

A COMMENT ON ADDRESSING CLIMATE CHANGE USING MSE

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We need approaches to harvest marine renewable resources, such as fish populations, that are robust to the effects of climate change.

The standard soundbite response to this is to use MSE (Management Strategy Evaluation) to choose revised harvest strategies that will ensure such robustness, given uncertainties about the changes which climate change will bring.

But no harvest strategy (except a permanent fishery closure) can see resource status secure in the face of EVERY conceivable uncertainty. This is why MSE insists on such robustness only for *plausible* uncertainties (and their associated operating models).

Once climate change uncertainties are introduced to the MSE analyses, the result will be MPs giving lower catches to maintain the same level of resource security over the resultant greater range of operating models.

But **how much lower?** That depends on this expanded range of operating models. Unless limited to the “*plausible*”, the outcome of the MSE will be to suggest that catches are reduced to (almost) zero.

So the real scientific need here is to determine what the plausible impacts of climate change are on the operating models for resource dynamics being used in MSE. Current research in this area seems best able to inform on spatial temperature changes, and hence on likely resource distribution shifts. But the information which is the most important for an extended MSE incorporating the impacts of climate change is that regarding the associated changes in population abundance and productivity shifts. Future research in this area consequently needs to focus on providing improved information on the likely directions and magnitudes of these changes.