Henry's Fork Watershed Council Annual Field Tour
Hosted by the Friends of the Teton River (FTR)
Tuesday, August 11, 2015

Participants began gathering at 8:30 a.m. at the Marriott SpringHill in Rexburg to carpool to Green Canyon Hot Springs for the start of the field tour.

Introductions and Community Building

The field tour was organized and led by Amy Verbeten, executive director of FTR. A group of about 25 met at the Green Canyon parking lot for brief introductions. Amy explained the mission of FTR is to promote clean water, healthy streams, and resilient fisheries. It has been a grassroots effort, started as people interested in water recognized that change that was happening in the Teton Basin and affecting water and water resources, and fish depend on water resources. FTR was incorporated in 2001 and focused on research for its first five years. Collaborating with Idaho Fish and Game and with Wyoming Game and Fish, FTR conducted fisheries research and groundwater studies of changes in water flows and how they are impacted by changes in agricultural practices. At about the same time, efforts were under way to list Yellowstone cutthroat trout as an endangered species, and FTR decided its main focus ought to be, overall, fishery recovery, and keeping YCT from being listed. Yellowstone cutthroat are robust in the Teton Valley.

Canyon Creek Project #1: Diversion at Green Canyon Campground

Amy then explained FTR has completed two projects in the Canyon Creek watershed. Before leading the group to Canyon Creek next to the Green Canyon Campground, Amy explained the Canyon Creek watershed contains 45 miles of spawning habitat, making it one of the most important spawning tributaries for YCT on the Teton River. The creek is also home to brook trout, a non-native invasive species. The aim of restoration on Canyon Creek was to restore and improve fish passage between Canyon Creek and the Teton River. This past spring, they began to see increased YCT use of Canyon Creek, although there are still brook trout present. One major barrier to fish passage was the old concrete irrigation diversion structure used by the Canyon Creek Canal Co. to divert water from the creek to users farming on the bench, primarily during the spring and early summer. The canal company had to keep the diversion intact but was willing to do some creative things to make sure fish continued to pass through the head gate.

FTR built a number of natural rock weirs to replace "one big, giant drop" over the irrigation diversion. The new stream also makes it safer for children from the campground who play in the stream.The project was conducted in cooperation with the Canyon Creek Canal Company and the Neibaur family, and funding from the Jackson Hole One Fly Foundation, the Western Native Trout Initiative, Orvis, US Forest Service, and the US Fish and Wildlife Service.

In response to a question from Dale Swensen, FMID, Amy explained that fish getting into the canal without being able to get back out, which is called "entrainment," doesn't occur a lot in the canal. Electrofishing results show few fish being stranded and dying as the canal dries up. However, fish screens would be preferred. Additionally, FTR hopes to work with the canal users in the future to increase stream flows in the late season via voluntary water transactions. Because of high conveyance losses in the canal (40 to 60 percent of the water diverted into the canal seeps into the ground), users at the end of the canal system often switch to groundwater pumps at some

point in the season, so there are likely streamflow restoration options that would be a benefit for both the irrigators and the fishery.

The project included an outreach and education component: an information kiosk in the campground explaining fishing regulations and the restoration project This kiosk has helped IDFG get the word out to campers that harvest of YCT is allowed on Canyon Creek.

Canyon Creek Project #2: Canal Company Pump Station

Regrouping downstream at the Canyon Creek Canal Company's pump station, participants learned that farmer Conn Crapo turns the pumps on to augment his irrigation supply. The check dam at the pump station previously served as a fish barrier to both spawning adult fish and out-migrating fry.

The FTR project here involved installation of more rock weirs, and a check board with a hole in it so fish can pass downstream when the dam is checked up. FTR also installed a safer access bridge across the check dam.

Amy also discussed FTR's fisheries research program, which is set up to monitor the effectiveness of restoration projects, fill gaps in knowledge about YCT life cycles, and prioritize future projects. On Canyon Creek, FTR installed a solar-powered interrogation site for tracking tagged fish. PIT tags are implanted into small fish and tracked by means of hand readers and the stationary tracker. Because PIT tags are detected only when fish swim through a stationary detection antenna or are captured, they don't allow tracking of the fish throughout its whole migration route. However, the PIT-tag system has given FTR "some really good information."

Another concern being addressed by FTR is the number of rainbow trout in the Teton River and the source of those fish. Amy said studies show a robust population of YCT in Teton Canyon, but that Yellowstone cutthroat-rainbow hybridization is a threat to the YCT population. FTR is FTR is using a radio telemetry study to learn more about spawning of YCT, rainbows, hybrids. Radio telemetry tags implanted in adult fish provide the ability to follow individual fish as they migrate throughout the watershed, but the tags are expensive and require a line of sight to the fish to detect.The small PIT tags cost about $2 each, but telemetry tags that send out a signal up to a mile cost $250 each. With the telemetry equipment, they can track fish in 3-D space.

The Henry's Fork Foundation loaned FTR an entire crew of interns for the summer to electrofish and implant telemetry tags in fish in the river. FTR is repeating the same study it did in 2005 and in 2010, allowing them to track the population over time. "The information on species we have is pretty unique," Amy said.

In response to a question about spawning runs and out-migration of young fish from tributaries, Rob Van Kirk said the timing depends on how much water is in the tributaries in late summer. When the tributary level drops, fry will out-migrate as the water recedes. It is all tied to water availability. YCT have a life span of 8 to 12 years and spawn after year three.

FTR will be using this research to determine its next steps and highest restoration priorities should be in the future. In addition to the specific findings of the research, they have determined that some big-picture priorities moving forward include building relationships, using new technology, looking at climate change, collaborating with water managers, and continuing to work with the Idaho Water Resource Board to establish a robust water transactions program in the Teton Basin.

Lunch Break in Driggs

Box lunches provided by FTR were handed out at the City Center, and participants were given time to eat, get a milkshake at the Corner Drug, or visit the Geotourism Center. After the break, the group drove out Ski Hill road to a subdivision where work has been done on about a mile of Teton Creek.

Teton Creek Restoration Project

Teton Creek flows off the slopes of Table Mountain. Teton Creek is alluvial -- containing deposits of clay, silt, sand, and gravel – and in the project reach, the creek traditionally split into three branches, known as Three Creeks. As Driggs began to expand, developers began bulldozing the creek bed to move the three creeks into one channel. The Forest Service and others had also historically mined gravel from the channel for road building. The channel had been bulldozed until it was as deep as 10 feet in places, critically destabilizing the channel. The creek eroded upstream as it tried to reconnect to the old floodplain. Flood waters deposited sediment. Cottonwoods toppled and created log jams. Finally, the Army Corps of Engineers and EPA issued a cease and desist order on the dredging. Homeowners were told they were now in the flood plain but couldn't get flood insurance. Irrigation canals were left high and dry by the deeply eroded channel. Streambanks were eroding at up to ¼ acre per year, threating the county landfill, major power lines, and the city of Driggs. A number of homes were abandoned along the creek. When the owners couldn't get flood insurance, they couldn't get occupancy permits. Some defaulted on loans. Some were foreclosed.

FTR was approached in 2005 and asked to do something. A solution would obviously cost millions. A variety of landowners, irrigators, local and regional conservation groups, agency personnel, and stream restoration experts determined the creek could not be restored to its previous condition. However, the stream could be reconnected to a functioning floodplain that would be able to handle high stream flows in the spring. They also needed to reconnect to irrigation structures.

A project was designed to inset a floodplain into the channel by placing rock weirs and root wads, anchoring logs 12 to 15 feet into the banks, regenerating vegetation, and opening side channels to give water a place to go during high flows. Placement of the logs and root wads was made to mimic what the floodplain might look after a major flood event.

There was a lot of infrastructure to protect. The initial project would cost about $2.85 million. Many funders, local businesses, and other donors helped raise funds and contribute materials and labor to complete the project. What finally brought the project together was a $1.2 million FEMA grant to Teton County for flood mitigation. A total of 5,6000 linear feet of the stream,

ending at the Cemetery Road bridge, was included in the restoration project. Houses along the stream and the City of Driggs are now at much lower risk of flood damage.

Another $5 million to $10 million is likely needed to continue the work on other segments of Teton Creek. Landowners along the creeks voted to tax themselves as a flood control district to maintain and work on flood control projects in the future, which will contribute around $20,000 per year toward the effort, but a great deal more fundraising will be needed.

The next big question is, "where is the water," Amy said, pointing to the dry creek bed. "We want to see water return to the stream longer," she said. FTR's hope is bring the Teton Basin water transactions program to Teton Creek, and to work with water right holders who are interested in voluntarily leasing their water, keeping it instream during critical periods for Yellowstone cutthroat trout.

Teton Creek from the Water District 1 Perspective

Tony Olenichak from Water District 1 in Idaho Falls gave a brief history of water rights for the Teton Basin. Water District 1 covers everything upstream of Milner Dam with a few exceptions. Tony started with basic water law, reminding us that in Idaho, prior appropriation doctrine says first in time is first in right. Earlier water rights have priority when water gets short. Teton Valley's earliest water rights are in the late 1880's-early 1890's. These rights are junior to users on the lower Teton River, who have water rights in the early 1880's.

However, there are a number of diversions in Teton Basin where the diversions are in Wyoming, but the water use is in Idaho. In 1939, canal companies in the Rexburg area filed a federal lawsuit that resulted in the "Roxanna" decree, which stipulates how water on Teton and South Leigh Creeks should be split between Wyoming and Idaho landowners. However, it did not specifically give Idaho authority to go into Wyoming to regulate the Wyoming diversions that served Idaho lands according to Idaho priorities.

Olenichak said the State of Wyoming requested in the 1990s that WD1 staff not cross the State Line to regulate the Grand Teton Canal headgate but Wyoming officials would curtail the headgate if asked by Idaho under the provisions of the Roxana Decree. As time progressed, WD1 seemed to be getting more resistance from landowners to the idea of WD1 staff regulating and measuring canals that diverted water in Wyoming to irrigate Idaho lands. In 2005, a letter was sent by a Darby Creek canal warning they would have personnel from WD1 arrested for trespassing if they entered Wyoming to measure or regulate the water in their canal. As a result, Idaho and Wyoming began negotiating an interstate agreement, and in 2013 when WD1 requested Wyoming to shut down the Grand Teton Canal headgate according to the provisions in the Roxana Decree , WD1 was told to "do it yourself." Olenichak said he felt like he was being set up to be arrested for trespassing because as a WD1 (State of Idaho) employee, he didn't have any jurisdiction in Wyoming to regulate the Wyoming diversions. That was the final impetus for getting the interstate agreement completed, he said. According to the new interstate agreement signed in 2014 a process is now in place for Idaho to go in and regulate some Wyoming diversions, including the Grand Teton Canal, which has an 1891 water right.

One more water doctrine comes into play in Teton Basin that's an exception to the prior

appropriation doctrine. It's called a "futile call." Futile call occurs when a senior user calls for a junior user's diversion to be curtailed but the junior users curtailed water sinks into the dry stream channel before reaching the senior user's water source. The call from the senior user is then deemed to be "futile" and the junior user can continue diverting.

Tony said that, in addition to regulating Idaho water rights with diversions in Wyoming, Water District 01 has also recently issued letters to Teton Basin water right holders reminding them that they are required to have a functioning head gate on all diversions. Tony introduced Alan Oliver, who is working on behalf of Water District 01 to help irrigators bring their diversions into compliance. Tony also introduced Nick Olson, the new Teton Basin Water Master. Alan said that one big challenge to contacting water right holders in Teton Basin is that around a third of them don't live in Teton County, or don't have a current address on file with IDWR.

In response to a question, Olenichak pointed out that Water District 1 regulates only surface water in Teton Basin, and not groundwater pumpers. Olenichak indicated that, similar to other areas in southeast Idaho, conversion from flood irrigation to sprinkler irrigation has resulted in less recharge to the aquifer, but that groundwater and surface water are not being conjunctively managed in Teton Basin yet. Olenichak speculated that the current futile call practice could be called into question if conjunctive management comes to Teton Basin in the future.

Comments and Wrap-Up

Brandon Hoffner thanks FTR and everyone for coming. He said HFWC is working on agendas for September and October meetings and the annual conference in November. Anyone who has topics or issues to bring to the council should contact him or Dale.

The tour broke up about 2:30 p.m.