



Commission engineer Bill Lillibridge surveys the Big Cedar Fish Passage project.

COMMISSION ENGINEERS PROVIDE PROFESSIONAL CONSERVATION EXPERTISE TO IDAHO DISTRICTS

By Steve Stuebner

Bill Lillibridge and Allan Johnson love their jobs and love working with conservation districts.

As staff engineers for the Idaho Soil and Water Conservation Commission, they serve many districts in the state each year, designing a wide variety of conservation projects that improve water quality and water efficiency, assist with installing best management practices on a farm or ranch, stabilize stream banks and more.

Ultimately, Lillibridge and Johnson design solutions to solve problems. And they make sure they do it in a way that's sustainable and long-lasting.

"Farmers, ranchers, and contractors are some of the most innovative people I know and I always get input from them to figure out the best possible solution that will work for them.," says Johnson, who

assists districts in Eastern Idaho, Central Idaho and the Magic Valley. "After all, they're the ones who are going to build it and run it for years."

"I really like working with landowners and districts," adds Lillibridge, who assists conservation districts in western Idaho from Owyhee County to the Idaho Panhandle. "It's nice to see the projects go in, and I work very closely with the contractors to make sure that the projects are done right."

One of Lillibridge's recent projects was for the Idaho Conservation District to design the proper-sized culverts and raise the road bed on the Keuterville Road near Cottonwood prior to big snow and flooding in spring 2017. The project was featured in *Conservation the Idaho Way* in the August 2019 issue. After the floods, the project stood up to the spring floods and rapid runoff.

"It's amazing how things work out when you design the right sized pipe," Lillibridge says with a smile.

Both engineers have a heavy workload, handling dozens of projects throughout the state every year. Landowners and conservation district officials often approach them with potential projects or issues they are hoping to solve. The commission's water quality specialists often work together with district staff and officials to write up grant applications in hopes of funding conservation projects, usually with local cost-share and in-kind contributions. Once the funding is obtained, Lillibridge and Johnson roll up their sleeves and craft designs for a long-term fix.

State funds that districts receive from the Idaho Legislature are typically not enough to cover conservation projects; those funds are typically earmarked for operations and district administration. So the

commission's professional staff often work together with district officials to identify grant sources for projects. They know how to write the grants in a way that leads to funding, often with multiple partners contributing money or in-kind assistance.

"That's a big focus – getting money for districts to do conservation work," Lillibridge says. "Often times, we get people coming into the office saying 'my culvert blew out' or 'my streambanks are eroding.'"

Once projects are funded, Lillibridge and Johnson not only do the engineering designs for projects, they also obtain permits from the Army Corps of Engineers, Idaho Department of Water Resources and other agencies for a project to proceed.

Districts also provide much-needed assistance in finding landowners who'd like to work on projects in a watershed that could address more than one farm or ranch. "The districts play a valuable role in actively recruiting project participants," Lillibridge says. "Landowners want to do the right thing, but they often don't know how to fix the problem or find the money. That's where our expertise comes into play."



From left: Calvin Hickey, farmer and Chairman of Flood District #3, and Bill Lillibridge discuss damage on the Weiser River after the 2017 flood.

Bill Lillibridge, ISWCC engineer

Years on the job: 19
Office location: Lewiston
Territory: Western Idaho from tip to tail including Northern Idaho region
Family: Wife, Diane, and two boys, 15 and 17
College: University of Idaho
Hobbies: Boy Scouts, hunting for mushrooms, camping, hiking, fly fishing, and Medieval Studies Society.

If landowners had to contract with an outside engineering firm without any state or local assistance, the cost might be prohibitive, Lillibridge says. "Most people couldn't afford it. The conservation partnership between the commission, districts and landowners saves money for our farmers and ranchers, and it allows us to improve the land and keep them in business."

"Bill does great work for us," says Durina Farr, administrator for Valley Soil and Water Conservation District. "He's been instrumental in not only designing projects for us, but making sure they are implemented correctly. He also goes the extra mile in helping us do education outreach with the schools and school groups. He loves to talk to kids in the classrooms, and he's often out in the water in his hip boots, helping students learn how to plant willows in river banks correctly."

Chris Banks, a consultant with Conservation Basics in Chesterfield, Idaho, has worked on multiple projects with Allan Johnson on the east side of Idaho.

"I've come to respect Allan's ability to not only design a quality project for the landowners we work with, but also he develops a relationship with those landowners," Banks says. "He works to ensure the projects we implement not only improve the conditions of natural resources but that the landowners themselves are happy with how the projects turn out and know how to manage them in the future."

Both Johnson and Lillibridge have been designing conservation projects in Idaho for 19-plus years. They both started work for the Commission on the same day!

Lillibridge grew up in the woods of North Idaho, and got an early start in conservation planting trees around Bunker Hill in Kellogg on Arbor Day. Johnson says he always has been interested in the outdoors, working in agriculture and learning about environmental issues. Johnson started his career with the Idaho Department of Environmental Quality, and then at the Idaho State Department of Agriculture. In the early days, he often was working on conservation projects related to Section 319 grants from the EPA/DEQ to install best management practices on farms and ranches.

"The conservation thing kind of fell into my lap as I was working on 319 projects



From left: Chris Banks, Pauline Bassett, and Allan Johnson, at an Idaho Press Club Award Ceremony recognizing the video about the Whiskey Creek restoration project.

Allan Johnson, ISWCC engineer

Years on the job: 19
Office location: Soda Springs
Territory: Eastern Idaho, Central Idaho and Magic Valley
Family: Wife, Mariah, and four girls, 10, 15, 18 and 20
College: Idaho State University
Hobbies: Spending time with family, camping, boating, water-skiing, hiking, bow-hunting elk, grilling and smoking meat, leatherwork, horse riding, and helping friends work cows

for my job, and I've been passionate about it ever since," Johnson says.

One of Johnson's favorite type of projects involves restoring streams. The Conservation Commission featured a story and video about a stream-restoration project on Whiskey Creek four years ago near Grace, Idaho, showcasing a project where they restored a section of the creek that had been buried in a pipe beneath an old dairy barn.

Johnson designed a new stream course to daylight the stream and create a meander down a steep hill through Max Nichols' property. The project had multiple benefits for water quality, aquatic life, resident fish and aesthetics. "It's been very worthwhile to me, personally, and my wife and kids think it's wonderful," Nichols said after the project had been completed. See the Whiskey Creek video [HERE](#).

Recently, Johnson worked on another stream-restoration project on Fox Creek, a tributary of the Teton River that had been straightened to the point where it had very little fish habitat. The road next to it



Johnson is justifiably proud of the work he did on Caribou District's Whiskey Creek project.

was to be widened and the re-meandering of the creek was part of a mitigation plan for Teton County. Johnson added length to flatten the channel grade, and installed meander bends, riffles, pools, floodplains, riparian vegetation, and fish habitat for native trout.

"It's pretty neat how it turned out," Johnson says. "We got the stream away from the road so it could meander back and forth in the meadow like it would do naturally."

A local contractor, Aqua Terra Restoration, based in Driggs, built the stream-meanders following GPS coordinates that Johnson provided for the restored stream course. "The Army Corp required an engineer or technician to be on site every day during construction, but I only established two benchmarks for GPS position and



A fish-friendly irrigation diversion structure was recently installed on Pebble Creek near Pocatello.

elevation. He put those coordinates into his GPS and dug the creek exactly to the specs that I designed," Johnson says. "I surveyed the creek multiple times during excavation and found it to be within 1/10 of a foot for dimensions and elevations to

the design specifications throughout the entire reach!"

Johnson has done a number of other projects to benefit fish and fish habitat in the Upper Salmon River area and Lemhi River Basin. Some of the projects have opened up habitat and improved fish passage for salmon, steelhead and resident trout.

In another water-related project, Johnson worked on improving a stream diversion on Pebble Creek in cooperation with the Caribou Soil Conservation District and the Caribou-Targhee National Forest. "We were able to consolidate seven points of diversion into one point of diversion," he said. "We also installed a fish screen to keep Bonneville Cutthroat Trout out of the irrigation system."

The project provides gravity-flow irrigation water from the point of diversion to a pivot and several hand lines and wheel lines. "One of primary users of the Pebble Creek irrigation system now has 80 psi at his pivot, the most pressure he's ever had – thanks to the new diversion and improved water efficiency," Johnson said.

"That project worked out real well. The landowners are happy with the results, and that's always really important to me," he says.

In recent years, Lillibridge has been doing a lot of streambank or lake shore enhancement work in Northern Idaho and in the Payette River watershed. The issue of wake boats causing more riverbank and lake shore erosion was featured in Conservation the Idaho Way in the November 2018 and July 2014 issues.

Lillibridge also helped engineer a number of streambank-restoration projects on the Weiser River after the 2017 epic flooding, installing barbs and other features to take the pressure off of eroding banks. He worked in coordination with the Weiser Flood District #3 and Weiser River Soil Conservation District on that project.

They applied to the Federal Emergency Management Agency for assistance, but FEMA was swamped with hurricane-damage issues elsewhere in the United States and could not provide any assistance. Flood District #3 and the Weiser District scraped together funds to take immediate



Lillibridge and Valley District staff worked with students on the North Fork of the Payette River, planting willows to stabilize the streambank.

Ask us! We fund...

Sprinkler irrigation, no-till drills
livestock feeding operations, fences
solar stock water, pump systems,
and more!

LOW INTEREST CONSERVATION LOANS

Interest rates as low as 2.75%
Terms 7 to 15 Years



IDAHO SOIL & WATER
CONSERVATION COMMISSION

action to deal with the extensive 2017 flood damage, according to Lillibridge's designs.

"Bill was a huge help because he did all of the permitting and designs and the technical work," said Calvin Hickey, chairman of Flood District #3. "He also gave me professional advice several times as we had the work going on, to make sure we were doing things right. That was big."

See the video "Idaho conservation partners repair Weiser River levees" [HERE](#).

Recently Lillibridge designed a series of riverbank improvements in the Payette River watershed near Ola in partnership with the Gem Soil and Water Conservation District and the commission's water quality specialist in Emmett, Loretta Strickland. They installed a vegetated riprap on a small stream. The riprap protects the bank, while the vegetation grows through it, providing habitat and shade. The vegetation also slows the stream near the riprap, keeping it from eroding.

Lillibridge has worked on similar projects on the Pack River and Coeur d'Alene River drainage. Some of the projects involve



Lillibridge oversees construction of the Alder Creek Road project, a Benewah District water quality project.



Left: Cherry Creek stockwater pipeline. Right: Johnson inspects a trough installed on the Oneida District's Wide Hollow Project. Other components of the project included installing more than 30,000' of water pipe and putting in 11 troughs on the north and east sides of Daniels Reservoir. Multiple partners participated. See December 2017 Newsletter [HERE](#).

new landowners who have property next to a stream, and they're quite alarmed when they're watching their property erode and vanish, he said.

"It's one thing to have this happen on Ag land, but these people are saying, 'now the river is 10 feet from my house, is there a way we can fix that?'"

Julie Burkhardt, Chairman of the Adams SWCD, said she appreciates Lillibridge's engineering services.

"I'm not sure just how to adequately express my appreciation for, or the value of Bill's engineering expertise to our district," she says. "It has actually been so invaluable, not just to the District, but to each of the individual landowners. Bill's easy approach to helping landowners understand the root causes of various issues and providing solutions they can support has helped us in our education efforts immeasurably.

"Our district has been able to assist dozens of landowners over the past 10 years or so with water quality projects. Without his help, we could never have afforded to do all the projects that help reduce sediment loads in our rivers and streams."

"I don't think there are many engineers with the combination of engineering knowledge combined with love for natural resources that Bill has. I'm really grateful he's our engineer."

To learn more about how Lillibridge or Johnson can assist your conservation district with engineering services, please contact Delwyne Trefz, district services coordinator for the Conservation Commission, Delwyne.trefz@swc.idaho.gov, 208-332-1790.

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

COMMISSION

H. Norman Wright, Chairman
Cathy Roemer, Vice Chairman
Erik Olson, Secretary
Gerald Trebesch, Commissioner
Wendy Pratt, Commissioner
Teri Murrison, Administrator



SOIL & WATER CONSERVATION COMMISSION

322 East Front Street, Suite 560 Boise Idaho 83702
P: 208-332-1790 • F: 208-332-1799
info@swc.idaho.gov • www.swc.idaho.gov

Conservation the Idaho Way: Sowing Seeds of Stewardship