

Summary of presentation provided by Dana Downes-Heimes, for the March 2010 AHS Flagstaff Chapter Meeting.

Charlie Ester, SRP

The SRP delivers water to nearly 250,000 acres in the Phoenix area using a combination of groundwater and surface water supplies. Many of the groundwater wells were originally constructed for agriculture. However, as urban/residential development has progressed throughout Phoenix, many of these wells have become unable to contribute to their overall supply. Those which could be discharged to nearby canals for wheeling to areas of demand are of increasing importance.

Charlie presented several plans and studies SRP is utilizing to forecast and manage water supplies along the Verde and Salt River systems in light of the recent drought which significantly impacted reservoir storage. A Reservoir Operation Plan was developed which contains many components, including the impacts of weather and drought. Looking at the historic record, SRP has used information regarding the drought from 1898-1904 to develop storage operation planning. The most recent weather data indicate the recent drought was similar to the 1950s drought. Tree-ring data also suggest at least 8 other droughts were as severe or more severe, and that longer droughts have occurred. Two significant droughts were noted; the mega drought which occurred in 1575-1585 and the SRP Planning Drought of Record, which occurred 1898-1904. However, tree ring studies completed by U of A indicate there have not been individual drought years going back to 1300 AD that were as severe as the 1996 and 2002. The possibility of a longer and more severe drought provided incentive for SRP to model combined storage and groundwater pumping scenarios to determine a point at which the SRP reservoir system is unable to meet any demand. SRP is exploring options to augment the storage supply before storage reaches a critical level, which allows the supply to be sustained for a longer period of time to preclude the complete loss of storage. Also, this approach of developing a more robust operations model will be applicable should a shift to a warmer, drier Arizona occur, as global warming/climate change predictions suggest. SRPs current operations management uses the 1575-1585 tree ring drought as the new Planning Drought of Record and a conservative 950,000 acre feet demand. If needed, reservoir shortages could be addressed through increased groundwater pumping, reduced allocation to customers, agreements with Central Arizona Project, lease options with Indian and non-Indian agriculture, recovery of long term underground storage credits, conservation, watershed management and increased water-use efficiency.

Additionally, Charlie presented 2009-2010 El Nino winter precipitation summaries and statistics. Lakes along the Salt River have reached capacity, and are releasing water, while lakes along the Verde are very near capacity (much of the snowmelt from the northwestern portion of Verde watershed has just begun).

Data from SNOTEL sites located in the SRP watershed indicate snowpack levels are much greater than what has been received in recent history. The SNOTEL information is being used to estimate future SRP reservoir inflow. While precipitation from the 2009-2010 winter will not resolve the long term regional drought, storage reservoirs have rebounded, and forests/watersheds have received some much needed moisture and relief.