

# California Drought Update

**For January 21, 2016**  
**by Patrick Ruckert**

<http://www.californiadroughtupdate.org>  
<https://www.facebook.com/CaliforniaDroughtUpdate>  
[patruckert@hotmail.com](mailto:patruckert@hotmail.com)

## A Note To Readers

We begin this week's report with an article from the *Orange County Register* by Ian Lamont. The material in the article should be familiar to readers of the *California Drought Update*, and does represent a welcome break from most of the media that either focuses on Jerry Brown's demand that the population go thirsty and starve, or merely reports on day to day developments. Lamont discusses the plans of President John F. Kennedy in the early 1960s to build the North American Water and Power Alliance, and to begin to build nuclear-powered desalination plants.

Then we will report on how El Nino is doing, followed by a story that began last week: The state and federal water managers have prevented the recently increased flows of water into the Delta from being pumped to storage, allowing hundreds of thousands of acre-feet flow into the Bay.

In mid-December, this report ran the warning by Lyndon LaRouche that beginning January 1, the criminal Wall Street/London speculative financial system would begin to collapse. The past three weeks has demonstrated the accuracy of LaRouche's warning. There is more to come, as even some of the top world bankers are now echoing LaRouche. Here is the headline from the *London Independent* on January 20, "World faces wave of epic debt defaults, fears central bank veteran; Exclusive: Situation worse than it was in 2007, says chairman of the OECD's review committee."

The farm sector of the United States, as a marker for the entire real U.S. economy, also reflects the oncoming collapse. This is from *Executive Intelligence Review New Service* of January 21:

*Midwest Farms Demand Change in Bankruptcy Code To Keep Producing; Big Banks Evading Writedowns*

*Jan. 20 (EIRNS)—There is an urgent demand in the Midwest, the U.S. corn belt, for Congress to give relief to family farmers, who are seeking bankruptcy reorganization to stay in operation because the prices they are receiving for corn have dropped 50% from three years ago, while input costs (fertilizers, chemicals, seeds, etc.) have remained high. In particular, farmers are seeking to line up credit for the 2016 growing season (for seeds, rental payments for land and equipment, labor and input expenses).*

*What is involved in this devolution is both a genuine threat of disruption to production in the food*

*chain (not to mention hardship to farm communities), and also the fact that the Wall Street lenders into the farm belt don't want to write down or have their investments in agriculture devalued.*

To conclude this introduction, and to note the birthday of Dr. Martin Luther King, this short excerpt from his speech of April 4, 1967 should remind us, that in a crisis like that of today, the urgency of acting now is required of us all:

*We are now faced with the fact that tomorrow is today. We are confronted with the fierce urgency of now. In this unfolding conundrum of life and history there is such a thing as being too late. Procrastination is still the thief of time. Life often leaves us standing bare, naked and dejected with a lost opportunity. The "tide in the affairs of men" does not remain at the flood; it ebbs. We may cry out desperately for time to pause in her passage, but time is deaf to every plea and rushes on. Over the bleached bones and jumbled residue of numerous civilizations are written the pathetic words: "Too late." There is an invisible book of life that faithfully records our vigilance or our neglect. "The moving finger writes, and having writ moves on..." We still have a choice today; nonviolent coexistence or violent co-annihilation.*

## **What if JFK's dream had come to fruition?**

From the *Orange County Register* of Jan. 17, 2016

<http://www.ocregister.com/articles/desalination-700088-water-plant.html>

By IAN LAMONT / Contributing columnist

*President John F. Kennedy was a staunch advocate for the development of the energy, water and other resources of this nation. At the forefront of his advocacy was the North American Water and Power Alliance. In 1962, JFK toured the West and gave three speeches on NAWAPA. In 1963, he once again toured the West and gave three more speeches on NAWAPA.*

*The six speeches are available online on YouTube. <https://www.youtube.com/watch?v=TP8xpevILNE>*

*It is regrettable that much of this history has been forgotten because it was a special and different time in our country's history, a time of great national pride and a sense that almost anything was possible. Much of this was due to the charismatic and bold leadership of JFK. To say that NAWAPA was an immense project does not really do it justice. JFK's vision for the growth of the West was to create a "fission" (nuclear) economy. NAWAPA called for readying the ground for fission, through the development of nuclear desalination technology. It included agreements with Taiwan and South Korea and the utilization of much of the land from the Mississippi River to the West Coast, all the way north through Canada, to Alaska and the Bering Straits.*

*JFK's last speech on NAWAPA was made in October 1963, just one month before he was assassinated in Dallas. For a short while, others, including leaders in Congress, continued to push his vision for the future. His death, however, was the beginning of the end for NAWAPA.*

*In the fall of 1966, Congress passed legislation to build a massive nuclear powered desalination plant off the coast of Orange County. The cost of the project would be \$444.3 million. The plant would be built on a manmade island about half a mile from Bolsa Chica State Beach. The nuclear-powered desalination plant would be built in two phases. The first phase would produce 50 million gallons of fresh water a day. The plant's second phase would produce an additional 100 million gallons of fresh water a day. The completed plant would produce 150 million gallons of freshwater a day.*

*To put the Bolsa Chica nuclear-powered desalination plant's production capability in perspective, the*

*\$1 billion Carlsbad desalination plant that is just beginning operations is expected to produce 50 million gallons of fresh water per day. The Huntington Beach desalination plant, when it begins operating in 2018, also is projected to produce 50 million gallons a day.*

*Even in the 1960s the cost of fresh water produced by smaller desalination plants was not economically attractive when compared to alternative water delivery options, primarily groundwater and importing. The Bolsa Chica desalination plant would have been the first large-scale application utilizing nuclear energy as the power source in the desalination process, and the significant fresh water production of 150 million gallons a day would have allowed it to be the first desalination plant to produce fresh water that was economically and commercially competitive with alternative water delivery options.*

*The combination of power and fresh water production at this large a scale was seen as a significant step forward in addressing some of the bigger technological obstacles the desalination process faced at the time.*

*In May 1967, President Lyndon Johnson signed into law the authorization to proceed, while California Gov. Ronald Reagan signed state legislation concurrently authorizing the plan to proceed. The Bolsa Chica nuclear powered desalination plant would have been the biggest desalination plant in the world. Plant oversight would have been a collaborative effort of the Metropolitan Water District of Southern California, the Department of the Interior and the Atomic Energy Commission.*

*In October 1963, in his last speech on NAWAPA, JFK said, "The Earth can be an abundant mother to all of the people that will be born in the coming years. ... Long-term answers will be found in the successful use of new knowledge and close cooperation with other nations."*

*JFK was a staunch advocate for international scientific work, new infrastructure and nuclear power to solve such problems as resource development, protection from catastrophic weather and overcoming poverty.*

*The vital role Orange County would have played in a fission economy, and the utilization of nuclear power to advance both energy and fresh water availability, was not to be.*

*It does make you wonder, however, what kind of nation and world we would live in if JFK had completed two terms as president and then spent the next 25-30 years as a statesman and leader.*

*Ian Lamont's weekly column is mostly on regional and state issues. He spent 40 years in media, including the last half as publisher of various newspapers. He can be reached at [ilamont@lbregister.com](mailto:ilamont@lbregister.com).*

Here is a link to the *LaRouche PAC* 10 minute video on the North American Water and Power Alliance:

Drought: The Time for NAWAPA has Come  
<http://archive.larouchepac.com/node/30047>

And here is a link to the full history of President Kennedy's program for building nuclear-powered desalination plants: <http://www.californiadroughtupdate.org/2015/05/29/nuclear-powered-desalination-in-california-parts-i-iv/>

## **How's El Nino Doing?**

*“Wait until February,” added Henderson. “It’s not over yet.”*

Responding to the buzz that this El Niño is not living up to expectations, several articles this week have sought to warn that that may be true, and on the other hand, hope that it is not. The above quote is from: “El Niño Looks Like a Late Bloomer,” published January 18 at:

<http://patch.com/california/san Clemente/el-nino-looking-late-bloomer>, which also includes this quote: “So far, the Godzilla El Niño of our drought-stricken dreams is a no show.”

The *San Jose Mercury News* of Jan' 15 had this headline, “El Niño not fizzling: More storms barreling toward California.” The article is written by Paul Rogers, who, I think, is one of the more competent writers on water issues. Excerpts follow:

[http://www.mercurynews.com/drought/ci\\_29386958/el-nino-not-fizzling-more-storms-barreling-toward](http://www.mercurynews.com/drought/ci_29386958/el-nino-not-fizzling-more-storms-barreling-toward)

*“This is the time of year when El Niño acts the most reliably,” said Mike Halpert, deputy director of the climate prediction center for the National Oceanic and Atmospheric Administration in College Park, Maryland. “So we would certainly expect the impacts to continue well through the rest of the winter and into the early part of the spring.”*

*There is a 96 percent chance that El Niño conditions will remain through March, scientists at NOAA and Columbia University reported Thursday, and a 62 percent probability they will continue through May.*

And then the *Sacramento Bee*, on January 19, under the title, “Rain, snow making a dent in California’s historic drought,” provides a more detailed update on where we stand, noting that the state’s reservoirs are still way below normal for this time of the year. Also noted in the article is the fact that temperatures are higher than normal, a worrisome fact that could mean that too much of the precipitation to come will fall as rain rather than snow. <http://www.sacbee.com/news/state/california/water-and-drought/article55551045.html>

*The state’s drought crisis stems from a change in that pattern over the past four years. Last spring, Sierra snowpack was the lowest it had been in more than 500 years. State officials say the 2015 “water year” that ended Sept. 30 recorded the warmest high-elevation temperatures in the 120 years people have been keeping track.*

*This winter, by contrast, so far has brought more typical snowfall. State sensor readings Monday showed a range of snow water content across the Sierra, from 121 percent of normal in the northern range to around 90 percent of normal in the southern Sierra.*

*Much of the precipitation from Tuesday’s storm fell as rain in the lower mountains, as temperatures in the Sierra remain above historical averages. In Truckee, for example, low temperatures were about 15 degrees above normal on Monday and Tuesday, according to Weather Underground.*

*Even with some snowfall, experts were quick to note that it will be months before California knows whether the winter’s been a drought-buster.*

*“We made quite a dent, but the drought, it’s not over,” said Jim Mathews, a forecaster with the National Weather Service in Sacramento. “Most of the reservoir levels are still miserably low.”*

*Though water levels have risen in most state reservoirs in the past six weeks, lake levels remain far below historical averages, according to the Department of Water Resources. Folsom Lake had about 310,000 acre-feet of water Monday, more than double what it had in late 2015. But the lake is still at*

*just 63 percent of normal for this time of year.*

*Among other large reservoirs, Lake Oroville is at 52 percent of normal; Lake Shasta is at 58 percent; and Trinity Lake is at 33 percent.*

*Reservoir levels are among the factors state officials consider when determining when to declare an end to drought. Mountain snowpack is another.*

*State officials say at least one of three things would need to happen for the drought to be at an end: Statewide reservoir storage would need to be at 90 percent of average levels; runoff forecasts for the state's water year, which runs from October to September, would need to be 110 percent of average; or reservoirs on the four major rivers in the Sacramento River basin would have to reach flood control stage.*

## **Drought Monitor and Reservoirs**

The U. S. Drought Monitor for January 19 continues to report the pattern we have seen all winter: Drought alleviation is very slow. 86 percent of the state remains in either the Severe, Extreme, or Exceptional drought categories, with more than 42 percent in the Exceptional category. Remember, until 2014, zero percent of the state had ever been in the Exceptional category.

The reservoirs are filling very slowly. Shasta, Oroville and Folsom remain well below their average for this time of the year. Though the past two weeks has seen a more rapid rate of filling, especially for Folsom, that reservoir remains at only 35 percent of its average for this date.

## **California's Climate: A Lesson From the Past; A Warning for the Future**

With lots of rain and the threats of floods, this is a good time to remind us that the climatic historical record demonstrates that over the past 1,200 years the dominate pattern of California's climate is one of alternating mega-droughts and mega-floods. A book which presents this history was published in 2014, by B. Lynn Ingram and Frances Malamud-Roam, "*THE WEST WITHOUT WATER: What Past Floods, Droughts, and Other Climatic Clues Tell Us About Tomorrow.*"

The book was reviewed by myself in *Executive Intelligence Review* of May 9, 2014: "Are We Controlled by the Whims of Nature, or Will We Create Our Future?"

[http://larouchepub.com/eiw/public/2014/eirv41n19-20140509/48-52\\_4119.pdf](http://larouchepub.com/eiw/public/2014/eirv41n19-20140509/48-52_4119.pdf)

In an article in *Scientific American* on January 1, 2013, "California Megaflood: Lessons from a Forgotten Catastrophe:" <http://www.scientificamerican.com/article/atmospheric-rivers-california-megaflood-lessons-from-forgotten-catastrophe/>, and an interview by *UC Berkeley News* on January 14, 2016, "The state, the drought and El Niño: It's complicated," Ingram discusses this broader topic and the record flood of 1861. <http://news.berkeley.edu/2016/01/14/el-nino-and-the-drought/>

Here are some excerpts, first from the *Berkeley News* interview. Importantly, Ingram defines what the end of the drought requires, and then discusses atmospheric rivers.

*Being out of a drought means restoring water levels in all the places that water is stored — natural lakes, reservoirs and the ground — to the long-term average. The groundwater is another story because it's been pumped so much. There's no way we're going to replenish that in two years.*

### ***What are atmospheric rivers?***

*Atmospheric rivers occur when corridors of water vapor come up from the tropics, traveling across the Pacific Ocean for thousands of miles to the West Coast. An atmospheric river storm brings really heavy rain and it's warm because it's coming from the tropics, so that means it falls more as rain in the mountains (as opposed to snow), so you actually get more runoff filling the Central Valley. That's why they cause more flooding than regular, colder storms. Most of our major floods in California correspond to these atmospheric river storms. But they're really important because, on average, they provide 30 to 50 percent of our water resources in just 10 days a year.*

*We normally get several smaller atmospheric river storms every year. So we could get some small ones, which last just two or three days. Stronger atmospheric river storms don't necessarily correspond to El Niño years, however. But we're predicting bigger ones in the future. If we go back in time in geologic records, we see that a big storm (and "megafloods") recurred every 100 to 200 years. The only megaflood on record was in 1861-62, which was the biggest flood on record in California. It filled the entire Central Valley, which is 300 miles long and 20 miles wide, with 10 feet of water. It's been 160 years since that flood, so any given year now, it's a possibility that another will occur. Everyone knows about the big earthquake that might hit the San Andreas, but few people know about these megafloods.*

And here are excerpts from the *Scientific American* article:

*A 43-day storm that began in December 1861 put central and southern California underwater for up to six months, and it could happen again.*

*In 1861, farmers and ranchers were praying for rain after two exceptionally dry decades. In December their prayers were answered with a vengeance, as a series of monstrous Pacific storms slammed—one after another—into the West coast of North America, from Mexico to Canada. The storms produced the most violent flooding residents had ever seen, before or since.*

*Sixty-six inches of rain fell in Los Angeles that year, more than four times the normal annual amount, causing rivers to surge over their banks, spreading muddy water for miles across the arid landscape.*

*Residents in northern California, where most of the state's 500,000 people lived, were contending with devastation and suffering of their own. In early December, the Sierra Nevada experienced a series of cold arctic storms that dumped 10 to 15 feet of snow, and these were soon followed by warm atmospheric rivers storms. The series of warm storms swelled the rivers in the Sierra Nevada range so that they became raging torrents, sweeping away entire communities and mining settlements in the foothills—California's famous "Gold Country."*

*This enormous pulse of water from the rain flowed down the slopes and across the landscape, overwhelming streams and rivers, creating a huge inland sea in California's enormous Central Valley—a region at least 300 miles long and 20 miles wide.*

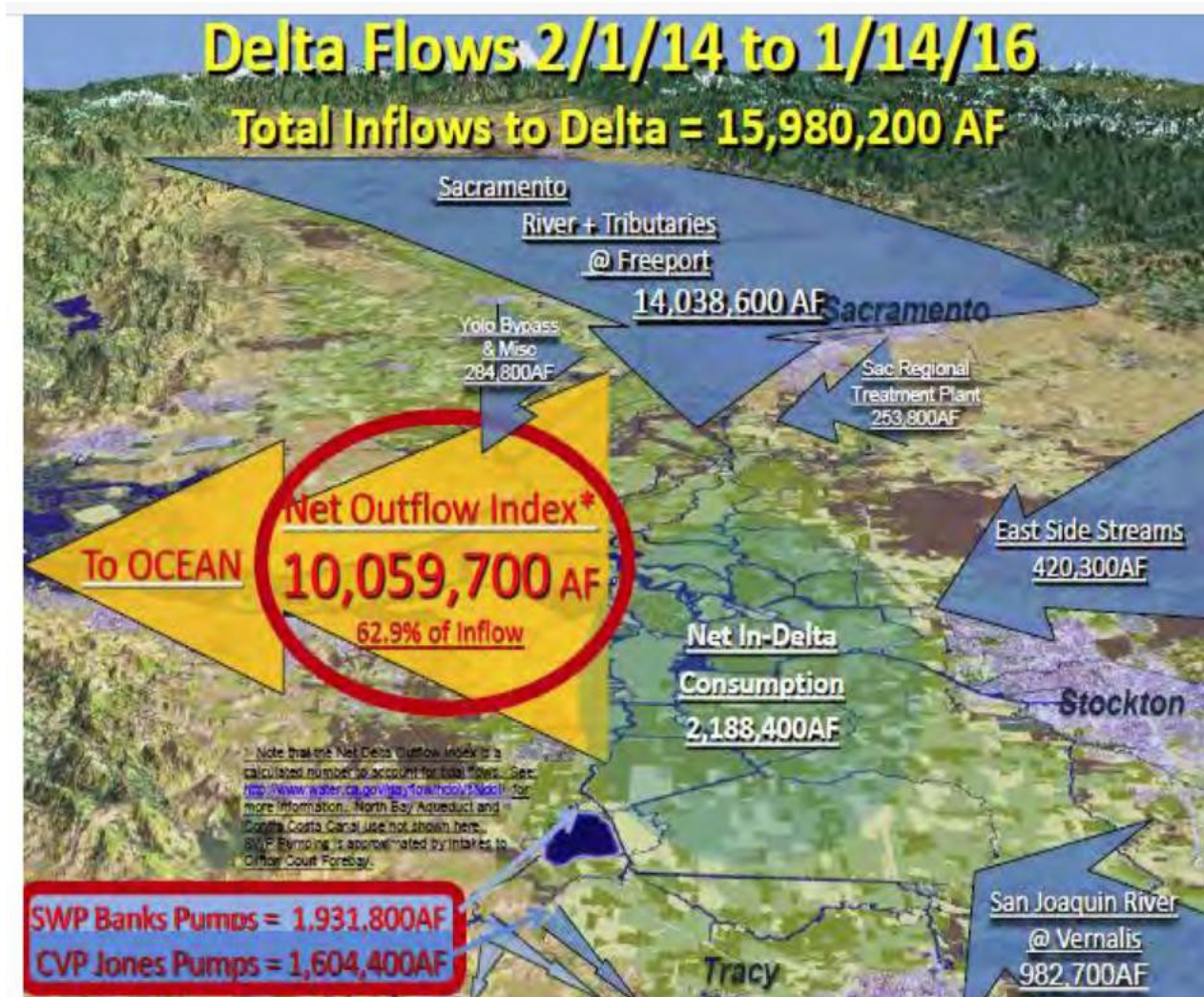
*Although floods in Sacramento were not unknown to the residents, nothing could have prepared them for the series of deluges and massive flooding that engulfed the city that winter. The levees built to protect Sacramento from catastrophic floods crumbled under the force of the rising waters of the American River. In early January the floodwaters submerged the entire city under 10 feet of brown, debris-laden water.*



## And the Water Goes Into the Bay

Last week I reported on the article from the *Associated Press*, “California temporarily curbing water to spare vanishing fish,” on how U.S. Fish and Wildlife officials had determined that water flowing through the Delta could not be sent to storage because the Delta Smelt were endangered by the muddy water-- they might get confused and swim into the pumps, killing them.

The graphic below may be a little difficult to follow without some serious study, but the general point is clear: Two-thirds of the inflow to the Delta is allowed to flow out to the Bay.



Reflecting the anger from the agricultural community that hundreds of thousands of acre-feet of water are just flowing into the Bay and not going to storage, is a column by Dennis Wyatt in the *Manteca Bulletin* on January 19: “The Delta Smelt more important than SJ Valley.”

<http://www.mantecabulletin.com/section/38/article/131625/>

Here are some excerpts:

*Rest assured the federal script calls for more water releases to protect Delta Smelt and other fish in the coming months regardless of the hydrologists' data that shows it will take four or so above average*

*years to break the drought's back. That doesn't mention tree rings that indicate mega-droughts of 50 years plus with perhaps one or two back-to-back wet years periodically breaking it up, is the normal weather pattern for the West and that the last 200 years has been abnormally wet.*

*Add to the fun the fact the State Water Resources Control Board — in the middle of a historic drought — is pushing to increase unimpaired flows on the Stanislaus River from 30 percent between January and June to at least 40 to 50 percent. Similar moves are being made on water flows on the Merced and Tuolumne rivers.*

*It's a warm-up for the water diversion needed for the Delta — including the smelt — once the Twin Tunnels are in place to allow Sacramento River water to bypass the Delta to reach the California Aqueduct.*

*No longer will Southern California and corporate farms in the deep southwest San Joaquin Valley share in the pain of arbitrary water flow decisions to save a handful of Delta Smelt. The pain will be felt 100 percent by people and farmers depending on the watersheds of the Stanislaus, Tuolumne, and Merced rivers....*

Erik Wilson, of *My Job Depends on Ag* face book group, reports on January 20 that on that day more than 41,000 cubic-feet-per-second of water was flowing into the Delta, but that only 4,500 cfs was being sent to storage. Erik calculates that enough water over and above that required for preventing salination of the Delta was sent out to the Bay that could have provide enough water for 500,000 people for a year. Erik ended his report with this:

*"I think at a minimum that state should at least send everyone who lost water yesterday, today, and tomorrow a 'I saved the smelt' sticker at least that way when summer comes and everyone forgots about why they are forced to use 25% less water and get charged more for it.....they can proudly support their sticker smh! Wake up California residents it isn't just Ag that is losing water."*

## **Note at the end of this report the documentation from the U.S. Fish and Wildlife Service**

Farmers need know early in the year whether they will have the water they will need for their crops because they have to prepare the fields, purchase seed, fertilizer and equipment, and hire labor. For each farmer this means spending hundreds of thousands, or millions, of dollars.

The *Daily Democrat* on January 17 reported on how farmers are being left up in the air. The *Associated Press* article in the *Daily Democrat*, "State's farmers brace for water shortage despite El Nino," is excerpted below.

<http://www.dailydemocrat.com/article/NI/20160117/NEWS/160119891>

*Westlands Water District, which relies on water from the U.S. Bureau of Reclamation, has warned hundreds of farms it serves in the San Joaquin Valley that they may not be receiving any irrigation water yet again this year, said district spokeswoman Gayle Holman.*

*Westlands is the nation's largest supplier of irrigation water, and for the last two years, the bureau's initial allocation was for zero percent of the district's contracted amount. It remained at zero throughout both years.*



*Holman said that this stormy winter has raised hope that in the spring they'll receive some federal water, even if officials at first announce that there's none available. Holman said that by that time it may be too late.*

*"The need for that water is now," she said, adding that any federal water sent to them early in the year would be stored in reservoirs for use when the weather warms and the growing seasons begins. "That's why the timing is so critical."*

*"The need for that water is now," she said, adding that any federal water sent to them early in the year would be stored in reservoirs for use when the weather warms and the growing seasons begins. "That's why the timing is so critical."*

*Federal officials say it is too early now to know how much water will be available. California's wet season is just underway. The bureau is monitoring the snowpack, rainfall, reservoir levels and other factors before saying how much water it will release to farmers and other users.*

*That announcement typically comes in late February, said bureau spokesman Louis Moore.*

*The Water Resources Department, which also manages part of California's vast water system, said in early December that it anticipated releasing 10 percent of expected supplies this year — half of the last year's allocation.*

*The state's figure could also change, depending on the amount of precipitation that falls in the next several months, officials said....*

Governor Brown addressed this, sort of, in his State of the State address today, January 21. Note well the last sentence of the following paragraph from that address:

*Achieving balance between all the conflicting interests is not easy but I pledge to you that I will listen and work patiently to achieve results that will stand the test of time. Water goes to the heart of what California is and what it has been over centuries. Pitting fish against farmer misses the point and grossly distorts reality. **Every one of us and every creature that dwells here form a complex system which must be understood and respected.***

Finally, there is this: On January 19 the *State Water Resources Control Board* announced its adoption of measurement and reporting regulations for water diverters. The new regulations go far beyond what was previously required, and clearly show that the Water Board is preparing for more cut-offs. Here are just the first couple of paragraphs from the announcement:

*The State Water Resources Control Board today adopted regulations requiring all surface water right holders and claimants to report their diversions. Those who divert more than 10 acre-feet of water per year must also measure their diversions.*

*The regulations, which apply to about 12,000 water right holders and claimants, require annual reporting of water diversions. The regulations cover all surface water diversions, including those under pre-1914 and riparian water rights, as well as licenses, permits, registrations for small domestic, small irrigation and livestock stockwatering and stockpond certificates.*

## **Documentation**

### **Operations Outlook from the U. S. Fish and Wildlife Service**

(see the next page)

## 2015-2016 Operations Outlook

Dry conditions during November and most of December have resulted in lagging exports and a dismal refill of San Luis. Assuming the current wetter trend continues, Project operators will be contending with heightened concerns for salmon and delta smelt given reduced populations that resulted from 2015 dry conditions. Aside from hydrology, operators will be struggling to maximize exports amidst the gauntlet of export constraints such as:

- Delta smelt salvage levels increase to levels of concern. The U.S. Fish and Wildlife Service has set its incidental take level (ITL) very low this year due to low sampling levels that were determined in its 2015 Fall Midwater Trawl Survey.
- Potential access restrictions to upstream storage imposed by SWRCB. Summer storage releases may be limited if the Board requires increased carry over storage minimums in its attempt to protect salmon and to plan for potential dry conditions in 2017.
- River flows increase delta turbidity enough to trigger additional OMR restrictions per the BiOps. With a low ITL, agency biologists may be more inclined to constrain exports via OMR limits to avoid the potential of delta smelt following turbid water toward the pumps. Turbidity can increase with significant upstream river flow events.

In addition to the export uncertainties, 2016 Project supplies will be reduced due to the considerable amount of water yet to be repaid to the SWP and CVP contractors in CVP San Luis.

The attached 2015 Borrowed Storage chart shows that borrowed rescheduled/purchased contractor water will not be repaid until early March under conservative export projections. The chart also shows that 2016 CVP Project water will not start to accumulate until March - possibly later with the inclusion of Reclamation's soon to be final accounting of fall transfer water. With persistent dry conditions, very little 2016 water will be available to support Reclamation's initial allocation in February.