

## **Reservoir Sedimentation Problems and Solutions**

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There are an estimated 90,000 dam in the United States and the Bureau of Reclamation has built over 300, including some of the nation's largest. These dams are an essential component of the nation's water infrastructure. The vast majority of the nation's water storage reservoirs were constructed decades ago, and since construction, they have been trapping the sediment (clay, silt, sand, and gravel) eroded from the land surface of the upstream watershed, and carried downstream by river flow (Morris and Fan, 1998).

Without active management, the continual accumulation of sediments gradually displaces the storage volume in a reservoir, which risks ultimately rendering the reservoir useless for capturing and storing water. In addition, long before the reservoir has lost its water storage capacity, numerous problematic sedimentation impacts can occur, including reduction in the reliability of water supply, burial of dam outlets and intakes for water supply and power production, damage to hydropower and pumping equipment, burial of boat ramps or marinas, impairment to navigation, reduction in the surface area for lake recreation, increased flood levels upstream, downstream channel degradation, and other environmental impacts.

My presentation gives a brief overview of the reservoir sedimentation process and several examples of locations where sediment is impacting dam operations. I will discuss a variety of sediment management techniques along with their benefits and costs. I will then review the methods for analyzing the movement of sediment through reservoirs