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Interactive comment on "Foraminiferal survival after long term experimentally induced anoxia" *by* D. Langlet et al.

Anonymous Referee #1

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This paper presents results of an innovative experiment addressing survival of coastal foraminiferal assemblages to induced anoxia. The paper addresses relevant biogeoscience questions using novel techniques and unique data. Results from this work support the authors' conclusions. Although the methodology is not as uniform as it might have been (see below), the experimental design produced very interesting results. The manuscript is well-written and referenced appropriately.

Title: In my view, the title would be better if it indicated that the experiment was conducted in situ (not in the lab). As the text indicates, this is one of the few experiments of its kind that was conducted under natural conditions. The title should reflect this.

Abstract: The abstract needs to include the water depth of the cores examined. Metatranscriptomic results should also be mentioned.

Methods: Water depth should also be mentioned here (not just <50 m). Although the EAGU is described in an earlier publication, relevant aspects, such as the diameter of the EAGU footprint on the seafloor, should also be mentioned here. Page 9252 I disagree with the use of two different techniques to examine the 63-125 micron assemblage compared to the >125 micron assemblage. It seems to me that the potential biases introduced by processing these assemblages differently and examining one wet and one dry are much greater than any "statistical problems" that might arise from splitting. The study is too elegant to mix and match processing and examination techniques. I would not advocate these use of separate techniques in future studies. The introduction of brittle stars to the chambers should be included in the methods (not introduced in the discussion; page 9257). The placement of macrofauna into the chambers apparently was to provide a biological oxygen indicator, but yielded interesting results because of the addition of food to the foraminiferal populations. However, the activities of oxygen- and food-starved brittle stars in an enclosed chamber likely created unnatural bioturbation of the sediments and may have altered vertical distribution patterns and densities in the initial 1 to 2 weeks. It would seem that section 4.2 "methodological strategy of the study" would be more logically placed in the methods section, not the discussion.

Discussion: Do your oxygen consumption rate estimates (page 9257) take into account the probability that at least some of the taxa are able to use denitrification? How might this affect your estimates? Is your estimate a maximum? How do you know that the newly available labile organic matter was consumed in the first month(s?) of the experiment (Page 9259)? A list of the species that you found should be included in a table so that a comparison can be made with the RNA results, and so that readers don't have to refer to a separate paper in order to determine the composition of the assemblages you are referring to.

Interactive comment on Biogeosciences Discuss., 10, 9243, 2013.