

California Drought Update

For March 17, 2016
by Patrick Ruckert

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A Note To Readers

Mid-March and all is wet. At least it was for a few days. Following four days of downpours that ended last weekend, those who mistake appearances for reality began jumping up and down, shouting that the drought was over. “The reservoirs are filling,” headlines read, and the question of now ending the rationing was even raised.

So, where do we stand in regard to the drought. As you can see in the chart reproduced below from the U.S. Drought Monitor, 93 percent of the state is still in at least moderate drought, and about 35 percent remains in drought of the most serious category-- exceptional drought. While the two largest reservoirs in the state are now at the average level for this time of the year, all of the other reservoirs remain well below that level. The snowpack in the Sierras, after falling in February, are back to normal or average depth for this date of the year. Ground water levels remain strained. And as the climatologists and water managers keep reminding us, to break this drought requires the snowpack and precipitation levels generally to be at 150 percent of average for the year. Not only that, but well above average levels of precipitation is required for between three and five years in a row. To top it off, warnings of an oncoming La Nina have been raised. La Nina frequently produces drought conditions for California. There is more on this below.

Yet, even with the Sacramento River pouring billions of gallons of water into the Delta, very little is being sent to storage yet. This has even brought Senator Feinstein out to complain about such waste. Without water sent to storage south of the Delta, there will continue little or no water sent to Valley farmers and to Southern California.

All of the above is covered in more detail below, following part IV of our economics series.

Feinstein won't say it, and definitely would not lead it, but we need a damn political revolution. Not from the likes of Trump, Sanders or Clinton, who all are just the gladiators sent out for you to cheer for as the nation disintegrates after 40-plus years of un-American economic policy.

As stated in a March 16 post by *LaRouche PAC*:

The U.S. economy is hopeless, and nothing short of a total shift in policy—away from the belief in money over human creativity—can avoid total destruction. There can be no economic revival or even survival under the present policies. It is a miracle that the United States still even exists at this point,

since there are no mechanisms to save the economy.... There are two irreconcilable concepts of economy. There is the British-Wall Street concept of money, money, money. Money per se has nothing to do with real value. The alternative system, the Hamiltonian System that FDR understood and carried out, rejects money, rejects Wall Street. It is based on human discoveries that translate into scientific and technological advances that create real wealth and advance mankind's growth. President Franklin Delano Roosevelt had the concepts, and put those concepts into practice as President—until the FBI and the Republicans shut down the Roosevelt program even before FDR's untimely death. No system built on money and finance can work, and that was what FDR understood.

The full item is here: “Face Reality: The Trans-Atlantic Is Doomed, the Future of Man Lies in Eurasia.” larouchepac.com/20160317/face-reality-trans-atlantic-doomed-future-man-lies-eurasia

Roosevelt! That leads us to Part IV of our series on real economics.

Real Economics-- Part IV

The Rural Electrification Administration

Real economics means real physical transformations of nature by mankind's creative powers, resulting in a real uplifting of living standards and increasing the power of mankind to do even more. The Rural Electrification Administration program, created by President Roosevelt in 1936, is one of the best demonstrations of this principle .

Two years after his inauguration, in 1935, President Franklin D. Roosevelt unleashed a program that would change agriculture in the United States forever. That program was the Rural Electrification Administration (REA). The three previous years were used by FDR to begin the most massive infrastructure building program in U. S. history, focused on water projects and electricity production. To fund these projects, FDR used Hamiltonian-type credit with agencies such as The Reconstruction Finance Corporation (RFC).

Now, with massive amounts of electricity production coming on line, FDR said it was time to furnish electricity to every home, business and farm of the nation. That remained the U.S. government policy until the 1990s deregulation binge, which gave us Enron and other crimes.

The following is from my report, “***The Fight to Build the Grand Coulee Dam and the Economic Revolution that Transformed the Nation.***” <http://www.californiadroughtupdate.org/2015/08/11/the-fight-to-build-the-grand-coulee-dam-and-the-economic-revolution-that-transformed-the-nation/>

Let's look at the Rural Electrification Administration (REA) to see how this policy actually transformed the nation, rapidly increased its productivity and brought millions of farm families out of an essentially peasant existence. In 1935, outside of tractors and combines, life on the farm was no different than it had been 100 years before. In that year 90% of the farms in the US had no electricity. Compared to other nations that was a shocking statistic. France, then, had electrified 95% of its farms; it was 90% in Japan; 85 % in Denmark; etc. Those nations had governments that had programs to make it happen.

Why so low in the US? Because the private power companies would not run the lines to rural areas unless the farmer paid the entire cost (at \$1,500 per mile) and paid a rate based on distance from the power source. That would be \$1000s per farm-- in 1935, when most farm families had an annual income of a few hundred dollars. The municipal systems could not do it by law.

In truth, the private power companies didn't give a damn; they would not build the dams, and they would not run the lines. Outrageously, in July, 1935 a group of utility company executives wrote a report in which they claimed, *“that there were very few farms requiring electricity for major farm operations that are not now served.”*

I want you to think about life on the farm in 1935, without electricity. Life and work for most rural Americans in the 1930s was fixed in a cycle of hardship and drudgery. They lived and worked in a dark and powerless land.

No running water in the house or barn. No flush toilet. Water was pumped by hand and hauled to where it was needed. The average farm family spent 240 hours per year pumping and hauling water.

No electrical machinery: saws, grinding wheels, pumps, milking machines, and dozens of other tools.

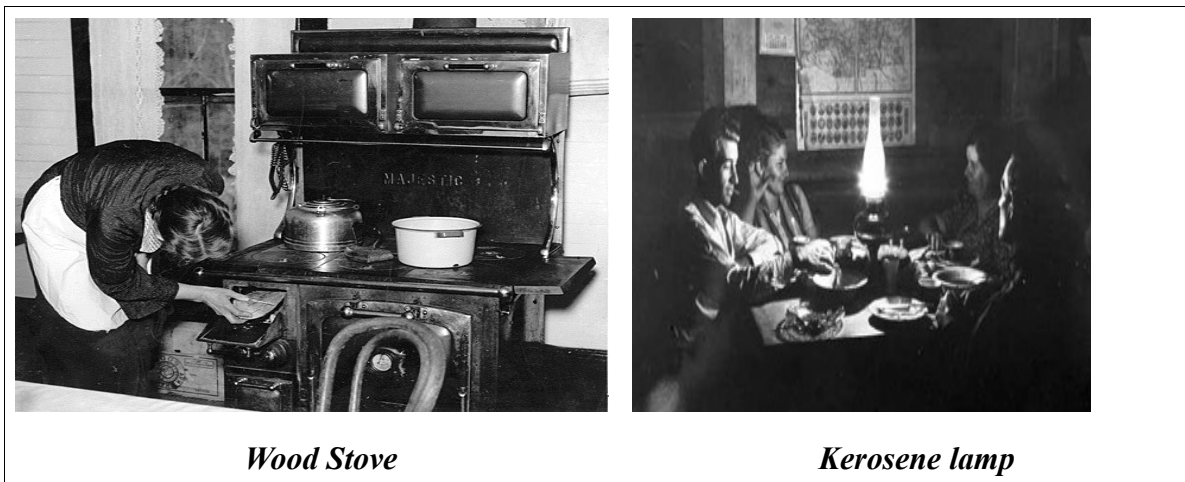
No refrigeration for food and milk production. The typical dairy farmer would regularly lose a portion of his milk to spoilage.

No washing machines. The farm wife would wash clothes with a scrub board.



The Scrub Board

No electrical appliances, like stoves, irons and hot water heaters. Wood stoves for cooking and heat were the norm, which meant many hours chopping wood. No lighting in the house or barn.



Wood Stove

Kerosene lamp

Beginning in 1935, FDR created the Rural Electrification Administration(REA), which became law in 1936. Immediately the country side began to light up. Farmers would get together and form a COOP.

The COOP would apply to the REA for a loan to pay for not only running the lines to the farms and hooking them up to a power source, but also to buy appliances and machinery to use the electricity. The REA charged the COOPs 2% interest. More than \$410 million was lent in the first ten years, with the funds coming from the RFC. Within five years, 30% of the farms had electricity. By 1952, it was 90%, and by 1960, it was 99%. This was the most successful and massive electrification project anywhere in the world. The REA got every penny it loaned to the COOPs back, plus some. Over 98% of the loans were repaid.

Back to the battle. The private power companies did everything they could to sabotage the REA program. They waged court battles, tried to bribe farmers by hooking a few up and making it impossible to form a COOP in the area. They even sent crews out to tear down COOP lines and poles.

In Washington State alone, the private power companies in the 1930s spent over \$1 million attempting to stop not only the REA, but also the Public Utility Districts that counties would create, which were the rural equivalent to municipal systems. How? The same way Wall Street got Glass-Steagall repealed: outright bribery, election manipulation, campaign contributions, and media campaigns stressing that public power was a socialist or communist idea.

What the REA Accomplished

What did the REA accomplish for the economy, in addition to bringing millions of farm families into the 20th Century?

Farm productivity leaped. Hundreds of hours spent hauling water, chopping wood, milking by hand, etc. now were used to plant and harvest crops. Tens of thousands of appliances were purchased by farmers produced by private industries, thus aiding the economic recovery. The REA used fairs, extension agents and other means to teach the farmers the more than 200 uses of electricity on the farm.

Just to name a few: motors for multiple tasks, refrigeration for milk, poultry lighting, electric fencing, feed grinders, water pumps for the buildings and irrigation, grain elevators, grain grinders, milking machines, wood saws; tool grinders, and the list goes on.



Modern Washing Machine-- 1940



The farm kitchen after electrification



The Farmer's First Radio

Imagine a rural school house with no electricity; or small towns with no lights; or gas stations with hand pumps. All these now were electrified.

The REA engineers lowered the cost of stringing lines to below \$1,000 per mile, and developed entire new technologies to increase the efficiency of entire systems.

It freed up manpower from farm work that was especially critical as the United States went into World War II. These farm boys entered the military and the industries producing the war materials. The increased farm productivity provided the food not only for the US military, but for half of Europe.

In Tennessee, a farmer who got his lights in the early 1940s, rose the next Sunday at church to bear witness: ***“Brothers and sisters, I want to tell you this. The greatest thing on earth is to have the love of God in your heart, and the next greatest thing is to have electricity in your house.”***

A Tale of Two El Ninos

Charles Dickens' novel, “A Tale of Two Cities,” is brought to mind as we look at the affects of this

year's El Niño. The story of London and Paris at the time of the French Revolution, one city calm and the other in chaos, can be the story of Northern and Southern California this winter, so far. Steve Scauzillo in the *San Gabriel Valley Tribune* on March 14, under the headline, "Why El Niño is 'out of time' to save Southern California from drought," tells this story. As for what will happen the rest of March? Well the climatologists disagree, as you can read below.

<http://www.dailynews.com/environment-and-nature/20160314/why-el-nino-is-out-of-time-to-save-southern-california-from-drought>

In Northern California, the weather phenomenon has delivered above normal rain and snow this winter. Not so in Southern California, where rainfall is only half of normal for downtown Los Angeles.

"Once you get past April 1, the amount of rain we get on average decreases remarkably," said Ken Clark, expert meteorologist with AccuWeather.com in Southern California. "We are basically out of time to get back to normal (precipitation), that is, unless something really weird happens."

While Clark came close to predicting a fifth drought year for Southern California; others are saying not so fast.

"Don't throw El Niño under the bus until the end of April," said Bill Patzert, climatologist with NASA's Jet Propulsion Laboratory in La Cañada Flintridge.

This El Niño did not behave like most large El Niños. It also got pushed around by a high-pressure ridge that shoved the jet stream to the north, sending what would have been local storms into Northern California, Oregon and Washington.

In six months, Patzert said, Oregon and Washington went from severe drought to near normal.

"Seattle and Portland stole our rain," he said.

This El Niño may have disappointed locally, but up north, it's a hit. Since Oct. 1, precipitation at stations in Northern Sierra, Southern Sierra and the Tulare basin reached 131 percent of average, 115 percent and 109 percent, respectively, according to the state Department of Water Resources.

*Patzert called the creation of high-pressure ridges — like the one bringing dry weather this week — a spoiler. **Yet, even a rainy year would not return reservoirs and groundwater basins to pre-drought levels. That will take four to five years of above average rainfall.***

Clark said the current ridge will break up by Sunday, leaving the door ajar for storms to enter.

"We are not done with rain," he said. "I almost guarantee there will be more rain in March."

How much more? No one knows.

"Don't throw in the towel yet," Patzert said.

People Do Get Excited

Especially after four straight days of heavy rains and snow in the Sierras last week, headlines abounded about how the reservoirs are filling up. But, to quote a statement from the item above to make the point that a full reservoir does not an end of drought make: **Yet, even a rainy year would not return reservoirs and groundwater basins to pre-drought levels. That will take four to five years of above average rainfall.**

So, here is a sampling of the excitement. I include the cautionary notes included in the articles.

The headline from the *Los Angeles Times* on March 15: “El Niño is rapidly filling California's once-dusty reservoirs, easing drought.” From the article:

El Niño may not be showing up in Southern California. But it's having a big effect in Northern California, where a series of storms are rapidly filling reservoirs.

Together the Lake Shasta and Lake Oroville reservoirs have a capacity of more than 8 million acre-feet of water. After a wet weekend in Northern California, Lake Shasta was above its average for this time of year, and by 4 p.m. Monday Lake Oroville had surpassed its historical average, said Department of Water Resources spokesman Doug Carlson.

And you can see the difference some rain makes:



Lake Shasta: 2015 and 2016
Thanks to Shelby Grad for this graphic

Sfgate.com's headline on March 15: “Rain fills reservoirs, but California still suffers drought’s effects.”

But while the wet weather has been good for California, in most places it's still not enough to make up for the damage and the deficits of the prolonged drought.

Lasting ill effects

Many communities remain behind in water storage, groundwater levels are critically low after years of over-pumping, and California's hills and valleys lack the usual moisture for plant and animal life.

“It really is a mixed bag now,” Anderson said. “Farther north has certainly improved, but for the southern half of the state, things continue to be dry, or at least not as wet as they like.

And this is from the *Fresno Bee* on March 14: “Pine Flat, Millerton lakes rise thanks to winter rains.”

By Tim Sheehan

Recent rains have dramatically increased the volume of water flowing into major central Sierra lakes and reservoirs that are vital to San Joaquin Valley farmers and communities.

But the storms so far this winter, including the ones that drenched the Valley and dumped snow in the

mountains over the last week, aren't adding up to enough to end the region's four-year drought.

The *Chico Enterprise-Record* on March 14 also includes an update on the snowpack under this headline: "Lake Oroville passes benchmark, now fuller than average."

DWR also reported Monday that the weekend's storms had pushed snow levels above normal in its Northern Sierra/Trinity Region. Those are the watersheds that flow into Lake Oroville, and Shasta and Trinity lakes.

The snowfall was estimated to be 102 percent of normal for the date, and 100 percent of normal for the April 1 benchmark. There's the equivalent of 28.9 inches of rain stored in that snow, according to DWR's website.

By comparison, on March 14 last year the snowpack was just 12 percent of normal.

The snow situation isn't quite as good statewide, just 92 percent of normal for the date.

The *Sacramento Bee* on March 14 includes a useful perspective on the the state's two largest reservoirs, under this title: "California's biggest reservoirs recover, putting water limits in question."

Over the weekend, the state's largest reservoir, Shasta Lake, surpassed its historic average for this time of year. The second largest, Lake Oroville, hit that mark Monday afternoon before dropping back just below average. It marks the first time since 2013 that the reservoirs have reached their historical averages for this time of year; said Doug Carlson, a spokesman for the Department of Water Resources.

The two reservoirs represent a substantial portion of the state's water supply. The 6.07 million acre-feet of water recorded Sunday in Shasta and Oroville account for more than 40 percent of the total water now stored in California's largest reservoirs. Folsom Lake, a much smaller reservoir, has been at average levels since early February. That in itself was something of a milestone. Two months earlier, Folsom Lake stood at the lowest depth in its 60-year history.

As of Monday, the combined supply at all the state's largest reservoirs was around 78 percent of average, with Shasta, Folsom and Oroville included. Marcus said there's no guarantee enough storms will emerge to bring the entire system up to normal. No rain is forecast for greater Sacramento until Sunday night.

The March 16 *San Mateo Daily Journal* headline reads: "Bay Area reservoirs still far from full: Conservation experts hope that drought lessons last."

Regardless, the SFPUC's reservoir system, which includes eight sites from as far away as the Hetch Hetchy and as nearby as the Crystal Springs reservoirs, is at just 57.5 percent of maximum capacity. Normally this time of year it's at 80.6 percent of maximum capacity — or about 71 percent of normal, according to SFPUC spokesman Tyrone Jue.

Another Year of Little or No Water for Agriculture

Flash: The Department of Water Resources (DWR) announced today that it will increase its water delivery estimate (allocation) for most recipients to 45 percent of requests for the calendar year. The statement in part reads:

DWR's initial State Water Project (SWP) allocation of 10 percent of requests, announced in December, was increased to 15 percent on January 26 and to 30 percent on February 24 after January storms increased the Sierra snowpack and brought significant rainfall to the drought-parched state.

The full statement from the DWR is reported by Maven here:

<http://mavensnotebook.com/2016/03/17/this-just-in-state-water-project-allocation-increased-to-45/>

Some of the media have been covering the billion dollar question. Will the CVP and the SWP be sending water to farmers south of the Delta and to Southern California? Some, but not much. The *Capital Press* has an item by Tim Hearnden on March 14: "March storms in Calif. could boost CVP water deliveries." Some excerpts:

U.S. Bureau of Reclamation spokesman Shane Hunt didn't flinch when asked if the "March Miracle" of abundant rain and snow that many had hoped for is coming to fruition.

He responded by noting that the agency's eight weather stations along the Sacramento River in Northern California had received their average precipitation for the month by about March 9.

"It's changed so significantly from the first of the month," Hunt said of the state's water outlook. He noted that Shasta Lake, the centerpiece of the federal Central Valley Project, had an inflow of 325,000 acre-feet just in the first 10 days of March.

In the San Joaquin Valley, growers are becoming more confident they'll get at least some federal water for the first time in three years, as some estimates have put the amount of agricultural water south of the Sacramento-San Joaquin River Delta at 15 percent.

The early March deluge throughout the state broke precipitation levels in some areas and pushed the statewide snow water content, which had been 80 percent of normal at the beginning of the month, to 88 percent of normal as of March 14, according to the state Department of Water Resources.

The Central Valley Project typically makes its initial allocations to cities, farms and other entities in late February, but hydrologists and other officials have said the March weather could have a significant impact on how much water they'll be able to deliver this spring and summer.

A formal announcement could be made in the last week of March. As many growers need to know how much water they'll have so they can make planting decisions....

Farmers have no doubt that they will get very little water this year, as this radio interview from *KVPR* —*NPR for Central Valley* on March 16 demonstrates: "Despite Rain, California Farmers Fear Another Zero Water Allocation."

<http://kvpr.org/post/despite-rain-california-farmers-fear-another-zero-water-allocation>

California reservoirs are filling up and the snow pack in the Sierra Nevada is larger than at any point in this four-year drought. Even still FM89's Ezra David Romero reports all that precipitation may not

mean more water for some growers.

Firebaugh farmer [Joe Del Bosque](#) is worried that despite all the rain and snow the state's received so far this year that he might get a zero percent water allocation for a third year in a row.

DEL BOSQUE: "Water agency guys think it will come out zero and then maybe by some miracle we could get a little bit later in the year. But we don't anticipate very much. Maybe it'll go to 10 percent."

Del Bosque waters his cantaloupe and vegetable operation almost entirely on water from the Central Valley Project. Without water flowing down the Delta-Mendota Canal he'd have to fallow even more of his 2,000 acre farm.

DEL BOSQUE: "I intend to fallow probably about 40 percent of my farm. And the only reason I'm able to farm anything is because we bought some very expensive water last year."

The Central Valley Project supplies farmers on both the east and west sides of the San Joaquin Valley. CVP growers expect to learn their actual water allocations in the coming weeks. The State Water Project customers can expect to get about 30 percent of their allotted water this year.

The *California Farm Bureau* article of March 16, summarizes the growing anger. "Loss of water during storms causes frustration," is the title of the article by Kate Campbell. The entire article is a good read. <http://www.agalert.com/story/?id=9443>

By Monday night, Sacramento River flows were expected to exceed 100,000 cubic feet per second—equal to dumping about 750,000 gallons of water per second into San Francisco Bay.

Though encouraged by storage increases in Northern California reservoirs, water experts noted that very little water was being transferred from the Sacramento-San Joaquin Delta into storage south of the delta for use during the summer and fall. They cited federal agency interpretations of Endangered Species Act restrictions to protect delta smelt as the cause.

San Luis Reservoir in western Merced County, on which south-of-delta farmers rely for summer irrigation, is beginning to accept Central Valley Project water, but it's a trickle. Operational levels have remained well below full, allowable pump capacity in the face of last week's deluge.

Even Senator Dianne Feinstein has joined the chorus of protest with a statement from her office on March 11: <http://mavensnotebook.com/2016/03/11/this-just-in-feinstein-calls-for-increased-pumping-to-capture-water-from-march-storms/>

She even attacks the competence of those making the decision not to pump water to the reservoirs. Here are some excerpts from her statement:

"Between January 1 and March 6 last year, 1.3 million acre feet of water flowed through the Delta and 651,000 acre feet were pumped out. During the same period this year, 2.8 million acre feet of water flowed through the Delta, but only 627,000 acre feet were pumped out.

"Pumping less water even though river flows more than doubled means 180,000 to 200,000 acre-feet of water was allowed to flow out to the sea instead of being captured and stored—enough water to supply 360,000 homes for a year. It's inexcusable that pumping levels have been reduced without sufficient evidence of fish mortality, even while biological opinions would allow more pumping.

"January flows topped 50,000 cubic feet per second and peaked again in mid-February above 42,000 cubic feet per second. But rather than pumping as much water as possible under the biological opinions, pumping levels were ratcheted down for an entire month between mid-January and mid-

February.

“In some instances these decisions were made even though available data suggested no smelt or salmon were anywhere near the pumps. I agree that pumping should be curtailed when these species are near the pumps, but in many cases the evidence simply didn’t support that conclusion. In other cases, adult smelt were spotted as far as 17 miles from pumps, which led to reduced pumping levels.

The Fresno Bee joins in with this article, “As rain falls in California, tensions rise over who gets the water,” on March 11. <http://www.fresnobee.com/news/state/california/water-and-drought/article65605112.html>

Some excerpts:

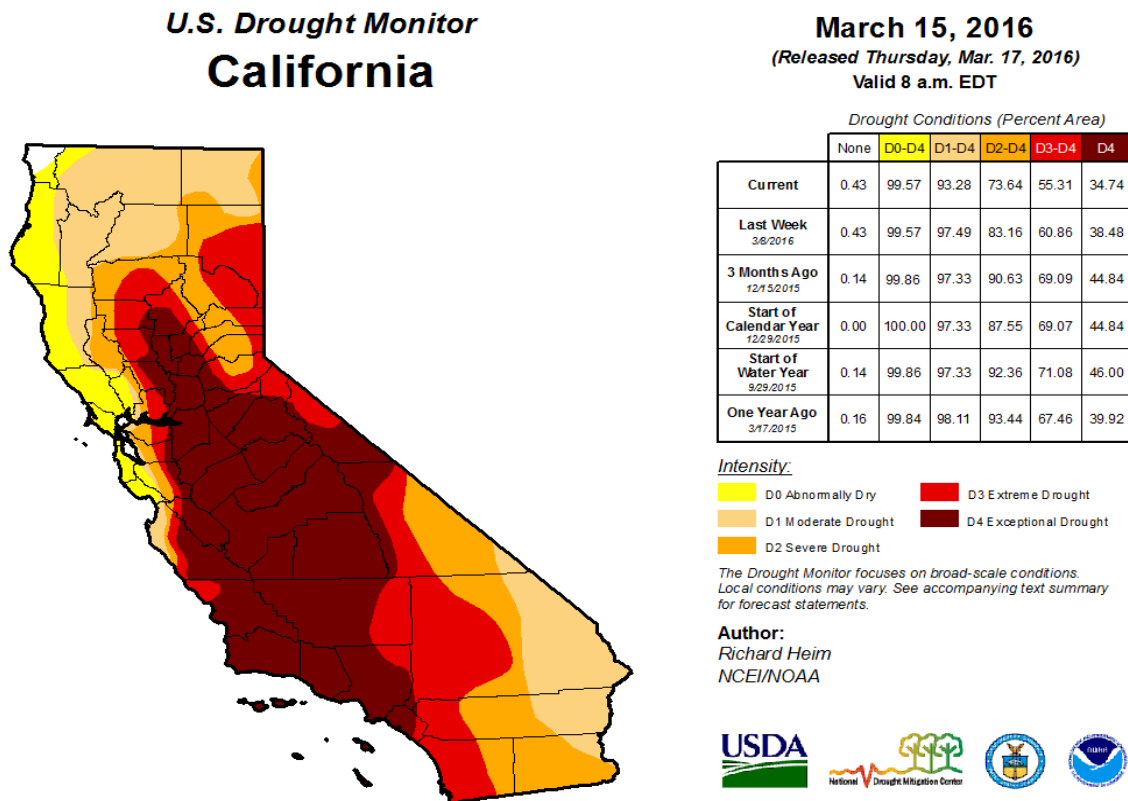
Given the recent storms, there is 10 times as much water flowing out of the Delta to San Francisco Bay compared with a year ago, according to the Bureau of Reclamation. But flow alone doesn’t determine how much water gets pumped.

The bureau is subject to rulings issued by government biologists on how much water can be pumped and when. Those rulings are based on a variety of factors, including water quality, temperature, recent fish counts and where various fish species are in relation to the pumps. The decisions they make with regard to pumping are binding under Endangered Species Act rulings.

“We’re pumping as much as we legally can,” said bureau spokesman Shane Hunt.

Now the Drought Monitor and the Reservoirs

The chart from the U.S. Drought Monitor is self-explanatory. You can use it to explain things to others.



<http://droughtmonitor.unl.edu/>

As for the reservoirs: The two largest in the state, Shasta and Oroville are just above the 100 percent of the average level for this date of the year, with Shasta at 110 percent and Oroville at 105 percent. The other important figure is capacity. Shasta is at 85 percent of capacity and Oroville is at 77 percent. These two reservoirs have a total capacity of 8,100,000 acre-feet.

Folsom, which at a capacity of 977,000 acre-feet (one of the smaller reservoirs) is at 117 percent of average, and at 70 percent of capacity.

Now, it goes downhill. Trinity, New Melones, Don Pedro, Exchequer, San Luis, Millerton, Pine Flat, Perris and Castaic, with a total capacity of another 14,650,000 acre-feet, are all about 50 percent of average for this date of the year, and well below 50 percent of capacity.

The Colorado: Ignored but Not Forgotten

I have ignored the situation with the Colorado River for some time. This is a good article to remind us all that that river provides more than one million acre-feet of water to the state each year. It is from *pe.com*, published on March 11. The entire article is worth pursuing. Some excerpts follow. <http://www.pe.com/articles/water-796805-river-colorado.html>

ENVIRONMENT: Worries rising as Colorado River water runs low

By Aaron Orlowski

For the past five years, as the drought drained California's water sources and depleted its reservoirs, Southern California water managers have relied increasingly on the region's largest out-of-state water source: the Colorado River.

The river feeds the 242-mile Colorado River Aqueduct, which ends at Lake Mathews in Riverside County. The aqueduct is managed by the Metropolitan Water District of Los Angeles, a wholesaler that supplies 1.2 million acre-feet of Colorado River water to the Inland region and beyond.

But the Colorado River Basin is suffering its own drought, now in its 16th year, and flows on the river are at the lowest they have been in a century of record-keeping.

If the Lake Mead reservoir on the river sinks much more, a shortage condition would be declared and deliveries will be reduced.

"Shortages are coming. It's really not a question of if, but when," said Bill Hasencamp, manager of Colorado River water resources for Metropolitan Water District, which supplies water for 19 million people in Southern California. "Is there a way to collectively live within our lower needs?"

Toward the end of the river's run, along the Arizona-California border, the aqueduct with two reservoirs and five pumping stations diverts water to the Coachella and Imperial valleys and elsewhere in Southern California. In years such as 2014, when northern supplies are cut back and the State Water Project delivers as little as 5 percent of requested water, the Colorado River makes up the lion's share of deliveries.

For 16 years, drought has wracked the river system. Water managers forecast an 18 percent chance a shortage will be declared in 2017, which will yank back supplies for Arizona and Nevada. Those odds rise to 52 percent in 2018 and even higher for 2019.