



RESERVOIR FLUSHING



Need The USACE maintains and operates more than 380 dams and reservoirs within the United States, and many of those reservoirs are experiencing decreased project benefits due to sediment deposition. Existing and continued sediment deposition will result in a reduction of reservoir storage available for project uses such as flood control, water supply, hydropower, recreation, and environmental purposes. Reservoir flushing and sediment bypass offer the potential to prolong reservoir life, perhaps even achieving long-term sustainability.

Approach The Reservoir Flushing work unit is collecting and analyzing data from reservoirs around the country and world in order to analyze them and develop new screening criteria. These screening criteria will allow water managers to quickly determine if reservoir flushing is likely to benefit them before committing significant resources to modeling and planning.

Reservoir flushing is often modeled numerically to determine if it will be successful before it is implemented. This work unit will identify potential limitations in USACE numerical models regarding reservoir flushing and implement improvements.

Outcomes Updated and refined screening criteria for applicability of reservoir flushing and bypass techniques will be documented in Technical Reports. Improvements will be implemented in USACE numerical models such as HEC-RAS and Adaptive Hydraulics (AdH). The work unit will also document advice for regulators when evaluating reservoir flushing or sediment bypass.



A drawdown flush at Fall Creek Reservoir (Portland District) in 2012 resulted in the removal of over 50,000 tons of sediment.



Sediment can fill in reservoirs and limit their useful life. Paonia Dam, a US Bureau of Reclamation (USBR) dam in Colorado required costly mechanical sediment removal to restore the use of the intake structure. (Photo from S. Kimbrel, USBR.)

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For more information on FRM R&D, see the ERDC FRM wiki:
https://wiki.erdc.dren.mil/Flood_and_Coastal_Storm_Damage_Reduction_Research_Program