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# High Country News

For people who care  
about the West

## Peak water

by Jeremy Miller

At night, in the parched pasturelands in the southern reaches of California's Central Valley, strange constellations glow on the horizon: beacons atop rigs that are drilling for water. Applications to drill new wells skyrocketed after state officials announced in February that, after the third year of pitiful precipitation, no water would be delivered via the concrete rivers of the massive State and Central Valley water projects. In Fresno County between January and April, 226 well drilling permits were issued compared to just 69 during the same period last year – prompting some to fear irreparable damage to aquifers.

In the daytime, signs planted in desiccated orchards come into view, declaring: "Congress created Dust Bowl" and "Man-made Drought," expressing the widely believed myth that regulations to protect endangered fish in the Sacramento-San Joaquin Delta are responsible for water shortages on Central Valley farms.

In February, House Republican David Valadao proposed lifting endangered species protections and invalidating the federal mandate to restore the San Joaquin River, so that pumping from the Delta to the Central Valley could be increased. In March, Democratic Sens. Dianne Feinstein and Barbara Boxer sought more "flexibility" to transfer water from wetter northern regions to the south's water-starved farms and cities, and to expand Shasta Lake, California's largest reservoir, for storing more water. Just last week, five Central Valley water agencies announced their own audacious plan to overcome the drought: Fill the California Aqueduct with groundwater and reverse its normal flow along one roughly 50-mile section in order to deliver moisture to the valley's bone-dry western edge.

In California, the worst political sin during times of extreme aridness is the appearance of idleness. But while politicians maneuver for temporary engineering fixes and regulatory rollbacks, other Westerners argue that the old solutions to water scarcity won't end the current crisis, or protect us from future ones.

Water expert Peter Gleick says California and the West have reached "peak water," with more water promised to farms and cities than mountains and rivers can provide. Worse, the region could fall into a "megadrought," lasting decades or centuries. Bigger reservoirs and new wells will bring no relief without an adequate water supply. Which raises the question: Will California take realistic measures to deal with its water crisis, or succumb to political inertia and lack of rain?

**The last decade's** unrelenting droughts have forced Westerners to re-evaluate the definition of a "normal" water supply. Lynn Ingram, a University of California earth science professor and author of *The West Without Water*, didn't have to look far to find major periods of aridity in the past. There was the 1930s Dust Bowl, and the 1976 to '77 drought, known in California as the "year of no rain." And yet, as economically and socially damaging as these events were, we have not witnessed the worst possible extremes – not by a long shot, says Ingram. The mid-Holocene drought, for example, persisted for 1,500 years, forcing vast migrations of Native peoples.

Add climate change to the risk of natural megadrought, and the future looks even bleaker. "The data shows that there are certainly periods of dryness that were longer and more intense than what we have in our 100 years of records," says Elissa Lynn, program manager of the Climate Change Adaptation team at California's Department of Water Resources. "The problem is that today it's hotter than it was in those periods – and that will exacerbate any drought problems we have."

Lynn points out that the state's snowpack, the source of about one-third of its water, is expected to decline by 48 to 65 percent this century. Already, it has dropped by 10 percent over 20 years. In early May, the water stored in remaining snowpack was just 18 percent of average. "We have to start making plans for its loss," Lynn says.

The White House's National Climate Assessment, released this month, reinforces that mandate. According to the report, temperature increases resulting from carbon pollution have played a large role in the snowline's rapid retreat. Rising temperatures and shrinking water supplies are a double blow for farms: "The combination of a longer frost-free season, less frequent cold air outbreaks, and more frequent heat waves ... increases agricultural water consumption," the report says. "This combination of climate changes is projected to continue and intensify."

Ingram says California and most of the West have entered an era in which water shortages can't be solved through brute-force engineering. "We need to acknowledge how unreliable and uncertain our water supply is. It looks variable over a century. But if you go back in time, it's even more variable. And that's a little scary," she says. "You can build bigger reservoirs, but if we're heading into a drier period, you're not going to have the water to fill them."

She has some practical advice: "We need to be thinking about local efficiency – the use of wastewater recycling and rainwater harvesting," she says. And in agricultural regions where the bulk of the state's water is consumed, efficiency and groundwater monitoring must be priorities. (California doesn't regulate groundwater pumping, and the more aquifers are depleted, the less they can be leaned on during future droughts.)

Lynn of the Department of Water Resources agrees, pointing out that reduced snowpack and earlier snowmelt will force water managers to take a "portfolio" approach – diversifying water supplies, increasing water conservation and recycling, and devising new storage methods, like banking water in aquifers in wet years, rather than in reservoirs.

The drought currently ravaging California is, indeed, partly "man-made." But those responsible for "making" the drought are not politicians or regulators with soft spots for endangered fish. This drought, while natural in some sense, has likely been intensified by anyone who puts gasoline in a car, flips a light switch powered by coal- or gas-burning power plants – or turns on a faucet. In California, an estimated one-fifth of overall energy is expended moving water to places it doesn't naturally flow. To a greater or lesser extent, we are all to blame.