

WEISER RIVER CONSERVATION DISTRICT MAKES BIG GAINS IN WEISER, SNAKE RIVER WATER QUALITY



By Steve Stuebner

In 2000, the Idaho Department of Environmental Quality (DEQ) ranked the Weiser area as the #1 nitrate priority area in the State of Idaho, with a main focus on the Weiser Flat and Sunnyside areas.

The high nitrate readings there served as a catalyst to begin reducing fertilizer levels in the basin. The first step was to apply for funding from the US Environmental Protection Agency (EPA)/DEQ's Section 319 Water Quality Grant Program to address nitrates, phosphorous and sediment issues

in the Weiser River. The gains in the Weiser River Basin, it was thought, would also benefit the Snake River.

"We realized we have a very shallow ground water table," said Vicki Lukehart, office manager for the Weiser River Soil Conservation District (the District). "The ranking was a good thing because it got us thinking about how we could reduce those nitrate levels."

In 2003, the District embarked on a three-year water quality demonstration project in the Weiser Flat area, west of Weiser.

They were awarded \$218,540 from the 319 program. It was matched with \$237,679 in local contributions, for a total project cost of \$456,219.

The District worked with half a dozen farmers to install drip and surge irrigation systems that dramatically reduced nitrate levels. Both methods have been proven to be highly efficient with water - providing water and fertilizer at the root systems of the crops. The District also helped farmers to install filter strips at the end of the fields to reduce sediment runoff.

Phase I of the Weiser Flat project yielded a nitrogen reduction of 37,699 pounds over the three-year period, and sediment reduction of 180 tons.

"The farmers wanted to be proactive, and they were really excited about the results," Lukehart said. "Then we did a tour with our District to continue the education process with our farmers."

Over the last decade, the Weiser River District has made big gains in water quality on both the Snake and Weiser Rivers.

In Phase II of the Weiser Flat Project, farmers reduced applied-fertilizer levels, closely following University of Idaho guidelines, and the District did soil sampling and plant tissue sampling to monitor fertilizer consumption. It netted a nitrogen reduction of 7,830 pounds.

Youth Resource Crew helps Adams District plant willows on Little Weiser River

In early June, the Adams Soil and Water Conservation District worked with six members of the Council Education Resource Crew to plant willows on several sites along the Little Weiser River in Indian Valley, south of Council.

Most of the planting sites have had bank stabilization/restoration work performed previously, but they needed additional plant material to boost the healing process.

"There were a couple of sites where no bank stabilization work had occurred, but we wanted to see if planting would help protect those areas until stabilization can be installed or possibly eliminate the need for hard structures in some cases," said Julie Burkhart of the Adams District.

The students worked for four days under the supervision of Mike Larkin, a retired biologist from the Idaho Department of Fish and Game. Several hundred willow stems were cut on site and planted, using a water jet stinger.

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“Once the field planting and harvesting were done, all of the landowners had the same or higher yields, while putting on less nitrates/fertilizer,” Lukehart said. “Once they saw the impact on their pocket books, they were hooked.”

The Weiser River District has also built sediment traps, designed and created sediment basins and wetlands to filter out sediment before irrigation water returns to the

Snake River, and installed automated headgates on the Galloway irrigation canal to save water and reduce sediment and phosphorus.

Weiser farmer Vern Lolley, who is a director on the Weiser Irrigation District, said he’s particularly impressed with the water efficiency of automated headgates. “The results are spectacular to say the least,” he says. “It saves a lot of water, but you’re also reducing sediment at the same time. Less water, less sediment.”

All told, over the last 12 years, the Weiser River District has reduced phosphorous levels by 16.6 tons, sediment levels by 5,854 tons -- or the equivalent of 450 dump-truck loads -- and nitrogen levels by 49.5 tons. Combined project costs over the 12-year period exceed \$1.01 million, including Section 319 grant funds and matching contributions from the District.

“It’s quite impressive to see all of the water quality improvements that the Weiser River District has achieved over the last 12 years -- especially in light of the different techniques used to reduce nitrates, phosphorous and sediment,” said Teri Murri-son, administrator of the Conservation Commission. “We applaud the Weiser River Conservation District for their achievements and hope others benefit from their experience.”

The automated headgates on the Galloway Canal yielded water savings of 33 percent and extended irrigation water supplies by at least an additional month during a drought year, Lolley said. The project was made possible by \$91,469 in Sect. 319 water quality grant funds from IDEQ.

“Normally it takes 12,000 inches of water to fill the canal and deliver water to farms on 15,000 acres of land,” Lolley said. “But with the automated measuring devices and head gates, we reduced the amount of water to 8,000 inches, and we still served the entire district.”



Sediment basins have been built to allow sediment to settle out of irrigation returns to the Snake River.

The first automated headgate was installed at the top of the Galloway Diversion and the others were put in place down along the canal system. By being more efficient with irrigation water, there was more water left in the Weiser River for fish and wildlife, maintaining flows in some areas that are often de-watered during the summer months, Lukehart said. The automated head gate system also provided more accurate readings of water use overall.

The total load reduction estimates associated with the head gate project were as follows:

- 2,057 tons of suspended solids per year.
- 8.1 tons of total phosphorous per year.
- 20.5 tons of total nitrogen per year.

Utah-based Intermountain Environmental, Inc., provided the automated head gates and Ron Shurtleff, watermaster for Payette County, programmed the gates. They can be controlled by computer remotely from the ditch company’s office or vehicles, and the flow levels are tracked by the ditch company. They’re powered by solar power, and they have batteries for backup power, as needed.

Because of the Weiser District’s positive experience with the automated head gates, the district is planning to apply for more grant funds to set up automated head gates at Crane Creek Reservoir and on the Mill Ditch. The Crane Creek project would service 25,000 acres of farm land.

“The ditch riders love it,” said Lolley. “It

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saves them time.”

In 2010, the Weiser River District built a wetland at the end of the Payette Ditch to filter out sediment and phosphorous before the ditch water flowed into the Snake River. This was the first of several wetland projects that the district has built.

The Payette Ditch runs for 20 miles from New Plymouth to Weiser. Near the end of the ditch, there was a 7-acre pasture that was vacant, and an existing pond that could be deepened to create a wetland. The district also planted vegetation around the perimeter of the pond to increase the wetland’s ability to filter out sediment and phosphorous.

After the first year, the resulting water quality improvements from that project were:

- A 62% reduction in total phosphorous, 11 pounds per day or 1.045 tons per year.
- An 80% reduction in suspended sediments or 570 tons per year.



Automatic headgates can be controlled by computer remotely from the ditch company’s office or vehicles, and the flow levels are tracked by the ditch company.

- A decrease in nitrogen loads amounting to 1,782 pounds per year and a reduction of 1,044 pounds of phosphorous per year.

Following the success of the Payette Ditch project, the Weiser River District moved forward with a similar project on Cove

Creek, a four-year project that started in 2012. Cove Creek is one of three tributary streams that contributes sediment to the Weiser River. The District built three sediment basins and associated wetlands near where Cove Creek would drain into the Weiser River. Native seeds were applied by hydro-seeding in the wetland areas and drilled into the disturbed ground near the wetland site and also onto the stream banks that had been shaped downstream of the wetland site. The seedings prevent noxious weeds from moving into the area bordering the wetlands, and provide important vegetation for filtering sediment and other pollutants.

Fences were built on both sides of Cove Creek in this area to prevent livestock from watering and grazing on the stream banks so vegetation would increase.

The water quality improvements from the Cove Creek project provided an estimated reduction of phosphorous by 1,044 pounds per year, and a decrease in sediment by 724 tons per year, according to DEQ.

Starting last year, the Weiser River District worked on an additional wetlands project - the Smith/Hemmenway/Grimmet project at the end of the Smith-Hemmenway Ditch, southwest of Weiser. The project features a 3-acre wetland pond. The pond design called for creating a deep end as it absorbed the water from the ditch, and then it tapers to a more shallow depth to allow for wetland vegetative growth to absorb phosphorous, said Robin Hadel, conservation technician for the Canyon Soil and Water Conservation District, who assisted with the project.

“No vegetation was planted but cat tails,



Filter strips are also used to reduce runoff.

bull rushes and other wetland-type of vegetation will grow in water that’s less than three feet deep,” Hadel said. “With those plants in place, they will absorb some of the phosphorous before the water drains into the Snake River.”

The Smith/Hemmenway/Grimmet project is expected to reduce sediment by 871 tons per year, decrease phosphorous by 2.5 tons per year, and nitrogen by 2 tons per year, according to estimates associated with the project.

The Weiser River District has more projects in the works moving forward, including a wetlands project to filter sediment, phosphorous and nitrogen from water in the Galloway Canal before it drains into the Weiser River.

Lolley likes the wetlands projects and is impressed with the results so far. “The water is very clean when it runs back into the Snake River,” he says of the Smith/Hemmenway/Grimmet wetlands project. “Everything went smoothly.”

He gives credit to Vicki Lukehart, office manager and Sharona Olsen, the District’s conservation technician, for their success in crafting water-quality conservation projects, securing Sect. 319 grants and coming up with matching funds. “We are totally dependent on Vicki and Sharona,” he says. “They do a great job!” □

Boise writer Steve Stuebner specializes in covering conservation success stories for the Conservation Commission.

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"The stinger punches a hole into the soil using pressurized water, then a cut willow pole is inserted into the hole," Burkhardt said. "The tops are then cut off so that the stem will put energy into forming roots. If the willows have enough water to survive the hot summer, they will begin sprouting leaves next spring. Once established, these plants help hold the banks in place."

The Council Education Resource Crew has seen an increasing demand for its services, and a diversity of funding sources are making that possible. The crew started as a Southwest Idaho Resource Advisory Committee-funded project that would pay 4-5 students for several weeks at the beginning of each summer to plant native vegetation



Adams' willow planting crew.

they had grown in a nearby greenhouse on Payette National Forest lands.

The crew's good work soon resulted in the Adams County Weed Department hiring them to do noxious weed eradication for an additional week, and the Payette National Forest was able to devote money to support their work in other watershed, recreation, and range projects.

Now the crew is funded from a variety of sources, including those previously mentioned and grants from the National Fish and Wildlife Foundation, the Idaho Women's Charitable Foundation, Idaho Community Foundation, Idaho Fish and Wildlife Foundation, Payette Children's Forest, Whittenberger Foundation and the Toyota-Audubon Together Green grant.

This enables the students to work for the Forest, the Adams County Weed Department and the Conservation District, and the Council Recreation Department (Council Fishing Pond).

This year, the students were even hired by Starkey Water to plant native vegetation on ground disturbed by the construction of the spring house. Tools, gear, and even the crew vehicle have been funded through grants, making this program largely a stand-alone compliment to the strong natural resources curriculum available to Council students through FFA and elective classes. □

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