

'We Can't Be Living in an Economy of 40 Million People This Close to the Edge.'

Lake Mead, a key water source for California and six other states, is close to drying up. Water policy expert Felicia Marcus says dramatic action is needed on conservation, recycling and efficiency.

[Dan Ross](#) April 25, 2023



Lake Mead, in Arizona and Nevada, is the largest reservoir in the United States and part of the Colorado River system, which supplies water to seven U.S. states and part of Mexico, including [one third](#) of the water used in Southern California. It also supplies 30 Tribal Nations.

At the end of last year, [experts predicted](#) that, due to drought and heavy demand for water, Lake Mead was just two years shy of dead pool, when water levels drop below the point at which it can flow downstream of the reservoir.

The seven states drawing from the Colorado River are [negotiating](#) which water cuts must be made by whom, to avoid losing the Colorado River supply. [In January](#), the seven states missed one important deadline to reach a consensus over water reductions. If they can not reach an agreement by [late summer](#), the Biden administration will likely step in and decide for them. Indeed, the federal government recently issued [two options](#) for what these cuts might look like for California, Arizona and Nevada. One [gives priority](#) predominantly based on current water rights, while the other cuts water usage by the same percentage for all users.

As a rare silver lining, the Colorado River snowpack this winter is 158% of average. But how much difference does that make to the Colorado River's grim outlook? Capital & Main asked Felicia Marcus about what must be done to prepare for the day Lake Mead might run dry. Marcus, a

visiting fellow at Stanford University's Water in the West Program, was chair of the California State Water Resources Control Board, where she helped lead the board through the state's worst drought in modern history. She has also been the president of the Board of Public Works for the city of Los Angeles.

This interview has been edited for brevity and clarity.

Capital & Main: Given the snowfall this winter, do we still have to fear Lake Mead hitting dead pool?

Felicia Marcus: I think we do. I think we've gotten a reprieve, so it won't be quite as soon. But given that we're at the end of a 23-year downward trend due to drought, we're still within a relatively short time of dead pool. We still have to fear it.

How short is that time to dead pool?

I would say a few years — three or four, maybe, which is tomorrow in water time. It all depends on what we do. So rather than just watching the clock tick, what we'll see is tougher interim rules that keep us from hitting that wall. So, in some ways, dead pool is hopefully just a construct of what could happen if we don't act.

Who or what are the biggest obstacles standing in the

way of meaningful progress?

Being overly optimistic of what the heavens would provide and the lack of political will to make hard decisions early enough.

In this case, I think history will judge political leadership poorly for having let the Colorado River resources and reservoirs dwindle down for 23 years before being able to take more dramatic action on conservation, recycling and efficiency. We've let it get to crisis proportions. If you want to put it more positively, hope springs eternal. But it's not a plan for the future.

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What do we need to do to remove these obstacles?

A cold-eyed clarity about the facts that we face and just how bad the situation is, and some political courage to make hard decisions — in some cases earlier than we might need to in order to prevent even greater hardship later.

I mean, political courage is not something that's in great supply in any day and age, but we need a lot more of it now as opposed to political leaders blaming others rather than taking responsibility. It's very difficult to do, no doubt, but something where leadership is required.

How does climate change factor into this?

Enormously. Climate change is the freight train of pain heading at all of us. Whether we're talking about the [Bay-Delta system](#) or the Colorado system, with just a few degrees of temperature rise, we end up with more precipitation falling as rain rather than snow. [This means] more flooding in the spring and far less snowpack to melt out at a reasonable rate over the spring and summer to replenish our reservoir streams and groundwater basins.

Our snowpack is our greatest source of storage — far greater than any of the reservoirs we've built. And when we lose that, we lose everything in the Southwest, where we have such extreme variable hydrology. It simply doesn't rain or snow in the places where it's most used in the time of year that it's most used. And so as a result, we need that snowpack storage in order to make the modern Southwest viable.

How important are the current negotiations over Colorado River water allocations for preventing Lake

Mead from hitting dead pool?

They're absolutely essential. I mean, they're the only thing that can really prevent dead pool, short of the federal government taking dramatic action. I think the negotiations are important on two fronts. Number one is if you can come to an agreement between the seven states [without federal intervention], it's more robust, more easily implemented, and it avoids the inevitable litigation that would otherwise follow.

The negotiations also help to inform the federal government in some ways as to what it is they may need to do to help those negotiations succeed. And sometimes that means coming up with what the parties would say if they had the political guts to say it. In other cases, it means coming out with something tough to then give those parties the political backup to be able to make the hard decisions that they can't make on their own.

Nobody wants to give away water. They can lose it, but they can't give it away.

What if these negotiations fail?

Well, I think the federal government will act if the parties don't come to an agreement. They've signaled that they will act to prevent dead pool. There may be litigation on the side, but I don't think a judge is going to let it go to dead pool. I

think the federal government will take every effort to avoid dead pool, which means we may have painful cuts in the next few years. But that's far better than having the tap completely turned off, and the economic disruption and social disruption that that would cause.

I think the bigger question is: Can the federal government come up with an interim solution that will maintain enough peace among the parties so that they can have the meaningful conversations they need to come up with new agreements starting in 2026? The current operating regime goes through 2026, and figuring out where to go from there is a much harder challenge because there's more up for grabs.

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Last year as the drought reached crisis point, the Bureau of Reclamation, the federal water management agency for the West, [told the seven states](#) they needed to cut annual Colorado River use by as much as some 25%. [Then on April 11](#), the agency issued a more modest

revised set of water reduction options for California, Nevada and Arizona calling for cuts next year about half the amount previously stated. Why did they scale it back?

The purpose of their decision is to get us to the next agreement [in 2026] and to avoid dead pool or the loss of the ability to generate hydropower. It appears that they've decided with the abundance of rain and snow we've gotten, they can make a proposal that's on the lower end of what they had asked, although that's still a considerable amount of water.

Do you think that was the right decision?

I don't know. I suspect in the comments [they receive] they will hear people who say thank you. They will hear people who say we need to make deeper cuts because we can't be living in an economy of 40 million people this close to the edge. And then there will be some people who complain about the impacts of the cuts but ignore the fact that if there's no water, there's no water.

The Bureau of Reclamation has outlined two main avenues for water reduction. One is based predominantly on current water rights — those with seniority would have priority to water. The other option would be to have all users cut their usage by the same

percentage. How would the winners and losers be different in each scenario?

First off, those scenarios aren't choices. They are opposite scenarios to study to illuminate the impact of each. The preferred option will be that the seven states come to some agreement in between, or the federal government chooses and constructs an option that is in between.

But to answer your question, in the water rights scenario — which is the governing law of the river — Arizona gets hurt the most. You have heavy impacts on Nevada, but the heaviest impact falls on Arizona because Arizona is the most junior water rights holder by agreement. At least large chunks of Arizona. There are some very senior water rights holders in the Yuma [Arizona] area who will be just fine. But the Central Arizona Project, which supplies water to Tucson and Phoenix and agricultural areas in between, would face very, very severe cuts.

In the other option, California faces the biggest cuts and that would fall heavily on Southern California, particularly the urban regions.

The impact is severe either way, which is why there's hope and maybe a little more optimism than there was even a couple of months ago that the seven states will come to some sort of agreement that is somewhere in between — not

right in the middle — but somewhere in between [those two options].

It is made somewhat more possible by the fact that the federal government has put \$4 billion under the Inflation Reduction Act to deal specifically with conservation measures and land fallowing and the like, to make the impacts of whatever has to happen less severe. There are also other billions in the act, and in other legislation, that hopefully the federal government will also bring to bear to help speed the funding of recycled water projects, lawn replacement and other things.

Whether by an agreement among the states or federal intervention, cuts will be ordered. How will Southern California be impacted by the cuts?

Well, I think it'll be a mix. Clearly, the Metropolitan Water District — the largest wholesale water agency in the country which covers over 19 million people — will definitely have to bear the brunt of the cuts because they have junior [water rights]. Same is true with the Coachella Valley Water District. They're junior [in terms of water rights] to the Imperial Irrigation District. Pretty much all of urban Southern California will take some big hits — not as big as Arizona but nonetheless significant.

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How well positioned is Los Angeles County to weather drastic cuts?

Well, I'd say every part of Southern California has sort of a different mix of options. I think those communities that are 100% dependent on Colorado River Water will have a problem. Those that have a mix of groundwater or other resources will have less of a problem. The interesting thing is it's not one big bathtub. There are areas of Southern California that have very robust groundwater management programs, and I think they will be in good shape.

Relatively speaking, the Metropolitan [Water District] has spent well over a billion dollars building storage in the Diamond Valley Reservoir [near Hemet in Southern California] and elsewhere underground. That will buy some time. You've got the largest water recycling project in the world in Orange County, which will also buy some time. And you have two even larger [water recycling] projects being proposed for the greater L.A. area: a 100% recycling at the Hyperion Treatment Plant project, and Metropolitan's joint

project with the L.A. County Sanitation District. But both of those projects will take a decade or more to come to fruition.

You also have L.A. County working to implement stormwater capture projects that provide multiple benefits, including yielding more groundwater. The Los Angeles [Department of Water and Power] is also cleaning up their groundwater basins and working to recapture more stormwater in them. You have a mix of water efficiency first and foremost.

I think you'll see much more lawn rebates and limitations on watering outdoors, which is a huge source of water still in Southern California despite a lot of progress during the last drought. You'll see investment in plugging leaks through better technologies in single family and multifamily residential units that will yield a lot of water. I think all of that buys time for those recycling projects to come to fruition.

Where do you think the biggest cuts from the Colorado River *should* come from?

Well, I think it's a mix. We don't have a blank slate. Those with senior water rights have developed thriving economies and communities based on that. You can't just take it away from them without incurring tremendous pain. The equities are really very mixed. I think the cuts should come from a mixture of cutting out nonessentials to modern life, such as

cutting way back on lawns. Certainly some amount of fallowing in agriculture. Not killing agriculture, but cutting back in areas where it's exceeded what nature can provide, and helping those communities make that transition over a period of years.

Could these cuts have unintended consequences, like impacted drinking water quality, which could affect people's health?

I don't think so. I mean, drinking water is actually a very small fraction of the water that we use. The rest of it is used for outdoor ornamental landscaping, for agriculture and for commercial uses. I think with proper management and prioritization of drinking water, we can do rather well.

There are communities that have had water quality impairments for years based on either contamination through the normal course of business in agriculture in their regions, or through illegal dumping or through overpumping of groundwater basins that mobilize natural contaminants that wouldn't have been mobilized otherwise, like arsenic or [hexavalent] chromium and some other contaminants. But that's very site specific.

I don't think you can blame the need to cut back on those problems. It may exacerbate it in some cases, but the problem isn't the Colorado River there. The problem is the

lack of will on our part of society to provide for the drinking water needs and sanitation needs of all, which is why there is a worldwide movement for the human right to water.

How will it affect California's reliance on its already overstressed groundwater resources?

I think everyone needs to be more efficient. Agriculture, urban users, et cetera, we all need to manage water more precisely wherever we are and value every single drop of water. We just need to accelerate our activities. But first and foremost in all of those is conservation and efficiency, because it's the cleanest, cheapest and smartest way to extend our water resources.

There's plenty of low hanging fruit yet to be seized in terms of transitioning out of lawns, even as we plant more trees that we're going to need under climate change. In the kind of multibenefit use that uses urban greening to capture water when we see it in our urban areas and get it into green spaces and into the ground, I think there are tremendous multibenefit opportunities from the top of the watershed on down that we're just starting to see. These are the kinds of things that traditional ecological knowledge and communities have known from time immemorial that we seem to have forgotten in the last 100 years or so of industrialization and professionalization and siloization of professions.

We need to unlearn some of those things and start to integrate green infrastructure along with our gray infrastructure. That will help buffer the sorts of challenges that climate change is raising. We live in an incredibly wasteful and luxurious era of the use of water, but cutting our use to something that still enables us to have quite a high quality of life is definitely within our reach. But it will require change.