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Discussions

Interactive comment on "Colored dissolved organic matter in shallow estuaries: the effect of source on quantification" by W. K. Oestreich et al.

Anonymous Referee #2

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Review of "Colored dissolved organic matter in shallow estuaries: the effect of source on quantification". Please note that I performed this review without considering the comments of other reviewers to provide an unbiased evaluation of the manuscript.

Summary: The manuscript entitled "Colored dissolved organic matter in shallow estuaries: the effect of source on quantification" by Dr. Oestreich and Co-authors evaluates the role of different sources of organic matter on light attenuation in estuaries. Using data from multiple locations within 3 different shallow estuaries, the authors suggest that the ratios of fDOM to CDOM vary substantially, dependent on the sources of organic matter and thus challenge the commonly used approach to estimate light attenuation though fDOM.

Overall I would consider the manuscript to be a reasonable contribution to the journal

Biogeosciences. At current, however, the manuscript falls short on convincing me of the conclusions drawn (please find my detailed comments on this below). Considering these circumstances, I suggest the manuscript to be revised before being evaluated again. Major comments

i) Data Quality: Challenging methods that others use needs to be based on a high number of good quality data points, which are then analyzed carefully. Unfortunately the data presented here does not give this impression. For example, the data presented in figure 3 and the plotted relationships really look like they are driven by some, few outliers. I can only hypothesize what caused these, but I would strongly recommend going back to the data and finding out what happened there. To me this Figure looks like a general relationship for all sites, except WFH. Also, I suggest the authors consider removing the strongly deviating points and/or applying alternative methods, such as for example robust regressions that are insensitive to outliers to reevaluate the data.

ii) Given that many different relationships are presented in Figures 2 and 3, please provide objective measures on how good these are, such as p values, whether they are significantly different from each other, etc.

iii) Mixing model: Whereas I am in general a fan of simple mixing models, I was wondering if you considered including any uncertainty into the mixing calculations (?). Here some more advanced methods, such as a baysian mixing model would be possible.

iv) Overall the manuscript has sections which appear to be the ones of a student paper. Please make sure the overall quality is high. One example is that all data from Table 2 and 3 is presented in the plots already. Please avoid giving the reader redundant information. If appropriate at all, move these tables to a supplementary.

Minor comments and suggested changes:

Title: The second part of the title does not make sense to me. What source and what quantification? Please revise. One option would be to modify to "the effect of different

carbon sources on light attenuation". Another option is more torwards "the effect of land-use on light attenuation".

P7302L7: suggest remove "and models" as this is redundant. Models just calculate.

P7305, L26: The percentages do not add up to 100%, what is the remaining?

P7306 and P7307: Abs samples are filtered, whereas Florescence is not. Even if F is corrected for turbidity, any idea what the effect of this is? Also, how long were the samples stored and how, before Abs analysis was done? Together, this may cause some of the inconsistencies.

P7308: description of Delta 13C analysis very clear.

P7309, L22-24: last sentence belongs to discussion.

P7310, L14: how is the 'strongest' quantified here?

P7311, L16-17: this belongs to the discussion.

P7312, L1-11, as well as Fig6: Not sure what this comparison tells. Looks to me as if a global relationship could even be established. . .

P7313, L3: please revise, as the sentence doesn't read well.

P7317, L5pp: isn't past tense more appropriate here?

P7317, L13-14: not sure I agree. How would this help? Suggest remove sentence.

Figures:

Almost all figures are not developed well enough:

Fig1: text too small, even if there is enough space. Also please use more contrast/a line for the shore.

Fig2+3: see earlier comment. Also, what is the purpose of many similar looking dashed lines?

Fig 4+5: can't see colors, increase dot size.

Tables: See earlier comment