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NEWS

Rains have helped, but drought isn't over, Central Texas water suppliers say

While Canyon Lake saw a significant water level rise, the reservoir is still in drought conditions and the Edwards Aquifer remains far below normal.

By **Liz Teitz**, Staff writer

July 21, 2025



An aerial photo of Canyon Lake at Potters Creek Park on July 8 shows the rise in the lake's water level. The lake has risen about 15 feet in the past two weeks.

Marvin Pfeiffer/San Antonio Express-News

As Central Texas water supplies diminished in recent years, experts said it would take a deluge of rain severe enough to cause flooding to pull the region out of its prolonged drought.



The Hill Country this month has seen that major influx of rain, highlighted by the July 4 storm system that dumped catastrophic amounts of rainfall over some parts of the region, causing flash flooding that killed more than 100 people.

READ MORE: [Canyon Lake has been rising for 15 days in a row. Here's where water levels are now.](#)

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But even all that rain wasn't enough to break drought's grip, and restrictions remain on regional water supplies due to low levels. That's because water levels have been so low, that it will take much more than isolated storms, even intense ones, to get closer to normal.

The Edwards Aquifer's level in Bexar County rose less than 3 feet after July 4 and has already started falling again, with a current well level more than 23 feet below average.

The Edwards Aquifer Authority, which manages the aquifer, is still implementing mandatory reductions on permit holders, and the San Antonio Water System, which gets more than half of its water from the aquifer, isn't expecting to relax watering restrictions for its customers anytime soon.

Even Canyon Lake, which has seen a dramatic increase in its water level this month, hasn't risen enough to escape drought conditions. It's about two-thirds full, a major improvement from 46.3% full on July 3, but the Guadalupe-Blanco River Authority, which manages the lake, is still in Stage 2 drought response.

"Does any of this mean we're out of the drought? It doesn't," Charlie Hickman, executive manager of engineering for the Guadalupe-Blanco River Authority, told the authority's board this month.

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Prolonged drought

While different entities calculate the length of drought in different ways, they all agree on one thing: It's been going on for a long time.

Five of the past six years have had below-average rainfall, creating a deep deficit. Since 2019, San Antonio's rainfall total is about 50 inches below the normal total for that time period, according to data from SAWS.

The lack of rain has resulted in falling levels in the region's aquifers, the Edwards and the Trinity, and in surface water sources like rivers and reservoirs.

Flows into Canyon Lake from the spring-fed Guadalupe River have been far below normal. The average annual inflow into the reservoir is 252,724 acre-feet per year, according to officials with the Guadalupe-Blanco River Authority, but the past five years have seen only about 221,000 acre-feet combined, or less than one year's worth.

An acre-foot is a common unit of measurement in the water industry, referring to the water needed to cover 1 acre in 1 foot of water; one acre-foot is about 326,000 gallons.

Canyon Lake dropped to a record low in August 2023, then continued falling, reaching less than half full earlier this year.

The massive influx of water from the recent flooding on the Guadalupe River brought a quick boost, with the surface rising by more than 14 feet — but it was so low to start with that it's still far from full.

The story is the same in the Edwards Aquifer, a groundwater system that provides water for more than 2 million people. The aquifer started 2025 with its water level more than 40 feet below normal, with the second-lowest Jan. 1 reading at the J-17 index well in nearly a century of records. The only year that started lower was 1957, during the seven-year period known as the state's "drought of record."

In May, the Edwards Aquifer Authority implemented Stage 5 restrictions on its permit holders for the first time ever, as the aquifer fell to its lowest level since 1990. It rebounded a bit thanks to substantial rainfall in May and into June — but like Canyon Lake, the aquifer's water levels were so far below normal that it'll take much more to climb back.

On Monday, the J-17 well's surface measured 635.5 feet above sea level, while the historical monthly average is just about 659 feet.

"It says something about how long this drought has been and how severe it's been, to say it's great that we're in the mid 630s," said Karen Guz, SAWS' vice president of conservation. "It's a little odd to be celebrating being in the mid 630s instead of the 620s. We're still more than 20 feet below normal."

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Rain in the wrong place

The rainfall on July 4 that soaked Kerr County was isolated, making it both particularly dangerous on the Guadalupe River and particularly unhelpful for the Edwards Aquifer.

"It's exactly the place where it has the least amount of impact (on the Edwards), and the most amount of impact, in terms of flooding," said Paul Bertetti, the Edwards Aquifer Authority's senior director of aquifer science research and modeling.

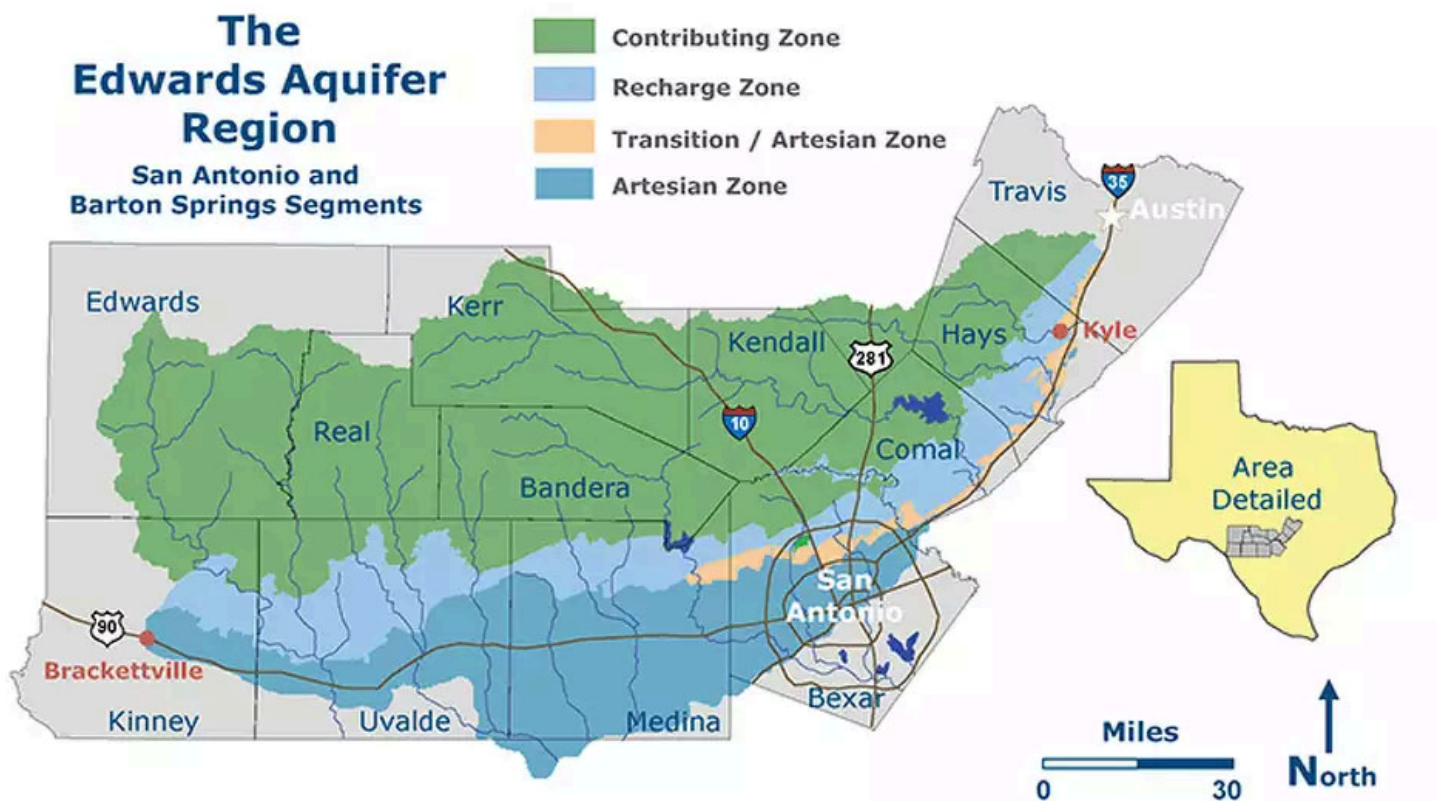
More than 10 inches fell overnight in a very narrow area over the headwaters of the Guadalupe; radar indicated some locations received 15 inches.

That water poured into the river, and to the creeks and tributaries that feed it, then flowed downstream, wreaking havoc in its path over 120 miles to Canyon Lake.

The Edwards Aquifer is refilled by rainfall in specific areas, which are known as its contributing and recharge zones, where fractures in the surface such as caves and sinkholes allow water to enter. The recharge zone

stretches from Kinney County, near Brackettville, through Uvalde and Medina counties, across a narrow swath of northern Bexar County and into Comal and Hays counties along Interstate 35.

The Guadalupe River runs north of the recharge zone, and while it's technically in the contributing zone, it provides very little, if any, water to the Edwards, Bertetti said.



The Guadalupe River runs through the northern part of the Edwards Aquifer's contributing zone, but it contributes little water to the aquifer. Instead, intense rain that fell over the Guadalupe's watershed on July 4 flowed downstream to Canyon Lake, while other rivers that do contribute more to the aquifer saw less precipitation.

Edwards Aquifer Authority

Other rivers in the Hill Country — the Nueces, Frio and Sabinal — do contribute to the Edwards Aquifer, so flows there help the groundwater levels rise, but those watersheds didn't see nearly as much rainfall, he said.

"Just a few miles' difference has a significant impact on this amount of flooding," Bertetti told the authority's board last week. "If this (storm) cell was just located 20 miles to the south, now you split that rainfall between two or three (river) basins," he said, reducing flooding and resulting in more varied recharge.

Storms last week did bring higher levels and some flooding along the Frio and Nueces rivers, which should eventually result in some increases to the Edwards Aquifer, he said, but the rainfall has remain brief and isolated, limiting its impact on the Edwards

Short, intense rainfall is also less effective at recharging because the ground can't absorb the water fast enough, instead causing runoff, which also contributes to flooding.

"If the rain falls long and steady in the right spot, it's incredible how that karst aquifer can go up, in a relatively short time period," SAWS' Guz said. But that hasn't been the case this summer: instead, there have been short floods that are deadly, and aren't "drought-busting."

The results aren't surprising, Bertetti said, based on how the aquifer has responded to similar rainfall events in the past.

"Things are responding about how we might expect it," he said. "You know, we were all very hopeful that we'd have had much more impact, but in retrospect, it's about what we could expect, given the spatial distribution, length of time and magnitude of flows."

Restrictions remain

The recent rains were, in some ways, helpful for water supplies — just not enough to proclaim the years-long drought is over.

Hickman told the Guadalupe-Blanco River Authority's board that Canyon Lake's level has risen enough to move from Stage 4 of its drought plan to Stage 2, or from "critical" to "moderate" water shortage.

In Stage 4, the authority was implementing mandatory 15% reductions on its wholesale water customers like New Braunfels Utilities and the city of San Marcos, who buy water from the lake to sell to residential and commercial customers. In Stage 2, the Guadalupe-Blanco River Authority's customers are expected to achieve a 10 voluntary reduction in use. That's triggered when the lake's surface is between 885 and 890 feet above sea level.

On Monday, it measured 892.3 feet. To enter Stage 1, with 5% cutbacks for customers, the level would have to stay above 890 for 30 days.

Hickman warned that one flood isn't enough to declare an end to the drought. He noted that during the drought of the 1950s, a fatal flood occurred in 1952, but the drought continued on for several more years, reaching historic lows in 1956.

"I'm not in any way saying that's what we're predicting to happen, but it can happen, and history's shown us it can happen," he said. "So we need to stay vigilant in monitoring the drought."

That includes keeping an eye on the Edwards Aquifer, he said. While not every local water source is directly connected to the aquifer, the system's levels are a key metric for the region's health.

“We really want to see the Edwards start to come out of drought stages before we start thinking about the end of our drought cycle,” Hickman said.

SAWS’ Guz said the recent improvements have made a difference, albeit small, and the rain has resulted in less demand from customers, both of which help the utility’s “water budget.”

“Our production dropped,” she said, because people stopped watering their lawns as much, and SAWS’ projected cutbacks on its aquifer permits improved slightly.

The utility was forecasting cuts over 40%, she said, which would be the largest ever. Now that number is closer to 38%. In 2024, the cutbacks amounted to about 36%.

The recent improvement means SAWS will have about 1.6 billion gallons more available from the Edwards — not a massive amount, but a positive sign. It also means that at the end of the year, if the projections hold, the utility expects to be able to set aside some of its Edwards water to save for the future, using its underground storage system.

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But that doesn’t mean its limits on watering for customers are likely to change anytime soon.

Without an unforeseen shift in the weather patterns — which can’t be ruled out in South Central Texas’ volatile climate — “I don’t see a reason to encourage people to think Stage 3 is ending anytime soon,” Guz said.

In Stage 3, which is separate from the aquifer authority’s stages, SAWS customers are limited to outdoor watering once per week on designated days, and there are surcharges for high users.

Customers should be vigilant about complying with those limits, Guz said, and should take advantage of SAWS’ programs that help pay for less water-intensive plants to cut their use, especially with those surcharges in place.

“We are still vigorously enforcing once-a-week days and times for commercial and residential customers,” she said.

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Liz Teitz
REPORTER



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Liz joined the Express-News in June 2023. She has been a reporter for eight years, covering housing, government, education and other topics for the Ouray County Plaindealer, Hearst Connecticut Media Group and the Beaumont Enterprise. Liz grew up in Rhode Island and graduated from Georgetown University.

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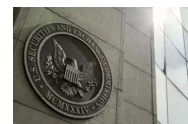


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