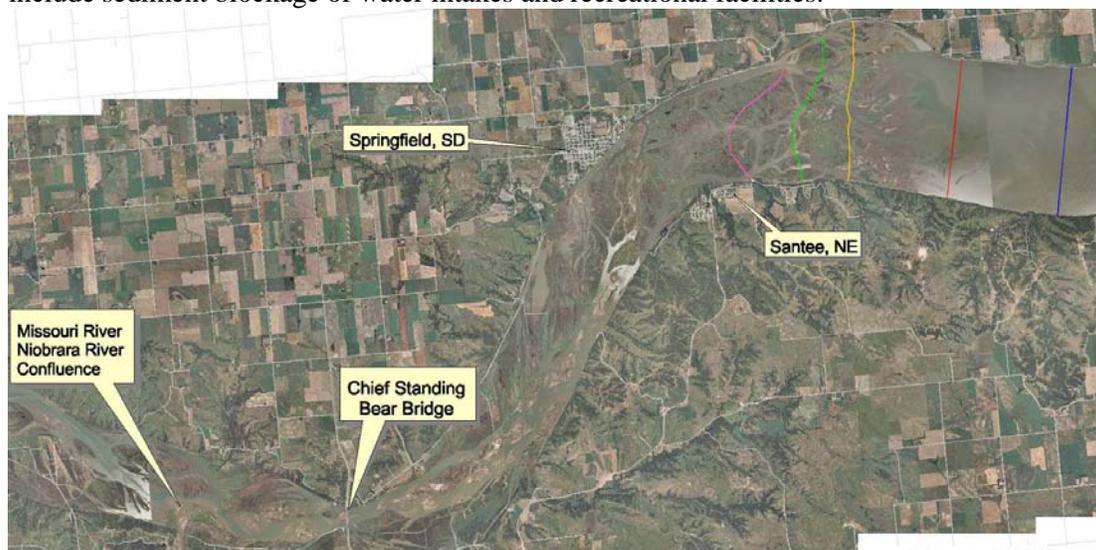




Reservoir Sedimentation

Description

The evaluation of the impacts of sedimentation on authorized purposes of Corps reservoirs has been identified as a critical need. Within the United States, the Corps of Engineers (COE) maintains 609 dams of which 383 of those dams and reservoirs are maintained and operated for flood damage reduction. Thousands of other lakes are operated and maintained by various Federal, State, and local entities. In the course of normal operations, reservoirs trap sediment and eventually fill. This sediment deposition reduces the useful life of the reservoir and can severely impact authorized project purposes. Significant problems may occur when even a small percentage of volume is lost to sediment: these include sediment blockage of water intakes and recreational facilities.



Sediment deposition in Lewis and Clark Lake, USACE Omaha District. Photo Courtesy of John Remus, Omaha District.

The impacts of reservoir sedimentation can extend considerable distances upstream and downstream, influencing channel morphology, stability, and ecological health. This underscores the need to develop ways to effectively manage sediments from a systems perspective while also seeking to extend the effective and economic lives of reservoir projects. The age of Corps reservoirs, with many projects past the mid-point of their design lives, increases the likelihood of significant sediment depletion and sediment-related impacts. Sedimentation at USACE reservoirs has not been rigorously addressed for more than a decade, largely due to low prioritization of sedimentation studies within the Operations and Maintenance (O&M) budget. The extent of the problem is unknown, and appropriate assessment and mitigation methods have not been developed. This research unit will assess the extent of the problem in Corps reservoirs, develop a Web-accessible federally standardized database for all relevant Corps sedimentation data, develop and

demonstrate standardized baseline assessment methodologies for reservoir sedimentation, and update obsolete sections of guidance for evaluating and managing sedimentation in reservoirs.

Benefits This research will assess the extent of reservoir sedimentation problems within the Corps; develop a standard database of reservoir sedimentation data integrated with other relevant databases; develop and demonstrate assessment methods for Corps reservoirs; and provide the technical basis for updating obsolete guidance related to the evaluation of sedimentation in reservoirs. An accurate summary of the severity of existing problems in Corps reservoirs, along with improved assessment methods for ongoing data collection and analysis, will improve the Corps' ability to manage reservoir projects. These benefits extend to other Federal and non-Federal stakeholders.

Status The Corps is partnering with the U.S. Geological Survey (USGS) and other federal agencies to develop a national reservoir sedimentation database. The information on Corps reservoirs (obtained in the data call to Corps districts) will be combined with the federal interagency database (RESSED) overseen by the Subcommittee on Sedimentation. The Corps is working with USGS on a national database structure that will meet the needs of the Corps while providing improved capabilities to the nation. The final product will provide Web-based data input, error checking protocols, and data retrieval via reports and visualization tools. It is scheduled for completion in 2010.

Corps Districts were queried on reservoir sedimentation problems and survey status. An analysis of the survey responses will answer the initial question on the status of knowledge on sedimentation in Corps reservoirs. The results from the Corps data call will be incorporated into the federal interagency database.

Application The results of this work unit will improve the Corps' ability to manage reservoir projects, and will be useful to both Federal and non-Federal stakeholders and reservoir managers.

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Work unit products and additional information can be found at <https://swwrp.usace.army.mil> or <http://chl.erdc.usace.army.mil/ccs>.

Partners U.S. Geological Survey, U.S. Bureau of Reclamation, U.S. Natural Resources Conservation Service, USACE Committee on River Engineering and Restoration.