

Engineering With Nature

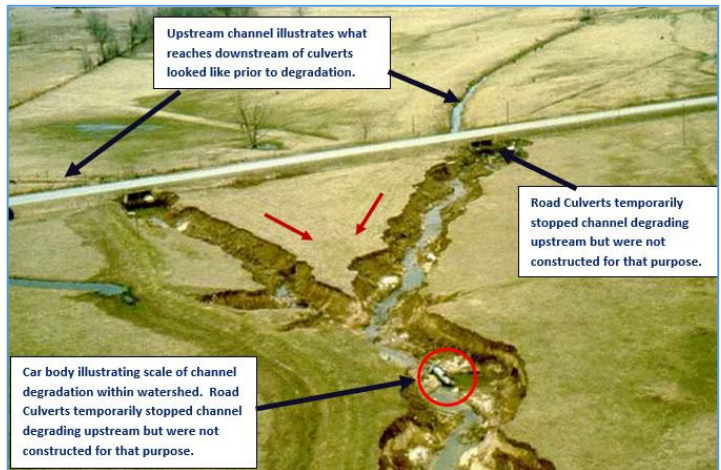
Project Fact Sheet



Fluvial Inland Watershed Guidance Through Experimental Watersheds

Background

There is a substantial need throughout USACE for improved EWN® guidance, tools and techniques for rapid watershed planning assessments and regional sediment management approaches needed to solve water resource issues and to help answer the question: “What problem are you really trying to solve?” Channel instability caused by imbalances in sediment continuity is a nationwide problem that results in excessive channel widening and incision, loss of valuable riparian habitat, destruction of infrastructure, degradation of flood control and navigation channels, excessive sedimentation in wetlands, excessive delivery of nutrients, and water quality degradation.



By integrating modern technology, such as LiDAR and photogrammetry, and increasing USACE’s knowledge base of watershed and regional sediment management approaches, this project will develop fluvial inland watershed guidance for studying, analyzing, developing, and implementing watershed-based sediment management practices for successful implementation of water resource projects that incorporate the concepts of EWN®. The guidance will benefit the USACE and stream restoration and sediment management community.

Objectives

Using the lessons learned from the Mississippi Delta Headwaters Project and other similar stream restoration and sediment management projects, this research will develop guidance to identify sediment management opportunities in degraded watersheds with potential for future construction funds. The selected watersheds will be designated as “experimental watersheds” for the purpose of increased monitoring and analysis. This increased monitoring and analysis will be used to test new analysis tools, establish linkages between structure types and environmental benefits, and verify new structure designs. The lessons learned from this research will be used to educate a new generation of engineers, biologists, and planners on the integration of EWN® concepts into channel restoration design, via webinars and workshops.

Approach

Phase 1 of this effort will focus on lessons learned from the geomorphic and ecological assessments of the Bayou Pierre Watershed to develop rapid watershed planning assessments and regional sediment management approaches that effectively accommodate the incorporation of EWN® concepts into the design of restoration and stabilization features. Phase 2 of this effort will build on Phase 1 effort and include an additional watershed within the Corp’s Rock Island District (MVR) or St. Louis District (MVS) and continue the analyses of the monitoring reaches in the Bayou Pierre Watershed.

Outcomes

This project addresses strategic R&D program needs by developing sediment and watershed assessment protocols and guidance incorporating EWN® elements-focusing on natural fluvial processes and tendencies. Strategic Focus Areas are also addressed with enhancement of ecological processes included within the development of innovative applications, sediment management, and support and development of resilient engineering approaches.



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