



Comprehensive Inventory of Reservoir Sediment Management Activities in the USACE

Description

There are nearly 400 U.S. Army Corps of Engineers (USACE) reservoir and dam projects listed in the Reservoir Sedimentation Information (RSI) Data Portal. Each of these projects is managed independently by the local project office, district, and division water management office. In order to consider the regional impacts and benefits of sediment management, an inventory of the past and current sediment management practices implemented at each project is necessary. The result will be a national snapshot of sediment management and provide a current reference point when considering the projected future conditions of the projects and sustainability actions that may be taken. All collected data will be provided to the RSI program for use in the data portal, and to the Civil Works Sustainability program for developing reservoir sustainability plans.

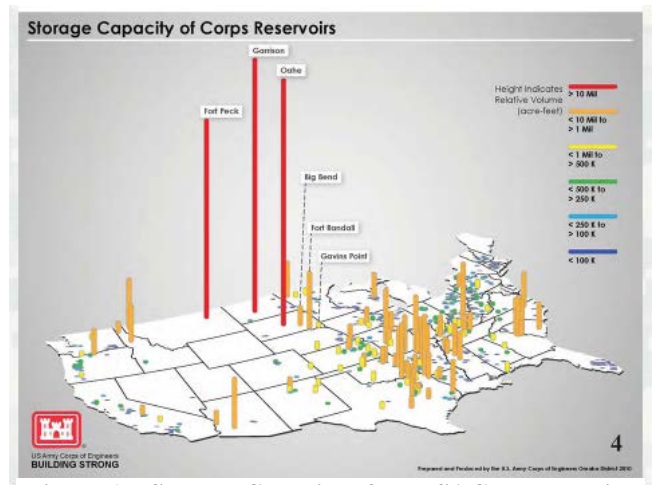


Figure 1 – Storage Capacity of all USACE Reservoirs

Issue/Challenge To Address

Recent work in reservoir sediment management and sustainability has identified reservoirs in the USACE portfolio that are currently undertaking some sort of sediment management. In many cases these activities are discovered organically through the course of other inquiries. As USACE considers the fate of its reservoir projects, it can review historical data to project future conditions. However, the impact of climate change will in some cases change the trajectory of that future. If the effects of climate change are included in our future condition, we must also add any actions that we have previously or are currently undertaking that changes the annual sedimentation rate. Sediment management activities that either prevent the inflow of sediment, pass it through, or remove it after it is deposited must be taken into account. Figure 2 summarizes the common categories of sediment management activities in reservoirs. When examining future sustainable sediment management actions, it is vital to establish a knowledge base of examples that could be used to help inform future management decisions.

As part of the survey of reservoir projects, managers at each project will be asked a series of questions relating to any actions identified in Figure 2 that have occurred at the reservoir that included sediment management. Some activities may have published reports, while some activities may no more than anecdotal evidence and an oral history. All this information will be compiled and formatted to be entered into the RSI database.

The RSI data portal provides an overview of past and current reservoir storage. An inventory of reservoir sediment management activities has been identified as a need in the database, as well as vital for the HEC Reservoir modeling inventory, and to support Reservoir Sustainability Plans.



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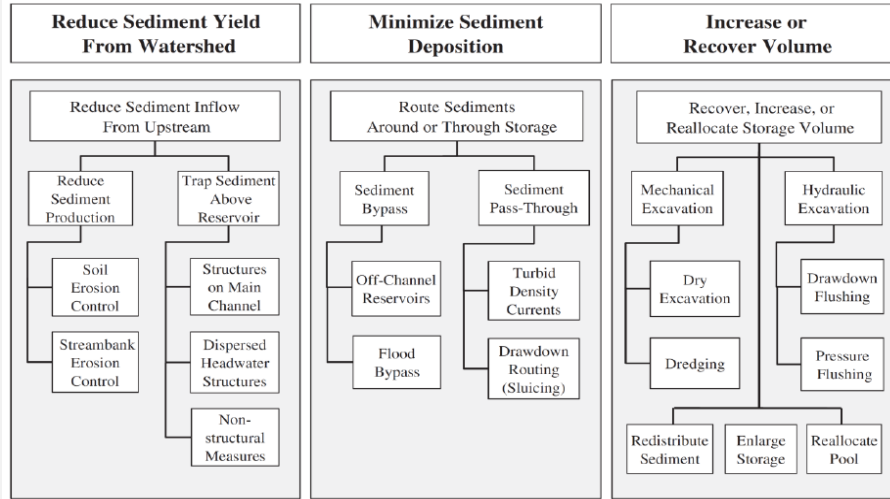


Figure 2. Categorization of Reservoir Sediment Management (Kondolf, 2014)

This project will survey all USACE reservoir projects that are documented in the RSI database, and create a narrative of past and present reservoir sediment management within USACE. Information including where, when, why/why not, how, and how much will be queried. A summary of the data for each reservoir will be added to fields in the RSI database.

In addition, USACE will share the process and findings with the US Bureau of Reclamation, as that agency attempts to undertake a similar survey of activities.

Lessons Learned

Lessons learned will be compiled during the duration of this study

Expected Products

- Population of the RSI database with collected information
- RSM Tech Note

Stakeholders/Users

USACE Districts, USACE Labs including the Hydrologic Engineering Center (IWR-HEC), and the Coastal and Hydraulics Lab (ERDC-CHL)

Projected Benefits

This project will provide a comprehensive look at past and current sediment management at USACE dams and reservoirs. This information will allow USACE managers and researchers to use the data for management guidance, predictive models, and is an early step in developing Reservoir Sustainability Plans for all USACE reservoirs.

Leveraging Opportunities

The data collected will be fed to the RSI database, which has been developed over the past three years, and includes a comprehensive collection of area and capacity tables for the history of all USACE reservoir projects. The flexibility of the Oracle based database architecture allows for addition of the fields necessary to record a summary of reservoir sediment management activities without requiring additional funding under this project.

Points of Contact

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Participating Partners

US Bureau of Reclamation, Technical Service Center, Sedimentation and River Hydraulics
USACE Responses to Climate Change Program