The Sacramento Bee

Local

There are no simple solutions to California's complicated water problem. This is why

By Dale Kasler
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Fritz Durst, a farmer in Yolo County, didn't receive enough water from the federal government to plant a rice crop this spring. But the feds did give him a consolation prize.

In March the U.S. Environmental Protection Agency invited the backers of Sites Reservoir — a mammoth water storage project in the Sacramento Valley that's being personally led by Durst — to apply for a $2.2 billion construction loan. The loan is far from a done deal, but the invitation means the EPA is seriously interested in backing the project, bringing Sites tantalizingly close to reality after years of planning.

"I was ecstatic. We finally convinced people this was a worthy project," said Durst, chairman of the Sites Project Authority. But the reservoir, planned for a spot straddling the Glenn-Colusa county line, 10 miles west of the Sacramento River, won't dig California out of its current mega-drought.

Even if all goes according to plan — a pretty big if — Sites wouldn't finish construction until 2030.

The status of Sites says a lot about how things stand in the third year of California's terrible drought. There are no quick fixes, no immediate remedies. The only way out of this, for the time being, is conservation, forcing farmers and homeowners alike to make do with less water.

"What people have got to realize is," Durst said, surveying one of his unplanted rice fields recently, "there's no easy solutions left."

Building support for a big water project is often a time-consuming process in California. And once the permits are in hand and the financing is set, it could be years before the goal of increased water supply is achieved.

That point is being driven home time and again with sobering regularity.

A simple, non-controversial water project in rural south Sacramento County, designed to "bank" billions of gallons of water below ground as a reserve for drought periods, won't be ready until late 2024. A more ambitious project, a multibillion-dollar recycling plant capable of putting a significant dent in the Los Angeles area's water woes, is moving through the planning process but won't produce drinkable water for another 10 years.

The fact is, California is responding to the drought at something other than lightning speed. Its urban residents aren't heeding Gov. Gavin Newsom's call to cut their water usage by 15%. Since he made his plea last July, water savings total just 3%.

And its public officials are struggling to get water-infrastructure projects over the finish line.

A catastrophic development — a city running out of drinking water — could prompt California to slash red tape or push through funding more quickly. Even so, the big complicated endeavors will still drag well beyond the life of the current drought — to a time, perhaps, when the public appetite for spending money on water projects will have diminished. Then, when the next drought hits, the projects will be at square one.

"We can't build infrastructure in under a decade," said Jeff Kightlinger, former general manager of the Metropolitan Water District of Southern California.

"If you don't start until five years from now, you won't have it until 15 years," he said.

In the meantime, Californians can't look to new reservoirs or other major water projects to ease the current drought.

"It takes so long to build something, to get the financing," said Jeffrey Mount, a water-policy expert at the Public Policy Institute of California. In the short run, "the real progress is going to be incremental — we're going to fix this canal here, we're going to fix this dam there."

Water from the sea? Not so fast

It's always loomed as a tempting remedy for a state that sits on the ocean and seems to be constantly dealing with drought: Pull water out of the sea. Feed it through a membrane to remove salt and other impurities. Drink up.

Desalination is a viable, though expensive, technology known around the world. A Carlsbad plant north of San Diego, the largest in the Western Hemisphere, has been humming since late 2015. It creates 50 million gallons of drinkable water a day and accounts for about 10% of the San Diego area's supply.

A man performs maintenance work in the reverse osmosis building at the Carlsbad Desalination plant in May in Carlsbad. The facility is the Western hemisphere's largest desalination plant, which removes salt and impurities from ocean water. Gregory Bull AP

But when the project's developer, Poseidon Water, proposed building a sister plant an hour down the road in Orange County, state regulators said no.

Last month the California Coastal Commission voted unanimously to reject a similarly-sized plant in Huntington Beach proposed by Poseidon Water, the company behind the Carlsbad project. The agency justified its decision mainly on environmental grounds: Commissioners said they feared for the marine life that would get sucked into the Huntington Beach plant's giant intake valve — and the sea creatures that would suffer from the millions of gallons of briny water that would get discharged into the ocean after the desalination process was completed.

Why did the commission reject Huntington Beach after approving Carlsbad years earlier? In part because the rules are stricter now, particularly the regulations on a plant's intake valves. The commission also said the risks to the Huntington Beach plant from earthquakes, tsunamis and sea-level rise are greater than previously believed.

As they voted down the Orange County project, commissioners said they weren't ruling out desalination as a concept. "We need every tool in the toolbox, including intelligent desalination," said Chairwoman Donne Bronsey.

The AES Huntington Beach Energy Center, shown in May, was the proposed site of the Poseidon Huntington Beach Seawater Desalination Plant. The California Coastal Commission rejected the proposal a few days later. Damian Dovarganes AP

Drought-stricken communities are taking a fresh look at desalination as a long-term solution to water shortages. In 2017 the city of Santa Barbara reopened a desalination plant that had operated briefly in the early 1990s before being mothballed after heavy rains returned. The plant accounts for about 30% of the city's total supply, said water resources manager Joshua Haggmark.

Desalination is among the most expensive sources of water anywhere. The fresh water gushing out of the Carlsbad plant costs $2,725 per acre-foot, or nearly twice as much as the region's other supplies, said spokesman Ed Joyce of the San Diego County Water Authority. The net effect: about an extra $5 a month in San Diego residents' water bills.

Given the cost, desalinated water is likely to remain a niche product, available to prosperous communities "if they're willing to pay a lot and they really need the water," said Ron Stork of Sacramento environmental group Friends of the River.
But they might need to find a new supplier. After the rejection in Huntington Beach, Poseidon says it doesn't foresee another big plant opening in the state.

"There is not a path forward for large desalination plants," said Poseidon spokeswoman Jessica Jones.

But Poseidon isn't giving up on California altogether. Jones said the company is in early discussions with public water agencies around the state about developing other projects — stormwater capture facilities, for instance, and even smaller-scale desalination plants.

“We know there’s still a huge demand due to the drought,” she said. “We have answers.”

A recycling plant that will take years

The Coastal Commission’s rejection of the Huntington Beach project prompted anger. But a few days after the vote, the governor was smiling when he visited the site of a proposed water-recycling project east of Los Angeles.

The project in Carson would be capable of generating 150 million gallons of drinkable water a day — three times as much as the failed desalination plant. While recycling isn’t new, this plant would deploy unusual technologies to achieve new levels of purity.

“Water recycling is about finding new water, not just accepting the scarcity mindset,” Newsom said. “This is a profoundly important project for the state’s future.”

But not the immediate future. The Los Angeles County Sanitation Districts, which is developing the $4 billion project, is still assembling financing in partnership with the Metropolitan Water District of Southern California and water agencies in Arizona and Nevada.

It will be five years before the project, known as Pure Water Southern California, can create water that’s clean enough to be used by oil refineries and other industries. It will be another five years after that, a decade from now, before the plant can make water clean enough to drink.

And probably not a moment sooner.

“Can we expedite this? Unfortunately, it’s the state of the world. We have to look very carefully at all the environmental impacts, and that takes time,” said Bryan Langpap, spokesman for the sanitation agency.

The fact that a project won’t get done in time to ease the current drought doesn’t mean California should forget about it, Kightlinger said.

Just the opposite. The former Metropolitan executive said projects should get started as quickly as possible so they’ll be in place for future shortages. “It’s not like this is a temporary drought and things will be good in two years,” he said. “We need to start moving on these projects.”

Where are water projects OK’d by voters?

The last time California had a drought, voters were happy to spend money on water.

In November 2014, Californians overwhelmingly approved Proposition 1, which committed the state to borrowing $7.1 billion for various water projects.

The bond included $2.7 billion to build or expand reservoirs and other storage projects. The California Water Commission has spread that money between seven storage projects. But it's not enough to get any of them built. Developers of each facility are still cobbling together the rest of their financing — while plowing through environmental reviews, construction permits and other red tape.

Bottom line, not a single project has been built yet, nearly eight years after voters gave their blessings.

One project, to increase water storage in Silicon Valley, is being challenged in the courts. A group of environmentalists and landowners have sued over the proposed $2.5 billion expansion of the tiny Pacheco Reservoir southeast of San Jose. The project has been awarded $504 million in Proposition 1 money.

The plaintiffs say the Santa Clara Valley Water District must conduct additional environmental-impact studies to comply with the powerful California Environmental Quality Act. The water district says it has already done the required studies.

As it is, the reservoir expansion isn't scheduled to be completed until 2032. The lawsuit could set the project back a year.

Even the relatively basic projects are still slogging through a lengthy process.

The Sacramento Regional County Sanitation District has an ingenious plan for storing water. Its "Harvest Water" plan calls for building a network of pipes and pumps connecting its wastewater treatment plant, near Elk Grove, to an agricultural area at the south end of the county. Farmers would use recycled water to raise their crops instead of pulling water out of the ground. That would enable a sprawling aquifer — a hidden reservoir half the size of Folsom Lake — to fill up gradually, creating a bank for use in dry years.

In the world of California water, where litigation and controversy are taken for granted, Harvest Water is practically a slam dunk — albeit a slam dunk that will cost $444 million. The state has earmarked nearly $292 million in Proposition 1 money for the project.

Even so, the sanitation district is still working on some of its permits and is scrambling to find additional funding sources. Its consultants haven't finished designing the pumps and pipes. If all goes according to plan, construction will start next year and finish in late 2024 or early 2025.

"Infrastructure is always a challenge; it can't happen overnight," said Terrie Mitchell, the district's legislative and regulatory affairs manager. "Even in a perfect world, if you had all the stars aligned, it's going to take time to get things constructed."

End of a boom era for building California dams

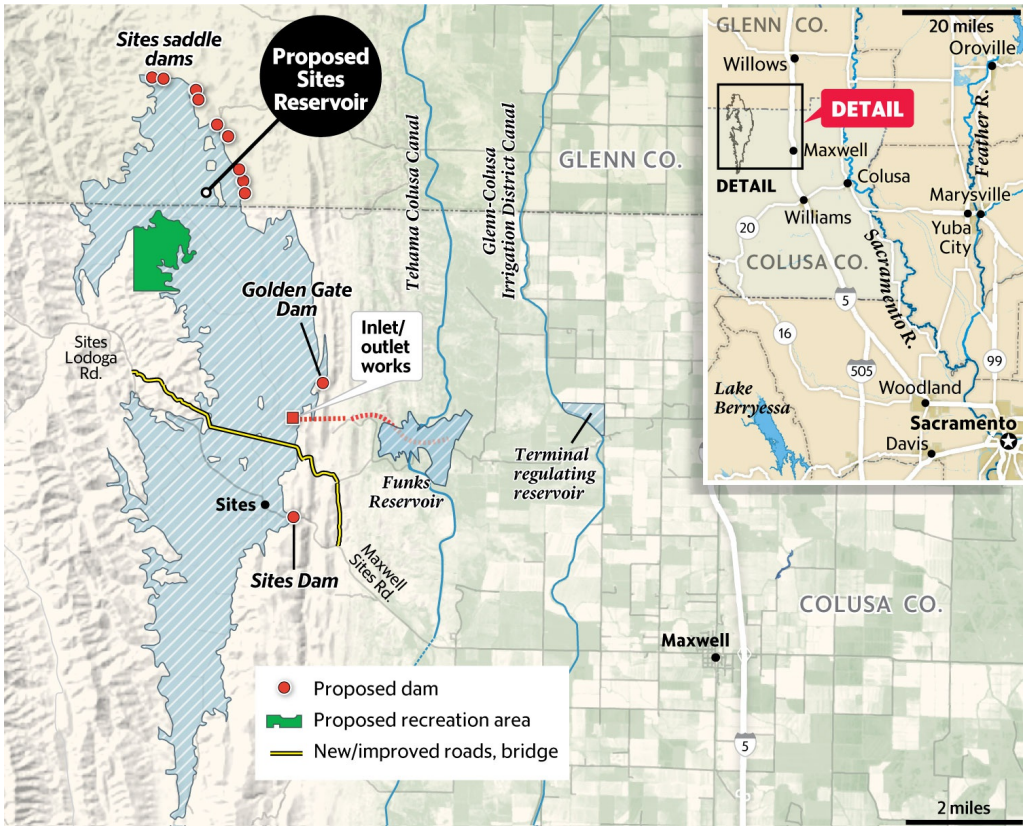
Hoover Dam took five years to build during the Great Depression. The world's largest dam at the time, the product of 3.3 million cubic yards of concrete, the iconic Las Vegas project was finished two years ahead of schedule.

California's largest, Shasta Dam, was finished in seven years. Folsom Dam, completed in 1956, was an eight-year build.

Once upon a time, the state and federal governments built huge water-storage projects, and they did it relatively quickly, said the Public Policy Institute's Mount. Elected officials didn't worry much about the environmental consequences of damming the West's major rivers, and there was considerably less red tape.

"That era is done," Mount said. Which brings us to Sites Reservoir. It's big — the largest reservoir built in California since the 1970s. It's expensive — at $4.4 billion, about four times costlier than the Harvest Water groundwater project in south Sacramento. And it's controversial — a concept based on pulling water out of the overtaxed Sacramento River and storing it for future use.

The Sites plan



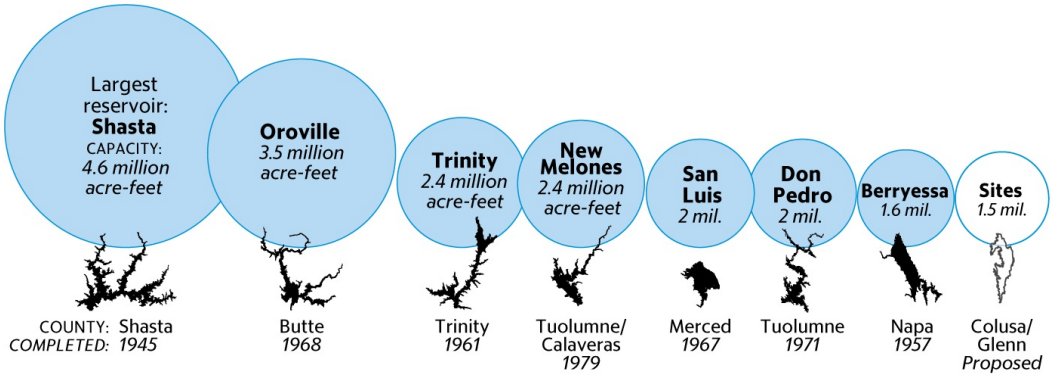
The proposed Sites Reservoir west of the town of Maxwell in the Coast Range mountains would flood the Antelope Valley in Colusa and Glenn counties. The reservoir would be filled by using two existing canals during winter, and release water using those canals during summer. Map of Sites Reservoir Map: The Sacramento Bee • Source: Sites Authority

Not since the federal government's New Melones reservoir on the Stanislaus River, completed in 1979, has anything like this been attempted in California. Sites would become the first significant reservoir built in the state since the Metropolitan Water District opened Diamond Valley Lake (a facility about half the size of Sites) in the early 2000s.

Little wonder, then, that Sites is proceeding slowly. The reservoir, to be built where a town called Sites once stood, was initially proposed by state officials in the 1980s. The initial plan went nowhere but was revived by leaders of several Sacramento Valley farm-irrigation districts. They formed a governmental entity called a joint powers authority in 2010 and began working on funding and design work.

As it stands today, Sites would hold as much as 1.5 million acre-feet of water, making it the eighth-largest reservoir in the state. The bulk of the water will be owned by 23 water districts that have pledged to "invest" in Sites. The largest investor, the Metropolitan Water District of Southern California, will lay claim to 311,000 acre-feet worth of supply once the reservoir is filled.

California's largest reservoirs



If built, the Sites Reservoir would be the state's eighth largest. Chart of state's largest reservoirs Map: The Sacramento Bee • Source: Sites Authority, California Dept. of Water Resources

Sites would draw water from the Sacramento River via a new underground pipe. That's the main point of controversy.

Environmentalists have criticized the notion of diverting water from the Sacramento, a river that's already a troubled habitat for fish. In drought years the Sacramento gets so warm in summer that legions of juvenile Chinook salmon, an endangered species, perish. A group called Save California Salmon gathered 50,000 signatures earlier this year on a petition opposing the project. A lawsuit by project opponents is by no means out of the question.

Newsom recently called Sites "something I've long supported," and the state has committed $875 million in Proposition 1 money, the largest single earmark from the 2014 voter-approved bond.

Yet some state officials have questioned the wisdom of pulling water from the river. In a letter sent to Sites officials in January, the California Department of Fish and Wildlife said the diversions contemplated by reservoir operators could mean "potentially significant adverse impacts" the river's fish populations, particularly in dry years. The agency suggested that Sites pull water out of the river more slowly.

Sites is evaluating the agency's comments, and those raised by other stakeholders, and expects to respond when it releases its final environmental impact report early next year, said Sites Authority general manager Jerry Brown (no relation to the former governor, who happens to live near the reservoir location).

Will Sites Reservoir pencil out?

Environmentalists and other water experts say building dams these days in California is hard for a reason: Most of the good locations have been taken, and much of the water has been spoken for. "We've done all the easy stuff," Mount said. "Hard projects don't happen quickly."

In part because of pipeline limitations, Brown said Sites wouldn't release more than 500,000 acre-feet of water in any given year — one-third of its capacity.

As far as Stork and other environmentalists are concerned, that alone is reason enough to doubt the viability of Sites — or any other big storage proposal that's being hailed as a cure-all for California's droughts.

They argue that the harm done to faltering fish populations outweighs the relatively small amount of water these projects are able to capture. In a state that uses tens of millions of acre-feet per year, the output from Sites would amount to a mere trickle, Stork said.

"It's a demonstration that you can't dam your way to paradise anymore in California," he said.

But Fritz Durst says Sites makes perfect sense in a state with chronic water shortages. The announcement that the Environmental Protection Agency is interested in loaning big money to the project is proof of the project's worthiness — and could well prove decisive in getting the project off the ground.

"It's huge for us," he said. "If we're lucky, we'll be putting water into it in 2030."

Standing by his idled rice field near Knights Landing, in northern Yolo County, the chairman of the Sites Authority said the reservoir won't create an agricultural jackpot. The water in Sites would cost an estimated $700 per acre-foot, an enormous expense for farmers. He'd never use Sites water as his main source.

But as a backup supply? Sure.

SAC_20220608_PK_DROUGHT_090 Yolo County farmer Fritz Durst left his 500 acres of rice fields idle this spring and planted spelt and hay. Paul Kitagaki Jr. pkitagaki@sacbee.com

“It’s going to be supplemental water,” Durst said. “It will be what gets you through tough times.

“Insurance is always too expensive ’til the day you need it,” he added.

Duration 3:36 How this Sacramento Valley rice farmer is adapting to drought - and his hope for future

Yolo County farmer Fritz Durst stands at a field on June 8, 2022, that he usually plants with rice but is growing hay because of the drought. He is involved in the Sites Reservoir project, but the additional water it will provide is years away. By Paul Kitagaki Jr.

Bee staff reporter Ryan Sabalow contributed to this report. This story was originally published July 6, 2022 5:00 AM.

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https://www.sacbee.com/news/local/article262202937

FOR Addendum: The article asks the question "where are the projects OK'd by the voters?" Proposition 1 set aside up to $2.7 billion in CA taxpayer-funded grants for the hypothetical public benefits of hypothetical storage projects. Water supply was not a public benefit. The voters did not OK any actual storage projects. Those decisions were left to the California Water Commission.

The article says that the main point of controversy on the Sites proposal is that it "would draw water from the Sacramento River via a new underground pipe," leaving it ambiguous whether the controversy was associated with the new underground pipe or the Sacramento River diversion. It's the latter. Sites is proposed to be fed by a Sacramento River diversion at the Red Bluff Diversion Dam into the Tehama-Colusa Canal and a Sacramento River pump station into the Glenn-Colusa Irrigation District's main canal. The combined capacity of these diversions would be approximately 4,000 cubic feet per second (cfs).

The Sites reservoir proposal has a longer history than the DWR work in the 1980s referenced in the Bee article based on the Water Education Foundation's "Aquapedia" article. The "Golden Gate Reservoir" at the Sites reservoir site appeared in "Bulletin No. 3, The California Water Plan" (p. 103 & plate 5) as a significant-appearing reservoir for local use. Futhermore, in his comments to the Bee story, Don Anderson added more to the history:

> *The US Bureau of Reclamation (USBR) in the early 1970's [sic] designed and built Funks Dam and Funks Reservoir which was going to be the forebay/afterbay for the pump/ generating plant for Sites Reservoir in 1976. Water from the Tehama Colusa Canal ran into the Funks Reservoir. I was the Project Construction Engineer in charge of the USBR Willows Construction Office. My office did some of the original surveys for Sites Dam and Reservoir and supervised construction of Funks Dam and Reservoir and the last 55 miles of the canal to Dunnigan. I just wanted to set the record straight and do not know where the comment the State of California proposed the project in the 1980's [sic] came from. The USBR did the intial [sic] construction of the beginning of the Sites Dam Project about 4 to 5 years before 1980.*

The Sites Authority has applied for a partial assignment of 1978 "State Filings" for the "Glenn Reservoir Complex" a little to the north of the present proposed Sites project. The 1978 water applications were for Stony and Thomes Creeks and the Sacramento River. Of note, the Glenn Reservoir Complex was originally planned by the California Department of Water Resources (DWR) to receive and store water delivered by tunnels from large DWR reservoirs then planned for the Eel River and potentially other CA north-coast rivers that are now largely protected by their addition in 1973 to the state wild & scenic river system and in 1982 to the national wild & scenic river system.

Finally, the Sites Reservoir Authority hopes that the Sites project, if given favorable diversion rights and future hydrology, might augment state water supplies by approximately 0.5%.