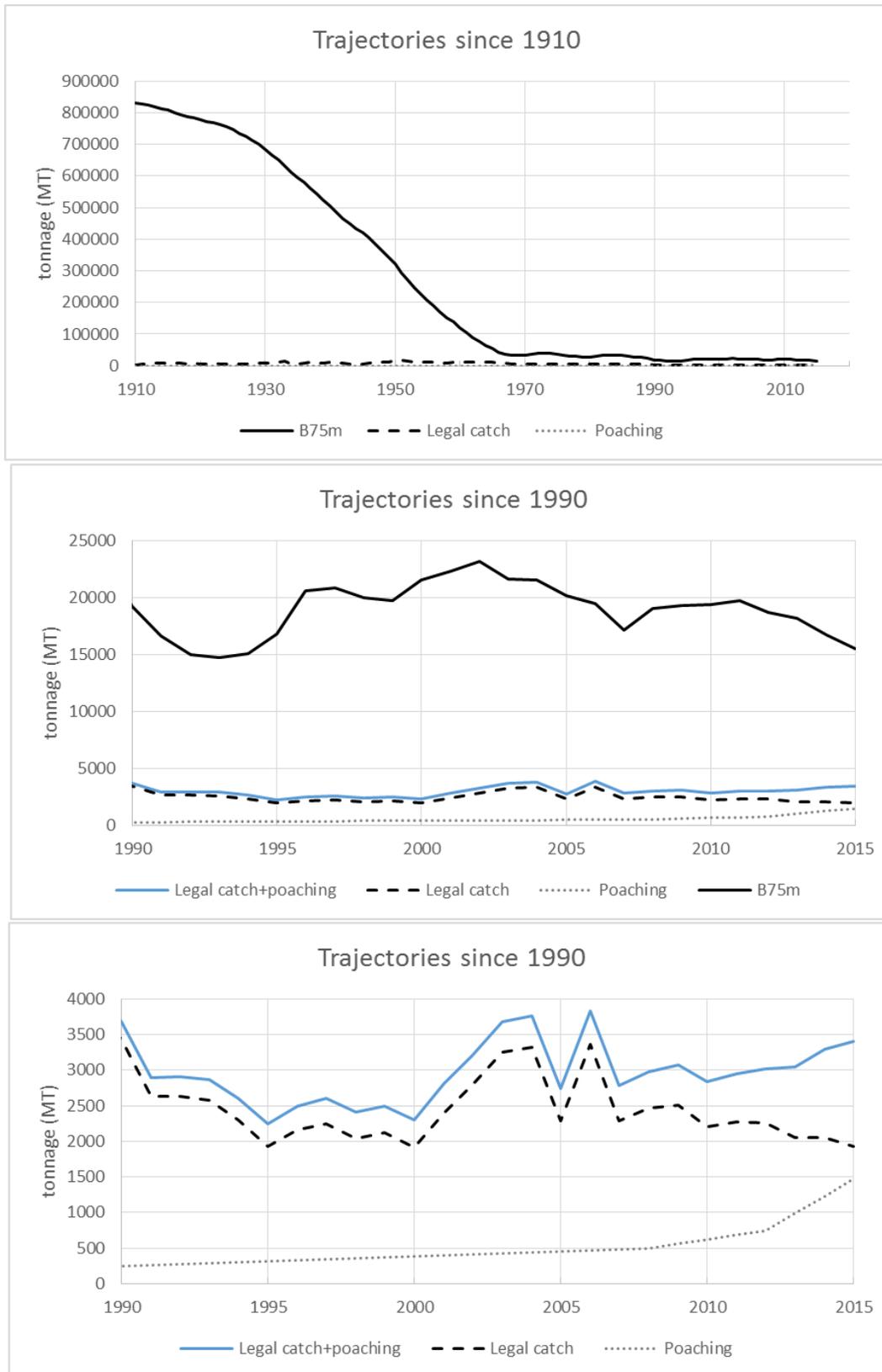


Figure 4: Trajectories of the male exploitable biomass, legal catch, and estimated poaching removals from the resource since 1910 (top plot) and 1990 (middle plot). The bottom plot shows the legal catch, poaching and the two combined.



Appendix A: Amahlo poaching investigation proposal

In November 2015 Amahlo presented an outline of an approach they could use in order to assess the extent of poaching in the west coast rock lobster sector. A WCRL SWG task team met to report back on the Amahlo proposal, which involved use of informers to obtain direct quantitative evidence of poaching. A difficulty associated with the Amahlo approach, which had its origins in military intelligence and measures of reliability, was that it did not readily provide quantification of the precision (standard error) associated with any estimate of the amount poached which it provided..

In regards to the Amahlo presentation and recommendations, the following points were noted:

- The proposal had very large funding implications
- Amahlo requested consideration of amnesty for informers
- An estimate of past trends in the amount poached should be provided as part of the work
- Estimates of precision were also required

