

Dear Prof. Steven Bouillon, dear reviewers,

Thank you for asking my opinion on the manuscript "The Clam Before the Storm: A Meta-Analysis Showing the Effect of Combined Climate Change Stressors on Bivalves" by Rachel Krufft Welton and colleagues. I have read the manuscript with interest and provide my assessment and feedback below.

Overall, I think this is a very timely and valuable contribution to the field which fits the scope of the journal. Meta-analyses like the one presented here are relatively uncommon in the field and, as the authors acknowledge, are often biased towards commercially harvested species of mollusks. The manuscript is overall very well written, and the authors clearly introduce the relevance of the study. There is also a clear discussion of the implications of the work.

We thank the reviewer for their time, and positive comments about our manuscript. We are glad they consider our work both timely and value added to the wider field.

The biggest disadvantage of this study design is the effect of positive publication bias on the results. The authors do acknowledge that this bias exist (lines 234-236), but the effect of this bias on the results is not further discussed. I understand that the authors cannot avoid this bias, but I would like to see a bit more discussion on how they think it will influence their conclusions.

We thank the author for highlighting the importance of publication bias in meta-analysis. As the reviewer has already stated, it is an unfortunate result of the data we extracted from the wider literature. We have added a paragraph that further discusses the results of publication bias, how we are confident still in our conclusions despite this, and recommendations for the experimental literature moving forward.

Minor comments

Line 25: It is not immediately clear what "this assessment" refers to here, to the assessment of the effect on infaunal taxa, the effect on epifaunal taxa or the difference between the two?

Text updated to clarify we meant the difference between the two

Line 81: Add "The" or "Our" in front of "understanding".

Text updated

Line 96: To the uninitiated reader, the meaning of "granularity" may not be clear. Perhaps the authors can define it here.

Definition added

Line 99: Here, I think the authors should either cite in text the 10 and 4 stressors, respectively, or (perhaps preferable) refer to a table where these are listed so the reader immediately knows which parameters are considered in the study.

Text updated to direct the readers to a table in our results which outline the stressors and their respective permutations

Line 113: GitHub is not a persistent depository for data. I therefore suggest the authors deposit their data to a repository which has a persistent DOI number to ensure the dataset used specifically as a basis for the outcomes presented here is findable. It is of course a good idea to keep a working version of the dataset on a repository such as GitHub (which can be kept updated) in case the authors or others would like to repeat the analyses later with a bigger/different set of data.

Data have been additionally uploaded to Zenodo, DOI is now embedded in the text

Line 118: I think this should read "The publication date of articles collected ranged..."

Edited

Lines 127-129: From this section, it is not clear what the authors consider to be "plausible" conditions. The criteria for this should be better explained.

Text edited to better explain

Line 138: "is"/"was" is missing between "death" and "often"

Edited

Line 144-146: Do the authors mean "fed ad libitum"? "fed" is too vague, as some studies could have food as a limiting factor on growth if the amount of food is not sufficient for optimal growth while other studies do not have this.

Text updated

Line 151-152: "Control values for climate stressors for each article were based on authors' determination of control conditions." This statement is too vague. It is not clear to me what the authors mean here.

Text edited to better explain

Line 173: Maybe add here that this is a "linear multivariable mixed effects model".

Edited

Line 310-311: It is unclear what the authors mean by "or shelf formation of adults from a high pCO₂ low pH micro-environment quite different to the surrounding seawater" Please clarify.

Text edited for clarification

Line 314: "may be resulted in" should read "could have resulted in" or "maybe resulted in"

Edited

Line 322: Here and elsewhere in the manuscript, wherever statements like "fewer experiments" are made, it would be helpful if the authors provide the number of studies/experiments.

Edited to include the number of experiments

Line 338: Rephrase to "and this has been hypothesized"

Edited

Line 356: Here and elsewhere, I find the term "free swimming" a bit odd. These taxa do not really swim. Although they have been shown to "jump" or "flap" their valves to propel themselves for short distances to escape predation, this would not really be considered swimming and these animals spend most of their lives resting on the substrate. I would avoid this description.

Description changed throughout the text to 'motile'