

Wenatchee and Entiat River beaver relocation restores natural habitats



Over the last several decades, human activities in the Wenatchee and Entiat River watersheds—from stream channelization, forest harvest, floodplain development, and water diversions—have transformed the ecosystems and functions of the local streams. The systematic removal of beavers and their dams from these watersheds has exacerbated these effects, and now threatens the survival of several native salmon species.

Relocating beavers and their habitats to improve water flow

The [Trout Unlimited – Washington Water Project](#) received an award of \$100,000 from Microsoft to establish new family groups of beavers in these sub-basins. This is one of three projects in central Washington that are part of a corporate water stewardship strategy that invests in water replenishment projects to alleviate water stress in communities and locales where Microsoft operates

facilities. This project is part of a partnership with the Bonneville Environmental Foundation (BEF). In addition to Microsoft, partners involved in the project include the US Forest Service, the US Fish and Wildlife Service, the Yakama Nation, and Trout Unlimited, which is the project manager.

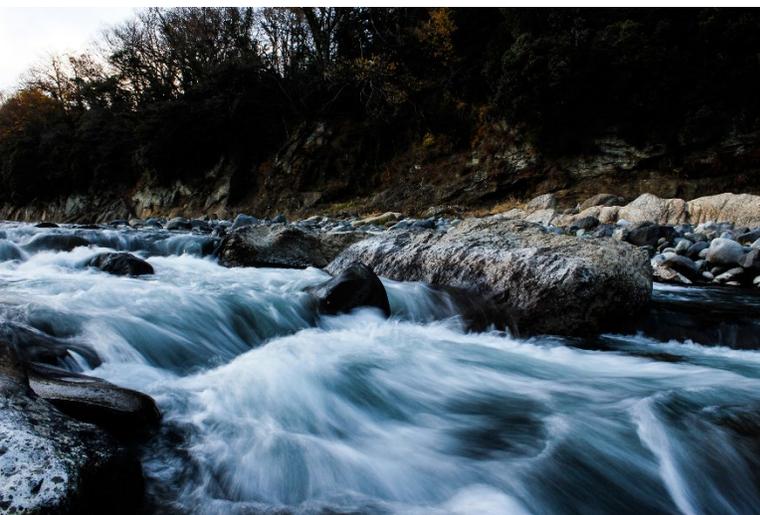
The project established 10 to 15 new pairs or family groups of beavers and implement 50 to 60 beaver dam analogs (BDAs) in suitable tributary systems of the Wenatchee and Entiat sub-basins. BDAs are lines of pilings driven into the streambed with branches woven between the pilings that mimic the functionality of beaver dams.

“Through partnerships with Microsoft, Washington Department of Fish and Wildlife, Cascade-Columbia Fisheries Enhancement Group, and the private landowner, Trout Unlimited has been able to increase habitat availability for threatened fish in a creek that had long been written off by the restoration community.”

—Cody Gillin,
Trout Unlimited beaver project manager

Protecting and restoring stream environments

According to Robes Parrish, U.S. Fish and Wildlife Service hydrologist, [beaver dams create pools that flatten rivers and streams and help waterways meander](#). They also





address a variety of communal water quality and availability factors, including groundwater storage, instream flow, floodplain reactivation, channel aggradation, wetland development, habitat complexity, and wood recruitment. Instream flow improvements will be measured through pre-and post-implementation data collection.

The project builds off research that shows increased steelhead populations and enhanced salmon habitat and stream conditions resulting from beaver and BDA activity. Trout Unlimited has seen juvenile steelhead and rainbow trout using these pools where they would otherwise not be able to remain during summer low flows. Collectively, the BDAs are promoting about 1.5 acre-feet of groundwater replenishment that will benefit the aquatic ecosystem and downstream human communities in a small, water-challenged drainage.

The project planners conservatively estimate the project can produce 12 million gallons per year (approximately 36 acre-feet) of water benefits in the form of surface water, ground water, and shallow subsurface water. Project leaders conducted estimates of groundwater and surface water storage resulting from 2018 beaver relocation and BDA implementation efforts, and figure about 10 to 12 acre-feet more water was stored in the landscape over the summer compared with pre-restoration conditions.

Donating time in addition to funds

In addition to the funding Microsoft is providing for the project with Trout Unlimited, this past autumn eight Microsoft employees participated in the building of BDAs in Derby Creek just outside the town of Peshastin in central Washington. This group of employees, alongside Trout Unlimited employees, made four of the beaver dams near each other. This redundancy helps in the event that one of the dams fails, and it provides the beavers with options. [Cody Gillin, Trout Unlimited beaver project manager, said](#), "The idea behind this is that these structures are going to encourage beavers to colonize this area where they have tried and not been successful over the past couple of decades."

Microsoft is helping fund the project as part of its efforts to meet its replenishment commitments, said Paul Fleming, Microsoft corporate water program manager. Microsoft recognizes that water quality and availability is a key environmental issue and is investing in preserving water for current and future generations. "Water is this sort of connector; it flows through communities and economies," Fleming said. "So we are continually asking, 'how can we address and improve conditions outside of our four walls?'"

Looking ahead

Beaver relocation and BDA permitting took place during 2018, with BDA construction becoming the focus in 2019 and 2020. The project partners are committed to conducting extensive pre-and post-project implementation monitoring to assess the efficacy of BDA installations.