

HIGH-TECH CULVERTS ON DEER CREEK ROAD OPEN UP 7 MILES OF SPAWNING HABITAT

By Steve Stuebner

Three years ago, Katherine Thompson was out chukar hunting with neighbor and friend Tom Fliss, who's a commissioner on the Deer Creek Road District. They were hunting on steep, grassy slopes on the Zumwalt property, upslope from the Salmon River near Whitebird. They paused to look at a road culvert on Deer Creek, next to the Salmon River.

"It was undersized and too high for fish to pass," said Thompson, a fish biologist for the Nez Perce-Clearwater National Forest. "And Tom mentioned that he'd observed numerous steelhead trapped in the pool below the culvert during the spring in the past several years. We thought maybe if we could get some grant money, maybe we could address the culvert issue and get steelhead restored to the whole stream. It was one of those chance things to get the ball rolling."

Soon afterward, serendipity happened. Eileen Rowan, a water quality specialist for the Idaho Soil and Water Conservation District, was doing some outreach with the Idaho (County) Soil and Water Conservation District to see if they might need some help with any conservation projects.

Rowan got in touch with Stefanie Hays, administrator for the Idaho SWCD, and learned that there was strong interest in replacing multiple culverts on the popular Deer Creek Road to open up historic steelhead-spawning habitat for the ocean-going rainbow trout. The Deer Creek Road rises nearly a vertical mile from the Salmon River near White Bird to Pittsburg Saddle and then takes a deep plunge for nearly a vertical mile to Pittsburg Landing, a key access point in Hells Canyon for jet boats, float boats, hikers, campers and anglers.

Some of the culverts had been installed in



One of five culverts installed, this is a close-up of the engineered creek bottom underneath an open-arched culvert under the Deer Creek Road. The creek-bottom has large and small rocks for optimum habitat.

rapid fashion some 25-30 years ago after a creek blowout, and others may have been installed when the road was built initially, road district officials said. All of them blocked fish passage. The culverts also were undersized, and could get plugged easily with debris, threatening the integrity of the road.

Rowan went to work, found two sources of grant money to fund the work, and engaged in a permitting process with the National Marine Fisheries Service (NMFS) to get their assistance in drawing up plans that would pass muster for the new culverts. Thompson helped her with some background on steelhead and her professional opinion on the potential of the stream.

The Idaho SWCD would be the project

sponsor, and officials with the Deer Creek Highway District agreed to do the culvert-installation as in-kind work to provide matching funds, along with two neighboring highway districts. The culvert on private land could be fixed because Randy Zumwalt and his brother were open to doing that as long as it didn't cause undue restrictions on their private property and cattle ranch. Zumwalt also did the culvert-installation work as an employee of the road district. Thompson is one of his neighbors who lives on the Deer Creek Road as well.

The \$305,000 project was recently completed in the fall of 2017. It opened up seven miles of spawning habitat for steelhead along the steep Deer Creek grade with five new culverts that were custom-sized to accommodate large storm

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events and also provide ideal fish passage for steelhead and resident fish.

“Those culverts look awesome,” said Hays, who administered the funds for the project. “It’ll be really beneficial for the fish.”

“The project turned out really well,” adds Leon Slichter, chairman of the Idaho SWCD and SWC Commissioner. “It’s a high-visibility area that gets a lot of traffic with the vehicles heading in and out of Pittsburg Landing. It’s going to be beneficial for the road district to have proper-sized culverts in there to maintain the integrity of that road. The previous culverts weren’t sized large enough, and they’d plug up with debris and cause washouts along the road.”

“Everything worked out just perfectly,” added Bob Ries, a fisheries biologist for the NMFS in Moscow. “We should have steel-



Concrete bases called “SuperSills” were put in place for the open arched culvert to rest on.

head spawning up there on Deer Creek next spring.”

Slichter and Rowan also point out that the work on Deer Creek Road dovetails nicely with a number of water-quality improvements that were made in the same area with several cattle ranches along the road. The improvements installed best management practices to control runoff from feedlots, off-site livestock watering, improved corrals, riparian fencing and more.

“We had three projects that installed BMPs on three feedlots up there,” Rowan says. “They improved water quality on Deer Creek and reduced the amount of sediment going into the creek and the Salmon River.”

The feedlot BMPs were completed in 2005-2011 through Section 319 grants from the Idaho Department of Environmental Quality and EPA, and state Water

Quality Program for Agriculture funds.

The BMPs reduced sediment by an estimated 100 tons per year, phosphorus by 812 pounds per year, and nitrogen by 3,314 pounds per year, Rowan said.

“It seemed like getting the fish back in Deer Creek there matched really well with the cattle BMP projects that had been done up there,” Thompson said. “The grants were a really nice infusion of money to get the fish work done. One of the culverts crosses my driveway. Every day that I drive to work and go by that, it makes me really happy.”

It’s pretty incredible that the large steelhead adults can find enough room for spawning in Deer Creek, Ries said. “It’s a pretty narrow little stream, but it maintains cold water temperatures, and it is perennial. It’s pretty amazing because it’s only a couple of feet wide,” he says.

Steelhead begin moving into tributary streams to spawn in the spring, when snowmelt is pouring down the mountains, typically between February and April.

“If you look at steelhead numbers in the



Crews placed the arched culvert on top of concrete footers.

Snake River, about half of them come from these tiny little tributary streams, so projects like this are some of the most effective things we can do to get steelhead numbers increased,” he said.



Steve Stuebner (left) and Rick Gerrard show off a nice Salmon River steelhead.

Low numbers of adult steelhead returning to Idaho in 2017 also emphasize the importance of restoring habitat, Ries says. The number of steelhead passing by Lower Granite Dam was 68,000 (11,400 wild fish) as of Nov. 27, compared to a 10-year average of 165,000, according to the Idaho Department of Fish and Game. The low numbers caused IDFG to close steelhead fishing seasons statewide in the fall, and since that time, seasons have been opened on the Salmon, Snake and Clearwater rivers with smaller bag limits than normal.

“It’s pretty bad,” said Lance Hebdon, anadromous fish manager for IDFG. “This has been a rough year on steelhead.”

By replacing the first culvert on Deer Creek above the Salmon River on private land, it not only opened access for steelhead on Deer Creek, but also Poe and Howard creeks upstream, Thompson said. By replacing four other culverts, it opens up steelhead migration for the whole Deer Creek watershed, plus Johnson Creek and Cowen Gulch.

The new culverts also benefit resident rainbow trout populations on Deer Creek and tributaries streams.

Because Snake River steelhead are listed as “threatened” under the Endangered Species Act, the construction requirements for the culvert installation were very detailed and challenging. The project called for open, arched culverts that were placed on top of concrete bases. The Deer

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Resident Deer Creek redband trout.

Creek Road Department also had to lay down specific types of rock for base layers and the top layer to make the culvert sections fish-friendly.

“The specifications for the culverts are designed to simulate the natural channel and form step pools, to make it easier for the fish to migrate upstream,” Ries said. “The culverts provide a clear, unobstructed opening at least as wide as 1.5 times the active channel width.”

The slope of the culverts was designed to mirror the average slope of the stream. It’s a steep slope overall – the culvert slopes ranged from 7 percent to 13 percent. Fill materials were required to be of similar size and composition as the natural bed of the stream. Larger rocks could be used to assist in grade-retention and to provide resting areas for migratory fish, Ries said.

It was positive for the Deer Creek Road District to replace the culverts, Zumwalt said. “They were dang sure due to be replaced. They were rusty and had lots of holes in them. It’ll be a good thing for the long-term integrity of the road,” he said.

The Deer Creek Road District partnered with the White Bird Road District and Doumecq Road District from the Joseph Plains area to get the culvert-installation work completed. The project was engineered by Shawn Stubbers, city engineer for the City of Lewiston who also does engineering work for the road district.

“Those three road districts worked really well together,” Stubbers said.

The biggest challenge in the construction phase was to dig down several feet below the stream to install the base rock and place large concrete bases – called “SuperSills,” manufactured by TrueNorth Steel in Missoula, Mont. – for the the

open-arched culverts, Zumwalt said. They also had to temporarily divert the creek at each culvert location, dig down below the Deer Creek Road to remove the old culverts, and prepare the foundation for the new culverts.

Some of the culverts were quite long – they ranged from 35 to 60 feet in length. For the longest culvert, Zumwalt said it took two excavators positioned side by side on either end to hoist a 10,000-pound concrete base from the edge of the road down into the culvert location.

As they placed the new culverts, they observed rainbow trout in Deer Creek below each location. But those fish weren’t able to pass through the old culverts either. “The fish were stuck there,” Zumwalt said. “Now they’ll be able to roam up and down the whole stream.”

Next spring, when the steelhead return to the Salmon River in Idaho from the Pacific Ocean, Thompson is hoping that she’ll see them spawning in Deer Creek. Fish experts estimate that once steelhead return to the stream, they could lay enough eggs to produce approximately 45,000 juvenile fish, 6,750 smolts that might make it to the Pacific Ocean, which might translate to roughly 25-50 pairs of adult steelhead returning to spawn the next generation in Deer Creek.

“If I see a steelhead on my property, I will be over the moon,” Thompson said. “I live 7.5-8 miles up the road. That’d be amazing.”

The grant funds for the project came from Snake River Basin Adjudication funds and Pacific Coast Salmon Recovery Funds via the Idaho Governor’s Office of Species Conservation. Rowan’s expertise and professional work with all of the partners in the project ultimately made the project possible, along with the excellent teamwork by the road districts and Deer Creek neighbors, Randy Zumwalt, Katherine Thompson and Tom Fliss.

“We’ve got a super-good bunch of folks



One of the completed culverts on Deer Creek.

who live up here, and we all get along great,” Thompson said.

“This is a classic partnership project where the Conservation Commission’s professional staff was pivotal to the success of whole project,” adds Slichter. “Eileen did a great job along with all of the other partners involved in the project. This is how our staff makes voluntary conservation projects shine in the state of Idaho.” □

Steve Stuebner is a regular contributor to *Conservation the Idaho Way*.

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IASCD Annual Conference Wrap-up

Another successful IASCD Annual Conference has come and gone. Where do the years go? This year, in addition to a full day staff training, a Joint Board meeting with the IASCD, a Listening Session, and great times catching up with old friends, the Commission gave out a few awards and introduced our staff, Board, and partners to our latest hires.

A group of early-birds joined Commissioners and staff for our annual Listening Session at the IASCD Annual Conference in November. Discussed were the national Association of Conservation District's grant program that will allow several districts in each state to hire staff to assist NRCS keep up with their workload, and the Commission's ability to be flexible with unanticipated technical assistance needs. Not only do Commission staff have a good amount of discretionary time that can be put toward it, but key staff (Delwyne and engineers) have time factored in for emergency requests.

Among questions posed was clarification on how the Water Quality Program for Agriculture (WQPA) used to function when it was funded by the Legislature. The quick explanation was that districts referred to their five-year plans (and our technical staff) for project ideas - say installing 15 livestock off stream watering facilities - and then made an application to the Commission for the projects and any administrative overhead they required. The Commission would, based on priorities they established annually, award project money to districts. Districts would recruit landowners to implement the projects, and then report on outcomes to the Commission.

Well-deserved awards were given to our Employee of the Year for 2017 and for providing Outstanding District Support in 2017. The awards went to Rob Sharpnack and George Hitz, respectively. Both exem-

2017 AWARD-WINNING COMMISSION EMPLOYEES



Chairman Norman Wright congratulates Rob Sharpnack, Division 4 and 6 Water Quality Resource Conservationist and the Commission's 2017 Employee of the Year!



George Hitz, Water Quality Resource Conservationist, Division 5, and winner of the Commission Leadership Team's 2017 Outstanding District Support award!

MEET OUR NEW HIRES: TODD, RONI, AND PAULA!



Todd Higen is working with NRCS in Coeur d'Alene. He's a long-time North Idaho resident.



Roni Pasi is working with NRCS in Pocatello. She moved here from Ohio to join the Commission.

plify great customer service and dedication to our mission. Congratulations!

Finally, two of our three new hires - Todd and Paula - were on hand to meet folks at the conference. We look forward to introducing everyone to Roni soon.

All three will be working directly for NRCS on Farm Bill programs and will have no Commission responsibilities for programs or services. Welcome, Todd, Roni, and Paula! ☐



Paula Johnson is working with NRCS in Rigby. She moved here from Eastern Oregon to work for us.

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