



Section 319

NONPOINT SOURCE PROGRAM SUCCESS STORY

Wyoming

Coordinated Efforts Reduce Sediment in Creek

Waterbody Improved

Excess sedimentation had impaired the aquatic life and coldwater fishery uses of Chugwater Creek in Wyoming. As a result, the Wyoming Department of Environmental Quality (WDEQ) added a reach of Chugwater Creek to Wyoming's 2000 Clean Water Act (CWA) section 303(d) list of impaired waters. Following that listing, local stakeholders implemented a number of best management practices (BMPs) to reduce sediment loading and bank erosion, while also maintaining agricultural production. A technical review team subsequently determined that those activities had adequately removed the sediment threat to Chugwater Creek; consequently, WDEQ removed the stream from the state's CWA section 303(d) list for sediment in 2008.

Problem

Chugwater Creek, a tributary to the Laramie River, is in the North Platte River Basin of Wyoming. The creek originates along the eastern side of the Laramie Mountains and then flows northeast to its confluence with the Laramie River near the town of Wheatland. WDEQ classifies Chugwater Creek as a type 2AB water; thus, it is protected for the designated uses of drinking water, coldwater game and nongame fisheries, fish consumption, aquatic life other than fish, recreation, wildlife, industry, agriculture and scenic value.

Monitoring by WDEQ in 1998 indicated that a portion of the stream was not supporting its aquatic life and coldwater fisheries designated uses because of excess sediment from unknown sources. The fine sediments (Figure 1) settled and created a homogenous and highly unstable substrate for bottom-dwelling aquatic animal and plant communities. The 10.4-mile mainstem of Chugwater Creek showed a marked decline in the diversity and abundance of pollution-sensitive aquatic macroinvertebrates as compared to upstream study sites. Because of those findings, WDEQ added the creek to Wyoming's 2000 CWA section 303(d) list as threatened because of excess sediment loading.



Figure 1. Before restoration, lower Chugwater Creek's streambed was silt-dominated, as seen here.

Project Highlights

A stakeholder group including local landowners, the local irrigation district, Platte County Resource District, Wyoming Game and Fish Department, and Pheasants Forever adopted numerous BMPs to reduce sedimentation. The new BMPs complemented other BMPs that landowners had previously installed. New BMPs included adding riparian fencing to facilitate a shorter duration grazing strategy in the stream corridor, moving a feedlot away from the stream channel (Figures 2 and 3), constructing an upland reservoir to capture and reuse excess irrigation water, and converting from flood to sprinkler irrigation to reduce surface runoff.

