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Missouri River Recovery Program: Finding the Right Balance: Sediment Management

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MISSOURI RIVER

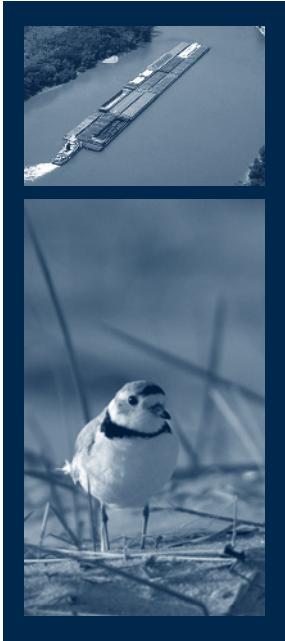


US Army Corps
of Engineers



R E C O V E R Y P R O G R A M

FINDING THE RIGHT BALANCE: SEDIMENT MANAGEMENT



The goal of the Missouri River Recovery Program (MRRP) is to create a sustainable ecosystem for the river's native species while protecting and maintaining the Corps' congressionally-authorized project purposes. Many of the river's uses – such as habitat, agriculture, municipal water use, flood protection, navigation and hydropower – can be threatened by imbalanced sediment distribution in sections of the Missouri River and its tributaries.

Sediment is particularly critical to the river's native fish, wildlife and vegetation. The distribution of sediment along the river corridor creates, maintains and changes habitat areas for the native species. Changes in the location and amount of sediment deposition and erosion can have an impact on the availability of habitat in critical areas along the river. Proper management of sediment resources along the river is vital to retaining and developing this habitat, as well as maintaining existing river uses.

THE PROBLEM

A number of factors can cause an imbalance in river sediment in the Missouri River basin. These factors include but are not limited to: the development and operation of reservoirs, the creation of the navigation channel, increased water use, periods of flood and drought, sediment mining and changes in land use. These factors can lead to the following project impacts and are continually addressed as part of the Corps' management of the Missouri River system: increased flooding and groundwater problems, bank and shoreline erosion, legal claims over government boundary lines, decreased water quality associated with both naturally-occurring and man-made contaminated sediments, loss of aquatic habitat for native species and loss of power generation capacity as a result of sediment deposition in the headwaters areas of the main stem reservoirs.

Shortly after the Missouri River dams began operating, sediment began to deposit where streams entered the reservoir pools, resulting in sediment deposits above the dams. In the free-flowing river between and immediately downstream of the dams, the sediment transport capacity exceeds the sediment supply. That is, the river is able to carry much more sediment than is available. In addition to the construction of the dams, other projects such as the Bank Stabilization and Navigation Project (BSNP), tributary development and conservation practices that reduce sediment runoff and erosion into the Missouri River basin have also contributed to the change in sediment yield. The reduction in sediment availability from the banks and tributaries has resulted in a deepening of the river in certain areas due to river bed erosion.

Continued on back page

THE PROBLEM *(continued from front page)*

Sediment Deficit

In some areas, erosion downstream of the dams has caused losses of agricultural and forest lands, degraded wetlands and damaged irrigation intakes. Sediment losses also cause problems for the river's native species. In the area of the river below Gavins Point Dam, from Yankton, S.D., to St. Louis, Mo., sediment transport capacity exceeds availability. This affects depositional patterns and causes changes in the physical characteristics of the sediments. This can adversely impact habitat for the endangered pallid sturgeon, endangered least tern and threatened piping plover. In other areas, cottonwood habitat is decreasing due to a number of factors associated with sediment and flooding. Not only is this a problem for cottonwoods, but fewer cottonwoods also mean less habitat for bald eagles along the Missouri River.

Sediment Surplus

In other areas, sediment trapped behind the dams has led to localized flooding, threatening farms, roadways, and residential and commercial areas. For example, Lake Francis Case, above the Fort Randall Dam in South Dakota, has been cut in half by the White River delta (formed by sediment deposits), which has led to upstream flooding and decreased capacity for hydropower generation downstream. Sediment deposits have also resulted in significant costs. Flooding near Niobrara, Neb., has led the Corps to raise several miles of Highway 12. Flooding also impacts cultural resource sites and requires that the Corps adjust its operations to protect these sites.

WHAT IS BEING DONE?

The Corps monitors sediment deposits and shoreline and stream bank erosion and predicts future sediment deposits and related impacts. In addition, the Corps is working on several efforts to study and predict the effects of sediment imbalances, to repair damaged areas and to prevent further impacts. These studies include the following:

- The Lewis and Clark Lake Sediment Management Study, part of the MRRP, is evaluating the possibility of moving sediment through the lake to lower areas of the river using the natural force of the river. This study is expected to be completed in 2010. Additional efforts are expected to begin before the completion of this project to examine a wide range of possible processes for partially restoring the sediment balance to the river.
- The Regional Sediment Management Program is studying the regional and system-wide impacts of sediment issues from a basin-wide perspective. The first phase of this program in the Omaha District is a basin-wide sedimentation study of the Niobrara River basin, which is expected to take three to five years. The Kansas City District has studied the local degradation trends of the lower Missouri River under this program.
- The Kansas City District has studied the impact of commercial dredging in the Kansas City area and has adjusted the permitting process and the volume of sand allowed to be dredged to protect the sediment equilibrium in the area.
- Multiple smaller projects along the entire river corridor work with local stakeholders to repair sediment impacts to tributaries.
- Both districts actively collect sediment data and hydrographic survey data to monitor and model sediment transport and predict future trends.

The mission of the Missouri River Recovery Program is to implement actions to accomplish Missouri River ecosystem recovery goals in coordination and collaboration with agency partners and stakeholders. The vision of the program is to create a sustainable ecosystem supporting thriving populations of native species while providing for current social and economic values.

For more information on the Missouri River Recovery Program, please visit www.moriverrecovery.org.

