

U.S. study stresses urgency in protecting state aquifer

BY AUSTIN GELDER ARKANSAS DEMOCRAT-GAZETTE

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Irrigation wells in eastern Arkansas will start running dry within five years unless farmers begin tapping river water instead of the shrinking alluvial aquifer, according to a study released Tuesday.

The three-year, \$1 million study conducted by the U.S. Geological Survey revealed the amount of water pumped out of the aquifer in the state's Grand Prairie region must be cut by more than 40 percent to keep water levels at or above half-capacity.

Although reports that the alluvial aquifer is drying up in spots aren't new, the study released this week includes models that will better allow geologists to calculate the "what ifs" of curbing aquifer use at different rates.

"This model allows us to better predict what will occur in the future," said Earl Smith, chief of the water resources management division of the Arkansas Soil and Water Conservation Commission.

"It allows for the analysis of a variety of different scenarios, taking into account different rates of withdrawals from the aquifers," said John Czarnecki, a district groundwater specialist for the Geological Survey who led the study.

The Geological Survey is an arm of the U.S. Department of the Interior charged with providing scientific information to help manage water and other natural resources.

Farmers began tapping the alluvial aquifer for rice and soybean crops in the early 1900s, and decreases in aquifer water levels were reported as early as 1927.

Dependence on the aquifer for irrigation continues despite the threat of a irreparable damage.

"The alluvial aquifer in eastern Arkansas north of the Arkansas River is extremely important for irrigation, especially for rice," said John Terry, district chief for the Geological Survey.

Should wells drain the aquifer dry, groundwater levels would likely never bounce back, he said.

"It's not that it wouldn't fill up again. It just wouldn't be as productive," Terry said.

The report released Tuesday is based on the rate of water pumped from the aquifer in 1997 when the study began, so results may present a rosier picture than they should.

"Not only are we seeing more pumping on existing wells, we're also seeing the demand on the aquifer increase because of new irrigation and industrial wells," Smith said.

Roughly 45,000 wells tap groundwater across Arkansas, with 1,500 to 2,000 new wells being dug each year.

Continued use of the aquifer at 1997 rates will cause almost 275 square miles of the aquifer to run dry by 2029. By 2049, 400 square miles will be dry, according to the study models.

The report shows water levels in the aquifer beneath Lonoke, Prairie, Jefferson and Arkansas counties are particularly low because of the massive rice farming operations there that use billions of gallons of water per year.

Aquifer levels beneath Poinsett and Cross counties are also severely low.

The Mississippi River Valley Alluvial Aquifer, often called simply the alluvial aquifer, is a mass of gravel, sand and clay underlying about 32,000 square miles of Missouri, Kentucky, Tennessee, Mississippi, Louisiana and Arkansas.

In Arkansas the alluvial aquifer runs along the Mississippi River and ranges from 50 to 125 miles wide by about 250 miles long. It ranges in thickness from 50 to 150 feet.

The study released Tuesday homed in on 14,000 square miles in eastern Arkansas.

The results give ammunition to proponents of the Grand Prairie and Bayou Meto irrigation projects to pump water from the White and Arkansas rivers to quench irrigation needs for the state's booming rice industry.

"It shows that there would be sufficient water in the rivers to meet project needs and help take some pressure off the alluvial aquifer," Czarnecki said.

"This model confirms the data used in the Grand Prairie and Bayou Meto Project analyses and shows the severity of the problems," said Ken Bright, a project manager with the U.S. Army Corps of Engineers. "The only way to address these problems and sustain irrigated agriculture is through a combination of increased efficiency, storage and import of excess water as proposed in both the Grand Prairie and Bayou Meto Projects."

While the Bayou Meto project to pump irrigation water from the Arkansas River is still in planning stages, the \$319 million Grand Prairie project is closer to reality. The Corps of Engineers plans to begin work on a water-pumping facility near DeValls Bluff in January.

Opponents of tapping the White River for irrigation worry about damage to the river's ecosystem. Hunters and fishermen have been particularly vocal in speaking out against turning to the White to keep farming operations in the state's Grand Prairie region watered.

The Arkansas Wildlife Federation, a longtime enemy of using the White River for irrigation, remains firmly opposed to the Grand Prairie Irrigation Project despite Tuesday's report. The models are based on inaccurate information to paint a picture that's far worse than reality, federation President David Carruth said.

The Geological Survey study was based on overestimates of water use by farmers and underestimates of water levels that must be maintained in rivers and streams to support fish and other wildlife, he said.

"They put garbage in and they got garbage out. I'm concerned that policy-makers will look at a grossly flawed model and think it's the answer. It's not."

Carruth concedes aquifer levels are declining in some areas but said the situation is not dire enough to warrant fiddling with the White River ecosystem.

"Those of us on the conservation side acknowledge there are areas of the aquifer under distress, but it is in my opinion not to the scope or scale that is represented by Soil and Water or the Corps or USGS, and it is not as broad as those same agencies would want us to believe."