

Interactive comment on “Structural and functional responses of harpacticoid copepods to anoxia in the Northern Adriatic: an experimental approach” by M. De Troch et al.

Anonymous Referee #3

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General comments

The contribution by de Troch et al. contains interesting information on meiobenthos enduring adverse conditions of anoxia in the Northern Adriatic. The study uses both classic approaches novel techniques and is of good scientific significance. There are results confirming well-known patterns (depth distribution) and results on the surprisingly small impact of short term anoxia, which make this a valuable manuscript. The quality of the presentation could be improved. This is mostly due to technical details outlined below. Also, too many details and small results are presented and discussed as if they were just as important as the main results: short term anoxia survival and

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reduced feeding during anoxia by copepods. Tables and figures a well designed. The presentation is good, however, the rather high number of citations, statistical information and the details given when referring to other studies, all together render some parts of the text difficult to read.

My criticism mainly refers to specific points outlined below. However, I also consider this discussion as too long and not as streamlined as it could be. I further do think that there are quite a few citations already. This is why adding references in this review process should be avoided. Do not add citations suggested by reviewers without removing others. Please do think about cutting that list.

specific comments

Page 2486, Line 7-8: Change to: "The labeling technique resulted in isotope signatures (^{13}C) of 17.29 ‰ for untreated and 8949.51‰ in ^{13}C enriched cultures." (This is more easily read.)

Page 2487: Line 14: for how long were the cores left before there was no oxygen any more? There are numbers on page 2493, line 15 indicating that concentrations fell to 10% of the initial value within 7 days. This means you witnessed a transient scheme. The aspect that anoxia was only short (in the experiments in the lab, too) should be made more clear.

Page 2490: Lines 18 ff: It is a bit confusing to use the term "overall meiofauna density" and relate this to depths, i.e. layers in the sediment. I would think that overall density relates to a depth-integrated abundance like Individuals/10 m². Wouldn't the term 'depth-dependant abundance' (or density) be more appropriate? And to be exact: the data demonstrate that depth is the main factor determining a depth-dependant distribution! Well, is that astonishing? If it was not depth but organic carbon, oxygen availability or sulfide concentrations in the sediment that determined the depth distribution more than depth per se, that would be a result.

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That is, I completely agree with ref 1 that your findings on the depth as a major factor are presented in a way that attributes too much weight. It is fine to present the numbers, but the statistical proof that sediment depth is the main factor is not necessary here. The message is: no difference between anoxic and normoxic. And that is great.

Page 2493: Results show an enormous pigment variation in untreated and treated cores. This patchiness in natural cores, especially given the small diameter of cores, is not uncommon. How do you deal with it? what does it do to your interpretation?

Page 2494, line 10: "More specifically, the anoxic treatment with extra diatoms (T2AD) had a lower survival rate . . . than the one with diatoms". Why is there with? Should this read: without extra. . . ?

The fact that survival is reduced in combination of oxygen lack and diatom addition should be a more prominent thought. These are adverse effects, since additional carbon may intensify oxygen depletion. At least a settling bloom or eutrophication dependent carbon supply often times is responsible/adding to depletion situations.

It is nicely shown that feeding ceased after T1! Good!

In the Discussion Page 2495: the statement in line 15 ("contrasts with previous studies") seems to contradict those in lines 18 and 21. Please clarify. Page 2496: line 9 and 13 repeat the same issue. Please shorten. Page 2497: Lines 6-9 are repetitive of what other found. They do not help in the discussion of your findings and are somewhat superfluous text here. They should be omitted. Lines 21-24 could be omitted completely. Page 2499 line 19: replace "into" by "in". Also: which cores are you referring to? The ones from Gray 2002?

Fig. 6. This is a bit confusing. What about: Absolute and relative fatty acid composition of the sediment (0–3 cm) for treatments without extra diatoms (A, C) and for treatments with diatoms (B, D)

Fig. 6. There is no figure 6B or 6C in my copy!

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