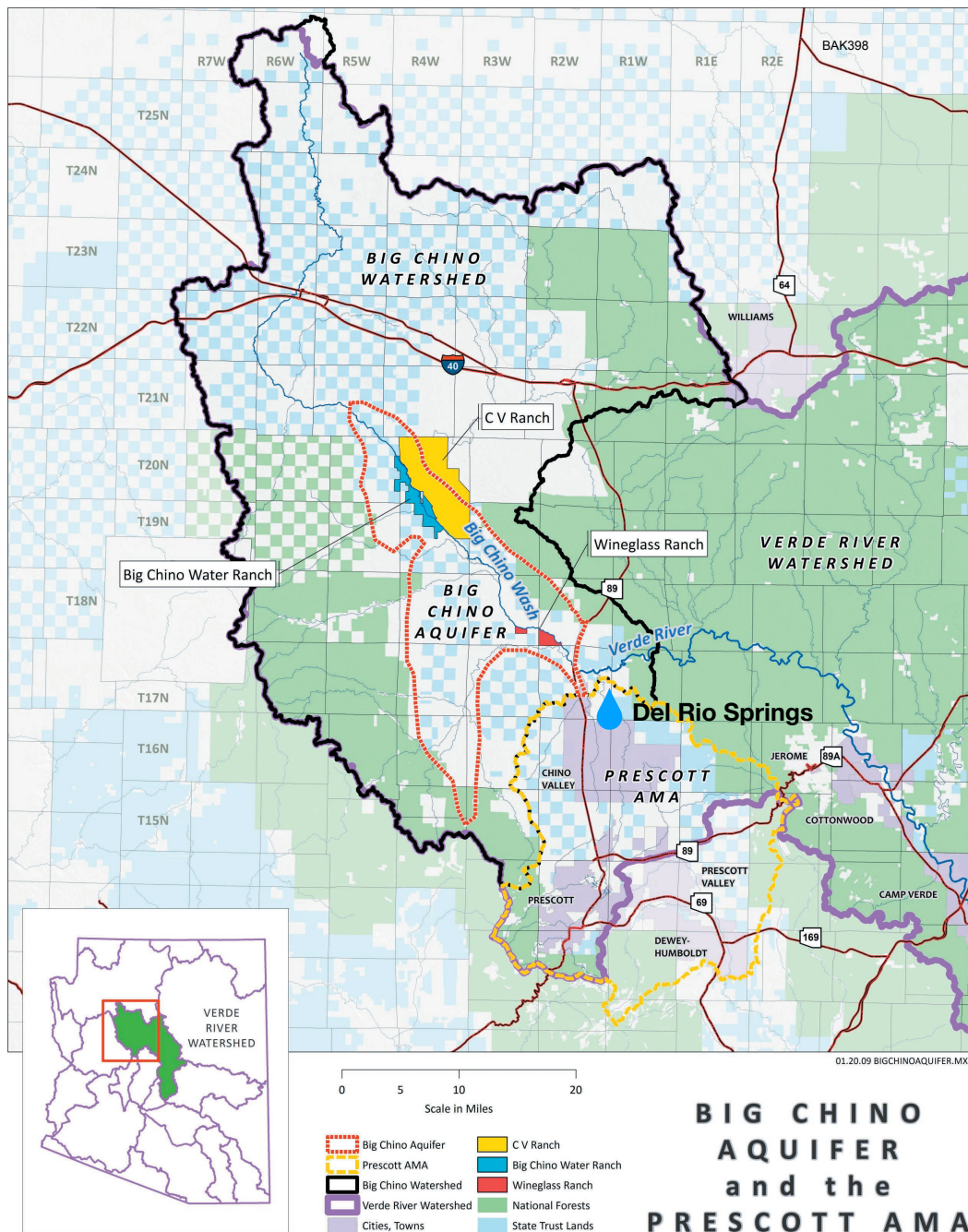


2022 CWAG Candidate Forum

Arizona Legislative District 1 Primary Election

Factual Basis For Questions

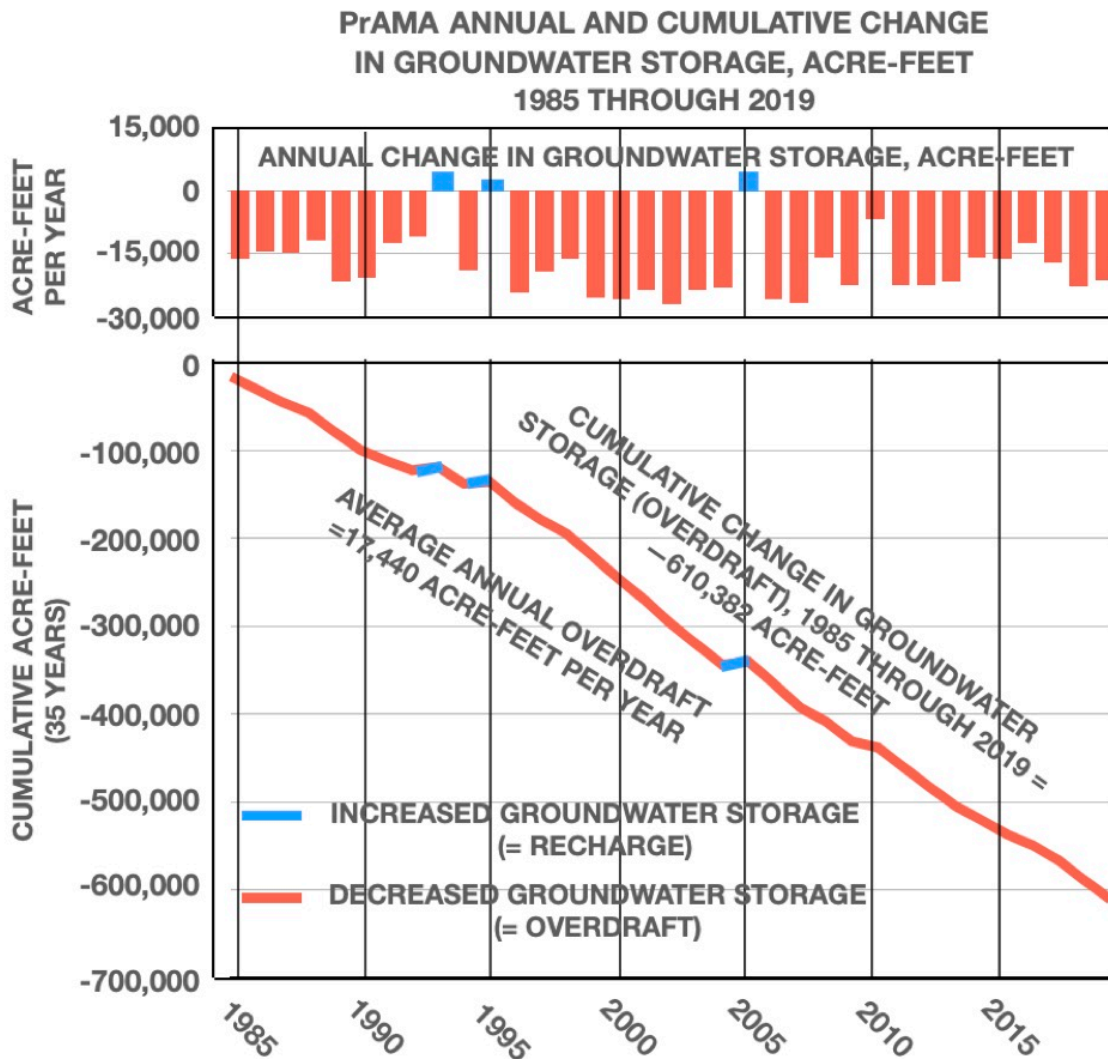
Because the questions refer to regional water problems, it is helpful to have a few basic facts in mind to establish why we must address threats to a secure water future and the continued flow of the upper Verde River. The map below displays the LD1 and Yavapai County regions of concern: the Verde Valley, the Prescott AMA (PrAMA) and the Big Chino Watershed.



Current Status of the Prescott Active Management Area

Groundwater resources in the PrAMA are managed by the Arizona Department of Water Resources (ADWR). The management goal of the PrAMA is safe yield by 2025.

Safe yield is a long-term balance between recharge and withdrawal of groundwater. The chart uses ADWR data and shows that the overdraft is growing, indicating that we are moving away from safe yield. ADWR admits that, realistically, it is impossible to attain the management goal.



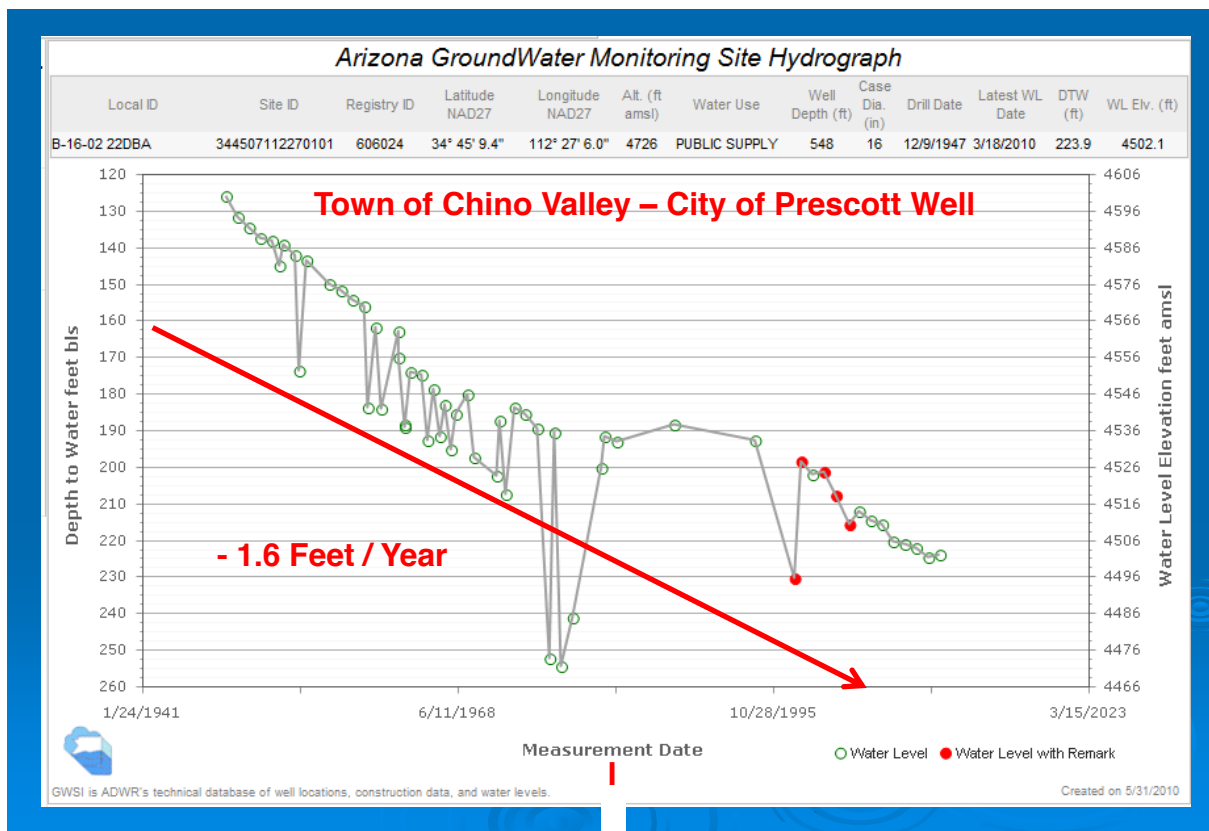
Data downloaded August 22, 2022, from Arizona Dept. of Water Resources Overdraft Dashboard

ADWR has managed the PrAMA for about two decades. In that time the annual overdraft has remained unchanged and very large. The annual average overdraft exceeds 17,000

acre-feet per year (afy). To envision an acre-foot, imagine a football field with water one foot deep. The cumulative overdraft now exceeds 600,000 af. Annually, we remove enough water from the aquifer to flood a football field 3.3 miles deep, and the cumulative overdraft would fill a football field 114 miles deep in water! This cannot go on forever.

The PrAMA is moving away from, not toward, the management goal: safe yield. Safe yield is a goal, not a requirement. ADWR places the responsibility for a safe yield plan on elected city officials in the PrAMA. At this time, no plan exists, and there are no planned discussions about a safe yield plan. There are no legal consequences for failing to achieve safe yield; there is no penalty for failure. There are no incentives. Safe yield is a policy designed to fail. The long-term consequences of failing to reach safe yield are loss of water security and damage to the upper Verde River.

Our domestic and municipal potable water supply is groundwater. The Little Chino sub-basin (within the PrAMA from Prescott north through Del Rio Springs) is our greatest concern because it is the primary source of water for Chino Valley, Prescott, and some LD1/ Yavapai County residents, plus it supplies much of Prescott Valley’s water. These wells intercept groundwater flowing north through Del Rio Springs and to the Verde River. The relentless overdraft causes groundwater levels in the Little Chino aquifer to decline. You can see the decline in the plot below showing the declining water level in one of Prescott’s production wells in Chino Valley.

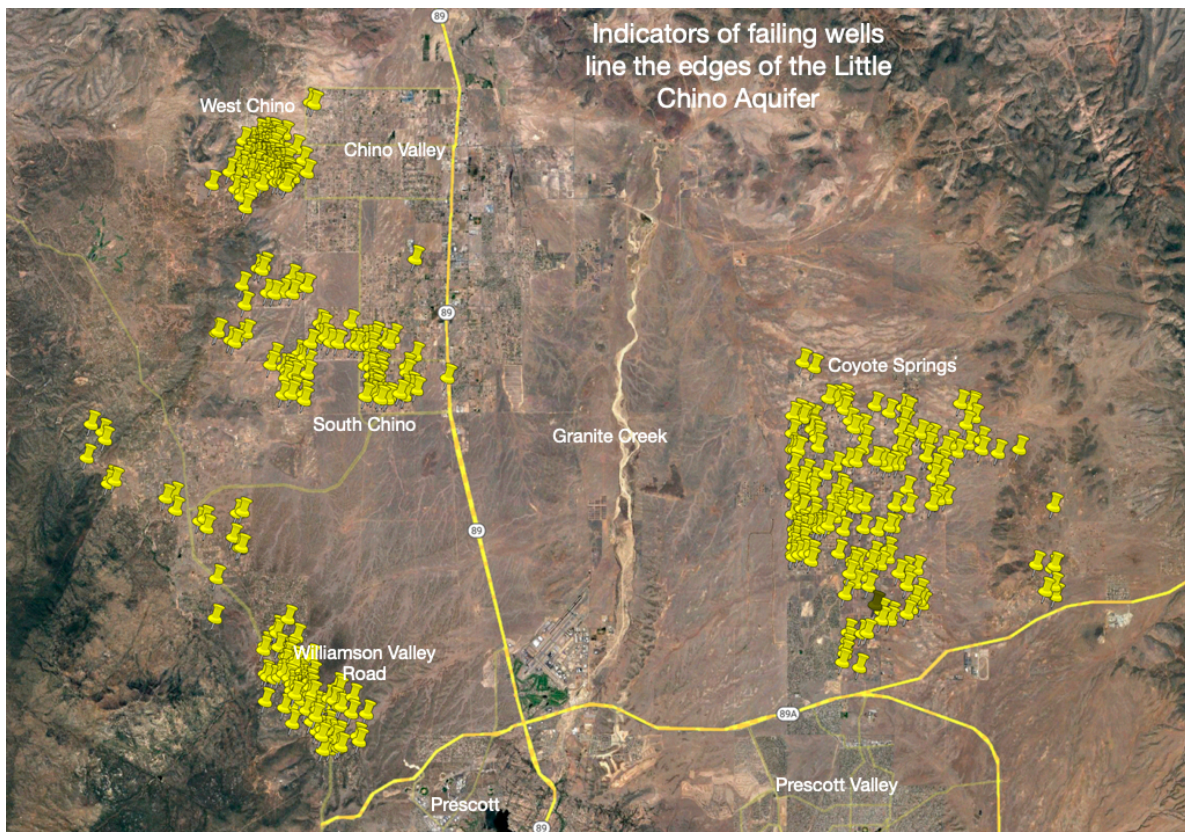


Who is Contributing to the Increasing Overdraft in the Prescott AMA?

Municipal water use is currently about 75% of the total demand in the Prescott AMA in 2022. Prescott and Prescott Valley each contribute approximately 4,700 afy to the overdraft because they pump much more groundwater than the volume of their wastewater recharge.

Declining water levels cause domestic wells to go dry.

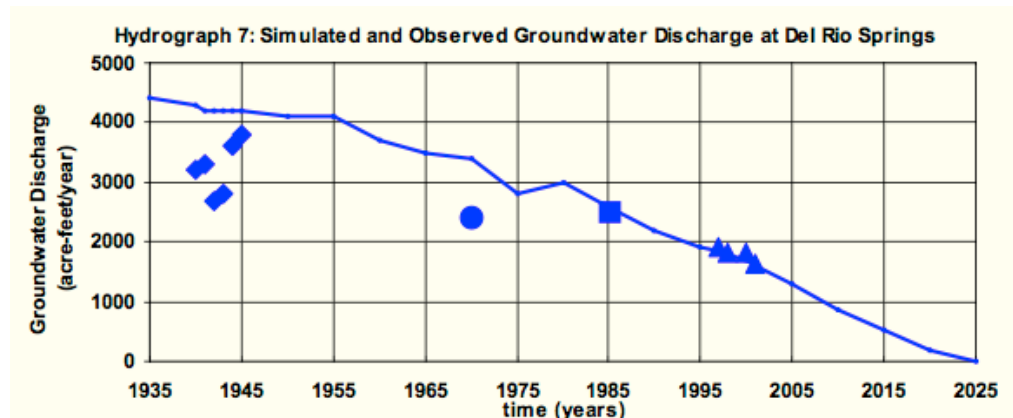
A preliminary exploratory search by CWAG has identified hundreds of failing or dry family wells on the edge of the aquifer west and south of Chino Valley, in the Williamson Valley Road area, and in Coyote Springs. CWAG expects that there are many more dry wells, and that the number of dry wells will increase. This is a financially devastating event for the families that depend on domestic wells. A dry well adds hundreds of dollars each month to haul water and can cut the home property value in half.



Declining water levels in the Little Chino sub-basin are also causing Del Rio Springs to dry up. The graph below from ADWR projects that Del Rio Springs will cease flow in 2025.

Note that Del Rio Springs was the historical headwaters of the Verde River, but now perennial flow begins 6 miles downstream at Verde Springs. We have already lost 6 miles of the river due to groundwater pumping. The Little Chino sub-basin contributes about 14% of the base flow of the upper Verde River; thus, the overdraft in the Little Chino Aquifer reduces the base flow of the river.

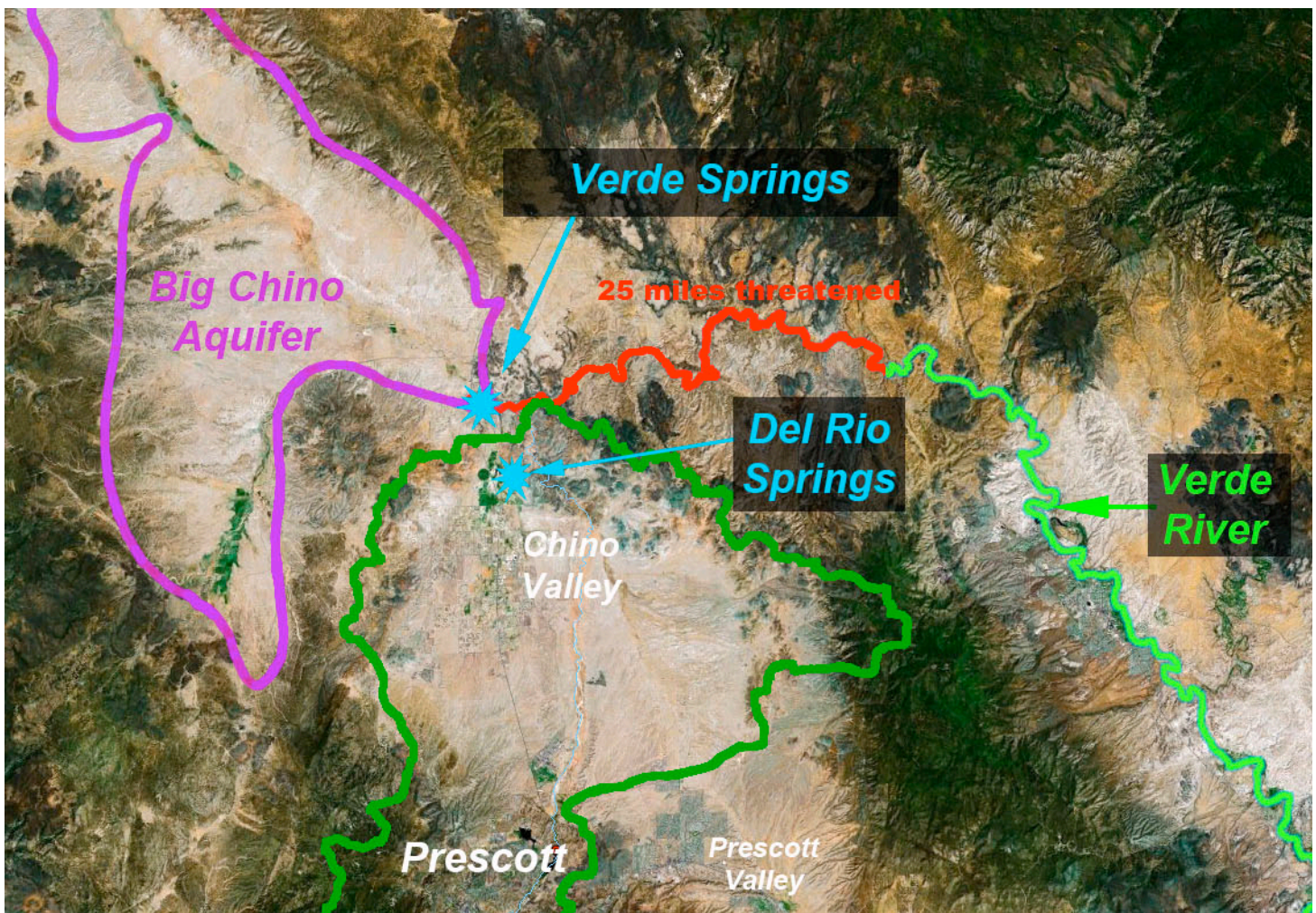
The measured flow from Del Rio Springs is declining. Graph from the ADWR groundwater model for the PrAMA.



Current Status of the Big Chino and Verde River

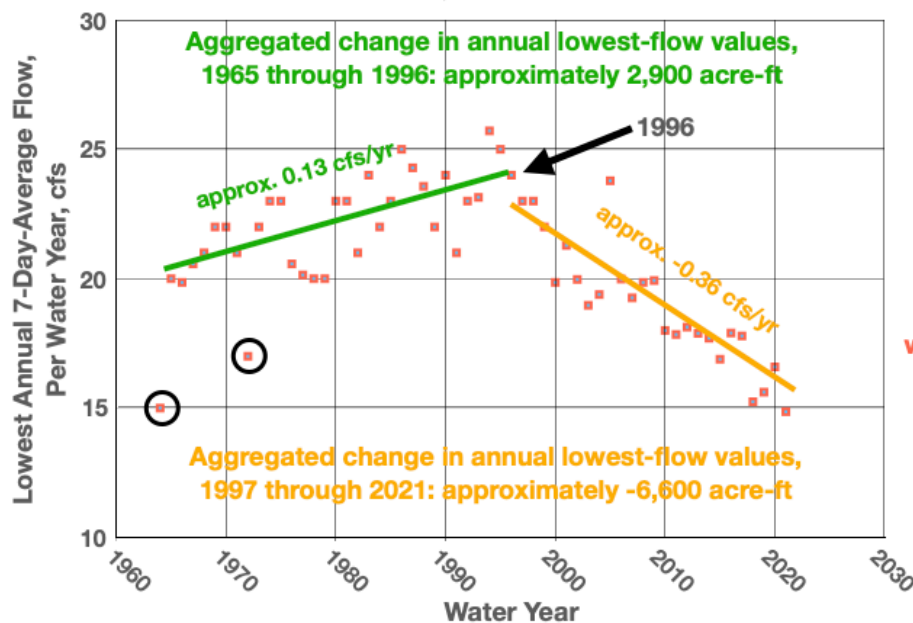
The Big Chino Valley, which overlies the Big Chino aquifer, consists of unincorporated lands within LD1/Yavapai County. They are not part of the PrAMA. There is no management, monitoring, or restriction on groundwater pumping; any landowner can pump groundwater without limit for a beneficial use.

A geochemical analysis by the US Geological Survey (USGS) calculated that 80-86% of the base flow of the upper Verde River is groundwater from the Big Chino aquifer. Currently, that groundwater emerges between Verde Springs (mile 2) and the Paulden stream gage (mile 9.8) (see map below) to constitute most of the base flow (the groundwater component of streamflow) of the river. Groundwater pumping in the Big Chino will reduce the base flow by the amount pumped. Unmitigated groundwater pumping is an existential threat to the upper Verde River.



The graph below uses data from the USGS Paulden stream gauge. It shows that the base flow (lowest 7-day flow per year) has been declining since the mid-1990s. In June 2020, this lowest annual flow is just below 15 cubic feet per second (cfs), which is approximately 60% of the lowest flow in the mid-1990s. In 2018 the annual volume flowing past the site of the Paulden gauge was 61% of the estimated flow in 1940. In other words, the lowest flow increased minimally and erratically until mid-90's but has declined drastically since then. Groundwater pumping, higher temperatures, and regional drought are the likely causes. Climate change models project higher temperatures and reduced aquifer recharge which will further reduce streamflow in future decades.

USGS PAULDEN STREAMGAGE, LOWEST 7-DAY ANNUAL FLOW



If declining trend at Paulden gage -0.36 cfs/y, or -260 af/y, continues unchanged, Verde River will be briefly dry annually through Perkinsville, 25 river miles, beginning in 2060s

We are losing the Verde River.

Big Chino Groundwater Pumping Threats

Three classes of groundwater pumping threaten the Big Chino, any one of which could dry the Verde River:

Expanded Agricultural Irrigation. It is legal under Arizona law for a farmer to irrigate with groundwater. Big agriculture from out of state has moved into Arizona. The Arizona State Land Department has leased land and water to grow alfalfa that is shipped to other countries. In Wilcox, big ag groundwater pumping increased by over 250,000 afy. In Kingman, agricultural pumping increased over 25,000 afy. If only half of the Kingman pumping occurred in the Big Chino, it would dry the upper Verde. The *Arizona Legislature* must control agricultural pumping in the Big Chino Valley.

Groundwater Export. Arizona water law authorizes Prescott and Prescott Valley to export Big Chino groundwater via the proposed Big Chino pipeline. Also, cities may export water from historically irrigated but now fallowed agricultural fields. The total legally authorized exportable water is approximately 18,000 afy, far more than enough to dry the Verde River. The cities of *Prescott and Prescott Valley* have promised to offset the effects of their pipeline pumping on the river, but no specific construction dates or mitigation plans have been released.

Population Growth. As Paulden grows and expands up the Big Chino Valley, groundwater pumping will increase. At the recent growth rate of 1.3%, population growth will eventually dry the upper Verde. The *Board of Supervisors* is responsible for controlling the density and character of land use in the Big Chino Valley.

Why the Verde River Matters:

For the first 25 miles of the upper Verde, from Verde Springs downstream to Perkinsville Bridge, is some of the finest surviving wildlife habitat in Arizona. Verde Springs is the only significant source of water for base flow within this part of the river.

Prescott National Forest has declared that the upper Verde River is eligible for Congressional designation as a Wild and Scenic River. A local group intends to submit that proposal to Congress.

Please refer to the attachment "*11 Reasons to Protect the Verde*" for a summary of the value of the Verde.

Questions

I. Threats to Verde River

Introduction: Groundwater from the Big Chino aquifer supplies 80-86% of the base flow of the upper Verde River. Legally authorized, unmitigated groundwater pumping in the Big Chino Valley will dry up the first 25 miles of the Verde River, and degrade the flow of the river. Agricultural irrigation, population growth, and water exports from the Big Chino Water Ranch are all currently legally authorized, and any single one can eliminate the year-round flow of the upper Verde River and reduce flow through the Verde Valley.

Questions:

1. How will you convince your fellow legislators to take action to protect the Verde River, the only surviving living river in Arizona?
2. What are your suggestions for ways to reduce the impacts of groundwater pumping on the Verde River?

II. Sustainable Groundwater Management

Introduction: The Arizona Groundwater Management Act administers only 13% of the land area in the state, mainly in urban Active Management Areas. The Prescott Active Management Area, covering part of LD1/Yavapai County, has utterly failed to reach the management goal of safe yield because of pro-development policies by city, county, and state governments and weak management by the Arizona Department of Water Resources. The Big Chino Valley and the Verde Valley are not part of an AMA, so there are no limits on groundwater pumping.

Questions:

1. What will you do in the legislature to assure that AMA and non-AMA groundwater in LD1 is better managed to reduce overdrafts and stabilize the aquifers?
2. The management goal of achieving AMA safe yield is scheduled to expire in 2025. Should the goal of safe yield be extended, or should it become a requirement instead of a goal?

III. Legislative Failure to Assist LD1

In the last legislative session, the Colorado River water supply crisis spurred state water legislation SB 1740 (infrastructure financing; augmentation of water supply), but the new law apparently ignores the water problems in LD1. Instead, it mainly authorizes expensive and unrealistic augmentation projects such as multi-billion-dollar desalinization plants or importing water from the Missouri River to benefit central and southern Arizona. SB1740 falls far short of what is needed to protect groundwater supplies in LD1.

Questions:

1. In your opinion, how can SB1740 help LD1 address water problems?
2. What new legislation would you sponsor to help protect LD1 groundwater, rivers, and springs?

IV. Legislature Blocks Bills to Assist LD1:

In the last session, legislators from other rural areas introduced bills that would authorize rural counties to manage their water resources. Unfortunately, a single state representative chairing the House Natural Resources Committee, apparently beholden to agricultural interests, prevented any of these bills from being considered on the floor of the legislature, but they will probably be introduced again in the 2023 Legislature:

- One bill proposed to expand the use of Irrigation Non-expansion Areas, which could prevent future damage to Big Chino aquifers and the Verde River. Under current law, INAs are restricted to only preventing additional damage caused by agricultural pumping.
- Another bill required wells outside of AMAs to report pumping over 10 afy, which would not include domestic wells. Thus, at present, ADWR has no data on groundwater pumping in 87% of the state, a huge gap in critical water-demand information.

Questions:

1. Do you support these bills? What concerns do you have?
2. How will you overcome the committee chair obstacle?

V. Regional Management for Rural Areas:

There have been no attempts at regional water planning in LD1/Yavapai County since the Board of Supervisors discontinued the Water Advisory Committee in 2014. The latest guidance from the Arizona Department of Water Resources fails to address excessive water use in the AMA and ignores the remainder of the County.

Because LD1 communities do not receive water from the Colorado River, they struggle with growing water needs that threaten aquifers, rivers, and long-term water security. Rural areas receive no support for water management from state government - despite growing numbers of dry wells. Former Arizona Governor Bruce Babbitt has suggested that the legislature authorize rural watersheds outside of AMAs to form water management districts. Local management could develop programs customized to local needs.

Questions:

1. Should the legislature grant counties water management authority outside of AMAs? Why or why not?
2. With the possible exception of the City of Prescott, water conservation programs in LD1/Yavapai County are very weak. What new approaches should the state require to reduce consumptive water use by cities, rural wells, and private water systems?