

## ***Interactive comment on “Rapid environmental responses to climate-induced hydrographic changes in the Baltic Sea entrance” by Laurie M. Charrieau***

### **Anonymous Referee #2**

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Review of Charrieau et al ' Rapid environmental response to climate-induced hydrographic changes in the Baltic Sea entrance.

The authors use benthic foraminifera and sediment geochemistry to reconstruct environmental changes in the Sound of the Danish Strait for the last 200 years, in relation to anthropogenic disturbances. The results suggest that large changes occurred around 1950, where the foraminiferal faunal assemblage shifted to a more diverse fauna, and sediments became more sandy. The authors relate this to a shift in current strength. Between 1870-1953 (~Industrial revolution) benthic foraminifera assemblages were low as was diversity, which may potentially be linked to input of waste waters (industrial

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and domestic).

The manuscript is clear and well written. I only have a couple of questions/comments, as discussed below:

Major: It would be good to include a discussion about the sedimentology in the area. For examples, how can you be confident that the coarser sandier part in the top of the core is not part of a natural succession of a migrating bar? Were any duplicate cores taken from the wider area that show the same feature?

Is there any other data from 1870-1953 interval that provides evidence for pollution (e.g. trace metals in benthic foraminifera for examples?)

Minor: - freeze drying of sediments poses a risk of losing more fragile foraminifera, including organic walled specimens, - lines 323-330: from figure 8 it seems that there are periods with high and low VAV, but there does not seem to be a direct response within the assemblage of FOR-B2,

-could the higher accumulation rates (figure 4) be partially related to the top 10 cm being less compacted (and dense) compared with further downcore in the sediments?

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