Henry's Fork Watershed Council Notes

Tuesday, March 12, 2019

Introductions and Community Building

Brandon Hoffner, HFF welcomed everyone to the March Watershed Council meeting, especially those attending their first Watershed Council meeting, including newly elected Teton County Commissioner Bob Heneage.

Brandon explained that the Watershed Council worked very hard in its early years to establish trust and the group observes a moment of silence at the beginning of each meeting for folks to reflect on what they'd like to achieve at the meeting, why we're all here, and to reflect on ways to be respectful of one another. The group observed 2 minutes of silence.

The meeting was opened for announcements of comments in advance of the presentations, but none were shared.

Upper Snake River operations

Jeremy Dalling, U.S. Bureau of Reclamation

Currently the Upper Snake Reservoir system is at 87% of capacity, which is the second highest volume for this time of year since 1977. Island Park Reservoir is also at its second highest volume for the date since 1977 and is being drafted a little to keep ice off of the brackets that attach the rubber dam to the concrete spillway. Many precipitation and snow accumulation records were set in February, and cool weather has continued since then. However, soil moisture is much lower over most of the Snake River basin compared with 2018, so water yield per unit of snow water equivalent (SWE) will be lower this year. Current SWE in the Island Park area is similar to that back in the mid-1980s, but water yield based on the snowpack can vary substantially depending on baseflows and soil moisture. The March 1 water supply forecast for April-July calls for 123% of average streamflow at Island Park. Island Park outflow will be managed to maximize the time at which outflow can be held at 950 cfs (power plant capacity) and minimize very high flows, while filling the reservoir around June 1. Elsewhere in the basin, flood control operations will be needed at Jackson and Palisades.

A Day in the Life of an Irrigation Manager

Aaron Dalling, Fremont-Madison Irrigation District

Fremont-Madison Irrigation District (FMID) was formed in 1935 for the purpose of contracting with the U.S. Bureau of Reclamation to build reservoirs in the Henry's Fork Watershed. The Bureau transferred operation and maintenance (O&M) responsibilities for Grassy Lake and Island Park Reservoir to FMID and 1996. In 2003, the Bureau transferred title to the Crosscut

Canal and five groundwater wells to FMID. The District encompasses 285,000 acres, around 1,900 space holders, and roughly 35 canal companies. During irrigation season, FMID monitors real-time streamflow, reservoir, and diversion data to make sure that all diversion needs are met, without delivering excessive amounts of storage from the reservoirs. There are around 140 points of diversion from Henry's Fork, Fall River, and Teton River. FMID also monitors and reports water diverted and delivered for managed aquifer recharge. Reservoir O&M includes the Cascade Creek dam and diversion, which diverts water from Cascade Creek into Grassy Lake. Operation and maintenance at Island Park Dam includes monthly readings of piezometers to monitor groundwater levels around the dam. Occasional pest control is an interesting O&M activity. Aging infrastructure is a challenge for FMID, and numerous repairs and upgrades are needed at Grassy Lake. FMID is also involved in recreation, although not always by choice. Monkey Rock, where the Crosscut Canal flows into the Teton River, is a popular but not officially maintained recreation spot. Unauthorized recreational use and vandalism at the old Teton Dam site have created safety issues and liability for FMID and the Bureau of Reclamation, but a new coalition is developing a plan for authorized, improved recreation at the site, which presents some new opportunities for FMID.

Automated Canal Operations and Streamflow Measurement Equipment

Aaron Dalling, Fremont-Madison Irrigation District
Bryce "BC" Contor, Henry's Fork Foundation
Rob Van Kirk, Henry's Fork Foundation

The overarching goal of FMID and its partners in the Drought Management Planning (DMP) Committee is to meet irrigation demand throughout the watershed while minimizing both physical delivery of storage water and the amount of water diverted that is charged to FMID and its spaceholders as administrative storage. Accomplishing this goal involves a sequence of manual adjustments that require time and travel on the part of irrigation-company and FMID employees, all of whom have numerous other responsibilities ranging from farming to operation of irrigation infrastructure on other canals. At the top of the system, adjustments at Henry's Lake require two hours of round-trip driving, plus another hour or two to wait for manual adjustments of the headgate to be recorded at the USGS gaging station downstream and ensure that the desired outflow is achieved. Changes in flow releases at Henry's Lake require one day to be realized in Island Park Reservoir. Changes there can be made on short notice by a dam tender who is always in close proximity to the dam, but another 16-20 hours are required for adjustments at Island Park to reach the head of the Crosscut Canal. Adjustments at the Crosscut require an FMID employee to drive about 15 minutes one-way, half of that time on a rough dirt access road. Another 10 hours is required for flow adjustments there to reach the Teton splitter. Adjustments at the splitter require more dirt-road driving, and more time must elapse before it is certain that irrigation needs are met without delivering excess water into either of the forks. In reality, the process actually works in reverse—changes in demand at the bottom of the system propagate back up through the system as additional required adjustments, even though the water moves downstream. Optimally, the canal companies report changes in demand to FMID a day or two ahead of time, so that outflow from Island Park Reservoir can be adjusted in time for the change in flow to be realized in the lower

Teton River when water users there will either increase or decrease diversion. When adjustments through the whole system cannot be coordinated or made in a timely manner due to human resource constraints, either excess water is delivered from the reservoir system, or users at the bottom of the system run short of water. Because of water travel times, misalignment between delivery and need usually occurs over periods of 12-36 hours.

We propose to install remotely controlled headgates on Henry's Lake Dam, the Crosscut Canal, and the Teton splitter. We will also install flow measuring devices at these locations that will respond to flow changes in real time. The computer and software required to operate the headgates and observe flow changes will be located in FMID's office, allowing FMID staff to make flow changes of precise magnitudes and precise times. These can be coordinated with releases at Island Park Dam, minimizing the frequency and duration of periods when delivery and demand on the lower Teton River do not align. Based on operations in 2018, we estimate that the project will allow a reduction of about 3,000 ac-ft per year in storage water delivered to the North Fork Teton that is not needed by users on Teton Island Feeder. At $6 per ac-ft for FMID storage, this is a savings of $18,000 in storage assessments. During years when FMID users must rent storage water, the savings can be as much as $17 per ac-ft, or $51,000 total. We also estimate that smoothing fluctuations in delivery to the South Fork Teton can reduce physical storage delivery by about 8,000 ac-ft per year. Some of the 3,000 ac-ft of savings at Teton Island Feeder would be included in the 8,000 ac-ft per year on the South Fork, but in total, we estimate a total reduction in Island Park storage delivery of around 9,000 ac-ft per year. In 2018, this would have increased reservoir carryover from the 17% attained with the existing infrastructure to around 31%.

The proposed flow measuring devices will require establishment of rating curves relating stream or canal stage to flow. Numerous field measurements of flow are needed to establish these curves. The Henry's Fork Foundation (HFF) will collect the streamflow data and calculate the rating curves. Currently, HFF's streamflow measurement equipment consists of traditional velocity meters and wading rods. This method of measurement is very time consuming, especially considering the number of measurements that will be needed at several different locations to establish the initial rating curves. To make flow measurement more efficient, FMID is purchasing an Acoustic Doppler Current Profiler (ADCP), the current state of the art in streamflow measurement. In addition to flow itself, the ADCP unit can quickly and accurately measure channel cross sections and velocity profiles, which are important components of stream habitat assessment. To increase the utility of the ADCP for this use, HFF is purchasing an accompanying GPS unit. HFF will use the ADCP to support the remote-control project, provide quick measurements of canal discharge for FMID and canal companies, measure discharge at Island Park Dam between USGS rating-curve adjustments, and conduct research to refine system-wide water management to meet DMP goals.

Idaho State Department of Agriculture Invasive Species and Noxious Weeds Program: Organization and Operations

Cole Morrison, Southeast Region Invasive Species and Noxious Weeds Program Specialist

The Idaho Invasive Species Act establishes the invasive species list; prohibits possession, propagation, transport or sale of listed aquatic invasive species; outlines authority for mandatory inspection; establishes the invasive species fund via invasive species stickers for watercraft; and outlines penalties for violations. Quagga and zebra mussels are two of the most concerning aquatic invasive species, because they can disrupt water delivery, negatively impact hydroelectric power generation, damage fisheries and aquatic habitat, degrade water quality, and impact recreation and tourism. The impact of a mussel invasion to Idaho's economy is estimated at $114 million. To detect a potential invasion as early as possible, water bodies throughout the state are sampled frequently for the larval stage of mussels, using plankton tows and substrate sampling. In 2018, 1,617 samples were taken. To decrease the risk of invasion due to transportation of mussels into the state, mandatory boat inspections are conducted at 20 stations, including ones at the Montana state line on highways 87 and 20 and at Henry's Lake. In 2018, a total of 93,083 watercraft were inspected. Numerous species of aquatic plants also pose a risk to aquatic resources, including flowering rush, Hydrilla, and Brazilian Elodea. No successful treatment has been found for flowering rush, but occurrence of Hydrilla in the Bruneau River has been dramatically reduced with treatment, and Brazilian Elodea has been eradicated in two of the three counties in which it has been found.

On the terrestrial side, the Idaho Noxious Weed law specifies that landowners have responsibility for controlling noxious weeds on their property. Control includes prevention, eradication, rehabilitation, and containment. Policeman's Helmet is a terrestrial noxious weed that has been eradicated in Bonneville County, one of four in which it has been found. The invasive species program also addresses other species such as grasshoppers, Mormon crickets and reptiles. Education and outreach is important in preventing importation and establishment of invasive species.

Five-year Review and TMDLs in the Henry's Fork watershed

Genene Lehotsky, Idaho Department of Environmental Quality

The federal Clean Water Act requires states to assess the quality of its water bodies and classify them according to attainment of designated beneficial uses such as cold-water biota and primary contact recreation. These classifications are updated every two years in status reports submitted to the U.S. Environmental Protection Agency (USEPA). Water bodies classified as not meeting beneficial uses (class 5) require development of a Total Maximum Daily Load (TMDL) for the pollutants responsible for non-attainment. In Idaho, local Watershed Advisory Groups (WAGs) assist Idaho Department of Environmental Quality in determining beneficial use designations and reviewing TMDLs. The Henry's Fork Watershed Council is the WAG for the Upper Henry's, Lower Henry's, and Teton watersheds. The Council assisted with beneficial use designations in the late 1990s and reviewed TMDLs in 1999, 2002, 2010, and 2017. The 2017 review was the last 5-year review conducted for TMDLs in the upper and lower Henry's Fork subbasins. The current TMDL document for upper and lower Henry's Fork addresses water quality in seven stream segments previously listed as not meeting beneficial uses. Four of these

have been recommended for delisting from class 5 and re-designation in classes 2, 3 or 4, as appropriate. These are Moose Creek, Henry's Lake Outlet, and two reaches of Conant Creek. Recommendations for delisting of these streams were based on new data indicating that beneficial uses were being attained or that earlier classifications were based on incorrect applications of assessment methods. Upon removal from class 5, these water bodies do not require TMDLs. The three streams that remained listed as class 5 are Twin Creek, Timber Creek, and Sand Creek. Timber Creek was listed for high *E. coli* concentrations, and the other two were listed for sedimentation that was preventing attainment of beneficial uses. TMDLs were prepared for these three streams. The final draft TMDL document will be available to the public in early April, with a 30-day comment period. Any public comments received will be incorporated into the final document submitted to USEPA.

NOTE: During the final community building session, participants agreed that anyone interested in reviewing the final draft document meet in a small group immediately after the April Watershed Council meeting.

Community Building and Wrap Up

Brandon Hoffner, HFF called for one minute of silence to reflect on the meeting and prepare any final announcements or comments. Brandon announced that the High Divide Collaborative is hosting a meeting in Idaho Falls on April 24-25 and water is on the agenda.

Mike Rassmussen, Egin Bench Canals, shared that multiple canals are now conducting recharge thanks to the great precipitation in February.

BC Contor, HFF/FTR, shared that there is also recharge ongoing in Idaho Falls.

Kathy Rinaldi, Greater Yellowstone Coalition, heard that the Lands Bill should be signed by the President today. LWCF is included in that bill, and LWCF has greatly benefited many projects along the South Fork Snake River.