



THE ATMOSPHERIC RESERVOIR

Examining the Atmosphere and Atmospheric Resource Management

Colorado Basin States Expand Seeding Programs

By Darin Langerud

Since the founding of our country, the great West has been seen as a land of opportunity. The incredible journey of Lewis and Clark and the Corps of Discovery ushered in the Euro-American settling of the West, and today, population growth in the western United States continues to outpace the rest of the country. According to 2000 Census Bureau statistics, the West grew by 19.7 percent during the 1990s. While this growth has expanded economic opportunity and wealth in the West, it has also put strain on its natural resources, specifically water.

Much of the interior west is drained by the Colorado River. From its headwaters in western Colorado it works its way toward the southwest, providing water for drinking, hydro-electric power, industry, irrigation and recreation in parts of seven states. The Hoover and Glen Canyon dams create two massive reservoirs, Lakes Mead and Powell (the only two in the U.S. larger than Lake Sakakawea), which are capable of storing nearly 53 million acre-feet of water. Yet, even with this amazing infrastructure in place, a combination of drought and growth leaves the Colorado River over-allocated in the U.S. and struggling to meet its treaty obligations with Mexico.

This combination of factors has left the West in a challenging situation; one that has the attention of water managers and policymakers.



A ground generator used for cloud seeding in the Western U.S.

PHOTO BY JOE GOLDEN

A June 2006 report entitled "Water Needs and Strategies for a Sustainable Future" published by the Western Governor's Association (WGA) lays out a comprehensive plan for water augmentation, conservation and management. One of the augmentation components advocated by the WGA is cloud seeding to enhance mountain snowpack.

Some of this work has already begun. Existing winter cloud seeding programs in the upper-basin states of Colorado, Utah and Wyoming are receiving additional funds from lower-basin states under the premise that water from additional snowmelt will find its way downstream. During the 2005-06 winter season the lower-basin states of Arizona, California and Nevada contributed a total of \$45,000 to extend upper-basin programs later into spring. Following on that initial effort, the lower-basin states have contributed another \$150,000 to enhance cloud seeding during the current winter season.

Indications are that this is only

the beginning of the interstate collaboration between the upper and lower basin, as the Colorado River Basin States intend to develop a five-year plan for a multi-state cloud seeding program.

Another augmentation option listed in the WGA report is desalination, a process which treats seawater to drinking standards. Though desalination has become more widely used as needs have

increased, costs are high primarily due to the amount of energy required to complete the treatment process. Ten facilities currently produce water through desalination in California at a cost ranging from \$1,000 to \$4,000 per acre-foot. Alternatively, long-term cloud seeding programs throughout the West have demonstrated the production of additional runoff for as little as \$1 to \$15 per acre-foot. Economics like these make cloud seeding an easy choice when looking for augmentation options.

Provided the increased seeding operations can show positive benefits to downstream states, the Colorado Basin model may have application elsewhere in the West. As we know all too well in North Dakota, water is not just a Colorado Basin issue.

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