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Las Vegas groundwater management a success, but overpumping issues loom



[Steve Marcus](#)

Well 81, an active water well, is shown at the Las Vegas Springs Preserve Tuesday, Dec. 3, 2019.

By *Miranda Willson*

Sun, Dec 8, 2019 (2 a.m.)

[Water Wells](#)



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When John Hiatt moved to southwest Las Vegas in 1976, the water level for his domestic well was 115 feet below the surface. A decade and a half later, it dropped to 140 feet.

Until 1971, groundwater below the earth's surface was the only source of water in the Las Vegas Valley, Southern Nevada Water Authority spokesperson Bronson Mack said. By the 1970s, population growth and rampant overpumping of the Las Vegas aquifer forced changes to water management, including a transition away from widespread groundwater use to the current reliance on water from the Colorado River.

Net groundwater pumping peaked in 1968 at 86,000 acre-feet and started to go down in the 1980s, '90s and 2000s, according to the state's 2018 groundwater pumpage inventory for the aquifer. Thanks to the water authority's efforts to reduce pumping, only 10% of the water used in the valley now comes from groundwater, while the rest comes from Lake Mead, Mack said.

"We saw a reduction in pumping in the groundwater, which of course led to a decline in the drastic drop in water levels," said Jon Wilson, hydrologist with the U.S. Geological Survey. "That, on top of some excellent work done by the water authority, seems to be settling the system out pretty decently now."

The water level for Hiatt's well has now recovered to approximately 99 feet below the surface, he said.

"Nobody is talking about their wells going dry anymore," said Hiatt, longtime member of the water authority's citizens advisory committee for groundwater management. "Nobody is talking about falling water levels, because it's not falling."

Groundwater management in Las Vegas is evidently a success story. But the water authority acknowledges that the current pumping levels are still unsustainable in the long term.

Moreover, in recent years, groundwater pumping has crept back toward the record-high rates of the 1960s and 1970s, raising questions about at what point the valley will need to again reevaluate or reduce groundwater use.

Meadows no more

Before there was Las Vegas, there were the Las Vegas springs.

The abundance of spring water in the area, clustered around the land that is now the Springs Preserve, made Las Vegas an ideal spot for settlers in the early 20th century. Fed by the groundwater in the Las Vegas aquifer, the springs allowed grasses and other plants to flourish, leading the Spanish to name the area Las Vegas, or “the meadows,” said Colby Pellegrino, water resource manager for the water authority.

The first wells in the area were artesian, meaning the water flowed readily without a need for pumping, said Dale Devitt, a soil and water scientist at UNLV. But as more people moved into the valley, drilled new wells and pumped more water, groundwater levels declined sharply, Wilson said — and the region lost its namesake.

“Throughout time, those meadows went away because their water source was not there,” Pellegrino said. “Obviously, the spring in our valley (is) not there and will not be coming back.”

In addition to initiating habitat loss and species declines, the rapid groundwater withdrawal resulted in land subsidence in some parts of the valley, most famously in the Windsor Park area of North Las Vegas. The subsidence forced most Windsor Park residents to relocate in the 1990s, with just under 100 occupied homes remaining in the area today, said North Las Vegas spokesperson Delen Goldberg.

In light of these issues, the water authority established the groundwater management program in 1997, which assists well users in turf removal, leak detection and other conservation efforts, Pellegrino said. The program also provides financial assistance for well owners to convert to the municipal water system primarily serviced by Lake Mead, thereby reducing stress on groundwater.

A total of 736 wells throughout the valley have been “plugged and abandoned” since 1997, and 546 property owners have received financial assistance to connect to the water system, Mack said.

In addition, a new approach to refill the depleted aquifer began in 1988: Artificial recharge. Between 1988 and 2011, thousands to tens of thousands of acre-feet of water from Lake Mead was pumped into the aquifer annually through a program administered by the Las Vegas Valley Water District and the water authority.

“We could bank it away like a squirrel saving nuts for winter,” Mack said. “Doing that helped to build those water levels, while the demand on that groundwater was reduced.”

But by 2011, the valley could no longer afford to store any water it received from Lake Mead in the face of a years-long drought, Pellegrino said. No groundwater has been artificially recharged into the aquifer since then.

By 2014, net groundwater pumping reached 82,000 acre-feet, nearly as high as it was in 1968, according to the 2018 pumpage inventory. Last year, net pumping was slightly lower at 74,400 acre-feet.

The future of pumping

With both drought trends in the southwest and population growth in Las Vegas showing little signs of slowing down, water resources will inevitably become more scarce in years to come. But Pellegrino is confident that the water authority can continue to manage water issues, including groundwater use, through its numerous conservation programs. It would take significantly more pumping for the valley to again experience subsidence or other negative impacts from groundwater drops it has seen in years past, she added.

“We’re still at much, much higher water levels than we had before the groundwater management program was created and before the permanent recharge was done,” she said.

Nonetheless, natural recharge into the aquifer from the Spring and Sheep Mountains is about 25,000 acre-feet per year, Mack said, while annual groundwater pumping now exceeds 70,000 acre-feet. More homes and commercial facilities currently using wells will need to convert to the municipal system, Pellegrino said.

“There are declines observed in the aquifer year over year and it will continue to be that way until all of those revocable permits go away and we get down to a more sustainable management number,” she said, referring to well permits given out by the state engineer.

It is unclear at what point the valley will need to cut back on pumping again or reinstate artificial recharge if possible, Wilson said. The good news is, multiple agencies, including the state engineer and the U.S. Geological Survey, keep a close eye on groundwater levels, he said.

“We should be concerned about it, we should be watching it, and we are,” Wilson said. “It’s a balancing act.”

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