

**Snake/Salt Basin Advisory Group  
Meeting Record  
Moran, Wyoming  
August 14, 2002**

**Welcome**

Facilitators Cathy Lujan and Sherri Gregory-Schreiner opened the meeting at 6:10 p.m. at the Jackson Lake Lodge in Moran. Each person in attendance was given the chance to introduce himself or herself. Following the introductions, the agenda for the meeting was reviewed. There were approximately 25 people in attendance.

The following schedule was agreed upon for the next three Snake/Salt Basin Advisory Group (BAG) meetings:

Wednesday, October 9, 2002, 6 p.m. – Alpine  
Wednesday, December 18, 2002, 6 p.m. – Jackson  
Wednesday, January 29, 2003, 6 p.m. - Afton

**Basin Planning Update – Barry Lawrence, WWDC**

Barry Lawrence distributed handouts from the last BAG meeting held in Alta. He also discussed river basin planning activities in other basins across the state. A BAG meeting for the Wind/Bighorn River basin had been held the previous day, which included tours of the Pepsi bottling plant and Crown Cork & Seal. Meetings are currently scheduled for November for the BAGs in the Bear, Green, Powder/Tongue, and Northeast Basins. Barry invited anyone to attend these meetings, as well as follow the progress of the various basin planning efforts on the State Water Plan website.

**Palisades Reservoir Contract – Jeff Fassett, Fassett Consulting**

Jeff Fassett discussed the contract between the State of Wyoming and the U.S. Bureau of Reclamation (USBR) regarding storage space in Palisades Reservoir. He explained that this arrangement fulfills the requirements of the Snake River Compact between Wyoming and Idaho. As part of that compact, Wyoming is entitled to 4% of the water flowing into Idaho, not including water rights prior to 1950. The first 2% of use is without restriction, however, Wyoming agreed to provide storage for 1/3 of their final 2%.

Jeff indicated that during the drought of the late 1980's, there was concern regarding the flows below Jackson Lake. The flows were managed for irrigators in Idaho, who wanted to store water through the fall and winter in the lake rather than let it flow down the Snake River. This raised concerns over adequate flows for the fishery in Snake River. As a result, the State Engineer's Office began working with the USBR, who operates both Jackson Lake Dam and Palisades Reservoir. When Palisades Reservoir was constructed, USBR had set aside storage to be used as part of the Snake River

Compact. Jeff stated that this was very fortunate for Wyoming, as there are limited opportunities for storage in the Snake/Salt River basin. Wyoming contracted with USBR for 33,000 acre-feet of storage. This was based on the long-term average of 5,000,000 AF annually flowing down the Snake River. One-third of the final 2%, the obligation under the compact, is calculated to be 33,000 AF.

Due to the contract for this storage space, Wyoming now has adequate storage to meet compact obligations under full usage, which means that the storage issue will not restrict future development of water in the Snake/Salt River basin. Jeff also pointed out that Wyoming was now a user in the reservoir system, and could have input regarding operation of the system similar to any other user. Also, Wyoming now had flexibility regarding this water. For example, it could be exchanged for water in Jackson Lake, which could be used for recreation or fishery purposes. Also, Wyoming could sell unused water to other users if they desired.

The Palisades Reservoir Contract was completed in 1990. The State had to initially purchase the stored water, which amounted to approximately \$570,000 for the 33,000 AF. Also, Wyoming must pay for their share of operation and maintenance costs, which amounts to approximately \$8,000 annually. This payment is met by using interest accrued on Game and Fish Department funds. Jeff also noted that as a spaceholder, Wyoming now could participate in the water bank. Studies prior to this current basin plan have shown that the use of water in the basin is well under the first 2% allocated, meaning that there is no call to use the storage for compact purposes at this point.

### **Salmon Issues - Jeff Fassett, Fassett Consulting**

Jeff presented a discussion regarding the salmon issues downstream in the Snake and Columbia Rivers. He indicated that Wyoming must be aware of issues that are downstream of the state, as they can have effects here as well. The Endangered Species Act has created lists that include numerous types of salmon and steelhead as threatened or endangered, and these species are the primary issue of debate regarding operations in the Columbia River Basin. These fish are managed under the National Marine Fisheries Service. There have been many studies conducted regarding topics such as outward migration, dams, and increased river flows.

Jeff stated that during the mid-1990's, the USBR committed to providing 427,000 AF of water, if available, to increase river flows, which could help "flush" the outward migrating fish to the ocean. In 1997, the Corps of Engineers indicated that they wanted a study to determine if an additional 1,000,000 AF would have positive results. USBR studied this option, and the associated impacts. As part of that study, they included 30,000 AF that would come from Wyoming water rights. Jeff stated that this study has not been implemented at this time, but it shows how downstream issues can have a ripple effect to those states and users upstream. Similarly, water quality issues could have impacts on upstream states as well.

## **Water Conservation Opportunities and Technology – Ron Vore, WWDC**

Ron Vore gave a presentation regarding water conservation in Wyoming. He began by discussing the history of conservation in the United States and in Wyoming. Theodore Roosevelt had conservation as a cornerstone of his domestic policy, and was behind the passing of the Reclamation Act in 1902, which enabled government sponsored irrigation in the West. The Soil Conservation Act was passed in 1935 following the Dust Bowl era, and conservation districts were being formed in Wyoming in the late 1930's to early 1940's. The Wyoming Water Development Commission was formed in 1979.

Ron presented water demand and surface water availability information from completed river basin plans. This information depicts areas within basins and times of the year when surface water availability does not meet demands, particularly in dry years. Conservation practices, such as storage, conveyance loss mitigation and improvement of on-farm irrigation application efficiencies may address these deficits. In the Salt River area of the Snake/Salt basin, there have been substantial acreages of irrigated lands converted from surface flood application to sprinkler application. This change has resulted in reduced late season river flows in some reaches of the system due to reduced stream-bank storage which impacts return flow.

In municipal systems, conservation can result in water savings. Ron presented information indicating that conservation has been shown to save approximately 25 gallons per capita per day for indoor water use. Also, various methods were shown to reduce outdoor residential water consumption. For example, the city of Denver reuses a portion of their wastewater for a water savings of approximately 17,000 AF per year.

Approximately 134 billion gallons of water per day are used for agricultural uses across the nation. Storage facilities typically cost about \$1,000 per acre-foot of storage capacity. Lining of ditches can greatly reduce conveyance losses, as well as reduce maintenance, improve water quality, and provide insurance against drought. Estimated costs for lining of ditches are \$250 to \$600 per acre-foot of water saved. Flood irrigation is used for approximately 50% of the irrigation in the country, and is about 50% efficient. However, there are side benefits to flooding, such groundwater recharge and allowing for a delayed release of peak runoff. Sprinkler irrigation is about 75% efficient, however it requires pressure by means of gravity or pumping. Center pivot sprinklers can be up to 90% efficient, particularly with low pressure systems. Micro irrigation using surface or sub-surface drip systems can be 95% efficient, and can place water directly in the root zone.

Ron stated that water management is enhanced through measurement. Also, water can be more efficiently used through irrigation scheduling and crop selection. He presented information showing a monitoring well hydrograph in Laramie County. The water level was dropping over time until center pivot sprinklers were installed. The water levels then returned to previous levels and were consistent over time. In the United States, 38 million gallons of water are "saved" every day, with most of the savings due to efficient irrigation practices. He also stated that only 17% of crops in the

world are irrigated; however these crops produce nearly 40% of the global harvest. Water can increase crop yield by three to four times.

### **Long List of Future Water Use Opportunities – Evan Simpson, Sunrise Engineering, Inc.**

Evan Simpson presented a discussion regarding the creation of a long list of future water use possibilities. He indicated that the concept of listing possible uses was discussed during the last BAG meeting, and that the list would be formed at this meeting. The long list would then be pared down into a short list by looking at the feasibility and impacts of each potential project. The floor was then opened to discussion and input from those in attendance. The following list of potential projects was created (categorization of projects was completed following the meeting):

#### **Lincoln County Area Projects:**

1. Reservoir at headwaters of Salt River (10 mi. of Salt River is dry annually)
2. New dam on Salt River in Narrows
3. Smaller scale reservoirs in canyons of east mountains of Star Valley:
  - Enlarge Cottonwood Lake with dam
  - Dry Creek Reservoir
  - Enlarge Swift Creek Reservoir
  - Willow Creek Reservoir
  - Enlarge Strawberry Reservoir
  - Green Canyon Reservoir
  - Cedar Creek Reservoir
  - Stewart Creek Reservoir
4. Small scale reservoirs on west side of Star Valley:
  - Stump Creek Reservoir
  - Crow Creek Reservoir
5. Share stored water between Cottonwood and Dry Creek Irrigation Districts (through piping)
6. Routing runoff in Star Valley to existing storage sites to augment groundwater
7. Have ID/WY honor each other's fishing licenses on Palisades Reservoir
8. Additional (high elevation level) terracing to capture snowfall and run-off
9. Low head hydro projects using open channel facilities

#### **Teton County Area Projects:**

10. Increase flows in spring creeks on west bank of Snake River to enhance fish habitat
11. Dam on Cottonwood Creek in Teton County
12. Snow making (form of storage)
13. Winter flood control in Jackson
14. Water quality of surface run-off from developed areas
15. Sprinkler systems in South Park & Spring Gulch

#### **Basin Wide Projects:**

16. Hydroelectric facilities on existing irrigation systems

17. Cloud seeding
18. Wetland projects
  - Alpine
  - Others
19. Support conservation district projects
20. Beaver management
21. Septic tank management alternatives (development consolidation)
22. Municipal water needs expansion
23. Metering project – conservation
24. Re-establish meandering patterns in rivers
25. Re-establish riparian river banks
26. Commercial – Industrial – Bottle water
27. Trans-basin diversion into the Wind River Basin

The meeting adjourned at 8:55 p.m.