**Hake: Questions to the Panel**

1. There have been a number of modifications to the basic assessment over the last 18 months, which have resulted in an appreciably better estimate of status relative to *B*MSY for the *M. paradoxus* resource (whose status previously – fluctuation to below *B*MSY - had been a matter of debate and concern) – are these modifications together with their consequent changes in results justified? (MARAM/IWS/2018/Hake/P2)
2. The revised OMP proposed (OMP-2018) is more “aggressive” than its predecessor OMP-2014 in giving higher TACs for the same abundance (increasing the *b* control parameters in the HCR by 5%, and increasing the cap on the TAC from 150 000 to 160 000 MT. Do the results from the updated Operating Models and simulation tests justify a revision in this direction? (Reference Set OMs specification and results – MARAM/IWS/2018/Hake/P3; projections under OMP-2018 – MARAM/IWS/2018/Hake/P4; OMP2018 robustness tests – MARAM/IWS/2018/HakeP6a&b)
3. A particular concern arising for the revised OMP-2018 development has been the possibility of needing in the future to substitute an industry vessel for the standard research vessel (which is now old and experiencing many maintenance problems) to carry out hake abundance estimation surveys, and furthermore the possibility that funding limitations may impact the (regular) continuation of these surveys. A number of robustness tests have been conducted to evaluate the consequences, and the proposed revised OMP-2018 has been considered to have shown adequately robust performance for these. Especially in circumstances where a more “aggressive” OMP has been proposed, which will yield greater TACs than the previous OMP-2014, have the tests conducted been sufficient, and if not what further tests are suggested? (Robustness tests RT1-5 in MARAM/IWS/2018/Hake/P6a).
4. A new metarule has been proposed for OMP-2018 which involves the specification of a threshold to indicate when extra measures may be necessary to deal with especially low *M. capensis* abundance. Are this rule and the basis used to develop an initial value for this threshold appropriate? (MARAM/IWS/2018/Hake/P7)
5. What are priority needs (if any) for further robustness tests of OMP-2018? In particular, has adequate attention been paid to the possibilities of recruitment failure (currently surrogated by a decrease in *K* for both species in the future)? (Robustness tests results are in MARAM/IWS/2018/Hake/P6a&b – see particularly RT10 in P6a for the decreasing future *K*. MARAM/IWS/2018/Hake/P6b includes a list of robustness tests yet to be conducted.)
6. The assessments generally estimate fairly low values of *B*MSY*/K*. These might be argued as leading to acceptance of recovery targets that are too low. Do these “low” values constitute a concern, or a need for alternative higher “targets”, give that:
7. they follow in large part from the stock-recruitment functions estimated (were the forms considered sufficient and appropriate?) (MARAM/IWS/2018/Hake/P3);
8. they are arguably a reflection of poor estimates of *K* rather than of current *B* or *B*MSY;
9. the hake explicit-predation model (MARAM/IWS/2018/Hake/BG7) indicates that *K* for *M. paradoxus* is “over-estimated” in the standard assessments because these ignore the predation release on this species arising when the fishery commenced concentrating on *M. capensis*;
10. for the great majority of Reference Set Operating models, under OMP-2018 both hake species are predicted to “stabilise” at median levels well above their *B*MSY’s (MARAM/IWS/2018/Hake/P3); and
11. for economic reasons the industry needs high CPUE values (which OMP-2018 is projected to provide) (MARAM/IWS/2018/Hake/P4)?
12. Is there a need for a trawl-ID covariate in the GLMM analysis underlying the hake catch species-splitting model used? (MARAM/IWS/2018/Hake/P8)