Biogeosciences
Discussions

Interactive comment on "Effect of ocean acidification on the structure and fatty acid composition of a natural plankton community in the Baltic Sea" *by* J. R Bermúdez et al.

Anonymous Referee #3

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General comments

I largely agree with reviewer 1 with respect to this manuscript's strengths and limitations: The study of OA effects on larger (mesocosm) scales to extend the knowledge gained from laboratory experiments is certainly required and the study of Bermúdez et al. is generally sound and the data analysed appropriately. On the other hand, the authors lose considerable amounts of information by pooling their FA results into the rather uninformative bulk categories SFA, MUFA and PUFA. Reporting details on particular, essential FA (such as EPA and DHA, see rev.1) may have yielded more insight into potential consequences of OA on phytoplankton and zooplankton lipid and community composition. Further, I do not understand why the authors report only relative

(%), rather than absolute FA amounts (e.g. μg FA / mg seston POC). This would have yielded important additional information on aspects of dietary quality of the phytoplankton community for the copepods and a discussion of potentially saturating or limiting quantities of essential PUFA. Summing up the panels of figure 1, it seems that the peak phytoplankton biomass shows a hyperbolic relationship with CO_2. This should be discussed. As the authors admit, the absence of strong OA effects on the FA composition of phyto- and zooplankton reported here is not particularly surprising for a low salinity and high variability system such as the Baltic Sea. Hence, although this study is conducted properly, it has limited appeal and a presumably low impact.

Specific comments

- L59 and 456: Do not cite unpublished work unless accepted for publication - L89-96: This whole paragraph is redundant with information stated previously. - L 144: Glass fibre filters do not have defined pore sizes - L151: The unit given for the IS addition ("ng/component μl") does not make sense - The panels of figure 2 a and b are vertically compressed with relatively large symbols and thus very hard to read. - The regressions in figure 3a should be plotted through the individual data points, rather than through the calculated mean values. I do not see the point of the PUFA figures 3b and 5c which could probably be removed.

Finally, the reference list is formatted sloppily. Some references are missing or misspelled, see rev.1. Number of listed/abbreviated authors, abbreviation of journal names, capitalization etc. vary a lot. Please revise carefully.

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