Some Comments on FISHERIES/2020/DEC/SWG-PEL/129

C.L. de Moor*

Correspondence email: *carryn.demoor@uct.ac.za*

Some comments are provided to the 'mitigating factors' given by Bergh (2020) (repeated here, in red).

1. The 'no catch' risk under the revised OM has increased to 3%, from a level of 1.8% in late 2018. The increased risk of OMP-18 under the new OM needs to be viewed in this context.

   The 'no catch' risk has increased by 1.2% (from 1.8% to 3.0%). In contrast, risk under OMP-18 increases by 12.9% (from 8.9% to 21.8%).

2. The OMP under consideration will be applied for the 2021 and 2022 seasons only. The 2021 and 2022 risks are generally less than Risk_A by between 3% and 4%.

3. In general, reconsideration of the risks in an OMP in mid-session will show greater risks if these risks are evaluated shortly after some negative trends in a resource. This is particularly the case for highly variable pelagic resources. Doing so as a general practice defeats the purpose of the OMP philosophy which requires disciplined application of a formula over a period of 4 or so years. This context should be considered when considering the risks that are assessed now following the technical EC status that has occurred in the last two years.

   Bergh is correct that an OMP should ideally be implemented unchanged for a number of consecutive years. However, Exceptional Circumstances have been declared for both sardine and anchovy as the populations were found to be outside the range to which OMP-18 was simulation tested and OMP-18 was thus set aside and not used to set sardine and anchovy TAC/Bs. If short-term ad-hoc advice is to be avoided, a new OMP is required.

   The 'context' is explicitly considered when developing RSA small pelagic OMPs by making comparisons between CMPs and the no future catch scenario, which have identical OMs (i.e. identically positive or negative trends in the resource). Given recent data, risk to the resource has increased by 1.2% under a no catch scenario. To be 'equal in context', risk under a new OMP should also increase by 1.2% (to 0.10). In contrast CMP3 (with $B^A_{crit} = 600$), CMP5 (with $B^A_{crit} = 800$) and CMP6 (with $B^A_{crit} = 700$) have risks which have increased by 9.2%, 6.4% and 7.8% respectively!

4. The risks that have been calculated for CMP3 use an OM which has ignored the mid-2020 recruit survey results. Inclusion of these results causes a lower value of Risk_A by about 4.8%.

   The June 2020 survey estimates of recruitment have not been completely 'ignored'. The survey observations are within the range which is simulated for mid-May 2020. (During implementation, this would be a check that the OMP is 'good for use'). The SWG-PEL TG agreed to set aside the previous weighting method because it resulted in too much weight being given to the most recent survey estimate. Following that method could result in Exceptional Circumstances being declared once again for anchovy if the recruit survey observations suggest recruitment is higher than that subsequently realised in the population. Rather, an OMP needs to be robust to a range of uncertainties (including incoming recruitment) and not one that "believes" the June 2020 survey exactly.

   The 'upper recruitment extreme' option – an alternative lending more weight to the most recent recruit survey than the inverse variance weighting method the SWG-PEL TG agreed to set aside - was a 'rough' run to test the sensitivity of the α control parameter to the inclusion of the June 2020 survey estimate, and (considering the 'context' of lower risks under both no catch and catch scenarios) it shows α is relatively robust.

5. The risks that have been calculated for CMP3 ignore the fact that the anchovy TAC is generally under-caught. Inclusion of this consideration results in a lower value of Risk_A than has been reported so far for CMP3, by about 2%.

   If industry is confident that the anchovy TAC will continue to be undercaught, then three alternative options could be considered:

   i) A lower maximum TAC (e.g. Table 3 of de Moor 2020).

   ii) A lower maximum catch (results would be identical to Table 3 of de Moor 2020 for a maximum TAC of 350 000t, but a maximum catch of 275 000t). If this option were selected, then although individual quotas of the

* MARAM (Marine Resource Assessment and Management Group), Department of Mathematics and Applied Mathematics, University of Cape Town, Rondebosch, 7701, South Africa.

anchovy TAC would sum to 350 000t, the fishery would be closed once the maximum catch of 275 000t is taken. This could result in a 'race to fish' and some right holders would be unable to catch their allocated quota.

iii) The simulated anchovy catch is modelled to be a proportion of the TAC based on historical data. This could be a possibility for OMP-22 once an updated timeseries of catch data becomes available, but is not feasible for OMP-18rev. The implementation of such an OMP would thus need to be checked to remain within the bounds of that simulation tested (similar to what has been done for sardine bycatch in the past).

However, one cannot suggest that the risks associated with a CMP with a lower maximum TAC can be used to justify the choice of a CMP with a higher maximum TAC without one of the above associated 'costs'.

6. The socio-economic impact of increasing the value of B_{crit} can be considerable. The impact that this has is to decrease both the initial TAC and the final TAC. This can cause a loss of potential catch prior to the mid-season revision of the TAC, which cannot be made-up thereafter, regardless of how attractive the final TAC is. This is likely to cause the final TAC to be undercaught by a greater % than has been the case in the past.

   See below.

7. The risk reduction that can be achieved by large increases in Bcrit of 50% are relatively small, about 2%. This benefit seems incommensurate with the scale of the socio-economic impact. This is about 10% of the **final TAC** or in the order of 30 000 MT per annum, based on running the OMP formula retrospectively on the actual historical survey results. The impact on the **initial TAC** is much larger, just under 60 000 MT per annum on average, based on the same historical survey results. The net loss that results from this is complex but likely very considerable. A possible scenario is that the initial TAC is much reduced, Status Quo versus Proposal B, but the final TAC is not – there would be a substantial loss **which would not show up when only considering final TACs**. Another example (see 'Equation OMP.18' below) is what the negative socio-economic impact would have been this year had there been application of formula OMP.18 with 'Proposal B modification', viz. a loss of 64 000 MT.

   While the one-season socio-economic impact may be great, the above two points fail to consider the multi-year socio-economic impact: that greater risk to the resource this year could result in lower catches and greater socio-economic cost the following year.

   Rather than increasing the risk to the resource, the best solution is for the recruit survey to be undertaken timeously during May, so as not to delay the final TAC recommendation.