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Biogeosciences Discussions

Interactive comment on "Effect of Ocean acidification on growth, calcification and recruitment of calcifying and non-calcifying epibionts of brown algae" *by* V. Saderne and M. Wahl

Anonymous Referee #2

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Review of Effect of Ocean acidification on growth, calcification and recruitment of calcifying and non-calcifying epibionts of brown algae. By V. Saderne and M. Wahl

General

This paper aims to understand the implications of ocean acidification on calcareous and non-calcareous epifauna on Fucus. This is an interesting subject and the refuge that may be provided by macroalgae for calcifiers from OA warrants investigation. Unfortunately as it is presented here I am unable to assess if the authors actually con-

structed an experiment that tested the influences of OA on epifauna. The data on light vs. dark influences on calcification rate are interesting and there could be potential to develop this and the rest of the data provided into a good paper but the manuscript requires much more fine-tuning. This manuscript is difficult to follow, there are grammatical issues and doesn't flow well. I think a careful refocusing of this manuscript is required before it is ready for review. However, I will provide a few comments that may help this process.

Major Comments

Introduction Needs more focus on the topic being addressed.

For a paper that explores how boundary layers may influence responses to OA it is strange no references or information is provided in the introduction to explain anything about previous work surrounding boundary layers (a huge field!) or formation around algae and implications for OA. A recent publication by Hurd et al. 2011 (Global Change Biology Volume 17, Issue 10, pages 3254–3262, October 2011) could be a good starting point.

Methodology I cannot follow key parts of the methods that explain the design of this experiment. Other sections go to great lengths to explain the accuracy of pH measurements but the key thing is to allow the reader to understand the fundamental aspects of this experiment. If this could be clarified then perhaps my concerns would be allayed. The authors must make the methods clearer particularly with regard to the following points:

1. How many replicates for each treatment were there and where they independent (a prerequisite for ANOVA). It could be from the way it is explained that there was one flask per treatment. 2. How stable was pH in the culture containers? Was the correct pCO2 bubbled into flasks continuously or water changes made every three days? pH could not have remained consistent with 10,000 cells ml-1 of Rhodomonas, seaweed tissue and epifuana over three days in a 650 ml flask 3. Water motion. Was there any

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in the culture conatiners, what were the likely size of boundary layers. This could be determined from the literature but It would probably be ideal if you measured them

Results

Shouldn't standard error be used in these figures instead of standard deviation? Do not repeat data shown in graphs in the text of the results, providing averages and error in both adds nothing

Discussion

Your discussion of relative tolerances of species you tested to other work seems tenuous. Greater tolerance observed here could simply be an artifact of the presence of a boundary layer and macroalgal photosynthesis not any difference between species.

Interactive comment on Biogeosciences Discuss., 9, 3739, 2012.

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Interactive Comment