



Dam Breaching and the Lower Snake River Dams

*Note: This fact sheet provides information on the **estimated** costs and **expected** effects of breaching the four lower Snake River dams—Lower Granite, Little Goose, Lower Monumental and Ice Harbor dams.*

The U.S. Army Corps of Engineers studied ways to improve juvenile salmon passage through the hydropower system on the Snake River in a seven year study, 1995–2002. The Corps completed the Lower Snake River Juvenile Salmon Migration Feasibility Report/ Environmental Impact Statement in September 2002, issuing a record of decision that concludes breaching the dams by itself would not recover the listed stocks of salmon and steelhead. The Corps chose “adaptive migration” (major improvements to fish passage at the dams) as the preferred alternative.

The federal agencies responsible for the Federal Columbia River Power System (FRCPS) are hard at work making improvements throughout the system to assist in the recovery of listed salmon and steelhead. The Corps’ study determined that the economic, user and environmental impacts of dam breach would be substantial, without an indication that the action by itself would recover listed stocks.

What is dam breaching?

To breach the lower Snake River dams, the earthen portion of each of the four dams would be removed to return the river to a free-flowing state for a 140-mile stretch. The concrete and steel structures that currently provide power and navigation could remain in place, but they would be inoperative. The Corps would need

authorization from Congress and appropriation of funds to breach the four lower Snake River dams.

What work would need to be done?

Modification of the reservoir infrastructure would be necessary as a result of lowering the reservoirs. Up to 25 bridge piers would require protection from erosion due to higher velocity river water. Railroad and highway embankments would need to be protected from erosion due to higher velocity river flows. Drainage structures, originally designed to allow passage of water through embankments into reservoirs, would need to be protected so that discharge water does not erode the embankment. Large quantities of rock would be necessary to stabilize the critical sections of embankments.

Repairs to roads and rail beds would be needed as a result of settlement and slope failures of embankments.

Modifications related to fish, wildlife, recreation, and cultural resources would be needed in each reservoir. Extensive modifications to the Lyons Ferry Hatchery would be necessary to maintain limited production during the process.

Alternate irrigation facilities at habitat management units would be needed to maintain short-term operation. During and following drawdown, exposed land masses would be re-vegetated and habitat management units would be re-fenced.



Recreation areas would be modified or, in some cases, closed. A significant cultural resources protection program would be implemented to protect over 300 known sites that would be exposed after drawdown.

A number of major agricultural and industrial modifications would be required by drawdown. For example, the Corps developed concepts for a corporate irrigation system for the major irrigators now using the Ice Harbor Reservoir. Modifications to existing water wells may be necessary to maintain current water yields. Other actions that may be necessary include modifications to water intakes for industrial and municipal use, modifications to an industrial effluent diffuser, and replacement of a river crossing for a gas pipeline.

How long would it take and what would it cost?

The timeframe for implementing drawdown is estimated to extend more than nine years. The cost of all Federal engineering and construction activities to implement the design and construction actions for drawdown is estimated at \$1 billion. The annual cost of breaching is \$373 million. The benefit is estimated at \$106 million annually, resulting in an annual cost of \$267 million.

Summary of expected effects of dam breaching

- Moderate reduction in extinction risks for fall chinook and steelhead.
- Slight reduction in extinction risks for spring/summer chinook.

- Loss of hydropower generation; raised electric rates. Lower Snake River projects produce \$271 million dollars in revenue each year and produce enough power for the city of Seattle, Wash.
- Loss of navigational capacity; impacts on other transportation systems; increased transportation costs.
- High sediment movement. It is estimated that 100 – 150 million cubic yards of impounded sediments would migrate downstream. It would also allow for the transport of Snake River sediment—3 to 4 million cubic yards—each year into the Columbia River.
- Impacts to irrigation and water supplies.
- Short-term gain and long-term loss of jobs and income.
- Gain in recreation opportunities.

Dam Breaching Costs Annually

Implementation Costs	\$48.7 million
Power	\$271.0 million
Transportation	\$37.8 million
Water Supply	\$15.4 million
Total Cost	\$373 million per year

Dam Breaching Benefits Annually

Avoided Costs	\$33.5 million
Recreation	\$71.0 million
Commercial Fishing	\$1.5 million
Total Benefits	\$106 million

Net Annual Cost: \$267 million (over a 100-yr period)

For more information on the Lower Snake River study, visit

<http://www.nww.usace.army.mil/lsr/>