

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

**Anonymous Referee #2**

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This paper offers very valuable results about the long term adaptability of benthic foraminifera to anoxia. The field and laboratory methodologies in use are all best practice (*arte legis*), and the working teams involved range among the very experienced specialists. Tables and figures are clearly presented, captions are adequate (perhaps the abbreviation OTU (fig. 4) might be written out for clarity). The results leave no doubt that benthic foraminifera may adapt to anoxic conditions much longer than formerly assumed, that anoxia and sulfidic conditions do not rise an impassable environmental threshold at all, and that such long term conditions even may provide beneficial conditions for a number of species. This is hooked to a second paper already accepted by Biogeosciences. All in all, this structures highly interesting results for meio-benthologists as well as for micro-paleontologists, especially in the light of rising ocean surface temperatures and expanding oxygen minimum zones. Scientific

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significance and quality are excellent. Suggestions for improvements remain meager, therefore.

However, some parts of the discussions only range from good to fair. It should have been mentioned that specific benthic foraminifera were found living even under constant anoxia. In addition, a number of indications could have been mentioned about specific intracellular organelles, kleptoplasts and prokaryotic symbionts which all may be reasonable for the results presented (mainly works of Joan Bernhard). Rose Bengal staining or ATP - measurements are neither 'right' nor 'wrong', nor good or bad, they fail if applied inappropriate or if their interpretation follows erratic suppositions; this is hardly made visible for a reader within three or four sentences of discussion. It seems worthwhile and much more appropriate to quote possible key features for their anoxic survival within the discussion, and to omit assessments which can not be covered in detail. Another fact to wonder about is the more or less stable numbers when modeling the standing stocks. At comparable water depth, long term in situ observations along the British Coast (John Murray) and in the Baltic Sea (Lutze/Wefer) recover clear ups and downs of standing stocks, sometimes by orders of magnitude within weeks, mainly committed to seasonal influences, primary productivity, and reproduction. Might be helpful to define the more stable situation at the Adriatic Sea.

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