

REVIEW OF THE MARINE STEWARDSHIP COUNCIL ASSESSMENT OF THE SOUTH AFRICAN HAKE TRAWL FISHERY

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Introduction

This is a peer review of the Certification Report of the South African hake trawl fishery by Moody Marine Ltd. and authored by Powers, Japp, Tingley, and Hough.

The report considers the following:

1. The factual basis of the main report;
2. The consultation of stakeholders and addressing of stakeholder concerns;
3. The sufficiency of scope and rigour of the scoring indicators and guideposts used in the assessment, in relation to the MSC standard and the fishery in question;
4. The appropriateness of weightings and scores allocated; and
5. The suitability of the conditions attached to certification.

1. Factual basis of the main report

The report seems very thorough and comprehensive. The information provided seems factual. I have just a few observations to share.

While the report clearly covers all the relevant material and indicates where things have, and sometimes have not, changed in the fishery and it's science and management, it is somewhat difficult to ascertain from the wording in the document alone what the status of the hake might be. I am sure this must be the result of the formalism of the process, but while I might agree that a GLM applied to CPUE data is appropriate, or that an age-structured population model is good for characterizing the data and the populations dynamics, or that choosing an OMP design based on an $f_{0.075}$ approach is adequate for achieving management objectives it is very hard to make categorical judgements about the interpretability of the information presented without seeing how the models fit the data.

A figure showing total or spawning stock biomass for each species as it has changed over the last few decades would be extremely enlightening. Predicted and observed numbers at age by year for each species might also help, particularly if strong or weak cohorts are apparent in the data. The

CPUE data summarized in some fashion relative to model fits would help create confidence, or lack thereof, in its usefulness as an indicator of stock abundance. As a manager or fisher, I know I would like to see what the stock is projected to do under the agreed upon harvest control rule. Finally, it would be good to see the stock-recruitment relationship (model and data) that is being used to determine the $f_{0.075}$ harvest rate. The models might be good, but the data might be poor. I really have no way of knowing.

Two other issues caught my attention. I don't know to what degree they are relevant, but I feel they are important to mention. One concern is that, at least for the hake populations I am familiar with, the migration can be quite significant. This may mean that some part of the population may be susceptible to exploitation outside of the management jurisdiction for some part of the year or for some life history periods. If this is not a problem for *M. paradoxus* and *M. capensis*, then so much the better. But given the way this genus operates in other parts of the globe that would be a good life history trait to track.

The second issue I have is in relation to the distribution of the fleet relative to the distribution of the two fish populations. It is unclear to me if the fleet changes where it is fishing and likewise if the fish inhabit different locations at different times. My concern is based again on the likelihood of hake movement, but also reflects the concern about CPUE indices mentioned in the report. The spatio-temporal interaction of fleet and fish may lead to problematic interpretations of CPUE as an index of abundance. A linear model may not be adequate to account for these interactions.

2. Consultation of stakeholders and addressing of stakeholder concerns

From the sources cited in section 1.3 it looks as though scientists, various fisher organizations, and at least one conservation group were all consulted. Section 8.1 also documents stakeholder consultation. It is stated that 51 stakeholders were identified and consulted. It is not clear what proportion 51 is out of the total number of stakeholders, or how they are distributed among the various stakeholder groups. The number of individuals contacted and the number that responded to each event (e.g. meeting) might also be useful to chronicle stakeholder involvement. The addressing of stakeholder concerns is documented in section 8.2 for one fisher and one conservation group. It is not clear if there were other stakeholder concerns other than those mentioned. It is not clear what the process is for documenting and addressing stakeholder concerns.

3. Scope and rigour of the scoring indicators

The scoring indicators look fine. Is it possible to have a component that scores below 60? I have seen some fisheries that would not achieve what has been listed as 60 in this report. It seems that one does not choose 60, 80, or 100, but somewhere in the range using 5 point increments. The indicators as listed seem to give a reasonable range to choose from. And the comment section seems to provide reasonable rationales for why the particular score was selected. It is interesting that no rationale is provided for the weights. I assume they must be negotiated.

4. Appropriateness of weightings and scores allocated

I am quite impressed with this organizational approach to factoring in the different components of the assessment and management process into a single cohesive assessment of the status of the stock's management. I am also struck by how verbal it all is. Is this format accessible to stakeholders? I considered making a bar chart to help me see the scores and weights, so as to get a better global feel for what is felt to be important (weights) and which components were doing well and which were not (scores). But time eludes me. In the end I conclude that the table contains many of the most important considerations relative to managing a fishery. It also appears that the scores adequately represent the realities of each principle as it has been stated and reflected in the fishery. What I cannot make judgement on is the weights as I haven't managed to wade deep enough into the scheme to make sense of them. A couple of bar charts might prove helpful here.

5. Suitability of the conditions attached to certification

The conditions attached to certification as outlined in section 11.3.2 seem reasonable, appropriate, and consistent with the principles used to outline the goals and objectives of the management process. The only thing one might consider adding would be some contingency plan for reducing harvest should the stock continue to show limited recovery. Stock recovery for the West coast spawners at least (I am not sure which species that would be based on the report) seems fragile given the information we appear to have (CPUE). The reason I mention this is that reducing harvest to ensure stock recovery is very difficult to accept and as a consequence may be hard to see. I just thought I would mention it.