Restoration in Muddy Creek:
Will a Name Change Be Needed?

Muddy Creek was aptly named. Until recently, the small tributary was carrying 200,000 tons of sediment a year into the Sun River west of Great Falls, Montana. Irrigation return flows were increasing the normal seasonal stream flow tenfold and scouring a deep, steep-banked gully. Muddy Creek had the dubious distinction of being the most polluted stream in Montana. The creek drains about 314 square miles of farmland, and agriculture—both livestock grazing and crop production—was the primary contributor of nonpoint source pollutants.

Supported by 319 funding, local landowners, conservation districts, and other partners formed the Muddy Creek Task Force in 1994. By 1998 the Task Force had achieved three of the four goals it had established at the outset:

- *Goal 1: Reestablish riparian vegetation.* Watershed cooperators improved grazing management on 8 miles of stream corridor, installed 44,000 feet of riparian fencing, established six off-stream livestock watering systems, planted more than 8,000 willows and other trees and shrubs, and reestablished native grasses in riparian and upland zones.
- *Goal 2: Reduce irrigation return flows.*
- A public education effort that included brochures, newsletters, a video and slide show, a project display board, numerous watershed tours, and U.S. Bureau of Reclamation progress reports contributed to a 35 percent reduction in irrigation return flows. Most of the reduction was achieved by increasing irrigation efficiency.
- *Goal 3: Reduce sediment delivery to the Sun River and Missouri River.*
  More than 400 barbs were installed to reduce bank erosion, and 13 drop structures were built to slow flows and stop headcutting. Reduced sedimentation is also a product of the first two goals—reestablishing riparian vegetation and reducing irrigation flows. The original goal was to reduce sedimentation by 75 percent in 5 years; the project did it in 4 years.
- *Goal 4: Improve fisheries in the Sun River watershed.*
  Although it is too soon to adequately document an improved fishery, anglers have noted that the improved water quality is allowing fish to migrate back to Muddy Creek.

And there are other documented improvements—increased waterfowl and wildlife habitats from improved riparian areas, reduction of flood potential, reduced cost for maintaining roads and railroads, and a reduction of land loss by several landowners along Muddy Creek.

Duplicating success in the Sun River watershed

The Muddy Creek Task Force's successes were contagious. Soon groups were working throughout the Sun River watershed. In 1996 the Sun River Project received a 319 grant of $198,140 to continue work on the Muddy Creek Project, complete a comprehensive resource inventory of the Sun River watershed, and enhance the water quantity and quality of the Sun River. This project funded stream work on 8,000 feet of Mill Creek, 4,000 feet of the Sun River, and 4,000 feet of Duck Creek.

MUDDY CREEK

Supplemental 319 funding from the 1999 Clean Water Action Plan helped fund restoration work on several segments of Elk Creek, another tributary to the Sun. By 1999 the in-kind contributions of the various partners had exceeded $2 million. The Sun River Project is now in its third phase. A $135,480 section 319 grant is targeted at reducing erosion and irrigation return flows on the Sun River and its tributaries. The project is continuing to restore riparian habitat and promote the implementation of best management practices.

Broad-based partnerships

The Sun River Project is known for its broad-based cooperation. Participating entities include Cascade County, Teton County, and Lewis and Clark County conservation districts; the Muddy Creek and Willow Creek task forces; U.S. Bureau of Reclamation, U.S. Department of Agriculture's Natural Resources Conservation Service, U.S. Forest Service, U.S. Bureau of Land Management, U.S. Fish and Wildlife Service, U.S. Geological Survey; Montana Departments of Environmental Quality, Natural Resources and Conservation, Fish, Wildlife and Parks, and Agriculture, and Bureau of Mines and Geology; Greenfields and Fort Shaw irrigation districts; Medicine River Canoe Club, Missouri River Flyfishers, Audubon Chapter, Russell Country Sportsman Association; and many others.

The Sun River Project has won numerous awards, such as the Montana Watershed Coordinating Council's Watershed Stewardship Award, Clean Water Action Plan's Showcase Award, and CF Industries' National Watershed Award.

Primary Sources of Pollution:
- **Agriculture**
- **Irrigation return flows**

Primary NPS Pollutants:
- **Sediment**

Project Activities:
- agricultural BMPs (including grazing management)
- reestablishing riparian vegetation
- increasead irrigation efficiancy

Results:
- 75 percent reduced sediment delivery
- reestablishing habitat

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