



TEXAS WATER UPDATE

The manner in which leaders, communities, citizens and businesses responded to recent drought conditions was not only an important lesson in our state’s ability to adapt, but it served as a powerful demonstration of how we can change our behavior as times require.

In response to dwindling water supplies, many municipalities implemented water conservation measures to preserve drinking water. Some stepped up their efforts for water reuse. And numerous communities adjusted their pricing to encourage conservation and prudent use.

Lower lake levels not only affected water supplies, but they also impacted local economies. In many regions, declining water levels forced businesses to close. Jobs were lost. Tax bases used to support local government services were diminished, and some communities faced challenges in responding to fires and other emergencies.

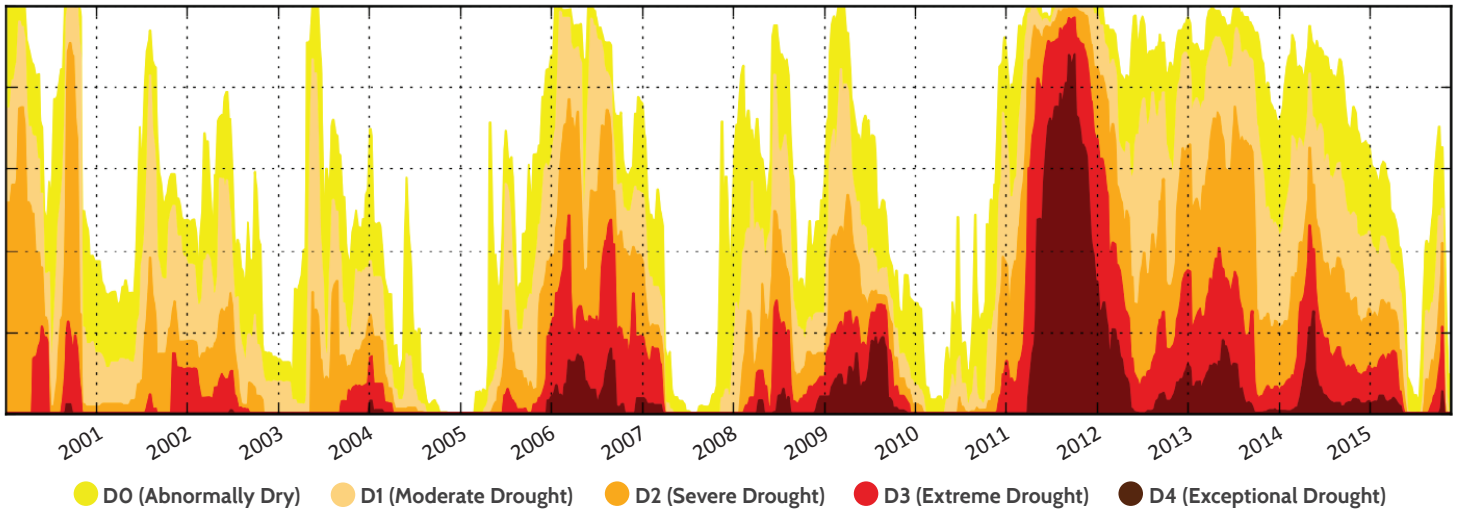
Through it all, the most significant takeaway is the compelling reinforcement that management and usage of our state’s water resources must evolve in order to meet the future needs of the state’s growing population and expanding economy. We can’t just talk about conservation; there must be smarter and more efficient use of water by all. The price that everybody pays for water must encourage conservation and reflect the value of this precious commodity. Use of modern technologies and irrigation methods must become the norm for those who use mass quantities of water in their operations. And regulators must weigh potential economic impacts as they make water management decisions that affect communities, economies and public health.

At one point during 2015, the Texas Commission on Environmental Quality (TCEQ) listed 59 of the state’s public water systems as at risk of running out of water within 180 days or less.

DROUGHT CONDITIONS CAN RETURN

Even when we are blessed with rain, we must remember that even the heaviest downpours could be a mere brief respite in an ongoing multiyear drought. We know this can happen because it happened during the Drought of Record in the 1940s and 1950s. Rain in 1951 and 1952 replenished reservoirs temporarily, but the drought continued for another five years. We must learn from our history that even a rainy year doesn’t mean a drought is over.

Since 2000 at least some part of the state was in drought conditions 93 percent of the time.



Source: Texas Water Development Board

THE CENTRAL TEXAS EXPERIENCE

For a quick case study on ways to better manage the state's precious water supplies, one need only look to the experience of Central Texans who rely on the Highland Lakes to provide water to the more than 1 million residents who live in the region.

A DIFFERENT DECISION

In 2011, as the drought's grip on the region tightened, nearly half of the available water supply in Lake Travis was released for use in flooding rice fields in several South Texas counties. The water released for approximately 200 rice farmers was enough to supply Los Angeles, a city of 3.8 million people, for a year. In the five years since the mass release, Lakes Buchanan and Travis experienced the three lowest annual water inflow totals ever recorded for the lakes. The release of half of the lake's water supply was devastating to the region and threatened the primary water supply for the City of Austin.

In 2011, the water provided to
200 RICE FARMERS
was enough to supply Los Angeles for a year.

Source: City of Los Angeles, CA

This didn't have to happen. The long-lasting impact of the 2011 water release serves as a powerful lesson on water management, and one that we must learn from, not repeat. Recognizing the serious negative impacts of the 2011 water release, the Lower Colorado River Authority (LCRA) and the Texas Commission on Environmental Quality (TCEQ) have changed the rules for such releases. The TCEQ approved a new LCRA water management plan in early November 2015. The two agencies' actions were an important step toward ensuring the region's drinking water supplies are better protected.

MUNICIPAL AND BUSINESS USERS PAY 15 TIMES MORE FOR WATER THAN RICE FARMERS



\$9.25 No incentive
to conserve

Price per acre-foot for water

Agricultural Users
(Rice Farmers)

\$145.00

Price per acre-foot for water

Firm Water Users

Source: LCRA

EQUITABLE PRICING

We know pricing motivates behavior. We use cheap things freely and sometimes even waste them. For more expensive things, we purchase only what we need and try to stretch them so they last. Pricing of water follows this principle of human nature. Water pricing should encourage conservation of valuable water resources and responsible use by all. In Central Texas, there is a clear link between the current trend to better manage water usage in residential settings and the prices those users pay. Conversely, the lack of modern technology in the rice-growing sector shows us that the outdated price of \$9.25 per acre-foot (325,851 gallons), compared to \$145 paid by municipal users in the region, provides no incentive to rice farmers to conserve and make changes. Fair pricing for all users must be part of the state's water management formula, not just because it is the right thing to do, but, more importantly, because it will drive much-needed innovation, leading to conservation.

Although more abundant rainfall and accessible groundwater supplies exist in the rice-growing region, the underpriced water from the Highland Lakes is a much more appealing purchase. Additionally, the highly inefficient method of transporting the water for hundreds of miles

down the Colorado River and distributing it through miles of unlined irrigation canals results in significant losses of water and revenue to the water supplier and the entire river basin. A 2012 report by the Lower Colorado River Authority estimated that of the water released for rice farming in 2011, the amount lost to evaporation, seepage or changed conditions that eliminated the need for the water was more than 21 billion gallons.² Not only will market-based pricing encourage greater conservation, but the use of supplies other than the Highland Lakes will eliminate the excessive and inefficient waste that results from the water traveling down the Colorado River to its destination.

CONSIDERING ECONOMIC IMPACT

If the range of economic consequences had been considered, it is possible that decisions would not have been made that resulted in sending almost half of Lake Travis downstream to flood rice fields in 2011. Receding shorelines, closed businesses, "For Sale" signs, lost jobs, declining tax revenues and the jeopardizing of a region's primary drinking water supply were all part of the aftermath of action taken under a management plan that did not fully weigh the potential consequences. While the exact economic impact to the region might have been difficult to forecast, consideration of the best and worst-case scenarios could have led to a different result. Many find it hard to believe that the State of Texas does not consider evidence related to economic impact when making decisions regarding the allocation and management of surface water, a resource so critical to the state's economic viability and its public health and safety. Groups who best understand this critical dynamic are continuing work they began in 2015 to advocate for the inclusion of economic impact as a factor to be considered in water management decisions.

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REDUCING USE WITH IMPROVED IRRIGATION METHODS

In 2011, the Texas Water Development Board (TWDB) reported that agricultural irrigation accounted for approximately 56 percent of the state's total water use.³ According to the TWDB, rice farming use in five South Texas counties alone comprised more than 276 billion gallons.⁴

Texas has one of the country's fastest-growing populations and an ever-expanding state economy. Pair that with dwindling, less-reliable water supplies, and it is becoming increasingly necessary to ensure that the most efficient methods of irrigation are used, especially when innovation can significantly reduce water waste. Given the amount of water used in rice farming with traditional flooding methods, opportunities exist to develop and implement new best practices that will help ensure the most efficient use of a limited natural resource.

Water used for rice farming
in five counties in 2011 was
enough to supply the City
of Austin for seven years.

A 2001 study funded by the Lower Colorado River Authority in conjunction with the Texas Department of Agriculture and Netafim USA showed that subsurface drip irrigation methods reduced water use by approximately 50 percent over traditional flood irrigation.

Other improvements in water management have also shown that techniques such as surge irrigation and narrow-border flood irrigation use substantially less water than flood irrigation

while maintaining the quality of yields. In fact, these techniques resulted in an astounding 56 percent increase in income for cotton farmers in South Texas.⁶ Alternate wetting and drying (AWD) has also been used successfully in regions around the world. SRI, or system of rice intensification, not only reduces water use by almost half, but also has been shown to increase yields by more than 40 percent and farmer income by as much as 60 percent.⁷

While some of these innovations may not be applicable for broad agricultural use, they do demonstrate the ability to change practices as times require. Even with its record-breaking population growth, Austin has reduced per capita consumption by 22 percent from 2007-2013.⁸ But cities aren't the only ones reducing water usage. Farmers around the world are demonstrating they can adapt to using less water with alternative irrigation methods, and in some instances are improving their yields by doing so.

CHANGING TIMES, CHANGING WAYS

Even though change can be difficult, families, cities and businesses have demonstrated how they can reduce use and increase efficiency to respond to a less predictable water supply. Their actions were not just out of concern that we're running out of water, but to adapt to changing times as they arise so that we don't. The state's evolving drought conditions and the increasingly unpredictable weather patterns have reinforced the need to think differently when it comes to managing our water supply.

While we don't control how much water falls from the sky, we are able to promote water management that recognizes the true value of this precious resource.

Sources

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³ <http://texasstatewaterplan.org/#/demands/2010/state>;

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⁵ http://www2.twdb.texas.gov/ReportServerExt/Pages/ReportViewer.aspx?%2fWU%2fSumFinal_WUG_Entity_Detail_2013&rs:Command=Render;

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⁷ http://www.earthisland.org/journal/index.php/elist/cListRead/system_of_rice_intensification_brings_hope_to_global_rice_production/;

⁸ City of Austin