BAY AREA WATER SUPPLY AND CONSERVATION AGENCY

BOARD POLICY COMMITTEE MEETING

October 4, 2019

Correspondence and media coverage of interest between August 22, 2019 and October 4, 2019

Correspondence

Date: August 22, 2019
From: Nicole Sandkulla, CEO/General Manager, BAWSCA
To: The Hon. Gavin Newsom, Governor
Re: Requesting Your Signature of Senate Bill 699

Media Coverage

Water Supply Conditions:

Date: October 1, 2019
Source: Sacramento Bee
Article: California's water year starts with a large increase in reservoir storage. Here's why

Date: September 27, 2019
Source: Turlock Journal
Article: 2019 water year sees above-average rainfall

Water Policy:

Date: October 4, 2019
Source: Los Angeles Times
Article: The next big California vs. Trump fight is over water and endangered species

Date: October 3, 2019
Source: New York Times
Article: A 'Chilling Message': Trump Critics See a Deeper Agenda in California Feud

Date: October 2, 2019
Source: Daily Republic
Article: Newsom signs Dodd's water management bill

Date: September 30, 2019
Source: San Francisco Chronicle
Article: Newsom takes a back seat on environmental legislation

Date: September 25, 2019
Source: Maven's Notebook
Article: CA Water Commission: DWR Director Karla Nemeth on the Department's Strategic Plan, Delta Conveyance

Date: September 25, 2019
Source: Sacramento Bee
Article: California farmers face 'catastrophic' water restrictions. Can they adapt to survive?

Water Policy, Cont'd.:

Date: September 24, 2019
Source: Public Policy Institute of California
Article: Water Policy Priorities for a Changing California

Date: September 23, 2019
Source: Maven's Notebook
Article: Bay Delta Water Quality Control Plan Update: Draft Biological Goals and Initial Compliance Methods for Lower San Joaquin River Flows

Water Infrastructure:

Date: October 3, 2019
Source: Sacramento Bee
Article: California dam-raising project favored by Trump stumbles after water agency retreats

Date: October 2, 2019
Source: Washington Post
Article: Environmentalists push for removing dam along Colorado River

Date: September 29, 2019
Source: San Francisco Chronicle
Article: A historic bid for limited boating at Hetch Hetchy Reservoir

Date: September 25, 2019
Source: Siskiyou Daily News
Article: A look at the Klamath River and those who depend on it

Date: September 23, 2019
Source: Douglas Digital Daily
Article: Southern California water agency approves $5 million for stormwater pilot

Climate Change:

Date: September 25, 2019
Source: NRDC
Article: The Snow Must Go On

BAWSCA
Bay Area Water Supply & Conservation Agency

August 22, 2019

The Hon. Gavin Newsom, Governor
State of California
1303 10th Street, Suite 1173
Sacramento, CA 95814

Re: Requesting Your Signature of Senate Bill 699

Dear Governor Newsom,

As the Chief Executive Officer of BAWSCA, I urge you to sign SB 699 to protect the water-supply interests of 1.8 million residents, 40,000 businesses, including most of Silicon Valley, and thousands of community agencies in Alameda, San Mateo, and Santa Clara counties.

Introduced by State Senator Jerry Hill (San Mateo), SB 699 achieved overwhelming support in both the California State Senate and California State Assembly. The San Francisco Public Utilities Commission has expressed support for SB 699, which also benefits the water users in San Francisco who depend on the San Francisco Regional (Hetch Hetchy) Water System (System).

SB 699 will extend existing law (AB 1823), enacted in 2002, that requires San Francisco to re-build the System to withstand a seismic event and continue to deliver water afterwards. That work is now 97% complete but two critical projects are not yet done. Continuing state oversight through SB 699 is necessary until these projects are complete.

Specifically, SB 699 extends existing State oversight of San Francisco's state-mandated capital improvement program from January 1, 2022 to January 1, 2026. SB 699 also extends the San Francisco Bay Area Regional Water System Financing Authority's ability to issue revenue bonds for these improvements from December 31, 2020 to December 31, 2030.

Attached is BAWSCA's statement in support of SB 699 delivered to the Senate Governance and Finance Committee on April 24, 2019. I appreciate your recognition of SB 699's great importance to Bay Area water users.

Thank you for your consideration of our request.

Sincerely,

Nicole Sandkulla

Nicole Sandkulla
CEO/General Manager

Enclosure

cc: The Hon. Jerry Hill, California State Senate
BAWSCA Board of Directors

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BAWSCA
Bay Area Water Supply & Conservation Agency

Statement from Nicole Sandkulla, Chief Executive Officer of the Bay Area Water Supply and Conservation Agency, Before the California Senate Governance and Finance Committee

April 24, 2019

Good morning Chair McGuire, Vice Chair Moorlach, and Members of this Committee.

My name is Nicole Sandkulla, and I'm the Chief Executive Officer of the Bay Area Water Supply and Conservation Agency (BAWSCA), a special district authorized by the California Legislature and the Governor in 2002.

It represents the water interests of 26 water suppliers in the Bay Area that buy water from the San Francisco Regional Hetch Hetchy Water System and deliver it to 1.8 million residents, over 40,0000 businesses, including most of Silicon Valley, and thousands of community agencies in Alameda, San Mateo, and Santa Clara counties.

BAWSCA supports SB 699. This Bill proposes needed amendments to extend two laws originally enacted in 2002. One of the original Bills was AB 1823 (Papan), which required San Francisco to implement capital improvements for its Regional Water System to ensure that it could withstand a major seismic event and continue to deliver essential water afterwards. That work is now 97% complete but two critical projects are not yet done, and continuing state oversight through SB 699 is necessary until these projects are complete.

SB 699 also extends the other original Bill, SB 1870 (Speier), which authorized formation of the San Francisco Bay Area Regional Water System Financing Authority, to issue revenue bonds to finance improvements for the water system from December 31, 2020 to December 31, 2030.

BAWSCA is pleased to support SB 699, introduced by Senator Jerry Hill, which will provide this continuing protection to its 26 member agencies and the residents, businesses, and communities they serve in Alameda, San Mateo, and Santa Clara counties.

BAWSCA asks that you support SB 699.

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California's water year starts with a large increase in reservoir storage. Here's why
Sacramento Bee | October 1, 2019 | Mitchel Bobo

What a difference an abundance of water makes. January 2017 saw a deluge of rain in Northern California. These images of Folsom Lake, Atascadero Lake, Lake Oroville, Echo Summit and the South Yuba River show it. By David Caraccio

California is enjoying an increase in average water reserves due to increases in snowfall and precipitation, according to the Department of Water Resources.

Statewide, the reservoir is at 128 percent of average, which is about 29.7 million acre-feet. Some of the biggest increases include Lake Oroville, which is currently at 102 percent of its average, compared to 62 percent this time last year; Shasta Lake is at 126 percent (88 percent in 2018) and San Luis Reservoir is at 132 percent (117 percent last year).

According to the DWR, the state's snowpack was at 175 percent of the annual average on April 1. The increase was helped by more than 30 atmospheric rivers, many of which making landfall in Northern California.

"The significant rainfall and snowpack made for a great water year in 2019, so we start the new year in a good place," DWR director Karla Nemeth said in a release. "However, we all know too well that California's weather and precipitation is highly variable. What we could have today could be gone tomorrow. Conserve. Recycle. Recharge. People and the environment depend on it."

The water year begins Oct. 1 and runs through Sept. 30. For more information, visit DWR's California Data Exchange Center website.

# # #

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2019 water year sees above-average rainfall
Turlock Journal | September 27, 2019 | Angelina Martin

Don Pedro Reservoir is filled to the brim with 1,717,470 acre feet of water thanks to a 2019 water year that saw 45.65 inches of rainfall — nearly 10 inches more than the historical average for the area, or about 125 percent of average for the date.

After a lackluster amount of rainfall throughout the San Joaquin Valley in 2018, the recent end to the 2019 precipitation year was a welcome sight for community members wary of drought thanks to plenty of storms that brought above-average numbers.

This past precipitation year, which began Sept. 1, 2018 and ended Aug. 31, 2019, saw 45.65 inches of rainfall — nearly 10 inches more than the historical average for the area or about 125 percent of average for the date.

“It’s well above average and it’s well above what we did in 2018,” Turlock Irrigation District Utility Analyst Olivia Cramer said during Tuesday’s Board of Directors meeting.

The encouraging numbers come just a year after the less-than-stellar 2018 precipitation year, which saw 30.9 inches of rainfall from Sept. 1, 2017 to Aug. 31, 2018. That was 5.2 fewer inches than the historical average and only 85.6 percent of average for the date, showing that despite the record-breaking water year in 2017, a lack of water is always a concern in California.

The state's yo-yoing precipitation levels from year to year are no surprise to scientists, who keep expectations of approaching dry years realistic by studying the growth rings inside of tree trunks. Thin rings mean the tree's growth was stunted along the way by a lack of water, while larger rings represent wetter years.

Tree ring data shows that there may have been many droughts in California's past that lasted decades — some even lasting for centuries — and many of them had a few wet years sprinkled in between the dry ones.

The 2019 precipitation year was indeed a wet one and a majority of the period's 45.65 inches of rainfall came in February when a series of storms swept through the region. The storms brought 13.7 inches of rain during the month, which was seven inches more than the historical average for the month.

In fact, five of the 2019 precipitation year's 12 months saw rainfall totals that surpassed the historical average, including November (7.18 inches), January (6.66 inches), February, March (7.91 inches) and May (5.65 inches).

The state was also declared drought-free for the first time in nearly a decade in February, thanks to a surging snowpack that was 152 percent of its historical average at the time. That's resulted in a full reservoir at Don Pedro, which currently holds 1,717,470-acre feet of water with an elevation of 804.3 feet.

While February's totals were impressive, perhaps the most surprising month of the water year was May. On the heels of one of California's wettest winters in years — thanks largely to the month of February — a storm of epic proportions rolled into the area and brought cold weather along with ample rainfall.

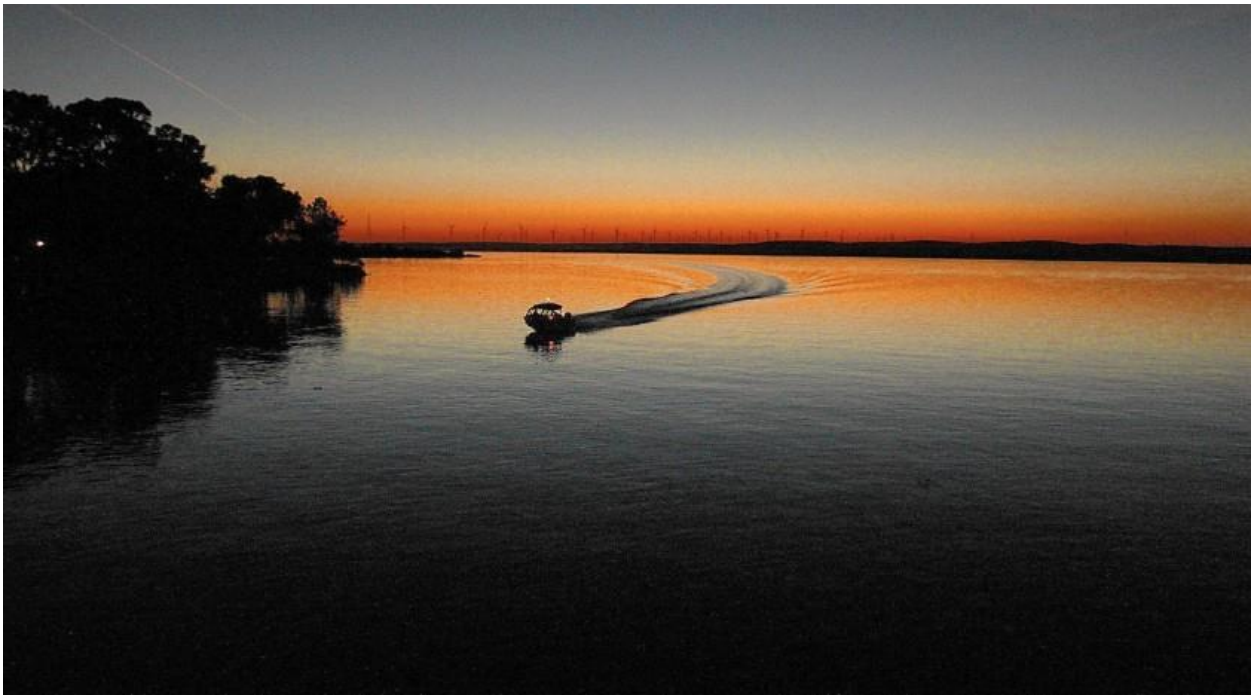
The cooler weather system resulted in what can only be described as winter in May, dropping to freezing levels and lowering the total amount of runoff from the large snowpack into Don Pedro Reservoir.

While the state did recover well from years of drought thanks to the ample water year, there were a few months that received less-than-average rainfall, including September (.45 inches below average) October (1.4 inches below average), December (3.6 inches below average) and April (1.96 inches below average). June and July received nearly zero inches of rainfall, which isn't much less than the average, and there were zero inches of precipitation in August.

The 2020 water year began Sept. 1, and so far, just .28 inches of rainfall has landed in the region. This isn't much less than the historical average of .57 inches for the month of September, which Cramer believes could be met soon as about .2 inches of rainfall is expected in the next week.

# # #

The next big California vs. Trump fight is over water and endangered species
Los Angeles Times | October 4, 2019 | Bettina Boxall



The Sacramento-San Joaquin Delta near the town of Rio Vista. Gov. Gavin Newsom will soon need to decide on whether to challenge or accept the Trump administration's decisions on endangered species protections in the delta.(Luis Sinco / Los Angeles Times)

Just how far will Gov. Gavin Newsom go in his high-profile fight with the Trump administration over environmental protections?

The next few months will provide an answer, as Newsom is forced to take a stand on Trump rollbacks in a long-contested battleground — the Northern California delta that helps supply more than half the state's population with drinking water and fills irrigation canals on millions of acres of farmland.

The battle lines are not nearly as clearly drawn as they are on climate change or air pollution, where the state is presenting a fairly unified front against Washington. When it comes to California water, there is no unity.

Some of the state's biggest and most powerful water agencies are eager for the federal government to weaken endangered species protections that have cut their delta deliveries. And they want the Newsom administration to go along.

If it does, the revisions could turn into the Trump-Newsom rollbacks — not great branding in a state that considers itself the leader of the Trump resistance.

On the other hand, if California bucks the feds and develops a tougher set of state species protections to govern water exports from the Sacramento-San Joaquin Delta, it's uncertain if it can force the big federal irrigation project to obey them.

And if the delta winds up with one set of environmental rules governing pumping by the State Water Project and another set for the federal Central Valley Project, it will get very, very messy.

All of this is likely to play out this fall after federal fishery agencies release new rules for protecting imperiled native delta fish under the Endangered Species Act.

Those rules are being written under President Trump's 2018 directive to ramp up water deliveries to the Central Valley Project's farm customers, including Westlands Water District, whose former lobbyist, David Bernhardt, is now U.S. Interior secretary.

As reported earlier by The Times, scientists with the National Marine Fisheries Service on July 1 submitted a 1,123-page report, called a biological opinion, that found the proposed pumping increases would probably jeopardize the continued existence of endangered winter-run Chinook salmon, threatened spring-run Chinook and threatened Central Valley steelhead, as well as endangered Southern Resident killer whales that eat salmon.

The so-called jeopardy finding, if adopted, would make it difficult to significantly ramp up deliveries from the delta. Two days after the opinion was submitted, a regional U.S. Fish and Wildlife Service official who is overseeing a separate review of delta smelt protections pulled the document, saying it was a draft in need of improvement. He assembled a new team to rework it.

Federal agencies are expected to release the new smelt and salmon biological opinions this month. It is widely expected that they will relax pumping curbs the agencies imposed in 2008 and 2009.

The State Water Project's delta operations have historically adhered to federal endangered species protections. But Trump's directive is prompting California to develop its own pumping rules under the state Endangered Species Act, which protects Chinook salmon and delta smelt independent of federal law.

The anticipated federal rollback led "us to do something we'd never done before," California Natural Resources Secretary Wade Crowfoot said last month in an interview. "That is untether ourselves from relying on that federal biological opinion and to ensure we have an objective, science-based process to update those pumping rules, and that we are not trapped in the political paradigm set out by the president."

At this point, it is unclear what the state rules will be, to what degree they might conflict with the yet-to-be issued federal rules — and what the state will do if they do conflict.

"We're not in a position to suggest what hasn't come out yet and what we'll do," Crowfoot said.

Jeffrey Kightlinger, general manager of the Metropolitan Water District of Southern California, the state project's biggest customer, is pushing for no conflict.

"I'm hoping that they're harmonized and they have the same requirements," he said. "We're pushing the states and feds to find consensus on science as opposed to each side cherry-picking their science."

Kightlinger chuckled when asked how state officials have so far responded. "They agree that in the perfect world, that would be the best approach. They also seem to be saying, we don't know if that works in today's world with our administrations so far apart from each other philosophically."

Newsom has already gotten a taste of the political costs of choosing sides in the decades-long battle over the delta.

Last month, Metropolitan and other water agencies lobbied the governor to oppose Senate Bill 1, which would have allowed California to preserve Obama-era endangered species protections and water-pumping restrictions in the delta.

Newsom came under harsh criticism from environmentalists when he vetoed the bill by state Senate leader Toni Atkins (D-San Diego). The governor argued that the legislation would have limited the state's flexibility in dealing with delta problems and would also torpedo settlement negotiations with water agencies over river flow requirements in the Central Valley.

"The governor continues to put himself out there as an environmentalist," said Kim Delfino of Defenders of Wildlife, an environmental group.

"And he is good on a lot of issues," she added. "But it will not look good if you veto SB1 and then you put out [an endangered species] permit that results in even less water going to the fish than previously. How do you spin that one?"

Metropolitan, Westlands and other delta water users waged years of legal battles against pumping curbs contained in the 2008 and 2009 biological opinions for salmon and smelt. The restrictions were ultimately upheld in federal appeals court.

Now the districts are hoping the Trump administration will do what the courts didn't do.

But in the careful-for-what-you-wish-for department, the delta could wind up with two sets of pumping rules, and that would be a nightmare for Metropolitan and other customers of the State Water Project.

State exporters would lose water if they faced stricter pumping limits than their federal counterparts, while Westlands and other Central Valley Project irrigation customers would gain deliveries.

"Is there a basis to challenge the state on that? Do they really have the authority to make us pay just because they can't get at somebody else?" Kightlinger asked.

"I'm hopeful that after the appropriate amount of posturing, the agencies that really call the shots on these [matters] get together and work it out as they always have in the past. That may be naive in this era," he said.

Crowfoot said his agency's position is that both the state and federal delta operations would have to obey new state rules. "But that raises a lot of questions we're not yet ready to answer, which is how do you enforce that?"

Under the 1902 Reclamation Act, federal irrigation projects in the West must comply with state laws relating "to the control, appropriation, use, or distribution of water used in irrigation." But whether that includes state endangered species law has never been legally settled.

California has other weapons. The State Water Quality Control Board could amend the Central Valley Project's water rights permit to require more delta protections.

And the state could refuse to let the federal project use state pumps and canals, as it sometimes needs to.

“Our projects are so intertwined between the reservoirs and the pumps and the conveyance,” Crowfoot said. “Our agencies weaponizing lawsuits against each other as it relates to water management is highly problematic.”

“At the same time, we’re very clear,” he added. “We will protect the state’s interests as we need to.”

# # #

A ‘Chilling Message’: Trump Critics See a Deeper Agenda in California Feud
New York Times | October 3, 2019 | Coral Davenport

Last month, the E.P.A. administrator, Andrew Wheeler, threatened to withhold federal funds from California if it did not take specific steps to clean its air and water.

WASHINGTON — President Trump’s political feud with California has spread collateral damage across more than a dozen other states, which have seen their regulatory authority curtailed and their autonomy threatened by a Trump administration intent on weakening the environmental statutes of the country’s most populous state.

When the administration last month revoked California’s authority to set state-level standards on climate-warming tailpipe emissions, it simultaneously stripped that power from 13 other states that follow California’s standards and ensured that no other state could set fuel-efficiency standards in the future. The Environmental Protection Agency last week followed up with letters to California that threatened to wield rarely used provisions of environmental law to withhold federal funding from the state if it did not take specific steps to clean its air and water.

“This is new and unusual,” said Jeffrey Holmstead, a Republican lawyer who served in the E.P.A. in both Bush administrations. “E.P.A. has in the past been reluctant to use the very potent mechanism of withholding federal funding, as long as the state is acting in good faith.”

“But,” he added, “there’s obviously some bad blood.”

The maneuvers reversed the traditional positions of the two parties. Republicans have often claimed the mantle of protectors of states’ rights, and the prerogative of state governments as

the laboratories of democracy. Democrats have often championed the pre-eminence of Washington over the states in battles over civil rights and health care. That has not always been the case. Republicans in Washington have tried to block state assisted-suicide laws, for instance, while Democrats have championed liberal state laws, for example on gun control.

The fight over California's fuel-economy standards fits into that last category, but legal experts said the Trump administration's actions are new. They amount to a novel weaponizing of environmental laws intended not only to undermine California's liberal government but to send a message to other states that might defy Mr. Trump.

"It looks like a search-and-destroy, and it sends a chilling message to other states," said Barry Rabe, a professor of public policy at the University of Michigan.

In this case, critics noted, the Clean Air Act specifically offered states the ability to set their own environmental standards if Washington grants them a waiver.

"This is a very powerful tool that the Clean Air Act gives to the states," said Phil Weiser, the attorney general of Colorado. "To pull the rug out from states, to do something this prescriptive, this stepping-on-states' rights, is a threat to the very principle of states' rights."

The E.P.A. administrator, Andrew Wheeler, said this week that the administration believed in states' rights, to a point. California's economic power is so great that its policies have gravitational force far beyond its border: "We embrace federalism and the role of the states," Mr. Wheeler said, "but federalism does not mean that one state can dictate standards for the nation."

But impugning California's commitment to clean air and water struck William K. Reilly, who headed the E.P.A. under the first President George Bush, as disingenuous, he said. The state, he said, is "historically the originator of the most innovative and successful air pollution controls" in the country.

"I'd be surprised if the E.P.A administrator could defend this letter and keep a straight face," he said.

Mr. Wheeler did just that on Wednesday when he was asked if his letters to California were political retaliation for the state's efforts against his policies.

"No, not at all," he said. "We found a lot of discrepancies between the way California is operating their water programs compared to others states."

Mr. Wheeler announced last month that the E.P.A. would revoke a waiver granted to California by the Obama administration that allowed the state to establish its own tough fuel economy standards for cars sold into its giant market. That waiver had been granted under the 1970 Clean Air Act, which allows states to set tighter emissions standards.

Because vehicle emissions represent the nation's largest source of planet-warming greenhouse gases, the legal authority under the Clean Air Act represents one of the most powerful tools that states can use to combat climate change. Under the law, any other state could enact standards in line with California's, and 13 states had done so before the administration wiped them out. Two other states, Minnesota and New Mexico, had planned to join California's standards.

Twenty-three states have now sued the Trump administration over the move. While not all of those states followed the California standard, attorneys general for the states said they saw the move as an unlawful infringement on states' rights that would prevent them from taking action to combat climate change in the future.

All the state attorneys general on to the suit are Democrats, but some represent states that Mr. Trump won in 2016, or hope to win in 2020, including North Carolina, Wisconsin, Pennsylvania, Michigan and New Mexico.

"The Trump administration has assaulted states' rights," said Josh Shapiro, the attorney general of Pennsylvania, "and Exhibit A is this clean cars law, where states have taken it upon ourselves to protect our citizens and now they are unlawfully trying to strip us of our authority."

Collateral damage aside, Mr. Trump has seen the moves as focused on California, which has filed 60 lawsuits against the Trump administration over issues ranging from immigration to health care. Even as the threat of impeachment swamps his presidency, Mr. Trump remains fixated on California.

On Wednesday, he said, "We just sent a violation to the city of San Francisco, unsafe water, unsafe conditions."

"With all the talk about the E.P.A.," he continued, "there's needles and drugs all over the street, there's tents, there's people that are dying in squalor in the best location in San Francisco."

Mr. Trump was enraged in July when four automakers that opposed his plan to roll back the Obama administration's vehicle pollution standard had signed a deal with California to comply with its tighter emissions standards, even if the broader rollback goes through.

If other automakers signed on to the deal, as California has encouraged them to do, it would render Mr. Trump's rollback moot.

Last week, Mr. Wheeler sent a pair of highly unusual letters to Sacramento. One noted that California has the nation's largest backlog of incomplete or inactive state-level plans to address certain types of air pollution, and threatened to impose penalties such as withholding highway funds if the backlog is not addressed. While many other states have similar backlogs, none have received such letters, according to Miles Keough, head of the National Association of Clean Air Agencies.

The second letter accused the state of failing in its obligations to meet clean water standards, accusing it of "deficiencies that have led to public health concerns." Again the E.P.A. issued a veiled threat that federal funding could be at risk.

But data on the E.P.A.'s own website indicates that at least 40 states have a higher percentage of water systems in violation of the Safe Drinking Water Act than California.

Keith Ellison, the attorney general of Minnesota, said he saw in Mr. Wheeler's letters an implicit threat to any state at odds with Mr. Trump's deregulatory agenda. "Those letters just look like rank retaliation, punishment," Mr. Ellison said. "It's the most abusive approach to states' rights that I've ever seen."

# # #

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Newsom signs Dodd's water management bill
Daily Republic | October 2, 2019 | Daily Republic Staff

FAIRFIELD — Sen. Bill Dodd, D-Napa, announced Monday that Gov. Gavin Newsom has signed his legislation to help California oversee its water.

"Water is an essential resource in California that must be protected and carefully managed," Dodd said in a prepared statement from his office. "It is quite simply the lifeblood of our state. Stream gauges provide important information in this era of droughts and flooding, driven in part by climate change. You can't manage what you don't measure."

California has one of the nation's most complex water systems, moving millions of gallons across the state from north to south and east to west. The state's 39 million residents and $47 billion farming industry – along with diverse wildlife from the Sierra to the sea – rely on that water. Yet there is little data about how much water is coursing through streams at any given time. Only 54 percent of the state's 3,600 stream gauges have been active in recent times. And even fewer provide rich, real-time reporting needed to manage this resource.

Senate Bill 19 will help address those shortcomings, ensuring California has the information it needs to effectively oversee the water supply. It helps advance another initiative from Dodd – The Open and Transparent Water Data Act of 2016 – which established a statewide information-sharing system to help safeguard and administer the state's water supply.

"SB 19 is an important breakthrough in establishing a state role in deploying stream gauges to better understand and measure stream flows," said Jay Ziegler, policy director at The Nature Conservancy, in the statement from Dodd's office. "This legislation builds upon Senator Dodd's leadership in advancing open and transparent water data and is critically important toward reaching sustainable water management in California."

Dodd represents the state's 3rd Senate District, which includes all of Solano County.

# # #

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Newsom takes a back seat on environmental legislation
San Francisco Chronicle | September 30, 2019 | Editorial Board

Gov. Gavin Newsom insisted he takes “a back seat to no one” on environmental advocacy just before he vetoed the most significant environmental-protection bill of the legislative session.

His rejection of Senate Bill 1 puts Newsom squarely at odds with just about every major conservation group in the state in fortifying defenses for endangered species against the Trump administration’s efforts to weaken federal law.

SB1, authored by Senate leader Toni Atkins, D-San Diego, was known as the “Trump Insurance Bill” for the way it would have state law on the environment, public health or worker protection automatically default to Obama-era regulations if the 45th president were to gut them at the federal level.

Much of the fight centered on the bill’s potential effect on species protection in the Sacramento-San Joaquin River Delta. SB1 was vigorously opposed by interests determined to have what they considered more “flexible” rules on water allocation. Opponents included the Metropolitan Water District of Southern California and agricultural groups that included the giant Westlands Water District. They threatened to walk away from negotiations on allocation of water from the Central Valley Project if SB1 were signed into law.

One of Newsom’s objectives in vetoing SB1 was to keep those talks going.

The governor also said the bill was unnecessary because California had other ways to resist Trump policies, such as its legal challenges, including a recent lawsuit over the administration’s move to undermine the Endangered Species Act. He called SB1 a “solution in search of a problem.”

Actually, the bill was a solution in anticipation of an environmental problem.

Overall, Newsom has a commendable record on the environment, but he can stop saying he takes “a back seat to no one” on the issue.

He just did.

# # #

This commentary is from The Chronicle’s editorial board.

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CA WATER COMMISSION: DWR Director Karla Nemeth on the Department's Strategic Plan, Delta conveyance

Maven's Notebook | September 25, 2019 | Maven

Aerial view looking South-West, of the Dutch Slough Tidal Marsh Restoration Project
Photo by Ken James/DWR

At the August meeting of the California Water Commission, Karla Nemeth, Director of the Department of Water Resources (DWR), spoke to the commissioners about the Department's strategic plan and the work underway on the Delta conveyance project, which she noted nests into the strategic plan as a key feature of what needs to be done to modernize the State Water Project.

DWR'S STRATEGIC PLAN

DWR completed a strategic plan in 2018, which remains a work in progress. It is updated twice a year and republished in October, so next month, they will update it and check off the things that have been accomplished.

"It does start with core values of the Department that I believe are critical to enable us to achieve the Department's mission, especially in response to the world that is changing around us," she said. "The Department prides itself on being a world-class safety organization, and that's a really big deal when you think about the extent of the State Water Project and the extent of flood projects that the Department works on. This past year we had our first ever DWR response which was an all-DWR virtual town hall meeting on workplace safety and emergency response."

"The second is partnership and transparency. Given the increasingly integrated nature of water management in California, partnerships are essential, not just across state government agencies, but certainly with our colleagues in academia, local agencies at the federal level, and the communities that we serve."

"The third is that science drives our decision making," Director Nemeth continued. "That means that within the Department, we are fostering the ability to work off of shared science, we're

improving access to scientific literature, and providing consistency across the Department as it relates to climate science, fishery science, and other things."

"Environmental stewardship – it's our goal to meet all of our responsibilities in an environmentally pro-active way, and that is certainly expressed most recently in our new division for multi-benefit projects. In the Department's organizational structure, we have a deputy director for integrated watershed management. Within that Department, we are hiring for a new division chief for multi-benefit projects, where we look at the outset of a project to generate environmental benefits as part of the project objectives."

"Then lastly, professionalism and respect. It feels obvious but in my experience, it can't be said too often. The work that we do can be rather intense, there are conflicting objectives at times, and people are very passionate. It's a core value of the Department to make sure that we are treating our colleagues with professionalism and respect."

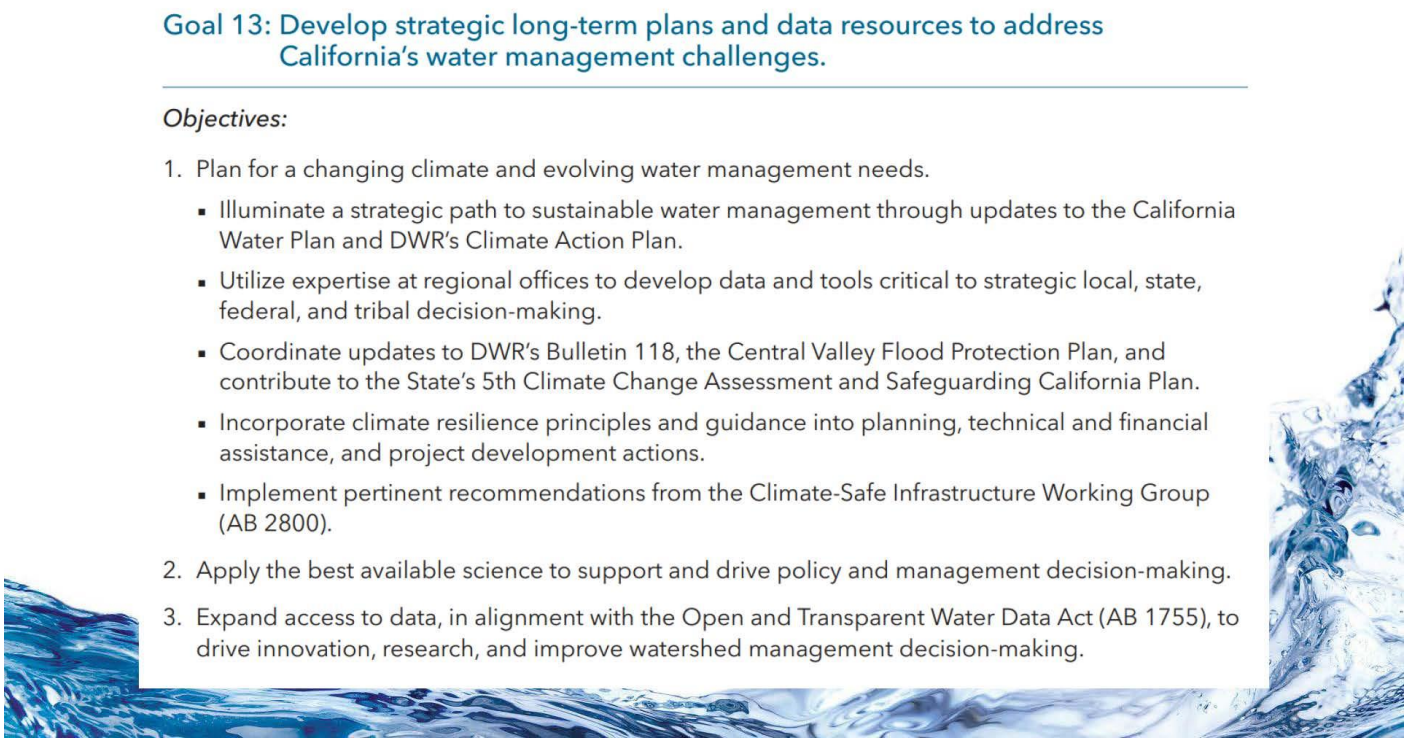
Director Nemeth said that the strategic plan has 21 goals; she would highlight four:

Goal #1: Invest and be innovative in solutions to modernize the State Water Project infrastructure.

In the fall of 2018, the primary objective was to complete the Oroville Spillway Recovery Project on time, and having done so, they are now working on a comprehensive needs assessment that lays out the permanent improvements and long-term improvements that enable the facility to be safe for the public, meet its flood control needs, as well as meet water supply and recreation needs that is expected to be completed by June of 2020.

“Nothing like a stunning example of all the work that we need to do to lay out the capital investment that’s going to be required to make sure the State Water Project continues to meet the needs of the state into the future,” she noted.

Goal #13: Develop strategic long-term plans and data resources to address California’s water management challenges.



Goal 13: Develop strategic long-term plans and data resources to address California’s water management challenges.

Objectives:

1. Plan for a changing climate and evolving water management needs.
   - Illuminate a strategic path to sustainable water management through updates to the California Water Plan and DWR’s Climate Action Plan.
   - Utilize expertise at regional offices to develop data and tools critical to strategic local, state, federal, and tribal decision-making.
   - Coordinate updates to DWR’s Bulletin 118, the Central Valley Flood Protection Plan, and contribute to the State’s 5th Climate Change Assessment and Safeguarding California Plan.
   - Incorporate climate resilience principles and guidance into planning, technical and financial assistance, and project development actions.
   - Implement pertinent recommendations from the Climate-Safe Infrastructure Working Group (AB 2800).
2. Apply the best available science to support and drive policy and management decision-making.
3. Expand access to data, in alignment with the Open and Transparent Water Data Act (AB 1755), to drive innovation, research, and improve watershed management decision-making.

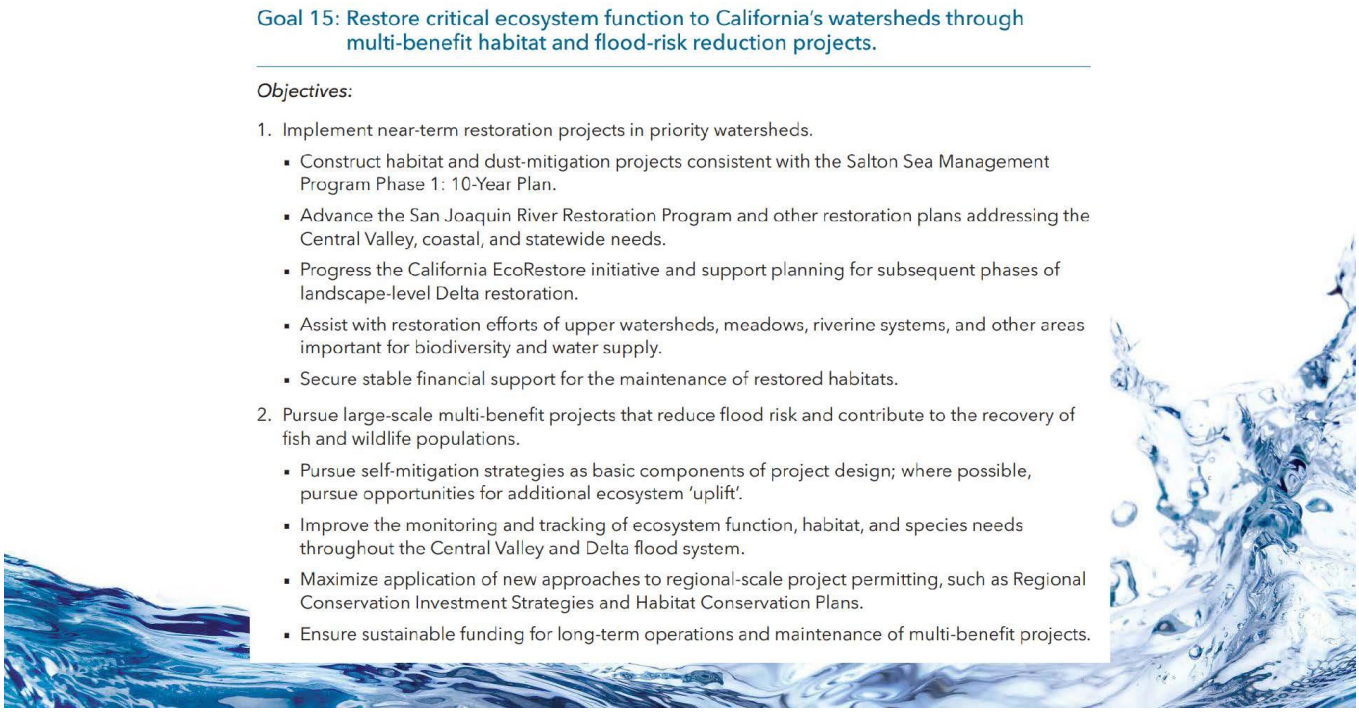
This goal focuses on the Department’s planning functions. “One of the things that I want to emphasize is the Department’s interest in the next version of the California Water Plan and doing that in a way that more proactively integrates with the Central Valley Flood Protection Plan,” said Director Nemeth. “That picks up on that theme of working across more traditional boundaries within the Department, and to the extent that the Water Commission and the Flood Board and the State Board as governor’s appointees are meeting together, that certainly helps the Department achieve its vision and be better able to integrate across state agencies.”

Goal #15: Restore critical ecosystem functions to California’s watersheds through the multi-benefit habitat and flood risk reduction projects.

To that end, the Department is creating a new position to handle multi-benefit project delivery within the Integrated Regional Water Management.

“One of our flagship projects is Lookout Slough, which provides an opportunity for 3000 acres of tidal marsh restoration,” she said. “It’s important because at that scale, it’s essential for us to be able to monitor and measure effectiveness as it relates to native fish species needs in the Delta, but we are doing that in a coordinated way with a flood project. It’s bringing monies from both the flood portion of Proposition 1 together with dollars from the State Water Project for needed mitigation for fish species, and having those combined objectives at the outset of a significant

project. In the Delta, it also helps us as a Department to work better with local government, work better with Solano and Yolo counties, and the reclamation districts in that area."



Goal 15: Restore critical ecosystem function to California's watersheds through multi-benefit habitat and flood-risk reduction projects.

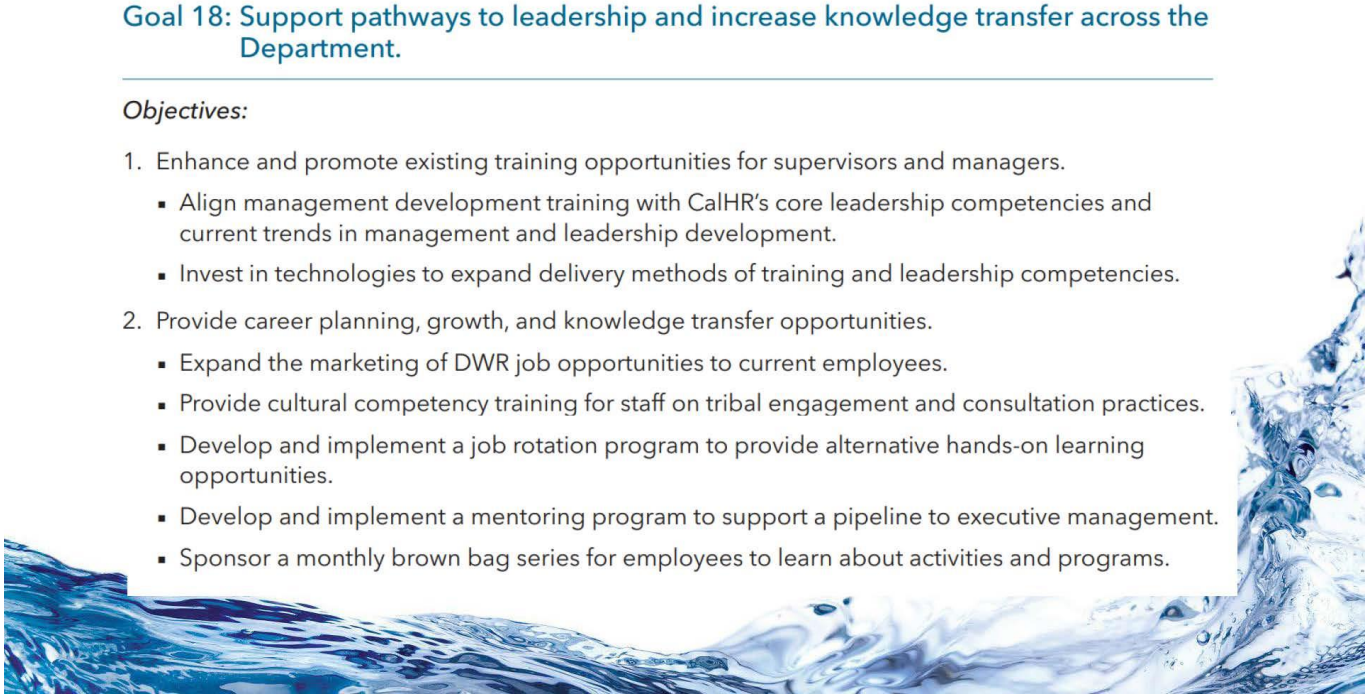
Objectives:

1. Implement near-term restoration projects in priority watersheds.
   - Construct habitat and dust-mitigation projects consistent with the Salton Sea Management Program Phase 1: 10-Year Plan.
   - Advance the San Joaquin River Restoration Program and other restoration plans addressing the Central Valley, coastal, and statewide needs.
   - Progress the California EcoRestore initiative and support planning for subsequent phases of landscape-level Delta restoration.
   - Assist with restoration efforts of upper watersheds, meadows, riverine systems, and other areas important for biodiversity and water supply.
   - Secure stable financial support for the maintenance of restored habitats.
2. Pursue large-scale multi-benefit projects that reduce flood risk and contribute to the recovery of fish and wildlife populations.
   - Pursue self-mitigation strategies as basic components of project design; where possible, pursue opportunities for additional ecosystem 'uplift'.
   - Improve the monitoring and tracking of ecosystem function, habitat, and species needs throughout the Central Valley and Delta flood system.
   - Maximize application of new approaches to regional-scale project permitting, such as Regional Conservation Investment Strategies and Habitat Conservation Plans.
   - Ensure sustainable funding for long-term operations and maintenance of multi-benefit projects.

Goal #18: Support pathways to leadership and increase knowledge transfer across the Department.

This goal is one of several in the strategic plan about making DWR an employer of choice for those working in water management and flood management, she said. They are identifying specific ways they can grow the next generation of water leadership within the Department. Recently, Cal HR assumed some of the basic training which then enables the Department's training office to develop capacity in key areas, such as risk based decision making and diversity and inclusion.

"Part of my job and the job of the entire executive team is to help information flow better within the Department about where we're seeing success and where we're having challenges, and to do that in an open way so we can identify those roadblocks and try and move them out of the way," said Ms. Nemeth. "We can't resolve problems that we don't know about, and so it may be that through that process that identifies ways in which we can be working better with other state agencies, it may identify ways that we can work better with the Commission to help us work through issues that are challenging the Department and are really beyond our control."



DELTA CONVEYANCE PROJECT

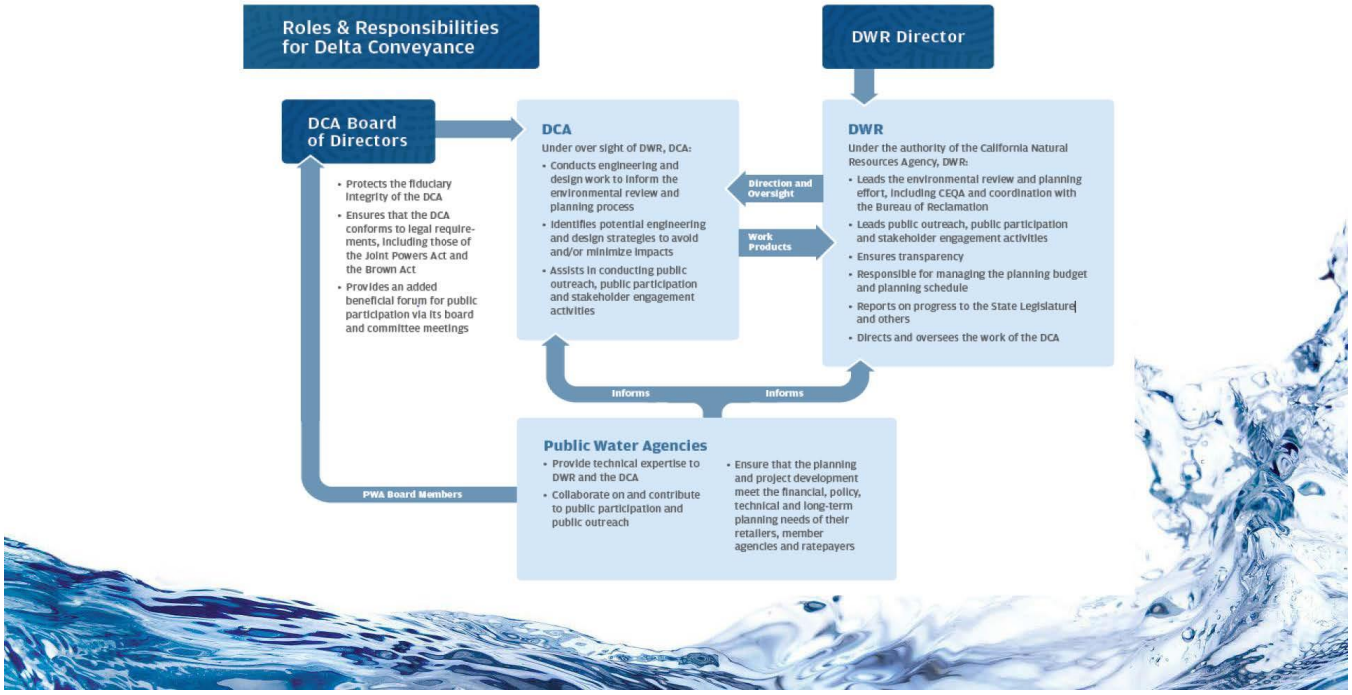
Next, Ms. Nemeth turned to the Delta conveyance project. She noted that conveyance in the Delta as has been long discussed in California. To recap the history, the recent decade-plus effort began as the Bay Delta Conservation Plan which ultimately became the California Water Fix; in July of 2017, the California Water Fix project was approved by the Department, and further refined in 2018 and 2019.

During Governor Newsom's State of the State address, he identified a smaller single tunnel project that he wanted his administration to pursue, so the Department has been working on that since February. In late April, he issued an executive order which directed state agencies to develop the Water Resiliency Portfolio, and he identified and reiterated his support for a single tunnel project in the Delta to help connect water management in California and enable it to take water during times of intense precipitation. In the beginning of May, the Department of Water Resources withdrew all of the California Water Fix approvals and in August, they terminated the last permit associated with the project.

"We are starting anew with our planning," said Ms. Nemeth. "The Department of Water Resources is launching a new environmental review process for a single tunnel conveyance project and alternatives to that project. That is taking place in several ways. One is to produce a project that will be more responsive to the level of impact in the Delta, which is crucial having a better discussion around the purpose of the project, the need for the project, and building greater trust around how that project will be operated."

She presented a chart depicting the roles and responsibilities of the Department of Water Resources, the Delta Conveyance Design and Construction Authority, and the public water

agencies in the project's construction. The Department of Water Resources is the lead agency for the CEQA document, and they are working very closely with the Delta Conveyance Design and Construction Authority (or DCA) which is a JPA of state water contractors that was established towards the end of last year to originally work on the design and construction of the California Water Fix.



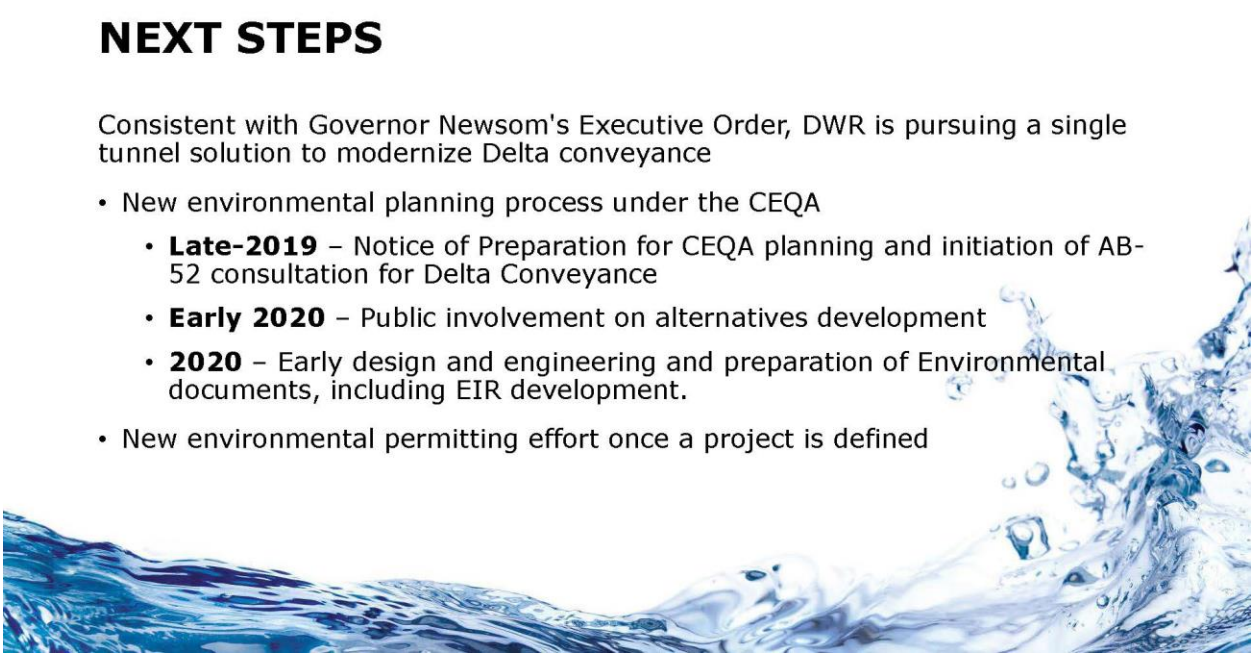
"As someone having been around this conveyance project for a long time, it was significant when the Department in 2009 put the project underground as a way to avoid a significant amount of permanent impact in the Delta," Ms. Nemeth said. "I think one of the things we learned in the California Water Fix project, particularly over the course of sorting through issues around Delta as a place, was that the logistics and potential construction of the project really drives a lot of the construction impacts, and those construction impacts would take place over a ten year period and would be very intense for people and communities living in the Delta."

"So the Design and Construction Authority is charged with additional engineering work and logistics work that would help us determine an alignment that can improve upon the 'temporary' impacts of construction," she continued. "I want to be clear about the asterisks around temporary. Ten years is a long time to live in a construction zone, there's no question, and the Design and Construction Authority is going to start very shortly a very intensive public involvement process to help generate more information that can feed into both our Notice of Preparation and into the alternatives that the Department would propose."

Ms. Nemeth noted that they are working on initiating stakeholder engagement for Delta conveyance, assessing lessons learned from the 90,000+-page Cal Water Fix documents, and developing an approach for soil investigations.

The Department is also working with the state water contractors to generate an Agreement in Principle around cost allocation for the project. "Simply put, this is for folks who don't see the benefit of a conveyance project making arrangements for them to be shielded from any costs associated with the project, but also helping the state water contractors articulate their benefit and subscribe up front so that we can work with the Governor and with the Natural Resources Agency and the Governor to determine a right-sized project."

As for next steps, later this year, the Department will issue a Notice of Preparation for the CEQA document. In early 2020, there will be scoping meetings and activities to generate important public involvement on alternatives. Then later in 2020, they will have some early design and engineering completed to help people understand what the project is.



"Our goal is to have that information developed in enough detail that we can generate significant discussion around ideas for not only mitigating and avoiding or minimizing the impacts of the project, but also identifying potential benefits that could come with the location of these facilities," Ms. Nemeth said. "Some of it is related to the construction effort, such housing for folks during the construction period, but also longer term benefits where we can co-locate community amenities with the facilities."

They will then begin working on all the permits required for the project, such as compliance with the Endangered Species Act, the California Endangered Species Act, the water right change for the point of diversion, and a consistency determination with the Delta Stewardship Council's Delta Plan.

Regarding the soil investigations, they are now mapping out a 36-month period of soil testing in the Delta, both on land and over water; this will be drilling core samples the size of a softball or a basetball, she said. They are also working towards more geophysical surveys. "We most recently have had some interaction with the tribes based on AB 52 and a new requirement for

tribal involvement in the project and much to my pleasure, we have active engagement from about 15 or 16 tribes in the Delta, particularly around this topic of soil investigation."

"So that's all I have for you today … "

DISCUSSION PERIOD

Commissioner Andrew Ball asks about the soil and geotechnical surveys for the tunnel. "We were just talking about some of the early years of the Water Commission and the contentious meetings that occurred here around the borings and the taking of land, the mitigation of their property, and how everybody was upset about that. So it appears that with the new geotech reports that you're planning a new route or new routes for this and abandoning the old routes? I just want to confirm you're not going to run the tunnel in the old location where all the geotech tests were done and that you're planning a new route, and when will that new route or routes be made available?"

Karla Nemeth replied that the there isn't enough information yet to make that the decision. "The Department, through the Design and Construction Authority, is putting a lot of emphasis on collecting additional information that can help us determine what kind of route is the best for the tunnel and is better for the community in terms of temporary construction impacts in the Delta, so we have not yet decided. We won't frankly be able to decide until we go through the extensive CEQA review process, but that's why we have identified the more detailed set of information that we want to generate through the soil borings. That information is planned to help us identify an alternative and then move past through that and work through some of the more immediate pre-construction kinds of needs. So we don't have an alternative yet as it relates to alignment; it may be that the alignment is very similar to the previous alignment in the California Water Fix project, we just don't have enough information."

Commissioner Ball asked if they had a target total capacity for the tunnel.

"I think we'll be in a position to look at multiple ranges of capacities potentially in the range of 7500 cfs down to 3000 cfs and everything in between there," said Ms. Nemeth.

"The total capacity is another topic of significant interest," said Commissioner Ball. "All of these things that we thought were behind us are going to be quite contentious, I would assume."

"I think this project has such a history in California, we can't avoid and we shouldn't avoid those kinds of discussions," said Ms. Nemeth. "It's my goal to have better information to articulate how capacity matters in the context of moving water when its wet, better information about how the project will operate and what it will physically look like, and tangible ways in which we can either avoid all together or drastically reduce mitigation. I think the struggle with the previous document which had 15 alternatives and a lot of information is that we had such a wide spectrum of potential impacts that the Department was proposing to mitigate that it was very difficult for people, especially people living and working in the Delta, to understand what they needed to worry about and how to focus on what could be happening right in their backyard, so we want to fix that and improve upon the quality of information that we have in the document."

Commissioner Matthew Swanson asks how the 3000-7500 cfs tunnel compares to the capacity of the two-tunnel project.

“The two-tunnel capacity was 9000 cfs,” said Ms. Nemeth. “If there’s one point that I can leave you with, is that that sort of ultimate size is meant to capture water when its safe for fish and when there are enormous quantities of water moving through the system. With the previous project, the approach to operating the new facility was that the intakes had specific rules and could only take water when there was significant volumes moving through the Sacramento River. To me, the thing to really focus on when it comes to capacity and capacity associated with a single tunnel project is how do we do the best that we can during these large storm events which we anticipate will occur with greater frequency? The other anticipation is that while they occur with greater frequency, it also means we’ll be in longer deeper droughts, so the idea of the project is to be able to capture these bigger storm pulses of water and that’s really what the capacity discussion is around. I think what you’ll see the Department doing in the future is updating some of our climate assumptions to understand the frequency with which such a facility could operate at capacity, and then what the facilities role would be in our more typical operations in the Delta.”

“The key feature of a conveyance project is to provide flexibility,” said Ms. Nemeth. “There are lots of rules in terms of how do we establish environmental flows in the Delta and protect those flows so we can support our native fisheries. For the Department, in terms of a new intake in the north Delta, a huge benefit is this notion of real-time operations and operating facilities, or being able to operate facilities when fish are not present. So technology and how we approach the operation of the State Water Project and turning it towards real 21st century kinds of ideas is essential. You’ll see that when we start talking about the State Water Project generally speaking, and so the notion of another set of intakes on the Sacramento River is meant to provide that degree of flexibility so that we can take water from the system when its safest for fish and have the flexibility to move water and store it, put it in groundwater basins, put it in San Luis Reservoir and use it during drought periods.”

“I was talking to Secretary Crowfoot the other day and chatting about how things go fast in an administration and what are the few things you really want to accomplish,” continued Ms. Nemeth. “Something that’s very important to me is to greatly improve the transparency of the operation of the State Water Project. It’s difficult, it’s a complicated system, it’s not a very easily accessible system, and we have a lot of technology that I think could tell a better story about how we’re operating the project, even right now, about why and how much water is moving. I think when we’re working with the communities that we serve to invest significant amounts of money and infrastructure and we’re working with folks in the Delta around this very scary notion of if you build a facility, you’ll just operate it whenever you want to, to the detriment of the Delta, that transparency just becomes increasingly important. With flexibility comes a greater degree of accountability and transparency in my mind, so that’s going to be one of the things State Water Project writ large, you’re going to see the Department working to improve.”

“As you talked about the greater transparency and some of the new division and the tunnel work that you’re about to undertake, do you and can you say anything about how you see the relationship between DWR and the Commission and how that plays into some of those areas?,” asked Executive Officer Joe Yun.

“To me, this is a first start, and I envision either coming back myself or someone else from the Executive Team often, especially since the issues are not simple, and they are in fact are quite interrelated,” said Ms. Nemeth. “We are in a moment where there’s a need for significant reinvestment across the system, and so I am very eager to reinvigorate the partnership between

the Department and the Water Commission on all kinds of topics as a way to not only get the benefit of your insights and enable you all to fulfill your responsibilities, but also interact with the public and as an executive agency. Unless we're doing projects, we have various touchpoints with the community, but we don't always have natural touchpoints in public settings on these kinds of integrated topics, so I am very enthusiastic about reinvigorating our relationship so we can serve that function."

# # #

OR MORE INFORMATION …

- Click here for the agenda, meeting materials, and webcast for the August meeting of the California Water Commission.
- Click here for the DWR's page on Delta Conveyance.
- Click here for the Delta Conveyance Design and Construction Authority.

California farmers face ‘catastrophic’ water restrictions. Can they adapt to survive?
Sacramento Bee | September 25, 2019 | Dale Kasler

It was 2015 and, as far as John Konda knew, farming still had a viable future in the San Joaquin Valley.

So he expanded.

The Tulare County grower planted 75 acres of pistachios, adding to a farm he’s owned since 2003. Two years later, in order to augment his water supply, he drilled two new groundwater wells.

Now he wonders whether the investments, totaling more than $1.5 million, will turn out to be a costly mistake.

Stoking his anxiety is California’s Sustainable Groundwater Management Act, or SGMA. Starting next January, the law will require farmers to gradually rein in the amount of groundwater they can pump from their wells.

It could devastate the economy of the entire San Joaquin Valley.

In a region where agriculture is king — and the ability to extract the water beneath one’s soil has been practically a birthright — a difficult reckoning is coming. Farmers will have to start throttling back their pumps, dramatically altering how they cultivate one of the world’s most fertile valleys. Some land probably won’t survive as farms at all.

Although the law will take 20 years to fully take effect, the impact on the San Joaquin Valley will be considerable. Water is in chronically short supply around the Valley to begin with, and the region’s groundwater basins — over-pumped for decades, especially during the drought — are in worse shape than anywhere else in California.’

To bring the Valley’s aquifers into balance, the Public Policy Institute of California says anywhere between 535,000 and 750,000 acres of Valley farmland will have to be retired eventually.

That will mean a lot fewer pistachios, grapes, almonds and tomatoes — and tremendous upheaval in a region that already under-performs the rest of the state on a host of socioeconomic measures.

In Tulare County, where unemployment is already 9.2 percent, the anxiety is growing week by week. Some growers are already curtailing planting, and land prices are tumbling as farmers unload their properties.

“The stakes are dire,” said Bryce McAteer, who until recently ran the groundwater sustainability agency that will enforce pumping restrictions in the 160,000-acre Eastern Tule region of Tulare County. McAteer said as much as one-third of Eastern Tule’s land could go out of production eventually, and already the region’s farming industry is beginning to wither.

“We’re hearing tales of folks having trouble getting their operating loans,” he said. “We’ve heard growers say they’ve not been planting wall to wall.”

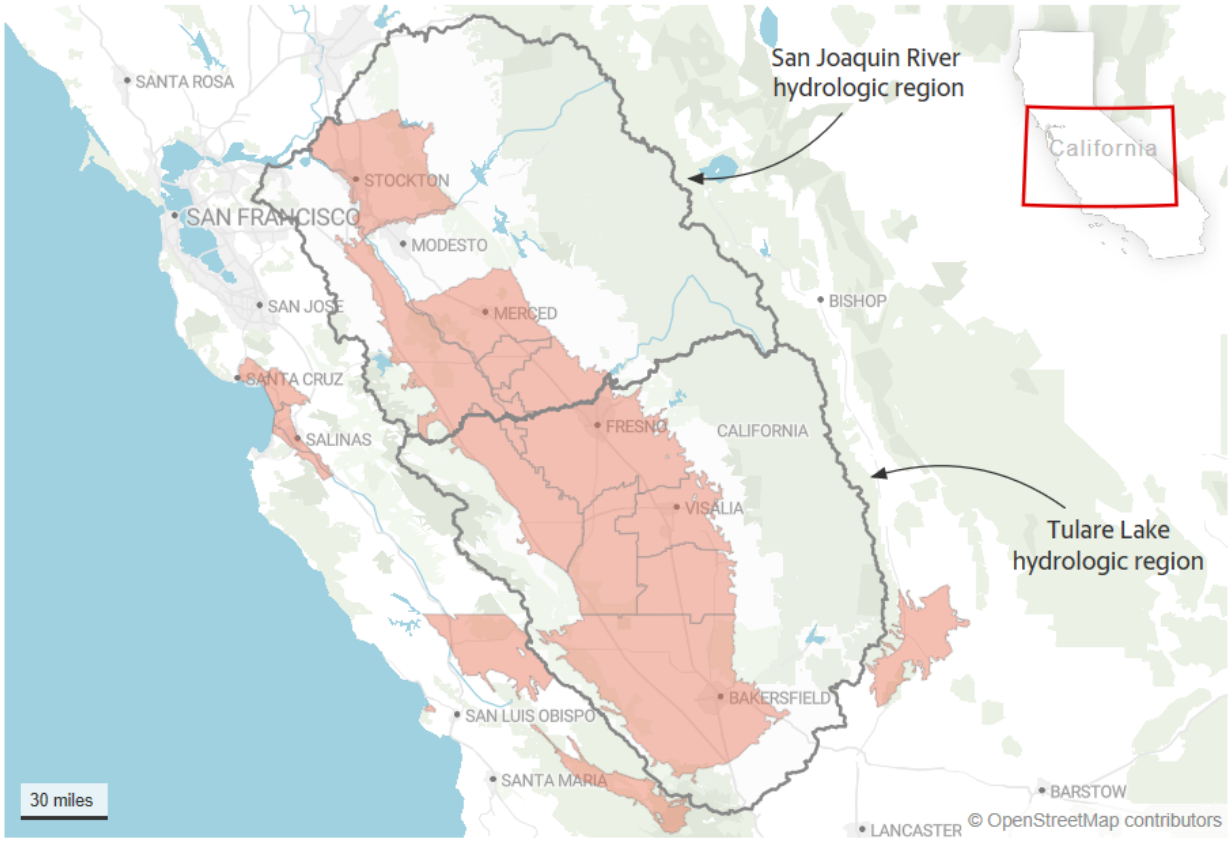
The SGMA law (pronounced “sigma”) says groundwater basins must be brought into “sustainability” — defined as cutting consumption to the point that they’re no longer causing “chronic lowering of groundwater levels” or other “undesirable results.” To implement the law, dozens of regional groundwater agencies have been set up. The January launch has managers scrambling to figure out just how much less water their farmers will have in the future.

Eric Limas, who runs a groundwater agency in the Pixley area of Tulare County, says his water allotment will be downright frightening: Farmers on his turf will have to curtail their groundwater usage by 40 percent eventually.

“You’re talking devastation here, in the catastrophe spectrum,” Limas said.

WATER SHORTAGES

California's Sustainable Groundwater Management Act will require farmers to pump less groundwater. The restrictions will be stricter in the groundwater basins designated as **"critically overdrafted,"** including most of the San Joaquin Valley.



Map: Michael Finch II • Source: California Department of Water Resources

It could get worse. The Public Policy Institute’s main water expert, Ellen Hanak, said climate change could lead to even more land retirement.

Here’s why: Historically, the Sierra Nevada snowpack acts as a second set of reservoirs. When it melts, the runoff replenishes the reservoirs, providing enough water for the dry months. But as winters get warmer, more of the precipitation will fall as rain instead of snow. The runoff will

come too quickly for the reservoirs, and much of the water will wind up in the ocean. That will leave less water for agriculture in the decades to come.

In Terra Bella, Konda is simply wondering how he can get through the next few years.

Konda, who relies entirely on groundwater to supply his 460 acres of pistachio and citrus trees, fears he could be forced to retrench. In a few years he might have to yank some of trees out of the ground — the less valuable navel oranges would probably go first — to save enough water to keep the remaining orchards going.

Konda was vaguely aware of the groundwater law before he planted his pistachios — it was enacted in 2014 — but says he didn't grasp the implications of the law until later.

"It's been a long learning curve," he said.

HOW GROUNDWATER LAW WILL HIT THE VALLEY

California's groundwater law is expected to force the retirement of at least 534,760 acres of San Joaquin Valley farmland by 2040. It will also eliminate at least 12,700 jobs. The annual financial cost to Valley agriculture:

Industry	Minimal trading
Crops	$ 956.000 m
Dairy and livestock	$ 1.662 b
Food processing	$ 1.784 b

Source: Public Policy Institute of California • Get the data

Farmland is sinking

Agriculture accounts for 20 percent of the Valley's entire economic output and 18 percent of its jobs, according to the Public Policy Institute. At the same time, agriculture's water supply in the Valley has long been tenuous, even in rainy years.

It's telling that when former Gov. Jerry Brown officially declared the end of the drought in 2017, he kept emergency conditions in place in three Valley counties — Fresno, Tulare and Kings — as well as Tuolumne. That's still in effect, and those counties remain eligible for drought-related state assistance.

The arrival of the state's groundwater law has reignited a debate over state water policies and who's to blame for the desperate condition of the Valley's aquifers.

During the drought, farmers were criticized for pumping so much groundwater that portions of the Valley floor literally sank. That phenomenon, known as subsidence, can compact the layers of soil and make it impossible for aquifers to fully "recharge" in wet years, scientists say.

Farmers also took heat for planting crops such as almonds, whose footprint more than doubled over the past 20 years to more than 900,000 acres. The problem: Almond trees are

comparatively thirsty and, unlike row crops such as tomatoes, can't be fallowed during dry years. They have to be watered, no matter what.

For their part, farmers said planting almond trees was a rational economic decision; it made perfect sense to devote a scarce resource to a high-value commodity. And they refused to apologize for pumping groundwater. Instead, they blame the state for environmental restrictions that have curtailed their access to "surface" water from the Sacramento-San Joaquin Delta, leaving them no choice but to use groundwater to keep their farms alive.

They don't dispute the idea that groundwater basins must become sustainable. But they're furious that their livelihoods are being threatened, along with the heart of the state's $50 billion-a-year farm output.

"The areas that are being impacted the most are the counties that the most prolific food growers in the United States," said Joey Airoso, a dairy farmer in Pixley. "Who gets to feed 40 million people? Do they have a plan for that?"

Mary-Ann Warmerdam, a lobbyist with Rural County Representatives of California, said most members of the Legislature haven't grasped the enormity of the potential economic harm that could befall the region.

"I don't sense that members, outside of that small circle of San Joaquin Valley representatives, are really focusing on it," she said.

Top state officials insist they're on top of the issue. Wade Crowfoot, secretary of the state Natural Resources Agency, said Gov. Gavin Newsom's administration is formulating plans for economic assistance to help the Valley cope with a transition that promises to be difficult.

"I'm not suggesting there are any silver bullet solutions here," Crowfoot said. "Everybody acknowledges two things about SGMA: One, it's absolutely necessary. And two, it's going to have substantial economic impacts."

Pressure on a weak economy

California's groundwater law won't affect all parts of the Valley equally. A sad truth is that it will hit hardest in places that are most reliant on groundwater and most fragile economically.

"The further south you go into the Valley, the higher degree of agriculture dependence you have. And you also hit the more severely over-drafted basins as well," said economist Jeff Michael of the University of the Pacific.

John Corkins lives and works in one of those ground-zero areas — near Porterville in southern Tulare County, where the aquifers are in terrible shape and the fear factor is growing.

"We're scared to death down here," Corkins said, pulling out of his desk drawer an economic report predicting billions of dollars in crop losses.

Porterville farmer John Corkins checks on his grapefruit orchard which is drip irrigated with about 60 percent coming from groundwater, on Tuesday, Sept. 17, 2019. CRAIG KOHLRUSS ckohlruss@fresnobee.com

Corkins runs an ag-consulting firm called Research for Hire. He also grows grapefruit and olives on 300 acres in Tulare and Kern counties. Some of the land gets water via canals from the area irrigation district; about 40 percent is dependent on groundwater, and Corkins believes the state law will bring economic misery to an area where the unemployment rate sits at 10 percent.

In a few years, “we’re going to be starting to ratchet things down,” he said as he inspected a groundwater well and his grapefruit trees — a sweet variety called Melogold. “There will probably be fewer of us sitting around the coffee shops in 2040.

“The number of jobs that are going to be lost in this area is going to be dramatic. People that don’t have a second skill are going to be losing their jobs.”

Consuelo Andrade, 41, is not an expert in California’s arcane groundwater law — but she understands that her livelihood would be threatened if some of the farmland in Tulare County starts going idle.

“Where are we going to get money? How are we going to survive?” she said through a translator.

Life is hard enough as it is. Andrade, who came to the United States nine years ago, picks oranges, lemons, grapes and olives from November to April. She gets paid by the number of bins she fills; it works out to $40 to $60 a day, but she’s on food stamps now because it’s off season and she’s been caring for her 13-month-old daughter Guadalupe Ruby.

Her husband, Manuel Cisneros, 55, also works in the fields but he's been reduced to part-time labor because of diabetes and other health problems. They live in a $200-a-month rental in Strathmore.

What if the farms dry up and their incomes vanish? Unable to speak English, they doubt they'd be able to find much work in Tulare County. One possibility is moving to Oregon, where they've picked cherries before and there don't seem to be any water shortages.

"There's going to be an epidemic of people moving," Andrade said.

Farmland won't go out of production overnight. Outside experts say Valley farmers will have time to find alternative water supplies and make SGMA more palatable.

"You're not tearing out all your trees in 2020," Hanak said. "They have this 20-year horizon."

Some farm leaders are cobbling together groundwater trading markets that would allow growers to buy and sell pumping rights. No new water would be created, but a market would likely move more water to high-value crops like almonds, helping prop up overall farm income even as land is idled.

"You're farming almonds and I'm farming carrots. Your ability and willingness to pay for water is greater than mine. That's the economics," said Eric Averett, general manager of the Rosedale Rio Bravo Water Storage District in Kern County, which is building a web-based trading system.

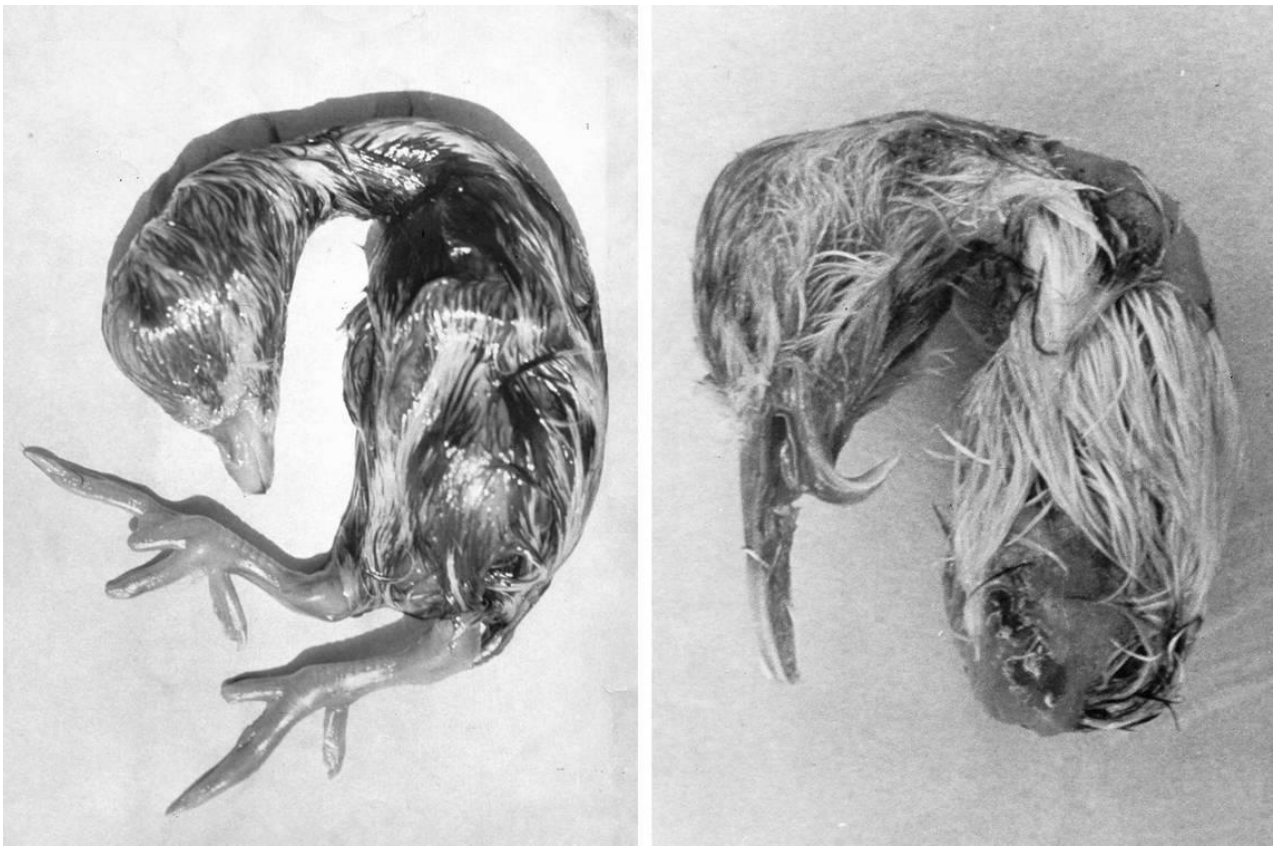
There could be drawbacks. Shifting more water to high-income commodities could "harden" water demand because trees must be watered every year.

And some worry about who wins and loses in any market-oriented scheme. The water could end up "flowing to the guys with the deepest pocketbooks," said Dan Vink, executive director of the South Valley Water Association, which represents several water districts in Tulare and Kern counties. "When you start matching up the corporate farms with the mom and pops, that's not a fair fight."

Other districts are studying construction projects that could allow them to import more water.

Westlands Water District is looking at spending millions of dollars on pipes and ditches to capture more flood flows off the Kings River. It also might build "recharge basins" to store supplies in new shallow reservoirs. The projects could cost millions and are in their early planning stages, but Westlands is adamant about trying to navigate the groundwater law without retiring any land.

It's an attitude rooted in a painful history. In the early 1980s, hundreds of waterfowl turned up dead and deformed at the nearby Kesterson wildlife refuge, one of the most notorious environmental disasters in California history. The birds were poisoned by irrigation water runoff that was tainted with salt and selenium, the result of improper soil drainage. The ensuing litigation spawned a settlement in the early 2000s that resulted in 85,000 acres of contaminated Westlands land taken out of commission.



An eared grebe, left, was born with no eyes and a back-necked stilt, right, was born without eyes and a deformed bill at the Kesterson National WIldlife Refuge in 1984 and 1984. Hundreds of waterfowl were poisoned by irrigation water runoff that was tainted with salt and selenium, a result of improper soil drainage. Fresno Bee file

No more of that, Westlands says. “I’m optimistic that we wouldn’t face any additional land fallowing in Westlands,” said Jose Gutierrez, chief operating officer. “Maybe we’ve already experienced the amount of fallowing we need to do.”

In Kerman, a farming region of Fresno County between I-5 and Highway 99, the McMullin area groundwater agency is angling to buy water from neighboring irrigation districts.

Because the McMullin area has no irrigation canals, it would have to invest heavily in infrastructure to import the water. But the alternative could be much worse. Without new water, the 250 farmers covered by the McMullin agency will have to reduce their groundwater use by one third over the next 20 years, raising the prospect of substantial land retirement.

“There’s water, and probably enough water to satisfy a large part of the need,” said general manager Matt Hurley. “It’s not sloshing, but there is water available.”

Will Newsom help farmers?

A few miles west of John Konda's farm in Terra Bella lies the Friant-Kern Canal, one of the most important arteries in California's water-delivery network. In recent years it's become a vivid symbol of the Valley's groundwater woes.

Years of over-pumping has caused portions of the Valley to sink. Some of the worst damage has occurred at a spot near Terra Bella. The ground has fallen so far that the Friant-Kern has sunk with it, creating a choke point. The problem feeds on itself: The canal has lost so much of its capacity to deliver water south that farmers say they're under even more pressure to tap their groundwater.

The Friant-Kern Canal in the San Joaquin Valley is sinking as parts of the San Joaquin Valley floor collapse because of subsidence, the result of excessive groundwater pumping during the drought. Bridges in this area of the canal, near Terra Bella, used to be 12 feet above the water's surface. Now it's one foot. Craig Kohlruss

Valley leaders have asked the state for help with the canal, so far without success. Last fall California voters defeated Proposition 3, which would have raised $350 million to fix the canal as well as funding for other water projects. This year farm groups rallied behind SB 559, which would have allocated $400 million for the Friant-Kern's repairs. But the legislation was converted into a "two-year bill" at the end of August, which means lawmakers won't take any action until next year.

Undaunted, Valley leaders are still pressing Sacramento for assistance with navigating SGMA. If the state would help bring more water to the Valley, they argue, the region could curtail its groundwater consumption without unraveling its economy.

"The Valley deserves the opportunity to try to control, help steer its destiny and minimize the impacts that might occur," said Austin Ewell III, a Fresno attorney and land-use consultant.

Ewell is chairing an effort called the Water Blueprint for the San Joaquin Valley, a suite of proposals aimed at augmenting the Valley's water supplies.

Some of the ideas are certain to arouse controversy.

Among other things, Ewell — who served for a time as deputy Interior secretary for water and science in President Donald Trump's administration — is trying to enlist state support for Trump's plan to move more river water to Valley farmers via the Sacramento-San Joaquin Delta, the hub of the state's elaborate water delivery network.

More water from the Delta could save as many as 200,000 acres of Valley land, by one estimate. But the state has already signaled its opposition to the Trump plan. Environmentalists say shipping more water to farmers would harm salmon and other endangered species that ply the fragile Delta.

On the other hand, Newsom has said he wants to find common ground between agriculture and environmentalists on water issues. Farmers cheered when he announced he would veto SB 1, a bill that would have essentially blocked the impact of every environmental rule proposed by Trump since he took office. Crowfoot said the governor is eager to listen to what Ewell's Blueprint consortium has to say about finding new water for agriculture.

"It advances the discussion," said Newsom's natural resources secretary.

Many farmers, however, remain skeptical that Sacramento will lift a finger to help them. Madera farmer Denis Prosperi is so fed up with Sacramento, he's partially bailed out of the state.

Two years ago, prompted in part by the groundwater law, Prosperi sold 400 acres of almond trees. He put the cash into commercial real estate — in Idaho.

"I don't like the politics of California," said Prosperi, who still owns 330 acres of vineyards in the Madera area. "They're going to legislate a lot of crops out of business."

Waking up on groundwater

It's not as if farmers were unaware of the significance of groundwater. It accounts for 38 percent of the state's total supply in a normal year, close to 50 percent or more in a dry year.

Nor was it any secret that Californians have been using too much of it. The Public Policy Institute says the Valley has been "overdrafting" its aquifers to the tune of 1.8 million acre-feet a year — enough to fill Millerton Lake, the giant Central Valley Project reservoir northeast of Fresno, more than three times over. In the drought, the overdraft reached 8 million acre-feet a year, according to the Public Policy Institute. An acre-foot is 326,000 gallons.

Still, even when Brown signed the sustainable groundwater bill into law in 2014, there was a sense of disbelief around the Valley.

"I said, 'They can't enforce this thing,'" said Corkins, the Porterville grapefruit grower.

Now he knows better. He sits on the board of a local groundwater agency and is watching water allocation plans come into focus. In his area, farmers will eventually have to cut their groundwater use by as much as 90,000 acre-feet, or one third.

“It’s not going to go away,” Corkins said. “You can’t put your head in the sand.”

Porterville farmer John Corkins checks on his grapefruit orchard, which is drip irrigated with about 60% of the water coming from wells, on Tuesday, Sept. 17, 2019. CRAIG KOHLRUSS ckohlruss@fresnobee.com

Corkins and his neighbors are in a particularly difficult spot. Much of their land is “white area,” meaning it isn’t served by an irrigation district and depends solely on groundwater.

Now some of that land is becoming expendable. Michael Ming, a land broker and consultant in Bakersfield, said farmers are selling out and “white area” land that sold for $15,000 an acre just four years ago has dropped to $7,500.

“The values are coming down dramatically,” said Ming, owner of Alliance Ag Services. “It’s a matter of coming to the realization that SGMA is real and SGMA is going to affect everybody.”

For John Konda, the alarm bells started ringing two years ago. He’d already spent a fortune drilling new wells and planting more pistachios and was negotiating to buy 200 acres of land from a neighbor. The cost: $4 million.

“Then,” Konda said, “I found out why they were selling it.”

The reason was the groundwater law. Konda walked away from the land purchase and began brushing up on SGMA. He joined the board of his local groundwater agency as the representative of “white area” growers like himself. Then he crunched the water numbers and realized he might have to abandon some of his 460 acres some day.

Unless he can find replacement supplies.

Konda and several of his neighbors are trying to do something audacious: They’re reviving the Hope Water District, an irrigation agency that went dormant decades ago, in hopes of turning it into a legal structure for bringing more water to the Terra Bella area.

How that would work, Konda isn’t actually sure. Water would have to be purchased from somewhere and canals would have to be constructed. He’s hoping to craft a solution that would somehow stave off the day when “the water goes down to the point that it doesn’t make sense to keep farming,” he said.

He thinks that day is still several years off. But in the meantime, he’s willing to explore some alternatives.

Just south of his property, he said a neighboring farmer has just made a deal to build a solar energy farm on 320 acres. The development has given him ideas about his own future.

“If we were to take some property out, and put it into solar, sure, why not? I’m open. Some kind of income is better than no kind of income.”

# # #

Water Policy Priorities for a Changing California
Public Policy Institute of California | September 24, 2019 | Ellen Hanak

How will climate change affect California water management, and what steps should the state take to prepare for these changes? The PPIC Water Policy Center was asked by the Newsom administration to submit formal comments outlining key water policy priorities for the state—and ways to integrate actions across state agencies to implement these priorities. Our recommendations will inform the administration's preparation of a water resilience portfolio. We address two key areas where the state can play a leading role—modernizing the water grid and protecting freshwater ecosystems.

California's "water grid"—the network of reservoirs, aquifers, rivers, and water conveyance and flood control infrastructure that connects much of the state—was built for a climate that no longer exists. Yet it is the most important asset the state has for addressing changing conditions, both statewide and within regions. A modernized water grid, coupled with more flexible management, can reduce the cost of future droughts, improve how we manage flood risk, and help protect freshwater ecosystems. The state has made important advances in assessing and improving its water supply infrastructure, but it still lacks a comprehensive program to address storage, conveyance, and operational challenges in the next few decades.

California's freshwater ecosystems present special challenges. The state's native biodiversity continues to decline, despite decades of effort to improve conditions. Problems encountered during the 2012−16 drought—high water temperatures, low flows, insufficient cold water stored in reservoirs, and degraded habitat—will all likely worsen as droughts become more intense. Management of cold-water-dependent species—including salmon, trout, and some resident fishes such as Delta smelt—will continue to pose a significant challenge for water managers and regulators as conditions warm. Changing habitat conditions could make it impossible for some species to remain viable in their historic locations. And conflicts between the need to protect native species and land and water management activities are likely to increase. Here, too, some promising actions have been taken, but more needs to be done to prepare for coming changes.

Tackling these complex challenges with an integrated water resilience portfolio is a bold step, and one that has the potential to make California a leader in climate adaptation. You can read our recommendations to the administration here.

# # #

BAY DELTA WATER QUALITY CONTROL PLAN UPDATE: Draft Biological Goals and Initial Compliance Methods for Lower San Joaquin River Flows
Maven's Notebook | September 23, 2019 | Maven

The State Water Resources Control Board has posted the draft biological goals for the lower San Joaquin River and its tributaries for public comment, and initial unimpaired flow compliance measures for the lower San Joaquin River.

BACKGROUND

The State Water Board is currently conducting a review and update of the Bay-Delta Plan to address reasonable protection of fish and wildlife beneficial uses in the Sacramento/Delta. The Bay-Delta Plan establishes water quality objectives for the protection of beneficial uses in the Bay-Delta watershed.

In December of 2018, the State Water Board adopted flow objectives for the Lower San Joaquin River and its tributaries as part of its update to the Water Quality Control Plan for the Bay-Delta. The Bay-Delta Plan requires development of compliance measures for the unimpaired flow requirements and the State Water Board to consider approval of biological goals for the Lower San Joaquin River within 180 days from the date of approval by the Office of Administrative Law, which approved the amendments on February 25, 2019.

DRAFT BIOLOGICAL GOALS

The Draft Initial Biological Goals for the Lower San Joaquin River outlines the quantitative metrics that the State Water Board would use to describe desired biological outcomes of flow and non-flow management actions. The biological goals assess progress towards meeting the Bay-Delta Plan's objectives of achieving and maintaining the natural production of viable native fish and aquatic species populations as well as inform adaptive management actions. The biological goals are not intended to be used for compliance purposes.

The proposed initial biological goals are focused on fall-run Chinook, which were selected due to their more abundant status than other sensitive indicator species and the availability of information and monitoring data for this species.

Written comment letters on the Bay-Delta Plan draft biological goals must be received by 12:00 p.m. (noon) on Friday, October 25, 2019. More specific information on submitting comments is outlined in the Notice of Availability.

After consideration of public comments and making any needed changes, the goals would be brought to the State Water Board for approval possibly by the end of this year.

READ THE DOCUMENTS HERE:

Notice of Availability for Public Review and Comment

Draft Initial Biological Goals for the Lower San Joaquin River

INITIAL UNIMPAIRED FLOW COMPLIANCE MEASURES FOR THE LOWER SAN JOAQUIN RIVER

The compliance measures document describes initial measures to monitor and evaluate compliance with the Lower San Joaquin River flow objectives and provides the general

conceptual basis the State Water Board would use to develop regulatory compliance measures in the future. The measures described in the document may be refined over time and serve as a starting point for identifying the compliance methods that may be required for implementing the Bay-Delta Plan.

The document focuses only on the unimpaired flow requirement and not other issues associated with adaptive management nor does it address any compliance methods or issues associated with the Voluntary Agreements. Alternative compliance methods for any voluntary agreements may also be developed and presented to the State Water Board for consideration as part of any voluntary agreements process.

READ THE DOCUMENTS HERE:

Cover Letter and Initial Unimpaired Flow Compliance Measures for the Lower San Joaquin River

Initial Unimpaired Flow Compliance Measures for the Lower San Joaquin River

FOR MORE INFORMATION …

All documents and more information are available at:
https://www.waterboards.ca.gov/waterrights/water_issues/programs/bay_delta/

# # #

California dam-raising project favored by Trump stumbles after water agency retreats
Sacramento Bee | October 3, 2019 | Dale Kasler

Congress has breathed new life into a controversial proposal to raise Shasta Dam, which would flood a stretch of the McCloud River, and tribal sacred sites some years. By Ryan Sabalow

Opposed by California officials, the Trump administration's $1.3 billion plan to raise Shasta Dam and increase reservoir storage has run into a roadblock that could delay the project or even kill it.

The state has called raising Shasta Dam a potential environmental disaster for the nearby McCloud River — and has succeeded in bottling up the project by obtaining court rulings that prevent Westlands Water District from preparing an environmental review required by state law.

Westlands, the giant farm-irrigation agency in the San Joaquin Valley, wants more storage in Shasta Lake and would be a crucial financial partner in the project with the U.S. Bureau of Reclamation.

The big blow came earlier this week, when Westlands announced it was halting the environmental review. The announcement came several days after the California Supreme Court decided against hearing Westlands' appeal of an earlier ruling that prevented the water agency from moving ahead on the study.

"It is disappointing and I don't know whether it will be the end of it or not," said Tom Birmingham, the general manager of Westlands. He added that Westlands hasn't abandoned the Shasta project, however, and federal officials said they are trying to find a way to keep the project going.

Westlands' announcement comes as feuding continues between California and the Trump administration on a range of environmental issues and other matters. The state has sued the Trump administration more than 60 times, and last week the U.S. Environmental Protection Agency threatened to pull billions in highway funds from California amid a dispute over greenhouse gas regulations.

On Monday, the federal government did back away from a plan to pump more water to farmers in the San Joaquin Valley from the ecologically fragile Sacramento-San Joaquin Delta this fall — a proposal opposed by the state. But more often than not, the two sides fight their environmental battles in court, and the Shasta Dam project has been no exception.

Raising the dam by 18.5 feet, as the federal government has proposed, would increase the storage capacity of Shasta Lake by 634,000 acre-feet, enough to fill two-thirds of Folsom Lake.

It would also back up the Shasta reservoir farther into the McCloud River, which feeds into the lake, and that's where the controversy comes in. California officials, environmentalists and members of the Winnemem Wintu Tribe say backing up the reservoir into the McCloud would harm the area's trout fishery and submerge sacred tribal sites in wet years. State officials said the plan would harm the "free-flowing condition" of the McCloud, in direct violation of the state's Wild and Scenic Rivers Act.

Birmingham, though, said the impacts would be minimal, and he said state officials are mistaken when they say the project would be ruinous. "There is not a single scientific, technical, thorough analysis conducted by any department or agency of the state on how enlarging Shasta Dam ... would affect the free-flowing condition of the McCloud River or its wild trout fishery," he said.

Raising Shasta Dam has been discussed for decades. Former President Barack Obama's administration effectively shelved the project over funding issues, but the Trump administration resurrected it. Last year Congress appropriated $20 million for pre-construction planning, although Democrats thwarted a proposal by Republicans, led by then-House Majority Leader Kevin McCarthy of Bakersfield, to exempt Westlands and other farm water agencies from having to contribute money to the project.

Under federal law, the U.S. Bureau of Reclamation can't raise the dam unless local water agencies such as Westlands put up at least half the money. So far Westlands is the only agency that has publicly declared any interest in funding the project.

Jeff Hawk, a spokesman for the Bureau of Reclamation, which operates the dam, said "we continue to explore options" with other local agencies to pay for the project.

Environmentalists, however, hope Westlands' retreat marks the death knell for raising Shasta Dam.

"It is a setback for the project; we hope it signals to any potential cost-share partners that it's not a project worth supporting," said Nina Robertson, a lawyer with Earthjustice, the environmental law organization that worked on the lawsuit against the project. "It violates state law and it's not a good project."

Critics of the project have noted that Trump's Interior secretary, David Bernhardt, is a former lobbyist for Westlands, which would benefit from the extra storage capacity at Shasta.

Westlands officials have said Bernhardt had never lobbied the government on the Shasta issue, and Bernhardt has denied violating any ethics rules.

The irrigation district, which sprawls over several hundred thousand acres in Fresno and Kings counties, has been pursuing the Shasta project for years. In 2007 it bought a seven-mile stretch of land along the McCloud River, including an exclusive private fishing club, for $35 million to

smooth the way for the dam raising. Birmingham was worried that developers might someday build expensive homes on the river, making the dam project almost impossible.

In July, after environmentalists and the California attorney general sued, a judge in Shasta County Superior Court halted Westlands from working on the environmental review. However, Birmingham said the water district is allowed to conduct a narrow study of whether the project would harm the river or its trout fishery.

“We now have to step back and figure out how long it will take us to prepare this analysis in the abstract,” Birmingham said. “Undoubtedly it will take some significant time.”

If the district concludes the project won’t harm the river or fish, it could try again to prepare a formal environmental study. But Birmingham predicted that it would get hit again with litigation from project opponents.

# # #

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Environmentalists push for removing dam along Colorado River
Washington Post | October 2, 2019 | Felicia Fonseca

This Aug. 21, 2019 image shows Glen Canyon Dam in Page, Arizona. Environmental groups that have long pushed to bring down the dam along the Colorado River filed a lawsuit Tuesday, Oct. 2, 2019. They allege the U.S. Bureau of Reclamation ignored climate science when approving a 20-year operating plan for the dam. (Susan Montoya Bryan/Associated Press)

FLAGSTAFF, Ariz. — Environmental groups that have long pushed to bring down a huge dam along the Colorado River are suing the federal government, alleging it ignored climate science when approving a 20-year operating plan for the dam near the Arizona-Utah border.

Glen Canyon Dam holds back Lake Powell, one of the largest man-made reservoirs in the United States. It and Lake Mead, which straddles the Arizona-Nevada line, are key to ensuring Colorado River water gets to the 40 million people and the more than 7,000 square miles (18,000 square kilometers) of farmland that depend on it.

Drought and climate change already have reduced the river's flow, forcing seven Western states to adopt a plan earlier this year to ensure the lake elevations don't dip too low.

The environmental groups _ Save the Colorado, the Center for Biological Diversity and Living Rivers _ say climate change will lead to such scarcity of river water that Glen Canyon could become inoperable.

They sued the Bureau of Reclamation in U.S. District Court on Tuesday. Aside from wanting the dam's 2016 operating plan to be revised, they want to force a discussion on draining Lake Powell and removing the dam.

"We need something new. It's not working," John Weisheit, co-founder of Living Rivers, said Wednesday. "It's not true river restoration. We're not getting sustainability for people or

agriculture. We need long-term, visionary thinking and discussion, and this lawsuit will help create that."

Bureau of Reclamation spokesman Marlon Duke declined to comment on the lawsuit.

The agency has disputed that it ignored climate science and said using Lake Mead as the primary or only reservoir on the Colorado River fell outside the scope of its study on Glen Canyon's operating plan.

The plan allows for experimental releases of water to maintain hydropower and to mimic the river's natural flow. High-flow experiments are meant to build sandbars through the Grand Canyon to benefit native fish like the humpback chub, create beaches for river rafters and protect archaeological sites.

Glen Canyon Dam sits at the edge of Page, Arizona. Completed in 1964, it's the second-tallest concrete-arch dam in the United States, behind Hoover Dam near Las Vegas. While Hoover Dam is anchored in solid volcano-baked basalt, Glen Canyon Dam spans a gorge lined with sandstone.

Anne Castle was assistant secretary for water and science at the U.S. Interior Department when work began to revise Glen Canyon Dam's operating plan. She said the initial environmental review included a "fairly extensive" discussion of climate effects and questioned why environmentalists would want it revised under an administration often criticized for rolling back regulations.

Castle said it's unlikely Glen Canyon Dam would be built today but decommissioning it would have "really significant, adverse consequences for big sectors of the economy, and I don't think that would be undertaken lightly."

Jack Schmidt, director of the Center for Colorado River Studies at Utah State University, said the conversations that environmentalists are seeking already are happening about managing the entire Colorado River system.

The Glen Canyon Dam plan was an incremental decision about how best to operate the dam under existing and old paradigms, he said.

When negotiations start on what will guide the river beyond 2026 when current guidelines expire, he said "everything is back on the table."

# # #

A historic bid for limited boating at Hetch Hetchy Reservoir
San Francisco Chronicle | September 29, 2019 | Tom Stienstra

Hetch Hetchy Reservoir, viewed from airplane, collects water from the Grand Canyon of the Tuolumne in Yosemite National ParkPhoto: Tom Stienstra / The Chronicle

A landmark proposal to allow rental kayaks, canoes and electric-powered boats for the first time at Hetch Hetchy Reservoir in Yosemite National Park is being considered by U.S. Secretary of the Interior David Bernhardt, who has oversight over the national parks system.

The process started a year ago when Spreck Rosekrans of Restore Hetch Hetchy met with former Interior Secretary Ryan Zinke in Yosemite. That meeting went well, both said, and Zinke then tweeted, “Taking a fresh look at different opportunities and options to restore public access and recreation to the valley.”

Rosekrans then teamed with Curtis Knight of California Trout, Inc., who proposed allowing limited boating access — “environmentally sensible access” — in a formal letter to Bernhardt. When Bernhardt was contacted this past week, he did not have a public response.

Hetch Hetchy is the jewel that fills what many call a second Yosemite Valley. Since it was first filled with water in 1923, the public has been forbidden from boating on it. The San Francisco Water Department and Public Utilities Commission operates the dam and manages water releases.

For the past century, San Francisco water managers have taken a firm position to bar public access at its lakes, including Upper and Lower Crystal Springs, San Andreas and Pilarcitos in

the 23,000-acre Crystal Springs Watershed on the Peninsula, and at Calaveras and San Antonio reservoirs near Sunol. Other water districts have followed suit, and across the region, the public is banned from boating at more than 40 lakes, a lack of public access believed to be unique in America.

In my conversations with Zinke and Bernhardt, each were friendly, upbeat and emphasized that improving public access, reducing litter and enhancing the quality of experience at national parks in the future were priorities at the Department of the Interior.

Change in the air

After those meetings, Interior raised entry fees at many national parks to create a new fund for park infrastructure repair. In August, Bernhardt issued a directive that ordered national parks to develop rules that would allow electric bicycles wherever mountain bikes are permitted; in California, that is mostly on roads.

The Chronicle obtained a copy of the letter to Bernhardt, which was also addressed to San Francisco Mayor London Breed and copied to Ann Moller Caen, president of the San Francisco Public Utilities Commission; Michael Reynolds, superintendent of Yosemite National Park; and Wade Crowfoot, California Secretary for Natural Resources. Since the letter was sent, there have been no on-the-record discussions about the proposal, Rosekrans said.

“The public has been shortchanged,” writes Rosekrans and Knight. “Promises of access and improved recreation have never been realized. The time has come to welcome the American public back to Hetch Hetchy.”

National parks with major lakes where boating is permitted include the Grand Tetons. That is significant because the National Park Service’s acting deputy director of operations David Vela worked for years as the superintendent at Grant Tetons, where kayaking and boating tours are popular at Jenny Lake.

Past, present, future

Hetch Hetchy is nestled in a deep granite valley where Kolana Rock rises up in a massive glacial-sculpted dome and Hetchy Dome juts up at a 45-degree angle. It is fed by three waterfalls, including 1,400-foot Wapama Falls, which pounds through a gorge and then cascades into the lake. A trail is cut into the rock that traces along a brink above the far shore, past Wapama Falls (at a hiker’s bridge) and then cuts inland to Rancheria Falls.

A study released in August showed that draining Hetch Hetchy and removing the dam to create a second Yosemite Valley as a visitor destination could create an economic value that could exceed $100 billion.

The idea of a crusade for boating access at Hetch Hetchy emerged when Rosekrans realized that Americans are being excluded from a public waterway in a national park.

“Boating on Hetch Hetchy Reservoir would be an attractive option for those unable to hike Yosemite’s trails, including military veterans disabled while serving our country,” Rosekrans and Knight wrote.

The proposal would not allow private boats or gas motors on the lake, but would make room for tour boats so the public could get on-the-water views of Wapama Falls, Kolana Rock, Hetch Hetchy Dome and the head of the lake where the Tuolumne River emerges from the Grand Canyon of the Tuolumne.

Fishing is already permitted at Hetch Hetchy, but its steep sides make for difficult access. The lake has a significant population of brown trout and a sprinkling of rainbow and brook trout. They are supported by a rich aquatic food chain with a small minnow-like baitfish called a roach.

Researchers with Restore Hetch Hetchy studied the 1913 Raker Act, which allowed San Francisco to build the dam at Hetch Hetchy, and found that it promised to improve public access, Rosekrans said.

“Boating on the reservoir would comply with both the letter and spirit of the Raker Act, which promised improved public access,” Rosekrans and Knight wrote Bernhardt. “San Francisco received its benefits long ago, but the American people have not.”

# # #

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A look at the Klamath River and those who depend on it
Siskiyou Daily News | September 25, 2019 | Barry Kaye

A plan to remove four dams – one of the most ambitious river restoration projects ever attempted – is either mocked or praised depending on the audience. It will expand salmon habitat or destroy a fishery. The only certainty is that lives will change forever.

The Klamath is an upside down river.

It starts in a valley and ends in the mountains. Water temperatures at its source are warmer than when it meets the Pacific Ocean 257 miles away. It begins as a chemical stew and terminates teeming with life. It is the second largest river in California. And now one of the most controversial.

A plan to remove four dams – one of the most ambitious river restoration projects ever attempted – is either mocked or praised depending on the audience. It will expand salmon habitat or destroy a fishery. The only certainty is that lives will change forever.

So goes the Klamath. Beautiful and fascinating yet divisive and troubled. Algae blooms in summer make portions of the river unsafe for swimming. Warning signs are posted. Other parts remain breathtaking and unpredictable, unchanged for thousands of years. Half agricultural lifeline, half wild and scenic watershed. Two different rivers.

Breaking point

For the people who live along its shores finding common ground has proven elusive. Sometimes there is just not enough Klamath to go around.

The first breaking point was the summer of 2001. It is one of the most famous photos of the era. Angry farmers in Klamath Falls, Oregon, used crowbars to pry off government locks and open the irrigation lines to the “A” Canal, which ran through the center of town and supplied water to 1,400 farms and ranches. It was shut down to protect endangered fish.

Local authorities chose not to interfere claiming a lack of jurisdiction. These were the friends and neighbors after all struggling to feed their families. Armed U.S. Marshals were brought in to restore order. Crops withered in the field.

The following year after a second straight drought no such protest was needed. The federal government intervened making sure enough water was diverted to help farmers feed livestock and save their crops’ root structure.

Two months later, 34,000 fish died downstream, according to government records. Official cause of death was gill rot disease. Locals say they will never forget the smell. It was a tumultuous time. A river that gave life could also take it away. Two bookends to the Klamath equally devastated. Some farmers never recovered.

“These were really good people who didn’t deserve what happened to them,” said Dan Keppen, former executive director of the Klamath Water Users Association. “Nothing like that had ever been done before. There had never been a reclamation project in the West that had completely curtailed supplies to the people it was intended to serve.”

While the financial cost could be measured by lost crops and plummeting real estate prices, the human toll was more difficult to assess. Cases of domestic violence increased. School enrollment dropped as families moved away. Farmers and ranchers who had once been promised “water for life” were left with a flood of uncertainty.

“It was difficult to see the impact on families,” Keppen said. “There was a (local) pharmacist who said his prescriptions for dealing with depression were 50 percent higher that summer.”

Keppen is now head of the Family Farm Alliance, an organization that represents water rights in 17 western states. He remains optimistic an agreement can eventually be reached. Former adversaries are now collaborators. Yurok tribal members from the mouth of the Klamath have visited potato farmers in southern Oregon.

“In order to have a true solution everybody is going to have to give up something,” he said, “and that means coming up with some sort of agreement about how water can be shared for the benefit of the entire watershed.”

It depends on the ocean

Even that may not be enough. Any agreement would need approval from the federal government. An effort nine years ago that brought together 42 different entities died in a Congressional committee.

That lack of local control forms a bedrock of the State of Jefferson, a plan dating back to 1941 by several counties in northern California and southern Oregon to secede and form a 51st state.

The dams are owned by PacifiCorp, based in Portland, Oregon, and require periodic relicensing from federal energy officials because they provide hydroelectric power. As part of the relicensing process environmental standards must be met and, simply put, it is cheaper to remove the earthen and concrete structures than bring them up to code.

Bob Rice is the former Superintendent for the Klamath National Forest, which is the fifth largest in the Unites States and among the most complex. He somehow talked his wife, Charlotte, into moving on 14 separate occasions. “Every time we moved it was to a better place,” she points out cheerfully. Their three children might argue for Duluth, Minn. They now live in Yreka.

In his 33 years on the Klamath, Rice said has covered every inch of the river whether on foot, horseback, boat or helicopter. He relishes the thought of having $450 million budget, which is the current price tag for the removal of the J.C. Boyle Dam in Oregon and the Copco 1, Copco 2 and Iron Gate dams in California.

One of the first things he would do instead of removing the dams is put a water treatment plant upstream of where the Klamath passes from Oregon into California. He says that will help solve the algae problem. After that he would raise the level of Iron Gate Dam by 20 feet. More water means more watershed management options.

“We have to do something about the restoration of the aquifer,” he said. “We can do that by making more water available.”

And then there are the Coho salmon, which are protected under the Endangered Species Act and the driving force that spawned the dam removal plan in the first place.

The further up the Klamath salmon swim the warmer and more inhospitable the water becomes, Rice said. Among the scores of tributaries in the lower half of the Klamath is the appropriately named Salmon River, which gushes in cold and clear. At that point the Coho are already more than halfway through their estimated migratory range of 150 miles and the gas light is about to come on.

Rice insists few salmon would go any further upstream than the Shasta River in Siskiyou County, below the dams. He also focuses on something called the Pacific Decadal Oscillation.

“The ocean basically determines what happens to the Klamath,” he said. “The activity that happens in the ocean determines the water temperature of the ocean, which in turn determines the population of the fish, the makeup of the fish, the size of the fish and how much water comes into the springs and then seeps into the Klamath River.”

‘I’m not going to let it happen’

But for many people the Klamath is about more than fish. The stakes are high. The removal of the dams also means draining the reservoirs the dams create.

During the Klamathon Fire last summer Chrissie Reynolds watched a parade of helicopters scoop water from Copco Lake behind her house. The hillside across from her burned. A study by the California Policy Institute predicts that wildfires will only worsen in Northern California by the year 2050.

“Every year (helicopters) are dipping out of the reservoirs,” Reynolds said. “It has saved thousands of acres of land and countless lives of both people and animals.”

Reynolds is also particularly sensitive to the government coming in and taking everything away. Her parents were Americans of Japanese descent and sent to an internment camp at Topaz, Utah, during World War II.

Like most people, Reynolds said the river gives her a strong connection to nature. On a late June afternoon as the wind picks up and white pelicans glide by with tugboat-sized beaks, she becomes choked up at the thought of everything being gone.

“I am not going to let it happen,” she said. “I will be at the railroad tracks blocking the road. They are not taking my water.”

But what she fears most if the dams are removed is the loss of community. She knows which neighbor has Parkinson’s disease and would be unable to evacuate. She points out where two of the town’s six fire hydrants are located. There is an uncertain real estate market.

“When you live in a rural area you are the firefighters. You are the first responders. You are responsible for your neighbors. It’s the real deal,” she said. “Maybe you can walk away in the city but out here you have an obligation. We are all dependent on each other.”

Crawdads no more

As the Klamath begins its transition from arid to montane it also becomes more remote. Parts are downright dangerous. Visitors to Happy Camp are warned to be gone before dark. Not a threat. Just a fact.

It was not always that way.

Glen Briggs and the Klamath go back 87 years. It has always been a part of his life filling him with a sense of calmness and a way to “get yourself pulled together.” His family first moved to the area during the Civil War. His father ran a saw mill. He now lives outside Seiad Valley just past Thompson Creek on a bluff above the river.

Growing up, Briggs and his sister were the only white kids at the local elementary school. They never viewed the Native Americans as being different.

“We would all play together,” he said. “There was no thinking about nationality. It never came up.”

Things began to change in the 1970s.

“The people who moved up here in the past 50 years moved up here to hide,” he said. “They wanted to escape civilization.”

Crime increased. Drug use escalated. People began locking their doors at night. More importantly, the newcomers had no connection to the river. And then suddenly the Klamath was in play. Who would the stakeholders be? Positions hardened. The same river that once united people now forced them to take sides.

“The river has gone through a lot of changes,” Briggs said. He worries about what will happen if the dams are removed. “It is going to cause the people who rely on the river for resources to suffer.”

Briggs also sees the Klamath as something larger than a single watershed. It starts with the earth’s plate tectonics, which created the Cascade Mountains.

“The river’s geologic history is tremendously interesting,” he said. “It is not a big river but it is an unusual river. It is the only one that comes through the Cascades except for the Columbia River. You also don’t have any rivers that originate east of the Sierra that come through to the coast. They all go south.”

Predicting nature is always a tricky science, Briggs added. Before the dams went in families would often gather along the river banks in the fall to feast on red crawdads.

“They would catch them as they came upstream,” he said. “They would boil them in big pots and have a picnic ... but they disappeared after the dams were built.”

An enigma

It is part of what makes the Klamath post-dam such an enigma. The river passes through unquestionably unique landscapes. An estimated 21 species of Conifer dot its banks through the Marble Mountains, unparalleled anywhere in the world.

The interaction with nature it is was what first attracted Darin McQuoid to the river. He grew up in Etna in the heart of Scott Valley. The son of a well driller. Born from still waters.

He first started spending time on the Klamath as a river guide. One day a friend let him borrow a kayak. He took to it like a fish to water. No river remained safe. Among his accomplishments are the Indus River through Pakistan's Rondu Gorge and the Rio Piaxla in Mexico.

"There is something magical about traveling down a river," he once wrote. "No matter what class of water, making the journey is always a special experience."

It gives him a worldly perspective on the Klamath.

"There are clean, cold rivers and those are nice," he said. "The Klamath is warm, which is nice in its own regard because you don't need as much gear."

He said while water quality is important it is not "critical to making a river worth doing."

"For California it also has an unusual gradient," he added. "Most rivers of that steepness and size are under a lake at this point or completely dewatered."

The potential removal of the dams leaves him with mixed feelings. For one thing they regulate river flow, which is important to the rafting industry.

"You can go any day and you know what the flow is going to be. You know it is going to be runnable," he said. "You are also not looking at a brief season."

On the other hand, if the dams are removed, he said the Klamath would immediately benefit.

"It is incredible how quickly a river can recover," he said. "Look at what happened on the Sacramento (at Cantara Loop). They said it would take 10 years ... and the next year it was already better."

Can a river be owned?

It is said a man can walk across Upper Klamath Lake – the second-largest freshwater reserve in Oregon and the headwaters of the Klamath – and never get his hat wet. Women are apparently smarter when it comes to this issue.

Such a journey would require immersing one's body during much of the year and especially in summer in microcystin, a bacterium formed by blue-green algae that is a toxin known to cause liver damage in humans. The reasons are varied but are mostly manmade.

Upper Klamath Lake was artificially formed by draining swampland in the area and creating farms in the second largest Bureau of Land Reclamation on record. At its deepest point the lake reaches a depth of maybe 12 feet. Eventually seven dams, 18 canals, 45 pumping plants and 516 miles of irrigation ditches were built.

Veterans of both World Wars were promised land and plenty of water if they would relocate to the area and become farmers. Crops included alfalfa, potatoes and onions.

For farming the system was brilliant. Water was continually pumped and recycled. For the environment it was a disaster. Water quality disintegrated over time due to a combination pesticides, fertilizers and livestock waste in the watershed that became known as "chemigation." The Klamath Basin is also part of the Pacific Flyway and every year millions of birds pass through the area. Throw in naturally occurring phosphorous in the soil and Houston we have a problem.

It is what first triggered the idea of unwinding human intervention on the Klamath and eventually restoring the health of the river. The first big piece of that puzzle for many people is to remove the dams.

Yadao Inong is a technician with Yurok Tribal Fisheries. At the age of 5 he could navigate a row boat on the Lower Klamath. By the time he attended Humboldt State University the currents that would eventually shape his life were already taking form.

He wrote a paper called “Being a Person of Place.”

“I can trace my roots and know that my great, great, grandfather walked this same trail or caught fish in the same hole,” he said. “The rocks that are there. Some of them move and some of them have been there forever.”

He said removing the dams is “everything in our part of the world.” Salmon are extended family, “our brothers and sisters.”

“That is why we fight so hard to protect it now because the river has sustained us for thousands upon thousands of years,” he said. “If we don’t step up and continue to step up and do what we are doing now, people will be the end of salmon.”

There are also things that can’t be quantified, like whether a river can ever be owned and does it have a soul.

“The river has been here for millions of years. How can you own something that precedes you? The time that the dinosaurs came and went is but a speck in the time that river has been here,” he said. “The collective life that is here matters and it always has.”

Inong has spent his whole life in the outdoors whether it involves hunting, planting trees or teaching kids to fly fish. He said there is nothing like the jolt of energy from hooking into a wild steelhead just returned from the ocean.

He added that removing the dams involves more than just increasing the size of the existing habitat. Genetic diversity is critical.

“The first dam is not all that far up the river,” he said. “If you have a fish designed to spawn 200 miles from the ocean, and then you put a big fat barrier at 100 miles, they are going to spawn on top of other fish that are only supposed to go that far. You get hybridization. You get springers in the fall run. It would not happen if you give fish a choice.”

Heritage and culture

Further downstream in the tiny town of Klamath, where the river meets the sea, the afternoon breeze begins to pick up just as it does at the same time of day across Copco Lake and at the headwaters in Klamath Falls. It is September now and the excitement is building.

King salmon are schooling offshore and as the fog rolls in so are expectations that the fish will soon follow. What is holding them back is anybody’s guess. Perhaps it is the rough surf. Maybe it is the weather. It is a good problem to have.

“We have not fished for three years,” said Paul Van Mechelen, generally regarded as one of the best fishermen in town. When asked if this is true, he shrugs and says, “My Grandma said I

have fish blood." He also serves as unofficial mayor and general goodwill ambassador. Nobody goes hungry when Paul is around.

Like most fishermen he lowers his voice as he reveals his secrets. When the dogwood in his yard blooms he knows the sturgeon are on their way. Lately, everything is being pushed back.

"The (king salmon) used to run the second week of August," he said, "but now it is the third week of September."

Before the dams and especially the flood of 1964, the town of Klamath was a world-renowned fishery. On a single day an estimated 1,300 fish were once caught. Parts of the river became known as "Suicide Run." Then the entire town was washed away in a single devastating rush of water one winter and with it went a sense of unlimited resources. More than salmon were at stake. There are other fish in the river.

As Van Mechelen speaks, he barbecues salmon on redwood skewers around an alder fire. He dreamed about sturgeon one night and realized that traditional fishing practices would no longer work.

"I knew we had to stop it," he said. Sturgeon can live for more than 50 years and the females do not lay eggs annually. Wholesale slaughter of the fish "where the river turned red from all the blood" had to end.

"You have got to think of the resource," he said. "Anything over six feet you have got to let go." To enforce the new rules Van Mechelen said "we either had to make the fines bigger or take your truck away."

But at the local bookstore in town, Alice Cook said focusing on the dams alone does a disservice to the complex nature of the river's ecosystem. Seals are massing on the beach waiting like everyone else for the salmon to migrate. Illegal pot farms upstream leech chemicals into the water supply.

A poster on the wall of the store reads: "If you don't forget your ancestors, your heritage and your culture, you'll never be led astray."

"There is no question removing the dams will help," Cook said. "But is going to solve all our problems? I doubt it."

A river runs through them

In his famous fly fishing novel author Norman Mclean once wrote about his beloved Blackfoot River near Missoula, Montana: "Eventually all things merge into one, and a river runs through it."

Perhaps the same is true with the Klamath. The people who live there all share something in common: The river that runs through them.

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Southern California water agency approves $5 million for stormwater pilot
Douglas Digital Daily | September 23, 2019 | Staff

The Metropolitan Water District of Southern California on Tuesday, Sept. 10, approved $5 million for a stormwater pilot project to determine the best and most efficient way to capture the tens of billions of gallons of rainwater that flow off roofs and pavement each year.

“A lot of hope has been placed in the potential of stormwater as a local water supply for Southern California,” said Metropolitan Chairwoman Gloria Gray. “We want to better understand that potential, and its cost, as part of our commitment to developing local resources.”

The regional water agency is a wholesaler that provides water for 26 member public agencies to deliver — either directly or through their sub-agencies — to nearly 19 million people in Los Angeles, Orange, Riverside, San Bernardino, San Diego and Ventura counties.

The agency is responsible for reselling imported water from the Colorado River and Northern California; imported water comprises roughly 60% of Southern California’s water supply. With the cost of that imported water expected to rise continually, because of scarcity and energy costs, stormwater will become increasingly valuable as well, Metropolitan officials continually say.

And a lot of water is lost to runoff.

In L.A. city alone, for example, an estimated 163 billion gallons of stormwater rush off the concrete streets and sidewalks each year, flowing into storm drains and emptying out into the ocean, according to the California Coastkeeper Alliance. Not only is that a waste of water, conservation experts say, but stormwater also carries with it

Experts, though, say the vast amount of stormwater cannot be captured by a single project. Rather, many smaller projects are needed.

To that end, Los Angeles city in 2016, doubling its capacity to 5 billion gallons of stormwater per year.

In 2014, California voters also approved Proposition 1, guaranteeing $7.12 billion for water infrastructure projects, including $200 million for stormwater management programs. Then, in 2018, to fund infrastructure projects and programs to capture, treat and recycle rainwater.

L.A. Mayor Eric Garcetti this year , which includes 100% recycling of wastewater by that time.

These projects, though, are not always easy — even when there’s money available.

Hermosa Beach, for example, recently scrapped a stormwater capture project proposed for part of a recreational trail near the city’s southern boundary, costing it in the process.

And despite all the money various agencies have spent so far, Metro officials said, they still don’t know the best way to capture stormwater.

The pilot project, though, is expected to provide data on various methods — measuring capture volumes, costs and performance. The program will focus on projects that capture stormwater for irrigation purposes only, and not drinking water, using such methods as cisterns and permeable pavement with underground collection systems.

While the Metropolitan Water District has for decades sought to diversify its water supply portfolio — it has provided more than $500 million in incentives to more than 100 groundwater recovery and recycled water projects — none of the projects have involved locally captured stormwater. That's largely due to a lack of data, according to officials.

"Stormwater capture projects have a lot of benefits — improving water quality, flood control, habitat creation, and water supply," Metropolitan General Manager Jeffrey Kightlinger said. "But they are typically expensive to build. So as we explore opportunities to invest in these projects, in partnership with parties interested in their other benefits, we need to understand their water supply value."

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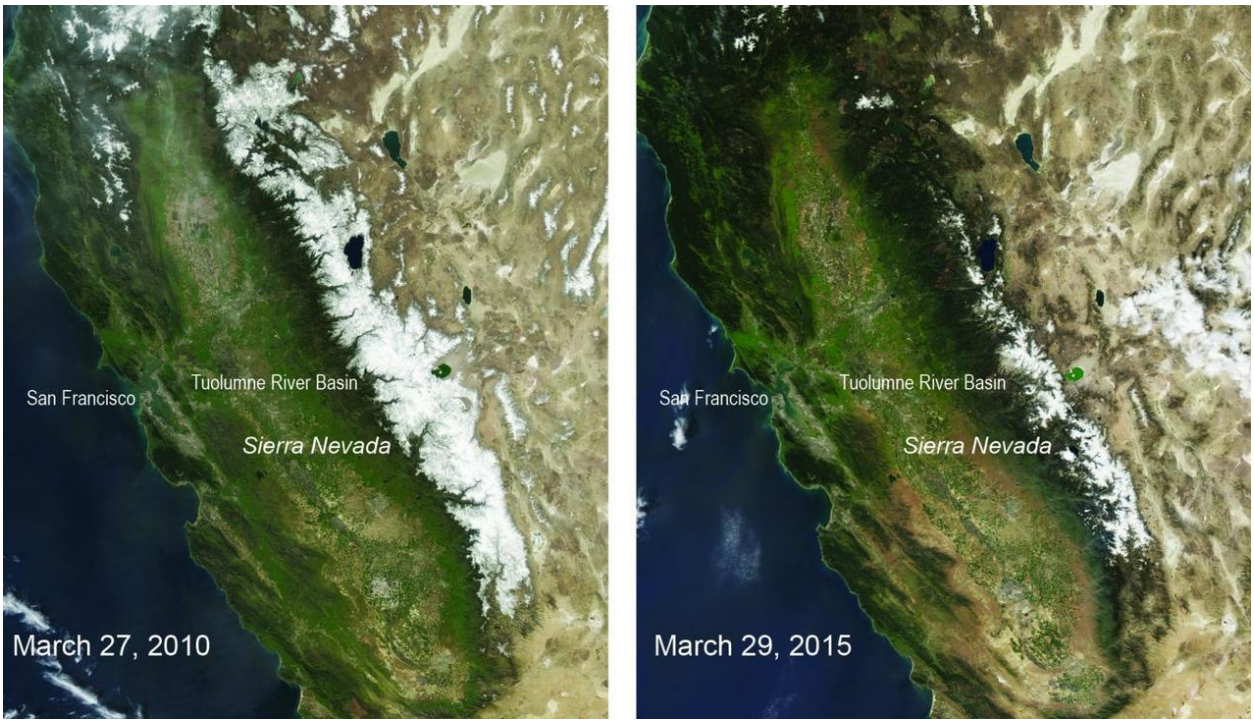
# # #

The Snow Must Go On
NRDC | September 25, 2019 | Kate Poole

Here in California, we're a little bit obsessed with our snowpack. Following the Department of Water Resources on its monthly wintertime trek to measure the Sierra snowpack has become a ritual for California water reporters and must-see t.v. for water wonks like me. I've yet to witness anyone get in a sword fight with their ski poles on this periodic trek, so why is it so riveting?

It's riveting because the Sierra snowpack provides about a third of California's annual water storage and supply. And without it, we're in deep trouble. The state's single largest "reservoir" is the Sierra Nevada snowpack, which holds approximately 15 million acre-feet per year on average. Climate change is bringing many changes to California's water system, but one of the most concerning is the loss of the Sierra snowpack caused by warming temperatures. The state Department of Water Resources predicts that by 2050, temperature increases of 1 to 3 degrees Celsius are expected to reduce the Sierra Nevada snowpack by 25 to 40 percent, and by up to 65 percent by the end of the century.

But these projections might be optimistic. In 2015, California experienced unprecedented warmth and a mere 5% of normal snow accumulation in the Sierra Nevada. This weather, following several dry years and in combination with serious mismanagement due to lack of preparation for it, caused water shortages across the state and nearly wiped out entire populations of native salmon, ravaged migratory birds, and devastated habitat for species like mice and rabbits that suffered loss of their forest habitat when the drought killed an estimated 129 million trees in the Sierra Nevada.



These two natural-color satellite images of the snow cover in the Sierra Nevada in California and Nevada show the last year with average winter snowfall, 2010, compared with 2015 -- a year that had the lowest snowpack in 500 years. The images were taken by the Moderate Resolution Imaging Spectroradiometer on NASA's Aqua satellite. Credit: NASA/MODIS

These are the real, on-the-ground impacts of climate change that the new IPCC report on oceans and the cryosphere warns us are now happening across the globe. The cryosphere refers to those places on Earth that are frozen at least part of the year, and encompasses not just polar ice caps, and continental ice sheets found in Greenland and Antarctica, but also the high mountain regions that, historically, have been covered in snow and ice much of the year.

The cryosphere contains more than two-thirds of the earth's fresh water, and it is disappearing. That is alarming for places like California that are dependent on mountain snowpack for our way of life. It is horrifying for places like Asia, where glacier-fed rivers flowing from the Himalayas supply water for a quarter of the world's population and sustain unique mountain cultures and ecosystems.

What can we do about it? First and foremost, we need to pull out all the stops to rein in the climate crisis by ending our reliance on fossil fuel and investing in natural climate solutions to sequester carbon. But we also need to rapidly and intentionally reform our water systems to reflect the changes that are upon us. That means reducing reliance on snow-fed rivers and streams for human water use, and investing instead in water recycling, more efficient agricultural and urban water use, and designing our cities and buildings to capture and reuse rainwater.

It also means helping climate-threatened species to adapt and survive by sustaining the ecosystems they need. For example, in the western United States, that may include finding ways for cold-water fish to access the high mountain habitat above terminus dams. California is currently pursuing such an effort to allow endangered winter-run chinook salmon to spawn and rear above Shasta Dam on the Sacramento River. (The Trump Administration is, of course, trying to torpedo that effort, but that's another story….) It means thinking big about protecting and restoring much of the wetland habitat that we've destroyed over the last half century that acts as both an effective carbon sink and as migratory habitat for birds. It means replanting and restoring forests that also sequester carbon and have been wiped out from years of mismanagement.

This latest IPCC report is more than a worrisome alarm bell. It is the latest in a series of warnings that lay the groundwork for reforming our relationship with nature. It's time to take up the call.

# # #

Kate Poole
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