California Drought Threatens Food Supply

by Patrick Ruckert

Sept. 5—The drought in the Southwest and Western sections of the United States, notably California, has increasingly been the subject of national media attention in recent weeks. Rightfully so, since the 12 states affected produce one-third of the country's beef cattle, and over one-half of its fruit, vegetables, and winter wheat. This drought is an existential threat to the nation's food supply.

This article reports on both the drought's effects and the solutions.

The planet we live on is unique in our Solar System, since it has life. Life, the biosphere, was the most powerful force shaping the geology of our planet, up until the development of a new, more powerful capability: mankind. With man, the shaping of the geology, and the biosphere itself, is governed by his scientific thought, culture, and the sharing of ideas. While the biosphere largely created the climate and the Earth's water cycle of evaporation and precipitation, man does what nature cannot do: direct the flows of water with conscious intent. Solutions are therefore possible.

'Exceptional Drought'

Figures 1-2 show the growing intensity of the drought over just this past year (the darker the color, the more intense the drought).

The U.S. Drought Monitor classifies drought in five categories. The most intense category is "exceptional drought," which now covers 58% of California; 80% of the state is in "extreme drought," the second-highest category. Not until this year had California ever had even 1% of the state in the "exceptional drought" category.

In July, when the "exceptional drought" category leaped from 36% to 58%, hysteria erupted throughout the state. The media ran headlines such as: "Doomsday trigger for mega-drought in California"; "California's drought just got absolutely terrifying"; "California drought: We may have to migrate people."

California is in the third year of the drought that has so far idled more than 500,000 acres of farmland in the Central Valley, putting about 20,000 people out of work. The Central Valley is 400 miles long and 100 miles wide, stretching from north of Sacramento to just north of Los Angeles. It is the most productive agricultural area in the world.

Water is already being rationed in some areas, and this will rapidly spread to other areas of the state. Last week, the wells ran dry in East Porterville, near Bakersfield, leaving 300 homes without running water and no way to replace the dried-up wells.

There is only a one-year supply of water in the state's reservoirs, and without a decent rain and snowfall this coming Winter, they will be empty by next Summer, leaving 38 million people desperate for water. The forecast for this coming Winter is that there may be very little

FIGURE 1
California Drought Sept. 3, 2013

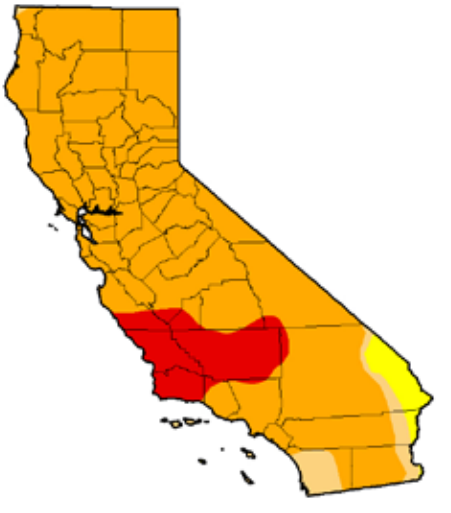
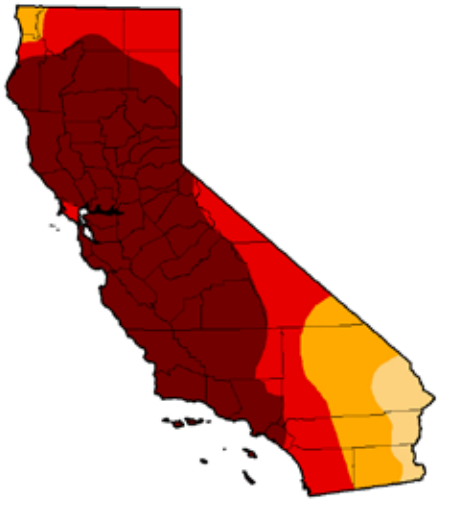


FIGURE 2
Sept. 2, 2014



California Department of Water Sources

Folsom Dam and Lake in Northern California in 2011 and 2014.

precipitation. The state's two major Federal and state water projects, have, for the first time in their 70- and 50-year history, respectively, declared that there will be *zero water deliveries this year, to anyone*. Tens of thousands of acres of fruit and nut trees have died or been uprooted because there is no water to keep them alive.

That is what you can see. What is worse is what you cannot see.

Groundwater pumped from wells normally provides 30% of the water used in California. This year it is nearing 70%, as the surface water disappears. The aquifers are being drawn down at an alarming rate, with wells running dry all over the state. In some areas, the water table is falling as much as two feet per week. If you need a well drilled or deepened now, you are out of luck, since drillers are booked solid for the next two years. Desperate for water, farmers are paying over $2,000 per acre foot for water that sold three years ago for $200—if they can find it at all.

As farmers will tell you, while the crops that were planted this year generally were healthy, the moisture in the soil is becoming so depleted, that even if there were a virtual deluge of rain this Winter, next year's crops will be devastated. Some crops this Summer were almost complete failures. Cherries, for example, saw a 90% decline in production compared to last year.

The political elites and those water managers who do not want to rock the boat, are saying that all we can do is pray for rain and conserve. But, if you have no water, then there is nothing to conserve.

Megadrought

Looking at the climate of this area over the last 2,000 years, most of that period has seen a series of megadroughts, lasting 10, 20, 50, or 100 years each. Only the past 150 years or so have been relatively wet and mild—that is, since California began to be settled, and all its water infrastructure was built. We may be now returning to the historic climate that has dominated the past 2,000 years—megadroughts. We are now in the third year of a drought that is the worst in more than 100 years, and we may be in one that will last decades.

A forthcoming study[1] by researchers from Cornell University, the University of Arizona, and the U.S. Geological Survey suggests that the risk of a decade-long megadrought this century could be as high as 80% in the southwestern United States, and the chance of a megadrought of more than 30 years is 50%. The forecasts are based on computer simulations and paleoclimate data. "I am not trying to say this is imminent," said Toby Ault, the lead author of the study, "but the risk is high."

The best report on climate history is *The West Without Water*, by B. Lynn Ingram and Frances Malamud-Roam, which was reviewed in *EIR*'s May 9, 2014 issue.

Solutions

Lyndon LaRouche has charged that the collapse of the global financial system created the disaster exemplified by the failure to take the measures that could prevent such devastating droughts and even the mass starvation of the American people. The United States must join with the BRICS nations in creating a new global economic system that is based on real value—the creation and production of the physical necessities

1. Toby R. Ault et al., "Assessing the Risk of Persistent Drought Using Climate Model Simulations and Paleoclimate Data," *Journal of Climate*, September 2014.

that any civilization must secure to itself.

Mankind has always moved water to where it was needed. But today, we must do more than that. In the past we created water-management systems—dams, aqueducts, canals, and irrigation systems. In the future we must manage the water cycle itself.

In the 1930s, President Franklin D. Roosevelt built the Tennessee Valley Authority and the Grand Coulee Dam in Washington State, putting entire river systems under man's control in both projects.

Also in the 1930s, and then, in the 1960s, first Roosevelt, and then Gov. Pat Brown of California built the California Water Management System (**Figure 3**), incorporating not just one river system, but all the rivers of the Southwest United States—the Sacramento, the San Joaquin, and Colorado river systems. The California system today provides water for 38 million people and irrigates millions of acres of farmland. Completed in 1972, this system is still the largest and most complex water-management system in the world. Since its completion, however, there has been virtually no additional water infrastructure built to expand it, despite the fact that the population of the state has increased by 18 million. That is why the affects of the drought are so devastating today.

FIGURE 3
The Bay-Delta Watershed and Major Water Projects California Water Management System

As the California system was being built in the 1960s, the next project proposed was the North American Water and Power Alliance (NAWAPA), a continental water-management system. *EIR* has promoted the revival of that project for decades.

More recently, we have come to understand that we have to think much bigger than managing a mere continental water system. We have to think on the scale of the Solar System, since processes there, such as solar activity, have dramatic effects on water availability, climate, and weather here on Earth. We cannot assume that the distribution of precipitation and flowing water on the planet will remain the way it is today. When we look back at the historical record, we find dramatic changes in climate and weather caused by changes in the solar cycle—not man's production of CO_2, as the greenies claim. Such changes will occur in the future. It is possible, that in the 20-plus years required to build NAWAPA, we may find that the water that is in the Northwest now may no longer be available.

Yet, the need to address the current drought is so urgent that we must do something now. That something is to finally carry out what President John Kennedy had not only planned to do, but had begun to do: build nuclear-powered desalination plants up and down the coasts of California and Texas. In 1963, Kennedy created a task force to plan such a program. In 1964, the Metropolitan Water District of Southern California signed a contract with the Atomic Energy Commission to design and build the first such unit, which would be on-line by 1970.

Today, we need about 100 such complexes to ensure abundant water for California and the Southwest generally. Think of the leap in energy-flux density such a building program would produce for the entire economy, in addition to putting millions of people to work productively at high-skilled jobs and high pay.

There is one desalination plant now under construc-

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The desalination plant under construction at Carlsbad, California.

tion near San Diego, to be completed late next year. While it is not powered by the best form of producing electricity—nuclear—but by natural gas, this plant will provide 53 million gallons of water per day to San Diego, and will be the largest desalination plant in the Western Hemisphere. That may sound like a lot of water, but it is only 7% of the daily water consumption of San Diego!

Building nuclear-powered desalination plants is just the first level of solving the long-term water needs of the West.

As Ben Deniston has reported in the LaRouchePAC Weekly Reports on larouchepac.com, only nuclear fusion, and its tremendous increase in energy-flux density, will give us the quantity and quality of power required to give mankind the potential to control and shape the weather itself; to determine where rain shall fall and when; to create our own water cycles; for man to do what only the Sun does now.

The idea of progress must once again be our policy if our civilization is to survive and flourish. We shall go from managing river systems to managing more and more the actual physical processes of the planet itself. That is a big step toward what mankind's destiny must be: managing the Solar System, demonstrating that man is the metric of the universe.