

# A Drought of Texas Proportions

By Troy Anderson

**T**he normal amount of annual rainfall in Texas is about 28 inches. In the first 12 months of the current drought, the state only received 10.8 inches of rain. Since the drought began in October of 2010, the state has received 74 inches of rain instead of the normal 98.

“Drought conditions have persisted throughout much of the state up to the present time so that, at this point, it’s the second worst drought on record for the state as a whole,” says John W. Nielson-Gammon, a professor in the Department of Atmospheric Sciences at Texas A & M University in College Heights. He notes that, currently, 69 percent of the state is experiencing the drought. The Great Drought of 2011 resulted in the deaths of millions of trees, drained area lakes, and contributed to the worst wildfire in east Texas history that burned 20,000 acres and destroyed 71 homes.

Nielson-Gammon notes that the worst drought in Texas history occurred from 1950-’57, and the first 12 months of the drought were the driest since recording began in 1895. Statewide,

reservoir capacity continues to set new, modern-day lows. Robert Mace, deputy executive administrator for the Texas Water Development Board says, “Our reservoirs are two-thirds full. Normally, they would be about 85 percent full. If you look at the reservoirs in the Houston area, they are 100 percent full. In the Dallas area, it’s 68 percent; in Fort Worth, it’s 73 percent. But Wichita Falls is 23 percent. That’s one of the worst in the state. The reservoirs in the San Angelo area are about 14 percent full, and those in Midland and Odessa are only 10 percent full. Ground Zero for our drought has been in the Panhandle of Texas, and there are areas to the west of Dallas and Fort Worth.”

While much of the state is in drought, the Houston area is not. “Our water supplies are faring well,” says Janice Evans, the chief policy officer and director of communications for Houston Mayor Annise Parker. “Rainfall is a little below normal, but we are catching up due to recent regular precipitation. It’s just not really an issue for the city like it was several years ago when we had to implement water conservation measures.”

## Waste Not

In early July, with reservoirs dipping down to 23 percent of capacity, Wichita Falls, Texas, began using treated wastewater in a state-approved process to bolster drinking water supplies. The city near the Oklahoma border is the second in the state to directly reuse treated wastewater as the drought continues unabated. The water supplier to Big Spring, Midland, and Odessa was the first, and the city of Brownwood is considering doing the same.

The use of treated wastewater to supplement drinking water supplies in Wichita Falls and Brownwood comes as the drought is heading into its fourth year. According to Mace, currently, 1,172 water systems across the state have instituted some type of drought contingency plans, including 785 with mandatory restrictions that restrict outdoor watering, car washing, and topping off or filling swimming pools.



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“To me, it’s severe,” says Tom Mason, president of the board of the Texas Water Foundation, an Austin-based nonprofit organization that promotes water education and awareness efforts. “Meteorologists have different classifications of

drought from moderate to severe to very severe. Right now, despite the recent rain, we’re in the midst of a still very serious drought that is going to challenge the state on a lot of levels.”

## Water Scarcity at Large

The dry conditions aren’t limited to Texas though. A third of the United States, the Central and Southern Plains, and the Western U.S. is experiencing drought conditions, according to the U.S. Drought Monitor. The highest level of drought—exceptional drought—was noted in portions of California, Nevada, Oklahoma, and Colorado, as well as Texas. A total of 18 states are currently facing droughts.

In many parts of the world, water scarcity is increasing, and rates of growth of agricultural production have been slowing. Today, some 1.6 billion people live in countries or regions with absolute water scarcity, and by 2025, two-thirds of the world’s population could be living under water-stressed conditions, according to the Food and Agricultural Organization of the United Nations. Five times as much land is likely to be under “extreme drought” by 2050, according to Food & Water Watch, a Washington, D.C.-based organization that works to ensure that food, water, and fish are safe, accessible, and sustainably produced.

In terms of how long the drought could last in Texas, Nielson-Gammon says it’s hard to say when it will end. There is a chance the drought could last until 2020 or even later. However, he also says, “It could end suddenly if we get the right weather patterns. One thing that is working in our favor is El Niño developing in the Pacific Ocean that tends to provide above normal rainfall in the winter months in Texas. But on the other hand, the longer-term patterns in both the Pacific and the Atlantic are unfavorable for rainfall, so we’re in an extended period of drought susceptibility. There have been a couple of major statewide droughts before this one in the early 2000s, and it wouldn’t be surprising if another drought developed soon after this one ended.”

## Economic Impact

Growing concerns about the length of the drought and the economic impact on the state’s economy and business



sector come as water demand in Texas is projected to increase by 22 percent between 2010 and 2060, according to a recent report by the Texas Water Development Board. The state's population is expected to double by 2060.

Given the limited supplies of water in Texas, tough choices are coming for Texans. Without appropriate actions, the state could suffer significant economic losses. For example, economic models show that if the 1950's drought occurred in 2010, income losses to Texas businesses and workers would have been nearly \$12 billion. Apply that scenario to 2060, and the losses jump to more than \$100 billion, according to a June report by the Texas A & M AgriLife Extension Service. In 2011 alone, this same agency estimated statewide agricultural losses at \$7.6 billion.

"There has been a huge economic impact," says Carole Baker, executive director of the Texas Water Foundation. "Agriculture has been especially impacted. [Many farmers and ranchers] had to sell their cattle and livestock because there wasn't enough rain to feed their livestock. It really hurt them in 2011 and 2012 when we hardly had any rain." Thomas Linton, a senior lecturer in marine sciences at Texas A & M University in Galveston and an emeritus professor in wildlife and fisheries sciences at Texas A & M University in College Station, concurs, noting that in 2011 and 2012, ranchers in the upper parts of Texas had to sell off their cattle at a cost while wheat and cotton farmers watched as their land dried up in the Panhandle. There were substantial losses.

In recent remarks before the Texas A & M Beef Cattle Short Course in College Station, Brian Bledsoe, a weather forecaster, told the 1,400 attendees that Texas is "reliving the 1950's drought-producing pattern with periodic breaks." Bledsoe said when he speaks to young farmers and ranchers who are thinking about taking over operations from their fathers, he tells them to "have a drought plan...because we are going to have more dry years than wet years."

Billy Howe, the state legislative director of the 500,000-member Texas Farm Bureau, says the drought has had a tremendous impact on the state's agricultural industry. "It's caused billions of dollars in losses," he says.



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"If the drought continues, there is going to continue to be competition for water, and obviously, in a state that has become as urban as Texas, there is going to be a lot of pressure placed on agricultural water supplies for that water to move to other uses."

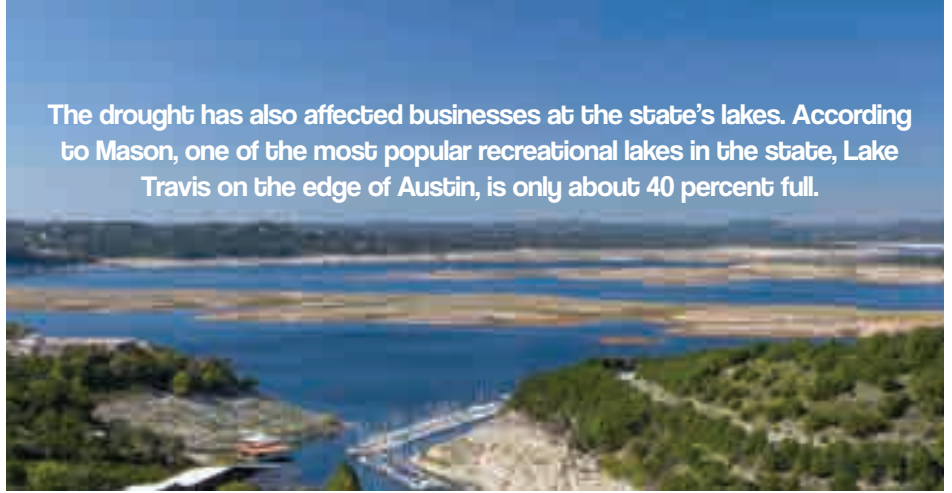
At a time when businesses are continuing to relocate to Texas because it is known as a business-friendly state with a fair and affordable tax structure and a fair regulatory climate, the drought—if it continues—is expected to have a growing impact on the state's economy and businesses, experts say. Mason says the drought could eventually hurt the state's efforts to attract companies into a state that weathered the recession better than most states nationwide. "When businesses are looking to move to an area, they want to make sure the city has a viable, long term water supply," Mason says. "That can inhibit growth and development very dramatically."

But Steve Minick, vice president of government affairs for the Texas Association of Business, which represents 4,000 businesses and 200 chambers of commerce, says the association doesn't expect it will: "We think that what the legislature did with Proposition 6 and the use of the Rainy Day Fund to support these efforts was the right thing to do. The fact our legislature is focused to ensure we can continue to meet the demand of growth and business opportunities in Texas sends the right signal and should give those companies every confidence that Texas is the place to continue to bring jobs and capital investment to."

The drought has also affected businesses at the state's lakes. According to Mason, one of the most popular recreational lakes in the state, Lake Travis on the edge of Austin, is only about 40 percent full. Some businesses on the lakes are experiencing financial difficulties. "You have people who rent [out] motorboats, jet skis, sailboats, marina operators, the restaurants around the lake, along with the real estate," Mason says. "There are also very expensive homes that were lakeside residences that are now much further from the water than before. You have that impact whenever there is an extended dry period that affects lake levels."

But Mason notes that the agricultural sector is probably the hardest hit of any sector because there is limited water to grow crops in some parts of the state. This includes rice and cotton farmers. "In the Colorado

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River basin, rice farmers won't be able to water from the Highland Lakes," Mason says. "This is the third year in a row. Some of them may end up going out of business. I think that's a real possibility because it's gone on for some time now. We have cotton growing up in the Panhandle area, which is largely dependent on groundwater. Every time there is a drought, it causes problems for cattle raisers. If you can't graze cattle on the grains produced by grass, you have to buy pretty expensive hay from elsewhere and that drives some ranchers out of the cattle business."

### Possible Solutions

Despite the impacts of the drought, Minick says that the association is optimistic that state and local agencies are responding in a "very positive way." He says business owners and businesses interested in relocating to Texas can feel confident that the state is going to make the best use of its resources.

In November, Texas voters approved the creation of a \$2 billion fund to provide low interest loans and other financial assistance to local governments and public water providers to develop solutions to the water shortage. "We have taken steps to reallocate tax revenues in Texas to make the financing of water projects easier and more affordable for local water providers," Minick says. "We are also beginning discussions about the political and procedural changes that are necessary to put new technologies and new water supply options on the table. Those include enforcement of existing water rights from a political standpoint, desalination of brackish water, of which we have an enormous resource in Texas, and alternatives to new reservoirs such as the recharge of aquifers. All these things have proven to be technically feasible. The issue is, 'How do we look at existing water management and water legal structures and examine what changes need to be made to make those technically feasible alternatives more practical?'"

The Texas Center for Policy Studies released a report in May that argued the state could make better use of its existing water supplies and doesn't have to spend billions of dollars on new reservoirs, pipelines, and other water supply projects. The report questioned two conclusions in the 2012 State Water Plan, including claims that Texas would face a demand/supply gap of 8.3 million acre-feet in 2060 and that the price tag of meeting increasing demand would be \$53 billion.

"Our analysis shows that the 2060 demand/supply gap of 8.3 million acre-feet/year projected by the 2012 State Water Plan is greatly

over-stated,” the authors of the report wrote. By 2060, the demand could be reduced by 3.5 million acre-feet per year through conservation measures and the increased use of brackish water. Minick says a fifth of the \$2 billion must go to water conservation projects. “The state is not going to give the money away,” Minick says. “The state will loan the money. It will be repaid.”

So far, Mace says the state has done very well responding to the drought: “The preparations and planning that we’ve done so far have served the state well, and we’ll just see how things continue, but, again, it’s really hard to predict. You could look for examples in one community and say this is what is going to happen, but one big rainfall could come, and the problem is solved. Even in droughts, you can get pretty big rainfalls that can solve the problem or extend water supplies.”

Mace also says, “Through drought preparedness, a lot of efforts are done to prevent a community from running out of water. Typically, a community will interconnect with a neighbor that has a more secure water supply. So far, in this drought, nobody has really run out of water in terms of a public water system.”

Officials are seeking a variety of solutions, including better watershed management, water recycling, underground storage of excess water, more desalination projects, and more effective conservation measures. “The folks up in the Dallas area are making great inroads in getting people to believe there is a water problem,” Linton says. “They are doing their part to conserve water. They are taking serious steps, as are El Paso, San Antonio, and Las Vegas, to get rid of grasses and trees that really suck up water and to get people to use equipment that uses less water.”

Minick acknowledges Texas is facing water challenges but wants to be clear that officials are working to ensure the state has enough water to meet its needs. “I think our legislature and governor have shown that we are going to do what it takes to solve these problems,” Minick says.

As far as the future of the drought, Nielson-Gammon says

it all depends on the weather. “The severity of the drought in 2011 was a good wake-up call so those water suppliers relying on a single source have been scrambling to build infrastructure to ensure that they will have enough water throughout the current drought.”<sup>N</sup>

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