**Princeton** **University** Department of Ecology and Evolutionary Biology

Princeton, New Jersey 08544-1003

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 on the harvested population, and examine the effects of common conservation and management strategies. We find conditions under which the population can survive and demonstrate how population survival depends on the growth rate and dispersal. When we consider management, we show that harvesting rules can have a large, positive effect on population persistence. In particular, setting minimum population density thresholds for harvesting can largely eliminate 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, novel species are often harvested before management sets explicit rules.

Because our manuscript mechanistically investigates how climate change and harvesting interact and evaluates common management approaches, we believe this work will be of interest to a range of readers, including ecologists, conservation biologists, fisheries scientists, climate change scientists, and managers. The model is of sufficient generality that it can be applied to both terrestrial and marine systems. 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.

Given the scope of this paper, we believe that the following researchers would be effective reviewers of 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 ([whitejw@uncw.edu](mailto:whitejw@uncw.edu)), for his work examining dispersal, fishing and spatial dynamics
* Julie Kellner ([jkellner@whoi.edu](mailto:jkellner@whoi.edu)), for her work modeling marine ecosystems and reserves
* Mark Carr ([mhcarr@ucsc.edu](mailto:mhcarr@ucsc.edu)), for his work examining nearshore ecosystems

We think that Mark Urban or Bruce Kendall would 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