

## VALLEY SWCD IMPROVES WATER QUALITY IN KEY TRIBUTARIES OF LAKE CASCADE

By Steve Stuebner

Water quality issues in the tributaries of Lake Cascade and in the reservoir itself have been a long-standing challenge for 25 years or more, but the overall trend-line shows that conditions are improving over time, thanks to a multitude of water-quality improvement projects.

Over the last 13 years, the Valley Soil and Water Conservation District has made additional strides in improving water quality with conservation projects in key tributaries such as Willow Creek, Boulder Creek, Gold Fork and the North Fork of the Payette River. Other projects stabilized the banks of Lake Cascade in key areas and the North Fork Payette River below Lake Cascade Dam.

Several of the conservation projects involved high school and elementary school kids, particularly on Boulder Creek (see below map), on a bank-stabilization and drainage-improvement project on the



banks of Lake Cascade, Fisher Pond near Cascade and the North Fork Payette River.

“We’re making progress, but it’s a big area -- we’re trying to deal with the whole watershed,” said Kay Coski, district manager of the Valley Soil and Water Conservation District. “We really want to thank our partners, volunteers, landowners and school groups for helping improve water quality in our area.”

Idaho Fish and Game officials agree. “The lake is doing pretty well,” said Dale Allen, fisheries biologist for IDFG in McCall. “We’re seeing a continued positive trend for water quality, and the fish have been happy. We’re not seeing the huge blue-green algae blooms like we used to.”

Lake Cascade is the fourth largest lake in the state of Idaho -- at full pool, it’s 20

miles long, five miles wide, and it has 110 miles of shoreline. The popular lake receives more than 200,000 visitors per year. Multiple campgrounds ring the lake as part of Lake Cascade State Park. The lake also is popular for ice fishing in the winter and sport fishing in the summer. Kokanee, big rainbow trout, perch, small-mouth bass and coho salmon all can be caught in the lake.

### Lake Cascade

In the early 1990s, a big algae bloom caused by low water levels, high phosphorous and hot weather raised concerns with the public and multiple public agencies. Improvement plans implemented beginning in 1995 lowered the phosphorous levels by 37 percent. In 2003, phosphorous levels decreased by 57 percent from eight years previous because of multiple water

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quality improvement projects incorporating best management practices on roads, ranch lands and tributary streams.

The Total Maximum Daily Load (TMDL) process for Lake Cascade identified a goal of .025 micrograms per liter for total phosphorous. Between 2000 and 2008, the lake tested at levels of .03 mg/l. But in 2015, with low snowpack and low flows, total phosphorous rose to .053 mg/l, according to Idaho DEQ. "The improving trend we have seen in Lake Cascade took a big hit this year, likely impacted greatly by low flow," said Stephanie Jenkins, senior water quality analyst for DEQ. "We didn't see the same spike in total phosphorous in the tributaries as we did in Lake Cascade."

The Valley Soil and Water Conservation District is just finishing 13 years of additional water quality improvement work related to a Section 319 grant that involved \$190,350 worth of projects. The district is now preparing another 319 grant application looking ahead to more improvement projects in the decade ahead.

"Every little bit helps," she says.

## Boulder Creek

Boulder Creek flows from the Payette National Forest above the valley into a meandering meadow that flows near Donnelly Elementary School on its way to Lake Cascade in the northeast end of the lake. Over the last six years, Deirdre Bingaman's 5th grade class at Donnelly Elementary has been working on multiple water quality improvement projects in Boulder Creek, plus they raise about 100 trout from eggs in the classroom and release the tiny fish into the stream each spring.

"We've switched the focus from "is Boulder Creek a healthy or unhealthy water body?" to "is Boulder Creek a healthy habitat to release our trout into?" Bingaman says. "This question seems to feel more relevant to students, as we raise rainbow trout from eggs to parr, and then we release them into Boulder Creek in the spring each year.

"The kids get enormously attached to those fish, which just hatched by the way. They want the fish to have every chance possible to survive in the wild when they

set them free. They become so much more contemplative about their surroundings when they frame their view from the lens of a concerned scientist or ecologist or hydrologist, of which they have become, in many ways," she says.

"We have an underwater video surveillance camera that we keep in one of our trout tanks, so we can watch the eggs hatch and make observations all year, watching live footage on our interactive whiteboard. We can also place the camera in the creek after we release our fish in the spring to watch their behavior as they adapt to the wild."

Bingaman's 5th graders work with University of Idaho graduate students, who are working on master's degrees in environmental education. It's a perfect match. "The grad students help teach my students about water quality, and in turn, they learn and garner practice in instructional techniques from the 5th graders," she says. "We do this for a couple weeks every fall, which sets the stage for the Boulder Creek study, and it's become quite a symbiotic relationship."

## Gold Fork River

Just south of Donnelly, Gold Fork River flows into Lake Cascade. The 319 project included funding for some willow planting and stream bank stabilization on Gold Fork.

*Willow weaving on Boulder Creek*

*Before*



*After*



Landowner Connie Brown, who has a small horse ranch called Gold Fork Gardens, combined the willow planting work with an EQIP project to reslope the streambank to reduce erosion. The two projects stabilized the streambank for about 500 feet.

"I'm really happy with it; I think it's looking really good," Brown says. "I'm hoping

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*Willow Creek before*



*Willow Creek after*

we can do some more of this. I try to plant more willows every fall to help stabilize the bank.”

Brown also is putting in 3/4-mile of fencing to keep stray cattle out of the area and prevent them from harming the plants and the bank-stabilization project. She keeps her horses in a corral well away from the streambank. “I’m hoping to get that fence installed by the end of the year,” she said.

### Road Department doing its part

On the west side of Lake Cascade, the Valley County Road Department has been partnering with the Valley SWCD to improve drainage and surfacing along a primitive dirt section of West Mountain Road, a major artery for cabin owners on the west side of the lake. The road is paved to Tamarack Resort from the north, and to a cluster of cabins on the south end of the lake.

The road department treated about one mile of West Mountain Road on the south end in the latest go-round of 319 projects. Overall, the road department has improved drainage and surfacing on three miles of the dirt road from the south end, and 1.5 miles from Tamarack Resort going south. “We’re applying for some federal grant money to keep working on those projects

because we see that route as an important alternative access route,” says Curtis Bennett, superintendent. “In the springtime, the road can get very rutted and muddy.”

In the national forest above the lake, Bennett said the road department has been working on soil erosion projects on road systems with the Nez Perce Tribe to reduce erosion and sediment flowing into streams.

### The Strand

On the south end of the lake, Clint Kennedy’s advanced biology class helped build a fence to protect the streambank from getting trampled by anglers along the North Fork of the Payette River near Kelly’s Whitewater Park, created a fishermen’s access spot, and they planted shrubs and willows along 1,000 feet of shoreline next to “The Strand,” a 2-mile recreation pathway along the river.

Other partners in that project included Alzar Kayak School, Southern Valley County Recreation District volunteers and Idaho Fish and Game volunteers.

Kennedy’s class also identified an erosion-prone spot south of the Cascade Golf Course on Bureau of Reclamation land and proposed to fix it with improved drainage,

rocks and plantings. “There was a terrible gully in that pull-out area and Clint’s class offered to get involved to fix that. It’s always been wonderful how he gets his kids involved in all kinds of water-quality projects,” Coski says.

Kennedy, who just retired after the 2014 school year, said they were hoping to do something “simple and easy” to fix that erosion spot. But as things turned out, it turned into a very complex project just to get approval to fix it.

Eventually, Natural Resources Conservation Service (NRCS) staff in Emmett helped them with engineering drawings and with getting environmental clearances from the BOR. By that time, school was finished for the year, but Kennedy stayed with the project to completion. A local contractor installed a sediment trap in the pullout area with a combination of conveyor belt material and base rock to control the erosion, and then a culvert was installed for channeling the runoff through the area, and that was anchored and covered with crushed basalt rock and covered with clean dirt for native grasses, forbs and shrubs.

“My kids got disappointed real quick because of how long things took, but in the

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end, it's a good lesson for them to understand all the complexities in dealing with state and federal agencies," Kennedy said. "In the end, we got it fixed and it all worked out."

A new science teacher who replaced Kennedy got her kids involved in planting the grass, forbs and shrubs, and a little trail was created for people to access the lake from the little parking pull-out spot. It's a popular access point because people can access the lake without having to pay the IDPR fees.

Cummulatively, the water quality in Cascade Lake and its tributaries has improved through a multitude of efforts. Good job! □

*Steve Stuebner writes about environmental success stories for the Conservation Commission monthly. —Ed.*



*Tree planting on the Strand*

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## Department of Lands announces forest resource grants

The Idaho Department of Lands has announced that project pre-proposals for Landscape Scale Restoration, Western Fire Managers, and Community Protection program grants are due Jan. 22, 2016. Grants of up to \$240,000 each are targeted to protect, enhance and conserve forest resources.

Non-profits, local and state agencies, tribes and educational institutions can submit pre-proposals to support local or state initiatives addressing issues identified in Idaho's Forest Action Plan or County Wildfire Protection Plans.

Within each program, a limited number of project pre-proposals will be selected for full application development. Information along with examples of past projects can be found at:

<http://www.idl.idaho.gov/grants/index.html>.

A webinar on the types of projects that qualify and how to build successful project pre-proposals will be held October 27, 2015. To sign up for the webinar email Tyre Holfeltz [tholfeltz@idl.idaho.gov](mailto:tholfeltz@idl.idaho.gov).

For more information on the three grant programs contact:

- Landscape Scale Restoration Grant: Dave Stephenson [dstephenson@idl.idaho.gov](mailto:dstephenson@idl.idaho.gov) or phone 208-666-8621
- Western Fire Managers or Community Protection Program Grants: Tyre Holfeltz □

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650 West State Street, Room 145 • Boise Idaho 83702 • P: 208-332-1790  
F: 208-332-1799 • [info@swc.idaho.gov](mailto:info@swc.idaho.gov) • [www.swc.idaho.gov](http://www.swc.idaho.gov)

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