

Drought threatens California despite El Nino

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California's drought crisis has caused wildfires, decimated forests, threatened animal species and deprived thousands of homes of access to clean water

Last winter, El Nino-driven storms dumped much-needed snow and rain over California, boosting reservoir levels and fueling hopes the parched state's four-year drought might end.

But despite the brief respite, experts say the record drought is here to stay.

The El Nino weather phenomenon—caused when a rise in the Pacific Ocean's temperature triggers intense precipitation—has provided only "a band-aid on a gaping wound," says Julien Emile-Geay, a paleoclimatologist at the University of Southern California.

In fact, restoring the state's water supplies to their pre-drought levels would require several years of intense rain and snowfall.

The water level barely equaled the average in the state's north this winter. In the south, levels failed to rise enough to fill dried-out rivers and aquifers.

The drought crisis—which has caused wildfires, decimated forests, threatened animal species and deprived thousands of homes of access to clean water—is far from over, and the authorities of this vast West Coast state say its 39 million residents had better get used to the new reality of climate change.

A quarter of the Sierra Nevada Mountains' snow cover—essential for feeding rivers and maintaining groundwater levels—will disappear by 2050, California's Department of Water Resources (DWR) predicts on its website. Half will vanish by the turn of the century.



A surfer enters the water at El Porto Beach as big waves from El Nino storms affect Los Angeles, California

That prospect is especially worrying because rising temperatures are also increasing soil evaporation in America's most populous state.

Californians aren't ready for "an increasingly dry climate with a population that is continuing to grow without a long-term strategy to address the imbalance," Emile-Geay says.

Others agree.

Heather Cooley of the Pacific Institute praises California for "tremendous progress" by decreasing water use to less than its level 30 years ago.

But she says the wealthy state has yet to turn the page on its culture of abundance.

Governor Jerry Brown's mandatory 25 percent water savings enacted a year ago signaled the end of an era and earned widespread praise.

But the state still sees a huge amount of water waste.

In the middle of the Californian desert, golf courses in the opulent resort city of Palm Springs abundantly water their greens during the heat of midday while drainage pipes pour rivers of water down the middle of streets.



El Nino-driven storms dumped much-needed rain over California, but Julien Emile-Geay, a paleoclimatologist at the University of Southern California said it was "a band-aid on a gaping wound"

Need for reflection

The authorities must employ financial incentives to encourage adoption of more efficient toilets and appliances—otherwise drastically increase the price of water used after a certain limit is reached, experts say.

In a region where most urban consumption comes from watering gardens, maintaining green lawns could become an unaffordable luxury.

Among other failures, Californians do nothing to collect their rainwater.

Worse still, "everything has been designed to drain water as quickly as possible to avoid flooding," Emile-Geay says. "The water doesn't have time even to wet the soil before it flows into the ocean."

California must accelerate recycling, desalination, and generally "reflect" about its system of water rights, which he criticizes as inequitable, archaic and encouraging of "more use than needed."

Farmers, who consume some 40 percent of California's water, are also coming under fire.

Fewer than half have invested in water-conserving micro-irrigation systems. Many grow water-intensive crops such as almonds and alfalfa in the middle of the desert.

Wholesale water rationing for many has done little to discourage irrigation because revenues from agriculture have stayed level and even reached record levels in 2014, chiefly thanks to soaring commodity prices.

Bill Diedrich farms walnuts, almonds and tomatoes in central California—whose abundant agriculture has earned it the nickname

"salad bowl of the world" and where each farmer decide decides what to grow according to what's profitable.

He believes the solution must come from "engineering to better collect and distribute the water we have."

Emile-Geay says that won't be enough.

"If you compare GDP per liter of water, growing alfalfa in California is very inefficient" and viable only because of cheap prices for water.

"Silicon Valley consumes much less and generates more revenue," he says. "If the agriculture industry paid the real price for [water](#), it wouldn't make sense to grow certain things."

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