

# ***Interactive comment on “Declining suspended sediment in United States rivers and streams: Linking sediment trends to changes in land use/cover, hydrology and climate” by Jennifer C. Murphy***

**Anonymous Referee #2**

Received and published: 14 November 2019

This manuscript presents an extensive data set of suspended sediment and TSS trends at 137 stream sites across the contiguous US and explores potential drivers of these changes. Overall, I think the manuscript is well written and will become a worthwhile contribution to the hydrological community. The proposed method also has the potential of being applied elsewhere. I do have some comments for the author, which I hope can help improve the manuscript.

1. On the flow-normalization trend method: It would be helpful to provide an example to guide the readers through the calculations of MTC and QTC and how the two ap-

proaches differ from each other. This essential information could be shown as Figure 1.

2. On the use of sediment concentration: Why is not sediment flux used instead? Given that both concentration and flux are assessed in the flow-normalization, why did the author choose to focus on concentration in this work?
3. Abstract: Suggest adding an opening sentence to place the work into a broader context. Also, suggesting adding 1-2 sentences to highlight the implications and relevance of the major findings.
4. P2L22: List some examples under the category deterministic approaches and empirical approaches.
5. P3L1: Be more specific on “the latter two contributions” and support this argument with literature.
6. P3L4-L23: I appreciate these thoughtful statements on the relative effects of streamflow and landscape management. However, how about efforts/practices that might affect both the streamflow regimes and landscape functioning?
7. P3L25: “suspended sediment and total suspended solid”
8. P6L8: What is the window for loess smoothing?
9. P8L30: Could you support this last sentence by showing the distribution of trends among different regions for just the undeveloped sites?
10. P10L3-L16: I appreciate these discussions by the author. However, this is not well supported by the scientific literature. Could you provide some relevant references?
11. P11L14: Any reference on these stated effects of CRP?
12. P13L14: One very relevant example on the effects of dams on sediment trend is the Conowingo Dam on Susquehanna River. There are also documented effects of

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many small mill dams in the mid-Atlantic region.

13. Figure 1: I don't think this figure is necessary. You may move it to SM.
14. Table 3: I found the table with such lengthy descriptions difficult to follow. Could you convert it to a figure or shorten the descriptions?
15. Figure 2: Consider using smaller symbol to make the Eastern stations more distinct. I appreciate that the author is using the font size to represent different magnitudes, but that might be less important. Alternatively, and perhaps more conveniently, enlarge the size of the figure to be full-page so the stations can be more distinguishable.
16. Figure 3: There are outliers for many of the boxplots. What are those stations and why they have such large trends? This deserves attention from the readers and more discussion by the author.
17. Figure 5: I think this is such an important figure in the manuscript and it deserves to be made larger (say full-page) to be clearer. How about transposing this figure?

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Interactive comment on Hydrol. Earth Syst. Sci. Discuss., <https://doi.org/10.5194/hess-2019-435>, 2019.

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