

Interactive comment on “Macrobenthic assemblage structure and organismal stoichiometry control faunal processing of particulate organic carbon and nitrogen in oxygen minimum zone sediments” by W. R. Hunter et al.

Anonymous Referee #1

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The discussion paper by Hunter et al., titled “Macrobenthic assemblage structure and organismal stoichiometry control faunal processing of particulate organic carbon and nitrogen in oxygen minimum zone sediments”, reports results of an interesting deep-sea experimental study. Experimental studies in the deep sea are especially challenging and this study has applied state of the art technique (submersible) to observed (labelled) phytodetritus assimilation into macrofauna. The study has also used adequate number of replicates, which may be limited in some deep-sea studies. Further, I think that this paper is written clearly and I only had some minor comments listed

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below.

Abstract Line 11, add macro in front of fauna Line 21 “suggesting the importance of anaerobic metabolism at all stations” This sentence should be removed from abstract as it is based on hypothesis and no real data is reported on the lactate content (p. 19 line 1).

Introduction Page 3. Line 22. Macrofaunal, replace with macrofauna Page 4, line 12 (check elsewhere) deep-sea sediments

Methods p.9 15-16. “This matrix shows high levels of co linearity between the environmental variables. As such only ambient oxygen availability and sediment C:N ratio, were used as descriptors of each station during analysis.” It is not clear to me that CN ratio shows high linearity with other environmental parameter. However, I am not used to this kind of data plot. Perhaps a more simple correlation table with the correlation co-efficients and they significance values would be more clear to a reader.

Results Page 10 section 3.1. I would move the final paragraph to the section 3.2 as the title of 3.1 is “assemblage”. I would also introduce one or two paragraph brakes for now the 1st paragraph of section 3.1.

Discussion p.14. Lines 6-10. I find the references for the non-impacted sites a little far away from the actual study site. Could authors find other continental slope references, which may be more appropriate?

p.16 lines 13-16 (and elsewhere) Authors must be a little careful with such a strong conclusion for oxygen controlling the feeding pattern of macrofauna. After all they only have two stations depths, 800 and 1100m, so it is natural to see a trend in a data.

Question to authors: What does the large natural isotope variations among macrofauna mean? This could be discussed briefly.

Figures Figure 3. Some parts of the legend are not readable. For example in the lower figure I can not see if Nyphtidae or Sabellidae or Aphroditidae is the abundant taxa

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represented by the small-dot pattern. Authors could try to make the legend a bit larger and consider using different fill patterns.

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