

Interactive comment on “Warming increases carbon-nutrient fluxes from sediments in streams across land use” by S.-W. Duan and S. S. Kaushal

Anonymous Referee #2

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General Comments: Overall I think that the study is well thought out and executed. The paper is well within the scope of BG and presents a novel perspective on the effects of warming on C,N, and P release from stream sediments. The paper is well structured but the style of writing was quite dense. I am not convinced that the method used really reflects in-stream fluxes and there is a large potential for bottle effects due to disruption of sediment vertical structure and redox gradients, which may have influenced the results. Caution needs to be used when applying the data back to the real system (such as in table 4). However, I think that the temperature effect is real and this study makes a useful contribution to the literature.

Minor Comments Page 2, line 6: Please clarify the statement. Lab incubations of what?

Page 4, Line 6: Why would we hypothesize that urban sediments should show a greater
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response to warming (Aside from that fact that this is what you found at the end of the study)? The hypothesis isn't really supported by the introduction. It might be more reasonable to predict a priori the opposite, that urban sediments are often contaminated by heavy metals and hydrocarbons that may inhibit microbial activity, therefore limiting the response to warming.

Page 7 line 24: Why the citation for Duan et al 2012?

Page 8 Line 16: Remove “-“. It makes the 4oC look negative.

Page 11, Lines 1-3: split these up for clarity. “Forest sites exhibited a linear increase in nitrate. . . , while agricultural sites exhibited a linear decrease in nitrate. . . ”

Page 12 6-7 Clarify this statement: “displayed an opposite (negative) correlation” to what?

Page 14 Line 21: add a ‘t’ to not

Page 18 Line 21: You shouldn't be introducing new data and analysis in the conclusion paragraph. Outline the methods that you used to generate table 4 in the methods section and present the data in the results section.

Figures 5 and 6: I don't think that the R² values are correct here. It appears that the regression is only being fit to the means. The error bars suggest that there is a lot of variance that is not being accounted for here.

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