

Reviewer #3

There is a scientific and ideological divide on the development on oCDR methods. Nevertheless, it is clear that such methods are being considered, and several international bodies are working on guidelines for testing oCDR methods. In this context, the current article concerns a timely topic. The article focusses on the use of mesocosms within one realm of oCDRs, i.e. OAEs.

Specifically, the article looks at the applicability of mesocosm experiments to different OAE-techniques, in pelagic as well as in benthic ecosystems. An important rationale is the use of mesocosms for testing of risks of OAEs. The article is logical and well-structured. It contains clear and concise advice on the planning and execution of mesocosm experiments within this framework.

As other reviewers already provided a suite of more detailed comments, which I generally find well motivated for consideration, I only have a minor comment.

This comment concerns the concept of statistical power, which is mentioned or alluded to on several occasions, e.g., in sections 2 and 3:

88 – 89 “Given the diverse range of natural processes encountered in mesocosm experiments, external influences may be challenging to control, necessitating a robust monitoring strategy to achieve statistical power by either treatment replication or treatment gradients”

103 – 104 “The increasing variability between mesocosms in this process makes it increasingly difficult to identify treatment effects with statistical significance.”

120 – 121 “In fact, strong within-treatment variability can easily mask subtle treatment effects.”

Despite this general recognition of the importance statistical power, this topic is not part of the Recommendations at the end of the article. Since testing of risks is considered by the authors to be an important rationale for mesocosm experiments on OAEs, it would seem logical to include reporting of statistical power as a general recommendation (rows **395 – 405**). If statistical power is not reported, it is difficult to draw meaningful conclusions on risks (and especially on the lack of them). **I suggest, therefore, that the recommendations highlight the importance of reporting statistical power.** I think that this minor addition would serve the manuscript and the intentions of the authors well.

There are also some very minor linguistic issues, which I believe will be taken care of in the editorial process.

In conclusion, I recommend the manuscript is accepted after minor revision.

Response: We thank the reviewer for the suggestion to “highlight the importance of reporting statistical power”. We agree about the importance of making explicit recommendations in this regard and will incorporate this in the revised manuscript.