

Summary of Reservations regarding New MSC Criteria for Low Trophic Level Fisheries

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The documentation available to the workshop related to the interaction between the MSC and the DAFF Pelagic Scientific Working Group (PSWG) on the former's new requirements for LTL fisheries is quite lengthy. The objective of this paper is to summarise the essence of the main questions which have been raised by the PSWG in that debate, so as to facilitate structuring the discussions to take place at the workshop. These questions are of two rather different types, which might be conveniently distinguished by the terms "scientific" and "process". Discussions at the workshop should focus primarily on the former, though briefer exchanges on some of the latter might also be useful.

Scientific issues

Norms for acceptability

- What quality of fits to data is needed before ecosystem models can be considered to provide sufficiently reliable advice for management purposes – this by comparison to the single species models in regular use for this purpose?
- Whereas the advice from single species models follows predominantly from trends based on relative measures, ecosystem models need measures of food consumption and hence estimates in absolute terms. Have results used from ecosystem models in formulating the MSC's requirements been tested sufficiently for robustness to the uncertainties in these estimates?
- Are the MSC's criteria requiring a tactical use of ecosystem models which, in their current state of development, are at best defensibly applied only at a broad strategic level?

Reflecting recruitment variability of forage fish – a fundamental requirement?

- Does the highly varying recruitment of species such as sardine and anchovy render the dynamics of their ecosystems qualitatively different from what would be indicated by models which are able to reflect that variability to only a limited extent in their fits to abundance index data?
- Does reliable prediction from ecosystem models require explicit modelling of recruitment fluctuations, rather than the "forcing function" and similar surrogate approaches presently used in these models which have arguably unrealistic side effects associated with them?

Criteria for acceptable levels of impact on predator populations

- How justifiable is the choice of 40% as an impact threshold on predators (it is this choice which leads in turn to the 75% of pristine abundance target for forage fish indicated by the MSC)?
- How strong is direct empirical confirmation of the extent of the impact on predators, in response to fishing on a forage species, which ecosystem models predict?

Operational considerations

- In practice, how well estimable are quantities such as (average) pristine abundance of a forage species which are required to implement the new MSC regulations?
- How are biomass-related estimates from single stock models to be calibrated to those from the ecosystem models used to develop the MSC criteria (the different forms of the models will lead to relative biases in their estimates)?

Process issues

- Given that ecosystem models seem as yet not to have been used for tactical fisheries management advice, or subjected in application to the same level of scrutiny and requirements as the single species models used for such purposes, is it reasonable to expect fishing industry to accept what (unlike standard single species approaches) is not as yet well established practice internationally?
- For the reason just given, the vagaries of reviewers in assessing whether the new MSC criteria have been met will be much greater than when judgments are made in relation to single species based management concepts. Given that adjustments of levels of exploitation in a fishery can have substantial socio-economic implications, is it reasonable to render such industries and those dependent upon them vulnerable to such vagaries?
- Does best practice not require field testing of new procedures – checking for a number of fisheries that the new criteria can be reasonably operationalized and yield sensible results – before putting them into place when based on mainly if not entirely more theoretical evaluations?
- Data collection needs to improve feeding information, coupled to heavy personpower requirements to conduct complex analyses, would require allocation of a large proportion of the resources available for fisheries research locally if ecosystem modelling results are to approach the level of reliability of single species models. Would that be the best use of such funds in a local context?