

# Talk of the Town: Can we save our shared declining water supply?

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We are depleting the aquifer that is our primary source of water in the broader Prescott region at an alarming rate. We must fix the problem if we want our children, grandchildren and great grandchildren to enjoy living in our high-desert paradise.

Residents of the City of Prescott, Towns of Prescott Valley, Dewey-Humboldt, Chino Valley, and other residents outside of municipalities depend on groundwater pumped from a single aquifer system bounded by Granite Mountain and Sullivan Butte on the west, the Black Hills on the east, and the Bradshaw Mountains on the south.

Beginning in 1985, the Arizona Department of Water Resources (ADWR) calculated the annual change — either gain or loss — in the amount of groundwater stored in our aquifer. Water enters the aquifer storage primarily by seepage from streambeds, and by deliberate return of water via infiltration basins or wells. Water is removed by wells, discharge to streams, and consumption by riparian plants.

In 5 of the 11 years from 1985 through 1995, groundwater storage increased and in 6 of the 11 years it decreased. The annual decrease is called overdraft. In those 11 years, the average annual overdraft was 2,600 acre-feet. From 1996 through 2016 (the most recent year for which ADWR has calculated groundwater storage change) there were only two years, 2005 and 2010, with increased groundwater storage, and the average annual overdraft was 13,000 acre-feet, 5 times the average from 1985 through 1995.

Change in the rate of pumping is insufficient to account for this five-fold increase in overdraft. However, National Weather Service data show a relatively dry period in Yavapai County that began in the mid-1990s. The data also show a period of increased average annual temperature in Yavapai County since the mid-1990s. The average temperature was nearly 2 degrees F greater than the average temperature over the preceding century, and a coincident period of enhanced evapotranspiration was elevated. The cumulative overdraft from 1985 through 2016 equals a startling 310,000 acre-feet. If the 13,000 acre-feet per year average overdraft continues through 2025, the cumulative overdraft at that time will be about 430,000 acre-feet. Mind-blowing!

Long-term consequences of maintaining the status quo: wells fail (some already have); home and business values decrease; people move elsewhere. What to do?

How about a cooperative, coordinated, dedicated water-management effort among our four municipalities and Yavapai County (representing citizens outside of our municipalities)? A possible model might be to form a regional water district charged with protection of our long-term water supply. It might include the four municipalities, Yavapai County, and representatives of business, agriculture, homeowners, ecologic concerns, and objective science. Locally implementable strategies to consider include: stringent, area-wide conservation requirements; conversion from septic systems to sewer; storm water management that supports aquifer recharge; and purchase of development rights.

The status quo is not working. We must find a more effective way.

I will discuss the “Decline of Our Shared Aquifer: Why It Matters Now and What We Can Do About It” when the Citizens Water Advocacy Group (CWAG) meets on Oct. 12. Details at [www.cwagaz.org](http://www.cwagaz.org).

*Edward W. Wolfe, Ph.D., is chair of the CWAG Education Committee, former chair of the Verde River Basin Partnership, and a retired USGS geologist.*

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