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Week-long pilot project to divert sediment from Lewis and Clark Lake delta

(YANKTON) - For decades, the Niobrara River with its nearly unlimited sand supply, has been the single, largest contributor of the sedimentation building up in the Lewis and Clark Lake delta. A summer pilot project could provide evidence that installing bedload collectors on the river bottom would add years to the lake's lifespan.

Watch for sediment to be captured from the Niobrara River for at least one week during a pilot project coordinated by the US Army Corps of Engineers (USACE) – Omaha District and in collaboration with the Corps' Engineering Development and Research Center (ERDC) and the Missouri Sedimentation Action Coalition (MSAC). The \$161,500 pilot project is made possible by the Corps' Regional Sediment Management (RSM) Program.

MSAC sees this short-term project with the potential of sparking long-term results, according to Mary Hurd, MSAC's Board of Directors vice president.

"Today, we stand on the precipice of a potential game changer: using modern technology to remove sediment in the hopes of extending the life of the dams and reservoirs," Hurd said. "I applaud this historic moment while at the same time thinking of the many local players who worked so hard for so many decades to see this type of progress but won't have the opportunity to do so. The foundation they built through their advocacy and asking hard questions is the reason this project is happening today, and I hope it is in their spirit we can continue to collaborate with the Corps of Engineers to finally begin to address this growing sedimentation issue. It is our hope that this project will provide important data – and a first step – to preserving these reservoirs for future generations."

Economic development and related recreational activity in and around Lewis and Clark Lake show no signs of slowing down. Yet the visible delta of sediment in the Springfield-Niobrara area continues to extend further into the lake. Between 1982 and 1998 the delta grew at an average rate of 550 feet per year according to USACE data. In 2011, the open water from Gavins Point Dam dropped to 17 miles upstream, down from its original 25 miles in 1955.

MSAC and its coalition of stakeholders have been pushing for ways to slow the sediment and ultimately sustain the reservoirs on the Missouri River and their benefits for the region, downstream and the public. Over the past several years the group has focused on the Lewis and Clark Lake region as the waterbody behind Gavins Point Dam will be the first of the six Missouri River mainstem reservoirs to fill with sediment if no action is taken.

A full-scale sediment collector project with the potential of capturing 50% of the bedload, which is a term used to describe the particles in the flowing water that are transported along the stream bed, on

the Niobrara River could see a 15% reduction in delta forming sediment entering in to the Missouri River, according to USACE's proposal. One aim of the pilot project is to collect and analyze the efficiency of collection in the high-bedload conditions of the Niobrara River, which contributes an estimated 55 percent of the total sediment load to the Missouri River reach that makes up the Lewis and Clark Lake delta.

A sediment collector is sometimes described as a speed bump in the river, with bedload traveling up a ramp and passing through a grate system where the material collects within hoppers. Finer particles remain in suspension and pass over the collector. As the hoppers fill, the sediment is pumped to a placement or dewatering site for beneficial reuse, according to the technology's developer, Streamside.

During the week-long pilot, a 12-foot collector on the bottom of the Niobrara River with pumps and separators is anticipated to collect up to one to two tons of sand per hour. Corps staff will monitor and collect data to determine specific capture rates in order to estimate the cost of a larger scale project.

"We understand that the conditions and bedload material of the Niobrara River make it a great candidate for a sediment collector system," said Scott Kostal, MSAC executive director. "Achieving a sediment balance in the reservoir will take several efforts aimed at increasing its lifespan."

Details of where the collector will be placed and when the pilot will occur are still being finalized with Corps officials consulting with MSAC and other stakeholders on the plan. The project will take place in the mid to late summer to ensure the federal funding associated with the project does not expire.

Bedload sediment collection is one technology that emerged from a recent USACE report focused on developing a sediment management plan for the Lewis and Clark Lake region. The full 104-page report and 56-page economics appendix are available at MSAC's website, www.keepitwater.org. MSAC began exploring sediment collector technology nearly eight years ago. Data from the bedload collector pilot project will contribute to developing the data for the next phase, writing the sediment management plan.

A primary of focus of MSAC is researching beneficial uses for the captured sediment. This is one of the sticking points for bolstering the sediment collector idea, and all proposals that would extract sediment. Criticism has been stated that merely harvesting the sediment and placing it on shore only moves the problem to a new location. Finding storage of such large amounts is impractical. Demonstrating the bedload collector's effectiveness on the Niobrara River is a big step in finding beneficial reuse of the resource according to MSAC. Not only could bedload collectors on the Niobrara River lessen the sediment load entering the Missouri River, the system could also provide an economic opportunity for the region.

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