



EGUsphere, author comment AC2  
<https://doi.org/10.5194/egusphere-2022-682-AC2>, 2022  
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## Reply on RC2

Sarah A. Brown et al.

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Author comment on "Depth-related patterns in microbial community responses to complex organic matter in the western North Atlantic Ocean" by Sarah A. Brown et al., EGU sphere, <https://doi.org/10.5194/egusphere-2022-682-AC2>, 2022

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We plan to add more information in the discussion elaborating on how this study is distinct from that of Balmonte et al., 2019, including differences in the results of the two studies. We also plan to add details on the sources, abundance, and complexity of the enzymes and substrates we measured in order to clarify why we chose these specific substrates.

**Some more oceanographic context about the stations selected would be welcomed as there is not much beyond just stating where the water was collected. Are DOC concentrations available for the in situ water?**

Unfortunately, we do not have DOC concentrations, but we will elaborate on the location of the stations and the reason we chose these specific locations.

**Please include full names of abbreviated enzymes in Figure 1 caption (line 273) as was done in Figure 2 caption. Full names are also needed in the supplemental figures 3, 4, and 5.**

We will edit the figures so that the full names of the substrates are listed in figure captions.

**Bacterial protein production is generally absent from the discussion: why was this measured? could these data be used to normalize the response in enzymatic activities in some way?**

We can include additional detail on bacterial productivity in the discussion. We measured bacterial productivity in order to examine the growth rates and activity of bacterial communities using a standard method. However, normalizing the responses of enzymatic activities using this data would not be meaningful, given that bacterial protein production provides information on protein production in general, not enzyme production specifically (we do not have the means to determine how much of the protein synthesized consists of the enzymes whose activities we measure).

**The last sentence (line 584) about changing ocean conditions does not really tie into the prior discussion – if kept as is, please indicate earlier the analogs of the experimental setup to changing ocean conditions.**

We will edit the final sentence so that it is more relevant to the previous parts of the discussion section.