



US Army Corps
of Engineers®

Flood & Coastal Storm Damage Reduction R&D Program

Engineering Guidelines for Dam Removal

Description

Most of the dam removal projects in the United States have been executed by state agencies or private concerns to restore environmental benefits to river systems. During the past 75 years, hundreds of dams have been removed in 43 states. Generally, the dams and reservoirs associated with these type projects are usually single use, such as small-scale hydropower operations. The issues associated with these small dams are not complex; therefore dam removal can be expedited with a minimum of planning and adverse impacts.



Preparation to breach Marmot Dam, Sandy River, northwest Oregon (left)



View of Marmot Dam immediately after removal (right)

While dam removal guidelines are commonly found throughout the literature, they are usually site-specific and do not directly apply to the U.S. Army Corps of Engineers projects. The Corps' diverse mission has resulted in multi-purpose and multiuse dams and reservoirs with complex issues that must be addressed before dam decommissioning and removal options can be considered. Some of these issues are loss of stakeholder benefits, environmental impacts upstream, at the dam site, and downstream of the dam after removal, and long-term restoration plans that involve a variety of disciplines and streamside stakeholders.

Understanding the impacts of dam removal on stream channel stability is critical to predicting and mitigating the effects of the upstream migration of channel degradation. Degradation of the inflowing stream channel due to dam removal results in severe erosion of streamside environments as well as main channel tributaries, resulting in excess sedimentation migrating downstream. Instream and streamside habitats can be severely affected by high concentrations of sediment and the subsequent degradation in water quality.

Upstream migration of channel degradation after dam removal

This work will provide guidelines to USACE decision-makers, planners, and technical personnel for conducting the necessary studies to support the dam removal option.



Benefits This effort will provide guidance on state-of-the art technical approaches and tools for evaluating short- and long-term impacts of dam removal activities. The guidelines produced from this work will recommend the use of analytical tools and analysis techniques for each phase of dam removal and post removal channel restoration.

Status Ongoing.

Distribution Source(s) The guidance document will be available as a technical note through the Flood and Coastal Storm Damage Reduction R&D Program.

Available Documentation N/A

Available Training N/A

Available Support N/A

Application N/A

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