Anatomy of a drought: How the West may change for decades to come

Water woes are gripping no fewer than 17 states

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During his tenure as Utah governor, Gary Herbert repeatedly stressed that water is the only limiting factor to the state's growth.

That day is here for the nation's fastest-growing state, and water managers are scrambling.

Drought is gripping 17 states in 95% of the service area of the U.S. Bureau of Reclamation, and half of that area is experiencing severe or extreme conditions.

Those states stretch from the West, into the Southwest and the Great Plains region of the United States. Aside from Utah, victims of this megadrought are Washington, Oregon, Idaho, Montana, North Dakota, South Dakota, Nebraska, Wyoming, California, Nevada, Colorado, Kansas, Oklahoma, Texas, New Mexico and Arizona.

It has become so severe at Utah's Lake Powell, emergency releases were instituted from three upstream reservoirs to prop up its levels and to help keep power generation functioning at Glen Canyon Dam, which produces enough electricity for 336,000 households. On top of that, Colorado River allocations were reduced for Arizona, Nevada and Mexico due to the first water shortage in history being declared for the river.

In a five-year period, the nation's two largest reservoirs — Lake Mead and Lake Powell — saw their capacity drop by half. They are now the lowest they've been since they started filling decades ago.

When the U.S. Bureau of Reclamation announced the 18% reduction for Arizona, the 7% cut for Nevada and the 5% curtailment for Mexico, the historic first underscored how dismal the situation is in the Colorado River Basin.

"The announcement today is a recognition that the hydrology planned for years ago that we hoped we would never see is here," said Camille Calimlim Touton, the bureau's deputy commissioner.

Boaters cruise on Lake Mead near the Hoover Dam on Saturday, April 10, 2021. Both the Colorado and the Virgin Rivers empty into the lake.
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"The impacts are to our colleagues, to our neighbors and to

our friends," she said. "So it does not just impact the communities we serve, it impacts the communities we call home."

According to the latest information from the U.S. Drought Monitor, 60 million people across nine states in the West are having their lives touched by what's been described as a 100-year drought.

"We are seeing the effects of climate change in the Colorado River Basin through extended drought, extreme temperatures, expansive wildfires and in some places, flooding and landslides," said Tanya Trujillo, the U.S. Department of Interior's assistant secretary for water and science, adding that Colorado River system storage capacity is at 40% — down from 49% during this time last year.

Visitors to Silver Sand Beach at Great Salt Lake Marina are reflected on still water as they walk around during a rainstorm on Wednesday, Aug. 18, 2021.
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And those levels are going to continue to drop, with the only savior arriving as next year's spring runoff.

Consider this:

- The Upper Colorado River Basin, which covers Utah, Colorado, New Mexico and Wyoming, is experiencing its driest 22 years on record.

- Lake Powell dropped 145 feet from 2000 to 2005, directly attributed to a record low runoff in 2002 of just 24% of average.
- The Great Salt Lake slipped below its lowest recorded elevation, documented in 1963.
- Utah water managers are dipping into emergency supplies in the state's reservoirs and most, if not all, irrigation companies are cutting the season short by weeks.

Tage Flint, general manager of the Weber Basin Water Conservancy District that operates multiple northern Utah reservoirs, said conditions are dire.

"This is the worst drought we have experienced in our 75-year history as a district and certainly the worst I have seen in my career," he said. "Our reservoirs are at record lows."

Flint fears as the spigots for secondary water are turned off — and if September ends up hot and dry — households and businesses will turn to using treated water for landscaping needs.

"We are only holding over in our reservoirs this fall the drinking water supply for next year," he said. "The irrigation supply will be what we get this winter in snowpack and the subsequent runoff next year."

Cracked earth is seen in the waterbed of Jordanelle Reservoir near Kamas on Wednesday, Aug. 4, 2021. Utah's drought has forced the closure of the Rock Cliff and Ross Creek boat ramps at Jordanelle.

Laura Seitz, Deseret News Purchase Photo

How did we get here?

"It's been pretty dramatic in how bad meteorologically it has been from an impacts point of view," said Jon Meyer, a climate scientist with Utah State University's Utah Climate Center.

Meyer said last year the drought was severe — with the driest summer and fall on record — but reservoirs were able to "buffer" that dryness in urban areas particularly.

When last winter's below average snowpack began to melt, record dry soils stole the moisture.

"That, combined with the meteorological drought this spring and summer, really exasperated reservoir levels."

Echoing Herbert's concerns on water and growth, water law expert Melissa Reynolds warned if conditions persist, cities and the state throughout the arid West will face tough choices.

"We could see restrictions on new connections," said Reynolds, an attorney with Holland & Hart. "I do think if we continue to see conditions like we have in 2021, more and

more water providers may consider stopping new water connections. Lack of source capacity is a limiting factor on development."

Some are already there.

Utah's mountain town of Oakley pressed pause on any new building permits this summer in a six-month moratorium to ensure current residents have enough water.

Cities have been forced to turn to their neighbors to purchase enough water to meet their needs.

Flint's water district is delivering water to the tiny community of Echo after its single-sourced water supply dried up.

Hyde Park in Cache County also ran out of water and is getting help from other providers.

On Wednesday, state officials announced that Scofield's water tank is dry. The Division of Drinking Water has issued an emergency permit for the town to haul water for residents as a short-term solution, and then will work Scofield to develop other management strategies.

With even some "first in time" or the oldest, most senior water rights going dry or getting curtailed this year, Reynolds said impacts are widespread for the economy.

“A lot of water in the state is over-appropriated, which means there is no new water. Companies that are coming into some of these areas are not getting new water rights.”

Raindrops fall in a puddle during a rainstorm in Salt Lake City on Wednesday, Aug. 18, 2021.
Kristin Murphy, Deseret News Purchase Photo

Agriculture and water

When it comes to Utah consumption, some critics point to the agricultural community as a big water waster in a state that is the second-driest in the nation.

They complain about the water it takes to grow alfalfa, admittedly a cash crop but one that is critical to support Utah’s ranching community.

Craig Buttars, commissioner of the Utah Department of Agriculture and Food, editorialized in the Deseret News that what most people don’t realize is that due to the Utah drought, farmers and ranchers have had their water cut from 70% to 75% this year compared to last.

He warned those reductions have forced ranchers to sell off cattle and resulted in crop yields far below normal, which will mean higher food prices.

The aftermath is hitting consumers’ pocketbooks and the bottom line for farmers and ranchers who may not survive

two decades of fighting Mother Nature.

“Everything in this world has an origin point, and for our food supply, that origin is the farmers and ranchers who produce our food,” he wrote. “Without them, our food security will be diminished.”

In response to drought, water providers across the state have instituted voluntary or mandatory cutbacks on secondary watering on landscapes, which makes up a whopping 60% of Utah’s municipal and industrial water consumption.

The latest numbers rate irrigation water supplies across the state as 84% short, or “very short.”

These dry years have also led to a new religion of people fervently engaged in tattle-telling.

Four years ago, the Utah Division of Water Resources set up the Hall of Fame/Shame program, a tool for residents to report wasteful watering or to praise efficiency.

The complaints are not made public, but they are forwarded to the appropriate water provider for education.

Emmalee Nelson Thompson looks at a sign in her Magna yard that explains her decision not to water her lawn on Friday, July 2, 2021.

Laura Seitz, Deseret News Purchase Photo

This summer, the division embarked on an ambitious campaign to promote the program, emphasizing having a yellow lawn is a badge of honor.

Resulting publicity led to an astounding increase in participation. In 2017, the division received just 231 reports. This year, as of Aug. 24, 9,322 reports had been received, with 9,153 of them logged in the “shame” category.

“The goal of the Fame or Shame program is to save water and raise awareness of actions that are wasteful and also spotlight efficient water use,” said division spokeswoman Kim Wells.

Utahns’ love affair with green lawns has been a target of water providers as they push people to replace water-sucking turf with vegetation more suitable to the state’s climate.

Similar programs operate throughout the Southwest.

Central Utah Water Conservancy District recently invested $500,000 in an incentives-based program called “Flip Your Strip” to its member cities in which residents can be reimbursed for removing turf from their park strip.

Similar programs exist at Jordan Valley Water Conservancy District, Washington County Water Conservancy District and Weber Basin.

How much vegetation must remain — an issue of aesthetics for some communities — varies from area to area, however. That has led some conservation-minded residents to question why there is a requirement at all.

Rachel Simeon walks down the sidewalk at her Salt Lake City home on Friday, Aug. 20, 2021. Simeon was dumbfounded when she got a letter from Salt Lake City code enforcement, in the midst of Utah's super drought, that she needed to add more vegetation to her park strip that would require more water.
Laura Seitz, Deseret News Purchase Photo

Salt Lake City resident Rachel Simeon was stunned in July when she received a warning letter from the city's code enforcement division that her single gingko tree planted on her park strip during the past five years needed to be accompanied by more vegetation — requiring more water.

She was warned to fix the problem by mid-August or face a citation. Simeon negotiated with the division to get a reprieve until October, a cooler planting season.

"I was surprised he was so adamant, especially when we are in this megadrought," she said. "If we are going to take this drought seriously, with whole reservoirs drying up right now, why would they be asking people to water or plant (vegetation) in their park strip?"

Salt Lake City has a one-third vegetation requirement for park strips and front yards to avoid compromising the city's

urban forestry and to maintain the appearance of the property. It also counters the effect of urban heat islands.

Central Utah has a 50% requirement with its new program, but Weber Basin's Flint said it opted for a no vegetation requirement, believing it can work and still look good.

It is an area of tension Utah Gov. Spencer Cox noted in a press conference on the drought this summer when he announced a desire to develop a statewide turf replacement program — the first in the country.

Meyer, from USU, said as periods of extended and intense drought continue to persist, Utah may have to come to grips with abandoning its concerns over aesthetics and being more mindful of water use.

Drought may very well change how Utah looks, and how it grows.

Driving throughout New Mexico and Arizona, Meyer noted, there is an absence of lush green turf. In its place, there is vegetation that is more practical in an era of climate change.

"These local rules may be a little outdated for our future goals of water conservation."

A helicopter flies in to dip water as Utah Division of Wildlife biologists partner with Utah State Parks to fill six of the remote guzzlers at Antelope Island State Park in an effort to

provide water to the island's bighorn sheep on Monday, Aug. 16, 2021. Guzzlers are large devices that catch and store water from snow and rain. They provide drinking water for wildlife and are especially important during hot, dry summers and drought years. However, due to the extreme drought this year, some of these guzzlers have run out of water in different areas across the state.

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