Henrys Fork Technical Modeling Meeting

January 10, 2011

Attendees:

Harvey Walker, Eastern Idaho Water Rights Coalition
Jennifer Johnson, Bureau of Reclamation
Chris Ketchum, Bureau of Reclamation
Mike Beus, Bureau of Reclamation
Mitch Silvers, U.S. Senator Crapo's office
Leslie Huddleston, U.S. Senator Crapo's office
Gary Johnson, University of Idaho
Randy Johnson, Forsgren & Associates
Allan Wylie, IDWR
Jennifer Sukow, IDWR
Carol Kjar, Bureau of Reclamation
Mark Bransom, CH2M Hill
Cynthia Clark, IDWR
Dale Swensen, FMID
Mike McVay, IDWR
Bryce Conter, RMEA
Sean Vincent, IDWR
Tony Olenichak, WD#1
Kevin Boggs, SPF
Rick Rayand, IDWR
Peter Anderson, TU
Jenny Kindig, CH2M Hill
Lesa Stark, Bureau of Reclamation
Karl Tarbet, Bureau of Reclamation
Bob Lounsbury, Bureau of Reclamation
Pat McGrane, Bureau of Reclamation
Rob VanKirk, Humbolt State University

Jennifer Johnson discussed the goals of the Henrys Fork River Basin Special Study:

- Develop the water supply
- Improve water management
- Sustain environment quality

Possible alternatives under the development of water supply may include the investigation of new storage sites and possible contributions to the ESPA CAMP water budget change. Additional water for the FMID to meet needs during in dry years may also be considered. The impacts of climate change may require improved management of water supplies. How these climate changes may impact environmental quality is also a consideration with this study.

The workgroup for the Special Study will select approximately 10 alternatives to meet these goals. CH2M Hill will take these 10 recommended alternatives and narrow them down 2 or 3 of the best ones. Reclamation will perform appraisal level investigations on them. At that time, models appropriate for answering the questions each alternative raises will be selected. There will be other public meetings to discuss the alternatives and investigations as they happen.

Dr. Rob Van Kirk of Humbolt State University discussed his modeled research of the Henrys Fork River basin water budget. The study was funded by a USDA grant for modeling historic, current, and future ground and surface water hydrology. Land use in the basin was changing rapidly with the transition from farmland to housing developments and there were questions about how this would impact the basin's hydrology.

Dr. Van Kirk's research showed that the Henrys Fork River basin provides approximately one-third of the total Snake River basin flow. He also found that housing development and evapotranspiration have little to no impact on the hydrology of the basin. The canal system seems to increase shallow ground water supplies as it transports water to crops. This, in effect, ensures that there is adequate ground water across a large area. Dr. Van Kirk was able to account for all the water in the basin except for 250,000-300,000 acre-feet. It is speculated that some if it may reach the Snake River Plain aquifer.

Question: How would ground water recharge be affected by lining irrigation canals which may remove that recharge source?

Answer: Allowing the leakage from canals to flow through the shallow aquifer take peak flows and spread them across a wide area and could potentially make the hydrograph flatter over time. The shallow aquifer system that the canal leakage flows through also works as a storage system which gives outlying areas access to the peak flows which might otherwise pass out of the basin. Lined canals would cause the water to pass through more quickly and probably pass unused out of the basin. Lined canals would probably impact ground water a great deal, especially the domestic wells in the basin that rely on the shallow ground water supplies.

Question: Will Dr. Van Kirk's modeling and data be integrated into the modeling done for the special study alternatives?

Answer: The alternatives will dictate which models will be used to answer the questions initiated by each alternative. The choice of modeling will be determined by what information is required. It is possible that parts or all of his research will be used. Dr. Van Kirk's surface water modeling is well developed; his ground water modeling is not as well developed and may need additional study.

Question: There seems to be decreased diversions over time. Shouldn't there be less basin outflow as a result? Is the decrease in diversions the same as the decrease in the water supply?

Answer: The change in water supply leads to a change in canal diversions which leads to a change in the reach gains. Much of the in-basin returns occurs below large diversions. Canals that run parallel to the river have high returns to the river due to shallow ground water movement. The further the canal is from the river, the less recharge to the local system because there is less shallow return to the river.

Question: Why is the Teton River subbasin treated differently than the rest of the Henrys Fork basin?

Answer: The Teton River has no storage and is constrained by supply. The geology under the subbasin drains ground water into the river and not into the Snake Plain aquifer like the rest of the basin.

Question: The ESPA CAMP linked recharge, ground water, and planning models to answer questions. Can Van Kirk's models be linked to those to see where the unencumbered water goes?

Answer: It depends on the alternatives selected. The ESPA covers only a small part of the westernmost part of the Henrys Fork River basin. The way the basin is managed must be done with regard to downstream interests and rights. Other than peak or large runoffs, all natural flows in the Snake River basin are owned. As efficiency in irrigation systems is increased in Henrys Fork River basin, it provides more water to meet the downstream rights.

Question: Can the water supply be kept upstream rather than letting it go downstream?

Answer: Who can use what water when is constrained by the supply. Water spilled at Milner may originate in the Henrys Fork River basin, but powerplant rights and senior rights may require the water to be passed down. The MODSIM model that Reclamation uses takes water rights into consideration during processing. IDFW has a water supply accounting model that also helps with knowing how water rights are distributed. Until alternatives are chosen, models

cannot be linked or run until there is a clear indication of what is going on in the Snake River basin as a whole, who is using their water rights, and the timing of use.

Question: There is a steady supply of ground water that comes from the rhyolite deposits at the southern end of Yellowstone which feeds into the Teton River plateau. Can this be a possible storage area for additional water?

Answer: We can control surface water, but we cannot control ground water. Infiltration rates and water transportation subsurface have not been determined so there is no way to know.