

Accounting and Accountability: Groundwater Management in the East Valley

Caroline Newcombe ♦ Global Institute of Sustainability, Arizona State University, Tempe Arizona ♦ Utilities Department, City of Mesa, Mesa Arizona



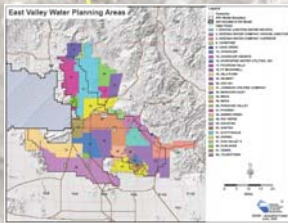
Abstract: As a water resources intern for The City of Mesa, I learned a great deal about groundwater use and restrictions in Arizona. Specifically, I learned how Mesa accrues groundwater pumping credits and how important it is to plan for long-term management of groundwater. The City of Mesa, as part of the East Valley Water Forum, is helping to plan for long-term groundwater use in the Valley.

East Valley Water Forum

East Valley Water Forum Membership



The members share ideas, discover common interests, and discuss and explore water infrastructure development and groundwater resource management strategies to ensure groundwater remains a long-term viable source of water. They are currently developing an "East Valley Area-Wide Water Management Plan" under a grant from the Arizona Department of Water Resources.

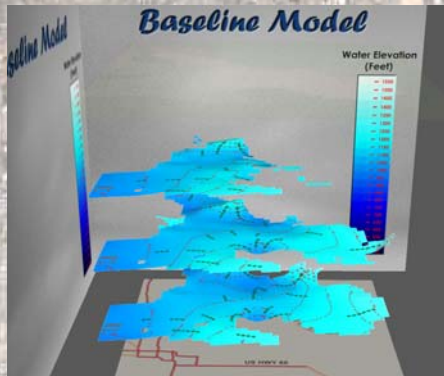


The purpose of the Plan is to "enable water providers in the East Valley and other key entities to more effectively plan for and manage water use in the East Valley including artificial groundwater recharge and recovery." ADWR and the Forum anticipate that the Plan will "provide a better understanding of water conditions associated with projected groundwater pumping and recharge and recovery of surface water and effluent."

East Valley Water Forum Models

Modeling Scenarios

1. "Business as Usual" (Base Case)
2. "Safe-Yield by 2020 in the Planning Area"
3. "Ideal Management"



Elevation contours of the upper, middle, and lower layers of the aquifer based on 2002 data. Produced by the Decision Theater.

Conclusions

1. Artificial recharge of the aquifer is an extremely important groundwater management tool and is necessary to ensure sustainable management of regional groundwater levels.
2. If the location of future recharge is not better matched with the location of future pumping, localized areas of groundwater decline will develop, persist, and worsen.
3. Safe yield is attainable by 2025 if all new water demand past 2020 occurs on direct deliveries of renewable surface water supplies.

City of Mesa

Groundwater Use in Mesa

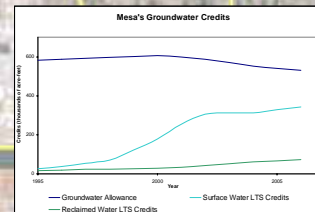
In 1995, cities designated with a 100-year assured water supply were provided with an initial Groundwater Allowance, use of which was determined to be consistent with the Groundwater Code and the goal of safe yield. An amount equal to 5.35% of Mesa's total water use is added to the Groundwater Allowance account each year, which is the amount of water assumed to recharge incidentally throughout the City's service area each year.

Initial Allowance: 582,300 acre-feet

Current Account Allowance: ~532,000 acre-feet

Amount added in 2006 for incidental recharge: 5,016 acre-feet

Amount debited in 2006 for groundwater use: 12,734 acre-feet



Long-Term Storage (LTS) Credits

Surface Water Recharge: 95% of the amount of water recharged is added to Mesa's LTS credits

LTS Credits for surface water recharge: ~343,000 acre-feet

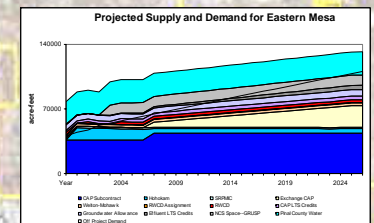
Effluent Recharge: 100% of the amount of water recharged is counted towards LTS credits

LTS Credits for effluent recharge: ~72,000 acre-feet

Groundwater Management



Recharge basins at the Northwest Water Reclamation Plant



Diversity of water resources is important



Roosevelt Water Conservation District canal