

Notch-and-Release Process: Dam Removal and River Restoration

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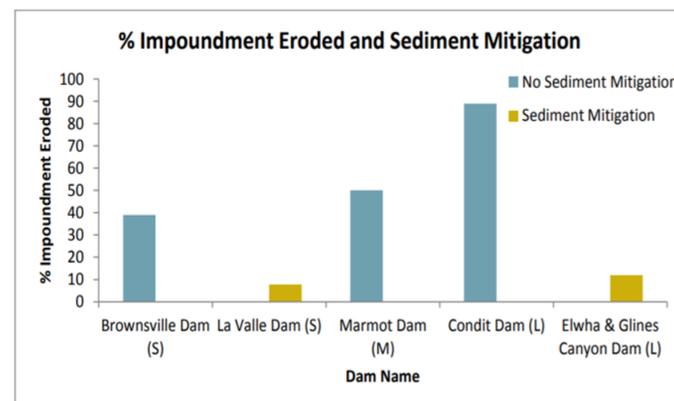
Dams

Purpose

- Dams have ecological, political, and recreational purposes, such as hydraulic power, agricultural uses, and reservoir creation.
- The reasons for implementing dams are often not as sound as the reasons for returning the river to a free-flowing ecosystem.

Environmental Impact

- If a dam is in place for a longer period of time, more sediment can build up behind the cement wall. This causes the dam becomes more difficult to remove because sediment is abrasive and can be harmful to the land when released quickly.
- Biological, chemical, and physical properties of water change when a body of water is dammed causing the type of aquatic life that can thrive in the water to change and can threaten extinction for certain species.



What is the Notch-and-Release Process?

- It is a sustainable method used for rigid dam removal.
- The process removes layers of the dam structure by using heavy machinery to create spillway gates, or notches. The machines used are called barge-mounted hydraulic hammers,
- The spillway gates allows water to be slowly released from the dam, as opposed to releasing the water all at once, which would damage the downstream ecosystem.
- The size of the notch depends on the size of the dam because the size determines the flow required to successfully lower the level of the reservoir behind the cement dam.

Why Notch-and-Release?

- When the mass amounts of water and sediment trapped behind a dam are released in the gentlest way possible, the grand process of removing a dam becomes more manageable, thus reducing turbulence and scour of riverbeds.
- This particular process preserves the environment and aquatic life as much as possible.
- Dams have been removed by the rapid release approach, the dig and dewater approach, the retained sediment approach, or by the detonation approach, but all of these approaches are either too expensive or more damaging to the local ecosystem of the dams in question.

Dam Removal in Action

Kimages Creek

- The creek was dammed in 1927, creating a reservoir for fishing and recreation in an eastern Virginia tributary.
- A slow-draining dam removal process was implemented to release water back into the river ecosystem.

Elwha River

- Elwha Dam and Glines Canyon Dam are two dams that damage the Northwest river ecosystem.
- After the dams were removed, the natural flow and ecosystem thrived. Biotic diversity returned with lack of human interaction and an unregulated flow of water.

Notch-and-Release Approach

