

Interactive comment on “Reviews and syntheses: Dams, water quality and tropical reservoir stratification” by R. Scott Winton et al.

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Reviewer's General comment: The review is very timely as the number of both large and small dams increase, and more planned, in lower latitudes. Knowledge on impacts are currently skewed to that of higher latitudes. The focus on specific mechanisms relating to effects of dams on water quality is a particular strength of the paper. This provides both insight to general effects of e.g stratification as well as how this might differ in tropical compared with temperate climates. A good use of the more limited information on tropical systems, and resisting the temptation of drifting into too many temperature examples will likely help the reader keep attention on the topic and make the paper a highly relevant resource. Following the general review, the paper makes a further important step in comparing some traditional held beliefs on the effect of tropical

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reservoirs on water quality with more recent ideas supported by physical models. This is a key contribution as it separates conjecture from evidence based conclusions for dams holding back the largest volumes of water in the tropics. Collectively, the general review and the application of models to existing large dams enables the paper to review existing knowledge and its application, and present ideas for future work.

Authors' response: We agree with the suggestion to ensure that the focus stays on examples from low latitude systems and avoid using examples from the temperate zone. We are glad to see that the reviewer found the analysis of stratification behavior to be a valuable component of the work.

Authors' response to reviewer's specific comments:

Reviewer 2's specific comments come in two batches. The first batch call attention to specific areas where content changes could be made to improve the paper, with careful explanations for why the changes would improve the manuscript. The second batch propose specific edits to the writing to improve clarity and readability.

Both batches of comments will be extremely helpful for revising and improving the manuscript and we thank the reviewer for making such detailed suggestions.

All of the content suggestions appear to us as worthy of implementation, or at the very least consideration. Many of these comments suggest points of emphasis that could be made in the conclusion section, such as the importance of Environmental Impact Statements and post-project monitoring.

Interactive comment on Biogeosciences Discuss., <https://doi.org/10.5194/bg-2018-510>, 2019.

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