Re-Review of manuscript bg-2020-17: "Persistent effects of sand extraction on habitats and associated benthic communities in the German Bight"

The manuscript has improved a lot since the previous version. New analyses have been done and many parts have been rewritten or additions were made. I still believe this is a valuable addition to the literature on effects of sand extraction, certainly because it is such a valuable time series and a quite unusual way of dredging. However, I think there is still quite some room for improvement. First, the authors keep to their idea that return to pre-dredging habitat is possible and that what is present now is a transient habitat, which is not the case. Although they have nuanced this statement compared to the previous version, by saying it might take centuries, I believe that this is a local permanent change of the habitat from sand to mud/fine sediment (=loss of habitat). Although, it is just on a small surface area, this needs to be recognized throughout the whole manuscript and especially in abstract and discussion (see specific comments). What I am also still missing in discussion is the answer to the famous 'so what' question e.g. what are the implications for management of sand extraction in this area? What are implications of this changed habitat? What does it mean for future sand extraction? Also regarding monitoring strategy, discussion could be elaborated. The discussion needs this kind of paragraphs to get more body. Also the unconventional way of macrobenthos sampling should be recognized and discussed. Do you e.g. expect same results when conventional bigger samples would have been taken? This merits at least some discussion.

Thirdly, ANOSIM was said to be done, but I cannot find these results. Some kind of visualization in MDS plot or so would also help to show/read this results better. I also believe, the results are still lacking the combination of sediment and faunal analysis. This can be easily done in Primer and would strengthen the faunal results.

To allow publication, these different aspect should be tackled so reworking is needed. I leave it to the editor to decide whether this can be still be done in this journal.

Some extra comments that I had whilst reading through the manuscript:

Abstract:

L24-28: In my opinion, it should be recognized that there is habitat loss due to sand extraction. The habitat type has changed and will not recover without human intervention or a new ice age as matter of speaking. All evidence (morphological and faunal) is pointing in this direction. So, this should be stated this boldly in the abstract and not say that 'it will be a matter of centuries' and 'that it implies that coarse material is transported which actually will never be the case'… Just say it like it is without twists and turns. So rephrase this part of the abstract.

Introduction:

L36: is this the figure of coastal protection? Or total extracted? Since you are talking just about coastal protection best to mention this total figure…

L46-47:' even develop in unexpected directions' replace by 'or new habitats are developed'

L53: 'sensibility' should be 'sensitivity'

L64: aim 3 should be 'investigate the potential of a re-establishment TO pre-dredging conditions', all the other information is too much and contains already 'results'

Material & methods

L106: add 'for this study', hydroacoustic data and…

L112 and Fig 2: Position of VVgrabs should be put as dots on this map. Just refer to results is not sufficient. Putting them on this map helps to see the balance of your design.

L127: should be habitat character**istics**

L151: replace fresh by 'wet' weight, or even 'blotted wet' if you dipped the animals first

Results:

L187: was it not highly significant in the most recent pits? There are quite high mud concentration in the recent pits, it seems. L197: is this the same for the other sediment fraction as well? Or is it mainly mud that differs? Would be good to mention.

L200-205: no ANOSIM results are mentioned. It would be good to first tell where significant differences in species composition are situated. Eg between all classes or just between dredged and non-dredged? Plus actually, visualization of these results in an MDS plot would be good. Plus by combining sediment data with faunal data e.g. by vector overlay in your MDS plot and thus finding correlations between the axes and the sediment variables this would strengthen your results further.

Discussion

L233-234: you should not speak about restoration. I really believe this is not possible in this case. These pits might be filled naturally but will be a different habitat than the pre-dredging one. This is a permanent change.

L249: you cannot call this a transient habitat type, this is the current habitat type which has changed permanently, it is habitat loss due to dredging that occurred in this area. This is for the moment, still not enough recognized throughout the discussion.

L257: it is indeed not a vast habitat loss but it is a local habitat loss. The habitat has permanently changed. As said before this should be recognized.

L266-273: breaks flow of discussion why should this be mentioned? Delete? Better to focus on monitoring strategy instead, which comes suddenly out of the blue in the end. I also do not agree with semiannual surveys. This really is a waste of money for the old pits. Definitely since you have showed that backfill is so slowly. So there won't be big changes expected. In active dredging pits, it is another story, there it could be valuable to measure more often since there changes are ongoing. So important to make distinction between areas in monitoring strategy.

L282: situation will never be original.

L284-285: working with nature should be mentioned already in discussion or at least mention something about mitigation measures. E.g. stones/rocks could be placed in pits to restore these sessile epifauna when backfill has stopped?

Figures:

Fig2L528: add which are **'directly'** unaffected and replace 'dredged by 'dredging'

Fig 5: what do the letters a and b mean in the figure? Please add to the legend.