

## ***Interactive comment on “Controls on dissolved organic matter (DOM) degradation in a headwater stream: the influence of photochemical and hydrological conditions in determining light-limitation or substrate-limitation of photo-degradation” by R. M. Cory et al.***

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Reviewer: - Introduction, the introduction is well written and provides a solid background and rational for the presented study - Methods, the methods used in this study are robust and thoroughly presented - Results and discussion, the results in the text are consistent with the data presented in the tables and figures. The discussion walks the reader through the conceptual model clearly and thoroughly and is well supported with

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literature. - The word “significant” is used throughout the results and discussion with no p values (or alternative measures of significance) presented. The authors should add in tests of significance or consider revising the text to reflect that their differences are measured, but not tested statistically for significance.

Reviewer: Technical Corrections: - Figures 3 and 4 are tough to read with such a small font. Would it be possible for the authors to increase the size? - Page 9818, line 7, “attention” should be revised to read “attenuation”.

Author Response: Thank you for the review of our manuscript.

We revised Tables 2 and 3 (uploaded as pdf attachment) to more clearly indicate when measures of DOM composition were statistically, significantly different. For example, for Table 2, we used t-tests to evaluate whether means for a water type were significantly different between years (2011 vs. 2012) at  $p < 0.05$ . For the data shown in Table 3, we did an ANOVA comparing mean values among the three water types (soil water, pool bottom water, and pool surface water), across both years ( $p < 0.01$ ). As now indicated in the footnote of Table 3, all water types were statistically different from one another for all variables.

In contrast to Tables 2 and 3 which evaluate mean water or DOM chemistry by water type over all dates, the data shown in Figure 5 compare DOM concentration and chemistry between surface and bottom water in each pool on two dates, with mean  $\pm$  SE (of replicates from the same sample bottle). Because a single discrete sample was analyzed from each depth in each pool, no t-tests could be conducted on surface vs. bottom water values from each pool in this Figure. Nonetheless, the results in Figure 5 show that the concentration and composition of DOM in surface waters generally did not overlap with the values of DOM in the bottom water (analytical replicates). Thus, the data in Figure 5 provide an example of one date to show why surface waters as a group were significantly different than bottom waters when pools were stratified (as quantified by t-tests or ANOVA in Tables 2 and 3, respectively). We

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increased the font and can request that the journal re-size Figures 3 and 4 (new versions uploaded). We will replace the typo "attention" with attenuation on line 9818. ãĀĀ

Please also note the supplement to this comment:  
<http://www.biogeosciences-discuss.net/12/C6154/2015/bgd-12-C6154-2015-supplement.pdf>

Interactive comment on Biogeosciences Discuss., 12, 9793, 2015.

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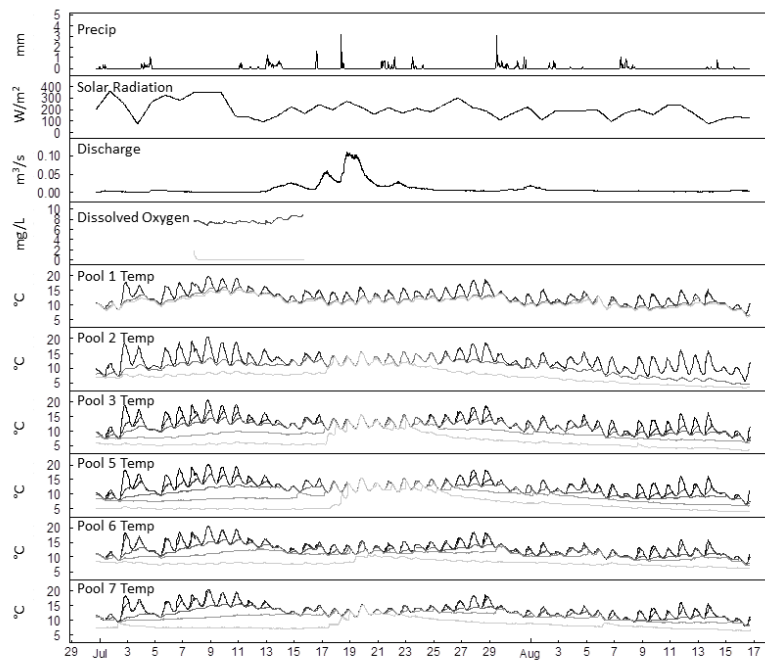


Fig. 1. Fig3\_Revised

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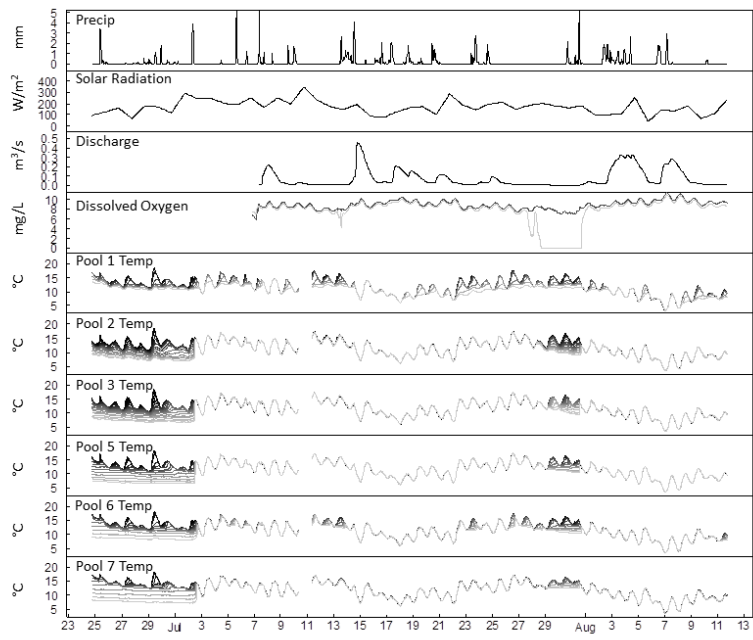


Fig. 2. Fig4\_Revised

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