July 3, 2014

Dear Editor,

I am writing to submit our manuscript entitled, “Persistence of populations facing climate velocity and harvest,” for consideration for publication in Ecological Applications. In this work we mechanistically model the effects of climate driven range shift and harvesting, explore the cumulative impacts in the harvested population and examine the effects of popular management. We find the conditions under which the population can survive and how survival depends on the growth rate and dispersal. When we consider management, we were surprised to find that MPAs contributed relatively little to survival, but that harvesting rules had a big effect in population persistence. In particular, requiring a threshold of the population to be present before harvesting begins removed the interaction between range-shift and harvest-driven extinction. This result suggests that management can have an important role in reducing the effects of these joint stressors. This is an important point because, at least in marine systems, species novel to a region are often harvested before management reacts.

Because our manuscript mechanistically investigates how climate change and harvesting interact, along with evaluating common management approaches, we believe this work will be of interest to a range of your readers, including scientists and managers. The model is of sufficient generality that it can be applied to both terrestrial and marine systems, and addresses two disturbances that are widespread. Although this is a mathematical model, we believe that it is presented in an accessible way such that managers and other practioners without formal mathematical training can see its value and possible applications for their own systems. We believe this model is a useful baseline approach, into which species interactions, harvesting dynamics, and additional biophysical dynamics can mechanistically be added, and effects carefully considered.

Given the scope of this paper, we believe that the following researchers are among those with the expertise on our topic and approach needed to review the manuscript: Jameal Samhouri ([jameal.samhouri@noaa.gov](mailto:jameal.samhouri@noaa.gov)), for his work applying modeling to management questions; Ben Halpern ([halpern@bren.ucsb.edu](mailto:halpern@bren.ucsb.edu)) for his work on cumulative impacts of multiple stressors, Will White ([xx@xx.com](mailto:xx@xx.com)) for his work examining dispersal, fishing and spatial dynamics; Julie Kellner (jkellner@whoi.edu) for her work on modeling marine ecosystems and reserves; and Mark Carr ([xx@xx.com](mailto:xx@xx.com)) for his work examining nearshore marine ecosystems. We think that Mark Urban or Bruce Kendall might be appropriate content editors to handle this manuscript.

This manuscript describes original work not under consideration by any other journal. All authors approved the manuscript and submission.

Thank you for receiving our manuscript and considering it for review. We appreciate your time and look forward to your response.

Sincerely,

Emma Fuller