

Responses to Peter Wilcock's Comments Made October 12, 2016 on WEST Draft Report from July 27, 2016

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Comment: Further exploration of model results would be useful for developing confidence in the ability of the model to forecast future conditions. Although the model shows an excellent agreement between predicted and observed bed volume change integrated over each reservoir, predicted and observed bed volume change does not match for half of the modeled reaches. A better understanding of the discrepancy between predicted and observed at the scale of local model reaches would be useful for evaluating model performance under future conditions.

Response: General trends are already described in the sensitivity analysis as are the actual modeled volume and target range values. A detailed analysis of the sub-areas is probably not warranted, especially when the most likely cause is simply an inability of the 1D model to replicate 3D hydrodynamics within the system.

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Comment: The HEC-RAS model predictions have uncertainty. A basis is needed for propagating that uncertainty into the model for the Conowingo Pond. How will that be done?

Response: This is certainly an important question; however, it is probably beyond the scope of our project to comment on the specific use of the outputs in other models. We suggest that HDR, the Chesapeake Bay Program, and other users include this type of analysis based on the way they use the outputs (e.g. sediment rating curves vs. hourly loading time series) from the HEC-RAS model.

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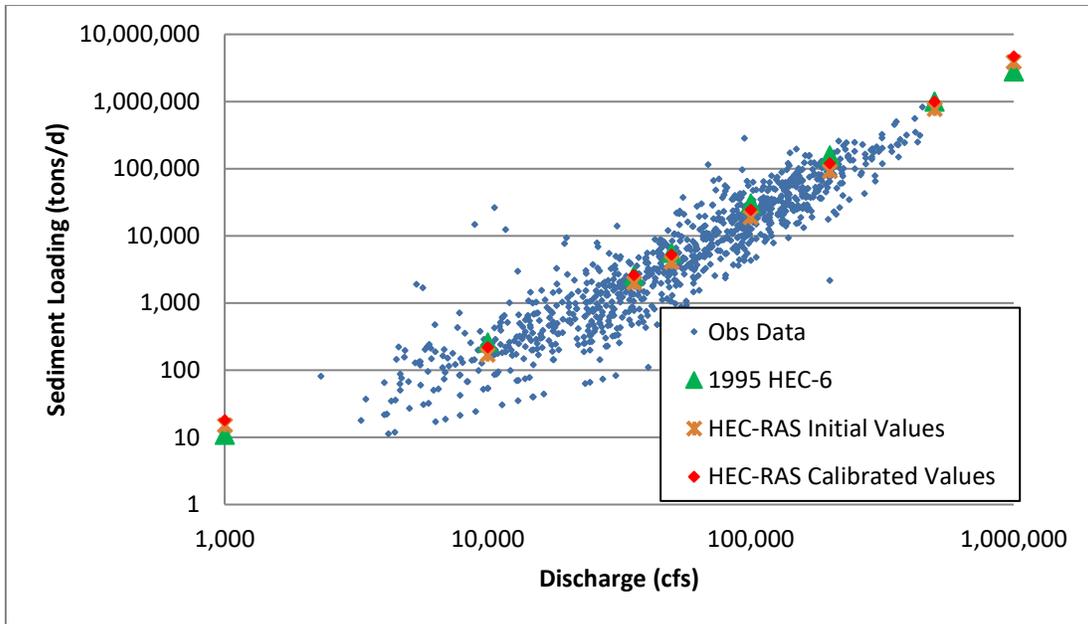
Comment: A better explanation is needed for some of the calibration adjustments discussed in the text:

“Overall, the model initially under predicted deposition for the system as a whole, though results varied by sub-area. To increase deposition, the sediment loading at Marietta was increased by 20-30% at various flows. This resulted in loading values still well within the range of scatter in the observed loading, and matched the HEC-6 input values (Hainly, et al., 1995) very closely for several flows.”

prw: Although within the range of scatter, not all changes to the sediment loading may be plausible. A plot of the Marietta sediment loading actually used would be useful for review.

Response: The report draft was updated to reflect this suggestion. The scatter plot showing the rating curve fit to the observed data was moved from the model development section to the calibration section (3.2.3), and the highlighted sentences were added to the paragraph in question:

“Overall, the model initially under predicted deposition for the system as a whole, though results varied by sub-area. To increase deposition, the sediment loading at Marietta was increased by 20-30% at various flows. This resulted in loading values still well within the range of scatter in the observed loading. Figure 3.9 shows a logarithmic plot of sediment load by discharge at Marietta, and presents a comparison of the final rating curve used in the calibrated model with the initial rating curve fit to the observed data and the rating curve used in the HEC-6 model by Hainly et al. (1995).”



The final loading values are included in Appendix B; we feel these together provide adequate explanation.

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Comment: Small changes in clay composition or cohesive parameters can have a large effect on transport or scour. The nature of the “hybrid” bed gradations and the adjustments in percent clay and cohesive parameters is needed.

Response: The original and hybrid bed gradations and corresponding cohesive parameters are included in Table 2-3 and Appendix B. The verification section (3.3) states this, and we didn’t feel it was logical to reference the final values prior to detailing additional changes made during the verification process.