



Lac qui Parle Riverbank Stabilization and County Highway 31 Protection

Featured Project

A riverbank stabilization project on the Lac qui Parle River was completed in 2007 through a Clean Water Legacy grant that leveraged other state and local funds. The velocity of the river was causing severe bank erosion near a bridge along Lac qui Parle County Highway 31 that was rebuilt in 2004. With careful collaboration and direction from DNR Fisheries staff, the project has stabilized 1,500 feet of riverbank, which has resulted in erosion control, habitat and water quality benefits.

Bank erosion is a natural occurrence in rivers and streams, and it is not feasible to repair such erosion in every instance. Several factors made this a high-priority project:

- The location of the erosion threatened future safety of the County Highway 31 bridge.
- An estimated 100 tons of soil per year from the project site was being deposited into the river and was contributing to sedimentation in Lac qui Parle Lake, located four miles downstream of the site.
- A landowner with cropland adjacent to the river has established a native grass buffer strip that is enrolled in a permanent conservation easement. While the buffer is preventing erosion from cropland into the river, the riverbank erosion was negating some of those water quality benefits.

Repairing the riverbank erosion required extensive engineering and construction, as well as state and federal permits through the DNR and U.S. Army Corps of Engineers. The riverbank was stabilized with a combination of rock veins (5 units), selective riprap (450 feet), a bankfull shelf design and re-sloping (800 feet), and reseeding of native grasses protected by erosion control blanket held in place by willow stakes. The design called for a combination of riprap and vegetation to redirect and slow velocities, especially along the outside bends of the river. Reduced velocities are necessary to control erosion at the site and to maximize downstream water quality improvement.



Location: Section 28, Township 118 N., Range 42 W., Lac qui Parle County

Partners: DNR, Lac qui Parle Soil and Water Conservation District, Lac qui Parle County, USDA Natural Resources Conservation Service, Lac qui Parle Yellow Bank Watershed District and Watershed Project, Lac qui Parle Lake Association.



June 2009 photo of Lac qui Parle River project (above) and October 2007 photo (below).

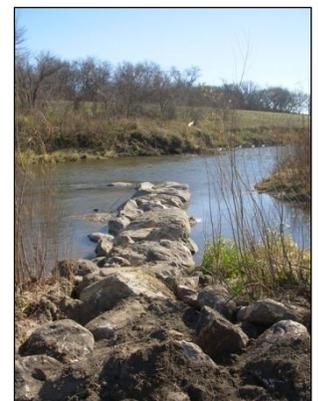


BWSR Featured Project

Project Timeline: Initial site assessment and funding research for this project began in 1999. Funding was not available until the Clean Water Legacy Act grant was applied for and received in 2007. A preliminary design and cost estimate was completed as part of the grant application. Construction was completed in autumn 2007. With typical ice flow and moderate high water events in 2008 the site held. Unfortunately in spring 2009 an area of sloughed bank was discovered. Necessary repair included a small amount of reshaping and reseeded, erosion control blanket, a small amount of rock, and vegetation planted. The repair was completed in June 2009, with the total project considered complete on June 30, 2009.

Project Costs / Funding Sources: Completed project costs totaled \$148,612. Funding sources included FY 2007 Clean Water Legacy funds, administered by BWSR, totaling \$122,000 (CWL grants were awarded on a competitive basis through an inter-agency application and review process); Lac qui Parle County Highway Department - \$10,881; DNR - \$9,716; Lac qui Parle SWCD - \$4,176; Lac qui Parle County Water Plan - \$1,000; USDA NRCS - \$840.

Keys to Success: The ability to leverage state, federal and local dollars contributed to the successful Clean Water Legacy grant application. The innovative design and careful installation of the many components of this project were also key. The vegetated bankfull shelf reduced the amount of rip rap needed for the project, which helped reduce the project cost. The bankfull shelf reduces velocities by providing a wider floodplain for the entrenched channel, and the vegetation provides roughness, which also reduces velocities. The project involved many components, requiring coordination among many different groups/organizations/funding sources, and it's just one component of an overall strategy - also requiring lots of coordination - to address water quality in a systematic way throughout the watershed.



Willow stakes (left) hold erosion control blanket in place and will provide long-term bank stabilization as they grow. Stream barbs (right) help direct river current to middle of streambed and provide fish habitat.

BWSR roles: Site visit and evaluation with many other resource partners; information and education to local government units regarding funding possibilities; assistance with grant application, implementation and reporting; and with other resource partners addressed technical issues and questions.

Measurable Outcomes: On July 14, 2009, less than one month after the project was completed, the transparency tube reading at this location was 56 cm (which indicates the depth of the water that makes it possible to clearly see a symbol at the bottom of the tube, and > 60 cm is the highest quality reading). The bridge at this site is one of the water quality monitoring sites for the Lac qui Parle Yellow Bank Clean Water Partnership, and the transparency of the water is regularly monitored. Before the project was completed, the readings were most often in the 30s. The project estimates reduced loading of 100 tons of soil per year. The improved water quality enhances habitat for fish and other aquatic species, and the established native vegetation provides upland habitat for many species of insects, birds, and mammals. The stabilized riverbank also protects highway and bridge infrastructure, which in turn provides public safety benefits.

For more information: Terry Wittnebel, Lac qui Parle SWCD Manager, terry.wittnebel@mn.nacdnet.net or go to www.lacquiparleswcd.org