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## California's new normal: In the fourth year of drought, dusty cars and no iced water are a way of life



**TRISTIN HOPPER** | March 20, 2015 | Last Updated: Mar 20 8:53 PM ET  
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Irrigation water runs along the dried-up ditch between the rice farms to provide water for the rice fields on Thursday, AP Photo/Jae C. Hong, File May 1, 2014, in Richvale, Calif.

SHASTA DAM, Calif. — Two out of every three meals eaten in the United States contain something grown in California. Under normal conditions, they would start right here as most of the state's fields are irrigated with water from Shasta Lake, the state's largest reservoir.

Held behind the 183-metre-high Shasta Dam is the lifeblood for truckloads of almonds, rail cars of oranges, thousands of jobs and billions of dollars.

And with only a few weeks left until the rain stops, the reservoir is almost half-empty: A mere 58% capacity at last count.

The lake is surrounded by a glaring "bathtub ring" of parched red earth. At nearby marinas, houseboats are jammed together in shrinking harbours

that are becoming little more than glorified puddles.

Already, hundreds of farmers have been told that — just like last year and the year before — they won't be getting a single drop of Shasta Lake water for their crops.

“We need more rain” goes a reflexive mantra here at the dam, which is second only to the Hoover Dam in size.

But four years into a history-making drought with no end in sight, the U.S.'s most populous state is being forced to completely retool. Fields are lying fallow, desperate farmers are drilling as much as 600 metres down to irrigate their crops with rainwater from the last Ice Age and 39 million people are coming to terms with their coastal paradise getting drier, browner and more barren.

For the rest of the continent, California is a preview of coming attractions. Climate change is not Armageddon: It's not levelling cities, killing civilians or sending panicked refugees streaming into the mountains. It's simply becoming one of the most expensive and painful problems humanity will ever face.

Under natural circumstances, California would not be the “salad bowl of America.” In fact, left to its own devices, much of the state would revert to dry scrub land fit only for hayfields and cattle grazing.

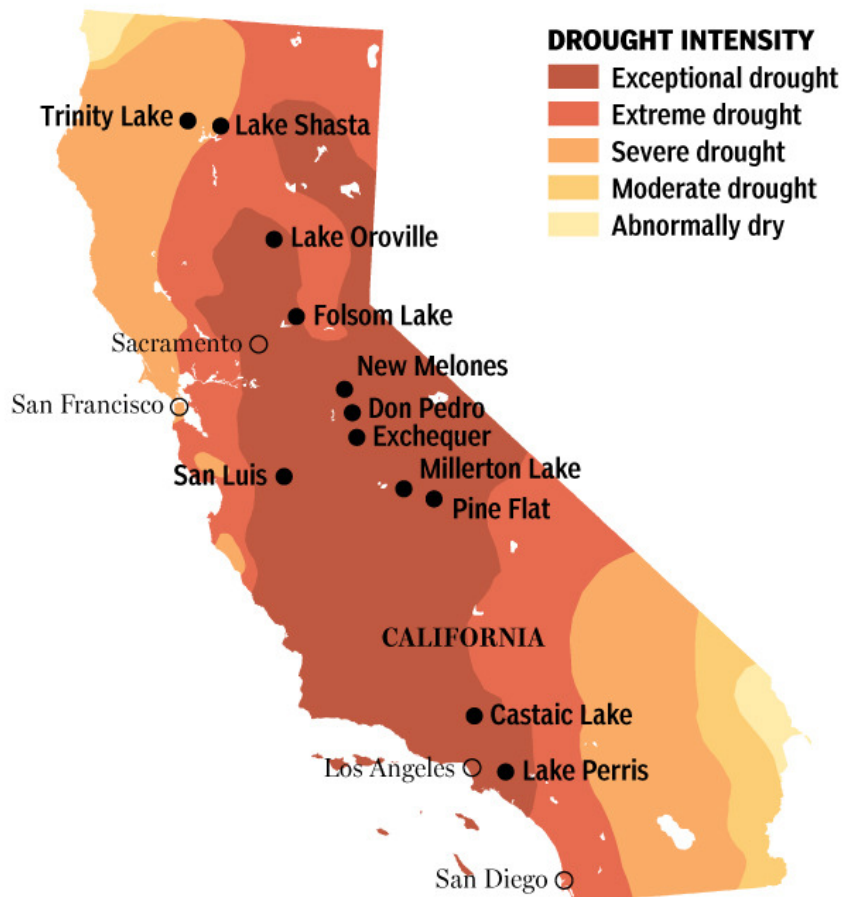
Modern California is essentially the largest man-made food-making machine ever created. Beginning with the dam-building boom of the Great Depression, the state erected an engineering marvel of canals, aqueducts and reservoirs to move water from the wet north to farms and settlements in the dry south.

“Before the dams were constructed, it was absolute feast or famine — in wet periods, the waters would literally run right down the river,” said Louis Moore, a spokesman for the Bureau of Reclamation, the federal agency in charge of more than 40 California dams, including Shasta.

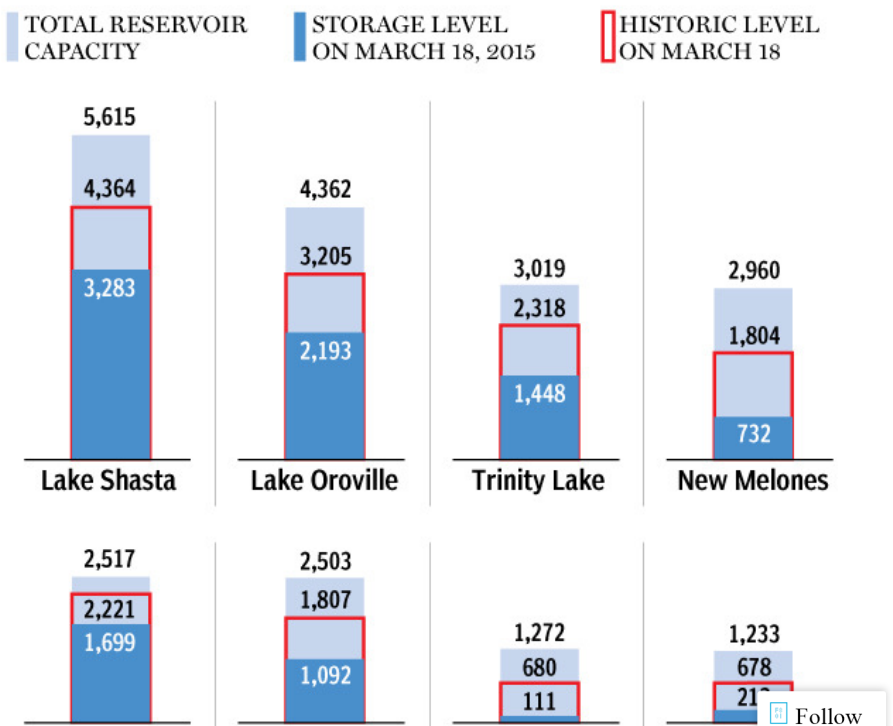
The state's command of its water system nearly quadrupled the population and is responsible for making California an agricultural powerhouse unlike any seen in history: It produces 99% of the United States' almonds, 97% of its garlic, 69% of its carrots and an incredible 82% of the global almond harvest.

But the powerhouse doesn't work without rain. By any measure, California's drought is record-

## CALIFORNIA'S DROUGHT PROBLEM



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setting. Last year was the hottest on record. The current snow pack in the Sierra Nevada mountains is the lowest on record, robbing the state of the critical spring runoff. All across the state, cities logging their lowest-ever rainfall records.

“California is different now than it used to be ... we’ve moved into a regime where most years are warm,” said Noah Diffenbaugh, a researcher at Stanford University’s School of Earth Sciences.

This month, his team released its findings that as a result of human activity these kinds of droughts are likely the new normal for the Golden State.

Indeed, winter hasn’t even ended and Year Four of the California drought is in full swing.

January is usually the wettest month of the year. But this year, California faced the driest January since record-keeping began in 1850, when it was little more than a sparsely populated corner of what was once Northern Mexico.

Downtown San Francisco typically spends January getting pelted with 12 centimetres of rain, more than twice that of drizzly London, England. This year, it got nothing.

In previous droughts, California farmers have fallen back on its “strategic reserve” of ground water.

But this time, the sheer intensity of the ground-water rush is causing the water table to plunge dramatically, forcing farmers to chase after it with those 600-metre-deep wells. By some estimates, parts of California’s 2015 harvest will be irrigated by aquifers that have lain untouched for more than 20,000 years.

In some areas, ground-water depletion is causing the earth to sink by as much as one foot a year. Highways are cracking, rail lines are twisting, canals are buckling and wells are going permanently dry.

“You’re not going to be able to put water back in that ground, because that ground is basically gone,” said Claudia Faunt, a California-based hydrologist with the U.S. Geological Survey.

As water levels in the state’s reservoirs plunge to historic lows, dried-up lake beds are revealing relics hidden underwater for more than a generation.

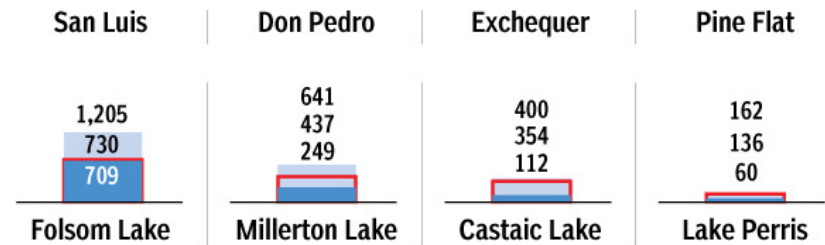
Last summer, the ruins of a First World War-era highway were exposed at Shasta Lake. In Folsom Lake, the drought recently brought back Mormon Island, an 1850s gold rush town first covered by flood waters in 1955.

In farm country, the drought’s effects can be seen in the vast tracts of newly fallowed land. An area two-thirds the size of Prince Edward Island is going unplanted as farmers sacrifice low-yield crops to keep water flowing to cash crops, such as walnuts and almonds.

The state’s cotton and rice harvest both dropped by nearly 25% in 2014. In the case of cotton, the shortfall was equal to 54 million pairs of jeans.

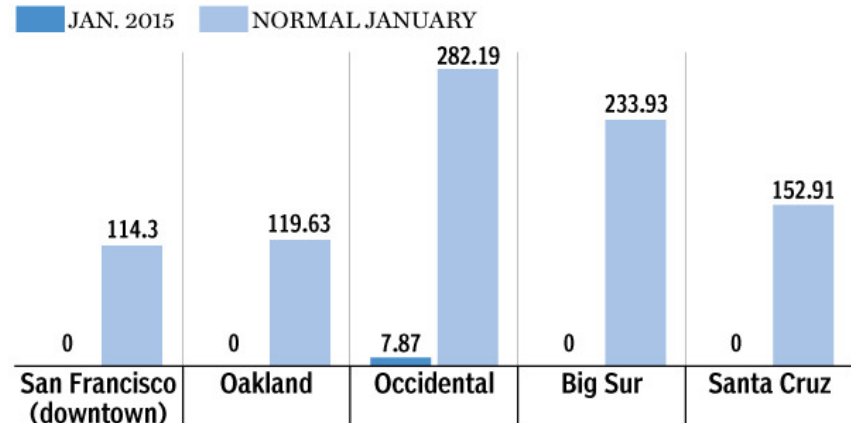
“You’ve got farms that are ripping out citrus groves that have been producing for years,” said Mike Wade, executive director of the California Farm Water Coalition. In cities like Mendota, the “Cantaloupe Capital of the World,” drought has been blamed for an unemployment rate that has topped 40%.

The drought can even be seen from space. In a January, 2014 National Aeronautics & Space Administration photo of California, the Sierra Nevada mountains are piled high with snow and the farm-rich San Joaquin valley appears lush and green. Twelve months later, only a light dusting of white covered the mountains, and the farming regions have turned a dull brown.



### JANUARY RAINFALL BY REGION

IN MILLIMETRES



SOURCE: CALIFORNIA DEPARTMENT OF WATER RESOURCES, NATIONAL WEATHER SERVICE

JONATHON RIVAIT, DEAN TWEED / NATIONAL POST

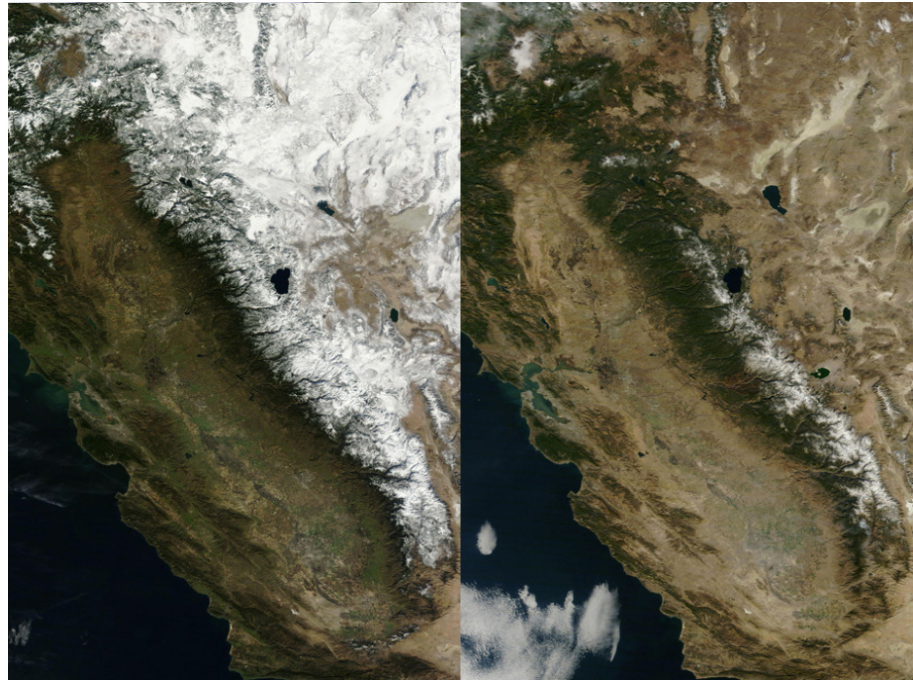
Last year, California approved US\$700-million in emergency aid for communities hit hard by the drought. Thursday, it ponied up another US\$1-billion in drought-related money.

At this rate, California is already spending more money on drought than Vermont spends on education. And state legislators say this is only the beginning.

“This is just a down-payment on our efforts to address the drought,” state Senate leader Kevin de Leon said at a Sacramento news conference.

Californians are well aware they face a crisis. In a poll released Tuesday by the Association of California Water Agencies, 40% of respondents agreed the water shortages were an “extremely serious problem.” But as the proud citizens of a land that made the desert bloom, many are also confident they can keep it blooming in spite of a drought.

“I would characterize it as a management and engineering problem,” said Leon Szeptycki, executive director of Water in the West, a Stanford water-use think-tank.



Images from NASA shows California in January 2013 (left) and January 2014 (right). NASA

Last November, 67% of California voters approved a US\$7.12-billion package to shore up the state's water infrastructure: Dams, waste-water cleanup facilities and storm-water catchment.

“Save water, save money, save California” went Governor Jerry Brown's six-word pitch.

Mr. Brown comes from a drought-fighting background. His father Pat was the state's governor in the 1950s and 1960s, and deftly pushed through many of the mega-projects that make up California's world-renowned water management system.

But partly because of anti-dam pressure from environmentalists, the state has gone a generation without any significant water system upgrades. But after a presidential term's worth of drought, a whole slew of once-obscure water-gathering schemes has been reawakened.

Officials have proposed replacing canals with underground pipelines to stave off evaporation. Desalination plants, once considered too pricey, are now planned all along the California coast. Near San Diego, the US\$1-billion Carlsbad desalination plant, built using Israeli technology, is set to open next year.

The most insane scheme — an enormous freshwater pipeline from Alaska or Washington state — has at least been getting some nods of approval lately at water conferences and in letters to the editor pages.

State regulation has also ratcheted up considerably, with Governor Brown Thursday delivering a somewhat ominous pledge to crack down hard on water usage.

“Don't have any doubts. We are going to increasingly control the use of water to the point where you have to get a lot more efficient, it's going to be expensive and everyone has got to do their part, and they will,” he said.

Under a particularly dramatic round of water restrictions last year, Californian caught washing their cars without a nozzle could be fined US\$500. Just this week, the state upped the ante with a new round of water restrictions that, among other things, barred restaurants from automatically providing diners with iced water.

California's capital, Sacramento, was long famous as a lush gardeners' paradise. thanks to a 1920 provision declaring that “no water meters shall ever be attached to residential water service pipes.” For decades, homeowners paid a connection fee and received a bottomless well of sprinkler water to keep their Mediterranean-climate zone filled with green lawns and leafy trees.

But as legislators at the state capitol found more of their agenda dominated by a water crisis, the city surrounding them was inevitably driven to start installing meters in 2005. “We're going to have to do away with lawns,” shrugged a tour guide at Folsom's American River Water Education Centre.

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With aquifers disappearing all across the state, California's farmers are also losing their Gold Rush-era right to any and all water they could find under their land. Under new regulations that began coming into force last year, California is tightening control of its underground water.

"It's a new frontier that we've never really faced in America before; regions hitting the limit of their water supply," said Mr. Szeptycki.

In a California without water, ordinary citizens have suddenly been thrust into the role of playing God with the dwindling resources available.

In the Central Valley, farmers would normally be keeping their fields alive using surface water brought by aqueduct, then "transported" from reservoirs like Shasta Lake. But with the government taps turned off, the region has been in a desperate rush to make up the difference with well water.

While larger farmers can afford to buy their own US\$1-million drilling rigs, everyone else is relying on a few underslept, overworked well drillers.

Customers of Arthur & Orum Well Drilling in Fresno face an incredible 2½-year wait. Tearful, pleading growers are regularly turned away, says the company's secretary Kim Hammond, and "it is very common that we pull up and they've already lost their crops."

Amid the turmoil, Ms. Hammond has seen scenes of extraordinary goodwill, as farmers give up their place in line to save their neighbours' livelihoods.

Elsewhere, the drought has pitted Californian against Californian on a grand scale.



A worker uses a tractor to pull an uprooted almond tree at a farm on April 29, 2014 near Mendota, California. Justin Sullivan/Getty Images

Scorn has descended on many of the state's farmers — particularly almond farmers, who produce 82% of the global harvest, but whose thirsty crop is responsible for up to 10% of its water use.

"Your almond habit is sucking California dry," declared Mother Jones last July. By the magazine's calculations, one single California almond took about four litres of water. And with aquifers being destroyed by overdrilling, some of that water can never be replenished.

"The farmers are getting a bad rap for sucking out groundwater, but the state really hasn't given them any other choice," said Ms. Hammond, who in turn criticized the state's decision to break ground in January on a multibillion-dollar high-speed train between San Francisco and Los Angeles.

"We need dams," she said. "Otherwise that train's going to be going through a desert."

For any California farmer, though, special contempt is reserved for the Delta smelt, a 7.5-centimetre fish native to the San Francisco Bay [Follow](#)

As part of a controversial 2007 Federal Court decision to protect the tiny fish from extinction, water pumping was dramatically curtailed at Bay Area smelt streams. Farmers immediately lost access to more than 1,135 billion litres of water, causing the lost of between 5,000 and 20,000 farm jobs in what opponents sneered was a “man-made drought.”

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Most gallingly, it was all for naught. According to an ecological survey completed this week, the smelt went extinct anyway.

This image of a region consumed — and often divided — by ecological problems may become all-too-familiar beyond California’s borders in the years to come.

As sea levels rise, Vancouver is going to need to build a system of dykes and berms to keep floodwaters from rushing down Granville Street.

New York is already reviewing nine-figure plans to surround its harbour with water-control structures to ward off the next Hurricane Sandy.

Windsor, Ont., is bracing for new invasive species and increased erosion brought by shorter freeze-ups on Lake Erie. East Coast fishermen are being warned of progressively stronger storms and shifting fish stocks. In British Columbia, Whistler-Blackcomb is already moving its ski runs to higher elevations in search of more reliable snow pack.

And across the continent, forests are going to be spending a lot more time on fire.

California will prevail, but in the depths of the driest times ever felt by the mythic state, it has not stopped some from calling on some old-fashioned forms of deliverance.

In early 2014, hundreds of Muslims gathered in San Francisco to perform Salat-ul-Istisqa, the Islamic prayer for rain.

At about the same time, the state’s Roman Catholic bishops of California called on religious people of all stripes to pray t“God open the heavens and let his mercy rain down upon our fields and mountains.”

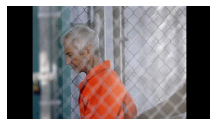
In particularly parched regions of the San Joaquin Valley, fallow fields can be seen adorned with signs carrying a passage from Thessalonians 1, Chapter 5, Verse 17: “Pray without ceasing.”

National Post

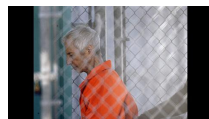
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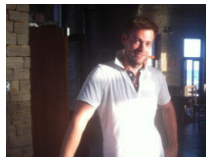
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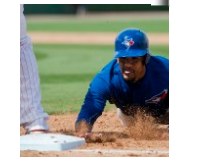
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