



NONPOINT SOURCE SUCCESS STORY

Idaho

Stakeholders Collaborate to Reduce Sediment and Restore Fish Habitat in Bear Valley Creek

Waterbodies Improved

Sediment from historical dredge-mining, livestock grazing and roads degraded water quality in Idaho's Bear Valley Creek.

As a result, the stream was added to Idaho's 1994 Clean Water Act (CWA) section 303(d) list for sediment impairment. Tribal, state and federal partners cooperated on sediment-reduction projects. Monitoring now shows that sediment no longer impairs cold-water aquatic life in two Bear Valley Creek assessment units (AUs). As a result, the Idaho Department of Environmental Quality (IDEQ) removed the third-order AU (ID17060205SL012 _ 03) from the state's list of impaired waters during the 2008 reporting cycle and is proposing to remove the fourth-order AU (ID17060205SL012 _ 04) during the 2014 reporting cycle.

Problem

Bear Valley Creek joins Marsh Creek to form the Middle Fork Salmon River in west-central Idaho (Figure 1). Streams in the mountainous, 191-square mile Bear Valley Creek watershed provide important habitat for trout and salmon. This predominately forested watershed falls entirely within national forest land and includes 154 miles of access roads. Before 2001, livestock grazing occurred on the meadows growing in the unconsolidated sandy soil of the valley bottom.

Between 1956 and 1959, dredge mining of private land occurred in the upper watershed, obliterating 17,000 linear feet of Bear Valley Creek and 10,000 linear feet of tributary channels. Subsequently, a flood event in 1984 caused further damage with the massive erosion of tailing materials.

In 1994 the U.S. Environmental Protection Agency (EPA) added Bear Valley Creek to the CWA section 303(d) list of impaired waters on the basis of IDEQ's 1992 section 305(b) water quality assessment report.

Project Highlights

Between 1985 and 1989, the Shoshone-Bannock Tribe restored the previously mined area. The tribe graded and vegetated eroding stream banks to reestablish a functioning floodplain along 1.5 miles of stream, preventing an additional 250,000 to 500,000 cubic yards of mining overburden from entering the stream. In 1989 the mineral resource owners sold the land to the federal government.

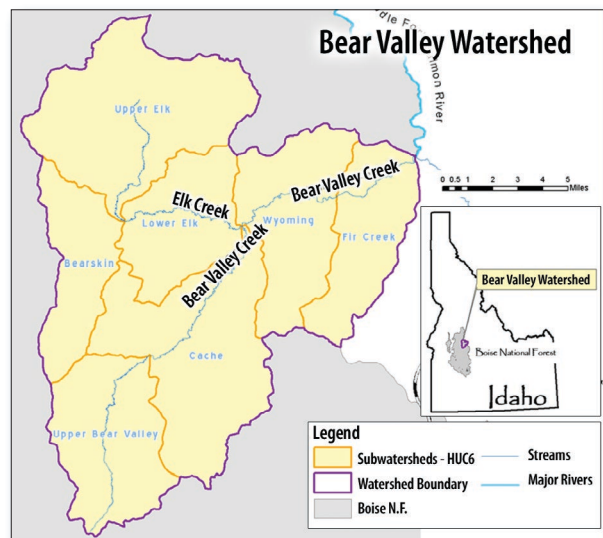


Figure 1. Bear Valley Creek, in west-central Idaho.

In the 1990s the U.S. Forest Service (USFS) partnered with the Bonneville Power Administration (BPA) to implement modified grazing strategies on the watershed's livestock grazing allotments to protect salmon species and their habitats. Partners' efforts included planting willows in riparian areas, installing revetments and flow deflectors to stabilize eroding streambanks, and installing fences to exclude livestock from streams. In 2001 the USFS closed the Bear Valley Creek livestock grazing allotment, permanently removing a major source of erosion.

In 2003 the Idaho Department of Fish and Game (IDFG) and numerous partners implemented a



Figure 2. Bear Valley Creek, before (left) and after (right) livestock grazing was removed. This bar is gradually recovering as perennial vegetation becomes established.

riparian restoration project along Upper Bear Valley Creek. Volunteers planted native willows, sedges and grasses at 14 sites.

From 2009 to 2011, USFS used the Geomorphic Road Analysis and Inventory Package (GRAIP) to identify key locations where road sediment entered Bear Valley streams. Using this information, the USFS completed numerous road remediation projects to address prioritized source areas. Because numerous sediment control efforts existed or were planned, the USFS and IDEQ developed an Integrated Report Category 4b (“other pollution controls in place”) justification in 2011 to show that a sediment total maximum daily load for the watershed was unnecessary.

In 2010 the USFS led an effort to restore the stream channel and riparian areas of Casner Creek, an Upper Bear Valley Creek tributary that flows through the historically dredge-mined area.

Results

Monitoring results using IDEQ streambank stability (SS) methods in the third-order AU (Bear Valley Creek between Sheep Trail and Cache Creeks) show SS averaged 97 percent stable in 2004 and 2007. In 2008 and 2012, SS assessments in the fourth-order AU (Bear Valley Creek from Cache Creek to Elk Creek) averaged 94.5 and 98.1 percent stable, respectively. Therefore, both the third- and fourth-order AUs meet the Pacific Anadromous Fish Strategy (PACFISH) riparian management objective of a 90 percent SS minimum threshold established for salmon streams.

Between 2004 and 2012, IDEQ completed Beneficial Use Reconnaissance Program (BURP) wadeable streams rapid bioassessments on the third- and fourth-order Bear Valley Creek AUs. The BURP assesses stream health using multimetric indices (biological, physical and chemical) on a 0.0 (lowest)

to 3.0 (highest) scale. In 2004 BURP results for the third-order AU showed a stream macroinvertebrate index (SMI) score of 3.0, a stream fish index (SFI) score of 2.0 and a stream habitat index (SHI) score of 1.0, with an average score of 2.0, the minimum threshold considered supportive of beneficial uses, according to IDEQ’s Water Body Assessment Guidance. Therefore, in 2008 IDEQ moved the 2.08-mile third-order AU from the list of impaired waters (for sediment impairment) to Category 2—fully supporting assessed uses.

IDEQ performed BURP assessments on the fourth-order AU in 2008 and 2012. The 2008 assessment yielded an SMI score of 3.0 and an SHI score of 1.0 (SFI was not included in the assessment). The average score was 2.0 (supporting cold-water aquatic life). In 2012 the fourth-order BURP scores were 3.0 for both the SMI and SHI. The 3.0 was the highest score possible, indicating continued full support of beneficial uses. In 2008 IDEQ collected percent fines data documenting that 21 percent of the substrate consisted of material less than or equal to 2.5 millimeters in size. This value dropped to 9 percent in 2012. According to IDEQ’s *Guide to Selection of Sediment Targets for Use in Idaho TMDLs*, most impairment is noted when percent fines of this size make up more than 30 percent of the substrate. As a result of these data, in the 2014 reporting cycle IDEQ is proposing to move the 7.36-mile fourth-order AU from the state’s list of impaired waters (for sediment impairment) to Category 2—fully supporting assessed uses.

Partners and Funding

The Shoshone-Bannock Tribes administered the project restoring the dredged and heavily eroding area in the Upper Bear Valley Creek watershed, with participation from Idaho and the USFS Boise National Forest and with \$2.8 million in funding from the federal BPA. The USFS implemented the additional riparian and streambank restoration work throughout the watershed using a variety of USFS funding programs, as well as fish restoration funding from BPA. IDFG led the 2003 community-driven restoration project, with help from numerous partners (Trout Unlimited, Boise Valley Fly Fisherman, Borah High School and the Boise National Forest) and with \$5,000 in grant funding support from the National Oceanic and Atmospheric Administration’s Community-based Restoration Program. Through an interagency agreement, in 2009 EPA provided \$57,000 to the USFS for GRAIP roads analysis. In 2010 a \$33,000 CWA section 319 grant supported the restoration of an Upper Bear Valley Creek tributary.



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