BAY AREA WATER SUPPLY AND CONSERVATION AGENCY

BOARD OF DIRECTORS MEETING

July 14, 2017

Correspondence and media coverage of interest between June 10, 2017 and July 14, 2017

Correspondence

Date: July 12, 2017
From: Nicole Sandkulla, CEO/General Manager, BAWSCA
To: California Water Commission
Subject: Pacheco Reservoir Expansion Project Letter of Support

Media Coverage

Conservation:

Date: July 13, 2017
Source: Capital Press
Article: Fair exhibit touts water conservation even in wet years

Date: July 12, 2017
Source: Water Deeply
Article: How Conservation Helps Keep Water Costs Down

Date: July 11, 2017
Source: ACWA News
Article: Scaled-Down Conservation Bills Clear Senate Committee; Work to Continue over Recess

Water Supply Management:

Infrastructure

Date: July 14, 2017
Source: Daily Journal
Article: Millions allocated toward Butano Creek restoration

Date: July 14, 2017
Source: Water Deeply
Article: Opponents of California's Delta Tunnels Project Push Alternative Strategies

Date: June 13, 2017
Source: Sacramento Bee
Article: Why years of waiting may be over on Delta tunnels

Date: July 13, 2017
Source: The Union Democrat
Article: San Francisco to draw down Cherry Reservoir for repairs

Date: July 7, 2017
Source: Los Angeles Times
Article: The next crisis for California will be the affordability of water

Infrastructure, cont'd.
Date: June 28, 2017
Source: Ag Alert
Article: Online extra: Questions and answers about Los Vaqueros

Date: June 28, 2017
Source: Ag Alert
Article: Commentary: Water bond funds must focus on surface storage

Date: June 28, 2017
Source: AgAlert
Article: Expanded reservoir wins regional backing

Date: June 23, 2017
Source: Wall Street Journal
Article: California Reservoir on Shaky Ground Highlights Ageing U.S. Dams' Risks

Date: June 21, 2017
Source: Ag Alert
Article: Project aims to add Central Valley water

Date: June 14, 2017
Source: Ag Alert
Article: Sites Reservoir proponents make their case

Policy
Date: July 12, 2017
Source: Los Angeles Times
Article: California water bill passes House, but Democrats vow to fight it in the Senate

Date: July 10, 2017
Source: E&E News
Article: Jerry Brown's tunnels would cement his family legacy

Date: July 12, 2017
Source: Ag Alert
Article: Groundwater planning moves into next phase

Transfer
Date: June 22, 2017
Source: Palo Alto Weekly
Article: East Palo Alto accepts Mountain View Water

# # #

BAWSCA
Bay Area Water Supply & Conservation Agency

July 12, 2017

California Water Commission
P.O. Box 942836
Sacramento, California 94236-0001

RE: Pacheco Reservoir Expansion Project Letter of Support

Dear Commissioners,

The Bay Area Water Supply and Conservation Agency (BAWSCA) is providing this letter in support of the Santa Clara Valley Water District's (SCVWD) application to receive Water Storage Investment Program (WSIP) funding for their Pacheco Reservoir Expansion Project. SCVWD's partners in the project are the Pacheco Pass Water District and San Benito County Water District.

SCVWD intends to increase the Pacheco Reservoir storage capacity by 134,000 acre-feet, bringing resultant reservoir storage to approximately 140,000 acre-feet. The expanded reservoir would be filled primarily with natural inflow coupled with possible diversions from the nearby San Luis Reservoir. Primarily, the expanded reservoir would provide water for use during times of emergency (earthquakes), droughts, as well as water to meet wildlife, wetlands, and fishery needs.

BAWSCA has been told by SCVWD that there are several possible ways we could benefit from the project. They have indicated BAWSCA or its member agencies could have access to water from reservoir storage in the event of an emergency within the BAWSCA service area and that, potentially, we could use water from storage in drought years under scenarios yet to be studied. SCVWD has stated that they also believe that the underlying groundwater basin will benefit from the project, a basin that many of our member agencies rely upon.

If SCVWD's WSIP funding application is successful, SCVWD has committed to engaging BAWSCA in discussions associated with the project. It is possible that BAWSCA, as well as other agencies such as the San Francisco Public Utilities Commission, may be invited to take part in the project in some form or fashion.

BAWSCA appreciates the Commission's consideration of this important project and encourages the Commissioners to approve SCVWD's WSIP funding application. Please feel free to contact Mr. Tom Francis, BAWSCA's Water Resources Manager, at (650) 349-3000, if you have any questions regarding this letter of support.

Sincerely,

Nicole Sandkulla
CEO and General Manager

cc: BAWSCA Board Members
BAWSCA Water Management Representatives
A. Schutte – Hanson Bridgett
John L. Varela, SCVWD Board Chair – District 1
Norma Camacho, SCVWD Interim Chief Executive Officer
Melih Ozbilgin, SCVWD Project Manager
Steve Ritchie – SFPUC

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Fair exhibit touts water conservation even in wet years

The state Department of Water Resources exhibit on the farm at the California State Fair urges attendees to make conservation a lifestyle even after wet winters.

Capital Press | July 13, 2017 | Tim Hearden

SACRAMENTO — A state agency is returning to the farm at the California State Fair to tell attendees that conserving water is still important even after a wet winter.

The Department of Water Resources made irrigation tips and displays of water-saving landscapes a fixture at the farm during the recent five-year drought.

This year, officials will highlight lessons learned and urge fairgoers to keep the next drought in the backs of their minds as they use water, said Doug Carlson, a DWR spokesman.

“We all have shown we have the ability to conserve water when called upon to do so,” Carlson said. “The governor (Jerry Brown) asked us to do that in 2015 and for two straight years, the people of California managed to come pretty close to his target.

“We know now that we can do it,” he said. “So let’s continue to do something to make it a way of California life.”

The agency’s exhibit, “Water Conservation: Rain or Shine,” showcases water-saving plants and other landscape features and gives reasons that Californians should make conservation a lifestyle. For instance, aquifers in many areas are still woefully depleted as growers had to rely on them as surface water grew scarce during the drought.

For urban dwellers, the display will offer tips on how to replace lawns and access up to $2,000 in state rebates for doing so.

The DWR’s booth has become an annual feature at the 34-year-old farm, one of the most popular destinations for fairgoers. The farm’s attractions include a daily farmers’ market, an outdoor kitchen grill, an aquaculture exhibit, an insect pavilion and talks by the University of California’s Master Gardeners.

This year, the DWR is teaming with the state Department of Food and Agriculture to present new exhibits in the insect pavilion about beneficial and harmful insects, according to a news release.

The Golden State’s abundance of crops and farm animals always takes center stage at the fair. The livestock building and adjacent shaded stalls feature some 4,500 entries during the course of the fair, as livestock exhibits are shown in shifts.

Among the building exhibits this year is one that focuses on farmworkers and their historic leaders, saluting their work and sacrifice to sustain what is today a $47 billion agriculture industry, the fair’s website notes.

The 17-day fair runs through July 30. Admission at the gate is $12 for adults, $10 for seniors 62 and older, $8 for children 5-12 and free for children 4 and younger. Visit www.castatefair.org .

# # #

How Conservation Helps Keep Water Costs Down

Water rates may be rising in some places, but new research shows that they don't rise as much with conservation, says Mary Ann Dickinson of the Alliance for Water Efficiency.

Water Deeply | July 12, 2017 | Mary Ann Dickinson

By many accounts, California's efforts to manage the strains placed on its water supplies by the recent and unprecedented five-year drought can be considered an unqualified success. Urban water agencies stepped up to meet the challenge posed by a bold state order: Reduce use by 25 percent. Their creative approaches and sustained efforts helped avoid significant damage to local economies and community well-being throughout the state.

But success did not come without pain. As mandates piled up and water use plummeted, some water agencies found themselves struggling to cover operating costs, let alone pay for mounting infrastructure expenses. Many agencies adjusted rates to deal with this new reality and found themselves facing ratepayer rebellion. Conservation was frequently pinpointed as the culprit.

A simple question fueled much of the customer frustration: "Why am I paying more for using less?"

Efforts to answer this question have often omitted a critical point: Although water rates will continue to rise over time, conservation will help keep those rates as low as possible.

How does this happen? The costs of updating aging water systems and investing in new technologies are the primary drivers of most rate increases. Using less water keeps those costs down over time. By stretching the lifespan of supply sources, water agencies can avoid or delay the costs of securing new supplies; building and maintaining new infrastructure; and treating more water and wastewater. Those savings are passed on to customers.

The question that should drive conversation is not, "Why am I paying more for using less?" but rather "How much more would I be paying without conservation?"

The Alliance for Water Efficiency recently worked with communities in Arizona and Colorado to answer this question.

The answer is straightforward. Rates may be rising, but they don't rise nearly as much with conservation. In Tucson, 30 years of conservation reduced per-person-per-day use from 188 gallons to 130 gallons. Without this reduction, Tucson would have needed to invest $350 million in new infrastructure to deliver and treat more water and wastewater. Because these costs were avoided, rates are at least 11.7 percent lower today, and customers save an average of $112 annually on their water bills.

In Gilbert, Arizona, two decades of water conservation have brought water use down by 29 percent from 244 gallons to 173 gallons per person per day. Gilbert and its ratepayers have avoided just under $341 million in water and wastewater treatment expenses. Thanks to conservation, Gilbert customers pay rates that are 5.8 percent lower than they would be without conservation.

A 2013 analysis revealed that residents of Westminster, Colorado, also reaped significant benefits from more than 30 years of conservation. Because the community conserved, a single-family household's average bill in 2012 was 47 percent lower than it would have been – a saving of $596 per year.

Conservation doesn't only keep rates lower for existing customers; it can help make communities a more attractive place to move or build a business. The development fee for a single family residential unit to join Gilbert's water and wastewater system is 45 percent lower today – a saving of $7,700 for each new homeowner – thanks to conservation. In Westminster, development fees in 2012 were 44 percent less than they would have been.

These findings are good news for Californians, since water professionals and regulators agree that it's time to double down on commitments to conservation and efficiency. In the face of population growth and potential future droughts, California's State Water Resources Control Board is embarking on an ambitious endeavor to make water conservation a way of life. And for many of California's neighbors – such as Arizona, where Lake Mead is being drained faster than it can be replenished – conservation is a cost-effective, no-regrets strategy to avoid future shortages.

Successful sustainable water management and drought preparedness will clearly require more than creative conservation programs.

Water rates will continue to rise as communities catch up on needed improvements and ready their systems for the future. Technical solutions – such as regular rate evaluations and probability management techniques to plan for prolonged conservation and multiyear droughts – can help reduce the need for double-digit rate increases. Agencies are also beginning to pioneer innovative rate designs that can better balance revenue stability and conservation objectives – while keeping rates affordable and fair.

But transparent communications to customers will be just as, if not more, important. Future droughts will require even more savings in urban areas. Helping customers understand that conservation is a win-win for both utility finances and customer wallets will help get them on board with efficient plumbing fixtures and drought-tolerant landscapes.

Let's start changing the conversation on conservation before the next drought comes along, and build an understanding that when it comes to water and money – when everyone conserves, everyone saves.

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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# # #

Scaled-Down Conservation Bills Clear Senate Committee; Work to Continue over Recess
ACWA News | July 11, 2017 | Lisa Lien-Mager

The Senate Natural Resources and Water Committee stripped two conservation bills down to intent language and passed a third in its current form on July 11 as a step toward negotiating a package of bills on long-term conservation and drought planning.

AB 1654 (Rubio) and AB 1668 (Friedman) – which previously contained competing proposals to enhance urban water management planning – were amended to replace substantive provisions with language stating the Legislature's intent to enact measures to make conservation a way of life in California.

AB 1323 (Weber) was approved in its current form. The bill would require the California Department of Water Resources to convene a stakeholder work group to recommend new water use targets for urban water suppliers. ACWA has a favor position on the bill.

A fourth bill, AB 1667 (Friedman), was held in committee. The bill addresses agricultural water conservation but was amended July 3 to include several provisions related to long-term urban conservation target setting. ACWA had a watch position on the previous version of the bill.

Sen. Robert Herzberg (D-Van Nuys), chair of the committee, said a group of Assembly and Senate members, stakeholders and Brown Administration representatives will work over the legislative break to craft a final package of bills. The Legislature is set to adjourn for summer recess on July 21 and reconvene on Aug. 21.

Hertzberg acknowledged "a lot of work has been done," and said a focused effort will now be undertaken to "harmonize" input from the Senate, Assembly, Administration and stakeholder groups to "work out what the ultimate package looks like." The package likely will include three Assembly bills and a Senate bill, Hertzberg said.

Representatives of several ACWA member agencies provided comment at the hearing, with many emphasizing the need to preserve flexibility for local agencies, to protect local investments in drought resilience and preparedness, and to preserve the Legislature's authority to set conservation targets.

Herzberg invited stakeholders to submit letters with their perspectives on specific issues related to urban water management planning, long-term targets, enforcement and areas. Committee staff will compile the input into a single document for use during deliberations.

ACWA will continue to update its members on the status of negotiations and next steps in the Senate.

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Members with questions may direct them to ACWA Senior Legislative Advocate Whitnie Wiley.

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Millions allocated toward Butano Creek restoration

Coastside project seeking to restore salmon habitat and reduce flooding in Pescardeo

Daily Journal | July 14, 2017 | Samantha Weigel

Just as an abysmally short commercial salmon season concluded in the region, federal officials recommended a $1.4 million grant toward a creek restoration project aimed at rejuvenating the dwindling species and reducing flooding in Pescadero.

Fish die-offs and road closures have plagued the coastal area for years, prompting a local nonprofit to begin a dredging and sediment reuse project along a nearly 8,000-foot stretch of riparian habitat.

The Butano Channel Restoration and Resiliency Project will not only bolster one of the most ecologically significant watersheds in the area, it will also benefit nearby residents and businesses often inundated by flooding, said Kellyx Nelson, executive director of the San Mateo County Resource Conservation District, or SMCRCD. The district is leading the $6.4 million project and Nelson noted she's pleased a collaborative push is making these improvements possible.

"The fact that we have a number of projects moving forward that do not pit environmental benefits against public safety or economic benefits is really exciting. Here's an opportunity to do a series of projects that are good for everyone — the wildlife, the businesses, the residents, the tourists. And I think we should continue to find those opportunities to do these kind of win-win-win projects," Nelson said.

County, state and federal representatives have been advocating for the Butano Creek project with a similar mix of funding slated to support it. On Friday, July 14, the National Oceanic and Atmospheric Administration, or NOAA, is announcing it's recommending a $1.4 million award from its 2017 Coastal Resilience Grants program. Last month, the state solidified a $4 million contribution and the San Mateo County Board of Supervisors may soon consider offering $1 million.

Board President Don Horsley, whose district includes the coast, said the restoration has the potential to help reinvigorate the dwindling Coho salmon population. Pescadero, which translates to fishmonger in Spanish, was once a hotbed of opportunities for fishermen. Now, they've been fortunate to find one sighting of juvenile Coho in the lagoon. Mass die-offs of threatened steelhead trout are also known to occur in the nearby lagoon when water quality drops.

A county priority

In learning more from meeting with the community and the conservation district, Horsley said restoring the area has been a priority.

"We are really on the threshold of a major accomplishment," Horsley said. "You're protecting endangered species, helping the potential regeneration of Coho salmon, you're dealing with water quality so you don't end up with extraction from that watershed, and you're dealing with

flooding. It's a great win for the environment and it's a marvelous spot. It's one of the largest watersheds on the coast."

The project involves dredging nearly 45,000 cubic yards of sediment while re-establishing an 8,000-square-foot stretch of the historic Butano Creek just before it converges with the Pescadero Creek and nearby lagoon. The dredged sediment will also be reused to restore 28 acres of degraded marsh in an area that supports endangered and threatened wildlife, according to the conservation district.

The rate of sediment buildup has been accelerated by generations of human intervention in the area. Portions of the creek are now almost completely blocked, preventing spawning salmon and steelhead trout from moving upstream. Poor water quality in the nearby Pescadero Lagoon can also lead to mass fish die-offs as oxygen levels drop and temperatures rise.

"There are issues with fresh water circulating throughout the watershed. It's making sure there's enough oxygen in the water for the fish, so the fish at certain times of year aren't suffocating and dying or swimming into old channels that don't go anywhere," Nelson said. Dredging Butano "is a benefit for a number of endangered and threatened species by restoring access to fresh water for an entire watershed."

Farmers would dredge the creek in years past, but that ceased once it was transferred to a state nature preserve, Nelson explained. With the creek filled and floodplains taken over, water often spills over blocking the town's main thoroughfare Pescadero Creek Road. But those floods aren't just a matter of rainfall, it's because there's too much sediment trapped in the creek, she said.

Sediment was once able to move more freely and deposit in floodplains. But as the area developed into an agricultural and tourist destination, the natural habitat was altered to make way for roads and homes. Still, Nelson was careful not to cast any type of blame, instead emphasizing that "part of our approach is that we recognize and honor that people live there and that there are businesses, communities, families, homes and there's a natural preserve."

"Our mission is to honor the value of all the different landowners in the system," Nelson said.

Multiple projects

But it's a mission they couldn't accomplish alone or with a single project. Nelson was careful to temper expectations, noting the one-time dredging is probably not a long-term fix. Instead, additional restoration projects will bolster the entire watershed to help sediment deposit in areas aside from the creek and improve water flow, she said.

One example is the recent restoration of the Butano Creek farm floodplain, which will help hold back nearly 150,000 tons of sediment over the next decade. Now, Nelson said they will work on securing permits from a variety of regulatory agencies and hope to begin dredging in late summer or early fall of 2018 or during the same time period the following year.

She noted NOAA and California State Parks have been invaluable partners, as has Horsley and state as well as federal advocates.

U.S. Rep. Anna Eshoo, D-Palo Alto, represents the rural town and urged NOAA to allocate funding for the restoration project.

Not only would it help reduce fish kills and support protected species, it “will also enhance coastal resilience by re-establishing the creek channel, offering relief from the chronic flooding of Pescadero Creek Road, which causes tremendous hardship in the rural town of Pescadero,” Eshoo wrote to NOAA officials in support of the federal funding.

State representatives also worked to ensure California’s budget allocated $4 million in support.

Assemblyman Marc Berman, D-Palo Alto, said in a statement that the funding will address “annual flooding that, due to decades of sediment build-up in the marsh, shuts down the main road into Pescadero after even the smallest rainfall.”

Aside from the local representatives, Nelson noted the coastside community’s historic knowledge, input and guidance have been invaluable.

Butano, “deserves the attention it’s getting,” she said. “It’s getting it, and it’s needed it for decades.”

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Opponents of California's Delta Tunnels Project Push Alternative Strategies

The state's proposal to build twin tunnels under the Sacramento-San Joaquin Delta cleared another hurdle last month, but opponents still believe that better options exist.

Water Deeply | July 14, 2017 | Alastair Bland

In June, two federal agencies gave their blessings to the controversial project to build two water conveyance tunnels under California's Sacramento-San Joaquin Delta. Environmental groups promptly sounded the alarm that the state's so-named WaterFix project would not, as its backers claim, solve the matrix of problems plaguing the Delta and the people and creatures relying on it.

The existing pumps that export Delta water have drastically upset the balance of the estuary's ecosystem, causing fish declines and the intrusion of saltwater from San Francisco Bay. Farmers tend to want more of the Delta's water while environmentalists say less water must be diverted through the pumps.

The proposed tunnels would slightly increase water exports. Nevertheless, the United States Fish and Wildlife Service and the National Marine Fisheries Service released detailed biological opinions that the 35-mile-long tubes would not further harm threatened or endangered fish in the Delta, which are struggling to survive.

But some fishery advocates and environmentalists disagree, warning that building and operating the twin tunnels could worsen existing problems. They argue that WaterFix will accelerate the decline of native fish species, flood the Delta with saltwater and mainly benefit large farms that will receive water from the $16 billion diversion project. These critics want the tunnels halted.

But if not WaterFix, then what? Peter Moyle, a University of California, Davis, fishery biologist, believes the Delta tunnels will help imperiled salmon and smelt mainly by changing the location from which water is drawn from the Delta. It also provides a point of diversion that is 30ft above sea level, whereas the existing pumping stations in the southern Delta are much lower and more at risk of being inundated by seawater.

"If you oppose the tunnels, you need to propose an alternative," Moyle said.

That is what WaterFix opponents have done. They describe a variety of tactics that could, they argue, ease the strain on the Delta's water and make the gigantic engineering project favored by Gov. Jerry Brown unnecessary. "I'd rather see 25 smaller regional projects than sink so many resources and $16 billion into one incredibly expensive, very risky project," said Jeffrey Michael, a professor of public policy at University of the Pacific in Stockton, who believes WaterFix is inherently too risky.

Some of its opponents have called for changes to cropping systems to reduce California agriculture's heavy demand for water. To lessen the need for the Delta's flows, others have suggested improved urban water efficiency and more recycling. More off-river storage – like the proposed Sites Reservoir on the western side of the Sacramento Valley, which is projected to add 500,000 acre-feet a year of water – as well as aggressive recharging of groundwater basins, could allow more diversion of water in wet years such as 2017, with minimal impacts to river ecosystems.

In 2013, several strategies were packaged together in a proposed alternative to the tunnels. Called the “portfolio alternative” and introduced by the Natural Resources Defense Council (NRDC) and several other organizations, the idea incorporated a single tunnel but also components of enhanced water storage, habitat restoration and improvements of local supplies south of the Delta.

The single tunnel proposed in the plan would take one-third of the river water that WaterFix would take, but still provide a reliable emergency system in the case of a failure at the south Delta pumps. That is something most experts consider to be inevitable as levees that keep seawater from the pumps falter with age, and as sea levels rise.

NRDC staff attorney Doug Obegi says state agencies, while promoting the twin tunnels plan, have undermined the portfolio alternative by exaggerating its estimated cost. The state claimed the NRDC’s project would cost almost $11 billion but later admitted to a calculation error (based on the false assumption that the portfolio alternative called for two tunnels, not one) and decided it would cost somewhere closer to $8.6 billion. Obegi says the state also excluded the portfolio’s alternative from environmental impact assessments.

Even with the state’s growing population, Obegi insists water demands on the Delta can be eased significantly by reducing urban demands. The State Water Resources Control Board reported that urban communities discharged 1.3 million acre-feet of wastewater into the ocean in 2014. Obegi believes that improved treatment and reuse systems could recycle most of this water, lessening the need for the 4.9-million acre-feet that WaterFix proposes to deliver annually.

Farms use about four-fifths of the water that passes through California’s system of dams, pumps and canals. Some policy analysts have suggested that farmers could use less water by growing less. David Zetland, author of “Living with Water Scarcity” and an assistant professor of economics at Leiden University College in the Netherlands, told Water Deeply that a better alternative than two enormous tunnels would be simply to reduce exports to the San Joaquin Valley and southern California cities. That would create a competitive water market among farmers and cities that depend on northern California water, forcing them to sustainably make use of their own local sources.

Under such a system, Zetland explained in a post on his blog Aguanomics, irrigated agricultural acreage would decline sharply, eliminating about one-half to two-thirds of the industry’s water consumption.

Jon Rosenfield, a conservation biologist with the Bay Institute in San Francisco, also wants to see a reduction in the amount of water consumed by farms. While growers are already shifting to efficient drip irrigation systems, that is not enough, he says. For instance, almond growers’ water consumption per almond produced has declined by about one-third in the past 20 years, according to the industry. However, California’s almond growers have almost tripled their acreage over the same period, with farmers still planting more almond trees in what advocates of sustainable agriculture consider a reckless strategy.

Rosenfield would rather see farmers growing annual row crops, like grains, vegetables and melons, than trees. That is because trees, once planted, must be watered almost constantly, putting a great strain on Delta supplies.

“If they grew annual crops, they could fallow them in a dry year and the government could cut the farmers a check,” Rosenfield says.

Still, Moyle at U.C. Davis believes the best hope for the Delta and its ecosystem is WaterFix. “The status quo isn’t working, and the only alternative that really works is the tunnels,” he said.

Meanwhile, Michael sees a different outcome: “WaterFix is worse than the status quo.”

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Why years of waiting may be over on Delta tunnels
Sacramento Bee | June 13, 2017 | Ryan Sabalow and Dale Kasler

Love it or hate it, the Delta tunnels project is reaching a decision point.

The state's most powerful water agencies have set a September goal to decide whether they're going pay for the biggest and most controversial water project California has undertaken since the 1960s: overhauling the plumbing system that pumps billions of gallons of water through the Sacramento-San Joaquin Delta to the Bay Area, Southern California and one of the nation's most productive farm belts.

After more than a decade and nearly a quarter billion dollars of study and planning, the Metropolitan Water District of Southern California and other agencies will vote in September on whether to pay for Gov. Jerry Brown's $15.5 billion plan for re-engineering the fragile estuary on Sacramento's doorstep.

"Now we're within 90 days of actually making a decision on whether the project is going to go forward or not," said Roger Patterson, assistant general manager at Metropolitan, the influential water wholesaler serving half of the state's population from its headquarters in Los Angeles.

What Metropolitan and water agencies in Silicon Valley, Fresno, Bakersfield and beyond decide is going to have sweeping ramifications across California. Ratepayers in Southern California and Silicon Valley could see a hit in their monthly water bills. In the San Joaquin Valley, farmers who've seen their water supplies decline sharply over the decades to protect endangered Delta fish will decide whether Brown's promise of more reliable deliveries is worth cutting into their profits. Brown's administration said the tunnels will improve the Delta ecosystem. That will allow the Delta water pumps to operate with fewer interruptions, even though the total volume of deliveries isn't expected to increase.

In greater Sacramento and throughout the Delta, farmers, environmental groups and elected officials remain deeply mistrustful of the proposal. They call it a "water grab" by moneyed and politically powerful interests bent on siphoning more of Northern California's water. By routing some of the Sacramento River's flow directly to massive government pumping stations in the south Delta, they say the tunnels will cut into north state water supplies and do greater harm to native fish species on the brink of extinction.

Delta-area attorneys have promised a nasty court fight if the tunnels, known officially as California WaterFix, get the go-ahead.

"Hopefully, somebody will figure out that this isn't worth it and it doesn't solve the problems, but we'll see," said John Herrick, a Stockton attorney for the South Delta Water Agency. "This is the year a lot of big decisions will be made. We're still hoping it will collapse."

The timetables for a decision firmed up after Brown's chief of staff, Nancy McFadden, recently told representatives of the water agencies that they need to decide soon whether they're willing to pay for the tunnels. Brown leaves office next year.

Her message found a receptive audience. Officials with urban and agricultural water districts say they're ready soon to render a verdict on a project that would be costly but is advertised as the antidote to unreliable water deliveries out of the Delta.

"There's a lot of frustration with 10-plus years of work, (but) there's also optimism that we're looking at a once-in-a-lifetime opportunity," said Jason Peltier of the San Luis & Delta-Mendota Water Authority, which serves farmers throughout much of the San Joaquin Valley and urban customers in Silicon Valley. "Momentum is definitely building."

Officials with the Santa Clara Valley Water District in San Jose and the Kern County Water Agency in Bakersfield said they, too, plan to have their boards of directors vote in September on the plan.

Santa Clara spokesman Marty Grimes said the board is scheduled to get a briefing in early July on "water supply benefits and uncertainties," followed in August by an analysis of design, construction and governance of the twin tunnels. In early September, the agency's staff will deliver details on cost, financing and water allocation, along with a recommendation on whether or not Santa Clara should participate in the project.

"We are confident that the boards of directors of the public water agencies that depend upon the projects will have sufficient information to decide this summer and fall whether to invest in WaterFix," said Nancy Vogel, spokeswoman for the California Natural Resources Agency.

The countdown toward a decision could start as early as next week. That's when two federal agencies in charge of safeguarding the estuary's dwindling populations of Delta smelt and other fish are expected to release the official "biological opinions" on the projected environmental impacts of the tunnels, and whether the project needs to be reworked.

The data from those two scientific reports will allow the state to provide more detail about how much water the tunnels are expected to deliver. Preliminary versions of the opinions, released earlier this year, cast some doubt on Brown's argument that the tunnels will improve the lives of smelt, Chinook salmon and other fish.

Although the plan could improve fish ecosystems in some respects, the tunnels could still "decrease the abundance of Delta smelt," the U.S. Fish & Wildlife Service wrote. The National Marine Fisheries Service said the tunnels could create "numerous adverse impacts" to salmon habitat.

Brown's plan is the most significant rework of California's water-delivery network since his father, Gov. Pat Brown, built the State Water Project in the 1960s. The project calls for altering how water from the Sacramento River reaches the giant pumping stations operated by the federal and state governments near Tracy.

The pumps are so powerful that they can reverse the flow of crucial Delta river channels, pulling fish toward the pumps and hungry predatory fish that await them at the intakes. Water deliveries are often curtailed to reduce fish kills, a huge point of contention during California's epic five-year drought that Brown declared over this winter.

The tunnels plan calls for burrowing two 40-foot-wide tunnels, starting just south of Sacramento near Courtland, to divert a portion of the river's flow and ship it directly to the Tracy pumps.

That would significantly reduce the "reverse flow" caused by the pumps, state officials say. Should the agencies agree to pay for the tunnels, there are several other regulatory steps that are still looming. The State Water Resources Control Board currently is overseeing a months-long set of hearings over whether the project harms water users and the environment. The board's votes remain months away.

# # #

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San Francisco to draw down Cherry Reservoir for repairs
The Union Democrat | July 13, 2017 | Guy McCarthy

Hetch Hetchy Water & Power officials in Tuolumne County say repairs on high-flow release valves at Cherry Reservoir will require dumping up to 96 percent of the water in the man-made lake to do eight weeks of work beginning in September.

Powerboat access to the reservoir will be restricted from Sept. 5 until the work is completed, Nina Negusse with the San Francisco Public Utilities Commission said Monday.

“Last winter, one of the four high-flow release valves experienced a mechanical failure,” Negusse said. “Additionally, another two valves are scheduled for replacement. Valve repair and replacement is essential for safe dam operations.”

The reservoir, also known as Cherry Lake, is about 45 miles east of Sonora via Forest Road 1N04, also known as Cottonwood Road, when it’s open. A section of 1N04 is closed due to damage from the past winter until Dec. 31, 2018. Cherry is also about 40 miles northeast of Groveland via Highway 120 and Forest Road 1N07.

Cherry Reservoir is billed as the largest lake in the Stanislaus National Forest and it has a surface area of 1,535 acres when it’s full. It holds 273,500 total acre-feet of water when it’s full. As of Monday, it was holding 81 percent of capacity. The fullest it’s been so far this water year was Feb. 22, when Hetch Hetchy Water & Power staff recorded 251,758 acre-feet in Cherry and it was 92 percent full.

“Throughout this summer, water releases from Cherry will drop reservoir levels by 2 to 5 feet each day,” Negusse said, adding “this is called a draw down.”

Recreational access will be affected, and high-flow water releases will impact recreation downstream of the dam, Negusse said.

Visitors should be able to camp and fish without being impacted by the draw down through August, according to Hetch Hetchy Water & Power. As the lake level drops, it will be more challenging to put a boat in the water.

After Sept. 5, motorized boats will not be allowed on the reservoir, Negusse said. Kayaks and other non-motorized watercraft will be permitted.

While high-flow release valves are being repaired and replaced, a pump system will be installed to do releases downstream of the dam, in an effort to maintain aquatic habitat in Cherry Creek, Negusse said.

“A residual pool will also be maintained behind the dam to provide enough water for the fish and water for downstream releases,” Negusse said. “Once the work is complete, the reservoir will be refilled and will return to normal operations. Normal weather patterns should help to naturally restore water levels by summer 2018.”

San Francisco Public Utilities workers are scheduled to begin drawing down reservoir levels on Cherry beginning July 15, Diana Fredlund with Stanislaus National Forest public affairs said Monday.

Cherry Lake campground is open and will remain open, Fredlund said. A road to the campground is open. A road across Cherry Valley Dam opened Friday and it will remain open until Sept. 5.

Visitors to Cherry should be expect to see construction trucks and equipment on the road to the dam, and stay alert to changing traffic situations, Fredlund said.

The San Francisco Public Utilities Commission owns and operates Cherry Valley Dam as part of the Hetch Hetchy Regional Water System. Hetch Hetchy provides water to 2.7 million customers in the greater San Francisco Bay area and Groveland.

According to San Francisco Public Utilities Commission staff, water stored at Cherry is used to generate hydroelectric power at Holm Powerhouse, it serves as an approved standby water source for Hetch Hetchy, and it provides recreation on the reservoir, in Cherry Creek and on the Tuolumne River.

# # #

The next crisis for California will be the affordability of water
Los Angeles Times | July 7, 2017 | Michael Hiltzik

The price of almost everything is on the rise, but we tend to shrug off inflation in goods and services we can cut back or do without. Not water, the rising cost of which is looming as a defining economic problem in coming years.

In California and across the nation, concern about water affordability has been spreading, with good reason. Few basic commodities are under as much cost pressure.

“The water infrastructure is aging, there’s more water contamination and our standards for cleanliness keep rising, and climate change is making our supplies less reliable,” says Laura Feinstein of the Pacific Institute, an Oakland-based environmental think tank. “At some point the bill comes due” — but because water demand is stable or even dropping, water agencies can find revenue to cover the bill only by raising rates on consumption.

The result is an inexorable rise in water rates. Rates in Los Angeles rose by as much as 71% from 2010 to 2017, according to a survey by Circle of Blue, a water news website. In San Francisco the increase was as much as 127%, and 119% even for the stingiest users, a group that presumably includes many low-income residents.

Outside California, some municipalities are taking aggressive steps to bring down the cost of water for low-income residents. Philadelphia initiated the nation’s first income-based water rate on July 1. Under the program, a household earning less than 50% of the federal poverty line, or $12,300 for a family of four, will pay no more than 2% of their monthly income in water, sewer and stormwater charges. The rate rises with income; a household earning between 100% and 150% of the poverty level will pay no more than 3% of income for those services.

In Atlanta, which is facing an enormous bill for infrastructure construction and maintenance, voters last year approved a four-year extension of a 1% sales tax to cover the cost, so it could be spread beyond water ratepayers alone.

Finding ways to ensure affordability is an especially acute problem in California, where water service is provided by a patchwork of more than 3,000 city, county, mutual and private agencies, some of which are too small to shoulder the burden of lifeline rates for their poorest customers. Their options are limited by Proposition 218 of 1996, which forbids charging more to higher-income municipal customers to fund rebates or subsidies for poorer residents.

Complicating the issue is that water rates are generally set locally. Proposition 218 requires that they have some relation to the cost of providing the water in the case of public agencies like the Los Angeles Department of Water and Power; the Public Utilities Commission oversees rates only for nine private water companies, which cover about 15% of the state’s residents.

But the need is growing. “We have lifeline rates for electricity, weatherization, even telephones,” says J. R. DeShazo of UCLA’s Luskin School of Public Affairs, “but we do not have a statewide program that ensures that people have affordable water.” The recent drought, he observes, “has thrown that need into relief.”

Indeed, the drought pushed the share of income devoted to water to 2.1% from 1.8% for households earning less than $25,000, according to a survey released this year by the Pacific Institute; for those earning less than $10,000, costs rose to 5.3% of income from 4.4%. “These households have little or no disposable income,” the report said, “so any increase in water costs poses a major problem.” Not only do those households have little wiggle room on spending, but they’re relatively unlikely to have options for reducing water use — they can’t cut back on lawn watering if they’re apartment dwellers, for example.

About one-third of the state’s residents, or about 13 million people, live in households with income below 200% of the federal poverty line, or $49,200 for a family of four. In some rural and agricultural communities, the percentage is well above 80%. Those are the households most vulnerable to rising rates.

State officials have committed themselves to fighting for water affordability. A state law in 2012 established as official state policy every human being’s right to “safe, clean, affordable, and accessible water” — the first such state commitment in the nation. The enactment of AB 401 followed in 2015, instructing the State Water Resources Control Board to develop a program for water rate assistance for low-income households and present it to the legislature by next Feb. 1.

Meanwhile, the PUC has become concerned about the wide variation in low-income assistance programs offered by the water companies under its jurisdiction. The PUC last month launched a rulemaking proceeding to examine them all and find ways to “ensure consistency” among them.

# # #

Online extra: Questions and answers about Los Vaqueros
AgAlert | June 28, 2017 | California Farm Bureau Federation

Q: Once complete, how would the proposed Los Vaqueros Dam and Reservoir operate? How would water be distributed and moved in and out of the project?

The project would broaden the sources of water diverted and stored in Los Vaqueros Reservoir to include State Water Project supplies and water supplies from other sources via existing or future interties on behalf of agencies partnering in the project. Existing infrastructure allows Contra Costa Water District to move water from the delta to Los Vaqueros or to the Contra Costa Canal, which delivers water throughout their service area. Through the proposed expansion of Los Vaqueros and addition of a new facilities, CCWD would have the operational flexibility to store and transfer water to south of the delta CVP contractors, wildlife refuges and local partners in the Bay Area.

Q: What construction is necessary to complete Los Vaqueros Reservoir expansion?

The proposed Los Vaqueros Reservoir expansion involves construction to raise the height of the existing, off-stream reservoir to expand total capacity to store up to 275,000 acre-feet of water. The project also includes the construction of an eight-mile pipeline that would connect the Los Vaqueros Reservoir system to the California Aqueduct at Bethany Reservoir (the Transfer-Bethany Pipeline). Additional work on existing pipelines and pump stations is necessary to expand the capacity.

Q: If Proposition 1 funding becomes available, when might construction begin? When might the project be completed?

CCWD is working with the U.S. Bureau of Reclamation and local partners to evaluate project alternatives, facilities and operations. Upcoming key milestones include completion of the Draft Supplement to the Final EIS/EIR, a funding application due to the California Water Commission in August, and completion of the Final Federal Feasibility Report in November 2018. Construction could being as early as 2021. Construction can be phased to allow some facilities to go into operation while work on others is completed.

Q: How many agencies have signed the memorandum of understanding to potentially partner in the project, and who are they?

The memorandum of understanding that involves agencies and districts that have shown interest as a potential partner in the Los Vaqueros expansion and supporting the state funding application include the following: Alameda County Water District, Bay Area Water Supply and Conservation Agency, Byron Bethany Irrigation District, City of Brentwood, East Bay Municipal Utility District, East Contra Costa Irrigation District, Grassland Water District (wildlife refuges), Santa Clara Valley Water District, San Francisco Public Utilities Commission, San Luis & Delta Mendota Water Authority, Zone 7 Water Agency and the Contra Costa Water District.

Q: How would federal legislation affect the project's construction?

While federal legislation is not needed to proceed with the expansion, federal funding for wildlife refuge water will be necessary to purchase and transfer Incremental Level 4 water to CVP contractors south of the delta.

# # #

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Commentary: Water bond funds must focus on surface storage
AgAlert | June 28, 2017 | Danny Merkley

Passage of the water bond, Proposition 1, marked an important step in upgrading California's outdated water infrastructure—and we're about to reach a milestone in the process of investing the money voters approved in 2014.

In about six weeks, proponents of water storage projects face the application deadline for the portion of the bond devoted to new storage. The Ag Alert® Storing for the Future series has profiled several of those projects.

Of the $7.545 billion contained in the water bond, $2.7 billion will be invested for public benefits associated with new water storage projects that improve the operation of our state's water system and improve ecosystems and water quality. Though the bond represents merely a down payment, it marks the first significant investment in California's aging water infrastructure in nearly a half century.

With predictions of a reduced Sierra snowpack in most years, flashier storm systems, government environmental policies that demand ever more water for the ecosystem and with increased population, new storage is essential to capture water the way we receive it today, for human and environmental uses during dry periods.

The water bond required the California Water Commission to develop regulations and methods for quantifying and managing public benefits associated with water storage projects. It feels like it is taking forever, but the commission has been moving forward to fulfill a complex Water Storage Investment Program Implementation Plan.

Under the plan, projects will be reviewed for their contribution to improving the operation of the statewide water system, how cost-effective they are and the net benefit they provide to the ecosystem and water quality.

Farm Bureau has actively participated in this process and continues to strongly advocate for projects that provide the greatest public benefit to the ecosystem, fishery health and to farmers and ranchers.

Early in the process, the commission convened a Stakeholder Advisory Group of some 30 representatives, including state, federal and local agencies; agricultural organizations; environmental groups; and tribal and disadvantaged communities. The group has now finished its role in the process, and Farm Bureau was an active member.

Projects eligible for bond funding must provide measurable improvements to the Sacramento-San Joaquin Delta ecosystem or its tributaries. Such projects include:

- Surface storage projects identified by the Cal-Fed Bay-Delta Program, with the exception of projects prohibited by the California Wild and Scenic Rivers Act;
- Groundwater storage and contamination prevention or remediation projects;
- Conjunctive use and reoperation projects;
- Local and regional surface storage projects.

The eligible projects include larger storage facilities preferred by agricultural representatives, who stress that chances to fund these sorts of projects are rare, and now is the time to take advantage of the opportunity. Larger surface storage projects can also capture flashier storm systems and benefit groundwater recharge.

Some environmental advocates prefer groundwater storage projects, suggesting they are more efficient without the effect of evaporation and more environmentally friendly than surface water projects. They miss the fact that when we receive flashier storm systems, those gully washers cannot be forced through the soil profile for underground storage, whereas large excess flows can be diverted to a surface reservoir.

Here's a comparison I like to use: Close the drain in your kitchen sink, fill your coffee pot with water and dump it quickly into your kitchen sink. You have captured the water in your kitchen sink reservoir. Now, fill your coffee pot with water again and instead dump it quickly into your coffee filter filled with coffee grounds. Water has to percolate through the filter slowly. If you put the water in too fast, it floods and goes to waste.

It takes time to move water to underground storage. On the other hand, strategically located surface storage can hold large volumes of water for later, slow release to good groundwater recharge and groundwater storage locations.

As the Sustainable Groundwater Management Act becomes more fully implemented in coming years, new, large surface storage projects are key to capturing excess surface water runoff during the rainy season and releasing that water later for groundwater recharge. Surface storage also relieves pressure on groundwater pumping by providing additional water supplies for environmental and human uses.

The Water Commission solicited initial proposals a year and a half ago, to identify possible new water storage projects. It opened the formal application period for the Water Storage Investment Program on March 14, with applications due by Aug. 14.

After commission staff reviews the applications, they will all be available for public review by December. In January, the commission staff will release draft public-benefit ratios for eligible projects. Applicants may appeal before the commission finalizes project ratios next March.

The commission will consider projects one by one late next spring, and determine which projects will receive bond funding.

Farm Bureau will remain actively involved, and press to keep the funding process moving as efficiently as possible. After all, how much better prepared would California be for the next drought had we been able to capture last winter's excess flows in new surface storage facilities?

(Danny Merkley is director of water resources for the California Farm Bureau Federation. He may be contacted at dmerkley@cfbf.com.)

# # #

Expanded reservoir wins regional backing
AgAlert | June 28, 2017 | Christine Souza

Editor's note: This is the final installment of a three-part Ag Alert® series about large-scale water storage projects applying to the California Water Commission for funding from the Proposition 1 water bond.

Additional flexibility for the water-supply system, water to benefit urban customers in the Bay Area, water for wetlands as well as for farmers and other water users south of the delta: Those are the reasons a dozen partners have joined in support of a proposed expansion of Los Vaqueros Reservoir.

The Contra Costa Water District, which has proposed the $800 million project, says it would store additional water for 500,000 customers in the district's service area. It would also hold transfer water for south-of-delta contractors, including agricultural districts and Central Valley wildlife refuges.

Long studied by the CCWD and the U.S. Bureau of Reclamation, the project is among those competing for a portion of $2.7 billion in storage funding available through the voter-approved Proposition 1 water bond. A dozen potential partners have signed a memorandum of understanding supporting the project, according to Marguerite Patil, CCWD special assistant to the general manager.

"The best project for this site is a regional project, and when you have a broader, more regional project you diversify your risk," Patil said. "It's not big enough to solve everybody's problems at every time, but it is about managing different demands in different year types."

Proponents of the Los Vaqueros expansion and other projects have until mid-August to finalize applications for bond funds. If awarded, bond money would be used toward public benefits of the projects, such as ecosystem, fishery and water quality improvements; flood control; emergency response; and recreation.

Situated in the foothills southwest of the Sacramento-San Joaquin Delta in Contra Costa County, the existing Los Vaqueros Reservoir is an off-stream reservoir built in the 1990s, to secure additional storage to improve water quality and for emergency storage in case of an earthquake or levee failure. CCWD, which owns the reservoir, expanded it by 60,000 acre-feet in 2012, bringing total capacity to 160,000 acre-feet. The additional expansion would increase reservoir capacity by 115,000 acre-feet, creating a total storage capacity of 275,000 acre-feet.

CCWD supplies treated drinking water to urban homes and businesses with water drawn primarily from the delta under a contract with the federal Central Valley Project. Through the proposed expansion of Los Vaqueros and addition of a new pipeline, the district said it would have the operational flexibility to store and transfer water to south-of-delta contractors.

"The Transfer-Bethany Pipeline is what everyone loves," Patil said. "It ties the hub of our system directly into the California Aqueduct. There are many different combinations for how water could move, and a good thing is, a lot of this infrastructure already exists. You don't have to go through the export pumps, so water can serve the Bay Area or it can go down the California

Aqueduct and intertie with the Delta-Mendota Canal and intertie with the wildlife refuges and can go into San Luis Reservoir."

Bill Diedrich, who farms in Fresno and Merced counties and chairs the San Luis Water District board, which is a member of the San Luis & Delta-Mendota Water Authority, said, "What is meaningful about the Los Vaqueros expansion is the additional storage and the additional intake."

Diedrich, who had a zero water allocation from the CVP during recent drought years, noted that "the regulatory components of moving water south of the delta exacerbated the drought exponentially."

"The idea of being able to store water in Los Vaqueros and then, with the planned additional infrastructure, to move that water south without going through (the state or federal pumping plants) is attractive to us," he said.

Frances Mizuno, San Luis & Delta-Mendota Water Authority assistant executive director, said the Los Vaqueros expansion would provide additional operational flexibility to convey directly to and/or store supplemental supplies, such as north-of-delta transfer water or surplus CVP supplies.

"The Bethany-Transfer Pipeline will provide the opportunity for a direct delivery of water utilizing Contra Costa Water District's facilities when Jones Pumping Plant pumping is either curtailed or at maximum capacity," Mizuno said.

CCWD has conducted a number of pilot projects to move and transfer water, including one last month in which the Westlands Water District rents space in the reservoir to store 5,000 acre-feet of water. Patil called the pilot project "something that we have never done before where we are working with a CVP customer, trying to move their water into Los Vaqueros and store it for them."

Among the project's environmental benefits, the Los Vaqueros expansion would provide water to south-of-delta wildlife refuges, including in the Grassland Water District, a refuge federal contractor near Los Banos. Wetlands served by the district are habitat for waterfowl and other species along the Pacific Flyway.

Grassland Water District general manager Ric Ortega said the Los Vaqueros expansion could provide water supplies to south-of-delta refuges ranging from 30,000 to 70,000 acre-feet a year. Grassland Water District shares water with state and federal agencies, which own and manage about a third of the local refuge habitat.

Ortega said the refuge federal contractor received only about 50 percent of its normal supply and 30 percent of its contract water during the drought.

"We were shorted beyond our contractual provisions and what that means, just like in agriculture, is we have to fallow," Ortega said, reducing available habitat for the same population of birds.

Diedrich said California water managers have become increasingly resourceful in moving water as water contracts have become more unreliable.

"We need options, we need more pieces that we can use to manipulate our water supply to maximize it for the state's economy," he said. "We need an integrated system where the components work together."

This week, the CCWD is expected to release the draft supplemental document to a final environmental study on the Los Vaqueros expansion, and to schedule a series of public meetings. More information is available at www.ccwater.com/706/Los-Vaqueros-Studies.

(Christine Souza is an assistant editor of Ag Alert. She may be contacted at csouza@cfbf.com.)

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California Reservoir on Shaky Ground Highlights Aging U.S. Dams' Risks

Project to replace decades-old structure near San Francisco Bay has seen delays and unexpected construction issues

Wall Street Journal | June 23, 2017 | Jim Carlton

FREMONT, Calif.—The coastal mountains that frame this working-class city next to San Francisco Bay harbor a hidden menace: a reservoir 10 miles away that sits next to an active earthquake fault, which experts say could cause a dam break and flood thousands of homes.

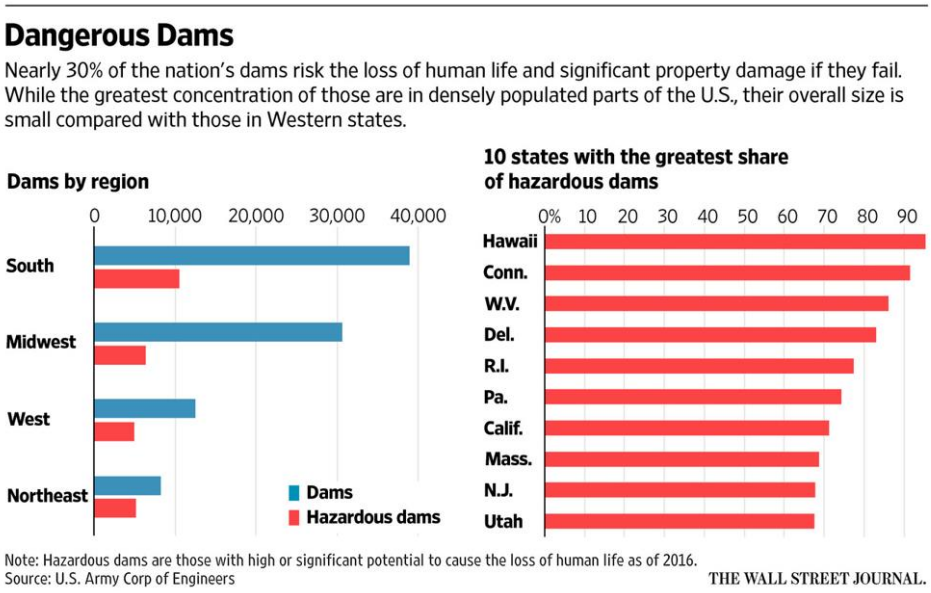
The potential threat is so severe, the owner of the Calaveras Reservoir decided to build a replacement dam. But seven years after that work began, the dam is unfinished and isn't expected to be complete until 2019—four years behind schedule.

The myriad issues hampering the Calaveras Reservoir project show how difficult it can be to repair or replace an old dam, which is of growing concern nationally.

An estimated 27,380 or 30% of the 90,580 dams listed in the latest 2016 National Inventory of Dams are rated as posing a high or significant hazard. Of those, more than 2,170 are considered deficient and in need of upgrading, according to a report by the American Society of Civil Engineers. The inventory by the U.S. Army Corps of Engineers doesn't break out which ones are deficient.

But both funding and inspection staffing to deal with the problem are considered inadequate, the civil engineers' report said. An estimated $64 billion is needed to upgrade those dams, including $22 billion for the ones posing the highest hazard, according to the Association of State Dam Safety Officials, a nonprofit safety group in Lexington, Ky.

"It's a huge problem with limited resources," said Ivan Wong, a consulting seismologist from Walnut Creek, Calif., who works on dam projects nationally. "We can barely pay for our schoolteachers, but if a dam fails and there's a population downstream, we're talking about a disaster. We have to fix our dams, there's no doubt about it."



While no dam collapses have claimed lives in the U.S. in recent years, historically they have represented some of the nation's biggest disasters. The failure of a dam above Johnstown, Pa., in 1899 sent a wall of water into the town, killing 2,209. The near failure of an emergency spillway at California's Lake Oroville in February, following heavy rains, prompted the evacuation of nearly 200,000 people downstream.

The Anderson Reservoir near San Jose, Calif., spilled over in February, despite a state-imposed limit of holding 68% of capacity because it lies near an active fault. Hundreds of homes were flooded along Coyote Creek, in what officials of the local Santa Clara Valley Water District say could have been a much more serious disaster had the dam failed.

"There was an unprecedented level of rainfall that came in very rapidly," said Katherine Oven, deputy operating officer of the district, which plans to rebuild its dam, too.

At the Calaveras dam, California's Division of Safety of Dams in 2001 ordered the San Francisco Public Utilities Commission to keep its 31 billion-gallon capacity Calaveras Reservoir no more than 40% full.

Utility officials say the extra time is needed to make the dam—with a massive 1,200-foot-wide base and spillway walls up to 4 feet thick—hopefully failproof.

"It's better to plan for the worst and hope for the best," Dan Wade, who oversees the $800 million project for the city utility, said on a tour on Wednesday as trucks moved rock and other material around freshly excavated earth. The cost is double the original $400 million estimate.

Earthquakes pose especially big risks for dams. The seismic threat is highest along the geologically active West Coast, including Washington and Oregon, which scientists say could see rare but potentially catastrophic quakes.

The seismic risk also exists for dams in places like the Midwest where there have been infrequent, large temblors. A series of earthquakes measuring more than 7.0 magnitude jolted what is now the New Madrid, Mo., area in 1811 and 1812.

Few states face as much of an earthquake threat as California, where nearly three-fourths of the state's 1,585 dams are rated as having high or significant potential risk of failing.

Like its predecessor and many others in California, the new Calaveras dam is being constructed largely out of rock, dirt and other natural materials. Engineering experts say earthen dams, if they are of sufficient size, are designed to withstand most earthquakes. The Calaveras dam is being strengthened, in part, by having zones of compacted material, including a thicker core of impermeable clay.

One problem, experts say, is that many were built decades ago, when less was known about what a strong earthquake could do.

Engineers didn't realize then that the loose rock and soil they used to form the base of some dams could liquefy in a strong earthquake, potentially causing the top of the structure to deform and spill. As a result, state officials have ordered some dams to hold back less water until they are fortified.

About 40 miles to the north, state officials have determined the 220-foot-high Calaveras Dam poses a flooding threat because the base of the 92-year-old structure was built atop loose earth on the site of a previous failed dam. About 300,000 people live in a flood zone along Alameda Creek below.

“It would be disastrous if this thing were to fail, because you have huge urban areas downstream,” said Jeff Miller, executive director of the Alameda Creek Alliance, a nonprofit environmental group.

Officials of the San Francisco Public Utilities Commission say they opted to rebuild the dam 400 yards downstream, in part they say because there was uncertainty on whether the debris from the failed dam debris could be adequately secured.

“The problem is they didn’t clean up all that material,” said Mr. Wade, who is the utility’s program manager to rebuild Calaveras and other parts of a system that San Francisco uses to transport water from the Sierra Nevada mountains to 2.6 million people. “It wasn’t understood the foundation could liquefy.”

But building a new 220-foot dam has presented its own challenges. About two years into the work, workers discovered remnants of two landslides that occurred an estimated 20,000 years ago. Fearful an ancient slide could foreshadow another one, Mr. Wade said the utility spent about two years redesigning the project and taking out even more earth as a precaution.

The work now is under way in earnest at Calaveras. So far, about 7 million cubic yards of earth have been moved, with another 3 million to go—or the equivalent of 1,550 football fields buried 1 yard deep. Last year, crews finally began constructing the earthen dam itself and much of the rest of their work will be in raising it to its height of about a 22-story building.

“Right now, we’re doing the glory work,” Mr. Wade said, standing on an overlook to watch the bustling commotion below. “It’s like painting a house: A lot of the hard work is in the preparation.”

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Project aims to add Central Valley water
AgAlert | June 21, 2017 | Christine Souza

Editor's note: This is the second installment of a three-part Ag Alert® series about large-scale water storage projects applying to the California Water Commission for funding from the Proposition 1 water bond.

Hit hard by chronic water shortages that deepened during the drought, agencies in the San Joaquin Valley have banded together, seeking to build a more sustainable water future.

Backers of the proposed Temperance Flat Dam and Reservoir say the $2.8 billion project would capture and store additional water in the San Joaquin River watershed, creating greater flexibility, relaxing pressure on groundwater and providing other benefits to the region.

"For us, the reality is when dry years hit, they hit hard," said Mario Santoyo, executive director of the San Joaquin Valley Water Infrastructure Authority, a joint-powers authority that would help construct the project. "This is a project that, if operated correctly, can help a larger region—east and west. That is what is drawing the collective together; they see the possibilities."

Long studied by the U.S. Bureau of Reclamation, the project, which could take a decade to complete, is among those competing for a portion of $2.7 billion in storage funding available through the voter-approved Proposition 1 water bond.

To be built within the existing Millerton Lake, which is part of the federal Central Valley Project, the proposed Temperance Flat Dam and Reservoir would be upstream from Friant Dam on the San Joaquin River in Fresno and Madera counties.

"Temperance Flat would add 1.26 million acre-feet of storage to Millerton and, when added to existing storage of 520,000 acre-feet, you have a total of 1.78 million acre-feet, or triple the existing capacity," Santoyo said.

The increased supply of water at Temperance Flat—between 100,000 and 200,000 acre-feet of average yield, depending on the final operations plan—would help the state achieve greater sustainability for a growing population and also function to negotiate water exchanges, Santoyo said.

Sharon McHale, a branch chief for the Bureau of Reclamation Mid-Pacific Region, which operates the CVP, said the project needs more storage to meet current and future needs.

"We have a lot of years where we're short, where we can't provide our full contract amount to contractors in the Friant Division," McHale said.

"We are not providing any water to Westside contractors at this point from the existing (Friant) dam, so it (Temperance Flat) would provide water to two groups of contractors that do agricultural irrigation and are in need of additional supplies and water supply reliability," she said.

The Temperance Flat project's current operations plan, Santoyo said, would assure deliveries are first met for Friant Division contractors and for obligations for downstream deliveries and river restoration before additional water could be stored. Water in Temperance Flat would be divided into storage accounts that would be purchased and managed by project investors. The operations plan also allows for water diversions at the Mendota Pool for Westside water users, he said.

In March, San Joaquin Valley water users signed a joint letter pledging cooperation to develop the Temperance Flat project, including the San Joaquin Valley Water Infrastructure Authority, Friant Water Authority, San Joaquin River Exchange Contractors Water Authority and the San Luis & Delta-Mendota Water Authority. The SJVWIA has a governing board of 10, representing counties, cities, a local Indian tribe and the San Joaquin River Exchange Contractors Water Authority.

Proponents of Temperance Flat and other water projects have less than two months to finalize applications for bond funds. If awarded, bond money would be used toward public benefits of the projects, such as ecosystem, fishery and water quality improvements; flood control; emergency response; and recreation.

The project brings hope to Fresno County farmer Shawn Stevenson, who removed 500 acres of citrus trees after suffering through two consecutive years without water during the drought.

"It cost us a huge investment, it cost us employees. I didn't have water at the houses, we didn't have stock water … it was an agonizing time," Stevenson said. "If we had Temperance Flat, we could potentially have extra storage for those dry years."

Grower-packer-shipper Pat Ricchiuti of P-R Farms in Clovis said he was very much affected by two years without water, noting, "I paid $1,600 an acre-foot to keep a vineyard alive, and I didn't get enough from that 3 tons in what the winery paid me to pay for all of the water, let alone all of the farming."

SJVWIA President Steve Worthley, a Tulare County supervisor, said Temperance Flat would be the only project of its magnitude south of the delta.

If Temperance Flat had been in place this year, proponents said, it would have captured the maximum amount of floodwater to be stored in the system for future use.

"We could have captured a lot of that water this year, and in following years you would be able to carry over some of this Class 1, Class 2 water," Worthley said, referring to the Friant Division water contracting system.

Drinking water supplies would also benefit from Temperance Flat, he said.

"We have communities that rely upon this water, and many of them are disadvantaged communities," Worthley said. "This project is very important to their well-being; it is not just agriculture."

Project proponents said Temperance Flat would also provide surface supplies to allow for groundwater recharge, which would help the region comply with the Sustainable Groundwater Management Act.

"SGMA mandates we put in plans for the overdrafted groundwater basins, so places like Raisin City (that rely only on groundwater), if they don't get some type of surface water and recharge opportunities, they are going to have to start fallowing," Worthley said. "Without this project, especially with (SGMA), we are going to lose a very significant portion of this region's ability to feed this country."

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# # #

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Sites Reservoir proponents make their case
Ag Alert | June 14, 2017 | Christine Souza

Editor's note: This is the first installment of a three-part Ag Alert® series about large-scale water storage projects applying to the California Water Commission for funding from the Proposition 1 water bond.

In the middle of a severe drought in November 2014, California voters approved Proposition 1, a $7.5 billion water bond that set aside $2.7 billion for the public benefits of new water storage projects. Now, project proponents have less than two months to finalize applications for bond funds, which can be used for attributes such as ecosystem improvements, water quality improvements, flood control, emergency response and recreation.

Among the projects competing for bond funding is the proposed Sites Reservoir, an offstream storage project that has been studied for close to 40 years. To be located west of Maxwell in Colusa and Glenn counties, Sites would provide a storage capacity of 1.8 million acre-feet of water and an annual yield of 500,000 acre-feet—additional surface water for cities, farms and the environment that proponents say would also help relieve pressure on groundwater. It carries an estimated construction cost of $4.4 billion.

Project proponents say Sites Reservoir offers a number of advantages.

"Sites Reservoir is well placed to provide significant benefits both to the Sacramento Valley in terms of our agriculture economy, as well as provide public benefits to the fisheries such as to the Sacramento River for our four runs of salmon and water for wildlife and birds in the Pacific Flyway," said Thad Bettner, general manager for the Glenn-Colusa Irrigation District.

GCID is one of 30 signatories to the Sites Project Authority, created in 2010. Signatories agreed to invest in Sites in exchange for a share of the project's 500,000 acre-foot annual yield. The joint-powers authority would own and operate the project in cooperation with the U.S. Bureau of Reclamation and the California Department of Water Resources.

Building Sites, which could take more than a decade to complete, involves the design and construction of dams to wall off a small valley where water would be stored. Water to fill the reservoir would come from the Sacramento River and existing facilities. Getting water to the new reservoir would also require about 10 miles of pipeline connecting two canals and the Sacramento River with the facility.

Building Sites would displace people living and farming in Sites Valley. Fifth-generation farmer and rancher Mary Wells, who purchased the Sites Ranch property from John Sites in the early 1970s, called the potential construction of the reservoir "a very bittersweet experience." But she said the reservoir represents "the hope in the future to continue on our farming legacy."

"The family is diversified out in the valley, growing rice, almonds and walnuts, and we are very dependent upon a reliable supply of water," said Wells, a director of the Maxwell Irrigation District who has 30-plus-years' experience working for irrigation districts and serving on water agency boards. "In 2014 and '15, (with Sites) there would have been water to get us through. It's another pool of water, and the location is very advantageous to capture excess flows and put them back in the system when needed."

Wells' daughter Jamie Traynham, a diversified farmer from Maxwell and a director of Westside Water District, said, "Every childhood memory I have is there. It is going to be very sad the day that it gets flooded and my childhood history is under water."

But with two grown children interested in working in the family business, Traynham said, "If I want my son and my daughter to be able to continue to farm and ranch, we really have no choice but to do something about the water situation."

Traynham said flooding that struck the region this year underlines the need for additional water storage.

"When the water is going down the river and out to sea, why not store it?" she said. "Let's store it—capture the runoff that naturally comes in this valley and use it at a better time when it can benefit everybody."

James Wieking of DWR, a former Sites project manager, said the amount of water that could have been diverted to storage this year totaled more than 2 million acre-feet, noting that 1.81 million acre-feet is the full capacity of Sites Reservoir.

"Even during the drought in 2015, we found that we (would have been) able to divert quite a bit of water, not quite as much as we are estimating would be the yield of the project, but a little bit less," Wieking said. "The big benefit of Sites is that water would, at least to some degree, be held over during dry periods."

Because it would be located downstream of Shasta Reservoir, Wieking said Sites has the "ability to perform in a coordinated manner with the existing reservoirs, which opens up lots of options in terms of flexibility. Flexibility would be a great asset for the state to have right now."

Colusa County farmer Blake Vann, another Westside Water District director, described Sites as a true water storage project because it would not be built on a waterway.

"Sites would be able to provide water for farmers here in the area for when we don't have a water allocation during the droughts and also for fish flows and other needs," Vann said.

Jim Watson, general manager for the Sites Project Authority, said, "If we are serious about improving the reliability of the state's aging water system, while simultaneously working to improve the ecologic health of the delta and Sacramento River, Sites Reservoir can, on an annualized basis, provide our fish and wildlife managers with over 250,000 acre-feet of water they can put to use in the quantities and times it would provide the most value, while also providing 250,000 acre-feet of additional water for families, farms and businesses in a manner that can help preserve our aquifers."

The California Water Commission will decide how to allocate Proposition 1 funds for the public benefits of storage projects. It is expected to evaluate and approve proposals later this year and in early 2018.

# # #

California water bill passes House, but Democrats vow to fight it in the Senate
Los Angeles Times | July 12, 2017 | Sarah D. Wire

Some of California's decisions about how to use its water would be relegated to the federal government under a bill passed by the House on Wednesday.

Republicans say the bill will bring more water to the parched Central Valley. California's Democratic senators have promised to fight the bill in the Senate because it weakens California's ability to manage its own resources.

The Gaining Responsibility on Water Act, sponsored by Central Valley Rep. David Valadao (R-Hanford), was approved in the House by a 230-190 vote largely along party lines.

Republicans say the bill would streamline dam construction and other water storage projects, and allow more water from the Sacramento-San Joaquin River Delta to be used in the Central Valley rather than flowing out to sea.

"This is a reasonable approach, we're trying to fix some real problems that need to be adjusted," Valadao said.

Democrats say it would preempt California water laws and impede the Endangered Species Act by waiving some of the most stringent environmental reviews required by the law.

California's congressional delegation has long disagreed over how to respond to the the state's water needs, often pitting protecting endangered species and preserving waterways against agricultural demands and drying wells.

Only one California Democrat, Rep. Jim Costa (D-Fresno), voted for the bill. He said he has concerns about two parts of the bill that affect his district, but he expects changes to be made in the Senate.

Much of the bill's provisions have passed the House before, but stalled in the Senate. With opposition from both California senators, and the Obama White House promising to veto, the Republican-led Senate never brought it up for a vote.

Rep. Jerry McNerney (D-Stockton) expects opposition from California's senators and governor to be enough to stop the bill before it reaches President Trump.

"Every two years we fight this thing out," McNerney said. "It's good political theater for some colleagues, but it's not going to get through the Senate."

But Valadao said he thinks having a Republican president improves its chances.

"I feel really good about it. I know we're going to have to negotiate with our senators, hopefully they'll come to the table," Valadao said.

The bill builds on a previous water measure that House Majority Leader Kevin McCarthy (R-Bakersfield) and Sen. Dianne Feinstein (D-Calif.) negotiated last year, McCarthy said in a video released by his office.

“This will provide more water ... allow more of that water to come through the Valley where it’s needed instead of out to the ocean,” he said.

The previous measure was the result of years of negotiations between California’s GOP members and Feinstein. It focused on environmental restrictions that have at times limited water deliveries from the Sacramento-San Joaquin River Delta to the San Joaquin Valley and Southern California. It also allowed officials at state and federal water management agencies to exceed environmental pumping limits in order to capture more water during storms.

It passed over the objection of many California Democrats, including now-retired Sen. Barbara Boxer, who said it opened the door to bypassing the Endangered Species Act.

In a statement released early in the week, Feinstein and the state's new Sen. Kamala Harris, both Democrats, said they would do what they can to stop the bill in the Senate.

"California’s Central Valley helps feed the world. It deserves sensible and responsible water solutions — this measure doesn't even come close to meeting that test," they said in a statement.

Gov. Jerry Brown pleaded with House leaders Monday to respect California’s right to manage its own water and not hold the vote.

“California is the sixth-largest economy in the world and its future depends on the wise and equitable use of its water. Making decisions requires listening to and balancing among the needs of California’s nearly 40 million residents and taking into consideration economics, biodiversity and wildlife resources,” Brown said in a letter to lawmakers. “All of this is best done at the state and local level — not in a polarized political climate 3,000 miles away.”

# # #

Jerry Brown's tunnels would cement his family legacy
E&E News | July 10, 2017 | Jeremy P. Jacobs

Sixty years ago, California Gov. Edmund Gerald "Pat" Brown built the biggest waterworks the world had ever seen.

The State Water Project transformed California, moving billions of gallons of water from the wet north to the dry south using dozens of dams, pumping stations and a 400-mile-long man-made river. It serves 25 million people and irrigates hundreds of thousands of acres of cropland.

But spectacular as it was, the project was flawed. It failed to deliver as much water as promised, mainly because a key piece was missing: a way to move water around the Sacramento-San Joaquin River Delta, a 738,000-acre ecosystem where California's two main rivers meet before they flow to San Francisco Bay and the Pacific Ocean.

Now Gov. Edmund Gerald "Jerry" Brown Jr. is seeking to complete his family's water legacy.

His "California WaterFix" would build two tunnels 40 feet in diameter, buried 15 stories underground to take water from the Sacramento River and move it 35 miles around the eastern edge of the delta. The price tag for the largest U.S. water project in decades: more than $17 billion.

It's Brown's second try at finishing what his dad started. In a hard-fought ballot battle in 1982, voters rejected his plan to build an above-ground "peripheral canal" around the delta.

The tunnels appeared headed for a similar fate until the Trump administration decided last month that the project wouldn't jeopardize critical habitat of imperiled fish, including the delta smelt and salmon (Greenwire, June 27). This fall, the boards of water districts will vote on whether to pay for the project, which would pass the cost on to their customers.

Brown's tunnels have become California's most divisive environmental issue, pitting agribusiness against environmentalists, and Northern California against the south.

Proponents say tunnels are needed to secure 30 percent of Southern California's water supply, including about a quarter of the water used in the state's agricultural hub.

They say the tunnels will help fish by easing reliance on giant export pumps in the south delta that draw water so powerfully, they reverse the natural flow of water.

And they claim they are necessary in the face of climate change and uncertain sea-level rise.

"The delta is likely to change and be inundated by sea-level rise," said Jerry Meral of the Natural Heritage Institute, a controversial former adviser to Brown on water issues. "If that happens, we'd lose 20 percent of the state's water supply."

Project foes counter that the tunnels would destroy up to 15,000 acres of the largest western estuary in the Americas, home to 700 native species and fisheries. The environmental benefits that Brown touts are misleading, they say, because the tunnels would deplete freshwater flows

through the delta, allowing salinity levels from intruding ocean water to rise — and further endangering fish.

"To date, it has been the consensus of all the scientists — except those paid for by the tunnels' proponents — that those tunnels would actually worsen conditions for fish such as smelt, and the iconic salmon," said Jonas Minton, a former deputy director of the state's Department of Water Resources who now works for the nonprofit Planning and Conservation League.

The tunnels also don't solve the main problems facing the delta or the state's water woes, opponents say, because they won't create more water and the levee system will have to be updated anyway because it protects major highways, railways and farms.

Critics say Brown is more motivated by his family's water legacy and political ambition than reality.

"There are two things that Jerry Brown didn't get in his political career. One was the presidency. The other was the peripheral canal," said Barbara Barrigan-Parrilla of the nonprofit Restore the Delta, pointing to Brown's unsuccessful runs for president in 1976, 1980 and 1992.

But the project's beneficiaries call Brown's effort heroic.

"If you like history, you can't help but notice that his father was the architect and drove the project in the first place," said Jeffrey Kightlinger, general manager of the Metropolitan Water District of Southern California. "And now the second run at it — a smarter and cleaner solution — and it is still divisive, and he's still trying to pull together two parts of the state."

The controversy underscores Brown's complicated record on environmental issues over more than 40 years in politics and raises questions about his legacy.

Brown has been the darling of the environmental left since his first term in the 1970s. There is no doubt the governor deeply cares about the planet and humans' impact upon it, often expressing his concerns in theological terms. He has been lauded for his leadership on climate change, recently traveling to China and emphatically criticizing President Trump's decision to abandon the Paris Agreement (Climatewire, June 26).

While he insists the tunnels are not about his family's legacy, Brown's approach to infrastructure has aligned with his father's and that of politicians of an earlier era. Now 79, he represents the last of a generation that believes in major public works. Perhaps because of that, when pressed on water and the delta, he has repeatedly turned to a solution that would have made his father proud: Let's build our way out.

"We have highly engineered California. We know that. Get in a plane, fly over, you see causeways and storage facilities and the great California Aqueduct, all sorts of things, and all over," Brown said at a January 2016 water conference. "We can protect the natural systems, and we can do so, but we have to engineer our way forward because that's the way it is."

Observers on all sides agree the delta is at a breaking point. The status quo isn't working. Fish populations continue to decline, and water interests persist in lobbying for more exports. It's the type of big problem that Brown has sought to tackle his entire career.

"How can you protect the delta? How can you restore the delta without taking water away from someone?" said Bill Kier, a veteran California fisheries biologist who has followed delta issues for decades.

"The question now is, will the clock run out on Jerry Brown?"

Massive storms hit Northern California in 1955, causing flooding on the Feather River, tributary of the state's largest river, the Sacramento.

Dozens died as Yuba City and Marysville were washed away.

A teenage Brown was there.

At a recent news conference, Brown recalled how he hopped in a plane to see the damage with his father, who was then the state's attorney general.

Pat Brown became obsessed with the California water system immediately after being elected in 1958. A headstrong Irish Catholic politician, he set out to build a water plan drafted a year earlier with a vigor reminiscent of Texas Sen. Lyndon Johnson, who at the time was Senate majority leader.

Brown's scheme would become the State Water Project. Its linchpin would be Oroville Dam on the Feather River.

The Democrat was driven by the floods, concern about water supply for a population that was booming post-World War II, and his own vanity.

"I loved building things," he would later say, according to Marc Reisner's history of water in the West, "Cadillac Desert." "I wanted to build that goddamned water project. I was absolutely determined I was going to pass this California Water Project. I wanted this to be a monument to me."

The scope of Brown's proposal was unparalleled for the time. It was also very expensive.

To finance it, Brown placed a $1.75 billion water bond on the ballot in 1960. (That's $14.3 billion in 2017 dollars.) The project would cost far more than that, and Brown knew it. But in order to sell it to voters, Brown insisted on keeping the number below $2 billion.

One analysis from Brown's administration, for example, pegged the cost at $1.8 billion. It did mention Oroville Dam, but neglected to include the cost of actually constructing the tallest dam in the nation.

In November 1960, the bond passed by the narrowest of margins: 174,000 votes, about 3 percent.

Brown forged ahead, but not without missteps.

His administration would sign contracts guaranteeing the delivery of about 4.23 million acre-feet of water before construction began. (An acre-foot is about 326,000 gallons, or as much as a California household uses in a year. California currently uses about 42 million acre-feet annually.)

But the project could not provide that much water without two features: taking water from rivers like the Trinity, Eel and Klamath in the northern reaches of the state and constructing a way to move water around the delta.

Brown's scheme, along with the federal Central Valley Project, would forever change the delta's ecosystem, making it a highly engineered landscape. It called vaguely for a "trans-delta system," but no one knew what that meant.

According to biologist Kier, backers of the tunnels still point to that language to justify it.

"That's what the proponents regard as the foundational voters' approval," he said, "the voter approval that overrides any questions about whether they are doing the right thing."

The delta conveyance wasn't built, and northern rivers remained largely untapped. As a result, the State Water Project initially delivered only about 2.5 million acre-feet.

Some would call that a structural deficit. Others would call it crazy.

"Californians had been sold a pig in a poke: a project whose cost was deliberately and extravagantly understated, and whose delivery capability was much less than they had been led to believe," Reisner wrote in "Cadillac Desert."

Nevertheless, Brown would get his wish and reshape California's water system, laying the groundwork for what would become the world's sixth-largest economy. Dozens of dams and facilities were built. Power and pumping plants shuttled water over mountain ranges, to thirsty cities and the nation's most prodigious agricultural area (Greenwire, March 27).

And the state constructed its longest river: the 444-mile Governor Edmund G. Brown California Aqueduct.

After the elder Brown left office in 1967, water interests wanted to complete the project. They eyed building a large dam and reservoir on the Eel River, a nearly 200-mile-long waterway in Northern California.

Brown's successor, Gov. Ronald Reagan (R), however, had little interest in major public works, reportedly falling asleep in a key meeting about it. Then, a somewhat halfhearted attempt at a delta conveyance facility was scuttled by a lawsuit in 1974.

That left the problem to Brown's son, Jerry, who took office after Reagan in 1975.

The contradictions between Jerry Brown's position on water infrastructure and his views toward other issues became clear immediately.

Brown in many ways was the stylistic opposite of his father, a product of the new environmental movement and deep skepticism of big government projects in the wake of Vietnam and Watergate. He campaigned as a fiscal conservative, promoting an "era of limits," "small is beautiful" and "less is more." Once intent on becoming a Catholic priest, he eschewed the state's governor's mansion, living instead in an ordinary apartment. There was no limo for Brown; he rode in an inexpensive 1974 Plymouth Satellite.

Nevertheless, Brown set out to fix the more than 1-million-acre-foot shortfall in his father's water project with an $11.6 billion canal.

The Democrat tried to appease the state's water interests and his environmental base simultaneously. He hired Meral, the former Environmental Defense Fund leader whom Brown had met when Meral was running an anti-dam campaign. Meral, a co-founder of Friends of the River, was an accomplished whitewater kayaker. Runs on the Tuolumne River were named for him.

Brown took new reservoirs off the table — no new dams. He and Meral came up with a plan to take "surplus" flows from the Sacramento River during the winter and spring and send them around the east side of the delta in a 43-mile-long "peripheral canal," where the water could then be pumped to existing storage facilities.

The plan was put on the ballot in a June 1982 special election, and it became one of the most bitterly fought and divisive political campaigns in the state's history.

Some environmentalists initially backed the plan, out of loyalty to Brown and Meral. Quickly, though, it created unusual alliances.

Greens ultimately opposed the project because it would deprive the delta of freshwater inflows critical to its ecosystem. To them, it went too far to develop water supplies.

Two major agricultural players — the J.G. Boswell Co. and Salyer Land Co. — joined them because of Brown's refusal to build on the northern rivers. To them, it didn't go far enough.

Southern California voters supported the canal as vital to their economic future. Voters in the north equated it to the south stealing their water — again.

"It became Voldemort — that which would not be named," said Jeffrey Mount of the nonpartisan Public Policy Institute of California, referring to the main villain in the "Harry Potter" novels. "Friendships were ruined. Divorces occurred."

The campaign supporting the canal totaled $2.5 million. The effort to defeat it spent $3.3 million.

Weather, it seemed, was also working against Brown. The state had some of the driest years on record in 1976 and 1977. But 1980 unleashed torrential storms on the state, culminating in 1982 when an El Niño weather pattern caused storms resulting in $1 billion in property damage.

"It would be excessive to say that a string of five rain-laden years determined the outcome of the vote on the Peripheral Canal, but it would probably be true," Reisner wrote in "Cadillac Desert."

On election day, Southern California — home to most of the state's voters — backed Brown's canals by a 2-to-1 margin. But Northern California voted against it 9-to-1. Brown lost resoundingly by a vote of 62.7 percent to 37.3 percent.

Governors after Brown — George Deukmejian (R), Pete Wilson (R), Gray Davis (D) — did all they could to avoid the issue. Gov. Arnold Schwarzenegger (R) revived the concept in 2007, but he lacked the political capital to move it forward.

When Jerry Brown was elected governor again in 2010, he again set out to tackle the delta problem.

He trimmed Schwarzenegger's plan, making his California WaterFix tunnels smaller and more scientifically advanced than the peripheral canal of 1982.

Though the map is similar, the tunnels would run 35 miles, as opposed to the canal's 43. The tunnels would have a maximum capacity of 9,000 cubic feet of water per second taken from three intakes, far lower than the 21,800 cfs of the canal.

And the tunnels would allow water to be sent from the tunnels to the delta, allowing more flexibility in maintaining water quality and combating saltwater intruding from the ocean via the San Francisco Bay.

The big differences are the WaterFix's "smaller size and much-diminished expectations for greater water exports," said Jay Lund, director of the Center for Watershed Sciences at the University of California, Davis. The tunnels are "more to improve reliability of historical pumping, or reduce its degradation, with little capacity to increase export pumping."

But, he added, it is "still a very sizable project with lots of implications."

Mount, of PPIC, has argued for a decade that the state must do something to address water issues in the delta.

The delta's islands are sinking, levees that protect them face earthquake risk, there are changing runoff patterns from more intense storms and droughts as the climate changes, and it will undoubtedly be affected by sea-level rise.

"Either the state builds an isolated facility that takes more reliable, high-quality water from the Sacramento River and bypasses the delta, or, otherwise, the alternative is to begin planning for declining water supply from the delta," Mount said.

The latter could have major consequences for 19 million people in Southern California who get about 30 percent of their water from the delta and State Water Project.

It would also affect Central Valley agriculture, which gets about 25 percent of its drinking and irrigation water from the delta.

And the tunnels are more important to agribusiness now than the canal was in 1982. The 2014 Sustainable Groundwater Management Act will in the coming years likely limit groundwater pumping, agriculture's primary way of coping with delivery shortages from the delta.

"If you are a region that is depending on the delta and the water supply is declining — and, at the same time, you have to cut 2 million acre-feet of groundwater pumping to bring your aquifer into balance — it's going to be pretty damn painful," Mount said.

"That water is absolutely vital for the San Joaquin Valley to bring their groundwater into balance."

Therein lies one of primary complaints about the project. Critics contend the project would benefit only a few select interests — mainly the Metropolitan Water District, which provides water to most of Southern California, and agriculture.

"We're not being simplistic when we say the project won't make more water. It won't," said Barrigan-Parrilla of Restore the Delta. "It's just a switch to take it away from someone else or the environment."

Brown's administration has emphasized that the tunnels will help the delta's ecosystems. The WaterFix's website claims a primary objective is helping the "suffering" environment by protecting fish from the pumps in the south delta, which draw from existing canals and are harmful to fish migration. The tunnels will bypass those canals, moving the water directly to Clifton Court Forebay for export south.

"The current pumps are extremely powerful, causing harmful reverse flows, trapping endangered fish and pulling them toward predators," the WaterFix fact sheet states. "We can't let endangered species go extinct."

The Trump administration's biological opinions last month concluded that the first phase of the project, construction of the tunnels, would not jeopardize any of the 16 threatened species or adversely affect their habitat in the delta. The final report seemed to back away from findings on the delta smelt in the draft versions, which officials attributed to an additional 1,800 acres of habitat restoration to which the state has committed.

The conclusions by the Fish and Wildlife Service and National Marine Fisheries Service also rely on California EcoRestore, a program intended to go hand in hand with the tunnels to restore 30,000 acres of the delta.

Environmentalists are quick to poke holes in all of it. For one, EcoRestore was born after another comprehensive plan for the tunnels and habitat, the Bay Delta Conservation Plan, was scrapped.

And the primary scientific analysis by the agencies is flawed, said Jonathan Rosenfield, lead scientist for the Bay Institute. The conclusion that habitat restoration works for species like the delta smelt is speculative, he said. Conversely, allowing freshwater to flow into, through and out of the delta is scientifically proven to help the smelt, and many other threatened species.

"It's still very unclear whether the habitat restoration they are talking about will positively affect any of the endangered species, and it is almost certain to have no effect on some threatened species," Rosenfield said. "You can't substitute something that is entirely speculative for something that is known to work."

Environmental and fishing groups including the Bay Institute and Natural Resources Defense Council have already challenged the opinions in court, in the first of what is expected to be many lawsuits if the tunnels move ahead. The coalition contended the agencies ignored the best available science (Greenwire, June 30).

U.S. EPA has highlighted the same issue. In an August 2014 letter, then-EPA Regional Administrator Jared Blumenfeld said the tunnels could run afoul of the Clean Water Act while questioning habitat restoration as an effective mitigation measure.

"We are concerned over the sole reliance on habitat restoration for ecosystem recovery, recognizing that existing freshwater diversions and significantly diminished seaward flows have played a significant role in precluding the recovery of Bay Delta ecosystem processes and declining fish populations," he wrote (Greenwire, Aug. 29, 2014).

Further, the agencies were clear that their findings applied to the construction of the tunnels, but not their operation, leading some critics to say they punted.

Still, the project can move forward for now. Its main beneficiaries — and those who would be responsible for paying for most of it — will vote this fall.

Four entities would be the main beneficiaries of the project: Metropolitan, the Santa Clara Valley Water District in the Bay Area, and two primarily agricultural providers in the San Joaquin Valley: Kern County Water Agency and Westlands Water District.

The politically powerful Westlands has been reluctant to commit to the WaterFix, saying its board will likely vote on it in September.

"If the analysis performed after release of biological opinions for the project does not demonstrate a significant water supply benefit, I am confident the Westlands board of directors will decide to not participate in the project," Westlands General Manager Tom Birmingham said in an email.

"Westlands has consistently stated that it will not obligate itself to billions of dollars of debt unless it is reasonably certain that the district's water supply will be restored."

It's been more than 40 years since Brown first became governor, and the delta problem isn't going anywhere. The tunnels — along with his effort to build a high-speed rail system — represent the type of concrete monument that has always eluded him.

To proponents of a delta solution, it's now or never. And they see courage in Brown's willingness to keep pushing.

"He's the only one, because of his earlier attempt at this, who really has had the chops to do it," Mount said. "If you don't make a decision in this governor's term and move forward, it is highly unlikely that the next governor will take this on. Every governor who has tried before has been chewed to bits."

But in order to build them, he'll likely need Westlands — public enemy No. 1 for environmentalists. And despite Brown's climate change work, greens are quick to criticize the tunnels as catering to powerful interests over both the health of the delta and the state as a whole.

"This tarnishes Brown's legacy," said Patricia Schifferle, a longtime environmental activist. "He is doing what he perceives as a way to get accolades from his father's vision, but it misses the mark. He tarnishes not only his legacy, but also, I believe, his father's."

The deeper irony is that Brown already has a monument on the scale of his father's State Water Project.

Brown's decision in the early 1980s to designate the state's northern rivers under the federal Wild and Scenic Rivers Act protected hundreds of miles of rivers from dams and development in perpetuity — dams that Westlands and others were counting on.

"Those dams and reservoirs were to provide the remaining large amounts of water to supply the State Water Project," Minton of the Planning and Conservation League said. "Because those dams and reservoirs were not built, the State Water Project has never been able to fulfill the promises of Jerry's father."

To Minton and others, that should be Brown's legacy on water. And it didn't take a single bucket of concrete.

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Groundwater planning moves into next phase
Ag Alert | July 12, 2017 | Christine Souza

Now that agencies, farmers and others in affected California groundwater basins have formed local groundwater agencies, the costly and more challenging work begins, as the agencies develop groundwater management plans.

Under the 2014 Sustainable Groundwater Management Act, local groundwater agencies—known as GSAs—had to be formed by June 30 for basins or sub-basins classified by the state as medium or high priority because of the importance of groundwater in those basins.

"Up to this point, everything has been focused on local governance," said Jack Rice, an associate counsel for the California Farm Bureau Federation. "Now, the GSAs will be doing the water management piece. This is where the local water budget comes in. You have to figure out how much water your groundwater basin has, how much groundwater is part of your sustainable yield and what you are going to do to get there."

As required under SGMA, the GSAs must develop local groundwater sustainability plans to guide groundwater management in the medium- or high-priority areas. Plans now being developed for the 21 basins identified as "critically overdrafted" must be in place by 2020; all others must be in effect by 2022.

The law requires groundwater sustainability plans to include measurable objectives, as well as interim milestones in increments of five years, to achieve the basin's sustainability goal within 20 years of plan implementation. GSAs must also describe how the plan helps meet objectives for achieving the sustainability goal for the basin for long-term beneficial uses of groundwater. Plans must address six signs of groundwater overdraft.

Failure to meet the long-term sustainability goal under SGMA could result in probationary status and potential intervention by the State Water Resources Control Board.

Tulare County Farm Bureau Executive Director Tricia Stever Blattler said developing a water budget involves hydrogeological experts and engineers "creating some type of 'bank account' report that basically shows water coming into the basin and water leaving the basin. Once they determine the net amount of water in and out, they will determine the sustainable yield for all of the users in the basin."

For the next year and a half, Blattler said, much focus will be on compiling and integrating different sources of groundwater data for affected basins. Ten GSAs have been formed within the boundaries of Tulare County, and the county government will act as a GSA for any unmanaged areas.

"There are three sub-basins in the county, so each sub-basin has to come up with a coordination plan on how they are going to collect and interpret data, and how it will be combined into a broader, basin-wide planning instrument," Blattler said. "That will form the basis for them to write the groundwater sustainability plans."

Noting that the plans need to have data everyone in the GSAs can generally agree upon, she said, "in three sub-basins with 10 GSAs, you could potentially have 10 different hydrogeological firms each coming up with their own set of groundwater data points."

For the Tulare hydrologic region, Blattler said, groundwater sustainability will require additional storage and replenishment of aquifers.

"Surface water is critical for us achieving some level of a sustainable yield in each basin. If we don't built Temperance Flat and some other storage projects that can help us create more water, it would be very difficult for us to attain that 20-year sustainability plan," she said.

In San Joaquin County, there are two basins, including the East San Joaquin basin, a high-priority, critically overdrafted sub-basin. Seventeen GSAs representing that sub-basin have formed a joint powers authority, the Eastern San Joaquin Groundwater Authority. As in other agencies representing medium- and high-priority basins, the authority is working on a groundwater model to guide its plan.

"We've received grant funds to work on a new model that is shareable that we can work with all of the GSAs and start with the same baseline of information," said San Joaquin Farm Bureau Federation program director Julianne Phillips. "It's just a matter of creating a model and then implementing our strategies from there, to better manage and bring ourselves into sustainability."

San Joaquin County formed a Groundwater Basin Authority in 2001 to help fund conjunctive-use groundwater-replenishment projects, Phillips said. Now, she said, "we're looking at: How do we fit the conjunctive-use projects that we've had into SGMA?"

"We certainly have our share of challenges," she said, "but we are trying to see the silver lining and the opportunities."

Monterey County Farm Bureau Executive Director Norm Groot said participants in the Salinas Valley Basin Groundwater Sustainability Agency, a joint powers authority, are developing its plan and have scheduled workshops to learn more about the plan's components. At an upcoming meeting of the Monterey County Board of Supervisors, groundwater model findings will be presented that will guide the process.

"The report will help us develop the groundwater sustainability plan and also look at what future projects will give us the biggest bang for the buck," Groot said. "A preliminary report in 2014 showed that we were less than 4 percent off of sustainability, based on records that we've had in the last several years as well as estimating recharge amounts."

Even for a groundwater basin that is easily replenished and close to being sustainable, he said, there is great expense to create and implement a GSA and a groundwater sustainability plan. Local funding from agencies and farmers has been dedicated for the first two years of operating the GSA, but a general assessment would need to be determined for future funding.

"This is a very expensive, unfunded mandate that the state has pushed upon us, particularly in a basin where we are not that far off from sustainability and have been working on that for

seven decades, building different projects to achieve that," Groot said. "This just adds another layer of complexity and expense to the process."

Rice said county Farm Bureaus around California have been participating in formation of local GSAs and "have done a great job making sure that agriculture's voice is heard" as the groundwater-planning process moves into its next phase.

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East Palo Alto accepts Mountain View water
Palo Alto Weekly | June 22, 2017 | Sue Dremann

To help meet growing demand, the East Palo Alto City Council approved a water transfer from Mountain View for an additional 1 million gallons per day on June 20, 2017. The deal still needs to be approved by the San Francisco Public Utilities Commission. Weekly file photo.

Water-parched East Palo Alto came another step closer to receiving an additional 1-million-gallons-per-day after the City Council on Tuesday approved accepting water from the City of Mountain View.

Council members unanimously approved the water transfer for a one-time payment of $5 million, city officials announced on Wednesday. The transfer would permanently increase East Palo Alto's water supply and decrease that of Mountain View out of San Francisco Public Utilities Commission (SFPUC) allocations from Hetch Hetchy Reservoir.

East Palo Alto instituted a new water-hookup moratorium on July 2016, which prohibits new or expanded water connections, in response to the growing drought and increasing demand from developers. The city realized it could not meet its growth goals without additional water supplies. The city's General Plan update would allow 2,519 additional residential dwellings, 333,406 square feet of retail development, 1.9 million square feet of office space and 267,987 square feet of new industrial space by the year 2040.

The proposed growth envisions increasing city population by 7,764 residents as well as additional employees, according to a June 20 staff report. But the city could not come close to meeting its goals without additional supplies. Water demands could outstrip available supplies by 2020, according to the General Plan Environmental Impact Report.

City officials said the water shortage has halted badly needed affordable housing and additional commercial development. East Palo Alto relies solely on the (SFPUC) for potable water, which is shared with 25 other Bay Area Water Supply and Conservation Agency members, including municipalities. East Palo Alto receives the lowest portion of water allocations of any BAWSCA shareholder under the 2009 water supply agreement, which provides for a perpetual 184 million gallons per day to member agencies.

Although the city is one of the lowest gross-per-capita users of water in the Bay Area and the state, it exceeded its 1.963 million gallons per day annual Individual Supply Guarantee in 2003, 2007, 2007 and 2012. The city has used 92 percent of its water allocation for the past 15 years, according to the June 20 staff report. A recent water supply assessment found the city needs up to an additional 1.5 million gallons per day to support the General Plan Update goals.

Funding for the $5 million water transfer would come from a number of sources: three developers, The Sobrato Organization, 2020 Bay Road and The Primary School, which have pending commercial projects will pay $1.53 million, based on their projects' pro rata share of their estimated water demand. Other funding would come from: The East Palo Alto General Fund, $470,000; The Sobrato Organization reimbursement agreement, $1 million; a Silicon

Valley Community Foundation gift from the Chan Zuckerberg Initiative for the water transfer ($2 million); and for affordable housing in East Palo Alto ($500,000).

City leaders lauded the agreement.

"This is a great step forward, a critical milestone towards achieving the goals of the city's General Plan. Water is a fundamental necessity for a growing city, and we thank our community partners for working with us to raise the necessary funds to bring this transaction to fruition," Mayor Larry J. Moody said in an announcement.

The SFPUC still must agree to the water transfer, city officials said. If approved, the water moratorium would be lifted in late November after the city council adopts a water-capacity charge to recover the costs of the water-transfer transaction.

The City of Palo Alto is also considering transferring up to 1 million gallons per day from its allocations to East Palo Alto. The Palo Alto City Council referred the issue to the Finance Committee in December. The council is expected to take up the discussion again in August after it returns from recess, the East Palo Alto staff report noted.

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