

Summary of estimates of recent trends in abalone poaching

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1 July 2011

Summary

Preliminary analyses using three separate indices to estimate the trend in poaching suggest that the target of a 15% per annum reduction commencing October 2009 in poaching has not been reached. In fact, all indices suggest an increase in poaching. The 15% per annum decline was the key criterion for rebuilding the abalone resource and was amongst the conditions set by the Minister associated with reopening the fishery.

Background

The abalone commercial TAC over the last two seasons was derived on the basis of a target to rebuild the resource to a level of 40% of its pre-exploitation biomass over a period of 15 years (up to the 2024/25 season) in Zones A and B. Model projections undertaken late in 2009 showed that this could only be achieved through a 15% per annum reduction in poaching levels over this 15-year period. In the absence of any reduction in poaching, resource decline would continue even without any commercial catch. Several Task Group meetings were held in 2011 to assess the data available for estimating the trend in abalone poaching, in particular to estimate whether the 15% annual reduction has been achieved. These meetings comprised scientists from DAFF and UCT and a few invited observers. Estimates of poaching trends will be used in the 2011 assessment to assess the current status of the abalone resource.

Method

Three approaches were used to estimate trends in poaching. The first approach analysed international trade data of imports of abalone *Haliotis midae* into key importing countries from South Africa and other East and Southern African States (Burgener 2011). The second approach by Brandão & Butterworth (2011) applied a GLM to analyze trends in policing effort and confiscations made by DAFF: Directorate Compliance. The third approach analyzed trends in the number of abalone poaching incidents recorded by Seawatch (a community monitoring forum) – data presented in Maharaj (2011).

A note on the 'year' to which the required 15% reduction corresponds:

The standard year convention used in abalone assessments and management advice is defined such that Model Year 2010 corresponds to the period October 2009 to September 2010. The

assessments and projections upon which advice related to reopening the fishery was based, used data up to Model Year 2009 (i.e. to September 2009). Projections assumed poaching would decrease at 15% per year for future Model Years. Hence if $P(y)$ is the amount assumed poached in Model Year y :

$$P(2010) = 0.85 \left[\frac{P(2008) + P(2009)}{2} \right]$$

$$P(2011) = 0.85 P(2010)$$

Thus in considering whether the poaching reduction target has been achieved, estimated poaching levels need to be reviewed as follows:

- i) is poaching over October 2009 to September 2010 less than 85% of the annual average over the previous 24 months, and
- ii) is poaching over October 2010 to September 2011 likely to be less than 72% (85% squared) of that same annual average?

Results

Results for the three approaches are summarized in Figures 1 to 3 below. In all instances results suggest that poaching has increased over the last 2 years, compared to the average over the two preceding years.

The trade data are available only on a per calendar year basis (Figure 1). However, it is reasonable to factor in a time lag from harvest to export/import. Therefore it is reasonable to compare the abalone traded over a calendar year (Jan to Dec) with poaching that took place a few months earlier, such as over a model year (October in year $y-1$ to September in year y). Based on the estimates using the trade data, poaching during 2010 is 26% more than the annual average over the previous 2 years. Results for 2011 are not yet available.

Results based on the ratio of the number of confiscations to policing effort for the Directorate Compliance suggest that poaching increased over the last two years by about 50% (Figure 2).

The results using the records of abalone and rock lobster poaching incidents recorded by Seawatch suggest that poaching in the area from Rooiels to Kleinmond (Zone D) is about 25% higher over 2010 and 2011 when compared to the average over the previous 2-year average (2008 & 2009). Note that these results must be interpreted with caution because a disaggregation of the data by species is required to assess trends in abalone poaching specifically, as an increase in lobster poaching has also been reported. Note also that these data correspond to incidents of poaching in the Zone D area only, whereas the other results apply to the Western Cape resource as a whole.

It is important to appreciate that these increases have taken place despite an increase in policing effort. Figure 4 shows increases in this effort over the last two years amounting to almost 40% (from Brandão and Butterworth 2011). It seems that despite these enhanced efforts by DAFF's Compliance Section, the resources available to them for policing have simply proved inadequate to act as a sufficient deterrent to reduce poaching.

Conclusion

Preliminary analyses using three separate indices to estimate the trend in poaching suggest that the target of a 15% per annum reduction in poaching since October 2009 has not been reached. In fact, all indices suggest an increase in poaching. The 15% per annum decline was the key criterion for rebuilding the abalone resource and was amongst the conditions specified by the Minister associated with reopening the fishery.

References

Brandão, A. and Butterworth, D.S. 2011. Trends in policing effort and the number of confiscations for abalone. Fisheries/2011/JUN/TG-AB/11.

Burgener, M. 2011. An estimation of the international trade in illegally harvested *Haliotis midae*, 2000-2010. FISHERIES/2011/JUN/TG-AB/06.

Maharaj, G. 2011. Poaching data recorded by Seawatch for the Rooiels to Kleinmond areas. FISHERIES/MAY/2011/TG AB/05.

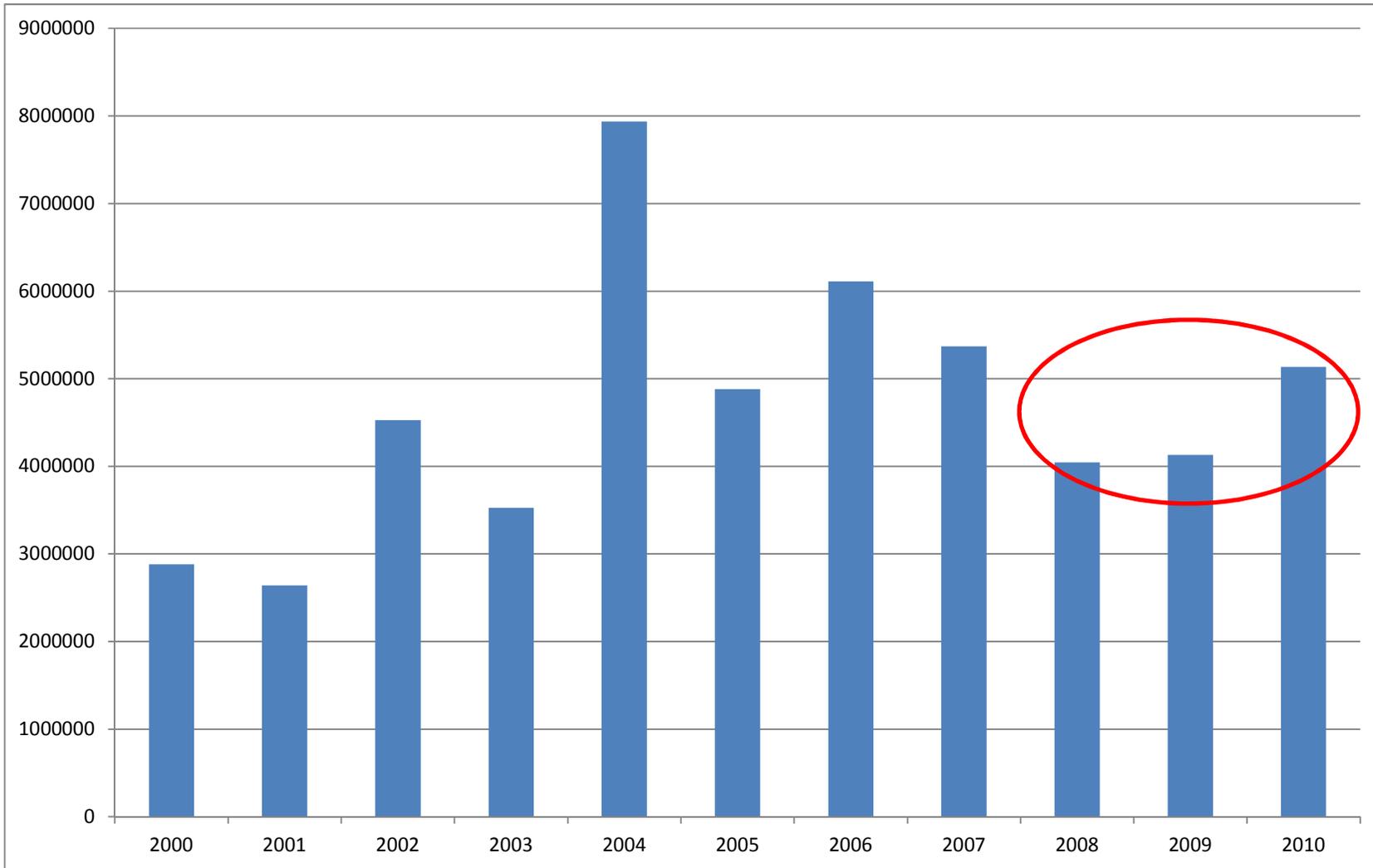


Figure 1. Estimated number of poached abalone based on international trade data for calendar years 2000 – 2010 (From Bürgener 2011)

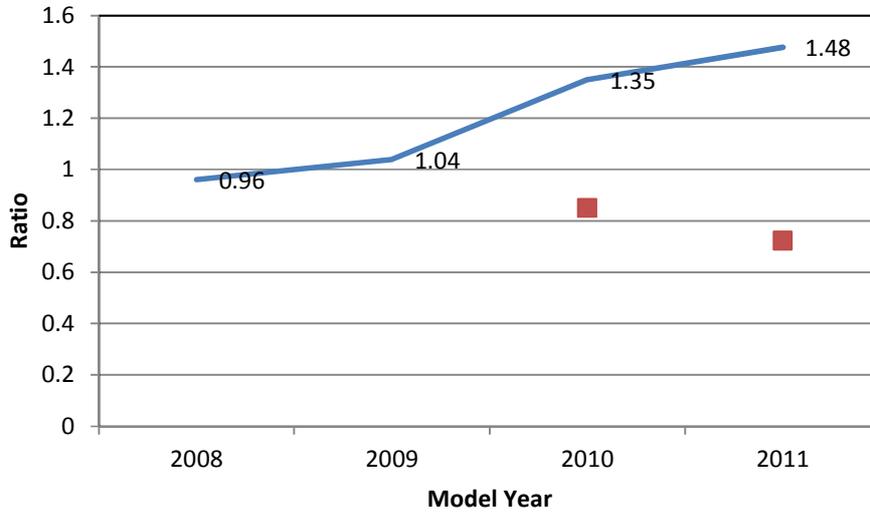


Figure 2. Ratio of the number of confiscations to policing effort, normalised to the 2008 and 2009 average ratio. The squares represent the target poaching values required (also normalised to the 2008 and 2009 average ratio). (From Brandão and Butterworth 2011)

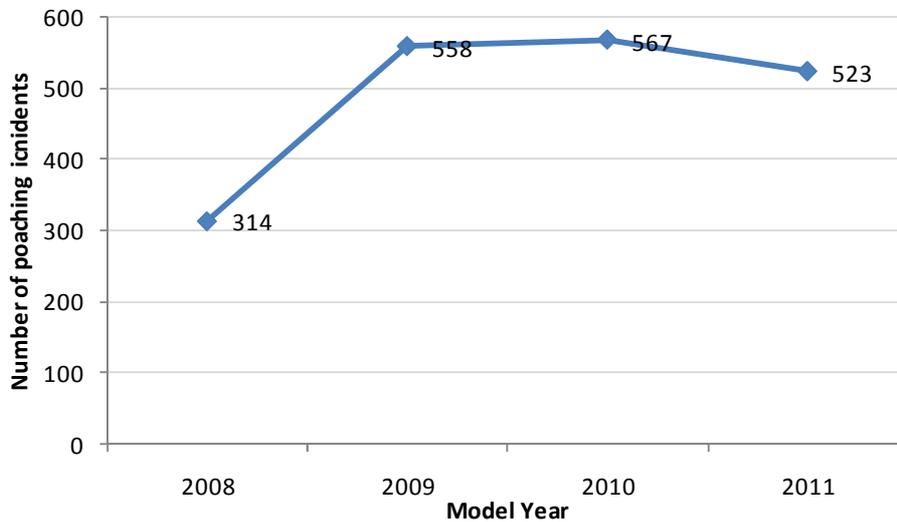


Figure 3. Records of abalone and rock lobster poaching incidents for the Rooiels to Kleinmond (Zone D) area (Data source: Seawatch). The data for model year 2011 were available only to Feb 2011, and numbers for the rest of the period (up to Sep 2011) were extrapolated based on the first 5 months of data (Oct – Feb). Note that these results are preliminary as a disaggregation of the data by species is still required.

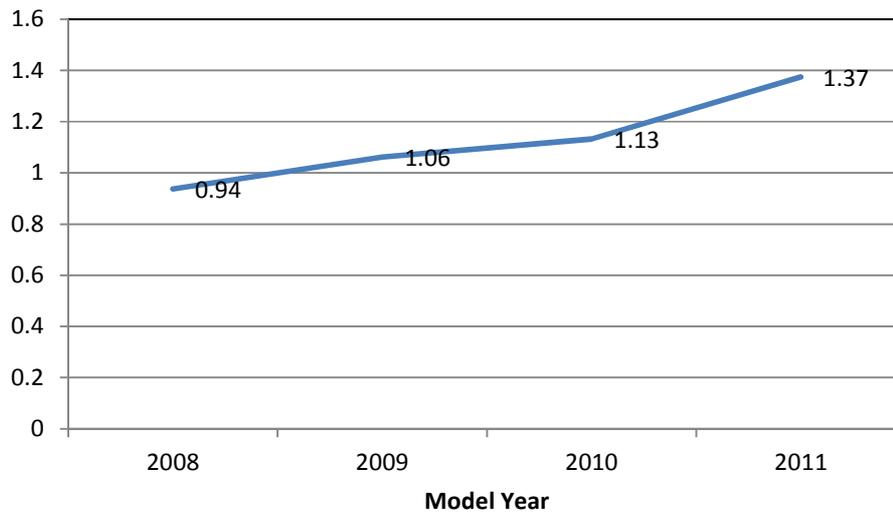


Figure 4. Index of policing effort normalised to the 2008 and 2009 average. (From Brandão and Butterworth 2011)