

Interactive comment on “Benthic biomass size spectra in shelf and deep-sea sediments” by B. A. Kelly-Gerreyn et al.

J. Middelburg (Editor)

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After submission one of the referees identified a unit issue and I have asked the authors to evaluate the consequences. The text below from the authors clarifies the issue. Jack Middelburg, Handling editor

‘Although the units for the model are g ww_t m⁻² throughout, there is an unfortunate ambiguity in Equation 3 where POCflux is used; when POCflux is discussed elsewhere in the paper it is done so in the context of having units of gC m⁻². We had unfortunately omitted to put in the conversion factor in Equation 3, which converts POCflux from units of gC m⁻² to g ww_t m⁻². This was purely a typing error, not present in the model code, and in no way affects the results of the manuscript. However, when double-checking the code to satisfy ourselves on this matter we also took another look at the

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specific value of the conversion factor used. In the original manuscript, the model value for $Q = (1 - f_{bac})\text{POCflux}$ (it is a fitted parameter) is converted to units of gC m⁻² for comparison to observations by multiplying by 0.25. However, Brey et al. (J. Sea Res., 64, 334-340, 2010) indicates that a more accurate conversion would be to multiply by 0.077, which is a product of the factors for converting wet weight to dry weight (0.22) and dry weight to carbon (0.36). Hence, our previous estimates for Q are a factor of $0.25/0.077=3.2$ too high. Once again this does not change the results of the model. The only impact on the manuscript is in the discussion of Q estimates in the context of observations (Section 3.4, p919, lines 19-27; Section 4.4, p926, lines 13-18). Even in this case the uncertainties and variability are sufficiently large that the change does not significantly alter the results of the manuscript.’

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