Henry's Fork Watershed Council
Wednesday, March 9, 2016

Participants began registering at 8 a.m. at the Marriott SpringHill in Rexburg.

Brandon Hoffner, of the Henry's Fork Foundation, called the meeting to order. Introductions were made by the 23 people in the circle. Dale called for two minutes of silence, noting that it has been a tradition of the council at every meeting since its inception in 1993.

Community Building

Brandon announced that we will not meet in April but that we will have a longer May meeting. He also suggested that we could invite other groups that work in the watershed to hear about the work they do.

Dale Swensen suggested the IDFG beaver cooperative project as a topic for the May meeting.

Teton Watershed Soil Health Initiative

Amy Verbeten, Executive Director, Friends of the Teton River

This project is a partnership between Teton Soil Conservation District and Friends of the Teton River in an effort to reduce soil erosion, improve water quality, protect drinking water sources, increase the adoption of agricultural best management practices, and quantify the effects of this work on ground and surface water quality. There is a local desire to implement soil health initiatives, but it is costly and risky to agricultural produces, and there is a lack of experience. This project involves implementing a no-till direct farming demonstration project, including the use of cover crops, to reduce erosion. They plan to purchase a no-till drill and then rent it out to farmers who might want to try this method. There will be demonstration farms, producer education, advertising to spread the word about this program, and a monitoring plan to keep track of effects. Anticipated benefits (assuming application to 200 acres) include a 55% reduction in sediment, 45% reduction in phosphorus, and a 75% reduction in nitrogen in the water. They plan to partner with Idaho Department of Environmental Quality to ground-truth these predicted benefits. It is anticipated that those who switch to these methods will see a decrease in fertilizer costs for their land, reduced labor and fuel cost, increased soil moisture, and even increased productivity.

Audience members suggested a study using a matched pairs of fields that are treated differently (e.g., one uses no-till drilling and the other doesn't) as a statistically sound experimental design. One could then measure runoff and calculate moisture retained in the soil or recharged to the shallow aquifer. It might also be helpful to gather pre- and post- project data and to consider economic value of no-till drilling practices. Some have seen evidence that there is an economic benefit, but in some cases weeds and pests can become an issue as well. Partnering with soil scientists, like Jared Williams at BYU-I, might allow measurement of benefits to the soil. Because this will be a small-scale project, can the larger-scale effects be measured accurately, or

are there too many other factors? There currently is not any large-scale implementation of these practices in Teton Valley that anyone knows of.

Fish Passage Monitoring

Jamie Laatsch, Christina Morrisett, and Rob Van Kirk, Henry's Fork Foundation

The Henry's Fork Foundation (HFF) monitors use of fish passage facilities at Chester Dam and Buffalo River Dam. Chester Dam was built in 1938 as part of Fremont-Madison Irrigation District's delivery infrastructure. In 2004, Symbiotics filed an application with the Federal Energy Regulatory Commission (FERC) to build a hydroelectric generation facility on the dam. The license was issued in 2008 and transferred to Fall River Rural Electric Cooperative (FRREC) in 2009. The license holder, state and federal agencies, and conservation organizations negotiated a settlement agreement outside of the FERC requirements that specified that the hydroelectric plant would include a fish ladder, constructed as part of the power plant but financed by the conservation groups. Under the agreement, Idaho Department of Fish and Game (IDFG) will own the ladder for the first five years of its operation, while the power plant operator will inspect the ladder, keep it free of debris, and maintain and repair it as needed. Currently, IDFG monitors success of downstream fish migration at Chester Dam, and HFF monitors upstream migration. For logistical and safety reasons, it is not feasible to trap and manually sort fish at the Chester Dam fish ladder, so HFF and FRREC have installed an underwater camera at the top of the fish ladder to observe fish as they pass through the ladder. After some initial technical difficulties were addressed, the camera is now functional and transmits images in real-time via to a web-based viewer. During the spring and fall migration seasons, HFF will observe the camera's field of view over randomly selected time periods to estimate fish use. On the afternoon of March 7, 2016, HFF staff observed several large rainbow trout swim past the camera.

The Buffalo River Dam was built in 1936 to generate power for construction of Island Park Reservoir. Although the dam originally included fish passage, a modern ladder was not built until 1996. However, that ladder was very steep and so was accessible only to large, spawning-sized fish. The current ladder, which was designed to pass fish as small as three inches long, was built in 2005. The upstream-most bay in that ladder includes a crowder (essentially a fish funnel) that allows fish to swim upstream into the bay but makes it difficult for them to swim back downstream. At the top of that bay, a screen can be installed to trap all upstream-migrating fish. Fish trapped in the top bay of the ladder are netted, placed in tubs, processed, and then released upstream of the dam. When the screen is in place, trap efficiency is essentially 100%. HFF and FRREC monitored upstream fish passage continuously from 2006 through 2013, when monitoring was limited to the spring (mid-February to mid-June) and autumn (early September to early December) migration seasons. Over the years, a number of different types of downstream traps have been installed at the Buffalo River Dam. The most recent of these was operated each spring from 2009 to 2015, before it fell into disrepair and was removed. Efficiency of the downstream trap is around 2-4%.

In 2013, HFF and Idaho Department of Fish and Game initiated a multi-year study of life histories of rainbow trout in the Buffalo River and the adjacent reach of the Henry's Fork, using Passive Integrated Transponder (PIT) tag technology, genetic analysis of parentage, and analysis of other data such as fish size during migration, timing of migration, and streamflow in both the Buffalo River and the mainstem Henry's Fork. The life-history study is important to address the question of whether the Buffalo River contributes to the Henry's Fork fishery, which is known to be limited by the survival of fish through their first winter of life. Knowledge of the life histories of fish that use the Buffalo River, and their potential contribution to the Henry's Fork population, informs management of fish, habitat, and streamflow in the Buffalo River and Henry's Fork. To date, PIT-tag and genetic analyses have confirmed presence of at least five distinct rainbow trout life histories in the Buffalo River-Henry's Fork system. Based on relative proportions of tag returns and genetic relationships, it appears that the vast majority of the estimated 30,000 – 70,000 small rainbow trout that migrate downstream over the Buffalo River Dam each spring were born in the Buffalo River, most to resident—not migratory—Buffalo River fish. Some of these fish return to the Buffalo River in the fall to spend the winter there, contributing a net 100-150 fish each year to the Henry's Fork population. Although the Buffalo River spawning run of around 100-400 fish per year does not appear to contribute a large number of fish to the Henry's Fork population, it does produce enough fry each year to replace full loss of a year-class if a catastrophic event in the Henry's Fork were to result in loss of an entire year's reproduction. Genetic sampling of two-year old rainbow trout in the Henry's Fork in 2016 and 2017 is hoped to answer the still-outstanding question of how many two-year old fish that enter the fishable population in the Henry's Fork used the Buffalo River at some point in their life.

Upper Snake and Henry's Fork Water Supply Outlook for 2016

Mike Beus, U.S. Bureau of Reclamation

Currently, system-wide reservoir storage is 67% of capacity, 509,000 acre-feet less than at this time last year, but 99.7% of average for this date. Palisades Reservoir has been filling steadily but slowly and is on track to intersect its projected flood-control target level in mid-May without need for increased releases. American Falls Reservoir is currently below average for this time of year, indicating that more water could have been delivered from upstream reservoirs during the winter, but that water can still be moved this spring if needed. Island Park Reservoir is slightly above average for this time of year but filling rather slowly because of low inflows. Snow-water equivalent is below average at most snow-survey sites around the basin, but current one-week and two-week forecasts call for above-average precipitation, which is expected to result in April 1 snow-water equivalent values around 90% of average. When combined with below-average baseflows, this snowpack is forecast to yield streamflows around 85% of average in the upper Snake River basin. The best news in the water-supply outlook as that March precipitation in 2016 will be better than that in 2015; what we have gotten already this month is better than the tiny amount we received in March of 2015.

However, as illustrated by 2014 and 2015, growing-season rainfall, which is nearly impossible to predict, can greatly affect demand for reservoir storage water and hence storage carryover and streamflows in the subsequent winter. In 2014, reservoir carryover from 2013 was low, and the

reservoir system did not fill. Demand was very high until August, when heavy rains throughout the basin greatly reduced irrigation demand, albeit at the expense of crop quality and quantity. This resulted in very good carryover into to 2015. However, very early irrigation demand in 2015 resulted in substantial storage use in April, prior to the "May miracle" rains. These rains allowed the reservoir system to recover to over 90% of capacity by mid-June of 2015. High demand over the remainder of the irrigation season resulted in carryover that was below average, although not as low as that in 2013-2014. Although springtime precipitation is still the largest uncertainty in the water-supply outlook, current forecasts indicate that irrigation season will not likely start early like it did in 2015, limiting early-season demand for storage water.

Community Building and Wrap-Up

Dale asked for one minute of silence to wrap-up the meeting before closing comments and announcements.

Gordon Rattray shared that he enjoyed all of the talks today.

Brandon Hoffner said that he appreciated everyone for coming out today and for the presenters putting presentations together for this meeting.

The meeting was adjourned at 11:00.