Section 319
NONPOINT SOURCE PROGRAM SUCCESS STORY

Idaho

Implementing Management Practices Decreases Bacteria in the Raft River

Waterbody Improved

Historical agriculture and grazing land uses contributed nonpoint source pollution to Idaho's Raft River. As a result, in 1994 the Idaho Department of Environmental Quality (DEQ) added the Raft River Subbasin to the state's Clean Water Act (CWA) section 303(d) list of impaired waters for bacteria, sediment and other pollutants. Stakeholders have implemented agricultural and grazing-related best management practices (BMPs) throughout the subbasin, which has led to water quality improvements. One 19-mile-long segment (assessment unit) in the watershed now meets water quality standards for bacteria, prompting DEQ to propose removing the bacteria impairment for this assessment unit from the state's list of impaired waters in the 2012 Integrated Report.

Problem

The Raft River originates in Box Elder County in northern Utah and flows north to join the Snake River in southeastern Idaho's Cassia County (Figure 1). Most (approximately 82 percent) of the 967,150-acre Raft River Subbasin is in Idaho. The major land uses in the subbasin are rangeland (49 percent), forests (25 percent), and cropland and pastureland (25 percent).

Intermittent water quality data collected from the late 1980s to the mid-1990s indicated that the Raft River failed to support its secondary contact recreation beneficial use because of elevated bacteria levels. The river also failed to support a number of other beneficial uses. As a result, in 1994 the DEQ added a portion of the Raft River Subbasin to the state's CWA section 303(d) list of impaired waters, citing numerous pollutants, including bacteria, sediment, dissolved oxygen, temperature and salinity. In 2002, Idaho modified its segmentation framework to conform to assessment units (organized by stream order). The impaired fourth-order (main stem) Raft River assessment units are ID17040210SK013 _ 04 (Idaho/Utah border to Edwards Creek), ID17040210SK010 _ 04 (Unnamed Tributary to Cottonwood Creek) and ID17040210SK008 _ 04 (Cottonwood Creek to Cassia Creek). Impaired tributaries to the Raft River are listed as separate assessment units.

To confirm impairment and determine background levels of bacteria (and other pollutants), DEQ and the Idaho Association of Soil Conservation Districts (IASCD) collected water quality data along the Raft River from 1999 through 2002. Idaho's secondary contact recreation water quality standard

Figure 1. Idaho's Raft River is in the Snake River watershed.

states that if a single measurement exceeds 576 colony-forming units per 100 milliliters of water (576 cfu/100 mL), the possibility exists that the 30-day geometric mean of 126 cfu/100 mL may have been violated and additional sampling should be conducted to determine the geometric mean. Five samples collected within the 30-day period of May 5–June 3, 2002 at the Raft River Narrows monitoring site (near the uppermost extent of assessment unit ID17040210SK010 _ 04) revealed a geometric mean of 349 cfu/100 mL, a clear exceedance of state water quality standards.

To help identify and address pollution problems, DEQ developed Raft River Subbasin total maximum daily loads (TMDLs) for bacteria, sediment and temperature in 2004. The TMDL identified potential pollution sources of bacteria as confined animal feeding operations, septic systems, and activities such as farming and grazing.

In 2006, staff members from the Idaho Soil and Water Conservation Commission (SWC), IASCD and the East Cassia Soil and Water Conservation District (SWCD) worked together to develop the Raft River TMDL Implementation Plan for Agriculture. The plan outlined an adaptive management approach for implementing BMPs to meet the requirements of the Raft River TMDL.

Project Highlights

As early as the 1990s, watershed partners were working to reduce pollution in the Raft River. DEQ used CWA section 319 funds to support a Raft River Riparian and Watershed Demonstration project in 1999–2001. Project partners worked with property owners to stabilize streambanks, install erosion control BMPs and revegetate barren areas. Between 2004 and 2008, the U.S. Department of Agriculture's Natural Resources Conservation Service (NRCS), the Idaho SWC and the East Cassia SWCD worked with landowners in the Raft River Subbasin to implement numerous BMPs, including livestock access controls (104,486 feet of fencing across 3,598 acres), conservation cover crops (18,574 acres), contour farming practices (5,426 acres), 23 water and sediment control basins, nutrient management plans (5,980 acres) and relocation of corrals. Approximately 43,600 acres were removed from production through NRCS' Conservation Reserve Program. The Idaho SWC provided technical and financial assistance to help landowners convert from flood to sprinkler irrigation. This conservation practice eliminated runoff from irrigation return flows, a major factor in reducing bacterial sources impacting this portion of the Raft River.

Federal agencies have also worked to reduce the amount of nonpoint source pollution reaching the Raft River. Since the mid-1990s, the Forest Service has implemented grazing management requirements and installed watering troughs, riparian fencing and other livestock exclusion practices on its leased allotments. Similarly, the U.S. Bureau of Land Management (BLM) excluded livestock grazing on BLM-administered land near the perennial segments of the Raft River (Figure 2), planted cottonwood trees within exclosures (small fenced areas installed to prevent livestock and wildlife from accessing riparian areas), and implemented riparian pasture BMPs along Cassia Creek, a Raft River tributary.

Results

BMP implementation efforts are helping to restore the Raft River. Water quality samples collected in the summers of 2010 and 2011 in the Raft River assessment unit ID17040210SK010 _ 04 (Unnamed Tributary to Cottonwood Creek) showed that bacteria levels are now meeting water quality standards. Levels ranged from 34.5 to 205 cfu/100 mL, well below the single sample threshold of 576 cfu/100 mL for bacteria in waters designated for secondary contact recreation. A geometric mean calculated for the 2011 data showed that the assessment unit had a bacteria geometric mean of 123 cfu/100 mL, which is below the applicable water quality criterion of 126 cfu/100 mL. On the basis of these data, DEQ is proposing to remove the bacteria impairment for the 19.1-mile assessment unit ID17040210SK010 _ 04 from the state's 2012 list of impaired waters. The assessment unit remains listed as impaired for temperature and sediment. Monitoring has not yet been completed in the adjacent (upstream and downstream) impaired assessment units (ID17040210SK010 _ 04 and ID17040210SK008 _ 04); therefore, these will remain listed as impaired.

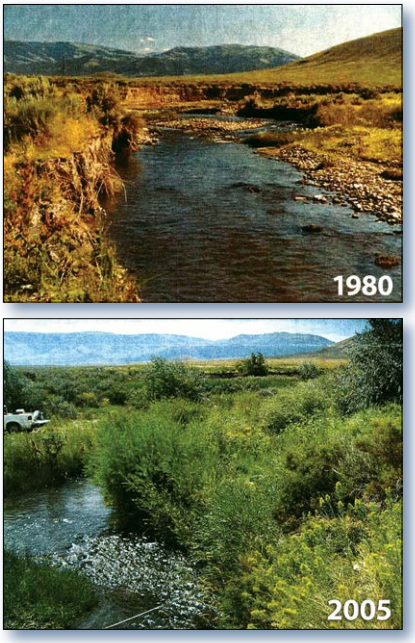

Figure 2. Raft River at the Narrows, before (top) and after (bottom) BLM installed exclosures to limit livestock access to the river.

Partners and Funding

Major partners have included DEQ, the Idaho Department of Agriculture, the Idaho SWC, IASCD, the East Cassia SWCD, the Forest Service, NRCS, BLM and local landowners. Key funding sources have included a $281,333 CWA section 319 grant (including $112,515 in local matching funds) and a $250,041 Water Quality Program for Agriculture grant from the Idaho SWC (including $62,510 in local matching funds).

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