LEWIS AND CLARK LAKE SEDIMENT MANAGEMENT STUDY

An Army Corps of Engineers and Missouri River Recovery Program project

US Army Corps of Engineers ®
Omaha District

MISSOURI RIVER RECOVERY TEAM RIVER MISSION

FACT SHEET

INTRODUCTION

The deposition of sediments in reservoirs along the main stem of the Missouri River is an important concern of the U.S. Army Corps of Engineers. Sedimentation at Lewis and Clark Lake is of particular interest due to the subsequent loss of water storage capacity and increased water elevation. This deposition impacts species habitat, recreation, private property and infrastructure of both the lake and the Missouri River.

In response to current and future impacts to the lake, the Corps is conducting the Lewis and Clark Lake Sediment Management Study (LCLSMS) to examine ways of restoring the balance of sediment in the lake and river. This study was recommended by the 2003 revision to the Missouri River Biological Opinion issued by the U.S. Fish and Wildlife Service. The LCLSMS is supported by the Missouri River Recovery Program.

BACKGROUND

Sedimentation in Lewis and Clark Lake has been occurring as a result of the Gavins Point Dam closing in 1955. Over the past 50 years, this sedimentation has caused the delta to expand in the Springfield/Santee area and build in both the upstream and downstream directions. The Corps plans to examine measures that will mitigate some of the negative impacts of this migration.

Over 2,600 acre-feet of water storage are lost each year in Lewis and Clark Lake due to sedimentation. To date, the lake has lost approximately 23 percent of its original storage capacity. Over half of the sediment flows into the lake from the Niobrara River.

WHAT IS SEDIMENTATION?

Sedimentation is the process of soil, rock and mineral particles being transported by flowing water and settling on a river or lake bottom.

IMPACTS

Sediment management at Lewis and Clark Lake and along the entire Missouri River is vital to preserving existing species, creating a diverse ecosystem and maintaining the water levels needed for navigation.

Several resources at the lake, delta and the river downstream have already been impacted or may potentially be affected in the future, including:

- recreation areas;
- municipal water intakes;
- groundwater levels;
- channel capacity, which affects navigation;
- private property;
- infrastructure, such as roads and bridges;
- hydropower;
- flow regulation; and
- endangered species habitat.

SEDIMENT MANAGEMENT STUDY

The LCLSMS is an engineering viability study that will examine the possibilities for moving sediment in the delta by mechanically controlling water levels and flows. The study will evaluate alternatives that use currently existing infrastructure as well as alternatives that may require infrastructure modifications.

The Corps will consider many factors in evaluating alternatives, including:

- variations in water flow;
- reservoir elevations; and
- flow duration.

Previous studies have examined ways to restore the sediment balance in the lower Missouri River. These studies have suggested flushing sediment through the spillway, dredging, re-routing tributaries and removing the dam.

STUDY TIMELINE

The LCLSMS is being conducted in several phases. Currently, the Corps is working on Phases 2 and 3. Project team members are gathering data and conducting analyses on the reservoir at Lewis and Clark Lake. The team will use the results of these analyses, along with public input, to develop possible designs for sediment management in the reservoir. Later phases will evaluate possible impacts that the alternatives may have on the Missouri River below Gavins Point Dam.

Phase 1- Modification of the GSTARS Sediment Transport Model to allow for unsteady state flow analysis
Completed 2006

Phase 2- Collection of river and reservoir geometry and sediment samples between Fort Randall Dam and Sioux City, Iowa
Fall 2007

Agency workshop and public meeting to gather input on developing alternatives
June 2007

Phase 3– Verification of the GSTARS3-HTC reservoir model by Dr. C.T. Yang at Colorado State University
Fall 2007

Phase 4- Analysis of alternatives using the computer reservoir model

Phase 5- Development of a downstream computer flow model from Gavins Point Dam to Sioux City, Iowa

Phase 6- Analysis of reservoir model output by downstream model
Fall 2008

Phase 7– Completion of study and recommendation of an alternative for possible further testing
Fall 2009

YOUR COMMENTS

Interested parties can comment on the present phase of the Lewis and Clark Lake Sediment Management Study in several ways:

- Submit a written comment at the public meeting
- Present an oral comment at the public meeting
- Mail comments to:
  U.S. Army Corps of Engineers, Omaha District
  CENWO-ED-HF, Lewis and Clark Lake Sediment Management Study
  Paul M. Boyd, P.E., 106 S. 15th Street, Omaha, NE 68102

To ensure your comments are considered in the development of management alternatives, please submit them no later than July 1, 2007.