

Northeast Wyoming Basin Advisory Group
Meeting Record
Moorcroft, Wyoming
July 8, 2004

Welcome

Facilitator Sherri Gregory welcomed the group and the meeting was called to order at 1:00 p.m. All attendees introduced themselves, followed by a review of the overall meeting agenda. A sign-in sheet was passed around to record attendance. The next meeting is scheduled for September 30 in Newcastle.

Water Development Commission Report

Barry Lawrence updated the BAG on the status of the plans for the other basins. The BAGs for the Bear, Green and Snake-Salt Basins will be meeting July 19 in Evanston, July 20 in Savery, and July 21 in Jackson. Barry discussed the status of all basin studies, and agendas for future meetings. Handouts from the prior meeting were distributed.

Wyoming Instream Flow Issues

Tom Annear, Wyoming Game and Fish Department (WGFD), indicated that there are three concepts in understanding instream flow: science, public involvement and legal/institutional. Science describes the stream's flow regime, which includes various components including water quality, flushing flow, habitat flow, channel and riparian maintenance, and channel forming flow. The public involvement component includes public education and input, whereas the legal/institutional component is based in the Wyoming constitution, statutes and federal laws. Tom indicated that the WGFD primarily maintains existing flow patterns and fisheries on public lands as opposed to flow restoration on private lands. Some of the instream flow issues include periodic low flow, return flows, interstate use of water, the legality of instream flow use, and the building of dams. Discussion followed.

Campbell County Conservation District Activities

Michelle Cook, indicated that a comprehensive watershed assessment to identify impaired segments of Little Powder River, Stonepile and Donkey Creeks and to assess baseline information for Dead Horse, Wild Horse, Spotted Horse, LX Bar, SA, and Bitter Creeks was underway. A Clean Water Act, Section 319 grant was provided by the Wyoming Department of Environmental Quality in addition to a local match to fund the project. Analyses of historical, chemical, physical, bacteriological, biological and habitat data will be performed on each of the segments. An assessment of baseline monitoring can then be completed. The next planned phase is the implementation of Best Management Practices (BMP). Local steering committees will also be utilized for watershed planning efforts. The final report is due to be completed by September 2004.

The Donkey Creek and Gillette Fishing Lake project was a joint one with the city of Gillette, which focused on non-point source pollution, including sedimentation. Two 319 grants were approved for BMP on Donkey Creek/Stonepile Creek and Little Powder River to improve address fecal coliform concerns. Both septic systems and animal feeding operations will be addressed.

Snow Telemetry and 2004 Season Recap

Dave Taylor indicated that the Natural Resources Conservation Service (NRCS) installs, operates, and maintains an extensive system to collect snowpack and related climatic data in the western United States called SNOTEL. Locally, the cooperative snow survey program monitors sites in Wyoming and the western half of South Dakota. Cooperators include various municipalities, the State Engineer's Office and the US Bureau of Reclamation. The first snow survey was conducted in 1906 by Dr. Church in the Lake Tahoe area. The program is in the 10 western states and Alaska, with Wyoming having 83 SNOTEL sites with automated equipment and 65 manually read sites. South Dakota has 2 sites each of the automated and manually read courses.

SNOTEL sites are designed to operate unattended and without maintenance for a year. Manually read courses are measured with a snow sampler, which takes a core and is weighed to determine the snow water equivalent. The standard SNOTEL site has a shelter for electronic equipment, a snow pillow, a storage precipitation gauge, a snow depth sensor, a temperature sensor, plus other sensors, including humidity, wind speed and direction, soil moisture, and solar radiation. The data is transmitted to two base stations in Boise, ID and Ogden, UT via meteor burst technology, and is then transmitted via telephone to Portland, OR. Most Wyoming sites report every three hours.

The snow survey data is available through the Water Resources Data System at <http://www.wrds.uwyo.edu/wrds/nrcs/nrcs.html>. Another site with snowpack information is the National Water and Climate Center at <http://www.wcc.nrcs.usda.gov/>, with specific Wyoming SNOTEL sites at <http://www.wcc.nrcs.usda.gov/snotel/Wyoming.wyoming.html>

The "Basin Outlook Report", which is prepared annually, covers 13 basins within the state and collects data January through June at 63 forecast points. Dave indicated that most of the state is in a severe to extreme drought. The entire state, except the Platte River Basin, experienced 50-55% average runoff for 2004. The Platte River Basin experienced lower runoff. Discussion followed.

Testing of Hydrologic Models for Estimating Streamflow in Mountainous Areas

Bruce Brinkman presented the research that was used to test models that are used to estimate stream flows in Wyoming. This research looked only at the portion of these existing equations that covered the snow-covered months of October through March. Physically measurements were made mid-month, every

month, through the October to March time period during the winters of 2000-2001 and 2001-2002. The study sites consisted of eleven sites in the Brush Creek area, six sites in the Rock Creek area, six sites in the Douglas Creek area, and eight sites in the Encampment area. The measured data collected was then compared to the projected data of existing equations to determine their accuracy in this area of Wyoming. The data was then used to produce new equations for these flows in mountainous areas during winter conditions. The research resulted in new monthly equations for estimating monthly winter discharge. These equations are a function of the basin area and the range of the segment's basin elevation: discharges = f (basin area, elevation range). Once the new equations were determined, their projections were compared with measured values around the State of Wyoming. They were found to fit well with seven of nine sites tested. The two sites that did not fit were found to have special geologic conditions that need additional research. Discussion followed.

The meeting adjourned at 3:10 p.m.