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Biogeosciences Discussions

Interactive comment on "Changes in polychaete standing stock and diversity on the northern side of Senghor Seamount (NE Atlantic)" *by* A. J. Chivers et al.

Anonymous Referee #2

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This is an interesting paper describing the polychaete diversity on a NE Atlantic seamount. To my knowledge, only about 15 seamounts have been sampled for scientific purposes in the North Atlantic below 30°N; making this infauna dataset quite unique. Nevertheless, the study is based on very a limited number of samples, from only one transect, which makes the conclusions difficult to support. Overall, the paper is very well written, addresses relevant scientific questions, and achieves interesting conclusions relevant for the overall knowledge on seamount ecosystem functioning. The methods used to address the research questions are appropriated but could be improved. For example, the need for using so many "diversity" indices is not clear, or the lack of statistical analyses to compare standing stocks between different areas

could have been avoided. The results are well explained but are somehow not sufficient to support some conclusions. In the discussion, authors could have compared their abundance results with abundances at other habitats with similar depths (e.g. continental slopes). This would help supporting the whole discussion of the paper.

Introduction 18448, L20: What do you mean with significant?

Methods 18450, L20-24: What's the sample size? It looks to me a limited sampling protocol. One transect may not be sufficient to properly describe the infauna diversity in Senghor seamount or to support the expected differences of diversity with depth. The authors should make this limitation clear up front. 18468, Table 1: it would be useful to have the sample size in this table. 18451, L16-18: give a reason for using each of the diversity indices, what are the hypotheses to be tested and why you need so many of them 18451, L19-21: better explain the hypotheses to be tested with the multivariate analyses (MDS).

Results 18452, L4-9: I'd like to see the SE in the text. Also, if the differences in abundance were statistically significant. It seems that B, C, D, and E abundances may not be that different. 18452, L14: replace "total individuals" with "numbers of individuals"? 18453, L2-9: The authors could have better described the diversity indices, their differences, and meaning. It seems to me that richness (n sp / station) at the summit was "highest" and not "lowest". 18475, Figure 3: add more info to the indices in figure caption; evenness, dominance, richness, and so on.

Discussion Overall, the discussion could be shortened, presented in a more concise and organized way and with less speculative statements. 18454, L6-14: I got confused here. First the authors say that "it's difficult to draw direct comparisons" with other studies, but then the authors compare their results with those same studies... 18454, L16: How this value compares with other habitats with similar depth range (e.g. continental slope) 18455, L21-29: I've mentioned that having one transect would give a limited description of the seamount infauna. But what the authors are stating here is that their

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study may probably have an even more limited interest because what they found on one side of the seamount may not hold true for the other sides. I'm not sure if there's data from other studied seamounts supporting this diversity in one single seamount. If so the authors should state it here. If not the authors should re-write their statements. 18455, L19-20: The ratio in number of individuals per family (e.g. 954/34) would give a better value to compare between seamounts. But there's also the issue on sample size; the grater the sample size the higher the probability of sampling more families (or species). 18458, L4-16: this repeats 18454, L6-14: 18459, L27-18460, L4: As the authors know, many of these theories are questionable and so reference to opposing studies should also be given. 18461: last sentence of the paper is speculative

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Interactive comment on Biogeosciences Discuss., 9, 18447, 2012.