

Interactive comment on “Alpha and beta diversity patterns of polychaete assemblages across the nodule province of the Clarion-Clipperton Fracture Zone (Equatorial Pacific)” by Paulo Bonifácio et al.

Anonymous Referee #4

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The manuscript by Bonifacio and colleagues represents a relevant contribution to the study of polymetallic nodules fields. As the Authors state, it is necessary to understand ecological processes and diversity patterns occurring in these environments and to assess the impact of mining activities before starting with their exploitation, and in this frame, this manuscript is of great value. I would therefore endorse its publication in Biogeosciences. The manuscript is in my opinion clear and well-written. My only concern is represented by the use of the word "morphotype", as it is a somewhat ambiguous term. The most widespread use (at least, in my experience) regards morphotypes as divergent morphological variants within the same alleged species, pointing at either cryptic diversity or phenotypic plasticity. However, in this case it is employed to define

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individuals that morphologically can be assigned to the same taxon; if I correctly understood, the use of the term "species" or "taxa" has been avoided because molecular data often challenge this interpretation. I think however that in this case the best way would be the use of "morphospecies" or "taxa identified on the basis of morphological features". The term "morphospecies" is employed twice, in both cases at page 8. At line 7 the term is used in the same way of "morphotype" in the remaining manuscript, and as I would advise, but at line 13 the use of "morphospecies" is inappropriate, as here the Authors clearly refer to taxa identified by the combined morphological and molecular data. Morphospecies clearly do not correspond to OTUs (p. 8, line 13), and here the Authors are referring to OTUs. I suggest to carefully re-read the manuscript, as there is some terminological confusion around "morphotype", "morphospecies" and "OTU".

Some minor comments follow.

P. 1, line 10: I suggest to add "environmental" to "footprint".

P. 7, line 31: Replace "paranoids" with "paraonids".

P. 11, line 18: "(Magalhães and Bailey-Brock (2017))": replace with "(Magalhães and Bailey-Brock, 2017)"

P. 11, lines 27-28: Although all Eunicida are usually considered as carnivores, Jumars et al. (2015) suggest that the diet of Lumbrineridae might be more varied, and that sediment and decaying vegetal debris might represent an important diet component for several species. In particular, the reported characterising species belongs to the genus Lumbrinerides, a genus including small, possibly pedomorph species that at least in shallow environments occupy an ecological niche totally different from larger species of Lumbrineris and Scoletoma. I think that in this case carnivory is not obvious.

P. 12, lines 20-21: results by Guggolz et al. (2018) have been partially discussed in Guggolz et al. (2019: Scientific Reports 9: 9260). I suggest to check and cite also this

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work.

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