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Biogeosciences Discussions

Interactive comment on "Age structure, carbonate production and shell loss rate in an Early Miocene reef of the giant oyster *Crassostrea gryphoides*" *by* M. Harzhauser et al.

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We thank the anonymous referee #3 for his overall very positive feedback. The questions raised by him are easily answered:

âĂć Autochthon or allochthon?

In Harzhauser et al. 2015 we present a detailed taphonomic analysis, which we did not want to repeat too much of this in this paper. Nevertheless we have to clarify this point by adding some lines:

A shown by Harzhauser et al. (2015), the fossil bed is parautochthonous. Although

the oyster biostrome is clearly not in-situ but reworked, the original community structure still seems to be reflected, which is the basic working hypothesis of this paper. Lack of sorting is indicated by the accumulation of very small and very large shells. Similarly, the equal contribution by left and right valves points to the preservation of the primary composition and contradicts the hypothesis of hydrodynamic sorting and selective transport.

Harzhauser, M., Djuricic, A., Mandic, O., Zuschin, M., Dorninger, P., Nothegger, C., Székely, B., Puttonen, E., Molnár, G., Pfeifer, N. 2015. Disentangling the history of complex multi-phased shell beds based on the analysis of 3D point cloud data. Palaeogeography, Palaeoclimatology, Palaeoecology, 437, 165-180, http://dx.doi.org/10.1016/j.palaeo.2015.07.038.

âĂć Purpose and goal of this paper is still unclear. What kind of questions the authors raise and want to solve through this research?

This question is somewhat surprising as we thought that the purpose is obvious. In any case we can add a sentence to strengthen our point. The main goal is to evaluate how much information on population structure and growth performance may still be "hidden" in fossil shell beds, thus providing a still underrated archive to study past ecosystems. As there is clear and well established relation between shell length of an oyster and its age, it is a logical approach to gather data on shell lengths for any further analysis.

âĂć Structuring of the article should be re-arranged somewhat. Please try to separate material and methods part and results part.

Will be done in final version.

Please refer series of works by Kiyotaka Chinzei

We have cited the two fundamental papers Chinzei 1995 and 2013 but will add some references where appropriate.

Chinzei, K. 1982. Morphological and structural adaptations to soft substrates in the

Early Jurassic monomyarians Lithiotis and Cochlearites. Lethaia 15:179–197. Chinzei, K. 1986. Shell structure, growth, and functional morphology of an elongate Cretaceous oyster. Palaeontology 29:139–154. Chinzei, K. and A. Seilacher. 1993. Remote biomineralization I: fill skeletons in vesicular oyster shells. Neues Jahrbuch für Geologie und Paläontologie Abhandlungen 190:349–361.

Interactive comment on Biogeosciences Discuss., 12, 15867, 2015.