Biogeosciences Discussions

Biogeosciences Discuss., author comment AC3
https://doi.org/10.5194/bg-2022-20-AC3, 2022

Reply on RC2

Johnathan Daniel Maxey et al.

Author comment on "The influence of mesoscale climate drivers on hypoxia in a fjord-like deep coastal inlet and its potential implications regarding climate change: examining a decade of water quality data" by Johnathan Daniel Maxey et al., Biogeosciences Discuss., https://doi.org/10.5194/bg-2022-20-AC3, 2022

Thank you for your responses to my previous comments.

In regards to my comment about deoxygenation of the deeper waters, I was referring to global deoxygenation patterns as a result of increased stratification, decreased solubility, etc. due to global warming (see, for example, "Ocean Deoxygenation in a Warming World" by Keeling et al. in Annual Rev in Mar Sci 2011 or "Linking coasts and seas to address ocean deoxygenation" by Levin and Breitburg in Nature Climate Change 2015). So even in the pristine waters off of Tasmania, oxygen levels are predicted to decrease in the future also as a result of climate change.

Thank you for pointing out those references. It does make for an interesting question especiaily regarding the magnitudes of basin reoxygenation during future DWR events.

Given that you state that the measurements of greenhouse gas emissions will be presented in a forthcoming publication, I would still consider not leading with the claims of increased GHG emissions (as this is a hypothesized result and you do not present the data to support it in this particular study). This idea is presented in the title of the paper and in the abstract, but I got the impression that your main findings revolve more around how past rainfall and predicted changes in rainfall due to climate change will affect hypoxia and anoxia in the Harbour as well as DWR events - which is still a really interesting result. However, you do not show directly that these changes have already or will in the future lead to increased GHG emissions. Leaving that in the discussion as something that could potentially occur and later demonstrating this hypothesis with supportive data in the next MS you mention seems more appropriate.

This seems to be an opinion shared by both reviewers and we are in the process of making changes to the title of the manuscript to ensure that we do not mislead potiential readers. We will move those points of discussion to a more appropriate section of the MS.

Overall I am satisfied with the responses as long as the noted changes are made prior to publication. Perhaps other reviewer(s) or the Editor can comment on my second comment above.

Again thank you for your time and effort spent reviewing and commenting on this MS. The feedback provided has been valuable and the suggested changes will make for a much improved paper once incorporated.