



Guidance for Incorporating Regional Sediment Management into the Design of Channel Systems

Description

At a recent annual USACE River Engineering Working Group meeting, there was expressed concern for the lack of guidance and training for regional sediment management approaches in rivers and streams. This effort will work to fill that need with the development of general design guidance for the use of regional sediment management concepts into the stable channel design. The guidance will incorporate available resources, including recently developed tools and methods, to assist in analysis and design from a systems approach. Case studies highlighting workflow and application of the available resources will be included to provide guidance through examples.

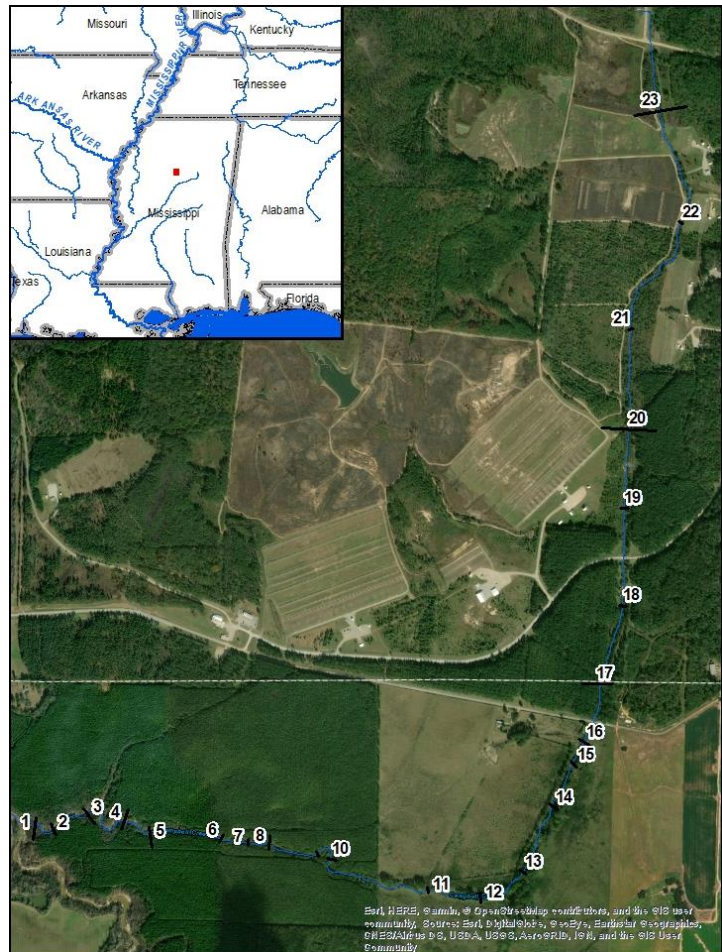


Figure 1: Campbell Creek Case Study Site

Issue/Challenge To Address

One of the fundamental issues that engineers and scientists must address in water resources projects is the management of sediment, particularly at the watershed scale. Design of watershed rehabilitation projects without the understanding of the dynamics of the system often leads to failure of the implemented project, and may significantly decrease the quality of the affected ecosystem. Regional sediment management is far from straightforward, and the risk exists that a scheme designed without consideration of watershed sediment dynamics will solve one sediment-related problem at the expense of creating new sediment imbalances, and unintended morphological responses elsewhere in the fluvial system.

One of the first comprehensive programs aimed at developing guidance for assessing channel design within a systems context is the Delta Headwaters Project (DHP) with the Vicksburg District, which has been ongoing since 1985. The DHP seeks to develop and demonstrate a watershed systems approach to address problems associated with watershed instability: erosion, sedimentation, flooding, and environmental degradation. Significant knowledge has been gained through DHP and similar programs across the country, but



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currently there has been no consolidation of lessons learned, resources, and tools available to assist with such study.

Successes Lessons Learned

Lessons learned from previous studies and projects will be a critical part of formulating the guidance and any additional lessons learned through this effort will be compiled during the duration of this study.

Expected Products

- Technical Report providing guidance and examples of practice
- Final Report and Presentation

Stakeholders/Users

Stakeholders include MVK, USFWS, and NRCS. Additional stakeholders may be gained as potential case studies and previous work are identified and included in the guidance.

Projected Benefits Value Added

As previously discussed, a lack of understanding or consideration of watershed sediment dynamics can result in unintended consequences or complete failure of a project. This new guidance will provide a valuable resource to engineers, planners, regulators, operation managers and project managers to ensure that watershed and regional scale sediment dynamics are considered when designing or planning channel design work.

Leveraging Opportunities

This effort will leverage currently available resources from both previous and ongoing work through programs such as the DHP and RSM

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