

***Interactive comment on* “Functional trait responses to sediment deposition reduce macrofauna-mediated ecosystem functioning in an estuarine mudflat” *by* Sebastiaan Mestdagh et al.**

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We are grateful for the comments of Anonymous Referee #1 and will take them into account for the revision of our manuscript. All unclear phrasings, definitions and inconsistencies will be changed in the revised version, e.g. the use of the term biologically-mediated oxygen uptake, and what we refer to as bioturbation and bio-irrigation. The referee is mostly concerned about the nature of the added deposits and/or luminophore mud cake and how it influences the underlying community and the mud-seawater exchange of solutes. We will add vertical oxygen profiles to the supplementary material

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of the manuscript to clarify the diffusive oxygen consumption in all treatments, including the control that received a 0.5 cm luminophore-spiked deposit. We believe that the presence of this thin deposit in the control – which was needed to compare the same process between treatments and also to avoid experimental artefacts between treatments – did not alter functioning and benthos behaviour in the long term. This conclusion seems justified by quick migration of the benthos through the mud cake and the fact that previous studies in the same habitat and season, that lack a thin deposit, have measured fluxes similar in magnitude to those in our study.

Interactive comment on Biogeosciences Discuss., <https://doi.org/10.5194/bg-2017-417>, 2017.

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