



NONPOINT SOURCE SUCCESS STORY

Idaho

Implementing Grazing Best Management Practices Improves Shoshone Creek

Waterbody Improved

Recreation, livestock grazing and other activities on public and private lands along southern Idaho's Shoshone Creek led to erosion and the loss of riparian cover. Data indicated that the creek failed to meet its beneficial uses for cold water aquatic life and salmonid spawning because of sediment and temperature impairments. As a result, numerous portions of Shoshone Creek were included on the Clean Water Act (CWA) section 303(d) list between 1994 and 2008. Public and private partners have implemented best management practices (BMPs) to reduce erosion and improve riparian conditions. Recent bioassessment data collected along South Fork Shoshone Creek indicate that water quality conditions are improving as a result of restoration efforts.

Problem

The 218,600-acre Shoshone Creek watershed is west of Idaho's Cassia Mountains in Twin Falls County and drains into Salmon Falls Creek in Elko County, Nevada (Figure 1). Landowners include the U.S. Department of Interior's Bureau of Land Management (BLM) (44.7 percent), the U.S. Forest Service (USFS) (20.3 percent), the Idaho state government (2 percent) and private entities (33 percent).

Rangelands encompass approximately 58 percent of the Shoshone Creek watershed. Historical grazing systems allowed cattle to heavily graze meadows and riparian habitats, causing decreased stream-bank stability and damaging native vegetation. This, in turn, allowed for the invasion of noxious weeds, a loss of beneficial riparian vegetation and the erosion of soil. Data collected in the 1990s and 2000s indicated that Shoshone Creek failed to support its beneficial uses (cold water aquatic life and salmonid spawning) because of elevated temperatures and excess sediment. As a result, numerous assessment units (AUs) within the Shoshone Creek watershed were added to the CWA section 303(d)list—two by the U.S. Environmental Protection Agency in 1994 and two by the Idaho Department of Environmental Quality (DEQ) in 2008.

In 2007 DEQ completed a subbasin assessment and total maximum daily load (TMDL) for the listed AUs within the Salmon Falls Creek subbasin, including those in the Shoshone Creek watershed. To allow Shoshone Creek to meet water quality standards and support its beneficial uses, the TMDL established reduction goals for both temperature (a 40 percent reduction) and sediment (a 65 percent reduction).

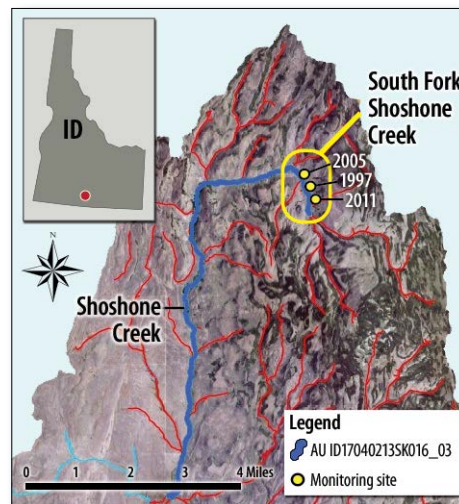


Figure 1. Shoshone Creek is in southern Idaho. Yellow dots represent monitoring locations in the upper portion of Shoshone Creek AU ID17040213SK016_03 (main stem).

Project Highlights

Partners have worked to improve Shoshone Creek since the early 1980s. For example, in the Magic Common Grazing Allotment, BLM excluded livestock from the stream (0.15 mile and 0.25 mile in 1982 and 1987, respectively), instituted prescribed grazing in 2000 and installed fencing to protect a sensitive spring in 2003. In the Kerr-Lost Allotment, BLM excluded livestock from 0.25 mile of Shoshone Creek in 1982 and instituted prescribed grazing in 1987. In 2000 BLM adopted prescribed grazing in the Horse Creek Allotment. As of 2014, all of

Shoshone Creek under BLM administration is either excluded from livestock grazing or is managed as riparian pasture (i.e., allows for prescribed grazing).

In July 2013, staff from the USFS' Sawtooth National Forest developed a land and resources management plan that describes the agency's water management goals. Even before developing this plan, the USFS was implementing projects to protect soil, water, riparian and aquatic resources. In 2004 the USFS built fences on the Rock Creek C&H Allotment to restrict grazing along the creek. In addition, the USFS placed boulders along the main road to prevent motor vehicle access to the creek.



Figure 2. Project partners installed alternate water sources to keep livestock away from Shoshone Creek.

In 2007 the USFS partnered with the Twin Falls Soil and Water Conservation District (SWCD) and the Western Stockgrowers Grazing Association (WSGA) to install piping from a spring to a 10,000-gallon holding tank. The water is then gravity-fed to 19 livestock watering troughs (Figure 2). These troughs serve three

different grazing pastures as part of a rotational grazing system on 2,354 acres and help to protect approximately 4 miles of Shoshone Creek riparian area. The WSGA and USFS developed and implemented a grazing management plan for the area in 2008. To supplement water supplies during drought periods, they installed a second, 6,000-gallon storage tank, in June 2014. The WSGA also purchased two mobile pumps powered by solar panels to provide additional alternative water sources.

Results

DEQ collected Beneficial Use Reconnaissance Program wadeable streams rapid bioassessment data in the upper portion of AU ID17040213SK016 _ 03 in 1997, 2005 and 2011. These limited data, which capture and assess only the uppermost few miles of an 11.3-mile-long AU, show that the macroinvertebrates scores have improved from a condition rating of 2 to 3 (Table 1). The habitat is also responding favorably, but at a slower pace. The SFI (stream fish index) score did

Table 1. South Fork Shoshone Creek Beneficial Use Reconnaissance Program Wadeable Streams Rapid Bioassessment Data

Date	Stream Macroinvertebrate Index (SMI) Score	SMI Condition Rating ¹	Stream Habitat Index (SHI) Score	SHI Condition Rating ¹
1997	44.9	2	46	1
2005	58.5	3	43	1
2011	72.4	3	53	2

¹ The SMI, SFI and SHI results are used to evaluate support of cold water aquatic life. The scoring criteria are derived from percentile categories of the reference condition in different bioregions (i.e., a "condition rating"). Condition ratings include 0 (below minimum of reference condition), 1 (less than 10th percentile of reference condition), 2 (between 10th and 25th percentile of reference condition), or 3 (more than 25th percentile of reference condition). For more information, see section 6 of Idaho's Water Body Assessment Guidance (January 2002).

not improve over the sampling period; however, numerous native fish species have been present during all sampling events. Juvenile salmonid species were present in both 1997 and 2011, indicating good quality water. DEQ believes that the low SFI score might not reflect conditions on-the-ground; therefore, additional fish surveys are warranted.

These data indicate that restoration efforts are helping to improve water quality in the upper portion of Shoshone Creek AU ID17040213SK016 _ 03. Additional data will need to be collected to assess water quality conditions elsewhere within this and other Shoshone Creek AUs.

Partners and Funding

Numerous partners have provided technical or financial assistance to help landowners and producers implement BMPs in the Shoshone Creek watershed. Partners include the Twin Falls SWCD, USFS, BLM, the WSGA, the U.S. Department of Agriculture's Natural Resources Conservation Service, and the Idaho Soil and Water Conservation Commission.

The Twin Falls SWCD received \$96,160 (\$85,700 in 2007 and \$10,460 in 2014) in U.S. Environmental Protection Agency CWA section 319 funding from DEQ to install storage tanks, piping and water troughs to support rotational grazing. The WSGA provided significant matching funds for the CWA section 319 projects. DEQ and the Idaho Association of Soil Conservation Districts have collected monitoring data and have provided support for assessment and planning efforts.



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