

Specific and editorial comments

Page	Page	Line	Comment
3	19775	23	The correct reference is Evrard et al. 2010
3	19775	25	The correct reference is Evrard et al. 2008
3	19775	2	This figure is a conclusive conceptual diagram from the study and therefore does not support this statement. This figure should be the last one but ideally, it could be removed as it doesn't add much to the manuscript, while other data really deserve to be presented
4	19776	17	The correct reference is Evrard et al. 2008
4	19776	9 to 12	This is true but slightly misleading as the reference suggested here (by the way, they should be cited in this sentence as well) are for very different systems. The temperate areas studied are large tidal estuaries that are orders of magnitude larger and opened to the ocean.
7	19779	21 and 25	Prefer: "water sample" or "Sampled water"
8	19780	15 to 16	Prefer: "Natural abundance and enriched stable isotope samples were analysed separately to prevent contamination"...
9	19781	12	Prefer: "Sediment and fauna samples..."
9	19781	21	"the" is missing in front of "addition"
9	19781	3 to 5	What do you mean by "highly mobile": they couldn't be caught or they were washed away? This is rather unfortunate as I would expect that herbivory and secondary consumption would be significant to MPB C processing. The "focus" on smaller fauna is biased toward fauna which diet is likely relying on smaller particles and/or dissolved organic carbon). However, during flood events, the reworking of the sediment will remove a large fraction of the large fauna and the meiofauna if any, will be the most resilient or the first one to recolonize the habitat.
9	19781	6	One replicate means duplicate samples (n=2). n=1 means no replicate. Which one is it?
9	19781	16 to 17	only sediment got the unacidified treatment?
10	19782	26	.../(SA x t) reads better
10	19782	14 to 15	16:1(n-7) PLFA likely had the biggest peak but unfortunately, this PLFA is not specific of MPB and the reference found in Oakes 2010b (Bellinger et al. 2009) is not appropriately used. This reference clearly states that this PLFA is found cyano and gram- bacteria. Here are other references: Boschker, H. T. S., J. C. Kromkamp, and J. J. Middelburg. 2005. Biomarker and carbon isotopic constraints on bacterial and algal community structure and functioning in a turbid, tidal estuary. Limnol. Oceanogr. 50: 70-80. and Boschker, H. T. S. and others 1998. Direct linking of microbial populations to specific biogeochemical processes by C-13-labelling of biomarkers. Nature 392: 801-805.
10	19782	24	"Total flux of excess": This terminology is confusing and it's inconsistent with the terminology used on l.6 (you should then call it flux of uptake). This new terminology basically means flux of increase and doesn't mean much. It would be more precise to just call it 13C or uptake rate, which is exactly what is being measured.
11	19783	24 to 25	Prefer: "..., another rain event increased the flow..."
11	19783	7 to 9	The area underneath a function's curve is the integral of that function. It would probably be more precise to just say: "total amounts were calculated from discrete flux values integrated over the interpolated time periods"
12	19784	4 to 7	This comment and reference belong to the discussion and are repeated there anyway. However, this clearly shows the discrepancy between this type of system and the ones studied in temperate areas. Considering the scales, I would be cautious when generalizing to "intertidal subtropical sediments"

12	19784 23 to 27	The sampling occurs after a rain/flood event and is biased towards the meiobenthos. It's not a problem but what are remaining 38%? I think this would help indicate what species get washed away or buried after the rain event.
13	19785 1	The 1% contribution basically says that they are negligible. They could very well be pooled with the uncharacterized fraction.
13	19785 5 to 8	This uncharacterised fraction has the typical stable isotope signature of terrigenous material which has been deposited in huge amounts on the flat and it is consistent with the fraction of fine sediment found closer to the sediment surface.
13	19785 11 to 13	How did you measure microphytobenthos and bacteria d13C? Did you account for fractionation between biomass and PLFA?
13	19785 15 to 17	This clearly suggest a recent terrigenous deposition event, probably following the previous flood. The higher 13C signature underneath suggest buried seagrass detritus and/or MPB.
13	19785 20	This is yet another term to describe 13C uptake
13	19785 24	Prefer: "within 4h after label addition"
13	19785 25 to next page	Maybe this and the following sentence should be kept to the discussion with reference.
14	19786 11	"a maximum" instead of "for a peak"
14	19786 8 to 9	These calculations need to be redone without 16:1(n-7) as commented in the methods. Despite the absence of cyanobacteria and in the context of an estuarine environment with several flood events and with a strong fresh water influence, there are quite a few types of gram - bacteria that could account for the 16:1(n-7).
15	19787 1 to 28	for consistency sake: a negative value for uptake means an export or loss and the other way around... The - or + should be used with the term flux to give the direction (import or export in the sediment).
16	19788 5 to 23	The biomass to productivity ratio might be overestimated because of the overestimated biomass from PLFA. I think the PLFA data needs to appear somewhere in a table or figure to get an idea of the composition and stable isotope values. Too much data is in the background. There is definitely a good opportunity to use a Chemtax approach to derive the MPB composition. See the following and please also note that 16:1(n-7) is not specific of microalgae. Although the following references are for phytoplankton, the same approach can be used to estimate MPB. See: Dijkman NA, Boschker HTS, Middelburg JJ, Kromkamp JC (2009) Group-specific primary production based on stable-isotope labeling of phospholipid-derived fatty acids. <i>Limnol Oceanogr Meth</i> 7:612-625; Dijkman NA, Kromkamp JC (2006) Phospholipid-derived fatty acids as chemotaxonomic markers for phytoplankton: application for inferring phytoplankton composition. <i>Mar Ecol Prog Ser</i> 324:113-125
17	19789 5 to 6	Do you account for the production of EPS as well? You have measured 13C-DIC, is it included here?
17	19789 19 to 20	Although I imagine how this was calculated, it is important to give the details of your calculations, especially that: 1) MPB could be overestimated because you used 16:1(n-7), 2) There is a discrepancy between PLFA 13C signature and MPB as a whole 13C signature. Did you use a 13C mass balance of 16:1(n-7) and 20:5(n-3)? 3) Here again, some data is in the background and needs to be taken to the foreground in a table or figure and the calculations need to be described in the Methods.
18	19790 3 to 9	This is likely seagrass and shows that seagrass C storage might be important

18	19790 10 to 22	For this point again, it is important to provide the PLFA composition and respective delta13C, explain how to get microbes 13C from PLFA. As it is right now, the mass balance calculations derived here are not conclusive as it seems that there aren't significant differences between the delta values of the different groups. How many replicates were used to get the delta values?
19	19791 1 to 5	Although bacterial contribution seems small, you need to take into account the dilution of label for bacteria (and any other heterotroph): while for MPB the DIC pool was 100% labelled, bacteria rely on fresh 13C labelled MPB and MPB-byproducts within a pool of unlabelled labile organic material. You have assessed the standing stock of the different compartments at the start of your experiment. You should use these to estimate the relative contributions based on these dilutions.
19	19791 7 to 18	Here, it is important to redo the calculations without 16:1(n-7) and see if the pattern is the same.
20	19792 18	The correct reference is Evrard et al. 2008
20	19792 25	Subduction relate to tectonic. Prefer: "burial"
20	19792 5 to 8	The opposite could be argued as well. Terrigenous material are likely made of non-labile refractory organic. However, it is likely that the flood readily supplied inorganic N in great quantities.
20	19792 23 to 24	Does this mean for heterotrophs? "Downward transport" is too figurative
21	19793 18	"sediment" should be replaced with "depth"
21	19793 5 to 7	Your stable isotope data suggest that terrigenous material gets deposited
22	19794 1 to 6	This is repetitive. The general message is floods mean resuspension and deposition, which means not much burial beside rooted macrophytes...
24	19796 4 to 29	The section on CO2 is not crucial and could be shortened.
25	19797	Unfortunately, the study doesn't support the carbon storage implication. The use of 75.3% number is misleading as it only represents the MPB fraction of the remaining 13C. The emphasis should be on the fact that 30% remain in the sediment after 30 d and that 50% is lost (This is probably consistent with the MPB turnover rate). There is no evidence of significant C storage.
25	19797	The scale of the estuaries and flats where the studies cited were done is much bigger. It would have been interesting to relate this type of system to a larger scale. Considering the higher stable isotope values deeper in the sediment, I wouldn't be surprised if seagrass burial was more relevant to C burial than MPB but the niche is already taken.
32	19804 Table 1	How many replicates?
33	19805 Fig. 1	This conceptual diagram neglects herbivory, which is likely to be the main diet of the meiofauna. In addition this diagram is not crucial to the manuscript and could allow for more space for the data that needs to be included (PLFA and mass balance calculations)