



# NONPOINT SOURCE SUCCESS STORY

# Idaho

## Watershed Restoration Decreases Sediment Levels and Improves Fish Habitat in Lost and Falls Creeks

### Waterbodies Improved

In the early 1990s, U.S. Forest Service (USFS) data indicated that excessive sedimentation from eroding forest roads negatively affected cold-water aquatic life in Idaho's Lost and Falls creeks in the North Fork Coeur d'Alene (NFCDA) River Subbasin. In 1994 the Idaho Department of Environmental Quality (DEQ) added three assessment units (AUs) in the Lost Creek and Falls Creek watersheds to the state's list of impaired waters for sediment. A combination of restoration activities and natural recovery has improved water quality conditions in these watersheds. Watershed stakeholders, led by the USFS, have worked to decommission failing forest roads, remove eroding culverts, and restore stream habitat. Over time, these activities have reduced sediment levels and improved aquatic habitat. As a result, DEQ removed these three AUs from the state's 2016 list of impaired waters for sediment.

### Problem

Lost Creek and Falls Creek are adjacent watersheds within the boundaries of the Idaho Panhandle National Forests in the NFCDA River Subbasin in the northern Rocky Mountains (Figure 1). They provide important habitat for westslope cutthroat trout. Falls Creek is designated critical habitat for bull trout.

In the early 1990s, USFS riffle stability studies and other habitat data indicated that cold-water aquatic life in streams within the Lost Creek and Falls Creek watersheds was impaired due to sediment. Therefore, DEQ added the following three AUs to Idaho's 1994 list of impaired waters for sediment: Lost Creek, headwaters and tributaries (ID17010301PN009\_02, 19.16 miles long); Lost Creek, below East Fork Lost Creek (ID17010301PN009\_03, 1.28 miles long); and Falls Creek and tributaries (ID17010301PN011\_02, 8.07 miles long).

Additional assessments confirmed impairment. Bioassessment data collected in 1996 for Falls Creek yielded an average score of 1.67, below the level of 2.0 needed to indicate support. In 2001 DEQ completed an assessment of the NFCDA Subbasin (including the Lost Creek and Falls Creek watersheds), which indicated that these three AUs should remain on the impaired waters list for sediment. The 2001 Subbasin Assessment and sediment total maximum daily loads cited forest management and forest roads as major sources of sediment causing impairment.

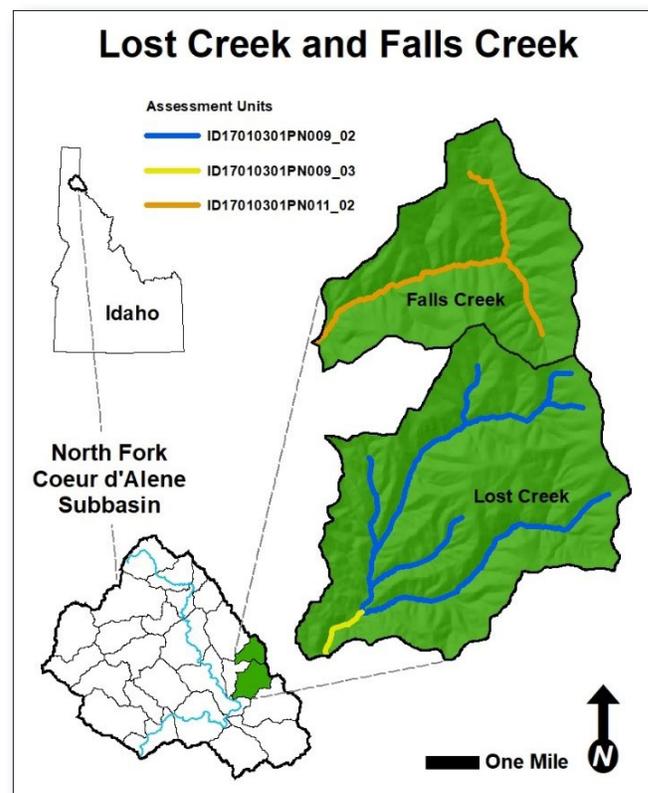


Figure 1. Lost Creek and Falls Creek are adjacent watersheds within the boundaries of the Idaho Panhandle National Forests in the headwaters of the North Fork Coeur d'Alene River Subbasin in northern Idaho.

## Story Highlights

Partners have been conducting restoration work in the Lost Creek and Falls Creek watersheds for 30 years. In the Lost Creek watershed, the USFS Idaho Panhandle National Forests Coeur d'Alene River Ranger District placed large woody debris on 0.73 miles of stream in 1991 and removed culverts from 23.5 miles of road in 1993. USFS recently decommissioned one forest road (0.4 miles) and removed one culvert as part of the Rolling Hills Larch wildfire fuel reduction project. These projects benefited both Lost Creek AUs. In the Falls Creek watershed, the USFS placed instream structures and large woody debris in 1989 and removed culverts from 5.5 miles of road since 1994. Removing erosion-prone roads and culverts from the watersheds reduced the amount of sediment that reached waterways. Placement of woody debris within the streams provided crevices and branches that forced the water to shift direction and velocity, dropping silt in quiet places and removing it from riffle areas. It also helped to dissipate the energy of rushing water that could otherwise lead to the erosion of stream banks.

## Results

A combination of restoration activities and natural recovery has improved water quality conditions. The sources of excess sediment have been treated and pathways of delivery have been reduced or eliminated so that sediment loads are now within the assimilative capacity of the stream. DEQ bioassessment data collected in 2015 demonstrate that sediment no longer causes impairment in the two Lost Creek AUs and the Falls Creek AU. The overall average Beneficial Use Reconnaissance Program (BURP) multimetric index condition ratings for all AUs were at or above 2.0 in 2015 (Table 1). According to DEQ's 2016 Water Body Assessment Guidance, an average BURP score of 2.0 or better indicates full support of the cold water aquatic life beneficial use.

Other 2015 data also indicate beneficial use support. Monitoring in all three AUs found multiple fish species that indicated good conditions for cold water fish species (e.g., cutthroat trout). Macroinvertebrate samples included diverse taxa and relatively high numbers of sensitive EPT (ephemeroptera [mayflies], plecoptera [stoneflies] and trichoptera [caddisflies]) taxa that are associated with cold, clear mountain streams. Physical

**Table 1. Lost and Falls creeks 2015 assessment data.**

Stream name and monitoring site	Assessment unit	2015 BURP multimetric index scores <sup>1</sup>
East Fork Lost Creek (2015SDEQA153)	ID17010301PN009_02	2.67
Lost Creek (2015SCDAA006)	ID17010301PN009_02	2.00
Lost Creek (2015SCDAA008)	ID17010301PN009_03	2.00
Falls Creek (2015SCDAA005)	ID17010301PN011_02	2.67

<sup>1</sup>DEQ's 2016 Water Body Assessment Guidance Average BURP score  $\geq$  2.0 indicates full support of cold water aquatic life beneficial use.

habitat conditions were good with low percent fine sediments, high bank cover, and high bank stability. Because data show that sediment no longer impairs the cold water aquatic life use in the Lost Creek and Falls Creek AUs, DEQ removed the sediment impairment from the three AUs (Lost Creek, headwaters and tributaries [ID17010301PN009\_02]; Lost Creek, below East Fork Lost Creek [ID17010301PN009\_03]; and Falls Creek and tributaries [ID17010301PN011\_02]) on Idaho's 2016 list of impaired waters. Lost Creek (headwaters and tributaries) is now fully supporting all uses. Lost Creek (below East Fork Lost Creek) and Falls Creek (and tributaries) remain listed as impaired for temperature.

## Partners and Funding

The USFS Coeur d'Alene River Ranger District led the effort to plan and implement watershed restoration projects. DEQ's Coeur d'Alene regional office conducted monitoring and led the assessment of the NFCDA Subbasin. The NFCDA Watershed Advisory Group (consisting of interested citizens and other stakeholders) meets multiple times per year to provide local public input and guidance to DEQ during development and implementation of water quality improvement plans for watersheds within the NFCDA Subbasin, including Lost and Falls creeks.

The Lost Creek and Falls Creek restoration efforts cost an estimated \$250,000, which was supported by funds from the timber sale receipts (Knutson-Vandenberg Program funds) and other USFS sources.



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