

California Drought Update

For February 25, 2016
by Patrick Ruckert

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A Note To Readers

The reports below, I believe, blow away the last great hope that this El Nino would significantly put a big dent in the California drought that is now half-way through its fifth year (the water year begins on October 1). In fact, a little dent, an almost imperceptible dent is what we have been given, and that is what we are likely to end up with as the “rainy season” ends a little more than a month from now. The sunny warm weather, that has characterized February, is forecast to continue through most of March. But, some still hold out hope for a March miracle, as you will read below.

The good news, reported below, is that the first nuclear-powered desalination system is to be build in California, and will begin to deliver water by 2017.

The state-wide initiative, which I will cover next week or the week after, that proposes to shift funds from Gerry Brown's high-speed rail project to water projects, does little to address the real problem. Only a fundamental shift in the entire financial/economic system, as I have often written, will do that. Immediately below is part one of a series on real economics. We used to understand that building the future through investment in the real economy was what we must do. Now is the time to return to that policy.

Real Economics: Part I

Last week my “note to readers,” featured Kesha Rogers of LaRouche PAC quoting from Krafft Ehrlicke's *Anthropology of Astronautics*, in which he outlined his three fundamental laws:

- 1. Nobody and nothing under the natural laws of this universe [can] impose any limitations on man, except man himself.*
- 2. Not only the Earth, but the entire Solar System, and as much of the universe as he can reach under the laws of nature, are man's rightful field of activity.*
- 3. By expanding throughout the universe, man fulfills his destiny as an element of life, endowed with the power of reason and the wisdom of the moral law within himself.*

It is from that standpoint that the California water crisis, and all other crises facing the nation and the world today must be approached. This week, I want to begin to present some principles of economics. For if one is not clear about the foundations of economic policy, one cannot reverse the 40-year

obscenity that has seen not one major water infrastructure project being built in this state, or much else.

We must be clear, it is a moral issue. That moral issue is the improvement of the powers of the next generations. For only by increasing mankind's power over the universe itself does man create his future.

What follows is based on and quotes from an article by Jason Ross in *Executive Intelligence Review* of August 8, 2014, "Energy-Flux Density: Global Measure of Economic Progress." http://larouchepub.com/eiw/public/2014/eirv41n31-20140808/43-48_4131.pdf

Our subject is real economics-- physical economy. That is the physical transformation of all that surrounds mankind, both the environment around him and the social, political and cultural structures he creates. This is a concept developed by Lyndon LaRouche over the past 60 years, and is the only approach to economics that is valid.

Starting from Fundamentals: Physical Chemistry as the Origin of Economy

Unlike all other life known to us, human beings are able to discover and apply knowledge of the universe and social functions, to fundamentally transform our relationship to nature and to our fellow man. This occurs uniquely through the process of scientific and artistic creative discovery, and through forms of social organization capable of fostering and implementing those discoveries.

A comprehensive standpoint from which to view such progress is that of physical chemistry, from its most humble origins in the use of fire, to the dawn of extractive metallurgy, to the breakthroughs of chemistry proper, to the more modern developments of electromagnetism and nuclear science.

Only human beings have economies, because only human beings change their mode of existence from one generation to the next. The source of these changes, creative discoveries of new scientific and cultural principles, is the heart of economic value, and the proper origin of a science of economics. Against this naturally human development, stands oligarchism, a commitment to keeping the majority of mankind in a virtual state of serfdom or slavery.

The greatest of the sciences, economics, treats as its subject matter, that unique capability of our species to increase its standard of living and transform its relationship to nature and itself. How can economic progress be measured?

Energy-Flux Density: Applying Mankind's Fire

Begin with the first of the gifts of Prometheus, fire, from which he says man "shall learn many arts."

From that point on, mankind could no longer be characterized biologically, or as existing in biological evolution—the evolution of the creative powers of the mind became the determining factor, and biology decreased in importance, relative to the power of thought.

Since then, the kernel of economic growth has been expressed in the control over successively higher forms of "fire." First came increasingly powerful forms of chemical fire: from wood to charcoal, from coal to coke, and on to petroleum and natural gas. The higher types of power not only allowed greater densities of fire-power; they opened up new domains of control and utilization of matter. Metallurgy, materials development, and physical chemistry all developed in dynamic interaction with the

development of new forms of fire.

The revolutionary discoveries of the early 20th Century revealed an immense potential, altogether beyond chemical reactions: the fundamental equivalence of matter and energy, as expressed in the domains of fission, fusion, and matter-antimatter reactions. Each in this series of relativistic reactions (reflecting the Einsteinian equivalence between mass and energy) operates at successively higher energy densities, and the entire set is orders of magnitude beyond the entire successive set of chemical reactions. While this distinction is usefully expressed in the immense difference between the quantity of energy released in nuclear as compared to chemical reactions (expressing weapons in terms of kilotons or megatons of TNT), the measured quantitative difference is an effect of a qualitatively distinct, higher domain of action.

Control over higher energy densities enables the increase in what LaRouche has termed the energy-flux density of the economy, as measured by the density-rate of energy use characteristic of applied technologies, such as the energy concentrated in the beam of a laser used for metal-cutting, compared to a water-mill of the 18th Century. A general value for energy-flux density can be measured as the energy use per person and per unit area of the economy as a whole. This increasing power is associated with qualitative changes throughout the entire society—new technologies, new resources, higher levels of living standard, and, essentially new economies.

Next week: A Global Measure of Economy: Potential Relative Population Density. And I urge you all to read the *LaRouche PAC* report, “The United States Joins the New Silk Road,” for a concrete application of the principles of physical economy. https://larouchepac.com/us-joins-new-silk-road?utm_source=lpac.co

A First: California Begins Nuclear-powered Desalination

As regular readers know, I have long advocated the revival of the program of President John F. Kennedy to build nuclear-powered desalination plants in California and other areas of the nation. See my report: “Nuclear-powered Desalination in California”
<http://www.californiadroughtupdate.org/2015/05/29/nuclear-powered-desalination-in-california-parts-i-iv/>

As reported by the *San Luis Obispo Tribune* on February 23, the San Luis Obispo County supervisors and South County officials have moved to go forward with a project to expand the Diablo Canyon desalination plant to increase production by about 2,000 acre-feet. The article, “Diablo desal expansion, South County sewage recycling get official support,” as reported by David Sneed, states, in part:

San Luis Obispo County supervisors, South County officials agree that two key projects could add help increase water supplies

A wastewater reclamation plant and an expanded Diablo Canyon desalination plant could add 2,000 acre-feet to supplies

County Public Works staff is preparing a feasibility study for the second water project — an expansion of the desalination plant at [Diablo Canyon nuclear power plant](#). By adding more reverse osmosis modules, the plant could produce as much as 1,300 acre-feet of additional water.

A 7-mile pipeline connecting the desalination plant to the Lopez Lake pipeline would also have to be built. The desalinated water could be available as soon as 2017. A report to the Board of Supervisors on the project is scheduled for March 22.

<http://www.sanluisobispo.com/news/local/article62088432.html>



Diablo Canyon nuclear power plant near Avila Beach. (Joe Johnston jjohnston@thetribunenews.com)

This important development, like the opening of the Carlsbad desalination plant in December, 2015, opens the door for more. Another article says as much. The article in the *San Gabriel Valley Tribune* on February 21, “Should desalination play a bigger role in California’s water future?” by Steve Scauzillo tells of the developments in Sacramento on desalination.

<http://www.whittierdailynews.com/environment-and-nature/20160221/should-desalination-play-a-bigger-role-in-californias-water-future>

When it comes to finding new sources of drinking water for residents of a coastal state mired in drought, some say desalination gets little respect in Sacramento.

“Desalination should be a priority,” said Assemblywoman Ling Ling Chang, R-Diamond Bar, who introduced a bill last week that would write first-time goals into the state water code for a percentage of drinking water originating from the ocean.

Chang, who once served on the Walnut Valley Water District board, said she was inspired by Singapore and Australia, which fought their way out of extreme droughts in part by building desalination plants. Following operation last year of the [\\$1 billion Carlsbad desalination plant](#) in San Diego County, the Huntington Beach community is in the final stages of building a 50 million-gallon-per-day plant that may open by 2019, according to the website for Poseidon Water, project developer for both plants.

The Snow, the Snow-- Its Going Away!

As we reported last week, the snow level in the Sierras from a February 1 level of over 100 percent of normal, had shrunk during the first half of February to about 95 percent of normal. It has gotten worse. Two articles highlight this fact. First, from *Capital Public Radio* on February 24, Ed Joyce reports in “Sierra Snowpack Melts With Dry February.” Though, as he reports, the snow level is almost at normal for this time of the year and that means the reservoirs may get a good boost.

http://www.capradio.org/67817?utm_source=feedburner&utm_medium=feed&utm_campaign=Feed%3A+CapitalPublicRadioLatestNewsRSS+%28Capital+Public+Radio%3A+Latest+News+RSS%29

The water content in the statewide Sierra Nevada snowpack has decreased significantly due to dry conditions and record warm temperatures across California in February.

Precipitation in January increased the statewide Sierra [snow water content](#) to 115 percent of normal.

But to date, the snow water content is 92 percent of normal.

"We're pretty much right at normal to start and end the month of February," says Warning Coordination Meteorologist Michelle Mead, with the [National Weather Service in Sacramento](#). "Yes, we've definitely seen some above-average temperatures and obviously some dry weather. But, as far as the snowpack that feeds into the water supply for California, we couldn't be doing any better than we are right now."

Mead says that's because the relative moisture in the snowpack is about normal (95 percent of normal for Feb. 24) in the northern Sierra, where snow melt feeds into California's three largest reservoirs: She says the snowpack "that counts" is at 6,000 feet and above.

"The key is keeping that snowpack at higher elevations in the 90 percent or greater snow water equivalent so we have what we need for spring and summer runoff," Mead says.

But she adds that even a snowpack near normal will not be enough to overcome the past four years of drought.

The second article, “[Even in Super El Nino, California looking for snow](#),” from *mprnews.org* on February 24, by Paul Hunter, makes the point that not much more snow is on the horizon.

<http://blogs.mprnews.org/updraft/2016/02/even-in-super-el-nino-california-looking-for-snow/>

We've often pointed out that not all El Nino events are created equal. The atmospheric effects in any given El Nino winter can vary depending on strength and distribution of warm water in the Pacific. Not to mention other still unknown unknowns about [El Nino southern oscillation](#) cycles.

Still it's a bit surprising to some that California is not doing better with overall snowpack numbers in the Sierras. As of this week, California snowpack is running just 93 percent of average statewide. That's better than previous years but disappointing considering the strength of El Nino this winter.

Reservoirs struggle to recover

California's water reservoirs have started to recover this winter, but still contain far less water than average in most areas. Most of the major California reservoirs are running between 30 percent and 50 percent of historical averages.

Forecast: Dry and drier

The prospects for more rain and mountain snow in California in the next week look slim. Multi-inch rains favor the Ohio Valley, with rain and higher elevation snows in the Pacific Northwest barely grazing far northern California.

From El Nino to La Nina

The theme that El Nino is to be followed by a La Nina and more drought, continues to be a topic getting more and more news coverage. *Sfist.com* on February 19 titled their article, "Is Peak El Niño Behind Us? Potential La Niña Dry Spell Could Extend Drought." This article opens up a new theme: The hope that March will bring precipitation.

[http://sfist.com/2016/02/19/is_peak_el_nino_behind_us_coming_la.php'](http://sfist.com/2016/02/19/is_peak_el_nino_behind_us_coming_la.php)

February has been noticeably dry and April and May should provide more of the same, so "March is key," chief forecaster with the institute Tony Barnston tells the Chron. "That's where we're hoping to make up a lot of ground."

Kqed.com, in addition to discussing the possibility of a La Nina following a dying El Nino, covers some of the affects El Nino has had around the world. The article, "El Niño Weakening, Stage Set for La Niña and Possible Dry Winter Next Year," by Craig Miller on February 18, also quotes from climatologist Michael Mann, who is also known as the infamous Michael Mann, who several years ago, introduced one of the most fraudulent graphics attempting to prove man-caused global warming-- "the hockey stick curve."

<http://ww2.kqed.org/science/2016/02/18/el-nino-weakening-stage-set-for-la-nina-and-possible-dry-winter-next-year/>

Federal climate scientists say the near-record El Niño conditions in the Pacific Ocean have peaked and are slowly waning.

Forecasters now say conditions are likely to flip to their opposite phase, known as [La Niña](#) by late summer or early fall, which could set the stage for another drier-than-normal winter and prolonged drought in California.

Just as the stronger El Niños tend to favor wetter winters in California, the mirror-image La Niña is sometimes a harbinger of drought. Strength is measured by how much ocean waters deviate from their normal temperatures. Warmer waters provide more moisture to brewing Pacific storms, while colder waters tend to dry things out.

"There has been quite a bit that is unusual about this El Niño," Pennsylvania State University climatologist Michael Mann said. "It has actually been somewhat disappointing from the standpoint of California rainfall and snowfall totals."

Rain and snow have been "nowhere close" to what fell during the major El Niño period of 1982-83, and most of the state is now expected to remain in drought through the end of the winter rainy season, Mann said. While mountain snowpacks that store water for the dry season have rebounded from record lows, it's still not enough to offset the arid years.

In India, El Niño also fueled a heat wave that authorities blamed for more than 2,000 deaths, followed by autumn flooding that killed hundreds more in the southern industrial hub of Chennai. In Southeast Asia, it drove an intense summer drought that aggravated Indonesia's forest fire crisis, leaving much of that country and some of its neighbors wreathed in choking haze.

And as it fades, scientists are now looking at whether the Pacific swings into a La Niña phase — El Niño's cooler twin. That pattern typically means drier weather across the southern United States and tropical South America, while bringing more moisture to places like Southeast Asia, Australia, and India. Mann said the odds are good that La Niña will follow in late 2016.

Sfgate.com also reports on the potential of a coming La Nina on February 19, written by Kale Williams. The article, "Waning El Niño could signal state's water woes not over," does not have much new, but here are some excerpts. <http://www.sfgate.com/drought/article/Waning-El-Ni-o-could-signal-state-s-water-woes-6843142.php>

El Niño, as all things must, will be coming to an end over the next couple months, possibly to be replaced by its sister phenomenon, La Niña, which could spell a drier than average summer and fall, a foreboding prospect for a thirsty region suffering through an extended drought.

The surface temperatures in the ocean are expected to remain substantially above average until May, but will decrease steadily through August, with the El Niño effect all but gone by midsummer. Still, despite a nearly bone-dry February, chances of above average precipitation remain for March, but it will have to be a very wet month to do any damage to the drought.

Now For Those Who Are Wishing Upon a Storm

Even Climatologist Bill Patzert, of NASA's Jet Propulsion Laboratory has not given up on this El Nino pulling a ninth inning homer. "No drought buster, but March, April could bring rain," is the title from an article by Cheri Carlson in the *Ventura County Star* on February 19. The article has a useful chart showing this year's rainfall in various Ventura County cities compared to the historic averages for this time of the year. This year's isn't even close to normal.

<http://www.vcstar.com/news/local/no-drought-buster-but-march-april-could-bring-rain-2b5e21c4-9fff-73f6-e053-0100007fd889-369492362.html>

"Everybody had such high hopes for an El Niño year," said Peter Thielke, board president for Senior Canyon Mutual Water Co., a small agency in the east end of the Ojai Valley.

Preliminary rainfall totals by city

	Year to date	Normal to date
Camarillo	3.52	8.52
Fillmore	5.55	12.04
Matilija Canyon	9.33	22.24
Moorpark	4.11	9.17
Ojai	6.77	13.57
Oxnard	4.50	9.23
Port Hueneme	4.02	8.83
Santa Paula	6.47	11.58
Simi Valley	5.12	8.72
Thousand Oaks	4.03	9.99
Ventura	5.72	10.09

Source: [Ventura County Watershed Protection District](#).

Now, "everybody is wondering if this is going to be another bust this year," he said.

But experts say it's not too late. There are still two months to go.

Climatologist Bill Patzert, of NASA's Jet Propulsion Laboratory in Pasadena, said he's still counseling patience and optimism.

The El Niño didn't start to peak until January and February. It might have been too big, pushing the subtropical jet stream farther north. As its intensity decreases, that could change.

The Los Angeles Times says we need a "March Miracle," noting that this El Nino has only delivered half of the normal amount of rain to Los Angeles so far. "Without a 'March miracle,' drought-like conditions will continue in Southern California," was published on February 22, and includes some background on why El Nino has failed. <http://www.latimes.com/local/lanow/la-me-ln-la-rain-february-heat-20160222-story.html>

Though temperatures will cool slightly over the weekend, there is no rain in the forecast for at least the next 10 days, Sweet said.

Though experts predicted that the Pacific warming phenomenon known as El Niño could bring consecutive downpours to Southern California between January and March -- now some say as late as April -- nothing of the sort has occurred since the first week of the year.

That's because a high-pressure system hovering over the Eureka, Calif., area has deflected most of the moisture and cooler temperatures that would flow south to Los Angeles and beyond, Sweet said. To emphasize his point, Sweet pointed out that downtown L.A. has receive only 4.99 inches of rain since Oct. 1. The historical average by the end of February is 10 inches, he said.

This February has also been more than eight degrees warmer than its historical average, Sweet said.

"The current pattern is like [the drought](#) pattern from these last four years," Sweet said. "If March doesn't come through, and April and May are typically drier months, we might be out of time by then."

Southern California needs a "March miracle" to avoid a fifth year of drought-like conditions locally, he said.

But there is a silver lining for Californians, he said. Though the high-pressure system may be blocking storms in Southern California, vital rain and snow is being steered toward the Sierra Nevada, which is seeing its highest snowpack in years.

Drought Monitor and Reservoirs

The U.S. Drought Monitor for February 23 shows no change in the drought conditions for the state. While the northern reservoirs, Trinity, Shasta, Oroville and Folsom show definite increases in their water levels, only Folsom is above the normal for this time of the year. The Central California reservoirs, on the other hand, remain well below normal for this time of the year, reflecting the Drought Board's policy of not allowing water flows to be pumped from the Delta. San Luis Reservoir, for example, is still at only 50 percent of normal.

Water Allocation Announcements

Both the state Department of Water Resources (DWR) and the federal Bureau of Reclamation, who run the California Water Project and the Central Valley Project, respectively, made announcements this week on the projected allocations of water for the year.

“DWR Increases 2016 SWP Allocation Estimate to 30%” is the title of a report from the *Association of California Water Agencies* on February 24, written by Pamela Martineau.

<http://www.acwa.com/news/water-supply-challenges/dwr-increases-2016-swp-allocation-estimate-30>

The announcement by the DWR highlighting the increase of projected allocations from the earlier forecast of 15 percent to 30 percent of that requested by contractors, the DWR is almost estatic. Though they warn that if dry weather persists those allocations could be cut back once again. Most revealing is that the DWR almost brags about not putting water in storage to protect the Delta Smelt.

Winter storms have allowed the California Department of Water Resources to increase its estimated State Water Project water delivery allocation for most recipients to 30% of requests, up from a 15% estimate in late January, DWR announced today.

Officials warn water recipients, however, that extended dry weather could force an allocation reduction and the current remarkably dry February actually limited today's allocation increase.

According to DWR, the 29 public agencies that receive SWP water requested 4,172,786 acre-feet of water for 2016. With today's allocation increase, they will receive 1,268,724 acre-feet. The 30% allocation announced today may be increased if storms bring more rain and snow.

DWR also stressed in its statement that outdated water delivery infrastructure in the Sacramento-San Joaquin Delta affected the new allocation increase. SWP pumping in the Delta has been limited this winter in order to minimize harm to native fish species. DWR estimates that 458,000 acre-feet of water – enough to supply 3.4 million people for a year – could have been captured if the new intakes, tunnels, and operating criteria proposed by California WaterFix had been in place. That project proposal is now undergoing environmental review.

Key reservoirs are rising from early winter storms, but most remain low. Lake Oroville in Butte County, the SWP's principal reservoir, early this morning was holding 1,808,410 acre-feet, 51% of its 3.5 million acre-foot capacity and--74% of its historical average for the date. Shasta Lake north of Redding, California's and the federal Central Valley Project's largest reservoir, was holding 2,690,554 acre-feet, 59% of its 4.5 million acre-foot capacity and 82% of its historical average.

San Luis Reservoir, a critical south-of-Delta pool for both the SWP and CVP, reflects the same trend of lower reservoir storage this year. San Luis was holding 854,623 acre-feet, 42% of its 2 million acre-foot capacity and 50% of normal for the date. Folsom Lake, a CVP reservoir near Sacramento, has risen to 64% of its 977,000 acre-foot capacity, 117% of its historic average for the date. Folsom fills more rapidly than many other reservoirs due to its relatively small size compared with its huge watershed.

Last year's 20% allocation was the second lowest since 1991, when agricultural customers of the SWP got a zero allocation and municipal customers received 30 percent of requests. In 2014, SWP deliveries were 5% of requested amounts for all customers.

The Bureau of Reclamation is not so daring as the DWR. The allocation announcement for waters provided by the Central Valley Project is normally made in the last week of February. Reclamation is delaying its announcement for at least two weeks while they continue to monitor what water will be available in the following months. Below are some excerpts from the article from Capital Press on February 21, written by Tim Hearden. <http://www.capitalpress.com/Water/20160221/feds-consider-initial-cvp-water-allocation-for-farms-cities>

The Central Valley Project typically makes its initial allocations to cities, farms and other entities in late February, but hydrologists and other officials aren't ready to predict how much water they'll be able to deliver this spring and summer, spokesman Louis Moore said.

"They're still formulating all the data," said Moore, deputy public affairs officer in the U.S. Bureau of Reclamation's Mid-Pacific Region office in Sacramento.

Moore and others say it could be one to two weeks before the formulations are complete, at which point they'll determine whether many Central Valley farms will get federal water for the first time in three years.

The federal Climate Prediction Center envisions drier and warmer-than-normal conditions through much of California over the next two weeks except for the North Coast, which could be wet. The agency still expects better-than-usual chances of rainfall in much of the state over the next three months.

The initial CVP allocation is being crafted as the State Water Project recently boosted its allocation from 10 percent to 15 percent of requested deliveries. DWR director Mark Cowin noted that the allocation is still low despite all the rain and snow because the drought isn't over.

The Future of California Farming

High Country News runs an article by Sena Christian on February 22 which discusses not only the future of California farming but also includes important information on California farming as such. Excerpts follow. <http://www.hcn.org/issues/48.3/a-dry-future-weighs-heavy-on-california-agriculture>

A dry future weighs heavy on California agriculture

Something's got to give in Central Valley farming. The only question is what.

Agricultural land stretches out in every direction. Most of the town's 8,300 residents are involved in growing or packing produce. The city is on the west side of the San Joaquin River, an area hit particularly hard by a historic drought, now in its fifth year. Wells have run dry and farm-related jobs are running out. Many other places in the eight counties comprising the San Joaquin Valley have suffered similar fates. These areas were disadvantaged to begin with, rural and isolated, lacking infrastructure, public transportation and safe housing. Persistent drought has compounded the struggles of some of the poorest communities in the nation.

In 2014, farmers with junior water rights faced an unprecedented zero allocation from the U.S. Bureau of Reclamation's Central Valley Project. That happened again last year. In late February, the federal project will announce its water supply outlook for 2016. The State Water Project has also dramatically reduced its deliveries over the last two years.

California, like much of the United States, was losing farmers long before the current drought began. The number of principal operators shrank 4 percent from about 81,000 in 2007 to 78,000 in 2012, according to the most recent U.S. Census of Agriculture. The average age of California farmers skews slightly older than the rest of the nation, at 60 years old, and the state has experienced a decline in the number of farms, reflecting a national trend.

Crop revenue has increased steadily over the past 15 years, and 2013 was the highest ever at \$34 billion; 2014 was the second highest (although it dipped slightly). Revenue has increased even as land was fallowed at high rates. A follow-up report, incorporating livestock, dairy and nursery data, found the same patterns of high levels of productivity and profitability through this drought.

Meanwhile, agricultural employment has grown every year since 2010, employing a record-setting 417,000 people in 2014.

Nonstop pressures threaten California agriculture: encroaching development, the high cost of farm and rangeland, which prices out new farmers and ranchers, onerous regulations, declining interest in the profession, water shortages and climate change. Greater climate variability may be the state's new reality, but that doesn't mean the end is near.

Adaptation is nothing new to agriculture, but that offers little consolation to the individual farmers tasked with growing much of the nation's food. Sure, the sector may be doing all right, but that doesn't mean some farmers, farmworkers and their families aren't suffering. This is especially true of farmers with junior water rights, who have had to shell out lots of money to access water, and in areas of extensive fallowing, which means fewer jobs for farmworkers. Sixty-five percent of California's farms earn less than \$50,000 annually. These farms are small, and likely more vulnerable to threats such as drought. Only 8 percent of farms fall into the highest economic class, making more than \$1 million.

Some Truth From Sacramento

California Agriculture Today, on February 22, in a column by Laurie Greene, reports on State Senator Anthony Cannella's warning about shorting the agricultural community of water again this year. Here is the entire column: <http://californiaagtoday.com/water-regulators-operate-in-silos/>

State Senator Cannella Says Water Regulators Operate in Silos

February 22, 2016

By Laurie Greene Editor

*California State Senator **Anthony Cannella**, (R-Ceres), who represents District 12, the Westside of the Central San Joaquin Valley from Modesto to Coalinga, knows how growers must feel about so much fresh water from recent rain and early snowmelt flowing out to the ocean instead of being stored for future use. Cannella, who is currently serving as vice chairman of the Agriculture Committee said, "Obviously growers are out there; they have their life savings out there; they have been relying on water from the State Water Project or they have been relying on reservoirs; and the state has been taking more and more of their water due to ESA restrictions."*

"If farmers do not have surface water again this year," he continued, "they are going to pump from the groundwater. But state and federal officials do not see the connection that no surface water means

more groundwater pumping. It would be much more sustainable if farmers could receive more surface water instead of having it flow out to the ocean.”

Cannella said, “Water regulators operate in silos. On one hand, they say groundwater has to be at an equilibrium; and, on the other hand, they say that they cannot pump much fresh water into reservoirs. They don’t combine the two; they don’t connect the two; and I think that is wrong.”

“If you are going to regulate or take away surface storage, there will be an impact on groundwater,” explained Cannella. “But the state does not operate that way, and that is why we are having the problem we are having,” he said.