

Let's Talk Water – Water Sustainability.

By Dr. Mike Strobel

Last week, the University of Nevada at Las Vegas held a workshop on water sustainability. The focus of the workshop was to address the issues of present and future water demands for southern Nevada. In this article, I will try to summarize the main points of discussion at the workshop. Please note that these are points raised and do not express any opinions or interpretations of my own.

The major topics of the workshop dealt with drought, water supplies from the Colorado River, population growth in southern Nevada, conservation, resource management such as banking surplus water, and In-State resources.

The drought, which is in its fifth year, affects much of the western United States and has caused major stress on hydrologic resources. Declines in precipitation in the Upper Colorado River Basin (Colorado, Wyoming, Utah, and New Mexico) have lowered reservoirs and resulted in reduced flow in the Colorado River. These reduced flows have contributed to a significant decline in Lake Mead, the main source of water for Las Vegas and the Lower Colorado River Basin (Arizona, Nevada, and California). Although the current drought is the most severe for any five-year period of historical record, tree-ring studies of past climates, before historical data collection, indicate that longer and more intense droughts occurred in the southwest. No one is certain when this present drought will end.

A major issue of discussion was on how different States are dealing with the current drought.. The Upper Basin has been under restrictions, yet there are places in the Lower Basin that are perceived to be doing “business as usual.” Much of the reason for this is that water deliveries to Lake Mead are controlled, in part, by the elevation of the lake. If the lake elevation is high enough, supplies can continue to be delivered, even during a drought. For example, 2002 was the driest year on record, yet levels in Lake Mead were high enough to allow for delivery of interim surplus water to southern Nevada; that is, water deliveries above Nevada’s annual allocation of 300,000 acre-feet. Water levels in Lake Mead have remained high enough, to date, for interim surplus deliveries because of the huge amount of available storage. The large amount of storage in the lake acts as a buffer to declining lake elevations.

Water supplies in the Colorado River are managed by negotiated agreements between the seven States. SNWA uses levels in Lake Mead to define drought conditions, along with a relationship of demand coupled with supply. The present pact governing the use of water from the Colorado River has some flexibility, but probably could not be renegotiated in the future unless all seven States saw some benefit in doing so. Nevada has been innovative in developing water-banking agreements with Arizona and California to store water during surplus years and help meet future demands.

Population growth in southern Nevada was another major topic of discussion. In the arid southwest, the availability of an adequate water supply may be the primary limiting factor on population size. For southern Nevada, growth is not only tied to water, but also to economic stability. Land development (construction) is the second largest industry in Las Vegas, and limits to this industry would have significant economic impacts to the community. The quality of life enjoyed in Las Vegas is supported, in part, through taxes and the economic benefits generated by the development industry.

Growth in southern Nevada is the highest in the country, at a rate of about 5 percent per year. Future limits to this growth may be associated with available water resources, increased energy costs, declines in quality of life as perceived by potential residents, and the physical limitations of Las Vegas Valley. At the present rate of growth, predictions indicate that land currently available for development in Las Vegas Valley will be built-out in the next 5 to 7 years.

Representatives from the building industry suggested that a main focus of water sustainability should be on conservation and education. Efficient home construction, wise land use planning, reduction in potential waste of water, and community planning all can reduce costs, stresses on the natural resources, and help maintain the quality of life for residents. Adequate community education and design can significantly reduce water consumption.

Conservation has been a part of the solution for meeting water demands in southern Nevada. The largest use of Colorado River water in southern Nevada is for residential needs. About 70 percent of residential water use is for outdoor applications. Efforts have been made to conserve water by reducing turf through landscape conversion incentives and water-waste penalties. Another conservation practice is the use of reclaimed water (treated wastewater) for outdoor use. According to one panelist, all golf courses in Las Vegas, except for six at this time, have either converted or currently are converting to reclaimed water for irrigating fairways.

Resource management involves meeting present, and planning future, water demands using available supplies. Water banking is an important tool for resource managers because it allows for storage of water during years of surplus that can be used later when either supplies decrease or demand increases. Southern Nevada has been using water banking (which is really a credit system rather than the actual transportation of water) to meet future needs. Under water banking, Nevada allows either Arizona or California to use a portion of Nevada's yearly water right in water storage projects, and then can withdraw an equivalent amount on demand in future years. Currently, southern Nevada has banked about 117,000 acre-feet of water in Arizona, 10,000 acre-feet of water in California, and another 250,000 acre-feet of water in aquifers in the Las Vegas Valley.

Another aspect of resource management is looking at In-State resources, such as the transfer of water from the Muddy River and Virgin River, and ground water from Clark, Lincoln, and White Pine Counties. I realize that this topic is of the greatest interest to the local readers, but it didn't receive much focus during the workshop. It was pointed out

that southern Nevada is looking at many options and presently plans to supplement water supplies through the importation of ground water from within and outside of Clark County. Decisions on implementing these plans are still under consideration. It was pointed out that more research needs to be completed to understand the potential impacts of pumpage on the ground-water system in eastern Nevada.

In summary, the workshop mainly focused on the water supply from the Colorado River and Lake Mead and water use in Las Vegas. Lake Mead provides a huge source of water, but it is uncertain how climatic changes, such as drought, and increased demands related to growth will impact the reservoir's ability to continue to be a sustainable supply of water to Las Vegas. Efforts in resource management, such as conservation, water efficient homes and landscaping, and water banking have helped alleviate some of the stresses on the water supply, but other sources of water to augment these supplies are required if growth in southern Nevada continues at the present rate. How these resources will be developed and managed to sustain predicted growth are key issues that need to be discussed now and into the future.

The workshop did raise a number of good discussion points, and I plan to address some of these in the upcoming editions of Let's Talk Water. Next week, I will discuss drought, which is a term many of us know but few truly understand. If you have any questions, you can contact me through the Ely Times or email me at mstrobels@usgs.gov.