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KRIS BALAJI
DIRECTOR OF PUBLIC WORKS

ADVISORY WATER COMMISSION

January 17, 2018, 1:00 p.m.

Public Health Conference Room, 1601 E. Hazelton Avenue, Stockton, California

AGENDA

I. Roll Call

II. Approve Minutes for the Meeting of November 15, 2017

III. <u>Discussion/Action Items:</u>

A. Public Comment Guidelines

B. Presentation from Auburn Dam Council – Ken Payne & Pete Bontadelli

C. Standing Updates
1. San Joaquin Area Flood Control Agency (SJAFCA)
2. Flood Protection (See attached)
3. Sacramento – San Joaquin Delta (See attached)
4. Sustainable Groundwater Management Act (SGMA) (See attached)

IV. <u>Informational Items (See Attached)</u>

A. December 26, 2017, goldenstatenewspapers.com, "Your Mission: Hack California's Water System"

B. January 4, 2018, mavensnotebook.com, "CA Water Commission: Update on Sustainable Groundwater Management Implementation"

C. January 9, 2018, lodinews.com, "Local District Moves Forward with Water Project"

V. Public Comment:

VI. Commissioners' Comments:

VII. Adjournment:

Next Regular Meeting
February 21, 2018, 1:00 p.m.
Public Health Conference Room

<u>Commission may make recommendations to the Board of Supervisors on any listed item.</u>

If you need disability-related modification or accommodation in order to participate in this meeting, please contact the Water Resources Staff at (209) 468-3089 at least 48 hours prior to the start of the meeting. Any materials related to items on this agenda distributed to the Commissioners less than 72 hours before the public meeting are available for public inspection at Public Works Dept. Offices located at the following address: 1810 East Hazelton Ave., Stockton, CA 95205. These materials are also available at http://www.sjwater.org. Upon request these materials may be made available in an alternative format to persons with disabilities.

REPORT FOR THE MEETING OF
THE ADVISORY WATER COMMISSION OF THE SAN JOAQUIN COUNTY
FLOOD CONTROL AND WATER CONSERVATION DISTRICT
November 15, 2017

The regular meeting of the Advisory Water Commission of the San Joaquin County Flood Control and Water Conservation District was held on Wednesday, November 15, 2017, beginning at 1:00 p.m., at Public Health Services, 1601 E. Hazelton Avenue, Stockton, California.

I. Roll Call

Present were Commissioners Swimley, Holman, Flinn, Winn, Herrick, Salazar, Jr., Hartmann, and Neudeck, Alternates Reyna-Hiestand, and Heberle, Secretary Nakagawa, Vice-chair Price, and Chairman McGurk.

Others present are listed on the Attendance Sheet. The Commission had a quorum.

II. Approval of Minutes for the Meeting of October 18, 2017.

Motion and second to approve the minutes of October 18, 2017 (Hartmann/Neudeck). Unanimously approved.

SCHEDULED ITEMS

Tom McGurk, Chairman of the Advisory Water Commission (AWC), led the agenda.

III. Discussion / Action Items:

A. Reservoir Storage Update – Michael Cockrell

Mr. Michael Cockrell, Director – San Joaquin County Office of Emergency Services (OES), provided updates on the current status of La Niña, long-term weather forecasts, and reservoir storage.

From October 1, 2016 through March 31, 2017, there were 49 atmospheric rivers spanning from southern California to Washington, with 15 of those hitting California. Mr. Cockrell stated a “weak” La Niña is projected until January 2018, at which point it could turn to a “neutral” status. Typically, La Niña favors northern California (with drier southern conditions), and El Niño favors southern California (with drier northern conditions). Because typical weather conditions have reversed and location in between the two zones, the Central Valley can expect either weather pattern. The approaching storm pattern has been categorized as an atmospheric river with predictions of a ½ inch rainfall with warmer temperatures in the Central Valley.

The California Department of Water Resources (DWR) is dedicating more scientific research to evaluate storm occurrences. DWR has established a new sensor at Twitchell Reservoir that will examine the Carquinez Straights for the water content of storms based on wetness and patterns. Commissioner Neudeck added the new state of the art forecasting will help determine moisture content, the rate of reaching shores, mapping direction, and rainfall. In addition, the National Oceanic and Atmospheric Administration (NOAA) is allocating a C130 aircraft “Hurricane Hunter” to California for deployment into the Pacific Ocean to assist in tracking approaching storms (i.e., weather balloons).

Mr. Cockrell provided written comments from Mr. Michael Anderson (DWR – State Climatologist) regarding saturated grounds, full reservoirs and stock ponds, and very little additional storage remaining in the system. In addition, National Aeronautics and Space Administration (NASA) will fly over snow packs and take "surface to surface" measurements to determine snow pack profile, and measure snow density.

The Precipitation Index for Water Year 2018 was displayed which reflected comparative measurements of 0.3 inches for November 2017, and 4.6 inches for November 2016. The San Joaquin Region Summary was displayed reporting 17% precipitation "season-to-date," 0% snow water content, with Stockton 11% of normal precipitation. Reservoir storage measurements were displayed for New Melones, Don Pedro, Exchequer, Millerton, and Pine Flat. Reservoir encroachment conditions were displayed for Camanche, New Hogan, New Melones, Don Pedro, McClure, Millerton, and Pine Flats – reflecting Camanche and New Melones are encroached. Not depicted on the slides was Pardee Reservoir which measured at 93% full. Discussion amongst the Commission concluded that the slide displaying Top of Conservation Fall Target Dates, as of November 6, 2017, did not reflect current California Data Exchange Center (CDEC) measurements, with updates to be released by CDEC on Friday, November 17, 2017.

Mr. Brandon Nakagawa provided background on the Mokelumne River and stated that Camanche and Pardee act as one reservoir for operational purposes. The balance of storage between the two reservoirs is to the operational preference of East Bay Municipal Utility District (EBMUD). Data also includes the Pacific Gas & Electric (PG&E) reservoirs located upstream. These coordinated efforts conclude reported storage measurements of below capacity. A request was made from the Commission for access to review this combined data.

Upon request, Mr. Scot Moody, Stockton East Water District (SEWD) – General Manager, reported New Hogan releases will begin next week at 1,000-2,000 cubic feet per second (cfs) for a few days, with a slow decline to 1,200 cfs. The goal is 150,000 acre feet (AF) by December 1, 2017. A member of the public, Mr. Dave Peterson, Peterson Brustad, Inc., interjected that the flood drawings done for the Lower San Joaquin River Feasibility Study were predicated on the flood control rule curves being precisely followed. He added that reductions to the flood pool can begin January 1 based upon the precipitation index, with current projections estimating flood storage at 175,000 AF for New Hogan. He expressed concern that the reservoir is not prepared for rainfall floods.

Vast discussion amongst the Commission included the following: Flood releases; reservoir releases are uploaded to CDEC within 24-48 hours of reporting by water agencies; Top of Conservation (TOC) measurements and target dates can fluctuate contingent upon precipitation; diversion of flood flows to groundwater storage; and, the need for the United States Army Corps of Engineers (Corps) to update the Reservoir Rule Curves. The Corps is aware of the outdated rule curves and has stated updates will be forthcoming. It was suggested to express concern and request a review of the conservation rule curves to the San Joaquin County Board of Supervisors (BOS). Mr. Nakagawa stated that downstream assumptions are part of the rule curves and cautioned the Commission that a review may result in the curves going the opposite way, thus the loss of water supply. He suggested beginning a discussion with EBMUD to review their reservoir forecasts and operation plan for the upcoming month.

Mr. Cockrell reported that the results of the After Action Report (AAR) were submitted to DWR, as discussed in the AWC meeting held on October 18, 2017.

B. Standing Updates – Brandon Nakagawa

Standing monthly updates were provided on the following:

1. San Joaquin Area Flood Control Agency (SJAFCA):

   Mr. Fritz Buchman, Deputy Director – San Joaquin County Public Works, gave an update on recent SJAFCA activity. He reported that SJAFCA is amending the Joint Powers Agreement (JPA) to include the cities of Lathrop and Manteca in the district boundaries. An amended draft JPA has been developed and is scheduled for consideration at the SJAFCA Board meeting held November 16, 2017. Following Board approval, the JPA will be presented to member agencies (cities of Stockton, Lathrop, and Manteca, and San Joaquin County) for signatures. Contingent upon approval, the new BOD is anticipated in January 2018.

   A first order of business for the new SJAFCA BOD will be to further the work done to improve flood protection in the Reclamation District (RD) 17 basin. In addition, SJAFCA will continue their ongoing efforts on the Lower San Joaquin River Feasibility Study, and the Smith Canal Gate Project.

2. Flood Protection:

   Mr. Matthew Ward, Engineer IV – San Joaquin County Public Works, provided an update on the County's participation in the National Flood Insurance Program (NFIP) Community Rating System (CRS), a program which rewards communities that take steps that go beyond minimum NFIP floodplain management requirements. The recent 5-year cycle visit, was conducted on October 31, 2017 by Insurance Services Office, Inc. (ISO). Currently, San Joaquin County has a "Class 6" ranking (out of 10, which is the lowest ranking). The County is hopeful that it will maintain a "Class 6" ranking after the cycle visit documentation review is complete. Each improvement in ranking equates to a 5% discount in flood insurance for constituents residing in special flood hazard areas. Thus, residents currently receive a 20% reduction in flood insurance premiums because the County engages in the CRS program with activities to increase flood protection including the following: Outreach of flood risk and management; maintenance of channels and levee systems; OES maintains an Emergency Alert System; minimum freeboard requirements for development; and, development restrictions. The 20% reduction in flood insurance premium is a total annual savings to constituents of approximately $500,000.

   Mr. Nakagawa interjected and stated that generally, flood insurance is required in developed areas receiving less than 100-year flood protection. Thus, the goal is to remove as much of the urban community from the 100-year floodplain as possible. Mr. Buchman added that the CRS discount is provided to all flood insurance policy holders, but larger discounts are provided to policy holders residing within the 100-year floodplain. The CRS rating is based upon actions to limit damage to residences within special flood hazard areas (i.e., building restrictions, regulate development, emergency response, etc.).

   Included in the agenda packet is the CRS rating letter received from ISO (Attachment III.B.2), dated November 2, 2017, listing required follow-up action to be completed within 30-days in order to maintain the Class 6 ranking.

On a separate topic, Mr. Nakagawa announced San Joaquin County Public Works has combined the Water Resources and Flood Management divisions into one single division. Mr. Nakagawa will oversee all activities.

3. Sacramento – San Joaquin Delta:

   Mr. Nakagawa provided updates on the following:

   - Delta Plan Amendments – The Delta Stewardship Council (DSC) was required to provide a Delta Plan as a requirement of the Sacramento-San Joaquin Delta Reform Act of 2009. The original plan was invalidated in court, prompting amendments. The Delta Plan Amendments have been released – partially to address the court-addressed deficiencies, as well as promote storage and conveyance options (i.e., the Twin Tunnels). The five Delta counties have been monitoring the ongoing progression of the amendments and will submit public comments on the Delta Plan Amendments Environmental Impact Report (EIR). The EIR public comment period closes December 18, 2017. Mr. Nakagawa encouraged the Commissioners and their respective boards and/or commissions to submit public comments on the EIR and "reserve your right to sue," should it be deemed necessary at a later date.

   - Delta Levee Investment Strategy (DLIS) – The DSC seeks to define the State's priorities in terms of "levee investments," i.e., bond funds, subvention funds, and other various State funds. However, early stages of the DLIS did not contain definitive language recognizing the Delta levee system as a "system." The 5 Delta counties have had direct input with the DSC staff, including the suggestion of "minimum standards."

   - Substitute Environmental Documents (SED) Phase II – The California State Water Resources Control Board (CSWRCB) is proposing changes to the Bay-Delta Water Quality Control Plan. Phase II is similar to the changes proposed in the SED Phase I, and includes: new inflow requirements for the Sacramento River, its tributaries, and eastside tributaries to the Delta (Mokelumne, Calaveras, and Cosumnes rivers); new and modified Delta outflow requirements; new requirements for cold water habitat; new and modified interior Delta flow requirements; recommendations for complementary ecosystem protection actions that others should take; and, adaptive management, monitoring, evaluation, special study and reporting provisions.

     During Phase I, the County co-funded a study which concluded the negative environmental impact, as well the economic loss of billions of dollars. The study also included comments on the south Delta water quality standards, increased salinity, and damage to agriculture. Included in today's agenda packet is an email to the CSWRCB (Attachment III.B.3), dated November 9, 2017, which refers to Phase II of the Bay-Delta Plan and provides comments from County staff based on input from EBMUD and other interested parties along the Mokelumne River. A clear goal has yet to be defined.

     Commissioner Hartmann interjected and stated Governor Brown is in favor of the SED (Phase I and Phase II) and has been meeting with various stakeholders in attempts to solicit voluntary settlements. He added that some stakeholders have

attempted to enter into settlements that would involve habitat improvements in lieu of sacrificing their water flows.

4. Sustainable Groundwater Management Act (SGMA):

   - Eastern San Joaquin Subbasin: Mr. Nakagawa gave an update on recent activities of the Eastern San Joaquin Groundwater Authority (GWA). A map was displayed of the Eastern San Joaquin Subbasin which encompasses San Joaquin, Calaveras, and Stanislaus Counties. The map identified the 17 Groundwater Sustainability Agencies (GSAs) that have formed the Joint Exercise of Powers Agreement (JPA), and have held regular meetings since June 2017.

     Mr. Nakagawa reported that the current task at hand of the GWA is to work together to create one (1) Groundwater Sustainability Plan (GSP) for the entire basin. The total scope of work will cost $2.176 million to meet the regulatory GSP requirements of SGMA. A grant application has been submitted to DWR for the amount $1.5 million. A local cost-share proposal is being considered: Local cost-share is $676,000 = Water Investigation Zone 2 to contribute $450,000; and, the remainder of funding to be provided by GWA members. A GWA cost-share proposal is on the table (spanning 2.5 years = term of the GSP scope of work): Eastside San Joaquin GSA = $39,000; and the remaining 16 GSAs = $12,000 each.

   - Tracy Subbasin: Mr. Nakagawa displayed a map of the Tracy Subbasin which encompasses Delta islands, coastal range foothill areas, Central Delta Water Agency, and South Delta Water Agency. The map identified six GSAs in the Tracy Subbasin, with another faction in the Eastern Contra Costa area (containing 7-8 GSAs). A grant application has been submitted to DWR for the amount of $1 million. The proposed local cost share is $500,000 = Water Investigation Zone 2 to contribute $150,000; and, contributions from Contra Costa interests. The goal is one (1) GSP for the entire Tracy Subbasin, however, a basin boundary modification is anticipated. Should a basin boundary modification occur, State and local funding could be appropriately divided.

IV. Informational Items:

A. October 18, 2017, Written Public Comments from Mr. Dominick Guilli Provided at Advisory Water Commission Meeting

B. October 25, 2017, agalert.com, "Farmers Ask That 'Waters' Rule be Clear, Consistent"

C. November 7, 2017, newsdeeply.com, "New Policy Sets Rules for Marijuana Growers to Protect California Water"

V. Public Comment: No comments given.

VI. Commissioner's Comments:

Commissioner Hartmann commented on lengthy public statements given by individuals during the agenda Public Comment section, and/or as interruptions during meeting agendized items. He suggested the Commission should have a rule, similar to many public bodies, of a time limitation for public comments. Commissioner Hartmann requested the Commission adopt a three-minute time limit for public comments, with the understanding that a request made in advance, by an individual, could allow more time for comment, and/or for an agendized discussion item of the AWC. Mr. Nakagawa stated there is a County ordinance establishing the Commission as a standing committee, and running the meeting (i.e., public comment) is to be of the Chairman's discretion. Mr. Nakagawa suggested an informal time limit, thus allowing the public a mechanism for input. It was advised to not respond to non-agendized public comments, as it can be construed as a "discussion" and a Brown Act violation. Discussion amongst the Commission concluded that a limited time for public comments will be an agenda item at the next AWC scheduled meeting.

Next Regular Meeting: December 20, 2017 at 1:00 p.m.
Public Health Conference Room

VII. Adjournment: 2:58 p.m.

SAN JOAQUIN COUNTY
FLOOD CONTROL & WATER
CONSERVATION DISTRICT

ADVISORY WATER COMMISSION
MEETING OF NOVEMBER 15, 2017

ATTENDANCE SHEET

NAME	AFFILIATION	E-MAIL ADDRESS	PHONE
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ATTACHMENTS
III.C.2.

WATER & DROUGHT

After Oroville disclosures, embattled California water agency names new director

BY DALE KASLER
dkasler@sacbee.com

January 10, 2018 12:40 PM
Updated 7 hours 49 minutes ago

The California Department of Water Resources underwent a management shakeup Wednesday, less than a week after investigators released a scathing report on last February's crisis at Oroville Dam and how the department handled it.

Grant Davis resigned as DWR's director barely seven months after taking over the embattled department, which has been heavily criticized following the near-catastrophe at the dam's two flood-control spillways. Davis will go back to his old job as general manager of the Sonoma County Water Agency.

Karla Nemeth, deputy secretary and senior adviser for water policy at the Natural Resources Agency since 2014, was named the new DWR director by Gov. Jerry Brown. Brown's administration said Nemeth's appointment was part of a larger restructuring of DWR to place more emphasis on flood control and dam safety.

An independent forensic team, in a wide-ranging critical report on the causes of the Oroville emergency, said last week that dam safety must become a higher priority at DWR. The department owns and operates Oroville Dam and runs the State Water Project, which delivers billions of gallons of Northern California river water to agencies as far away as San Diego.

“In the past year alone, the most severe drought in California’s recorded history was interrupted by one of the wettest seasons on record, putting extreme pressure on our flood control infrastructure and exposing vulnerabilities,” Natural Resources Secretary John Laird said in a prepared statement. “This new team will help the state better prepare for ever-greater challenges to our infrastructure and flood management systems, and ensure that California is doing everything possible to ensure dam and flood safety.” As part of the reorganization, DWR created a new position, deputy director for flood management and dam safety.

Davis, in a statement released by Sonoma County officials, said, “My home and passion is Sonoma County, and I am dedicated to helping the Water Agency achieve its ongoing goals while restoring our watersheds impacted by the wildfires.” He didn’t return calls seeking additional comment.

The forensic team’s report on Oroville blamed a series of long-standing problems at DWR, all of which predated Davis’ arrival at the agency.

Mark Cowin, who retired as DWR director in December 2016, said it appeared there was “a personality conflict between Grant and a number of people, including the governor. ... It was a bad fit to start with.”

Among other things, he said Davis sometimes was too aggressive about suggesting changes at DWR. “He got ahead of the curve,” Cowin said.

Davis was scheduled to appear at a legislative oversight hearing on Oroville on Wednesday morning at the Capitol, but was represented instead by DWR’s chief deputy director. No explanation was given for his absence from the hearing, and his exit from DWR was announced about an hour after the hearing ended.

Nemeth has played a significant role in Brown’s controversial proposal to overhaul the Sacramento-San Joaquin Delta’s plumbing with a pair of water tunnels. She has worked for Natural Resources since 2009 and is married to Tom Philp, a former Sacramento Bee editorial writer who is a strategist for the Metropolitan Water District of Southern California – the largest member agency of DWR’s State Water Project.

She becomes the fourth DWR director in a little more than a year. Those include two interim directors, one of whom, Bill Croyle, ran the department during the Oroville emergency.

The crisis began when a giant crater erupted in the main flood-control spillway Feb. 7. DWR tried to limit the damage by curtailing water releases, but a heavy rainstorm filled the reservoir and water began flowing over the never-before-used emergency spillway – a concrete lip atop an unlined hillside. When the hillside started eroding badly, putting the concrete lip in peril, officials ordered the immediate evacuation of 188,000 downstream residents.

In its report last week, the forensic team said the main spillway was poorly designed, and then poorly maintained in the decades following the dam's 1968 completion. The panel also faulted DWR's handling of the crisis, saying different decisions could have prevented water from flowing over the untested emergency spillway. Among other things, the investigators said DWR officials disregarded geologists' warnings that the emergency spillway might not withstand water flows, and also were influenced by a desire to keep water deliveries flowing to State Water Project member agencies. DWR officials denied that water delivery played a role in their decision-making.

At Wednesday's legislative hearing, forensic team leader John France reiterated his belief that dam safety hasn't been made a high enough priority at DWR.

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Final verdict on Oroville Dam: 'Long-term systemic failure' by the state, regulators

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"We'd like to see it have a bit of a louder voice," France told lawmakers.

He also warned that dam safety officials, in California and elsewhere, need to overhaul how they inspect structures. The flaws at Oroville, including a poorly designed drainage system, were lurking there for decades but weren't visible to inspectors. To truly understand if dams are working properly, inspectors have to review old blueprints and other documents, he said.

The problem isn't limited to California, he stressed. Across the industry, "we're not diving as deeply as we need to, to find these ticking time bombs," France said.

DWR officials pushed back on suggestions that they've neglected dam safety, but acknowledged that they're reforming the agency in response to France's team's report. Eric Koch, who takes over the newly created role of deputy director for flood management and dam safety, said DWR has traditionally concentrated much of its firepower on preventing failures of the dams themselves but hasn't paid enough attention to spillways and other related structures. That will change, he said.

"We are shifting the paradigm of dam safety across California," he told lawmakers. Already, several dam owners have pledged to replace their spillways, based on a flurry of post-Oroville inspections ordered by DWR.

But change will take time. Cindy Messer, DWR's chief deputy director, said a comprehensive blueprint for reform will take at least four months to develop. She said the agency is talking with Brown's staff about getting the personnel needed to ramp up the inspection procedures.

"I believe that we do prioritize dam safety," she said. "Is the group big enough? No."

Lawmakers remained skeptical. Assemblyman James Gallagher, R-Yuba City, whose family was evacuated in February, called the Oroville crisis a "monumental organizational failure."

Added state Sen. Jim Nielsen, R-Tehama, addressing the DWR officials: "The agency is not trusted. You have been great under the pressure ... but there's no trust."

Dale Kasler: 916-321-1066, @dakasler

ATTACHMENTS
III.C.3.

A Water Right for the Environment in California

Assigning Ecosystem Water Budgets for California's major watersheds would provide a defined amount of water that could be flexibly allocated and could ease conflict, say authors of a new report from Public Policy Institute of California.

WRITTEN BY
Brian Gray, Leon Szeptycki, Barton "Buzz" Thompson

PUBLISHED ON
Dec. 19, 2017

READ TIME
Approx. 8 minutes

A morning sunrise over the Ronald B. Robie Thermalito Pumping-Generating Plant, located at the Thermalito Afterbay. The California Department of Water Resources facility, part of the State Water Project, is located in Butte County downstream from the Oroville Dam. Kelly M. Grow/ California Department of Water Resources

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Feb. 23, 2017

Why the Environment Needs Water Markets

CALIFORNIA'S MANAGEMENT OF water is not working for anyone. Environmental advocates argue that state and federal regulators have set water-quality and flow standards that do not adequately protect fish and wildlife, and have not enforced these requirements when they are most needed. Farm and urban interests claim that these regulations have been ineffective and cause unnecessary economic harm. These water users may incur additional cutbacks in their water supplies if regulators conclude that more water is needed to support struggling fish populations, making planning for producers difficult. Amid this tension, native fish populations in the state have continued to plummet.

This ironic situation – in which both sides believe they bear a disproportionate burden of water shortages and regulatory uncertainty – cries out for reform. We should start by granting the environment a water right, as detailed in a new report we helped write for the Public Policy Institute of California.

Opposing Viewpoints

California's native fish species have long struggled against the cumulative effects of land and water resources development for agricultural, business and residential purposes. Dams have blocked access to spawning grounds, reservoir operations have altered river flows, land development has degraded essential habitat and diversions for water supply have severely reduced the volume of water in many California rivers.

Stressors on fish are especially pronounced when precipitation and runoff are diminished. During the 2012–16 drought, for example, a parasite known as "ich," which thrives in low water conditions, infected adult Chinook salmon returning to spawn in the Klamath and Trinity rivers. The state lost two consecutive wild cohorts of endangered winter-run Chinook salmon when waters warmed in the Sacramento river below Shasta Dam. And the populations of several species that inhabit the Sacramento–

Jan. 17, 2017

Wallace Weir: A New Beginning in California's River Management
Oct. 18, 2016

Fishery Agency Slams Feinstein Drought Bill
May 17, 2016

Reasons for Optimism About California WaterFix From a Fish Perspective
Sep. 4, 2017

Regulators Sacrifice Salmon and Fishing Community
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1

Second La Niña Winter Could Extend Drought Across the West
Latest research shows a second consecutive La Niña is in play this year. And it comes with stronger effects, likely including an expansion of the dry spell, which could be bad news for California. Dec. 11, 2017

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In Tucson, Subsidies for Rainwater Harvesting Produce Big Payoff
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Big Unknowns: What Legal Marijuana Means for Water in Western States
Jan. 3, 2018

5

Santa Monica Prepares to Eliminate Water Imports,

San Joaquin Delta declined to historically low levels as flows and water quality diminished throughout the estuary.

Although many have tried to address the drought's challenges creatively and cooperatively, two opposing viewpoints have dominated the political debate. Water users – especially San Joaquin Valley farmers – complain that the water-quality and endangered species requirements compounded the severity of the drought and deprived them of valuable water. Signs along Interstate 5 to "Stop the Congress-Created Dust Bowl" are manifestations of this resentment.

In contrast, environmental and fishing advocates argue that native fish are in peril because state and federal regulators too often compromise on enforcement of these standards, especially during drought. They point to operational and regulatory decisions that diverted water from Trinity river reservoirs until salmon actually began to die, kept too little water in Lake Shasta to provide cold-water releases for juvenile salmon and loosened Delta salinity standards to facilitate water exports for farms and cities. Their claims are backed up by evidence of plummeting populations of key aquatic species.

Creation of Ecosystem Water Budgets

These unfortunate events show that the existing regulatory structure is not working for any party. We recommend that California move away from the long-standing policy of protecting water quality and instream flows by restricting the exercise of water rights, and instead foster a new policy that integrates environmental uses into the water rights system. This reform will increase the efficiency and flexibility of environmental water management and enhance certainty for all water right holders.

The centerpiece of our proposal is the creation of ecosystem water budgets (EWBs) for the state's principal watersheds. An EWB is a defined quantity of water that would be flexibly

allocated to meet ecosystem management objectives. This concept includes several key features.

1. Watershed-based planning. Local water managers, water users and environmental and fishing groups would draft "watershed ecosystem plans" that would determine the volume of water needed to ensure the ecological integrity of each river system. These plans also would designate priorities for the use of the EWB under varying hydrologic conditions.

For example, during periods of relative water abundance, the EWB could be directed to aquatic habitat improvements (such as refreshing spawning gravels) and floodplain and wetlands enhancement for fish and terrestrial wildlife. During drought, when water supplies are scarce for all uses, the EWB would be devoted to critical ecosystem needs – such as cold-water refugia for salmon or wetlands for waterbirds. Planning for ecosystem needs in dry years would perform the dual function of allowing water users to know drought water availability in advance and prepare accordingly.

As with the existing environmental regulatory standards, the ecosystem water assigned to each EWB would carry the highest priority within each watershed. Because the EWBs would largely implement the environmental regulatory standards, the State Water Resources Control Board would review and approve both the watershed ecosystem plans and the EWBs. This priority would be needed to comply with existing laws, and would also implement a key aspect of California water law: that "public trust" purposes, such as watershed health, must be incorporated into the water rights system.

1. Functional flows and integrated objectives. The quantity of water assigned to each EWB would be based on a "functional flows" assessment of the most effective flow regime for the ecosystem as a whole. This would stand in marked contrast to the current regulatory approach to

environmental protection, which focuses on the needs of individual species by regulating individual stressors such as water diversions and discharges of pollutants.

Integrated ecological planning is more realistic because it recognizes that multiple species are adapted to the same flow regime within a single aquatic ecosystem. It is also more efficient because it minimizes the risk of overlapping, and sometimes conflicting, regulatory water requirements.

1. Independent and flexible administration. An independent trustee for the watershed would administer each EWB. The trustee would manage the ecosystem water as an environmental water right with the same prerogatives as other water right holders. The trustee's primary responsibility would be to deploy the ecosystem water to fulfill the objectives of the watershed ecosystem plan and annual watering plans that define the specific goals of ecosystem water management in light of current and projected hydrologic conditions and water availability.

As with other water right holders, the trustee should have authority to acquire and lease water. Water leases would be limited to circumstances in which there is excess water within the EWB in light of annual ecosystem goals. The proceeds of these short-term sales could then be used to purchase additional ecosystem water during droughts, to fund habitat improvements and to acquire land and water rights. Moreover, because storage is an essential feature of efficient water management, the trustee should be able to store water – both in surface reservoirs and in underground aquifers – and to enter into surface and groundwater exchange agreements with other users.

The volumes of water assigned to each EWB would not necessarily be the same as those dedicated to ecological purposes under the current regulatory system. The EWB could be greater in watersheds where the existing regulations have

proved inadequate to meet the goals of healthy and sustainable fisheries and ecosystems. But it also could require less water – or change the timing and uses of that water – because the EWB would be based on an integrated determination of the needs of the whole ecosystem, rather than fragmented regulatory assessments of individual species requirements. Moreover, each trustee could deploy this water flexibly in light of current hydrologic conditions to achieve targeted biological and ecological benefits. This approach would enable the trustees to use available ecosystem water more efficiently than is possible under existing law. Combined with other improvements in California water management, including improved water accounting and increased groundwater recharge during wet years, the EWB approach has the potential to stem the loss of aquatic species and allow environmental protections to work in better harmony with irrigation and urban water use.

Working Examples

The Yuba river is a tributary of the Feather river that flows east to west from the Sierra Nevada Mountains into the Sacramento Valley in Northern California. A California think-tank has proposed establishing ecosystem water budgets for the state's major watersheds. (Dale Kolke/California Department of Water Resources)

There are precedents for this form of environmental water management. Several Western states and Australia have developed programs akin to ecosystem water budgets, and California has taken small steps toward this approach. For example, water users, environmentalists and community groups have negotiated agreements on Putah Creek and the Yuba river that provide integrated ecological planning and flexible administration of water for fish and wildlife.

We expect that parties in other river systems will be interested in following these examples. Indeed, the State Water Resources Control Board has proposed designating blocks of water to support ecological uses in the principal tributaries of the Sacramento and San Joaquin rivers, although currently without the management flexibilities we recommend. This process could be a catalyst for negotiation of EWBs on one or more of these rivers. The Federal Energy Regulatory Commission's relicensing of hydroelectric dams on several of California's other important rivers also may serve as a forum for interested parties to pursue more creative and flexible means of managing environmental water. Moreover, because groundwater storage and conjunctive use are components of our proposal, EWBs also may be useful to the parties who are now negotiating groundwater sustainability plans under the recently enacted Sustainable Groundwater Management Act.

Legislative Changes

Although negotiated solutions are often the best means of resolving water resource controversies, the legislature could facilitate the adoption of EWBs by recognizing instream environmental uses as valid water rights or by authorizing the trustees to administer ecosystem water with the same flexibility as other water rights. Legislation to outline the essential features of watershed-based ecological stewardship also would be useful. These include establishing criteria for the assignment of water to ecosystem uses, describing the management powers

and responsibilities of the trustees and defining the relationships of the EWBs to the existing laws and regulations that govern water quality and fisheries.

These changes would promote efficiency and certainty for all water users. Assigning water to the EWBs based on an integrated functional flows approach would direct the available water to the most valuable ecological services within each watershed. And the quantity of ecosystem water would be fixed, providing assurances to other water users in the watershed. The trustees would have to fulfill their stewardship responsibilities within the assigned budget or acquire additional water from other users. Conversely, the assigned ecosystem water would be off-limits to other water users unless they purchase surplus water from the trustees or acquire it through voluntary exchanges.

California's aquatic ecosystems are fragile and ill-prepared for future droughts and a warming climate. We have a window of opportunity before the next drought strikes to adopt policies that encourage more creative and effective management of water assigned to essential ecological functions.

This story first appeared on California Water Blog, published by the University of California, Davis Center for Watershed Sciences.

The views expressed in this article belong to the author and do not necessarily reflect the editorial policy of Water Deeply.

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As California's most destructive wildfire season rages on, wildlife experts and forest managers are talking about the struggles to manage heavily populated coastal ecosystems.

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Fire, smoke and ash from the Thomas Fire burning in the hills above Montecito, Summerland and Carpinteria along the eastern edges of Santa Barbara county, California, have driven away tourists. George Rose/Getty Images

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CALIFORNIA'S RECENT WILDFIRES have been nearly unprecedented in terms of their destructiveness and size and the season in which they burned. The Thomas Fire, for example, has grown into one of the largest wildfires in the state's history, devouring thousands of acres daily as it moves from Ventura to Santa Barbara at a time of year more prone to gray skies and cold rain than burning forests.

"The fact that one of California's biggest wildfires is burning in December is mind-blowing," said Jens Stevens, a postdoctoral researcher of forest ecology at the University of California, Berkeley.

Still, the year's devastating fires aren't entirely surprising to Stevens and other scientists and forest managers, many of whom expect more of the same as development in forested areas continues and the region's climate grows warmer and drier.

Now, many experts are questioning how best to manage woodlands and protect society against wildfires in the future. This will be a tricky task since natural fire cycles differ dramatically from one forest type to another. Intentionally ignited prescribed burns could reduce the severity of wildfires in some ecosystems, especially high-country conifer forests. In others, though – like the coastal zones that burned so destructively this year – fires burn in different patterns. Here, solutions may be more complicated, largely because these areas have become densely populated.

"There are some real risks in lighting fires in these coastal chaparral systems," said Eric Knapp, a United States Forest Service research ecologist. Because lightning strikes, which ignite many high-country fires, are rare in coastal zones, these lower areas naturally burn less frequently. This allows heavy buildup of dense underbrush, which makes fires here – whether wildfires or prescribed burns – extremely hot and potentially destructive.

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To Stevens, the infernos that have now killed dozens of people are the almost inevitable culmination of one record-breaking weather event after another, starting with the drought.

"To have four extremely dry years like that was unprecedented for at least 500 years," Stevens said. "Any of those years on its own wouldn't have been so unusual, but we had four in a row."

Knapp said most of the shrubs and trees of the coastal lowlands survived the drought.

"But under those kinds of conditions, they shed their branches" as a defense mechanism against water loss, he said. "After several years of that, there was a lot of dried wood in those forests. They were set up to burn."

The historic dry spell preceded one of the wettest winters in decades, which was then followed by the hottest summer ever recorded in California, with several coastal cities experiencing all-time high temperatures. This alternating sequence of extreme moisture and heat – which researchers say is a clear mark of climate change – led to a buildup of fuels, including 129 million dead trees in the Sierra Nevada since 2010 and, in coastal areas, dead brush and knee-deep dried grass.

"All that dried grass allowed the fires to spread faster," Stevens said.

Bill Stewart, a forestry specialist at U.C. Berkeley, feels the howling hot Santa Ana winds, combined with a dry autumn, are more to blame for the fires. Los Angeles has received almost no rain since the start of the water year on October 1 and most of Southern California is either abnormally dry or experiencing moderate drought.

"In my opinion, it doesn't matter how much rain we had," he said. "What matters is what sort of weather we have in the fall, and when the first rains come."

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Regardless of what factors drove the fires, experts are now discussing ways in which to reduce fire intensity in the future. One of the most effective tools, according to sources, may be prescribed burning. Applied during low-risk times of the year, the practice of intentionally setting fires in overgrown woodlands can effectively, and safely, clear out potentially explosive brush and dead wood.

Orange County firefighters set fires to burn heavy brush and improve the habitat for endangered species, mainly the Pacific pocket mouse. (Don Tormey/Los Angeles Times via Getty Images)

"An acre burned under controlled conditions is an acre that doesn't burn under wildfire conditions," Knapp said.

Already, prescribed burning is used as a management tool, though perhaps not as much as it should be used. According to a study published in 2007 in the journal Forest Ecology and Management, 4.4 million acres of California used to burn naturally every year – mostly low-intensity fires that fed off ground-level shrubbery and fallen wood while also providing ecosystem services, like opening pinecones and cracking seed pods, and making the forest floor navigable for foraging wildlife. Today, thanks to aggressive fire suppression, wildfires consume much less land, allowing fuel to build up over decades. According to Knapp, wildfires have burned an average of

600,000 acres per year since 2002. Prescribed fires burn another 100,000 acres or less each year.

That makes a total of just one-sixth of the historical burned acreage. As a result, a given parcel of land today experiences much longer intervals between fires, massive fuel buildup and much hotter fires when they do occur.

But forestry experts say prescribed burning is most effective for managing high-country conifer forests, like those of the Sierra Nevada. Coastal areas dominated by oak, chaparral and other broadleaf trees and shrubs, they say, are trickier to manage.

“These coastal systems naturally have long returns between fires, usually between 30 and 50 years,” Knapp said.

This means understory fuels accumulate for decades between each fire, making the blazes, when they ignite, extremely hot and powerful – very different from the frequent blazes that naturally burn with low intensity in the Sierra Nevada. Knapp said the species living in coastal zones have actually evolved to depend on hot, powerful and infrequent fires. Frequent prescribed burns, he said, could have negative consequences for these plants and animals, producing lower-temperature flames that fail to stimulate germination processes, or even killing the native plants and allowing invasive ones to replace them.

Starting prescribed burns in such fuel-packed environments could also be extremely dangerous.

“It is difficult to conduct prescribed fire in chaparral since it tends to burn hot,” Stevens said.

Climate change will almost certainly make California much warmer in the future, according to Park Williams, a bioclimatologist at Columbia University’s Lamont-Doherty Earth Observatory. While it remains unclear whether climate change will bring more or less precipitation to the region, fire severity will probably increase. “Anthropogenic climate change will continue to chronically enhance the potential for Western

U.S. forest fire activity," Williams and coauthor John Abatzoglou wrote in a paper published in 2016 in the Proceedings of the National Academy of Sciences.

Moreover, the past year has amply demonstrated that drenching winter rainfall won't necessarily stifle the outbreak of fires. As long as the summers become hot enough, fire risk, especially at lower elevations, will probably grow no matter how much it rains in the future. Steve Burns, a forest fire management officer with the U.S. Forest Service, said areas above 7,000ft were protected against burning in 2017 by the wet winter.

"It bought us some time in the mountains, because we had snowpack into August, but lower down it got really hot, and it dried out," he said.

Stevens expects destructive fires to become more frequent in coastal areas, because of development trends and hotter, drier summers.

"The fires in these areas tend to be caused by human ignition," he said. "That means the more people we have in this area, and the drier it gets, the more fires we're going to have." ■

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Bidding in secret: Officials quietly solicit contracts on ‘twin tunnels’ project despite lawsuits, lack of permits

Department of Water Resources director says awarding big contracts ‘has a nice ring to it’

By Scott Thomas Anderson
scotta@newsreview.com

This article was published on 12.21.17.

Opponents of the embattled “twin tunnels” project in the Delta were breathing a sigh of relief last fall when a $3 billion hole was suddenly blown into its financing scheme. Nevertheless, on December 7, California officials quietly opened a construction bidding process on the conveyance system—despite the missing funding, the project’s lack of permits, dozens of pending lawsuits, 90 percent of needed design work, a damning state auditor’s analysis, and the fact that environmental impact hearings on the tunnels haven’t taken place yet.

California officials didn’t announce they were now soliciting contracts to any media, but rather went with the minimal legal requirement of notification on an obscure state website.

Officially known as California WaterFix, the twin tunnels project would take a huge volume of fresh water from the north Delta and divert it primarily to an arid agricultural industry south of Fresno.

Conservationists and independent scientists have predicted catastrophic effects on the Delta if the project is built—the result of salt water incursions moving up the estuary from the Bay. That development alone could put farmers, fishers and marina owners out of business from Freeport to Isleton, and kill much of Sacramento County's annual $507 million agricultural economy.

State scientists deny this will happen.

In August, an SN&R analysis of the twin tunnels' 40,000-page environmental impact report revealed additional impacts from 14 years of nonstop construction, including massive excavation, deep dredging, steel pile-driving, the razing of historic homes, the draining of ground wells, and hundreds of heavy diesel trucks rolling across 90-year-old bridges every day for over a decade. (Read "Why save the Delta?" Feature, August, 31, 2017.) The EIR's graphics indicate that the north Delta's bucolic riverbanks and sloughs will become a permanent industrial zone.

Tunnel foes saw a ray of hope in September when the Westlands Water District unexpectedly voted not to help fund the project, creating an estimated $3 billion shortfall in its budget.

But then, on December 6, the Department of Water Resources held what it called "a California WaterFix Industry Day" at the Sheraton Grand Hotel in Sacramento—and put the event on in conjunction with Metropolitan Water District, one of the largest beneficiaries of the tunnels. Standing in front of some 250 drilling and construction contractors, DWR Director Grant Davis said the state was now accepting requests for proposals for a project he estimated was about a year from breaking ground.

"That certainly has a nice ring to it, doesn't it?" Grant told the contractors and consultants in the audience. "I see a lot of people nodding—bidding opportunities."

The next presentation came from WaterFix program manager Chuck Gardner, whose PowerPoint presentation hinted at the construction boom by referring to "a mega-tunnel project."

That was echoed by the management team's John Bednarski, who said the tunnels will equal "massive construction efforts taking place." Bednarski said the bidding processing was starting the next day. His presentation acknowledged only four of the 11 major state and federal permits for the tunnels have been approved. The design of the tunnels and their Herculean intakes is only 5 percent complete, officials also conceded.

During a question and answer session, Department of Water Resources contract specialist Nikki Hatcher admitted her department had not notified or advertised the opening of the bidding process in any media, but rather posted the news on the Cal eProcure website, which is a different website than the state's official California WaterFix site.

"I haven't heard of the website before," said Barbara Daly of North Delta CARES, a nonprofit watchdog group that opposes the tunnels.

Responding to an inquiry from SN&R, DWR spokesperson Erin Mellon wrote in an email that a general time-line for bidding on the project's construction is posted on the official WaterFix website. However, the graphic that Mellon referred to only notes that the proposals process is slated for some time within a year.

Daly stressed that specific notification about the bidding process to media is important—or at least having it spelled out on the state's official website—because many Californians think the project is on hold. That's because of an array of lawsuits over imminent domain, business loss and environmental impact, as well as the missing $3 billion in funds and a recent state auditor's report decrying the project's skyrocketing costs.

The state Water Resources Control Board also hasn't yet held hearings on recreational and environmental impacts from the tunnels project.

"Now they're signing all of these contracts, but what will happen if the project doesn't move forward and the contracts are broken?" Daly said. "Are the California taxpayers going to be liable?"

Courtland's marina at sunset. The town's third- and fourth-generation pear farmers are among the north Delta residents who beliveve their businesses and communities will be ended by the twin tunnels.
PHOTO BY SCOTT THOMAS ANDERSON

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Delta fish is going, going ...

By Alex Breitler
Record Staff Writer
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Posted Dec 28, 2017 at 7:09 PM
Updated Dec 28, 2017 at 7:09 PM

Even Northern California's wettest winter wasn't enough to help the poor Delta smelt avoid dropping to another record low in 2017.

While the fingerlong fish might not seem of great consequence to most people, its health is a sign of the well-being of the Delta as a whole.

And the smelt are not well. Crews spent four months this fall using large nets to sample more than 100 sites from San Francisco Bay to the Delta. They caught a grand total of **two fish.**

That's the worst showing in a survey that dates back to 1967. It's also a 99.9 percent decline from the smelt's highest estimated population level, measured in 1970.

"The population is so low that they can't find each other to mate. We're lucky to have *any* smelt," said Tom Cannon, a fish ecologist and consultant for the Stockton-based environmental group California Sportfishing Protection Alliance.

The fish's continued decline toward extinction might not be surprising if California was still stuck in a severe drought. But the Delta flooded last winter, and experts had been hoping the smelt might see at least a modest rebound as a result.

That's what happened in 2011, another wet year, when the smelt population **increased tenfold.**

Not this time. Not only was there no rebound, but the number of fish found in the surveys actually declined slightly. It may be that there are so few smelt left that even four months of extensive surveying is not enough to detect increases or decreases in their numbers, said **Peter Moyle,** a University of California, Davis professor and expert on California's native fishes.

It's also possible that last winter's floods swept the smelt farther away from each other, making it even harder for the fish to find each other and breed, he said. Because they live for just one year, it's critical that the species is able to reproduce annually.

"We really just don't know what is going on with the smelt at this stage," Moyle wrote in an email to The Record.

State and federal officials on Thursday said that some smelt likely did spawn successfully last spring, but that their offspring encountered problems later in the year, including an unusually hot summer that warmed water temperatures to lethal levels. This dry fall likely hasn't helped, either.

"Things were going pretty well until the summer. Then the count dropped off," said Carl Wilcox, a policy adviser with the state Department of Fish and Wildlife.

But environmentalists believe that water management actions have had a large role in the overall demise of the smelt, which could become the first Delta species in 60 years **to go extinct.**

Even in years with normal precipitation, so much water is taken upstream of the Delta or pumped directly to southland farms and cities that the estuary's fish and wildlife face **droughtlike conditions.**

And while those water exports have sometimes been curtailed to protect the fish under the Endangered Species Act, those curtailments have not always been as aggressive as **biologists recommended.**

Smelt numbers really cratered during the most recent drought, when already-low flows were made even lower by state officials who decided to loosen water quality standards in the Delta so that more water could be stored in reservoirs. Even after the drought, earlier this fall, the U.S. Fish and Wildlife Agency agreed to **temporarily relax** another water quality rule to allow for more exports.

Agency spokesman Shane Hunt said Thursday that most recent "minor modification" likely had no effect on the smelt, which face a number of threats in addition to water withdrawals, such as pollution from farms and cities, and a loss of historic habitat.

But Doug Obegi, an attorney with the Natural Resources Defense Council in San Francisco, said the water policies of state and federal agencies over a number of years have caused cumulative harm to the species. And he's not surprised at the latest dismal numbers.

"It's the old death by a thousand cuts," he said. "Even in years like this, when we should be providing better conditions for fish, the agencies still cut corners."

Contact reporter Alex Breitler at (209) 546-8295 or ***abreitler@recordnet.com****. Follow him at recordnet.com/breitlerblog and on Twitter* ***@alexbreitler****.*

Three Years on, How California Is Spending Its $7.5 Billion Water Bond

In 2014 Californians approved Proposition 1. Ellen Hanak at the Public Policy Institute of California breaks down how much of that $7.5 billion has been appropriated so far and what that means for future water spending.

WRITTEN BY	PUBLISHED ON	READ TIME
Ian Evans	Dec. 29, 2017	Approx. 4 minutes

Irrigation water at a cotton field in Porterville, California, in 2016. Agricultural fertilizers and cow manure from dairy farms have led to domestic wells in California's Central Valley having dangerously high levels of nitrates – making the water unsafe to drink. Part of California's 2014 water bond will address clean drinking water improvements. ROBYN BECK/AFP/Getty Images

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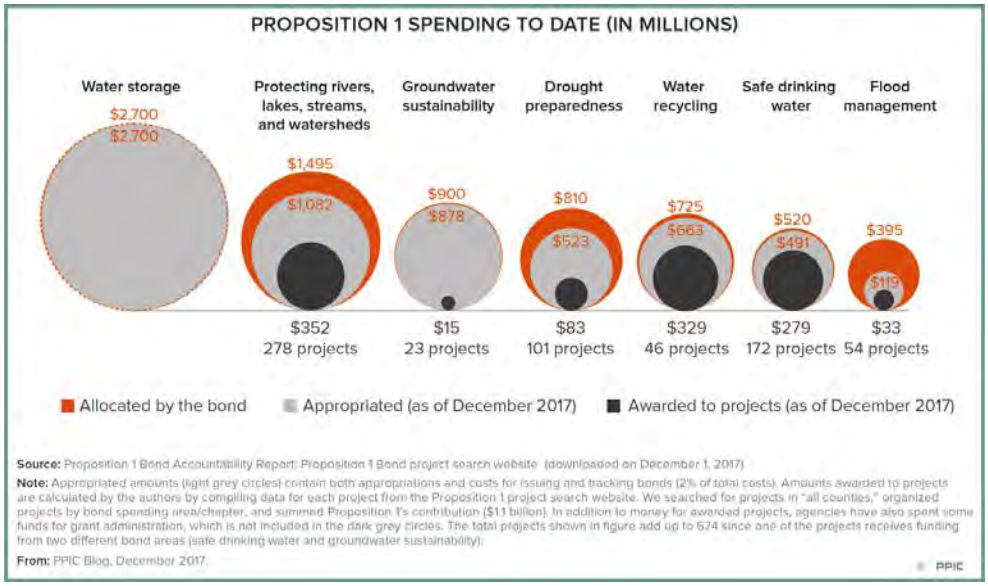
THREE YEARS AGO, California voters passed Proposition 1, a bond that provided $7.12 billion for water projects and reallocated another $425 million. The funds had to be split among seven categories: safe drinking water, water storage, flood management, water recycling, drought preparedness, ecosystem and watershed protection and groundwater sustainability.

Ellen Hanak and Jelena Jezdimirovic at the Public Policy Institute of California (PPIC) dove into the numbers to see how the proposition money has been spent throughout the state.

They found that about 80 percent of the proposition's money has been appropriated, and they broke down the funding in a recent PPIC blog post.



(Courtesy of the PPIC)

Water Deeply spoke with Hanak, director of the PPIC Water Policy Center, about the Proposition 1 funding, what it tells us about water projects in California and about legislative priorities in 2018.

Water Deeply: How does this rate of spending compare to past water bond spending?

Ellen Hanak: This is about the typical pace of spending. Sometimes we'd like to see the money get out the door quicker or

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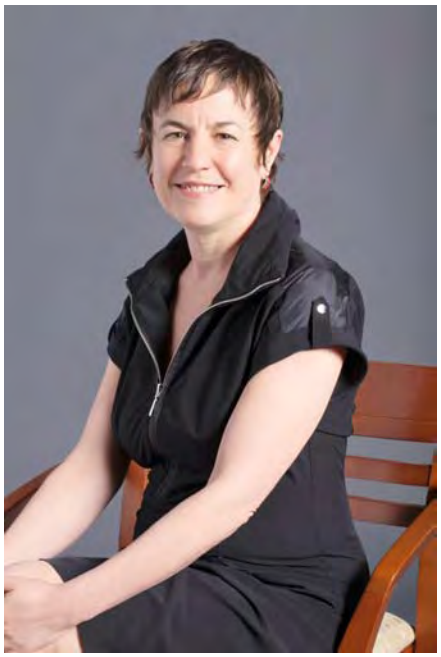

Ellen Hanak, director of the PPIC Water Policy Center, has been studying the appropriation of money for California's 2014 water bond. (Courtesy of the PPIC)

get frustrated that a bond passes and it doesn't get all spent right away, but there is a whole process within each category to develop the specific details. And then when the calls go out, people have a bit of time to respond, there's a judging process, an awards process and that doesn't all happen overnight.

Water Deeply: Do you expect that Proposition 1 funding will be finished by the end of 2018?

Hanak: Probably not. You'll see that one big circle that has had nothing spent at all yet is the storage piece. They are on track to make approval decisions, but I am guessing that not all that money will go out the door. It will take a while to get the contracts signed. Those are big projects. They don't happen overnight, and there is a lot of accountability involved in making sure that the money goes to what it is intended to go to.

Just look at Prop. 84 and Prop. 1E. We're 11 years out and there is still money left.

Water Deeply: The circle for groundwater sustainability is almost completely empty. Why is that?

Hanak: As you know, the state has a new groundwater law, that is really a landmark piece of legislation enacted in late 2014. It called for the creation of new groundwater sustainability agencies to manage groundwater and the development of groundwater sustainability plans that have to be completed and

for which implementation has to start in 2020, and in some cases in 2022.

First, that deadline of creating groundwater sustainability agencies passed this summer and I would say that folks are feeling that it was quite successful in the sense that you've got almost all of the areas that are required to be covered by an agency covered now.

There's quite a bit of additional money that is going to go for actual groundwater projects, and that will probably happen more over time. Some of that is to clean up groundwater basins that have chemicals in the water that make it unusable. We'll probably also see some additional investments in sustainability efforts.

Water Deeply: Does this spending so far tell you anything about what we might expect in 2018?

Hanak: I think we're continuing to see progress on safe drinking water in small communities. One of the things that is going to be on the legislative agenda is looking for some additional complementary funding to support operations and maintenance of projects [around safe drinking water].

We have some bond funds available and some other [funding] sources but those are almost always for the capital investments to upgrade these systems, and they don't cover operations and maintenance. What folks have highlighted is that there is also a need to have funding available to support these communities on an ongoing basis, because many of them are quite small and very low-income. They can't always fund the operations and maintenance on their own.

That was already under discussion in the legislature this past year. The idea in the proposal that is on the table now, in the bill's current form, is a cost-sharing between the agricultural sector, which would provide some funding through taxes on fertilizer, and the urban sector, which would provide funding through a surcharge on people's monthly water bills.

Water Deeply: Gov. Jerry Brown issued an executive order in 2015 in which he said that all new projects needed to take climate change into account. Are those considerations having any effect on which projects and areas are getting funding?

Hanak: I would say that there is a lot of awareness of climate change and the possible impacts that it will have on the water sector in California. One of the things that all of the models are quite confident about is that – and we've already seen this – the state is getting warmer. That is going to shrink the size of our mountain snowpack. I think that some of the interest that you see in Prop. 1 reflects that concern of augmenting our other kinds of storage, which includes surface reservoirs and underground storage.

The debates are really about where are the right spots and which are the most cost-effective projects. But I think that there is agreement among all of the parties that we have to manage our storage system differently as the climate changes. You're seeing that both in the state bond spending, but also in the way local and regional water managers are approaching their systems. ■

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About the Author

Ian Evans

Ian is the community editor for environment at News Deeply. Before joining News Deeply, he was a freelance science journalist in Boston with a focus on environmental law and policy. He has been published in Undark Magazine, FiveThirtyEight, Nautilus and more. Ian grew up in California, and before getting into journalism he planned on becoming an ecologist. Instead, he pursued science writing and in 2016 he earned an MS in science journalism from Boston University. When he has spare time, Ian likes to get out and go hiking, backpacking and birding.

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Outlook 2018: The Biggest Water Topics in the West This Year

California and other Western states will be grappling with long-term water issues related to infrastructure, clean drinking water systems and watershed restoration, among other concerns.

WRITTEN BY	PUBLISHED ON	READ TIME
Tara Lohan	Jan. 8, 2018	Approx. 4 minutes

Aerial view of the Sacramento-San Joaquin Delta. This year will see key decisions on water management regarding the Delta, including whether the state will move forward with a proposal to build new water conveyance. Paul Hames / California Department of Water Resources

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FOR THE NEXT few months much of the talk around water issues in California and the rest of the Western United States will be about how much precipitation falls, the water content of the snowpack and how temperatures will impact runoff in the spring.

So far, we know we're off to a slow start in terms of snow accumulation in much of the West.

Snowpack in the Upper Colorado River basin at the start of 2018 is 54 percent of average, roughly the same as in Oregon's Cascade mountains. Things are a little worse in California, as the average across the Sierra Nevada is about a quarter of normal for this time of year.

But it's still too soon to tell whether 2018 will be a record dry year or whether some atmospheric rivers will race in to save the day. Last year California swung quickly from extreme drought to flood – which is whiplash for water managers but can also drive policy.

"Very dry and very wet years are always good to accelerate changes in policy and management – they help focus attention," said Jay Lund, a professor of civil and environmental engineering at University of California, Davis. "I think one reason California is relatively adaptive in water management is that we have so many dry and wet years per average year."

As important as precipitation is for setting the stage for policy and water management decisions, there are also several other key issues that will be paramount this year, regardless of weather, and highlight some of the region's long-term structural water concerns.

"This is the year for water infrastructure in California," said Jeffrey Mount, a senior fellow at the Public Policy Institute of California's Water Policy Center. It's also Gov. Jerry Brown's last year in office and California WaterFix, the plan to build new water conveyance around the the Sacramento-San Joaquin Delta, is one of the governor's key initiatives.

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"This is probably the most focused big issue this year," said Lund about WaterFix.

Environmental documentation will be finalized for the project and the State Water Resources Control Board is expected to come to a decision on the state's request for a change in the point of diversion, explained Mount. The issue of how the project will be funded, if it goes forward, and whether it will one or two tunnels will be key areas of negotiation during the year.

The infrastructure issues don't end there. The California Water Commission will make decisions on how to allocate the $2.7 billion from the 2014 water bond for new water storage projects and that could mean that California will begin plans for its first new big dam in decades. And smaller projects, as well as underground storage projects, will also be hot topics.

These water infrastructure projects – conveyance and storage – are interconnected and they are also closely enmeshed with the complicated process of developing water quality control plans for the Sacramento and San Joaquin rivers and their tributaries, said Mount.

Other Western states are also contemplating new infrastructure projects, including a proposed 140-mile pipeline to funnel Lake Powell water to St. George, Utah, and a dam expansion on the Green River in Wyoming that would divert more water from the Upper Colorado River region.

With California's largest wildfire on record still smoldering, wildfires and forest health will also be a big topic in Western states this year.

5
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Nursery owner Erick Suarez sits in his car at his tree and plant nursery as he watches flames from the Thomas fire in the hills of Montecito, California, on December 11, 2017. (ROBYN BECK/AFP/Getty Images)

Fires are a necessary part of Western forest ecosystems, but "what we need to address are catastrophic wildfires and to get forests healthy enough that when they do burn they don't incinerate down 4 or 5in of topsoil," said Kimery Wiltshire, chief executive and director of nonprofit Carpe Diem West, which works on Western water issues and climate change.

In Albuquerque, New Mexico, the water agency has already invested $1 million to help restore a headwaters forest and we're likely to see more initiatives like that. But the looming question is "how do we scale around funding for forest restoration?" asked Wiltshire. "California is starting to move in that direction but it's not even close to what's needed."

This year will also likely see key negotiation among Western states and across borders. Colorado River Lower Basin states California, Arizona and Nevada are expected to continue to work on a drought contingency plan for falling water levels in Lake Mead.

For the Pacific Northwest, one of the top issues in 2018 will be the renegotiation of a treaty, more than 50 years old, between the U.S. and Canada over the Columbia River, which is likely to

center around issues concerning salmon runs, utility rates and flood control.

And in California there's also likely to be a continued focus on how to fund safe drinking water for low-income communities that suffer from chronically contaminated water. "Something major almost happened in the last legislative session," said Lund. " I expect that folks want to pick this up again, and it is important." ■

#CALIFORNIA WATERFIX #COLUMBIA RIVER TREATY #DAMS #DELTA TUNNELS #SNOWPACK #WILDFIRES

About the Author

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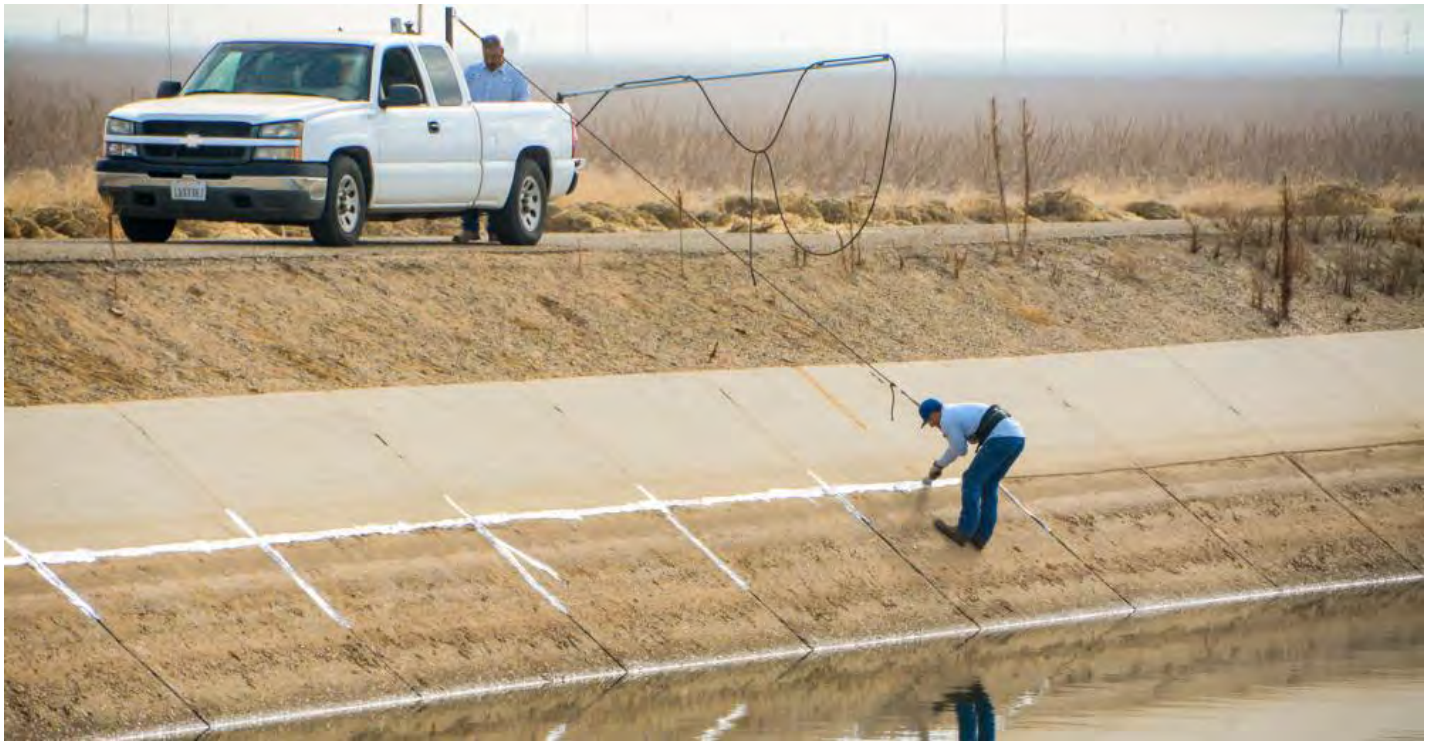


Crews seal seams in the concrete-lined Friant-Kern Canal north of Bakersfield, Calif. ahead of major work to restore flows through a section impacted by land subsidence.

EQUIPMENT > IRRIGATION SYSTEMS

Subsidence shrinks Friant-Kern Canal capacity by 60 percent

Friant Water Authority embarks on three-phase plan to restore canal flows to design capacity and boost deliveries to impacted irrigation districts

Todd Fitchette | Jan 09, 2018

Subsidence along the Friant-Kern Canal is nothing new. However, a five-inch drop within the past year in southern Tulare County is troublesome as it caused a 60 percent reduction in deliveries to districts along the lower half of the canal system.

Canal capacity in the area is now about 1,750 cubic feet per second, down from a designed capacity of 4,000 cfs.

Douglas DeFlitch, chief operating officer for the Friant Water Authority, says evidence of subsidence was noticed last year when the canal was at capacity because of flood releases. Friant officials noticed the problem when they discovered water that should have been freely flowing under a bridge was instead pushing against it.

Surveys conducted between April and August of last year confirmed the severity of the subsidence, a result of increased groundwater pumping from about 2012 through 2016. The groundwater pumping came in response to reduced and curtailed surface water deliveries by the Bureau of Reclamation during the period.

Friant Water Authority conveys federal Central Valley Project (CVP) water from Millerton Lake near Fresno to irrigation and water districts from Chowchilla to Arvin as part of a contract the Bureau of Reclamation has with water users. Friant is a joint powers authority with 15 member districts that manages and maintains the 152-mile long gravity-fed system for the bureau.

In 2014 and 2015 the Bureau of Reclamation cut all water deliveries to districts in the Friant system. This forced farmers to pump available groundwater just to keep permanent crops like citrus, tree nuts, grapes and blueberries alive. Some growers along the eastern edge of the San Joaquin Valley lost hundreds of acres of citrus and other orchards for lack of water.

For those that could pump water they did, creating ripple effects in the region that left domestic wells dry and caused homes in Porterville to go without running water for three years until Tulare County could make a permanent fix.

Farm impacts

For farmers from southern Tulare County to Arvin, this decline in canal capacity means reduced surface water supplies and greater reliance upon groundwater – a problem the state of California says it wants to fix through last year's passage of the Sustainable Groundwater Management Act (SGMA). In short, the act will limit groundwater pumping to achieve long-term sustainability of aquifers, which have been in decline for decades.

DeFlitch says Friant has a plan to address subsidence and the impacts it is having in the region, but that will take sustainable deliveries of surface water to achieve. This plan will be unfolded in three phases, he says.

The first phase, which includes sealing joints in the lined canal system and surveying five county bridges in the region to determine whether they need to be raised, should be complete by April.

The sealing project was borne out of a six-foot raise in the canal banks after the 1977 drought \ caused significant subsidence in the region. Raising the canal banks by six feet then did two things: increased carrying capacity in the canal and added "freeboard" space, which is the desired safe space above that canal capacity regulators want to protect canal banks. Because of subsidence, that freeboard space can now be encroached upon during high flows in the canal. Aside from delivering water during irrigation season, the canal is also used for flood control to relieve pressure on Millerton Lake during high inflows on the San Joaquin River.

The second phase will include about $20 million in repairs through fiscal year 2019. That could include bridge work in concert with Tulare County, along with other repairs to the canal system.

Long term repairs beyond that could cost about $350 million, which DeFlitch says Friant hopes could come through a new water bond under consideration. These long-term fixes, DeFlitch says, cannot happen without state and federal money.

“This is a good bill that would benefit a lot of the districts in the Friant system by being able to get the Friant-Kern Canal back to its maximum capacity,” DeFlitch says.

One such long-term fix could include a cross-valley canal, which would link the California Aqueduct (State Water Project) with the Friant-Kern Canal (CVP). Cost of that canal will depend on where it is constructed as the California Aqueduct flows along the western edge of the San Joaquin Valley while the Friant canal is on the eastern edge of the Valley.

Yet another benefit to the Friant-Kern Canal is its ability to feed several groundwater banks in the southern end of the Valley. These banks will help achieve goals of SGMA, but can only work if sustainable supplies of surface water are maintained, DeFlitch says.

AgAlert
THE WEEKLY NEWSPAPER FOR CALIFORNIA AGRICULTURE

Long dry spell prompts early irrigations

Issue Date: January 10, 2018
By Kevin Hecteman

Joe Valente looks over drip irrigation lines in a pinot noir vineyard he manages for Kautz Farms in Lodi. Valente and other farmers had to fire up their irrigation systems in December to compensate for a dry start to winter.
Photo/Kevin Hecteman

In less than 12 months, Joe Valente went from having far too much water to not nearly enough.

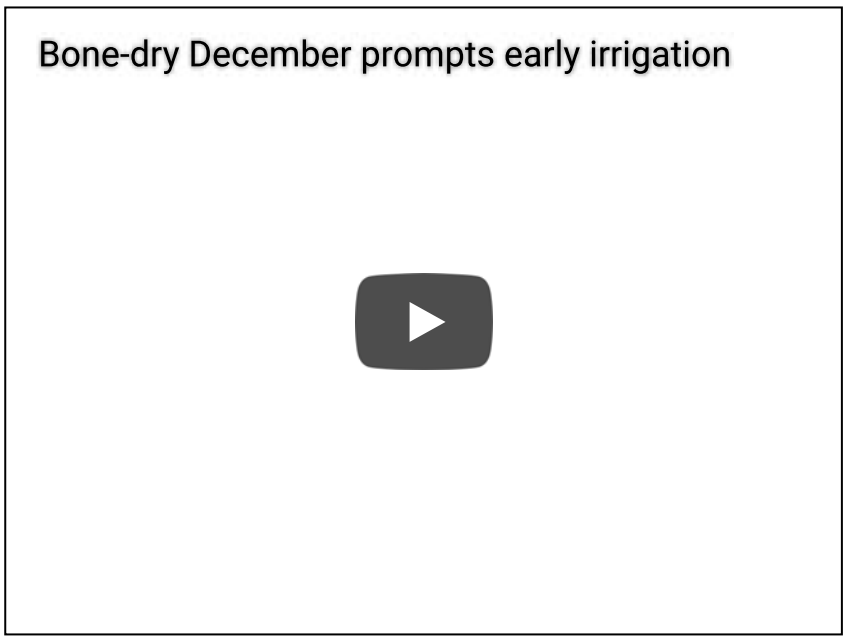
"Every year is different in agriculture," Valente said as he stood in a vineyard near Lodi that needed a rare infusion of irrigation water in December. "This time last year, we were dealing with floodwater, with more than twice normal rainfall. This year, it's just kind of been the opposite."

Such was life in the Sacramento and San Joaquin valleys last month, where the near-total absence of rain forced farmers to turn on the spigots.

How dry was it? This dry: Stockton received 0.05 inch of rain in December 2017, according to the National Weather Service; the norm is 2.22 inches, and in December 2016 it was 2.11. Fresno saw 0.04 inch of rain last month, compared with 2.51 inches a year previously and 1.77 inches typically.

"In a normal year—if there is a normal year anymore—it's (probably) more towards the middle of May we'd start irrigating," said Valente, who manages orchards and vineyards for Lodi-based Kautz Farms. "You come out of the springtime with adequate moisture in the soil, and then you're able to run on that for a little bit, and then

typically about the middle of May we'll start irrigating with the drip irrigation."



Valente said he ran drip irrigation on the vines and trees for about 48 hours in mid-December.

"Our thought was to just put a pretty good sum of water under the vines and the trees," Valente said. "It's more just to prepare for dry weather." At one pinot noir vineyard near Lodi, Valente said the vines would normally receive about 36 inches of water over the course of a growing season, with about half coming from rainfall and half from irrigation.

Evaporation has been minimal, he said.

"Of course, the vines are dormant now," Valente said. "The trees are dormant. So they're not utilizing as much water as they normally would do, say, in the summertime when it's hot and there's green foliage on the plant."

Next door to one of Valente's vineyards is a dryland field, planted to forage crops, belonging to his daughter and son-in-law. With no source of water other than rainfall, the field has been struggling.

"You plant it and hope for the best," Valente said. "It's kind of got a yellowish tinge to it right now. Hopefully, with the little bit of rain we're getting now, we'll perk it up a little bit." The field was planted in October and, if all goes well, should be ready to harvest in April, he said.

Down the Valley, Riverdale farmer Donny Rollin also had to find a rainfall replacement. Rollin has almonds, pistachios, wheat and field crops.

"I started a couple of weeks ago (just before Christmas) on my almonds, running some sets just to try and start to build some moisture in the soil," Rollin said. By contrast, in 2017, Rollin barely ran any water until pollination time, in mid-February.

"On the trees, if we don't build the water profile, when they wake up and start to get thirsty and there's nothing there for them, there's no way we'd ever catch back up with them," said Rollin, who also is president of the Fresno County Farm Bureau. "We're trying to just slowly add some water to the soil profile. That way, when they're waking up and ready to go, there's water waiting for them."

At the moment, all the water Rollin is using is coming from the ground.

"I know a lot of the reservoirs have some water in them," Rollin said. "If they do some release, I'll get some surface water, but it won't be enough to push my crop along."

About 20 families live and work on the Rollin ranch, he said, and water will be critical to their livelihoods.

"Guys know how to farm the crops, and we know how to nurture that stuff along," Rollin said. "It's all a matter of where we're getting our water from now, just because our surface water has been cut to next to nothing. So everybody's doing the same thing. They're trying to be sustainable and survive."

At least two irrigation districts were considering the possibility of a winter allocation. Melissa Williams, a spokeswoman for the Modesto Irrigation District, said MID was gearing up to offer irrigation water beginning

the week of Jan. 15, depending on weather events. This would be MID's first winter water run since January 2012. That year, MID customers used 9,744 acre-feet of water, Williams said.

"As currently envisioned, these irrigation deliveries will take place for approximately three weeks in an effort to provide some of our landowners with the opportunity to irrigate," Williams said. Any water used would count against a farmer's 2018 allocation, she said.

MID's reservoir, Don Pedro on the Tuolumne River, is in good shape, Williams said; as of Monday morning, the reservoir's elevation stood at 797 feet, or 81 percent of capacity.

Herb Smart of Turlock Irrigation District said late last week that TID's board of directors was to consider opening an early-irrigation period Jan. 18 if staff felt it was necessary. The TID board was set to meet Jan. 9, after Ag Alert's press deadline.

Almond grower David Phippen, who has orchards near Manteca, Ripon and Oakdale, saw the moisture readings from his soil sensors getting low.

"As we were coming into mid-December, we kind of noticed that the soil profile was getting dry," Phippen said. He added about 3 to 4 inches of water, working around his pruning crews.

Phippen also is trying to get rid of mummy nuts, which are almonds left behind on the trees after harvest.

"The mummies come off a lot better if it's raining, so we've been holding off on mummy removal through December," Phippen said. "But starting on the first of January, it was go or no-go time, and we have to go. So we've got all of our shakers shaking through the orchard, even if it's not raining or foggy."

Phippen said he anticipated placing beehives in the orchards around Feb. 1. He said the last thing he wanted to do during bloom time was irrigate, as the added moisture in the atmosphere could encourage the growth of fungal diseases.

Phippen gets water from two irrigation districts, neither of which was offering irrigation water as of last week. Phippen said he has backup wells on all of his ranches.

Phippen said he was hoping the December irrigation "tides us over until the January rains come marching in."

Indeed, those rains came marching in this week, with an atmospheric river protected to drop 2 to 4 inches of rain from Sacramento to Ventura. With large swaths of Northern and Southern California devastated by wildfires in October and December, the National Weather Service was warning of the potential for debris flows. Evacuation orders were issued for areas below the Thomas Fire burn zone in Santa Barbara and Ventura counties.

The Weather Service's Sacramento office said Monday that snow levels were expected to be high—about 8,000 feet.

"California as a whole has been passed by snowfall this year," said Ryan Jacobsen, executive director of the Fresno County Farm Bureau. "It hasn't just been the central San Joaquin region; it's actually been Northern California as well. We are not expecting a necessarily good water allocation announcement come March if conditions persist in the way they are right now."

(Kevin Hecteman is an assistant editor of Ag Alert. He may be contacted at khecteman@cfbf.com.)

ATTACHMENTS
IV.A-C.

Your mission: Hack California's water system

Press staff report | Posted: Tuesday, December 26, 2017 9:15 pm

Registration is now open for the third annual H2O Hackathon, a daylong event in which students make an app or game inspired by California water issues that offers a new solution.

Teams will use IBM Bluemix to make their apps March 17 at the San Joaquin County Office of Education in Stockton. During a training day Jan. 25, registered participants will learn how to use the program.

The team that makes the best app will receive the Golden Spigot Award of $5,000 provided by Cal Water. A team is made up of four high school students and a teacher, and only 20 teams from the county will be allowed to compete.

Team Rocket from Tracy High School won the 2017 H2O Hackathon. Second and third place went to Wolfhack Beta and Quantum Wolfhack from West High School.

Registration closes Jan. 12 at www.h2ohackathon.org. For more information, call the San Joaquin County Office of Education STEM office, 468-4880.

Golden Spigot Award

Team Rocket from Tracy High School won the top prize at the second H2O Hackathon in March 2017.

CA WATER COMMISSION: Update on Sustainable Groundwater Management Implementation

January 4, 2018 Maven Meetings

Since the passage of the Sustainable Groundwater Management Act (SGMA) in September of 2014, the Department of Water Resources (DWR) has been working to fulfill its statutory obligations under the legislation. With the overwhelmingly successful formation of Groundwater Sustainability Agencies (GSAs) this summer, the focus of the Department now turns to the development and adoption of Groundwater Sustainability Plans (GSPs). At the December meeting of the California Water Commission, DWR staff reported on their implementation efforts to date.

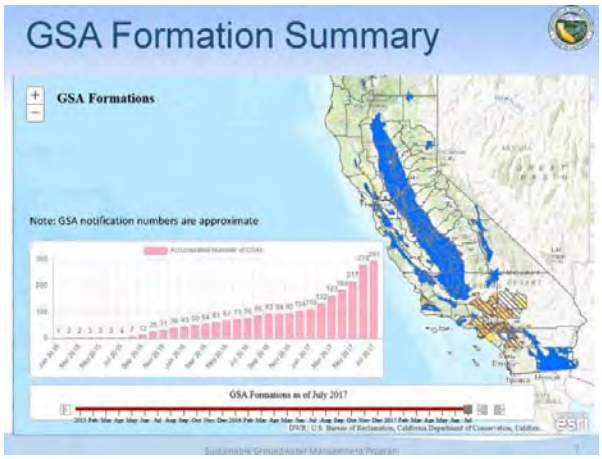
Taryn Ravazzini, Deputy Director for DWR and Executive Sponsor for the Department's Sustainable Groundwater Management Program began the presentation with some opening remarks.

"*The Department has a unique role when it comes to SGMA implementation because not only are we required to review these plans that are coming before us, which is a regulatory role from developing those regulations, but then we also have a very robust assistance role in technical, financial, and planning assistance*," she said. "*This is really where the Department has its strength in working at the local and regional levels to really help these GSAs pull together what we hope to be adequate plans for sustainable groundwater management*."

UPDATE ON GROUNDWATER SUSTAINABILITY AGENCY FORMATION

Mark Norberg, Senior Engineering Geologist with Sustainable Groundwater Management program, then updated the Commissioners on the Groundwater Sustainability Agency (GSA) formation process, noting that overwhelmingly, local

agencies did a great job with 99.9% of the basins subject to SGMA being covered by a GSA.

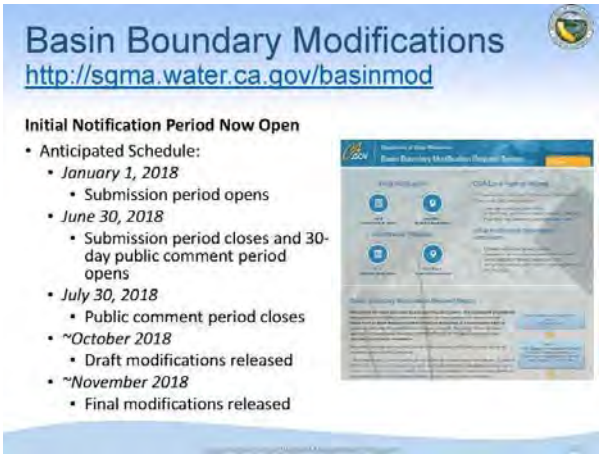


The remaining areas not covered are mostly small fringe areas on the outside of adjudicated basins or very small areas that weren't covered by a local agency. Counties had the responsibility to cover the unmanaged areas, and most of them did step up, he noted.

In total, 265 GSA notifications were received. The GSAs come in all shapes and sizes, from local agencies covering a small portion of one basin to local agencies that covered all the alluvial basins in the entire county; Some local agencies posted multiple notifications.

All totaled, 141 basins now have GSAs, 108 of which are subject to SGMA. The other 33 basins are low or very-low priority basins or don't yet have a priority. Most of those basins were covered by counties, for example, Imperial County and Tehama County. Alternatives plans were submitted by 22 basins; 11 of those basins have full GSA coverage and 9 of those basins don't have any GSAs formed.

BASIN BOUNDARY MODIFICATIONS



A second round of Basin Boundary Modifications will formally open on January 1st that will go through June 30, 2018. Once the period closes, DWR will be accepting public comments for a period of at least 30 days. They anticipate getting draft modifications out by October of next year with final modifications released in November or by the end of the year.

Basin boundary modifications can be either jurisdictional or scientific modifications. As part of this process, the Department will draft recommendations, conduct public hearings, and present those basin boundary requests to the Water Commission. The Water Commission's role in this aspect of SGMA is to hear and comment on the draft modifications.

PLANNING, TECHNICAL, AND FINANCIAL ASSISTANCE

As part of SGMA implementation, the Department is providing planning, technical, and financial assistance. Their role now is more of an engagement and advisory role that focuses on getting the local agencies the information that they need to make informed decisions to develop the groundwater sustainability plans (GSPs).

Groundwater sustainability plans for the state's 21 critically overdrafted basins are due by January 31st, 2020; in the other high priority basins, GSPs are due January 31st, 2022. Alternative plans were submitted by 22 basins; those alternatives are being reviewed for functional equivalency to a GSP and substantial compliance.

Planning Assistance

The Department has contracted with a variety of professional facilitators that were available to assist local agencies in GSA formation. The facilitators assisted with meeting facilitation, interest- based negotiation, consensus building, and public outreach within the basins. The facilitators helped local agencies work through some challenging governance situations, Mr. Nordberg said.

Facilitation support is also available for development of GSPs. Local agencies can apply online; requests are reviewed on a case by case basis. The Department is focusing on the critically overdrafted basins first as their plans are due two years before the other basins.

The Department has initiated points of contact in their regional offices, located in Red Bluff, West Sacramento, Fresno, and Glendale. The points of contact will help connect local agencies to groundwater experts in the Department as well as organize the consistent flow of information with the SGMA program.

For a PDF of the points of contact at DWR's regional offices, click here.

Technical Assistance

Steven Springhorn, Senior Engineering Geologist, next described the technical assistance efforts underway at the Department. He noted that the team has been working hard to provide tools and datasets as quickly as possible to aid the GSAs in development of their groundwater sustainability plans.

The technical assistance is divided into 3 main categories:

- Guidance and education: This is working towards a common understanding of SGMA and the new requirements, and providing resources such as best management practices and other guidance documents.
- Technical support services: Engaging with the GSAs on a technical nature, such as the ability to install monitoring wells and provide modeling tools.
- Statewide datasets, maps, and tools: The goal is to compile the existing information and make that readily available for the GSAs to use in their plans.

Mr. Springhorn then discussed each of the major components.

Guidance and education

The Department's guidance and education efforts are focused on building a common understand of the GSP and SGMA requirements. This starts with fundamental knowledge of groundwater such as Bulletin 118 and the California Water Plan, and they have a dedicated SGMA website for all their information is stored and easily accessible.

They have also developed SGMA-specific references, such as the best management practices. Last year, five best management practices were developed that focused on the critical elements of the groundwater sustainability plans and provided some additional guidance and resources to tackle some of the more complex issues that GSAs have to develop in their plan. Other guidance documents have been developed that provide additional information on important elements of the planning process, such as GSP outlines, documents on engagement with tribal governments, and stakeholder communication and engagement.

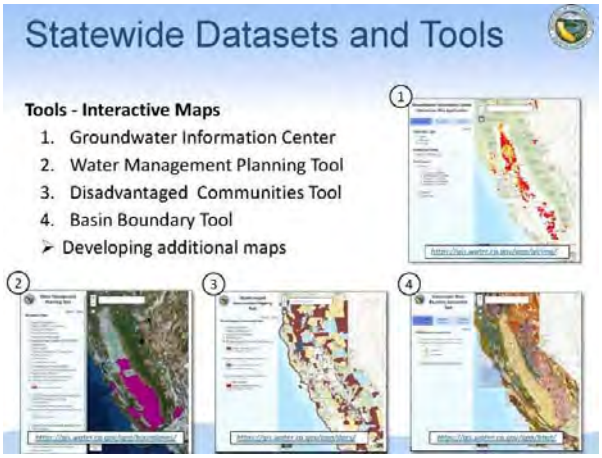
The team recently released a sixth best management practice focusing on the Sustainable Management Criteria in draft form for public comment; the comment period closes on January 8th. "*That's truly the heart of the groundwater sustainability plan*," he said. "*That's where sustainability is defined and tracked through time*."

The Department is looking at continuing this form of assistance, because they have received good feedback on their efforts. Additional best management practices could be developed for issues such as water quality, data management systems, and surface water-groundwater interactions.

Technical assistance

The Department's technical support services are focused on GSAs and trying to build local capacity in these basins. They are providing field activities, and leveraging a drilling contract of the Department's that can be used to install dedicated monitoring wells. They are putting the modeling tools of the hands of the GSAs, making sure they understand how to use them, and then they can use them for GSP development.

Another component of technical assistance is the statewide datasets and tools. Mr. Springhorn acknowledged that there is a lot of groundwater or SGMA-relevant information out there, but it is spread across multiple websites so it can be hard to find. The Department is working to put that information in one spot so people can download the information they need, get to the tools and maps they need, and find reports. (Click here to view the webpage.)



There are also interactive maps available that show information on groundwater levels and subsidence. The water management planning tool helps local agencies to understand the various jurisdictional boundaries in their area, counties and other important boundaries. Another tool is an interactive map that highlights the disadvantaged communities within California, another critical element of SGMA planning and Prop 1 grant applications. There is the basin boundary modification tool which provides some geologic maps and other relevant information for entities looking to modify their basin boundaries.

"*A lot of the information here is tied directly to the requirements of SGMA*," Mr. Springhorn said. "*We're trying to align our technical offerings to what the local agencies and their stakeholders need in the basins throughout the state. We are currently developing additional tools that if there's a gap in information, we're trying to fill those gaps as quickly as we can, to get that information in the hands of the GSAs so they can put it into their plans.*"

A new dataset that has recently come online is the land use viewer, which has the data for 2014 statewide land use as well as legacy land use data, which shows the variety of different land uses in the state. The data can be downloaded by county or by groundwater basin. They are working to add 2016 statewide land-use, which

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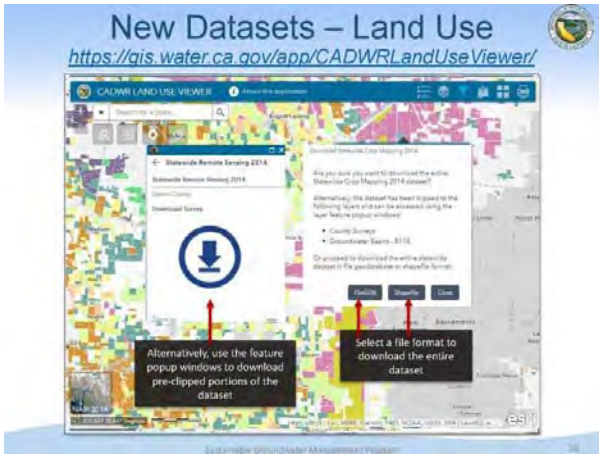


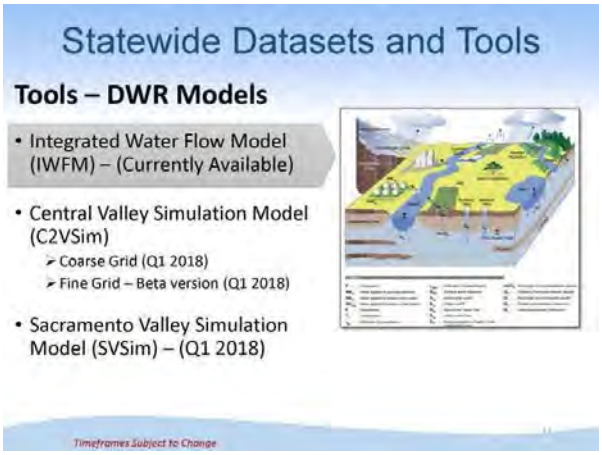
A new dataset that has recently come online is the land use viewer, which has the data for 2014 statewide land use as well as legacy land use data, which shows the variety of different land uses in the state. The data can be downloaded by county or by groundwater basin. They are working to add 2016 statewide land-use, which they anticipate being available mid-2018. "*The data is important because there's a nexus between land use and water use, and so this allows the GSAs and others to see what land use is there and bring that into their GSP planning process*," said Mr. Springhorn.

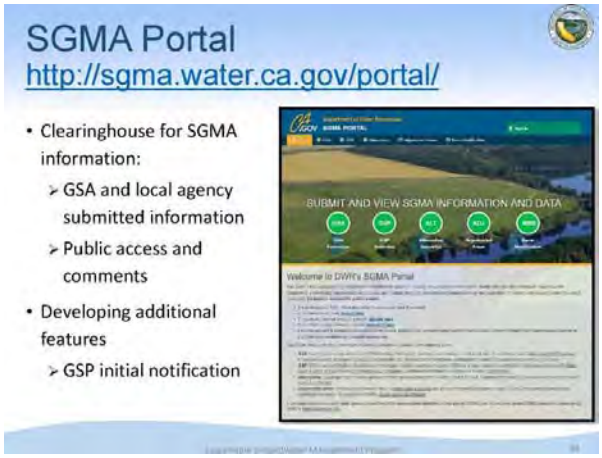
The Department also has put well completion reports online, which allows users to zoom in and see the number of domestic, production, and municipal supply wells and their average depths, with a link provided to get to the log itself.

"*This is a big improvement from where we've been in making this information available*," said Mr. Springhorn. "*You can also download all of the information for each county in the state. This is a requirement in the GSP regulations, getting this information on a map, so this shortens the time for the GSA to compile all this information.*"

The team is now working to develop a SGMA data viewer which will take existing data and make it map based. The information will be organized by the sustainability indicators such as groundwater levels or land subsidence; users will be able to get the information needed for their basin and download it. They will be able to zoom into any area of the state, look at water levels, and then understand the trends through time.

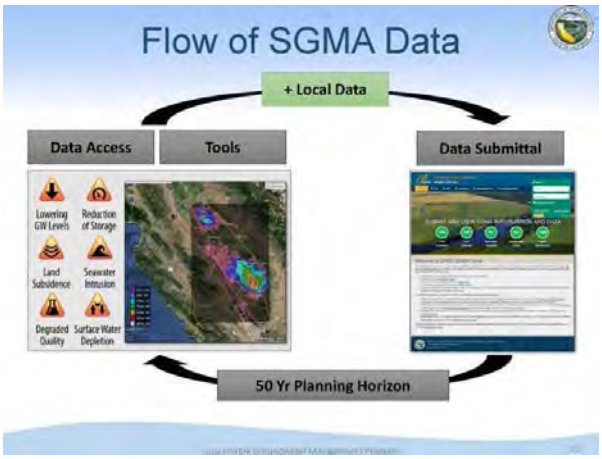
directly applicable to SGMA. There is also a specific model that's been refined for the Sacramento Valley that will be available in early 2018.





The SGMA information portal is essentially a clearinghouse for all the SGMA information received from the local agencies. This will also be where the GSAs will submit their GSP to the Department. They will be making that information accessible to the public, as well as allowing for public comment.

"*A lot of information is needed as the foundation of those plans, and to make informed decisions,*" said Mr. Springhorn. "*There is a lot of information that's needed over the planning horizon which is 20 years. So our goal with the SGMA data viewer and these other tools is that GSAs can grab the information that's readily available for them. They will likely have to add some of their local data to it to comply with the regulation, and then they'll submit it to us in the SGMA portal. The important point here is closing the loop, because SGMA requires annual reporting and 5 year updates, so with the information we've received, we want to put that back into the tools, so the GSAs and other members of the public can see updated groundwater information in the state.*"



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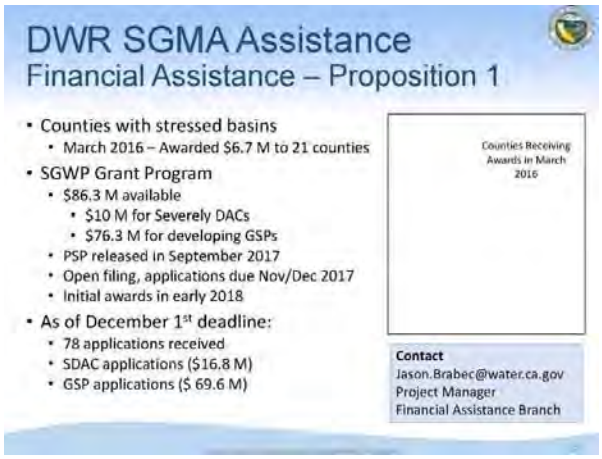
Commissioner Maria Herrera asked about the drilling contract that's available to help the GSAs install monitoring wells. Steven Springhorn acknowledged that the funding is limited. "*We're really focused on the critically overdrafted basins this first round with the funding we do have, so we wanted to make sure that the GSAs didn't think we could install the wells for them, but we are coordinating with our Prop 1 team in understanding what was requested and how we can use these additional funds to supplement them.*"

The total amount available on the contract is only around $2 to $3 million. Depending on the type of wells, it could potentially fund 20 to 30 wells across the state. "*We're focusing these first years on the 21 critically overdrafted basins. It's not that many, but it's definitely a good head start or first step in getting that critical information out there in those basins.*"

FINANCIAL ASSISTANCE



Trevor Joseph then briefly updated the Commissioners on the financial assistance available, noting that it is managed within the financial assistance branch in the Division of Integrated Regional Water Management. Proposition 1 provided $101 million for competitive grants for plans and projects to develop implementation plans. In 2015, $6.7 million of that was awarded to counties with stressed groundwater basins.

A grant proposal was released in the early fall that had $86.3 million available, with a minimum $10 million that had to be available for severely disadvantaged communities. The application period recently closed; 78 applications were received for a total of $86.4 million. Applications for severely disadvantaged communities totaled $16.8 million; the remaining $69.6 million of the applications were for GSAs submitting for GSP development. The financial assistance branch is still reviewing the applications, but it looks like they will be able to fund a majority or all of those funding requests, said Mr. Joseph.

FOR MORE INFORMATION …

- For DWR's Sustainable Groundwater Management Page, click here.
- For DWR's page of SGMA tools and datasets, click here.
- To learn more about groundwater, click here.

Local district moves forward with water project

By John Bays/News-Sentinel Staff Writer | Posted: Tuesday, January 9, 2018 10:30 am

The North San Joaquin County Water Conservation District Board of Directors approved the formation of a special water district as well as the engineer's report for the South System Groundwater Improvement Project during its meeting on Monday afternoon in the Lodi Public Library's Community Room.

The project would create a new system of pipes for in-lieu recharge, taking surface water from the Mokelumne River to irrigate agricultural lands in the area instead of groundwater, allowing declining groundwater levels to replenish.

The district was formed to identify the outer boundaries for the Groundwater Improvement Project, according to Jennifer Spaletta, the board's general counsel. The new district consists of agricultural areas south of the Mokelumne River and west of North Tully Road, and does not include developed areas of Lodi, Spaletta explained.

The resolution passed with four "aye" votes and Board President Joe Valente as the only absence, and was proposed following a special meeting last December.

"It's important to note that this resolution only allows us to move forward with drawing the outer boundary for the project. It's not an assessment. It's not a budget. It's simply to say that we're complying with the water codes. We published a public notice in the newspaper and, seeing no majority, are moving forward with setting the outer boundary," Spaletta said.

The board also voted to approve the engineer's report with four "aye" votes and one absence. A draft of the report was presented at November's board meeting, and the board has since been collecting input from landowners, according to Spaletta. Provost & Pritchard Engineering Group, Inc., the firm hired to assess parcels of land to fund the project and assist with its development and implementation, reviewed the feedback before submitting the final report that was approved on Monday.

"I can say that the feedback was good, and changes have been made based on that feedback. Provost & Pritchard allocated benefits to different properties, and proposed

assessments based on those benefits. If approved, the board will send notices and ballots out and hold a public hearing on Feb. 26, where the ballots will be counted," Spaletta said.

Gerald Belluomini, a landowner in the project's area, raised the question of what specific benefits he would see from the project.

"How is this assessment going to benefit me? I'm at the eastern boundary, I'm going to pay money for it, but will I see benefits from it in my lifetime? Probably not," Belluomini said.

Tom Flinn, the board's vice president and treasurer, explained that the project would stop the groundwater levels from declining in the area as well as guarantee the district's water usage rights. Mike Day, principle engineer for Provost & Pritchard, then went into more detail about the specific benefits of the project.

"If there isn't the use of surface water in the area, (groundwater) levels will continue to decline. It can take areas that use groundwater and get them an average of 5,000 acre-feet per year and turn the wells off so that groundwater levels won't decline one foot per year. We've identified who they are, and we do know that when people turn the wells on, it does affect people as far as two miles away," Day said.

Bill Castro, another landowner, asked if parcels smaller than five acres would be assessed in the project. Day explained that those parcels would not be assessed, and Spaletta added that unirrigated parcels larger than five acres will be assessed at $0, but would be reassessed should they become irrigated in the future.

Spaletta also explained that the water district's rights allow for a maximum diversion of 20,000 acre-feet per year. Because of the priority of water rights and the availability of water, the district has access to an average of 10,000 acer-feet per year, she said, before addressing how much of the district's water overdraft the project would correct.

"It turns into a 'numbers soup,' sometimes because you have to look at North San Joaquin and smaller areas for ourselves. North San Joaquin uses about 20,000 acre-feet more water per year than is naturally replenished. Bringing in 5,000 acre-feet of surface water, this project alone would correct 25 percent of the overdraft problem. We have other projects that would correct another 25 percent, so we can solve 50 percent of the problem. We can also put in projects that help farmers be the most efficient they can be," Spaletta said.