

## FY16 RSM IPR Omaha District – NWO

Evaluating the Projected Impacts of Increased Sediment Load to the Lower Missouri and Mississippi Rivers, **Paul Boyd & Christine Cieslik**

**BLUF:** Will increasing sediment supply to the Missouri river below Gavins Point Dam result in any change in the degradational nature of the Missouri River, and would we expect any of the increased sediment load to provide benefits to the Mississippi River?

### Description/Challenges

- We often hear “Just send the sediment down from the Missouri River and it will fix all the degradation problems at New Orleans.”
- This analysis will take a first theoretical look at that question
- The biggest challenge currently is completing the detailed model that will set the upstream limits for the study. It is a very temperamental model, that with BSTEM bank erosion included is difficult to calibrate.

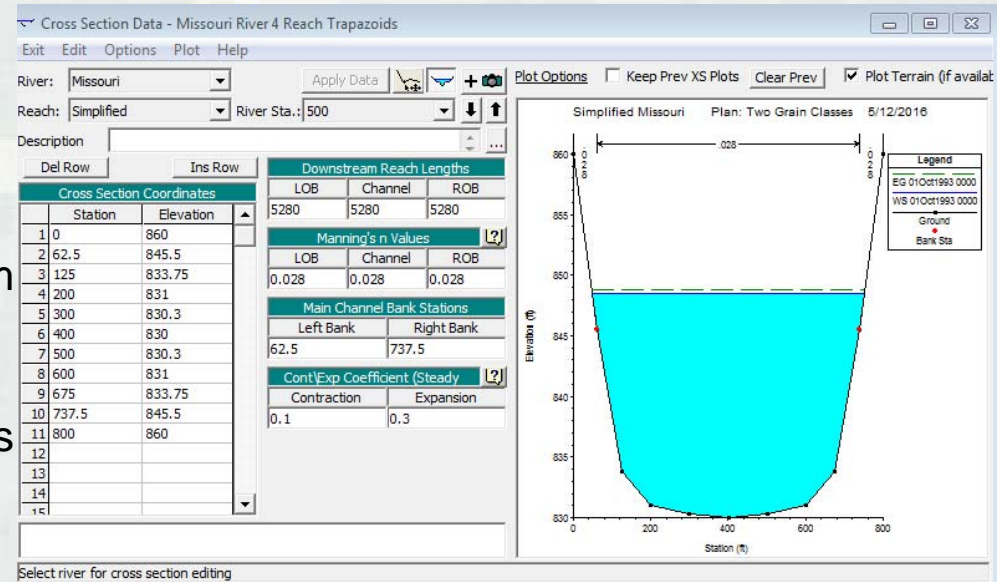


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## Approach (including Tools/Models/Data Used)

- Study will use a non-calibrated, simplified HEC-RAS model (computational analysis, really) of the Missouri below Gavins Point Dam through St. Louis
- Based on the results of a detailed HEC-RAS model currently being developed below Gavins Point dam, the predicted maximum sediment load without causing aggradation will be estimated
- That estimated load will be attenuated moving downstream and bed changes assessed



Product or Milestone	Sch. Del. Date (mm/dd/yy)	Act. Del. Date (mm/dd/yy)	Percent Comp
MSAC Annual Meeting Presentation	04/04/16	04/04/16	100
RSP IPR Presentation (by J. Shelley)	05/18/16	5/18/16	100
MSAC Newsletter Article	06/30/16		0
RSM Tech Note	09/30/16		25



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### **Accomplishments/Benefits/Lessons Learned**

- The team struggled with the best approach to complete the project, significant literature review needed to be done to determine direction.
- Much of the data required for the upstream inputs has been collected, and the model being developed to determine in the sediment inflow rate is moving forward

### **What is working? Ups? Success?**

- Excellent reception from the Missouri River Sedimentation Action Coalition (MSAC) when this topic was presented in March 2016.

### **What is not working? Downs? Issues?**

- Modeling delays put schedule in jeopardy
- While MSAC liked the topic of the study, they were somewhat disappointed that USACE is just doing another study, and not fixing the problem



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### **District/Other USACE PDT Members**

- **Paul Boyd, P.E.** – CENWO-ED-HF, RTS for Sedimentation, RSM Program Mgr
- **Daniel Pridal P.E.** - CENWO-ED-HF, River and Reservoir Engineering Section Chief
- **Christine Cieslik P.E.** – CENWO-ED-HF Hydraulic Engineers
- **John Shelley, P.E.** – CENWK-ED-HR, RTS for Sedimentation, RSM Program Mgr
- **Barbara Kleiss** - CEMVD, MRGPP Manager
- MRGPP Team including David Biedenharn and Meade Allison
- **Stanford Gibson, P.E.** – IWR-HEC, RAS Sediment Lead

### **Leveraging/Collaborative Opportunities**

- Mississippi River Geomorphology and Potomology Program (MRGPP) has a significant interest in the results of this study and is sharing the costs with RSM

### **Stakeholders and Partners**

- Missouri River Sediment Action Coalition
- Mississippi River Geomorphology and Potomology Program (MRGPP)





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### Value to the Nation

- The impacts of degradation of costal wetlands/islands have been identified as a cause of the reduction in storm protection. If a way to replenish coastal wetlands/islands can be found, it would be beneficial.
- Quantifying the downstream benefits of reservoir sediment could allow USACE to consider the cost of moving that sediment as investment with payback.

Lewis and Clark Lake Delta: Is this the source for the solution for degradation in the Missouri and Mississippi Rivers?

