BAY AREA WATER SUPPLY AND CONSERVATION AGENCY

BOARD POLICY COMMITTEE MEETING

December 4, 2015

Correspondence and media coverage of interest between November 23, 2015 and December 4, 2015

Correspondence

Date: December 4, 2015
From: Nicole Sandkulla, CEO/General Manager
To: The Honorable Francesca Vietor, Commission President, SFPUC
Subject: Comments on the Proposed November 2015 Revised Water System Improvement Program (WSIP)

Date: December 1, 2015
From: Nicole Sandkulla, CEO/General Manager
To: The Hon. Felicia Marcus, Chair, and Members of the State Water Resources Control Board
Subject: Comment Letter – Urban Water Conservation Workshop

Media Coverage

Drought:

Date: December 4, 2015
Source: San Mateo Daily Journal
Article: Water cutbacks dwindle as winter nears

Date: December 2, 2015
Source: Fresno Bee
Article: Valley Farmers now see drought as rule, not exception: There is a real fear out there

Date: December 2, 2015
Source: MarketWired
Article: ACWA Presents Communications Award to Dublin San Ramon Services District

Date: December 2, 2015
Source: Town Crier
Article: Cal Water Exec: Water issues complex; El Nino may not end drought conditions

Date: December 1, 2015
Source: SF Chronicle
Article: Drought: State water deliveries projected to be sparse again

Date: December 1, 2015
Source: Maven's Notebook
Article: Initial State Water Project Allocation Set at – 10 Percent

Date: December 1, 2015
Source: LA Times
Article: California water conservation lagged in October, but state is still on course

Date: November 26, 2015
Source: Sacramento Bee
Article: More California farmland could vanish as water shortages loom beyond drought

Date: November 24, 2015
Source: Bloomberg Business
Article: California Needs Snow to Start Falling Now for Drought Relief

Date: November 23, 2015
Source: CBS Sacramento
Article: Even With El Nino, New California Drought Rules Will Go Into Effect In 2016

Date: November 23, 2015
Source: Public Policy Institute of California (PPIC)
Article: Planning for Future Droughts

Water Supply:

Date: December 3, 2015
Source: E&E Publishing
Article: California dreaming: developing an ATM for groundwater

Date: December 2, 2015
Source: Huntington Beach Independent
Article: Poseidon's Carlsbad desalination plant undergoes tests as H.B. plan waits in the wings

Date: November 29, 2015
Source: California Water Blog
Article: Rising to El Nino's challenges – and opportunities

Date: November 28, 2015
Source: Jefferson Public Radio
Article: Restoring California Meadows Could Help Combat Climate Change And Increase Water Supply

Date: November 24, 2015
Source: CNBC.com
Opinion: California's new hot commodity: Stormwater

Date: November 24, 2015
Source: KQED
Article: Why Solving California's Water Woes Will Take More Than Rain

Date: November 23, 2015
Source: San Jose Mercury News
Article: Water treated at Newark Desalination Facility goes into drinking supply

Conservation:

Date: December 1, 2015
Source: Maven's Notebook
Article: California's Cumulative Water Savings Continue to Meet Governor's Ongoing Conservation Mandate

Date: December 1, 2015
Source: SF Chronicle
Article: Californians miss water savings target for first time

Date:	December 1, 2015
Source:	SF Chronicle
Article:	As Californians miss drought target, some seek to catch the rain

Date:	November 30, 2015
Source:	Greenbiz
Article:	VMware, eBay help employees bring water conservation home

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BAWSCA
Bay Area Water Supply & Conservation Agency

December 4, 2015

The Honorable Francesca Vietor, President
San Francisco Public Utilities Commission
525 Golden Gate Avenue, 13th Floor
San Francisco, CA 94102

SUBJECT: Comments on the Proposed November 2015 Revised Water System Improvement Program (WSIP)

Dear President Vietor:

On November 6, 2015, in accordance with State Water Code Section 73514, the San Francisco Public Utilities Commission (SFPUC) notified the Bay Area Water Supply and Conservation Agency (BAWSCA) that it would be considering proposed changes to the Water System Improvement Program (WSIP).

The proposed revisions would extend the schedule for six WSIP projects: San Joaquin Pipeline System, San Antonio Backup Pipeline, Seismic Upgrade of BDPL Nos. 3 & 4, Bay Division Pipeline Reliability Upgrade – Pipeline, Harry Tracy Water Treatment Plant Long-Term Improvements, and Vegetation Restoration of WSIP Construction Sites. BAWSCA recognizes that, of those projects that the SFPUC is proposing schedule extension for and that contribute to the WSIP level of service goals are all currently in service and increasing regional water supply reliability.

While BAWSCA is always concerned when project schedules are extended, we have been kept up-to-date by the SFPUC staff on of these six projects over the last several months and have no objections to making the proposed revisions.

BAWSCA continues to support the SFPUC's efforts to implement the WSIP on time and on budget for the protection of the 2.6 million residents and associated businesses that rely on the San Francisco Regional Water System for a reliable supply of high quality water.

Sincerely,

Nicole Sandkulla
Chief Executive Officer/General Manager

cc: Harlan L. Kelly, Jr., SFPUC General Manager
Kathy How, SFPUC Assistant General Manager – Infrastructure

Dan Wade, SFPUC Program Director, WSIP
BAWSCA Board of Directors
BAWSCA Water Management Representatives
Allison Schutte, Hanson Bridgett

BAWSCA
Bay Area Water Supply & Conservation Agency

December 1, 2015

The Honorable Felicia Marcus, Chair
and Members of the State Water Resources Control Board
c/o Jeanine Townsend
Clerk of the Board
State Water Resources Control Board
1001 I Street, 24th Floor
Sacramento, CA 95814

Subject: Comment Letter – Urban Water Conservation Workshop

Dear Chair Marcus and Members of the Board:

The Bay Area Water Supply and Conservation Agency (BAWSCA) welcomes the opportunity to provide input as the State Water Resources Control Board (Board) considers the potential extension and modification of the Emergency Regulation for Statewide Urban Water Conservation. BAWSCA provides regional water reliability planning and conservation programming for the benefit of its 26 member agencies that deliver water to over 1.7 million residents and nearly 33,000 commercial, industrial and institutional accounts in Alameda, San Mateo and Santa Clara Counties.

Among BAWSCA's member agencies are some of the lowest per capita water users in the state of California. During the current drought, 42% of BAWSCA's agencies had daily residential per capita water (GPCD) use of less than 65 gallons – 15% used less than 50 GPCD - during the months of June through September, normally the highest water use period of the year. Cumulatively, our member agencies have doubled the amount of required conservation savings during this same period and have met their combined total nine-month savings target in just four months.

As potential modifications to the emergency regulation are considered, BAWSCA urges the Board to recognize the constraints on some agencies to further reduce their water use. BAWSCA recommends that any review of new credits or adjustments be considered on a case-by-case basis, and that the granting of such modifications should not result in the raising of the Conservation Standard for any other water agency.

Thank you for your consideration of these comments. If you have any questions, please contact me at NSandkulla@BAWSCA.org or (650) 349-3000.

Sincerely,

Nicole Sandkulla

Nicole Sandkulla
CEO/General Manager

cc: BAWSCA Board Members
BAWSCA Water Management Representatives
A. Schutte, Hanson Bridgett, LLP

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Water cutbacks dwindle as winter nears: Most county residents achieve October conservation targets, some fall short

SM Daily Journal | December 04, 2015 | Samantha Weigel

October data released by the state water resources control board this week highlighted what many expected — conservation is slowing down with many communities missing the governor's mark for the first time since California's historic mandated cutbacks went into effect.

Statewide, Californians achieved 22 percent reduction in October but earned a cumulative 27.1 percent savings since Gov. Jerry Brown's June orders to cut back by 25 percent as compared to 2013 usage. For those who spent the summer snubbing conservation tips, they may find themselves struggling to meet their goals this winter as letting lawns go brown will no longer cut it.

Most San Mateo County residents were able to achieve their tiered targets — which vary based on previous usage and range from 8 percent to 36 percent — with many far exceeding what's expected of them.

But the October conservation statistics released by the board this week show conservation has slowed since the summer as the focus turns to indoor cutbacks during the winter and fall.

"We anticipated a dip in the conservation rate for October, but it is not because people are losing interest — they actually did quite well considering how unusually hot it was in October," water board Chair Felicia Marcus said in a press release. "It's harder to keep the percentages up in the winter and fall when little outdoor watering takes place. That's why the savings over the summer were so important."

Nicole Sandkulla, CEO of the Bay Area Water Supply and Conservation Agency, agreed many were expecting the savings to drop off as the seasons changed, but the county's utilities remain confident they'll be able to meet their goals — even those who fell short.

Although many in San Mateo County and across the state conserved less in October months before, three suppliers missed their target with one falling below their cumulative mark.

The California Water Service Company's Bear Gulch District fell short of its high 36 percent target for the second month in a row. The district serves residents — many with large landscaped properties — in Atherton, Portola Valley, Woodside, parts of Menlo Park as well some unincorporated areas in Redwood City and the county.

Bear Gulch customers only cut back 28.2 percent in October bringing their cumulative total down to 34.4 percent. While just shy of their target, it could leave the utility open to fines of up to $10,000 a day if it continues failing to meet its target.

Sandkulla said there's a fairly lengthy process the state takes before issuing fines. Because Bear Gulch customers are close to meeting their targets, Sandkulla said she doesn't expect fines any time soon.

“If an agency isn’t achieving its target, [state board officials] meet with them, talk about what’s going on, tries to identify what the issues are and puts some administrative remedies in place. So they may be having conversations now with the state board, but they’re nowhere near getting fined,” Sandkulla said.

Bear Gulch District Manager Dawn Smithson noted customers must meet cutbacks and avoid penalties that are at the state’s discretion. With a variety of programs targeted at indoor usage — such as rebates for high-efficiency appliances, plumbing retrofit kits and free efficiency evaluations — she’s confident Bear Gulch customers are capable of contributing to the state’s goals.

“We absolutely know our customers can meet the target, as we’ve seen the effort they put in over the summer to reduce their use. As we enter the cooler, and hopefully wetter, winter months, we really urge our customers to find ways indoors and out to cut back. By working together, we can get back on track and meet the state’s mandatory reduction target,” Smithson wrote in an email.

Hillsborough residents, the only others in the county ordered to achieve the high 36 percent reduction, also narrowly missed the mark in October by only cutting back 34.1 percent. Regardless of the slowdown, its less than 11,000 residents have achieved an impressive 40.8 percent reduction since June.

Still, Hillsborough residents far exceeded their neighbors in daily consumption with each using an average 188.5 gallons of water per day in October — well above the county’s low 40.1 gallons per day consumed by San Bruno residents.

Foster City residents, still above their 12 percent goal having saved a cumulative 15.8 percent, also fell short in October having only reduced usage by 7.6 percent.

Water officials weren’t too surprised as cutting back during the winter is typically harder and an extraordinarily warm October may have also deterred residents from curbing consumption.

With the majority of San Mateo County stepping up to meet the state’s needs, Sandkulla said water officials want to make sure conservation efforts are recognized.

“The customers have done such a great job at responding, we want them to feel appreciated for that, and the fact that it really is making a difference. And for them to continue to keep up their practices and keep their water use low as we go into this winter,” Sandkulla said, noting it will be several months before officials can determine whether the predicted storms will have a meaningful impact on alleviating the drought.

With at least a month lag in the data’s release, water officials are urging residents to continue to conserve through the winter and not be swayed by the wet El Niño.

Although Thursday brought welcomed rain across San Mateo County, officials urge Californians to be mindful that a single wet winter might not break the already 4-year-old drought.

“While El Niño storms may bring significant rain this winter, the depth of our drought and the uncertainty of the amount, type and location of precipitation means we have to continue conserving every way we can,” Marcus said. “In other words, unless we get a ton of snow in the Sierras that lasts through April, every drop saved today is one we’ll be glad we have tomorrow.”

Conservation data			
City, utility	Conservation Standard	Cumulative Savings	Oct. Savings
San Bruno	8 percent	25.9 percent	19.7 percent
Cal Water South City	8 percent	22.2 percent	19.3 percent
SFPUC	8 percent	15.5 percent	15 percent
Redwood City	8 percent	27.6 percent	20 percent
Coastside County Water District	8 percent	19.9 percent	17.6 percent
Foster City	12 percent	15.8 percent	7.6 percent
Burlingame	16 percent	31.3 percent	23.7 percent
Cal Water Mid Pen, San Mateo, San Carlos	16 percent	28.1 percent	26.6 percent
Millbrae	16 percent	27.7 percent	25.2 percent
Menlo Park	16 percent	45.9 percent	22.9 percent
Mid-Peninsula Water District, Belmont	20 percent	28.8 percent	19.5 percent
Cal Water Bear Gulch Atherton, Woodside	36 percent	34.4 percent	28.2 percent
Hillsborough	36 percent	40.8 percent	34.1 percent

* Data provided by the State Water Resources Control Board

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Valley farmers now see drought as rule, not exception: 'There is a real fear out there'
Fresno Bee | December 2, 2015 | Robert Rodriguez

Farmers are no strangers to struggle or drought. But this four-year drought is different than others, they say. It's more widespread, touching nearly everyone who turns on the tap or starts an irrigation pump.

This past summer, wells dried up and farmland sat idle. The drought also came to mean that life on the farm has likely changed forever.

"In the early years when we went through a drought, we tended to say that this too shall pass," said Richard Waycott, president of the Almond Board of California in Modesto. "But there is a different consciousness now. People are looking at the future very differently."

Farmers talk of a new reality – one in which droughts are more of the rule than the exception, and water availability, both above and below ground, becomes less certain.

Third-generation Fresno County farmer George Goshgarian smiles when he thinks about what his grandfather would say about all the gadgets now on the farm: soil moisture sensors, miles of drip irrigation hose, a weather station and a device that measures the uptake of water in an almond tree.

Goshgarian isn't entirely sure if any of this technology will ultimately help keep him in business. But he needs to try.

"This won't be the last drought we will have," he said.

Goshgarian is also taking part in a groundwater recharge project involving the Almond Board of California, UC scientists and a San Francisco-based group called Sustainable Conservation. Goshgarian is one of several farmers in the Valley whose lands are being used as test sites. Other trials will be done in pistachio orchards and alfalfa fields. Researchers say recharge could reduce overdrafting – when more water gets pumped from an underground basin than gets replenished – by 12 percent to 20 percent.

This winter, if El Niño delivers as expected, water from the Kings River will be applied on Goshgarian's 62-acre block of almonds to see how well it recharges the aquifer below. Scientists have identified specific areas in the state that could lend themselves to groundwater recharge.

UC Davis soil scientist Toby O'Geen said researchers looked at the type of soil in the area – the more porous the better – and what crop is being grown. What scientists want to find out is if standing water in an orchard or field will damage a plant or tree's root system.

Goshgarian realizes there is a risk to his orchard, but that's what farming is about, he says.

"We are in a different paradigm now," Goshgarian said. "There is a real fear out there about how much water we may have to farm. And that's why we are doing everything we can think of to keep going."

Don Cameron, a westside grower who has been working on groundwater recharge for nearly two decades, said one of his vineyards was in standing water for nearly two months in 2011, with no ill effects.

“We have proven we can do it,” he said. “We just need to convince other growers to apply water during wintertime and flood periods. The fact is, we can’t continue to pump and not replace the groundwater.”

Gut check

The 2015 drought also delivered a gut check for farmers, who long assumed that California consumers were on their side in the fight for water.

During the 2009 drought, when farmers shouldered the brunt of that drought, the public wasn’t asked to reduce water usage. The situation is more dire now. Gov. Jerry Brown declared a drought emergency that included a requirement for urban residents to reduce their consumption by 25 percent.

People ripped out lawns, trees died and most homeowners conserved as much water as they could. For the most part, people complied. Then came media reports taking farmers to task for how much water it takes to grow certain crops. The public fumed and almond growers, in particular, were roasted for farming one of the most water-intensive crops.

“Farmers thought that because people ate what they grow, that they understood and supported them,” said Aubrey Bettencourt, executive director of the California Water Alliance in Hanford. “But that wasn’t the case at all.”

Farmers admit feeling blindsided by the reaction. Grassroots organizations defending farmers began to sprout, including My Job Depends on Ag, FarmFacts.org and the California Water for Food and People Movement.

Kristi Diener of Clovis, wife of a westside farmer, helped launch the food and people group out of frustration over the public’s perception of farmers as water hogs. Her goals are to educate the public about why water is vital to agriculture and to push for changes in water policy. Her group supports the effort to build more dams and reservoirs, including the proposed Temperance Flat Dam, near Auberry in the foothills of eastern Fresno County.

“It seems like a lot of people have been in this water battle for a long time, but you go and march, or hold a rally, and then the rains come and everyone goes about their business,” Diener said. “I felt it was time to stand up and do something because things are not going back to the way they used to be.”

Land goes unplanted

No one understands that more than Cannon Michael, president of Bowles Farming Co., a diversified, 10,500-acre family farm in Los Banos.

Michael fallowed about 2,300 acres, or roughly one-quarter of Bowles’ total acreage, because of a lack of water. The land could have produced alfalfa, tomatoes or melons. On

its existing acreage of processing tomatoes, melons, corn and cotton, the farm spent nearly $2 million on a solar installation to reduce the rising cost of operating its electricity-powered irrigation system.

“Any capital expense is going to cut into your profitability, but if we don’t do it, we are risking not being here in the future,” Michael said.

No farm has been immune from the drought’s reach. Small farmers have suffered too. The Masumotos in Del Rey, growers of organic tree fruit including the famed Sun Crest peach, fallowed about 20 percent of their farm. It was the first time in nearly 70 years that the farm was unable to get water to all of its tree fruit and grape acres.

“My dad would have had a hard time seeing that land fallowed,” said David Mas Masumoto. “We always planted every acre. But this time, we had no choice.”

This year, the Masumotos became students again, learning new things about their water table, how deep it was and where it was under their trees and vines.

Masumoto’s daughter Nikiko also began experimenting with drought-tolerant crops. She planted several olive trees, a fig tree and lentil plants, and is looking into several plants native to South Africa.

“I want to develop as vast a tool chest as I can, assuming that drought will be part of my life,” she said. “I have to accept that and respond.”

The Masumotos have even talked about more dire possibilities, such as how much water it will take just to keep things alive. Nikiko says that in a strange way she feels gratified that this is happening early in her farming career. She is developing the skills and knowledge to farm in this new reality.

She worries that there may still be some who haven’t accepted that California agriculture is changing.

“The global population will be 9 billion in 2050, and California is an essential part of the food system,” she said. “So if we haven’t learned any lessons from this drought, we are going to be in big trouble.”

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ACWA Presents Communications Award to Dublin San Ramon Services District
MarketWired | December 2, 2015 | ACWA

INDIAN WELLS, CA--(Marketwired - Dec 2, 2015) - The Association of California Water Agencies (ACWA) today presented its Huell Howser Best in Blue Award to the Dublin San Ramon Services District for its innovative water conservation outreach program.

The award was presented during the annual ACWA Fall Conference & Exhibition in Indian Wells, where more than 1,600 local water officials are gathered through Friday for programs and panel discussions on California's critical water issues. Dublin San Ramon Services District was among five finalists for the award that honors stellar communications and outreach programs developed and run by California water agencies.

"Dublin San Ramon Services District's public outreach campaign is an excellent example of the innovative conservation campaigns water agencies throughout California have launched during this multi-year drought," ACWA President John Coleman said. "The district executed a hard-hitting conservation campaign across numerous media channels and launched popular recycled water fill stations that captured intense media buzz. The lines at these events were a testament to the fact that solid outreach garners solid public participation."

Other finalists for this year's award were:

- Desert Water Agency for its "Check Yourself, Check Your Water Use" campaign, which included targeted workshops for industry groups, associations and others that offered audience-specific water-saving tips.
- Rancho California Water District for its "Managing Water Demand at the Customer's Fingertips" campaign, which put water consumption data into people's hands in near real-time.
- Sonoma-Marin Saving Water Partnership with its "There's a Drought On. Turn the Water Off" campaign. The partnership utilized on-the-ground, face-to-face outreach events as one avenue to explain the intricacies of water conservation.
- The City of Santa Cruz Water Department for its "Help Out - We're in a Drought" campaign that tapped into the city's strong activist culture. Local residents received information at bookmobile stops, food pantries, grocery stores and churches. "Rationing 101" community meetings also were held.

ACWA is a statewide association of public agencies whose 440 members are responsible for about 90% of the water delivered in California. For more information, visit www.acwa.com.

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Cal Water exec: Water issues complex; El Niño may not end drought conditions
Town Crier | December 2, 2015 | Robin Chapman

Without significant rain in December and January, homeowners and businesses may face an extension of water restrictions through next summer, according to Marty Kropelnicki, president and CEO of California Water Service Co.

“El Niño may bring temporary relief, but California’s water issues are complex and are not likely to be solved by a wet winter,” said Kropelnicki, speaking in front of a packed house at the South Peninsula Area Republican Coalition (SPARC) meeting Nov. 18 at Fremont Hills Country Club in Los Altos Hills.

Kropelnicki – an executive with Cal Water for nearly a decade and head of the utility since 2013 – provided SPARC members with an analysis of California’s water issues.

During the state’s last drought, between 1976 and 1978, California had 22.9 million residents. That number has now risen by 69 percent, with the population expected to top 43 million residents by 2020. California agriculture has boomed as well, tripling its acreage since 1950 and increasing its value twenty-fivefold, making California one of the richest agricultural regions in the world. The state’s growing population and its huge agricultural industry must now compete for the same water supply.

Kropelnicki said he believes that business, technology and government can work together to find practical solutions. Adjudicated groundwater rights have served utilities well both in the Santa Clara Valley and the Los Angeles basin. He added that better use of reclaimed water and a significant investment in California’s water infrastructure will be necessary.

“El Niño will not solve our problems,” Kropelnicki said, quoting a recent article in the Los Angeles Times. “But we have lots of room for manmade improvement. Together, we can do a better job of ensuring this vital resource will continue to serve us long into our future.”

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Drought: State water deliveries projected to be sparse again
SF Chronicle |December 1, 2015 | Kurtis Alexander

California officials announced Tuesday that the state's massive water delivery system, which carries mountain runoff to cities and farms, will likely supply 10 percent of the water requested next year due to the drought — half of what was provided this year.

The projected cutback may force the 29 public agencies that buy from the State Water Project, and serve nearly two-thirds of California residents, to rely more heavily on reserves and conservation.

It's a tough proposition in many places. The communities of Livermore, Pleasanton, Dublin and San Ramon, which get more than two-thirds of their water from the state, were hit hard by this year's reduced water deliveries and might have to go further to stretch supplies.

"It's not a real comfortable feeling. It's going to take a lot of work on our part," said Leonard Olive, assistant director of operations services for Pleasanton. Tuesday's announcement all but ensures that the city's strict rationing policies will remain in place for another year.

The state's projected 10 percent allocation comes despite forecasts for an El Niño winter. If wetter weather prevails, the allocation could change. But the 34 lakes, reservoirs and storage facilities that make up the State Water Project remain alarmingly low.

"Our historic drought has lasted for years and isn't going to quickly be washed away," said Department of Water Resources Director Mark Cowin.

The State Water Project is alongside the federally run Central Valley Project in moving water across California to cities and farms. The federal system has not projected how much water it will provide next year.

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Initial State Water Project Allocation Set at --10 Percent
Maven's Notebook | December 1, 2015

The Department of Water Resources (DWR) today announced an initial 2016 allocation of --10 percent for customers of the State Water Project. Depending upon the amount of rain and snow that reaches California this winter, the allocation may be increased or decreased. If dry conditions continue into a fifth year of drought, DWR may reallocate State Water Project (SWP) supplies to meet critical human health and safety needs.

Despite early season storms, California continues to face severe water shortages with record low levels in some reservoirs, including Folsom Lake near Sacramento.

Lake Oroville in Butte County, the SWP's principal reservoir, is dipping toward its record low of 882,000 acre-feet set on September 7, 1977. Oroville, which supplies a percentage of the water for 25 million Californians and just under a million acres of irrigated farmland, today is holding only 929,151 acre-feet, 26 percent of its capacity of 3.5 million acre-feet and 43 percent of its historic average for the date. Shasta Lake north of Redding, California's and the federal Central Valley Project's (CVP) largest reservoir, is at 29 percent of its 4.5 million acre-foot capacity, 49 percent of its historical average for this time of year. San Luis Reservoir, a critical south-of-Delta pool for both the SWP and CVP, is at --19 percent of its 2 million acre-foot capacity, 32 percent of average for the date.

Folsom Lake, a CVP reservoir, is holding a record low 136,980 acre-feet of its 977,000 acre-foot capacity. The reservoir's previous low was 140,600 acre-feet on November 20, 1977.

Low reservoir levels mean there is plenty of room for runoff from El Niño-driven storms should they develop, but even an extremely wet winter would not return conditions – especially groundwater levels – to normal after four consecutive dry years.

"No matter how hard it's raining, we need to remember to use water wisely and sparingly," said DWR Director Mark Cowin. "Our historic drought has lasted for years and isn't going to quickly be washed away."

The 29 public water agencies that receive SWP water (State Water Project Contractors) requested 4,172,786 acre-feet of water for 2016. Under today's initial allocation, they will receive --422,848 acre-feet. For most agencies, that amounts to 10 percent of the supplies for which they contract with DWR.

It is important to note that nearly all areas served by the SWP also have other sources of water, among them streams, groundwater and local reservoirs.

DWR is hopeful that today's SWP allocation, made before the wettest months, will increase as storms bring rain and snow to the state. But drought may continue to be the reality.

This calendar year's (2015) 20 percent allocation is the second lowest since 1991, when agricultural customers of the SWP got a zero allocation and municipal customers received 30 percent. In 2014, SWP deliveries were five percent of requested amounts for all customers.

The last 100-percent SWP allocation – difficult to achieve even in wet years because of Delta pumping restrictions to protect threatened and endangered fish species – was in 2006. SWP allocations in recent years:

- 2014 – 5 percent
- 2013 – 35 percent
- 2012 – 65 percent
- 2011 – 80 percent
- 2010 – 50 percent
- 2009 – 40 percent
- 2008 – 35 percent
- 2007 – 60 percent

Governor Edmund G. Brown Jr. declared a drought state of emergency on January 17, 2014 and followed up with statewide water conservation mandates. Since then, the state has been swept by drought-fueled forest fires, vast tracts of farmland have been fallowed and some communities have been left scrambling for drinking water.

Long-range weather forecasts are uncertain, and there is no way to tell if this winter will alleviate or deepen the drought. Conservation remains our most reliable drought management tool.

DWR's California Data Exchange Center Web sites show current water conditions at the state's largest reservoirs and weather stations.

- Reservoirs: http://cdec.water.ca.gov/reservoir.html
- Precipitation: http://cdec.water.ca.gov/snow_rain.html
- Snow: http://cdec.water.ca.gov/snow/current/snow/index.html

California has been dealing with the effects of drought for four years. To learn about all the actions the state has taken to manage our water system and cope with the impacts of the drought, visit Drought.CA.Gov. Every Californian should take steps to conserve water. Find out how at SaveOurWater.com.

# # #

California water conservation lagged in October, but state is still on course
LA Times | December 1, 2015 | Matt Stevens

During the first four months of California's emergency drought rules, people in cities and towns across the state made conservation look easy.

From June to September, urban areas routinely exceeded Gov. Jerry Brown's call to reduce water use by 25% — sometimes by wide margins.

But during an unusually hot October, state regulators say, water savings hit a snag. For the first time, residents and businesses fell short of the statewide target, cutting their water consumption by 22.2% in October compared with the same month in 2013.

Water officials say they expect savings percentages to be lower during the colder, rainier months, when people typically use less water and there is less room to cut back.

Felicia Marcus, chairwoman of the State Water Resources Control Board, said she was "relieved" by the 22% effort in October. It showed that Californians "haven't eased up," she said at a board meeting Tuesday where the numbers were announced.

Because local water suppliers saved so much during the summer, the state's cumulative savings are 27.1%, officials said, still above the level ordered by Brown.

"That's the number that matters," Marcus said in a phone interview. "I'm going to be worried until the drought's over. I wake up worried. But there's a lot to be thankful for, and I'm appreciative of the efforts Californians are making every day."

To bring about a 25% cut in water consumption, the water board assigned conservation standards to each of the state's 411 urban suppliers this year.

Suppliers with a history of high per-capita water use were ordered to cut as much as 36% from 2013 totals. Suppliers with a history of lower consumption were told to cut as little as 8% or, in rare cases, even 4%.

Some have struggled mightily to meet their targets. Seven suppliers finished October more than 15 percentage points from their targets. Fifty-eight others missed their marks by 5 to 15 percentage points, water board officials said.

The board already has begun penalizing water suppliers for falling short of their mandates, fining Beverly Hills, Indio and Redlands and the Coachella Valley Water District $61,000 each. At Tuesday's meeting, water board staff said Beverly Hills had paid its penalty.

Meanwhile, other local water providers have been issued formal notices warning that they, too, could face fines if they fail to improve.

Overall, enforcement actions by the board declined in October, staff members said. For example, water suppliers handed out almost 4,000 fewer financial penalties to customers in October than they did in September.

They took a generally positive view of statewide conservation in October. The month's average temperature was about seven degrees hotter than in October 2013, water board staff members said. (The state uses 2013 data as the baseline for its water-use comparisons.)

Though the state's percentage of water saved was the smallest in five months, staffers noted that Californians had conserved 41.9 billion gallons of water in October 2015 — more than three times what they saved during the same month in 2014.

Officials also pointed to a statewide decrease in the average amount of water that residents used each day. In October, residents used 87 gallons per person per day, 10 fewer than they did in September.

The board will not impose any penalty because the state missed its target in a single month, Marcus said.

"Not bad, not bad at all," she said of Californians' conservation in October.

Mark Gold, associate vice chancellor for environment and sustainability at UCLA, was also unconcerned by the latest numbers.

"We had a brutally hot October so it isn't surprising that we didn't meet the 25% goal for the month," Gold said. "However, a 22% cutback during such a hot month demonstrated that urban water users are still doing their part to conserve."

With wet, cold weather expected this winter, managers of some districts that lag furthest behind have worried that they will be unable to boost their savings enough by February, when the current drought regulations expire.

Brown has issued an executive order extending the mandatory water cuts if the drought continues through January. Water officials have said that will almost certainly be the case.

In another indicator of the severity of the state's water shortage, officials with the Department of Water Resources said the State Water Project would limit deliveries again in 2016.

Twenty-nine public agencies contract for water from the project to help them serve Californians. But under Tuesday's initial allocation, the suppliers will receive only 10% of what they have requested. Officials said that allocation could increase depending on rain and snow amounts this winter.

The water agencies received only 5% of what they requested in 2014 and 20% this year.

But officials also gave Californians reason for hope, reporting Tuesday that the state's snowpack is more than double the level it was last year at this time.

Snow levels measured statewide showed that water content was 56% of the historical average for Dec. 1. One year earlier, the water content measured just 24% of average.

"It's certainly a better sign than there was last year," said David Rizzardo, chief of snow surveys for the water resources agency. "Anything is better than zero."

# # #

More California farmland could vanish as water shortages loom beyond drought
California's water shortage won't end when the drought is over. New groundwater regulations will result in hundreds of thousands of acres of farmland being retired.
Sacramento Bee | November 26, 2015 | Dale Kasler

Firebaugh — His almond trees have turned a ghostly gray, and his grapevines are shriveling.

After two years without water, Garrett Rajkovich's farm in western Fresno County is dying. It might never be farmed again. Approximately 1,200 acres face the prospect of permanent retirement.

A dried-up almond hangs on a dead tree, the result of no water allotments for 180 acres of the popular nut trees farmed by Garrett Rajkovich in Firebaugh. It has resulted in some permanent farmland retirement. Experts say we'll see farmlands go out of production because of groundwater law in coming years. Because of drainage problems, the Westlands Water District has had tens of thousands of acres retired in the past few years. Randy Pench - rpench@sacbee.com

"This was a beautiful, thriving orchard five years ago," Rajkovich said during a recent stroll through his almond grove.

Rajkovich's troubles represent an extreme case, even by the standards of California's epic drought. Unlike many farmers, he didn't have groundwater as a backup when deliveries of surface water from the federal government dried up. But what he's going through represents a taste of things to come.

Land retirement is coming to California agriculture. The drought will end someday, maybe even this winter, but farmers will still face long-term shortages of water. The driving force: a new state law regulating the extraction of groundwater.

The relentless groundwater pumping that has kept hundreds of farms going the past four years is coming to an end. California's Sustainable Groundwater Management Act, set to take effect in 2020, will limit how much groundwater can be extracted over the long haul. While details of what constitutes "sustainable" pumping are still being fleshed out, water policy experts say many farmers will gradually have their water supplies curtailed – and the nation's leading agricultural state will farm fewer acres.

"It's not a question of if – it's a question of how much and where," said Chris Scheuring, a lawyer and water expert at the California Farm Bureau Federation.

Many of the state's farmers are already feeling long-term water problems. Westlands Water District, which serves farmers over a vast swath of land in Fresno and Kings counties, plans to retire tens of thousands of acres as part of a tentative deal with the U.S. government over issues related to drainage problems that have degraded the soil.

The new groundwater law is expected to further shrink agriculture's presence. As many as 300,000 acres could permanently disappear from agriculture, said farm economist Vernon Crowder, a senior vice president at agricultural lender Rabobank.

That's not a huge amount in a state with nearly 9 million irrigated acres of farmland. But it's not trivial, either. It's enough acres to grow the entire $1.2 billion California tomato crop. The concept is unsettling to people such as Don Cameron, a member of the state Board of Food and Agriculture and a champion of water-conservation efforts.

"It's the topic people don't want to talk about," said Cameron, who raises tomatoes, pistachios and grapes in the Fresno County community of Helm.

The subject is particularly touchy in the San Joaquin Valley, the heart of California's $54 billion-a-year agricultural industry. Experts at UC Davis estimated that farmers have been draining the valley's underground water reserves by as much as 5 million acre-feet per year during the drought to help compensate for staggering shortfalls in water deliveries from the State Water Project and the federal government's Central Valley Project.

What's more striking, perhaps: Even before the drought began four years ago, the valley's aquifers were being depleted by 1 million to 2 million acre-feet per year, according to data compiled by the state Department of Water Resources. An acre-foot is 326,000 gallons.

Pumping has been so extensive that portions of the valley floor are literally sinking, a phenomenon known as subsidence. As land subsides, the aquifers gradually lose much of their ability to be replenished by rain.

In other words, this is a deep, systemic problem that will squeeze farmers long after the drought ends.

"When the drought is over, we're going to be looking at places that don't have much water in their wells," said Ellen Hanak, an analyst at the Public Policy Institute of California. "People are doing the math and reading the writing on the wall."

Farmers feel misunderstood

Some experts say the groundwater restrictions will be especially rough on small farms, which won't have the financial cushion to keep going. Jim Verboon, who grows walnuts on 100 acres of land in Kings County, looks at his larger neighbors and wonders how he'll make it.

"I don't know if this groundwater law, the way it's crafted, is in my best interest or in any small grower's best interest," said Verboon, a third-generation grower. "There's a certain amount of land in the San Joaquin Valley that's not going to be farmed, except in very wet years."

Land retirement isn't a new concept. Farmland has been disappearing in California for decades, usually giving way to urban development. An estimated 765,000 acres of irrigated farmland vanished between 2000 and 2012, about half of it in the San Joaquin Valley, according to the state Department of Conservation. That represented about 8 percent of the valley's agricultural base.

Nonetheless, farmers get angry about land going idle, either permanently or temporarily, because of water problems.

They generally accept the idea that groundwater pumping needs to be reined in. But they argue the problem wouldn't be nearly as bad if the Endangered Species Act were relaxed, less water were set aside for fish, and more surface water were delivered to the valley from the Sacramento-San Joaquin Delta.

"We are not understood. We grow a lot of the nation's food," said Mark Sorensen, a raisin and blueberry grower in Caruthers and president of the Fresno County Farm Bureau. "I'm not sure those on the coast, in the Bay Area, Los Angeles understand that concept. The surface water is key."

If the land-retirement process isn't managed properly, Hanak said, the valley could be left with vast stretches of land simply going to dust. That would compound the region's air pollution problem, already among the most severe in California, she said.

And unless some other uses are found for the land, there could be economic impacts throughout rural California. Although farm employment has held up surprisingly well in the drought, UC Davis economists say the temporary idling of 540,000 acres this year erased 10,000 farm jobs that would have been created if water were plentiful.

Take land out of production for good, and the job losses likely will mount.

"When we're out of business, guess what? They're not getting a paycheck here," said Rajkovich, who employed two dozen full-time employees when his Firebaugh farm was fully active.

UC Davis farm economist Richard Howitt said the farm economy won't collapse, however. Most growers have survived the drought and kept revenue strong by concentrating their water supplies on high-dollar crops such as almonds and pistachios.

That trend will intensify in the coming years, Howitt said. Between groundwater restrictions and climate change – which is expected to shrink the Sierra snowpack – farmers will be pressed into progressively harder choices about what to plant and how many acres to leave idle.

"We're going to have to live within a smaller water footprint, which means we'll have to learn to live with a smaller farming footprint," Howitt said.

Solar energy farms starting to bloom

What will that look like?

Farmers hope they can keep as many acres in agriculture as possible. They're working on projects to capture winter stormwater more effectively, and to recycle the water they put on their crops. Some believe they can cope with the groundwater legislation by fallowing more fields in dry years and minimizing the amount of land that gets permanently retired.

Not far from Rajkovich's dying orchards, the Panoche Water and Drainage District is working on pilot projects to desalinate and reuse the water drained off its fields. The goal is to reduce dependence on groundwater.

District general manager Dennis Falaschi envisions a string of desalination plants up and down the valley. The plants might not generate enough water to produce a crop, but they could prevent someone's almond orchards from dying of thirst.

"That can keep 300,000 acres of trees alive," Falaschi said.

But land retirement is already a reality in some parts of the valley, where farming has given way to new uses. On West California Avenue outside Mendota, on land that used to produce tomatoes and cotton, sit a pair of solar energy farms and a medium-security federal prison.

The newest of the facilities, a 626-acre solar farm built by First Solar Inc. of Tempe, Ariz., opened in June. Made up of 750,000 photovoltaic cells, the plant has a 61-megawatt capacity and generates enough juice to light up 10,000 homes.

"You're going to see more," said Jose Gutierrez, a deputy general manager at Westlands Water District.

Westlands retired these lands more than a decade ago, although not because of water shortages. Rather, the land had been rendered increasingly useless for agriculture because of an incessant buildup in the soil of salt and other minerals linked to drainage problems in the clay soil.

For decades, irrigation water delivered by the U.S. government's Central Valley Project hasn't drained properly on much of the land served by Westlands. After a group of farmers sued, claiming the federal government reneged on a pledge to fix the problem, a settlement was reached in 2002. Part of the deal called for Westlands to buy 70,000 damaged acres and retire the land, including the parcels in Mendota.

It's taken a while, but some of the land is sprouting new uses. More than 2,400 acres of land within Westlands' territory has been converted to solar farms in recent years. Gutierrez said another 2,600 acres will go solar in the next year or two.

Beyond that, a company called Westside Holdings wants to build a 20,000-acre solar energy park, billed as the largest in the country, on retired farmland near the Lemoore Naval Air Station in Kings County. Its financial backers include CIM Group, a glitzy real estate developer from Los Angeles whose credits include the Hollywood theater that hosts the Oscars.

Solar's surge has the approval of community leaders such as Mendota Mayor Robert Silva. Although most of the jobs are temporary, the installation of solar farms has boosted employment in a depressed part of the state.

"Farming is good, farming is great, but we need other jobs for this community," Silva said. "There's a lot of sun here and we've got to take advantage of it."

Tens of thousands of additional acres of farmland would be retired by Westlands under yet another settlement the district signed with the federal government in August over persistent drainage issues. The agreement doesn't take effect until it's ratified by Congress, and approval isn't a sure thing.

Rajkovich's farm near Firebaugh is among those due to be retired. The district would buy him out at a price to be determined, and the 1,200 acres wouldn't get any more Central Valley Project water. "It would be capped off and that water supply would be redistributed to the rest of the district," said Westlands spokeswoman Gayle Holman.

Neither side is thrilled at the prospect. Rajkovich isn't sure whether he'll recoup the millions he spent planting almond trees, installing irrigation lines and making other improvements to the land. While his family maintains a smaller farm near Stockton, he called the situation in Firebaugh "financially and emotionally draining."

As far as Westlands is concerned, shutting off the tap to a piece of farmland violates every principle the district holds dear.

"We are in the business of agriculture, farming, delivering water to farmers to produce," said Johnny Amaral, a Westlands deputy general manager. "This whole area is getting strangled."

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California Needs Snow to Start Falling Now for Drought Relief
Bloomberg Business | November 24, 2015 | Brian Sullivan

The drought relief for California widely expected from El Nino in early 2016 will be far more effective if a chill descends soon -- ideally with a bit of snow.

“If we can get some snow on the ground and some cold nights, it will set up the snowpack and get cool air pooling,” said California State Climatologist Mike Anderson.

Cool air, especially at high altitudes, will help ensure snow falls and stays on the ground in the mountains through the winter, as needed to supply the state’s reservoirs. While that may seem like a non-issue given the height of the mountains and the tradition of heavy snows there, recent years have seen some worrisome trends.

During the winter of 2014-15, the three-month average temperature in the Sierra region topped the freezing mark of 32 degrees Fahrenheit (zero Celsius) for the first time in records dating to 1950, data compiled by Anderson show.

California as a whole posted its warmest February on record and both December and January came in among the top 10, according to the National Centers for Environmental Information in Asheville, North Carolina.

Here is why all of this is important: If El Nino delivers the promised increase in big, wet storms off the Pacific from January to March, California needs a lot of what falls from those systems to be snow.

Snow in the mountains stays there until spring, when it melts, runs off and replenishes the state’s reservoirs. If the storms come in as rain, or the mountain snow can’t pile up high enough, a lot of water will be lost.

So far, the snow in the mountains hasn’t exactly been impressive, and perceptions may have outstripped reality.

“Since it has been dry for so long, people get excited,” said Rob Hartman, hydrologist in charge of the California Nevada River Forecast Center in Sacramento. “We have had some small storms that left a sprinkle of snow in the mountains. We are still waiting for winter to arrive. We are not ahead of schedule by any means.”

Fourth Year

California is in its fourth year of drought and almost the entire state is abnormally dry, according to the U.S. Drought Monitor in Lincoln, Nebraska.

Improvement is possible. However, the drought will certainly go into a fifth year, according to the forecast from the U.S. Climate Prediction Center in College Park, Maryland.

“The notion of fully recovering from the drought is extremely unlikely,” Hartman said. “But you have to start somewhere.”

That start begins with a little cool air coming in with the next storm. Checking a forecast last week, Anderson said some outlooks were calling for temperatures to reach freezing and below as far down the mountains as 3,000 feet.

“Those are good signs,” he said.

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Even With El Nino, New California Drought Rules Will Go Into Effect In 2016
CBS Sacramento | November 23, 2015 | Ian Schwartz

SACRAMENTO (CBS13) — While rain is on the way for the holiday commute, it won't be enough to curb the drought or recharge groundwater reservoirs in the state as new rules will go into effect starting next year.

Jim McDonald with the City of Sacramento says new rules for landscapes start statewide in 2016. Any new construction with a landscape bigger than 500 square feet will need to have drought-friendly features.

"They will have to prove in their building permit application that they've met the state ordinance by providing drought tolerant plants and irrigation equipment," he said.

At Midtown's Ace Hardware, Matt London says there are tons of ways to save water outdoors.

"Drip irrigation to things that definitely help meter the amount of water going out a lot better than you could do with just over watering, or using a hose and sprayer," he said.

London says timers that attach to your hose are a cheap way to limit how much water you're using on your lawn.

The state will also prohibit plants that use a lot of water next year. The new rules will only apply to new development.

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Planning for Future Droughts
PPIC | November 23, 2015 | Ellen Hanak

In a week that began with Governor Brown extending the statewide water conservation mandate into next year, a panel of experts testified about how to improve drought management. They spoke before the Assembly Select Committee on Water Consumption and Alternative Sources on November 17.

Nine experts covered a range of topics, including the state of our water infrastructure and management systems and options for improving water security as our climate becomes warmer.

Jay Lund, director of the UC Davis Center for Watershed Sciences and an adjunct fellow at the PPIC Water Policy Center, gave an overview of California's complex water system and ways the drought has tested it. He noted the state suffered a water shortfall equivalent to three full Folsom reservoirs.

"We can't drought-proof the state," Lund said. "But we can do better in managing drought. In the future, there should be greater emphasis on improving our water markets and on storing more water in groundwater basins."

I talked on key areas where we need to do better, as documented in our report What If California's Drought Continues?:

- Cities and suburbs: The state's urban areas have weathered the drought well so far. But we've boxed our water agencies in by making it hard for them to raise rates and requiring cost accounting that is too precise. This makes it more difficult to invest in options like capturing stormwater and recycling wastewater.

- Agriculture: Farmers increased groundwater pumping to make up for losses in surface water—a smart short-term thing to do. It can be smart for the long term too, as long as we get better at storing groundwater for drought years.

- Rural communities: Our most vulnerable populations suffered from drying wells in areas that already had water quality problems. There's a need for more sustained investment in safe water for rural communities.

- Ecosystems: Our habitats and the animal life they support are in crisis from the dry, hot conditions. Wildfire risks are extreme, and many fish species are at risk of extinction. Rebuilding environmental resilience will be key to sustaining the state's iconic biodiversity.

Noah Diffenbaugh, a climate scientist with the Stanford Woods Institute, described some risks that climate change brings to the state's water systems. Warm years are becoming the norm, making droughts much harsher by shrinking the snowpack and drying out soils.

Peter Gleick, president of the Pacific Institute, talked about increasing conservation and prioritizing water investments. "We saved almost 800,000 acre-feet of water this summer. This is far more water than any of the proposed reservoirs would provide," he said.

Buzz Thompson, director of the Stanford Woods Institute, talked about the role of technology in increasing California's water security and resilience. "New technologies will be coming along in the next 5–20 years that will reduce our costs and give us more options. We need to do more to support them."

The hearing also featured remarks from top administration officials, who described progress in implementing the governor's Water Action Plan. An Israeli water expert shared that country's experiences in wastewater recycling, desalination, and pricing to combat water scarcity.

The committee plans to hold additional hearings on water supplies and sources in the coming months.

# # #

California dreaming: developing an ATM for groundwater
E&E Publishing | December 3, 2015 | Brittany Patterson

KERN COUNTY, Calif. -- Bumping along a wide, gravel road, Jon Parker deftly maneuvers his pickup truck while simultaneously pulling out a collection of laminated maps from his center console. Dotted with brightly colored squares, the maps show the extent of the 32-square-mile Kern Water Bank. Thin lines cut through the patchwork illustrating who puts in water when it's wet, and therefore who can take it out when it's dry.

The water bank is basically an ATM for water, and in drought-stricken California, water is currency in itself. While floodwaters might cost a farmer $2 to $3 an acre-foot, buying water on the market four years into the current drought might fetch something closer to $1,200 per acre-foot. This year, the state is banking on something else: El Niño. The powerful weather system has already dumped both water and snow on the state. As of Tuesday, snow survey data from the California Department of Water Resources showed snow levels at 56 percent of the historical average for Dec. 1, up from 24 percent a year ago.

Still, experts say the state has a long way to go before it's out of the drought, a drought that could have been slightly less painful if the state's groundwater resources had been replenished to their full capacity, ready for use when the water got scarce.

Located off Interstate 5 in California's agriculture-rich Central Valley, the water bank at capacity can store about 1.5 million acre-feet of water. If water is plentiful, the bank can put about 500,000 acre-feet in the ground and bring back up about half of that for use in a year. To place that in perspective, 1 acre-foot of water is enough to meet the needs of two families of four for a year.

As the truck zooms by a canal full of crystal-clear blue water, about 30 feet wide and equally as deep, Parker gestures to a vast extent of dry, brown land, dotted with hearty-looking shrubs and dried-up cattails. In wet years, that landscape would be awash in cerulean blue. The recharge ponds can filter water into the underground aquifer at a rate of 0.2 to 0.4 feet per day.

In addition to the bank's participants choosing to place their water allocations from the State Water Project into the water bank, during wet years, the bank can take excess water from the Kern or Friant rivers. It is operated by the Kern Water Bank Authority, which is a public agency operating as a joint powers authority. It includes six member entities, including several water districts, a water agency and a water company.

"We haven't had water in the ponds since January of 2012," Parker explains. In a wet year, there would be about 2 to 3 feet in the fields, or recharge ponds as they're known at the water bank. "We still have water in the ground, so next year we'll continue to pump."

These days, in Kern County, he says everyone is into water banking.

"If you didn't have the water bank, what would happen is in those wet years when the State Water Project has surplus water, that water would just flow out into the ocean or in Kern County here, the water would flood farmland or it would go into the aqueduct and go south if they had capacity," says Parker, who is general manger of the Kern Water Bank, the largest

groundwater banking operation in California and quite possibly the world. "It wouldn't be put to beneficial use. So what we're doing here is we're putting the water to beneficial use by capturing that surplus water, storing it up and having it available for when it's dry."

And dry is a huge concern for a state that produces nearly half of United States-grown nuts, fruits and vegetables. In 2013, California's agriculture sector exported more than $21 billion in products.

Even more than that, groundwater banking offers a flexible alternative for a state whose water storage system is predicated by surface reservoirs that rely on a melting snowpack. As the climate changes, most experts agree California is going to warm and lose its snowpack but gain more precipitation. Droughts are also expected to become more common.

Legislation creates 'our biggest reserve'

"So what are you going to do if you lose a big chunk of your annual storage?" asked Ellen Hanak, director of the Public Policy Institute of California's Water Policy Center. "It's a way both to store water for local users -- but also because of the innovation that some of the folks down in Kern have introduced -- it's a way for storing water for those who are not local users of that basin. I think it's a really important tool for California."

The state Legislature agrees. In response to California's prolonged drought, in September 2014, Gov. Jerry Brown (D) signed into law the Sustainable Groundwater Management Act (SGMA).

The legislation tasks local agencies with creating a sustainable groundwater management plan, with the first step for most water districts to measure and quantify just how much water they have underground. In some parts of the Central Valley, the rate in which groundwater is being pulled out exceeds the rate in which it can be replaced. The result, after years of overdraft, is the groundwater table has plummeted and, in some places, the land itself is sinking. Rates of subsidence are at nearly 2 inches a month, according to a recent report released by NASA and the California Department of Water Resources.

The legislation gives the most-stressed basins until 2020 to adopt groundwater plans and until 2040 to achieve sustainability, and other basins have slightly longer to comply. The state will step in if agencies fail to act.

Then there's Proposition 1. Passed in 2014 by California voters, Proposition 1 sets aside $2.7 billion for storage projects. The bond legislation specifies that the state will pay for no more than half of a project, which means buy-in has to be significant.

"The incentives for doing it will be improved over time with the existence of SGMA," Hanak said. "If you look at the experience of this drought, one of the things that's really clear is that groundwater is our biggest drought reserve, and so managing it in such a way so that we have it for future droughts is incredibly important."

From the short, severe drought in 1976-77 to a prolonged six-year drought in 1987-92, extended water shortages aren't a new thing in California. This latest drought, now in its fourth year, however, features two of the driest years in the state's 120 years of records.

Fruit and almond grower Steve Jackson was forced to fallow his land located south of Kettleman City in the Central Valley when drought hit California in the early '90s.

"We didn't have any income, but we survived," he said. "It taught us a lesson -- we needed a backup supply."

And so when the Kern Water Bank was created in 1996, Jackson, who works closely with the water districts his land sits on, jumped at the chance to join. When this latest dry spell hit, that investment was Jackson's saving grace. Unlike some farmers, having stored water in the water bank meant he could get water -- 65-90 percent of normal -- even when the state curtailed allocations.

At one point, Jackson and his father had about 1,800 acres of almonds, nectarines, plums and apricots, but today that number sits just under 800. They sold off some of the property, and last year, they began ripping out orchards.

"We almost didn't make it," he said, adding conditions were so bad he couldn't even buy water on the open market. "When I say it's [the water bank] been our savior, it has been."

But Jackson also acknowledges that without sustainable groundwater mining practices, the resource will not be able to support future agriculture.

"Without water, we can't do anything," he added. "For us to really thrive, we have to find better, creative ways to capture water in wet years -- that's why you hear people pushing for storage."

This year, the chance of a wetter-than-average winter is high in California due to a strengthening El Niño, according to a forecast by the National Weather Service's Climate Prediction Center released last week. There's a 40 percent chance the area around Lake Oroville, California's second-largest reservoir, will experience wetter-than-usual conditions. San Francisco now has more than a 50 percent chance of a very rainy winter, and Southern California is looking at a 60 percent chance.

'Re-regulating' across Calif.'s water system

About an hour into the tour of the water bank, Parker pulls the truck up to what once was the Kern River. The bone-dry riverbed resembles a tree and shrub graveyard. We hike up, over the former river, to gaze upon a snaking cement channel, which brings water from Northern California to the south.

Peering down, Parker points out a pipe, 11 feet in diameter, which transports water from the water bank's canal to the aqueduct.

"This is the part of the project that people thought would never happen," he says, gesturing to the aqueduct. "People were concerned about water quality, environmental issues, that

the endangered species that took over on the surface of the water bank would make it so we wouldn't be able to build anything and things like that. But we did."

The water bank spent 2½ years constructing the infrastructure and many more meeting with downstream stakeholders, presenting water quality data and models and proving to everyone that the water once stored underground could be redistributed as safe drinking water.

Parker said in the past the water bank had to reassure people they are not stealing water.

"Everybody is really happy when we've been recharging water because all of their water tables are very high, but then when we pump, water levels drop."

With this mechanism in place, complete with a strong monitoring and accounting system, the Kern Water Bank has shown it can function not only as a holding place for water, but that it can interact with the state's interconnected water infrastructure network. In a sense, the bank can "re-regulate" water, store it when it isn't needed and pump it out to thirsty users when it is.

The drought has illuminated the state's need to re-examine its water infrastructure, but the appetite is small for building more reservoirs, and it isn't clear if they would be helpful as precipitation patterns change, Hanak said.

"We have a lot of potential to retool our system in order to use our basic surface reservoir capacity with more flexibility," she said. Reservoirs capture melting snowpack and store water for use in hot dry summers. They're not as good at keeping enough water to get a state through a multiyear drought, in part because they have to leave enough room to store winter precipitation and protect against flooding.

"We could concentrate on using them as temporary holding places and get dry-year water in the ground," she said. "It's down there, it's not evaporating. It's waiting for us in dry years, and we have a lot of room in our basins because we've been overdrafting in a lot of places for years."

However, successful water banking takes more than just letting water seep into the ground. Nearly all of the groundwater storage in California is located near the Tulare Basin, and that's not a mistake.

Waiting and (praying) for El Niño

To begin, the geology in Kern County is prime for water banking. The below-ground aquifer is unconfined, meaning it's entirely open for storage and the groundwater quality is good.

"And then the plumbing is really good," Parker adds. "We have access to water from all parts of the state."

An added benefit to banking water is the ability to create a wildlife habitat, not cover one up as a reservoir does.

With 7,000 acres of open, protected recharge ponds that serve as intermittent wetlands, wildlife ecologists have observed 66 waterfowl species and upward of 35,000 individual birds on the water bank. Because most of the land sits under a habitat conservation plan, part of a permit issued under the Endangered Species Act to private entities undertaking projects that might result in the destruction of an endangered or threatened species, Parker believes basically into perpetuity that the land will serve as a wildlife refuge.

Less water is also lost to evaporation. That's not to say every drop that is recharged makes it back out, Parker said. The bank believes about 6 percent of water recharged is lost, or for every 100 acre-feet it brings in, it can bring back out 94 acre-feet. Unlike a reservoir where floodgates can be opened and water released immediately, the water bank must pump it back out. The Kern Water Authority, the entity that manages the water bank, has 85 wells, some as deep as 750 feet into the ground, to do the trick. The bank has an annual recovery capacity of about 240,000 per year, although, Parker notes, both the recharge and the recovery rates suffer as the total amount of water in the bank falls.

The priority now is to ready the bank for a wet El Niño, and if that doesn't come to fruition, the bank intends to pump out water again next year. Parker says it estimates it has one more year's worth of water stored underground, about 120,000 acre-feet, which highlights an uncertainty even groundwater banking can't eliminate in California.

"We can't provide enough water to fulfill all of the need," he says. "But we can provide enough water to help pretty significantly."

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Poseidon's Carlsbad desalination plant undergoes tests as H.B. plan waits in the wings

Huntington Beach Independent | December 3, 2015 | Anthony Clark Carpio

While Poseidon Water's proposal to build an ocean desalination plant in Huntington Beach may be nearing final approval, the developer's new facility in Carlsbad is about ready to provide San Diego County with potable water.

On Nov. 9, the $1-billion Carlsbad project embarked on a 30-day test period per an agreement with the San Diego County Water Authority to prove to the agency that the plant, which is expected to produce 54 million gallons of drinkable water per day, can function properly.

"We're about halfway through that period right now," Poseidon Vice President Scott Maloni said Tuesday. "We've just produced our billionth gallon of water and meeting all of our contractual obligations."

If the plant runs flawlessly during the 30 days, it should be in commercial operation by mid-December, Maloni said. The San Diego County water district is expected to pay $2,014 to $2,256 per acre-foot of water from Poseidon during its 30-year deal.

The desalinated water is expected to supply San Diego County with 7% of its water supply.

The Carlsbad plant plays a significant role in Poseidon's attempts to sell desalinated water from its proposed Huntington Beach facility, which would be built next to the AES power plant at Newland Street and Pacific Coast Highway.

Millions of gallons of seawater a day would pass through thousands of reverse-osmosis membranes at Poseidon's proposed Huntington Beach desalination plant to remove salt from the water and make it drinkable. These membranes are at Poseidon's new Carlsbad plant. (File photo / HB Independent)

In May, the board of the Orange County Water District approved a non-binding term sheet with Poseidon to negotiate the price of water from the plant and to determine who would be responsible for various aspects of the project.

Maloni said he expects the Orange County district to negotiate a 50-year deal with Poseidon should the project be approved by the California Coastal Commission sometime in the spring.

A key part of the term sheet is that Poseidon must prove to the Orange County district that the Carlsbad plant can operate without a hitch for 90 consecutive days.

"We're probably a year away from executing a final water purchase agreement [with the Orange County Water District]," Maloni said. "Carlsbad would be in operation for a good amount of time."

# # #

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Rising to El Niño's challenges – and opportunities
California Water Blog | November 29, 2015 | Nicholas Pinter

The much-anticipated El Niño has now arrived, with increased potential for heavy rain and snowfall, including the possibility of localized flooding, mudslides and other hazards.

While extreme storms, flooding and other natural disasters challenge society to protect life and property from damage, they also present opportunities. Floods in particular often catalyze positive changes that otherwise would not occur. These events give us a chance to fix past oversights, correct imbalances between human use of the landscape and natural processes, and improve long-term resilience for people and society.

Government officials, academics and environmental leaders recently gathered for a UC Davis summit on the current El Niño to discuss steps available now to minimize challenges and maximize opportunities.

People across California are speculating about what El Niño might bring. One recent opinion article in the San Jose Mercury News warned of floods 0f possibly "biblical proportions."

Concern is warranted, but flooding in California is not clearly or simply correlated with El Niño – particularly not in Northern California, which receives most of the state's rain and snow.

As Jay Lund of the UC Davis Center for Watershed Sciences pointed out at the summit, annual precipitation in the Sacramento Valley correlates only loosely with El Niño indices (See Figure 1). The only California flooding on record that might fairly be characterized as "biblical" in magnitude – the Great Flood of 1861-62 – resulted from "atmospheric river" conditions that appear to be largely independent of El Niño.

Another cautionary note is that an El Niño this winter almost certainly will not end California's drought. Groundwater supplies in particular are too depleted to be fully replenished statewide in a single season.

An El Niño also might not add much to the record-low snowpack in the Sierra Nevada, where California receives much of its long-term water supply. At the summit, Michael Dettinger of the U.S. Geological Survey said both El Niño and global warming point toward warmer winter temperatures, raising the possibility of a "snow drought" even with a stormy winter.

Whether this winter's storms hit California with torrential rain or barely dent the drought, Californians should prepare themselves for increased probabilities of locally heavy rain and snow, including the potential for flooding, debris flows and other damages from severe weather.

Local, state and federal officials are coordinating extensive preparations, but … sometimes it's the curveball you don't see coming that hits you in the head. The 14 speakers at the summit identified dozens of locations of specific concern in California, ranging from Camp Pendleton in the south to the Yuba and other Northern California rivers.

Other locations were noteworthy because they did not show up on these maps. For example, with California reservoirs at record lows, most regulated rivers in the state are unlikely to see major flooding downstream of their dams.

In contrast, several speakers voiced concern over areas ravaged by wildfire this past summer. The combination of severe fires, many on steep slopes, immediately preceding a strong El Niño creates potential for damaging slope failures, debris flow and debris-related impacts downslope and downriver.

On the bright side, disasters have a way of focusing attention on deferred improvements. As Stanford University economist Paul Romer coined it, “A crisis is a terrible thing to waste.”

An El Niño aura of urgency presents opportunities for strengthening California’s defenses against natural disasters, starting with mitigation of flood risk. The Federal Emergency Management Agency (FEMA) has designated more than 3,000 homes and other buildings in California as “repetitive loss properties,” meaning they have been repeatedly flooded and drawn multiple taxpayer payouts – at least $155 million in claims (Calil, et al. 2015). The agency reserves 15 percent of disaster payouts for flood mitigation, and puts a high priority on fixing repetitive loss problems after flooding.

El Niño also could spur additional political support and create opportunities for restoring floodplains and reconnecting them to their rivers. John Cain of American Rivers and John Stella of the Nature Conservancy showed the multiple benefits of “room for rivers” projects in California. Sections of old levees are strategically removed or set back so rivers can spill floodwaters onto undeveloped or farmed floodplains – lowering flood risk for communities, revitalizing riparian habitat and replenishing groundwater supplies.

Flooding is the most damaging and deadly natural disaster in the U.S. But history teaches that the most effective and most positive changes in flood management usually were planned in the absence of crisis, when skies were blue and feet were dry.

Now is the time to anticipate and prepare for the full range of challenges and opportunities that this winter’s El Niño may bring.

# # #

Nichols Pinter, a geology professor, holds the Roy J. Shlemon Chair in Applied Geosciences at UC Davis.

Restoring California Meadows Could Help Combat Climate Change And Increase Water Supply

Jefferson Public Radio | November 28, 2015 | Amy Quinton

A crucial part of California's ecosystem has almost disappeared. Mountain meadows act like natural reservoirs, storing and cleaning water.

But they may have another benefit – capturing greenhouse gases. Scientists are studying if restoring meadows can play a small part in combating climate change.

When you imagine a meadow, you think about soggy ground with tall green grasses and maybe a shallow stream running through it. It's unlikely you'd imagine the place we're walking through now.

"Although we have a meadow here right now you can see it's extremely dry, there is no wet component to it at all right now," says Bridget Fithian with the Sierra Foothill Conservancy.

Golden European grasses crunch beneath our feet. Cows graze in the distance. This is Bean Meadow in Mariposa County in the Sierra Nevada foothills.

The Conservancy has embarked on a project to return 39 acres back to what it once was, before people built roads and ditches and turned it into ranchland in the 19th century.

She takes me to the middle of the meadow.

"We're kind of in a forest now, but we're actually in a creek channel," says Fithian. "The creek channel should not have gigantic Ponderosas growing in it and these huge decadent Willows. So basically the wetland area of this property has been totally condensed to this little corridor."

What is supposed to be a shallow stream is 14 feet deep.

"It's just absurd. It should not look like that here," says Fithian.

A deep stream moves water through the landscape too quickly. This meadow is supposed to capture water from melting snow and slowly release it downstream into the Merced River.

"When you have that slow release, you reduce evaporation and you reduce the temperature of the water,"says Fithian."So you really increase the quality of the water and you increase the quantity."

Wet meadows also have native grasses with robust root structures. That serves another important purpose - sucking carbon dioxide out of the air and storing it in the soil.

"We know that wetlands in general store lots of carbon," says Stephen Hart, an ecology professor at UC Merced. "So if we restore the meadows like this one back to a wetland state, we're anticipated more carbon will be stored, because less CO2 will be admitted."

But researchers need to first get a good idea how much greenhouse gas the meadow is emitting now.

Researchers are placing chambers, which look like plastic, upside-down bowls, over patches of grass. They then stick a syringe through the chamber to grab a sample of air inside.

They'll measure the emissions coming off the meadow now and compare it to the meadow once it's been restored. Bridget Fithian says restoration requires earthmoving equipment, large tree removal, and the creation of earthen berms that allow water to spread out onto its historic floodplain.

“It's actually a pretty radical alteration to the landscape," says Fithian. "But what we have right now is radical alteration to the landscape.”

It's not just Bean meadow that's been altered. Stephen Hart with UC Merced says most mountain meadows in the Sierra are in sad shape.

“Pretty much all of them are in a state of degradation, loss of ecological function," says Hart.

"So if we had the funds to restore them all that would be quite a significant sink for – if my hypothesis is correct – for greenhouse gases in the future."

If Hart is right, the restored meadow will capture carbon dioxide, store and clean water, and provide for native habitat. State agencies are betting on it.

The Bean Meadow project was one of 12 wetland restoration projects to receive money from the state's cap and trade program. Reconstruction of the meadow will begin next fall.

# # #

California's new hot commodity: Stormwater
CNBC.com | November 24, 2015 | Jane Wells

On a drought-parched piece of land in California's Central Valley, farmer Don Cameron has persuaded other growers to do something counterintuitive.

Flood their farms.

"I think you could put millions of acre feet back into the ground," said Cameron, who grows everything from almonds and grapes to carrots and tomatoes.

Cameron has a novel idea: Flood fields with storm runoff from El Nino this winter when you don't need the water. Then let the water seep into the massive aquifer underground, raising the water table, so that it won't cost as much to pump in the summer when the water is needed.

You might even get other people to pay you to do it.

Cameron has been thinking about the idea for a long time. During the huge storms of 1983, he saw a submerged vineyard survive. So in 2011, before the latest drought, Cameron diverted stormwater coming through his property to flood a 300-acre vineyard of wine grapes of moderate quality ("This is not Napa"). For five months in 2011, the vines stood in water more than a foot deep. "A lot of our neighbors thought we were crazy."

The experiment worked. Most of the water went into the aquifer underground. "We got probably 3,000 acre feet of water, which is a tremendous amount of water," and the vines and the grapes were fine, he said.

Now, he's spending $7 million to quadruple the capacity of a canal, hoping El Nino will provide even more water this time.

Other growers have agreed to join him. Many feel they have to do something to replenish the aquifer, which has fallen to 250 feet beneath the surface of the ground. Much of the valley depends on that aquifer, and farmers — especially almond growers — have been accused of over-pumping.

Cameron is working to get the state's almond board and Sustainable Conservation, a California environmental nonprofit, to spearhead the large-scale flooding experiment. "We're looking to do 10 demonstration projects, not just almonds, but on other tree fruits and grapes as well," said Daniel Mountjoy, director of resource stewardship at Sustainable Conservation. "Some growers say they want to do it on 5 acres, some say they'll do it on 20, some say they'll do it on 150, 160 acres."

The fields need to be on sandy, porous soil, so the water can more easily seep underground. "During the winter season, you could have between 3 feet and 10 feet of water per acre," said Mountjoy.

The big question is what impact this will have on trees and fruit. "I think you have to be a little more careful with the almonds," said Cameron. "Some growers are concerned that if

you have too much water, and you have a big windstorm during the winter, you could have trees blow over."

While some farmers are skeptical of something so completely new, they're also facing new state rules forcing them to account for how much groundwater they use. Putting rainwater into the aquifer could help them reduce their total usage.

Then there's the potential market for storm runoff.

"That's a new discussion that's going on in the state capital right now around, 'What are the rights to floodwater?' Mountjoy said. "No one's asked that question before."

Most of the money Cameron is using to expand his canal is coming from a federal grant awarded for the prevention of flooding downstream. That has created a new conversation about storm runoff and its potential value. Mountjoy said incentives could eventually include compensation from communities downstream that do not have to build new levees to protect against flooding, or neighbors who benefit from more water underground in the same irrigation district.

"A lot of the growers looked at it as sort of a problem rather than an asset," said Cameron. "I mean, we're looking at reservoirs underneath our feet here that are potential areas to be refilled and stored for future use. It's a real asset for us."

# # #

Why Solving California's Water Woes Will Take More Than Rain
KQED | November 24, 2015 | David Marks

California is finally getting some rain — and there's been enough snow in the Sierra already for some ski resorts to open early. But the impact of California's drought will be around for a while, and a long-term solution to the state's water problems will require a lot more than just one winter of rain and snow.

KQED Science editor Craig Miller joined The California Report on Friday to discuss the drought and a new report that urges the state to address perhaps its most fundamental water challenge.

The study, from the Public Policy Institute of California, argues that the growing demand for water makes it imperative to reform the state's system of allocating this essential resource. The PPIC report says the drought has shown the water rights system to be "fragmented, inconsistent, and lacking in transparency and clear lines of authority."

"The PPIC is attacking the sacred cow by saying it's time to make some changes in the water rights system," Miller said. "Water rights in California are sacrosanct. They're like property rights. They are property rights. They determine the pecking order, when water is short, of who gets what and when."

But the PPIC report stops short of recommending that the state change that "sacrosanct" priority system.

"The PPIC is not saying it's time to throw out the whole system … but to make it more even-handed, like Australia, where they've put a system in place where when water is short, everybody takes a haircut," said Miller.

One way the PPIC recommends making the system more even-handed is to keep certain rights owners from gaming the system.

"It's a special case, it gets a little complicated, but [this happens when] people who have two different types of water rights can kind of toggle back and forth to whichever is more advantageous for them at the time," Miller said.

The PPIC says it's time to amend the law to require rights-holders to choose between one right or the other for the same land. But since making that change would require legislative action, don't hold your breath.

In the meantime, Gov. Jerry Brown says the state needs to extend the water restrictions he put in place in April.

An executive order the governor issued two weeks ago says if drought conditions persist by the end of January, then the range of watering and other restrictions that have already been in place would run through next October.

So how will we know if drought conditions persist?

"I asked the state water board how we'll know, and the answer I got back was, 'They will,'" Miller said.

“I have heard scientists say it would take double the statewide average of precipitation to make up the cumulative rain and snow deficit from this four-year drought,” Miller said. “If that actually happens, the impacts would be biblical and we’d all be looking to build an ark at that point.”

# # #

Water treated at Newark Desalination Facility goes into drinking supply
SJ Mercury News | November 23, 2015 | Newark Connection Staff

The Newark Desalination Facility has been turning salty water into drinkable water that is distributed to homes and businesses in Newark, Fremont and Union City since September 2003.

The facility, located near Cherry Street and Central Avenue and operated by the Alameda County Water District, uses a reverse osmosis membrane filtration process to treat brackish groundwater with a high salt content.

The first phase of the Newark Desalination Facility produced up to 5 million gallons per day of permeate, or product, water. Following completion of an expansion in August 2010, the plant doubled its production to 10 million gallons for a total blended production of 12.5 million gallons a day that enters the distribution system, according to the water district.

Because of the drought, however, the facility is currently producing only 7.6 million gallons of water per day.

Chlorinated well water is combined with permeate water to increase the hardness prior to entering the distribution system, the water district said. Chlorine, ammonia, fluoride and sodium hydroxide are added as finished water chemicals.

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This just in … California's Cumulative Water Savings Continue to Meet Governor's Ongoing Conservation Mandate

Workshop to renew regulations set for Dec. 7

Maven's Notebook | December 1, 2015

Californians have reduced water use by 27.1 percent in the five months since emergency conservation regulations took effect in June, continuing to meet Governor Edmund G. Brown Jr.'s 25 percent mandate despite a decline in the statewide water-savings rate for October.

In October, when outdoor water use – and the opportunity for significant savings – typically drops off from the hot summer months, the statewide conservation rate was 22.2 percent, down from 26.4 percent in September. Adding to the challenge, October brought temperatures that were well above normal for most of the state. Nonetheless, average statewide water use declined from 97 gallons per person per day in September to 87 in October.

"We anticipated a dip in the conservation rate for October, but it is not because people are losing interest–they actually did quite well considering how unusually hot it was in October," said Felicia Marcus, chair of the State Water Resources Control Board. "It's harder to keep the percentages up in the fall and winter when little outdoor watering takes place. That's why the savings over the summer were so important. Now, we need to keep finding ways to save water. While El Nino storms may bring significant rain this winter, the depth of our drought and the uncertainty of the amount, type, and location of precipitation means we have to continue conserving every way we can. In other words, unless we get a ton of snow in the Sierras that lasts through April, every drop saved today is one we'll be glad we have tomorrow."

A public workshop to discuss concepts for a renewed urban water conservation regulation has been set for Dec. 7. The current drought emergency water conservation regulation adopted by the board in May expires in February 2016. Last month, the Governor issued an additional Executive Order giving the State Water Board authority to extend and revise the emergency water conservation regulations. State Water Board is soliciting public comment on what the next iteration of the regulation will look like. Following public review and comment, the Board tentatively plans to adopt the updated regulations by late January or early February.

At the same time, the State Water Board is reminding small water suppliers (those with 3,000 or fewer customers) that they are required to report water use by December 15. While large urban suppliers have been required to report water conservation information every month, small water suppliers must report only once. The regulations state that small water suppliers must limit outdoor landscape irrigation to no more than two days per week or reduce total potable water production by 25 percent as compared to 2013. The full report of information submitted by small water suppliers is expected to be available by mid-January 2016 here.

The State Water Board tracks water conservation for each of the state's urban water suppliers on a monthly basis, but compliance with individual water supplier conservation requirements and the statewide 25 percent mandate is based on cumulative savings.

Cumulative tracking means that conservation savings will be added together from one month to the next and compared to the amount of water used during the same months in 2013.

October Conservation Data

- For June through October, the cumulative statewide reduction was 27.1 percent, compared with the same months in 2013. That equates to 913,851 acre-feet (297.8 billion gallons), or 76 percent of the 1.2 million acre-feet savings goal to be achieved by the end of February 2016.
- Statewide water savings for October was 22.2 percent (128,901 acre‑feet or 41.9 billion gallons), a decrease from September's 26.2 percent savings. See fact sheet here.
- Statewide, the average water use for October was 87 residential gallons per capita per day (R-GPCD), a decrease from the 97 residential gallons per capita per day reported for September.
- Although October 2015 had the lowest level of monthly savings since June 2015, suppliers still saved more than three times the volume of water saved in October 2014.
- The last five months have been the hottest on record and October was no exception, with higher average temperatures than October 2013.

Enforcement Data

- Suppliers reported 69,999 compliance and enforcement actions taken in October, a decrease from the 77,868 actions suppliers reported in September. See the enforcement statistics for more information.
- The Office of Enforcement continues to work with suppliers that have not met their conservation standard. Since June, the State Water Board has issued:
- Nine conservation orders;
- 104 information orders;
- 72 warning letters;
- Four Administrative Civil Liability Complaints, and Seven alternative compliance orders.

October saw a decrease in compliance by water suppliers. Of the 409 suppliers reporting for October, 69 percent met or were within one percentage point of meeting their conservation standard and 15 percent were between one and five percentage points of meeting their standard. For more information, visit the enforcement page.

Conservation Must Continue Through Winter

Residential water users are urged to keep up their efforts to conserve through the winter months. That includes complying with urban water supplier directives to switch to watering schedules of once a week as well as a prohibition against watering during a rain event and 48 hours directly following a rain event.

"We can't know when the drought will end, so we have to keep saving every drop we can," Chair Marcus said. "Predictions are just that, predictions. Having the odds in our favor, can give us hope, but not the certainty we need to relax our efforts."

Conservation programs put in place during the late spring and early summer months by most of the state's water suppliers have yielded dramatic reductions in water use and a reexamination of personal water-use habits. In addition to many effective local programs, state-funded turf removal and toilet replacement rebates are also now available. Information and rebate applications are available at: www.saveourwaterrebates.com/.

Background

In his April 1 Executive Order, Gov. Brown mandated a 25 percent water use reduction for cities and towns across California.

In May, the State Water Board adopted an emergency regulation requiring an immediate 25 percent reduction in overall potable urban water use. The regulation uses a sliding scale for setting conservation standards, so that communities that have already reduced their R-GPCD through past conservation will have lower mandates than those that have not made such gains since the last major drought. In his most recent Executive Order issued Nov. 13, the Governor directed the State Water Board to extend, and potentially modify, its drought emergency water conservation regulation if drought conditions persist through January 2016.

Each month, the State Water Board compares every urban water supplier's water use with their use for the same month in 2013 to determine if they are on track for meeting their conservation standard. Local water agencies determine the most cost effective and locally appropriate way to achieve their standard. The State Water Board will work closely with water suppliers to implement the regulation and improve local efforts that are falling short.

California has been dealing with the effects of an unprecedented drought. To learn about all the actions the state has taken to manage our water system and cope with the impacts of the drought, visit Drought.CA.Gov. Every Californian should take steps to conserve water. Find out how at SaveOurWater.com.

# # #

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Californians miss water savings target for first time
SF Chronicle | December 1, 2015 | Kurtis Alexander

California's water savings slipped in October as cities and towns failed to meet Gov. Jerry Brown's 25 percent conservation target for the first time since reductions became mandatory in June, according to state water data released Tuesday.

Urban water use dropped 22.2 percent statewide compared to the same month in 2013. The decline likely fell short of the governor's goal because of relatively warm October weather, primarily in Southern California, and because people generally have less outside watering to cut back on in the fall, state officials said.

"Exceeding the 25 percent was going to get a lot harder during the cooler months," said Felicia Marcus, chair of the State Water Resources Control Board.

Most Bay Area communities continued to save with five of the six largest water suppliers hitting their conservation targets. The exception was the Marin Municipal Water District, which cut back 17 percent instead of its requisite 20 percent.

Under the state's conservation rules, every water supplier is assigned a certain cutback, between 4 percent and 36 percent based on how well they've saved in the past, in order to achieve the statewide 20 percent reduction. Those who miss their mark face potential fines.

State officials expressed disappointment with Tuesday's sagging numbers but said total savings since the mandates took effect remain above the cumulative goal, at 27 percent. They said no new fines would be issued.

Following the release of September's water figures, the water Resources control board announced $61,000 fines for four agencies that had repeatedly come up short: the cities of Beverley Hills, Indio and Redlands as well as the Coachella Valley Water District.

California's water supplies are seriously diminished after four dry years. Although forecasters belive this winter could be wet because of the El Niño, water managers warn that drought conditions will likely persist even after a big rainy season.

The state conservation mandates remain in place until February, though Brown said the regulation would be extended through fall if needed.

In October, San Francisco reduced its water use 15 percent, exceeding its 8 percent goal. The East Bay Municipal Utility District trimmed 21 percent, going above its 16 percent target. The San Jose Water Company trimmed 28 percent, besting its 20 percent target.

Collectively, California reduced water use by 26 percent in September, 27 percent in August, 31 percent in July and 27 percent in June.

# # #

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As Californians miss drought target, some seek to catch the rain
SF Chronicle | December 1, 2015 | Kurtis Alexander

Californians missed their state-ordered water savings target for the first time, regulators reported Tuesday, and there's a counterintuitive twist: The cooler, wetter weather may be to blame.

While many people found it easy to cut back on outdoor watering during the hot and dry summer — dutifully changing wasteful habits of the past — they've struggled to make similar gains during the fall, when indoor use is more the focus, officials said.

Cities and towns collectively reduced water use 22 percent in October, compared with the same month in 2013, falling short of the 25 percent mandate that Gov. Jerry Brown set in June.

Most Bay Area communities met their specific targets, which were assigned by the state in the bid to achieve the overall conservation goal. Of the region's six largest suppliers, only the Marin Municipal Water District didn't meet its mark.

State officials said the seasonal drop-off didn't minimize California's generally strong conservation record during this tough year, citing a cumulative reduction since the emergency regulations took effect of 27 percent. And it's clear not everyone is resigned to losing ground during the winter and fall.

Case in point: the rain barrel.

Residents in San Francisco and elsewhere appear to be increasingly turning to rainwater tubs, with names like Rain Wizard and Planter Urn, to take advantage of the wet season and take pressure off the water company.

"There's definitely an uptick in interest," said Jeff Parker, director of marketing for the Urban Farmer Store, which sells rain-catchment supplies at its three Bay Area locations.

"People are trying to get as many barrels as they can before the rains come," he said. "We're calling this the El Niño giveaway."

In San Francisco, where per-capita water use is relatively low, rain barrels are part of the city's formula for success. Water officials have given away nearly 500 free barrels to promote conservation. And there's just a few more left to hand out.

"We're all trying to capitalize on this water because of the drought and the rain that's anticipated," said Tyrone Jue, a spokesman for the San Francisco Public Utilities Commission. "The small savings adds up to larger savings when everyone does it."

A perk that may be more significant, Jue said, is the ability of the catchment devices to reduce the burden on the city's storm-water system, which tends to back up during heavy rainfall.

Up until a few years ago, there was some doubt about the legality of the rain barrel in California. Some expressed concern that collecting rain could interfere with the water rights of those entitled to the runoff. A 2012 law, however, cleared up the uncertainty and legitimized the practice.

Colleen Mullins, who lives in San Francisco's Inner Richmond neighborhood, recently bought a 50-gallon rain barrel at Home Depot to irrigate her vegetable garden.

The water collects on her roof, trickles into the downspout and runs into the storage tub in her yard. From there, Mullins uses a hose or watering pot to hydrate her plants.

"We had an hour of rain at the most and the thing was full," she said of a recent storm.

Rain barrels are part of a broader effort to capture ever-precious water that falls from the sky.

Peter Brostrom, water use efficiency manager for the California Department of Water Resources, said larger-scale catchment systems are being installed in homes to provide not just irrigation water but water for plumbing. More importantly, he said, gardens and farms are collecting rainfall and allowing it to infiltrate the soil to recharge groundwater supplies.

"What is really effective is a rain garden," he said. "In many places, we have ample storage in the aquifers. I would definitely encourage people, if possible, to look at a rain garden."

Water experts like Brostrom say savings from rain barrels may be relatively small, but that the extra effort is appreciated during months when cutting back is most difficult.

In October, Californians failed to meet the governor's requisite cutback because of a combination of weather that was warmer than October 2013, particularly in Southern California, and the inevitable drop in consumption that downplays savings, state officials said.

"We anticipated a dip in the conservation rate for October, but it is not because people are losing interest," said Felicia Marcus, chair of the State Water Resources Control Board. "It's harder to keep the percentages up in the fall and winter when little outdoor watering takes place."

The Marin Municipal Water District didn't meet its 20 percent target, cutting just 17 percent in October. Still, the water agency's overall reduction since June is 21 percent.

San Francisco reduced its water use 15 percent in October, exceeding its 8 percent goal. The East Bay Municipal Utility District trimmed 21 percent, going above its 16 percent target. The San Jose Water Co. cut 28 percent, besting its 20 percent target.

This time, no fines were issued for overages. After the release of September's water figures, the state water board announced $61,000 penalties for four agencies that have repeatedly come up short: the cities of Beverly Hills, Indio (Riverside County) and Redlands (San Bernardino County) and the Coachella Valley Water District.

# # #

VMware, eBay help employees bring water conservation home
GreenBiz | November 30, 2015 | Heather Clancy

The line between personal and professional lives is notoriously thin in Silicon Valley. That actually can be a positive when raising awareness for corporate sustainability initiatives, as software company VMware discovered during a three-month experimental water conservation campaign that ends in mid-December.

The effort, undertaken in collaboration with energy efficiency consulting company BKi, challenged VMware employees to extend the water reduction goals trumpeted in their office locations out into their communities, to their own homes.

So far, VMware is on track to save 13 million gallons within its facilities this year, according to Nicola Acutt, vice president of sustainability strategy and giving for VMware, based in Palo Alto, California. Irrigation water usage, for example, has been slashed by more than 50 percent through drought-tolerant "upgrades" to the company's landscaping.

When California mandated stricter conservation measures last spring, VMware's sustainability team realized many employees were struggling to figure out which water-saving measures might have the biggest impact at their individuals homes.

Priorities for the water utility covering Palo Alto, for example, aren't necessarily the same for the organization that meters water in the neighboring communities of Mountain View or Menlo Park. The rebate for a drought-tolerant lawn in Palo Alto, for example, might be $6,500, while in Oakland, the payback is closer to $2,500.

"It's a very different economic discussion depending on where you are," said Brian Gitt, president and CEO of BKi. "Most homeowners don't know which rebates are available to help."

BKi launched its WaterGenius app last summer to help California residents figure out what's available. WaterGenius is an online "gamification" platform that tracks an individual's progress toward various goals and recognizes participants who reach them most quickly. The company approached two Silicon Valley software powerhouses, eBay and VMware, to test corporate applications for the tool with employees in Silicon Valley.

About 440 people (most of them with VMware) signed up between the two companies, with the goal of saving at least 1 million gallons outside their respective workplaces, according to BKi. The challenge was funded with a grant from the Santa Clara Valley Water District.

"We wanted to see if an element of gamification, of social and peer pressure, would help induce participation," Gitt said.

VMware's Acutt said the challenge — which rewarded everything from showerhead swap outs to dishwasher replacements — encouraged employees to consider many of VMware's corporate water-saving priorities within their own homes. Her group introduced the idea

during a water-themed Friday afternoon social gathering. "The team had people lined up for more information," Acutt said.

One participant, VMware product line manager Justin Griffin, said he decided to sign up because he already was contemplating some changes to his landscaping and fixtures but found it difficult to research which approaches were best.

Although Griffin got a charge out of reading about progress by his co-workers, and seeing how he compared, he was motivated more by the potential to find monetary rebates and proven products for his projects.

"That drove a lot of decisions about the renovations I made. It also helped me find products that I'm happy with," Griffin said.

Gamification projects were all the rage four years ago as a method of improving employee engagement in very measurable ways. Timberland's "Serv-a-palooza Challenge," for example, raised more than $75,000 and logged 1,600-plus volunteer hours for the apparel company's various community and environmental causes. Similarly, Nissan uses a visual dashboard in its Leaf electric vehicles to display a driver's progress toward efficient driving behaviors.

As of late October, VMware's employees drove more than 660,000 gallons in water savings through their actions, about two-thirds of the overall reductions inspired with the challenge.

For now at least, WaterGenius is only focused on specific San Francisco Bay area communities. When the service was launched in June, the company declared its intention to release mobile apps but so far, BKi hasn't delivered on that plan. The company also has created a service called UtilityScore that helps California homeowners or house hunters get more detailed information about typical energy bills related to a specific piece of property.

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