



# IN THE NEWS

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## Drought in the American West

| *Water shortages in the American West impact the lives of people around the world.*

### Introduction

Those of us who live in the American West are accustomed to the occasional drought. Asking a westerner if she can handle an arid year is like asking someone from Chicago if he can handle a windy day. In fact, the Pulitzer Prize-winning novelist and essayist Wallace Stegner, one of the twentieth century's greatest western writers, considered a dry landscape to be the defining feature of the American West. For Stegner, the borders of the western United States could not be identified on a map but were measured in rainfall. Stegner considered as western those parts of North America with average rainfall less than twenty inches per year—that being the annual precipitation necessary for farming without irrigation. Stegner writes,

The West is defined, that is, by inadequate rainfall, which means a general deficiency of water. We have water only between the time of its falling as rain or snow and the time when it flows or percolates back into the sea or into the deep subsurface reservoirs of the earth. We can't create water, or increase the supply. We can only hold back and redistribute what there is. If rainfall is inadequate, lakes will be few and sometimes saline, underground water will be slow to renew itself when it has been pumped down, the air

will be very dry, and surface evaporation from lakes and reservoirs will be extreme. In desert parts of the West it is as much as ten feet a year.

The only exception to western aridity, apart from the mountains that provide the absolutely indispensable snowsheds, is the northwest corner, on the Pacific side of the Cascades. It is a narrow exception: everything east of the mountains, which means two-thirds to three-quarters of Washington and Oregon, is in the rain shadow.

California, which might seem to be an exception, is not. Though from San Francisco northward the coast gets plenty of rain, that rain, like the lesser rains elsewhere in the state, falls not in the growing season but in winter. From April to November it just about can't rain. In spite of the mild coastal climate and an economy greater than that of all but a handful of nations, California fits Walter Webb's definition of the West as "a semi-desert with a desert heart." It took only the two-year drought of 1976–1977, when my part of California got eight inches of rain each year instead of the normal eighteen, to bring the whole state to a panting pause. A five-year drought of the same severity would half depopulate the state.<sup>1</sup>

I remember the above-mentioned drought of 1976–1977. In those days one of my chores was to

measure the depth of water in our well so that my mother could decide if there was enough water to run a load of laundry. My two brothers and I took one bath a week, using a tub of shared water that we saved and used to flush the toilet (but only after observing the maxim “if it’s yellow, let it mellow; if it’s brown, flush it down”), and I grew up on the coast north of San Francisco, the part of the Golden State that Stegner described as getting “plenty of rain.”

The severity of the drought, etched on my eight-year-old mind, remains vivid today, and in light of those memories it is startling to consider the fact that the drought currently sucking the moisture out of the American West is worse than the dry spell visited upon the region while Jimmy Carter lived on Pennsylvania Avenue and the Swedish band ABBA introduced the world to the earworm that is “Dancing Queen.”

In fact, using historical data we know that 2013 was the driest year since the United States took California from Mexico and started recording annual rainfall. By using scientific analysis of tree rings and studying the sediment in now-dry lake beds, climatologists speculate that the last fourteen months in California have been the driest spell of similar length since 1850.<sup>2</sup> Across the West, lakes and reservoirs are running out of water. Rivers have become creeks, and creeks have become muddy trails. The Sierra snowpack’s annual melting keeps California in water during the dry months, but it is almost nonexistent this

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year. Unless there is serious and sustained rainfall in March, dozens of Californian communities will run out of water before the start of the summer dry season.<sup>3</sup>

And it could get worse. The same scientists who have determined this year to be the driest in centuries tell us that the pre-Columbian history of the American West was marked by dry spells that lasted for decades and even for centuries, and it’s possible we are entering into another such prolonged arid epoch.<sup>4</sup>

We may soon have the opportunity to test Stegner’s theory that five years of severe drought could half-depopulate the state of California. All winter, as folks living to the east have been digging out from under a long succession of snowstorms, Californians have been tweeting selfies from the beaches of Santa Cruz and Santa Barbara, all in the sure confidence that friends and family members in places like Ohio will be jealous. But in coming years westerners may come to regret it as we move east in search of water and learn to depend on our new neighbors to teach us the fine art of scraping ice off our windshields.

### Feeling the Drought

In California, as in the rest of the American West, farmers and communities dependent on farming have been the first to experience the devastation of this historic drought, and it is through the suffering of farmers that the rest of the country—and even the world—will feel the effects of the parched western landscape.

California produces nearly one half of the fruits and vegetables that Americans consume. The lettuce on your Whopper? It came from the Salinas or Imperial Valley, and the tomato probably came from the San Joaquin Valley, as did the raisins in your kid’s Happy Meal. The strawberries on your shortcake came from a farm on the coast. The olives on your pizza, the rice in your sushi, and the eponymous nuts in your Almond Joy all came from the Sacramento Valley. The garlic in your pasta sauce—like your computer—came from the

Santa Clara Valley, and the cab/merlot blend in your wine glass came from the Napa Valley.

All the above-mentioned Californian crops are threatened by the current drought, as are crops and herds of livestock across the West. If the drought is deep and the crops fail and the herds die off, Americans will still eat the grains, fruits, and vegetables we are accustomed to buying from western farmers. We will continue drinking wine and grilling steak, but the price for such foods will skyrocket because they will need to be imported from overseas. This will put pressure on food prices globally, which will have a devastating effect on the billion or so people around the world who subsist on less than a dollar a day.

No one wants to see the agricultural productivity of the American West dry up, but as water resources become increasingly scarce, politicians and policy makers are faced with difficult decisions. Rural communities without water are unable to produce the food necessary to feed the populations who depend on them. Urban areas without water are prone to disease and civil unrest. So who should get the water? It is a difficult decision. Already in California, the federal government, for the first time ever, will supply no water to farmers in California's Sacramento and San Joaquin Valleys. As a result, it is expected that farmers will let more than half a million acres of prime farmland lie fallow this year.<sup>5</sup>

In California, one proposed solution is to divert more water from the Sacramento-San Joaquin Delta, a large, inland estuary at the confluence of the state's two largest rivers that is fed by watersheds on the western slope of the Sierra Nevada and the eastern slopes of the mountain ranges that separate the Central Valley from the Pacific Ocean. Even in dry years, the delta is wet, and California's governor, Jerry Brown, has endorsed a plan to build a massive, thirty-mile-long system of tunnels to divert water from the delta to parched farmland in the San Joaquin Valley. The

water would help irrigate farmland and feed the nation, but draining more water from the delta is not without ecological consequences—to say nothing of its \$15 billion price tag. The region is home to several threatened and endangered fish and other water-dependent species of plants and animals. And as fresh water leaves the delta, it is replaced by salt water from San Francisco Bay, into which the delta drains. If too much water is drained from the delta, salt water could reach—and destroy—the farms.

The current drought is hard on farmers, but most of the people affected by the drought live in giant, sprawling metropolitan areas such as Los Angeles, Las Vegas, and the San Francisco Bay area, where the water shortage will not be felt as acutely—at least not at first. While many smaller western municipalities—barring a miracle—will run out of water before the end of summer and while the federal government has cut water allocation to municipalities in half this year,<sup>6</sup> most larger cities have enough water in reserve to last another year or so, but only if water usage habits change. Golf courses, for example, may need to be sacrificed for the greater good; the same fate may await lawns and backyard swimming pools. Westerners may need to take fewer showers, stop washing our cars as much as we'd like, and use low-flush toilets; but for all our experience dwelling in an arid landscape, making the adjustments necessary to endure another year or two of severe drought won't be easy, because Californians consume a lot of water.

For example, the city of Palm Springs in the Mojave Desert uses some 736 gallons of water per person each day. Sacramento consumes about 457 less gallons per person per day than Palm Springs, but still, 279 gallons a day is a considerable amount of water. Denizens of Los Angeles use, on average, 152 gallons of water per person per day, and in San Francisco (where there are few lawns and golf courses) the average daily usage is 98 gallons per capita.<sup>7</sup>

In California, Governor Jerry Brown has asked residents to cut water usage by 20 percent. These restrictions are voluntary, however, and as suburban and urban residents of the Golden State consider volunteering to let their lawns die or to flush the toilet only when solid waste is involved, the prospect of brown grass and yellow toilets stirs up resentment toward agrarian California. After all, the state's farms consume 80 percent of the state's water, and many of the nonfarmers feel as if the cities and suburbs are deprived of their fair share of the precious, limited water supply.

Yet if one considers the fact that almost all the food produced by farmers is consumed by people who are not farmers, the 80/20 split between rural and urban water usage in California becomes less well-defined: if a farmer in the Salinas Valley uses a lot of water to grow arugula that is then turned into a salad and eaten in the San Fernando Valley's suburban sprawl, was that a rural or a suburban allocation of water? A sober assessment of the economics of leafy greens says it is both, but sobriety can be in short supply when resources are scarce.

## Wet and Dry in Christian Spirituality

For Christians, few symbols carry as much meaning as water, which is used in the sacrament that marks our adoption into the family of God. In liturgically minded congregations the administration of the sacrament of baptism is accompanied by a prayer that remembers that in the Bible water acts as a symbolic reminder that God's salvation is at hand: The watery chaos of the primordial flood is the stage on which God enacts the drama of creation. In the time of Noah, the world was saved from complete depravity through water. Moses led the Israelites out of bondage and into freedom through the sea. Jesus was baptized in the Jordan,

and at Cana he turned water into wine, thereby preserving a wedding's joy.

Someday meaningful rainfall will return to California and the rest of the American West. Scientists who study the oceans suggest that El Niño, a warm-water current that usually brings heavy

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rains to the American West, is likely to return this winter,<sup>8</sup> but there is no guarantee. The drought could drag on for years and even decades into the future.

And if the drought abides, we may need to look for signs of grace in the absence of water as much as in its abundance. We may find ourselves remembering the stories of God providing sustenance to the Israelites in Sinai, of God restoring life to a valley of dry bones, and of Jesus resisting temptation in the wilderness. In the West, we may find our own salvation in learning to use less water and in sharing what water we have.

## Taking Action

### What You Can Do If You Live in the West

Pray for rain, but remember this: if we get an El Niño this winter, the same forces of nature that bring extra rain to us create drought conditions in Australia. Even in our prayers we must learn to share and to be gracious.

Conserve water: Flush the toilet only when necessary. Don't shampoo every day—this will save time, and therefore water. As you wait for your shower to get warm, consider trapping the water and using it to flush the toilet or to water your plants. Fix leaky faucets and install

low-flow toilets and shower heads. Don't water your lawn or wash your car until the drought subsides, and talk to your golf course manager about using reclaimed water for the greens and fairways.

Avoid the divisive political arguments that arise when water supplies are meager. When food produced in rural communities ends up on suburban and urban tables, there is no separation between farm and city. Proper stewardship of watersheds and wetlands preserves ecosystems that keep the earth productive, so there should be no division between agriculture and environmentalism.

### What You Can Do If You Don't Live in the West

Pray for rain, and every time it rains or snows, count your blessings. Ask God to send some of what you call "nasty weather" out West.

Learn the provenance of your fruits and vegetables, and consider supporting water-smart farming by choosing to buy foods that take less water to produce. This means less western beef and fewer tomatoes and strawberries, at least until the rains return.

### Endnotes

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2. Lisa M. Krieger, "What the West's Ancient Droughts Say about Its Future," *National Geographic Daily News*, February 13, 2014, <http://news.nationalgeographic.com/news/2014/02/140214-drought-california-prehistory-science-climate-san-francisco-2/>.
3. Jason Dearen, "Calif. Town's Water Shortage Stokes

Fears of Future," *Yahoo! News*, February 6, 2014, <http://news.yahoo.com/calif-town-39-water-shortage-stokes-fears-future-060207823.html>.

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6. Ibid.
7. Paul Rogers and Nicholas St. Fleur, "California Drought: Database Shows Big Difference between Water Guzzlers and Sippers," *San Jose Mercury News*, February 7, 2014, [http://www.mercurynews.com/science/ci\\_25090363/california-drought-water-use-varies-widely-around-state](http://www.mercurynews.com/science/ci_25090363/california-drought-water-use-varies-widely-around-state).
8. Maya Rhodan, "El Niño Event Likely in 2014, Researchers Say," *Time*, February 10, 2014, <http://time.com/#6526/el-nino-event-likely-in-2014-researchers-say/>.

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# QUESTIONS FOR DISCUSSION

1. What new information did you learn from this study?
2. What, if anything, have you done to alter your water consumption?
3. What perspective can the Bible and Christian faith add to the drought situation in the American West?
4. What additional action might be taken to protect against drought in the future?