Summary of abalone poaching trend estimates as updated in 2013

[1]G. Maharaj, [2]A. Brandão [3]M. Burgener, [2]D.S. Butterworth, & [4]S. Raemaekers

[1]Department of Agriculture, Forestry & Fisheries (DAFF): Branch Fisheries, Private Bag X2, Rogge Bay, 8012
[2]Marine Resource Assessment & Management Group (MARAM), Department of Applied Mathematics, University of Cape Town, Rondebosch, 7701, South Africa
[3]TRAFFIC East/Southern Africa, Cape Town
[4]Environmental Evaluation Unit (EEU), University of Cape Town

August 2013

Summary

The analysis in 2013 using up to four separate indicators to estimate the trend in poaching indicates that the target of a 15% per annum reduction in poaching since 2009 has not been reached. In fact, indices suggest a continued and substantial increase in poaching, commencing from October 2009 (note that trends are assessed per 'model year', that runs from October in one year (*y-1*) to September in the following year, *y*). The 15% per annum decline was a key criterion for rebuilding the abalone resource and was amongst the conditions set by the Minister associated with reopening the fishery. While at this time some four years after re-opening of the fishery, a net 50% reduction in poaching was required under the rebuilding plan, results indicated that poaching has increased by some 150%.

Background

The abalone commercial TAC for the 2009/10 and 2010/11 fishing 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 in 2009 showed that this could be achieved only 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. Since then, for the annual abalone assessments and TAC advice, the Abalone SWG has been assessing available data to estimate trends in abalone poaching, in particular to estimate whether the 15% annual reduction has been achieved.

Available data (indicators)

For the assessments undertaken in 2011 and 2012, poaching trends were assessed using data from three different sources, namely international trade data of imports of *Haliotis midae* into key importing countries (Burgener 2011 & 2012), data on confiscations and policing effort by DAFF: Compliance Directorate (Brandão & Butterworth 2011 & 2012) and data on poaching incidents recorded by Seawatch (a community monitoring forum) (Maharaj 2011). Note that the Seawatch data were only used for the 2011 assessment, since updated data were not available in time for the 2012 (and the current 2013) assessments. For the assessment in 2013, an updated analysis of international trade data was undertaken by Burgener (2013) and an updated analysis of the DAFF: Compliance data

was provided by Brandão & Butterworth (2013). In addition, recent studies related to illegal abalone fishing on the Cape Peninsula (Raemaekers 2013) were considered for the 2013 assessment.

Results

Poaching trend indicators for 2013 are summarized in Figures 1 and 2 below. In all instances results suggest that poaching has increased over the last 4 years (since October 2009), compared to the average over the two preceding years.

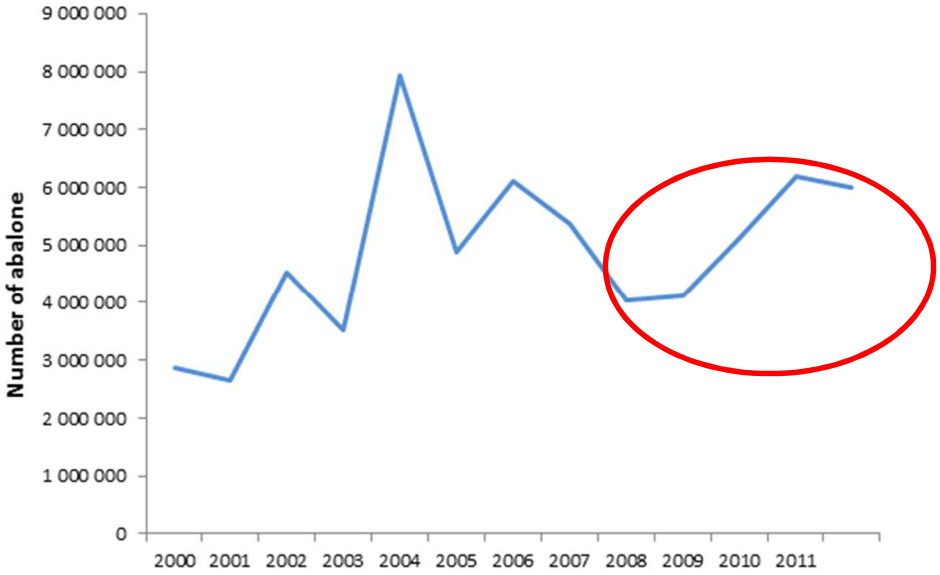

Figure 1. Estimated number of poached abalone based on international trade data for the calendar years 2000 – 2012 (from Burgener 2013).

International trade data

The trade data (Figure 1) are available only on a per calendar year basis. However, some time lag from harvest to export/import would be expected. 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 trade data, there was a net increase of 50% in the number of abalone poached over three years (2010 to 2012), compared to the annual average over the previous two years. Data for 2013 are not all available yet, but an analysis of half a year's data on imports into Hong Kong suggests that there has been an increasing trend in poaching from January 2012 to June 2013 (Burgener 2013).

DAFF: Compliance confiscations & policing effort data

The analysis using the ratio of the number of confiscations to policing effort for the DAFF: Directorate Compliance suggests that in broad terms (assuming an exponential relationship with time), poaching has been increasing over the last four years at an instantaneous rate of 22.7% per year for the South

coast as a whole. This corresponds to a net increase of about 150% in the four years since the fishery was re-opened. Note that increasing trends are estimated for the region overall, as well as for Zones A to D and Zones E to G, when analysed separately, assuming a non-linear relationship with time (Figure 2). Estimated poaching levels are thus well above the targeted poaching level required under the abalone recovery plan.

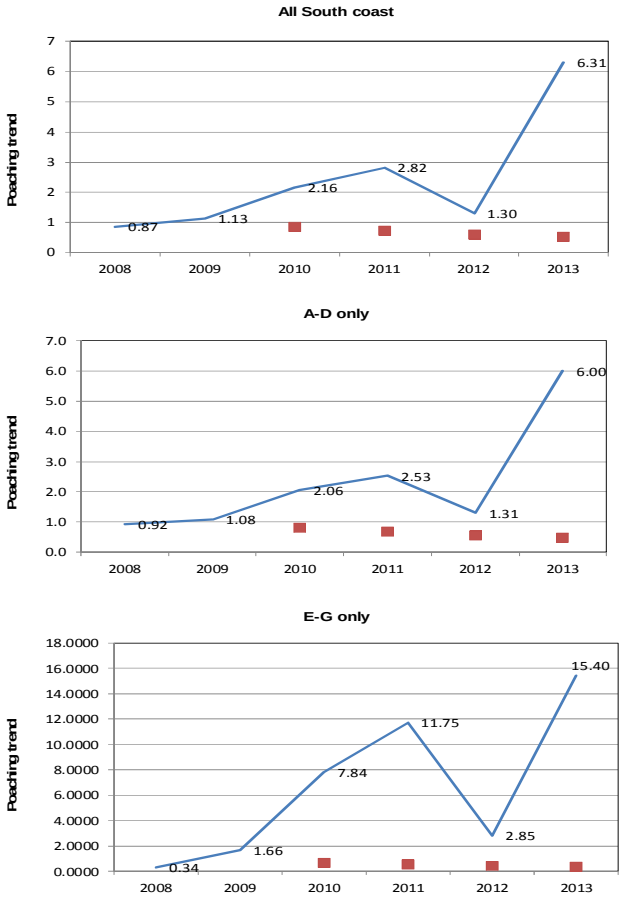

Figure 2. Index of the annual level of poaching from the DAFF: Compliance data on number of abalone confiscations and policing effort for: the whole South coast (top plot), Zones A-D only (middle plot), and Zones E-G only (bottom plot), normalised to their 2008-2009 average values. The squares reflect the 15% annual decrease in poaching sought under the current abalone recovery plan (from Brandão & Butterworth 2013).

Estimates from research into illegal fishing around the Cape Peninsula

Results from studies into poaching around the Cape Peninsula also suggest that there is a high level of poaching in waters in this vicinity (Raemaekers 2013). There was a substantial increase in the number of abalone confiscated from within the Table Mountain National Park (TMNP) over the period from 2000 to 2009. Figure 3 is included to show the proximity of the study area in relation to the abalone fishing zones. The zone closest in proximity to the study site is Zone E, although the study found that most of the confiscations were located at sites within False Bay (that coincides in part with the experimental extension of Zone E). Note that this study includes data up to 2009 only, and therefore does not provide information on trends in recent years. Further research into the illegal

abalone fishery in Hangberg (Hout Bay) suggests that the scale of this activity is large (Raemaekers 2013). The study site is located within abalone fishing Zone E (Figure 3), although interviews revealed that most fishing is targeted around Robben Island (Zone F) (S. Raemaekers, pers. comm., August 2013). Based on a conservative estimate of an average of 60 divers, each diving an average of 5 times a month (from Raemaekers 2013), and assuming that each diver catches 80 kg of abalone (whole mass) per dive, an estimated 24 tons of abalone are dived by this group per month (Abalone SWG TG, 15 August 2013). Overall, the indicators from these studies indicate that poaching has been increasing in all areas along the west coast, and in Zone F in particular, and that there is a high level of illegal take that is estimated to be considerably larger than the legal take.

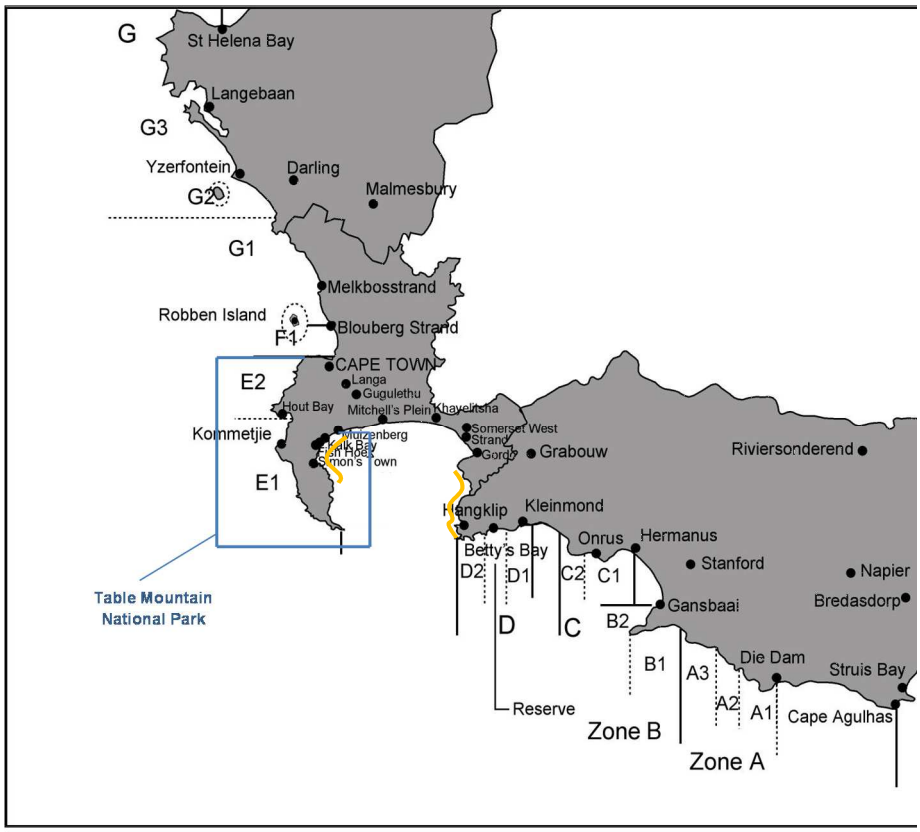

Figure 3. Map of abalone fishing Zones A-D, with sub-zones / TURFS indicated. The relevant Marine Protected Areas are also shown, as well as the experimental area extension of Zone E along the western side of False Bay and the experimental area along the eastern side of False Bay.

Seawatch poaching data

Information from 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 (Maharaj 2011). 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 and Betty's Bay MPA only, whereas the other results apply to the Western Cape

resource as a whole. Furthermore, data for 2012 and 2013 were not available in time for an updated analysis this year.

It is important to appreciate that these increases in poaching have taken place despite enhanced efforts by DAFF's Compliance Section, with the resources available to them for policing simply having proven to be inadequate to act as a sufficient deterrent to reduce poaching.

Conclusion

All indications are that an increasing trend in poaching continues in all zones (Zones A to D and Zones E & G). Poaching is estimated to be substantially greater than the legal catch.

References

Brandão, A. and Butterworth, D.S. 2011. Trends in policing effort and the number of confiscations for abalone. Fisheries/2011/JUN/SWG-AB/10.

Brandão, A. and Butterworth, D.S. 2012. Trends in policing effort and the number of confiscations for abalone including compliance data until March 2012. FISHERIES/2012/AUG/SWG-AB/05.

Brandão, A. and Butterworth, D.S. 2013. Trends in policing effort and the number of confiscations for abalone including compliance data until March 2013. FISHERIES/AUG/2013/SWG-AB/09.

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

Burgener, M. 2012. An estimation of the international trade in illegally harvested *Haliotis midae*, 2000-2011. FISHERIES/2012/AUG/SWG-AB/11.

Burgener, M. 2013. An estimation of the international trade in illegally harvested Haliotis midae, 2000-2012. FISHERIES/AUG/2013/SWG-AB/13.

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

Raeamaekers, S. 2013. Extracts from recent student work related to illegal abalone fishing on the Cape Peninsula. FISHERIES/2013/AUG/SWG-AB/10.