

Comments on FISHERIES/2011/SWG-PEL/62: Spatial management needed in Small pelagic fishery

This document contains the initial comments by Carryn de Moor (CdM) on the FISHERIES/2011/SWG-PEL/62 document followed by responses to these comments from Ross Wanless and Christina Moseley (BirdLife SA). There will be further correspondence from Carryn de Moor at a later stage, which will be circulated to the Small Pelagic Working Group.

CdM 1: Spatial management for anchovy. The fishery targets primarily 1 year old anchovy in the first few months of the year, which correspond to part of the spawning stock biomass which was surveyed the previous November. However, the fishery primarily targets recruits as they migrate southwards along the west coast. This (continuously moving) distribution is not directly related to the distribution of November spawners, but is rather part of the annual migration dynamics of anchovy. As this species is moving and mixing rapidly through the west coast it is unclear how local depletion, which would be the key concern for such a proposal, could occur.

BirdLife SA 1: Local depletion is an issue around seabird breeding colonies, a point which the Island Closures Task Team is currently addressing. A second issue is not the recruit harvest, but the targeting of mature anchovy East of Cape Point, especially around Dyer Island. These are not (all?) constantly streaming recruits and could be subject to overharvesting. This is especially concerning given the importance of the catch around Dyer, and the inability of fishermen to catch their quota. The latter is argued (without supporting, verifiable evidence) to be due to poor weather, but which could equally represent low abundance, and thus potentially lead to over-harvesting.

CdM 2: I did briefly explain to Ross that we have never used a Target Reference Point for sardine or anchovy. (I had no idea where 12% came from, but Ross said you were looking at some historic average?) From when the first OMPs were developed by Doug and Jose De Oliveira in the mid to late 1990s, Risk thresholds were considered. We have changed these thresholds over time to ones which we believe are more reliable, but the general idea has remained consistent (in particular, you may have gathered from the meeting the other day, we've moved away from Risk thresholds which rely on carrying capacity since this is such a difficult parameter to estimate for short lived pelagics). "Risk" as we use it is a form of a reference point, but it is neither a target or limit RP. It is a level which we would like to avoid, BUT we are "happy" to allow the biomass to go to that level once during a simulated 20 year projection period in a small percentage of the cases simulated. This 'percentage' is largely dependent on how much the resources naturally fluctuate in the absence of fishing. So if we were doing this for eg whales the percentages we'd work with would be very different than when we work with short-lived pelagics. We tuned OMP-08 such that the probability the adult sardine biomass falls below the average adult sardine biomass over Nov 91-94 at least once during the projection period was <18% and such that the probability that adult anchovy biomass falls below 10% of the average adult anchovy biomass between Nov 84 and 99 at least once during the

projection period was <10%. I've attached the final description document for OMP-08 (MCM/2008/SWG-PEL/23) as that may help. But like I said to Ross on Wednesday – the PWG will be having plenty of discussions on Risk in the next 3 months!

BirdLife SA 2: The 12% value comes from a graph in Coetzee et al. (2008) showing the “exploitation level” (annual catch and biomass in November of the previous year) from 1987 to 2007. The average over that time period was 12%. Whether or not this is a specific target reference point, it is de facto the long-term harvesting level.

Of greater concern, however, is the fact that the fishery is managed entirely from a stock-risk perspective. No account is taken, apparently, of the ecosystem consequences of the chosen harvest strategy. While the risk model may be satisfactory for fisheries and stocks in the medium- to long-term (20-year scenarios), we question whether there is any scientific evidence that it also works well for the ecosystem, and specifically for the predators that are dependent on the stocks. If the evidence is lacking, this management system cannot be construed as precautionary or as accommodating an ecosystem approach to fisheries management. The arguments made by the SPWG with respect to Smith et al. 2011 are pertinent here, as they reflect a similar approach to the management of this fishery. While long-lived top predators may be unable to adapt quickly and to take full advantage of short periods of increased abundance (Coetzee et al 2011), they are very capable of (and highly likely to) responding extremely swiftly to periods of reduced abundance. The responses of specialists like the African Penguin, which are poor at switching to alternative prey, are confined to two strategies: emigration or death. For adults of species with limited dispersal abilities (such as seabirds tied to breeding islands), emigration is not possible without catastrophic breeding failure or widespread non-participation in breeding. Periods of low abundance at the scale of weeks or months are expected to cause enormous difficulties for the specialist predators dependent on anchovy and sardine. This is when spatial management is critical to ensure that the fishery does not exacerbate the problem by catching a high proportion of an already depleted fish population in one area. Thus, while the risk models may indicate an acceptable likelihood of medium-term recovery of the target stocks, the biological reality for the dependent predators is considerably less rosy.

CdM 3: Re your “likely” wording in the 3rd paragraph – when it comes to making management decisions, we can't base them on ex cathedra statements that deleterious effects are “likely”, we need at least some supporting evidence provided before action should be considered.

BirdLife SA 3: This document was intended to be a broad outline so we didn't go into specifics but we do understand that there would have to be supporting evidence to justify the management decisions.

CdM 4: W.r.t. your definition of overfishing being where landings > 0.15 of biomass - where did this definition come from and what is its basis?

BirdLife SA 4: The 15% definition of overfishing is common to fisheries management practices for LTL fisheries – e.g. the management of the Pacific sardine fishery run by the Pacific Fishery Management Council in the USA (PFMC 2010). In this system the F_{MSY} is set at 15% of the total biomass. While there will be differences in the details of management practices, we used this benchmark as the definition of overfishing. However, we are not suggesting that 12%, 15% or even 20% represent overfishing (or underfishing). We are pointing to general principles, and the details need to be discussed, proposed, evaluated and refined. That is not the ambit of our original paper (or of this response). We wish to highlight here the risks that an effective absence of any spatial management of the LTL fisheries poses to dependent predators and to initiate discussions about rectifying this.

References

Coetzee, J. 2011. Comment on Smith et al. for MSC. Unpublished Fisheries report. FISHERIES/2011/SWG-PEL/48

Pacific Fishery Management Council. 2010. Status of the Pacific Coast Coastal Pelagic Species Fishery and Recommended Acceptable Biological Catches: Stock Assessment and Fishery Evaluation 2010. <http://www.pcouncil.org/coastal-pelagic-species/stock-assessment-and-fishery-evaluation-safe-documents/>