

[Intro Music]

Bianca Bruno: Welcome to Sidebar, a podcast by Courthouse News. I'm Bianca Bruno, one of your hosts and a reporter in San Diego. Today we're talking about an issue that's top of mind for those of us on the West Coast: the drought. More than 95% of the western United States is in some level of drought. Seven states, including California, are entirely blanketed in drought conditions. Scientists say the multi-year drought encompassing the West will affect all facets of life, from the water supply to electricity generation. The impacts of climate change are playing out in real time on the West Coast and Courthouse News reporters have been following the crisis. First, we head to Arizona where Brad Poole has been reporting on the water worries as the Colorado River continues shrinking. Farmers there have been the first to feel the impacts of the dehydrated planet. Nina Pullano has the story.

[Running Water Sounds]

Pullano: From Central Colorado, the river flows southwest into Utah, Arizona, cutting through the Grand Canyon and then running into Nevada, California and all the way into Mexico. The mighty Colorado River is a source of water for 40 million people in the American West, and it's more depleted than it's ever been. For the first time ever, a new report by the Federal Bureau of Reclamation declared a water shortage, meaning that by the beginning of next year, Lake Mead, the largest reservoir in the country, will fall low enough that some people who are used to depending on the water from the lake won't be able to get it. In fact, Lake Mead, which was first filled in the 1930s is at an all-time low. The biggest hit will be to farmers.

Sharon Megdal: Some of them may be using groundwater, some of them may be growing different crops using different irrigation methods. But that's where the real impact in the near term in this Tier 1 environment will be felt.

Pullano: Professor Sharon Megdal is the director of the Water Resources Research Center at the University of Arizona's College of Agriculture and Life Sciences. She noted that cities and towns often rely on different water, which comes from the Central Arizona Project. So, this latest report won't really affect them. It would take much more time than we have on this podcast to delve into the history of management of the Colorado River, but in some ways, while this report spells out new trouble for the area, it's also been a long time coming. People have been managing use of the river for nearly a century, the waters managed by hundreds of smaller laws really based on the basic fact that a desert region needs to carefully allocate its resources. So, it's not uncommon to think in terms of shortages. Still, a report like this makes the threat of running out of water a little bit more salient.

Megdal: I think that the impact or the importance of this declaration of shortage means that the shortage conditions are real. Since 2007, we've had these triggers on the books on the regulations. If Lake Mead went below a certain level, a shortage would be declared. We knew it could happen. But I do think the reality of something actually happening like this will be recognized and thought about by more people. It's real, as opposed to something conceptual. People may start asking questions like what is the drought plan of my city or town that I live in? Water utilities and communities do have drought plans.

Pullano: That means perhaps building new housing differently, or limiting green lawns which use up a lot of water, maybe reserving them for things like ball fields or spaces around pools where kids play.

Megdal: The impacts can be on all users in central Arizona over time, depending upon what cards Mother Nature deals us. And we just don't know and that's why things will have to be monitored very carefully. And so, I think you'll see more and more partnerships, collaboration, innovations, to keep the overall river system healthy enough, but unless we have a number of good winters in a row, I think we're looking at it Tier 1 shortage at least for a couple of years. And maybe we'll be lucky and have some very good winters. But we have to be prepared if we don't.

Pullano: That can involve essentially paying some communities not to use all the water allocated to them so that it's available to others. Based in Tucson, Arizona, Brad Poole has been reporting on the Colorado River for years. And for him and his neighbors, the idea of water conservation is nothing new.

Poole: There's sort of a cultural effect here that it's a culture of conservation. And I, you know, I don't feel it as a sense of concern or fear. I feel it's more of a community, a sense of community that we have to sort of all do our part to make sure that we can still have a city here.

Pullano: I talked to Brad about the group with the most to lose when it comes to this new shortage: farmers in the region.

Poole: Arizona has what we call the five C's that prop up our state, and its cattle, cotton, copper, climate and citrus, oddly. So, farming is very, very big in Arizona, as strange as you would think that is, agriculture is very big here. You may have heard of Pima cotton or seen a symbol in your clothes for Pima cotton. Well, I'm in Pima County, Arizona. So that cotton comes from this desert.

Pullano: Brad interviewed someone from the Farm Bureau about this shortage, and they described a study saying that the Tier 1 shortage would cause a \$66 million loss just on crop sales. On top of that, the study predicted \$104 million of broader economic impact because of the surrounding industries that exist because of these crops. While the first effects of water shortage are being felt in agriculture, it's possible that like Professor Megdal said, other groups will face similar challenges down the road. Looking toward the future, it's expected that there are more tiers to come, and that could have a greater impact on even more communities. Tier 1 and Tier 2 would mean more cuts affecting even more users, including cities, towns and tribal nations. Remember when I mentioned that some communities could be paid to use less water so it stays in the reservoirs? As Brad has reported, water regulations could give some tribal groups a more substantial stake in Arizona's water.

Poole: Tribes will collectively control almost half of that Arizona water. And that's like 40% of the water, 35% of the water in Arizona. So, they're going to control a lot of water. And they have agreed in some cases to leave some of that water behind, as they say, in Lake Mead to provide more of a cushion in Lake Mead, so water they're not using is left behind for other users in Lake Mead. When the allocation for the state drops 512,000 acre feet next year, about 105,000 of those acre feet, a fifth of that water will be made up through mitigation from various sources. One of those sources is Native American tribes. So, they will lease their water to irrigation districts, which will then sell it to farmers.

Pullano: Like Professor Megdal said earlier, some of the outcome all depends on what cards Mother Nature deals the region. So, it's impossible to talk about the future without also talking about climate change. And it's tricky to attribute any single event to the overall warming of the planet. But at the same time, we also know the signs of climate change are becoming more and more clear.

Poole: This area is very sensitive to changes in climate. And so, when climate change does have impact, it hits here first. Arizona, Nevada, the dry parts of Southwest, probably Texas, New Mexico, all of those areas are likely to see impact from climate change before other places because we kind of exist on a razor's edge here to begin with and everything here is very dependent on the tiny amount of water we have. So, when you take away any part of that, it can have big impact.

Bruno: Thanks, Nina. To read Brad's in-depth coverage on the Colorado River water shortage, please visit our website at courthousenews.com. We'll be back after a short break.

[Music Break]

Bruno: California is no stranger to wildfires. But the impacts of the drought which have ebbed and flowed in the state for the better part of a decade has been concentrated in Northern California's dense forests the past several years. The result, fiery infernos which have become so dangerous some firefighters have likened the intensity to a bomb going off.

Larry Himmel: On any given day, I would say welcome to my home. This is what is left of my home. Just outside the forest ranch area. ... That was our garage. The living room over there. There was a porch. Back there are the bedrooms, no pets left behind. ... You can see my hose was right here, valiantly trying to do something.

Bruno: I remember sitting on my grandma's couch at her home in the central San Diego suburb of Clairemont watching open mouth as local CBS reporter Larry Himmel reported live from his family's burning home. I was in high school and hoped to be a journalist someday. My own family and all our pets had evacuated to my grandma's house to escape the fires burning across San Diego County in 2007. We were lucky, our house was spared. But like Larry Himmel, my parents' friends had also lost their house in the blaze. Fire season, as Californians call it, was the time of year each fall where we collectively held our breath, hoping hot, dry Santa Ana winds will not turn a spark into a devastating blaze. But as Courthouse News reporter Matt Renda, who covers wildfires up and down the state told me, wildfires in California no longer have a season. They're year round now. Here's our conversation. You've covered wildfires for Courthouse News for several years and you also did so previously for other publications. Are wildfires in the state getting worse?

Renda: I think that undoubtedly they're getting worse. I think if you look at the statistics, you know, the top 10 largest and most devastating in terms of property and the loss of life, fatal wildfires, the balance of them have occurred in the last three years starting in 2017 with the wine country fires, obviously the Camp Fire has been terrible. And unfortunately, we are undergoing another devastating wildfire season at present. We have two major wildfires burning right now: the Dixie fire, which is the second largest in state history, and the Caldor Fire, which started a couple days ago, which actually I will be traveling to beginning tomorrow. I think undoubtedly the statistics show and just the eye test show that wildfires are growing or they're worsening in the state.

Bruno: What specifically is causing wildfires in California to be bigger, to burn faster and to just be more lethal?

Renda: I think undoubtedly climate change is having an effect. I think that there's an increasing scientific consensus that our surface, our daily temperatures in California, are getting hotter. And that creates, you know, low humidity and a better environment for fires to flourish and burn hotter. Scientists and

meteorologists think that the droughts are caused by a changing climate. And of course, droughts mean drier fuel conditions, less water and a forest environment that is more susceptible to large fires. That said, there are other people who claim that forest management is an issue. Some people, for instance, in the timber industry say that, you know, we're not taking enough trees out of the forest. In some of the scientists, some of the foresters that I've spoken with, they do think that California forests are more dense than they were historically. And one of the reasons is, is because fire suppression. So, when the fire starts, like we historically have put them out, and that has allowed more trees to survive than would probably happen under natural conditions. And so therefore, when fires do start and they get out of control, we're unable to suppress them. What you get is, is less frequent but higher intensity fires than maybe under historical natural conditions, when you've got frequent fires but have less intensity, and so I think that's why you're seeing these kind of large infernos that are hundreds of thousands of acres, spread rapidly and do a lot of devastation both to the natural environments and obviously, to people in their communities.

Bruno: You've talked to a lot of firefighters on the ground, fire chiefs in multiple cities in California. What are they saying about how fires have behaved the past few years?

Renda: Well, I think that you're seeing a lot of stories this year, in particular the talk about unprecedented fire behavior. And I think it's because of the unprecedented nature of how dry the what they call fuels, but which are basically vegetation, are right now. It's impossible to overstate the effects of the drought, that probably begin, you know, probably, I would say, like seven or eight years ago. Obviously, we got a couple of, you know, good, wet seasons intermittently in between, but really, we've had kind of an extended drought more or less for like the last decade. When I went to Paradise, I talked to firefighters who fought that fire, and they likened it to a bomb going off and that's what Paradise looked like. I mean, that town, which was, of course, victimized by the Camp Fire in 2018, 85 people perished in that, I mean, it looked like a war scene, it was utterly devastated, the entire neighborhoods. You know, you saw cars where their steel frame was the only thing that was left of them, entire houses incinerated with stone chimneys being the only thing that is left. I mean, just scenes of utter devastation.

Bruno: Are the worst wildfires concentrated in a certain portion of the state?

Renda: They're concentrated basically in the forested areas of Northern California. There's a difference between the kind of large grass fire that's also burning some trees, and then some of the infernos that you get in a heavily forested place like Northern California. You know, I saw the Creek Fire recently, and the Glass Fire, and those fires are basically they're what are called crown fires. So, they're not just burning on the ground or growing up into the trees and then they're basically just consuming entire swathes of forest. And I think that area of Northern California is more susceptible to the kind of devastation that you see in Paradise.

Bruno: Can you talk specifically about how the drought in the West and in California the past, you know, decade plus has exacerbated the devastation caused by wildfires here?

Renda: I think one of the important things to know about the Creek Fire in particular is when I talked to firefighters after I was responding to that they talked about the conditions of the forest being extremely unhealthy. And I think when you get towards the southern reach of the Sierra Nevada mountains, in the western foothills where a lot of the forests of California are, you see a high degree of tree mortality. And

it's a combination of things. I know that there's been a bark beetle infestation, which has really harmed trees there. But from the foresters and tree experts that I've talked to that the bark beetles are being so successful largely because the trees are weakened by a lack of water. Trees are stressed because of a lack of water and makes them unhealthy, then, because they're unhealthy, they're more susceptible to insect invasion, which means more of them die. And if they're not removed, or managed in a timely manner, then they're basically just fodder for fire. When you have unhealthy forests, you have conditions that are really amenable to big, large, devastating wildland fires.

Bruno: Well, you're a Californian, and I'm a Californian. And wildfires are, you know, a way of life here in San Diego, we refer to it as fire season. I imagine it may be the same up where you are. Can you explain for people who don't live in regions that are ravaged by annual wildfires, what the impact of that is on Californians?

Renda: That's really interesting that you bring up fire season, because I think it needs to be acknowledged that there's like almost no such thing anymore, that like all year round is fire season. And that is an entirely new reality that firefighters and people who live in California have to face and it's created, I think, you know, by the drought. I think that this year is a perfect example. We had a very poor winter this year in terms of rain. The forest conditions that you saw in May and July were typically, in terms of fuel moisture content and the amount of water that was in the forests, were typically conditions that firefighters would encounter more towards this time of year, right, August and September. So, in California, traditionally, fire season kind of begins right now. I'd say about early to mid-August and then runs through well, the first rain, which you're hoping is, you know, maybe October, maybe November. But now, when you don't have, you know, sufficient rain or for sufficient precipitation during the winter, the fire season extends itself. I think the Dixie Fire is a great example. I mean, it started on July 15. I think traditionally, if this were 15 years ago, a fire that started on July 15 would have trouble kind of getting up and running because there would still be enough moisture leftover from the winter months to make it difficult for that fire to really get going. But now because of, I mean, the forests are basically a tinderbox, and it basically starts in May and June, you get a fire season that begins earlier and basically lasts until we get our first storm which hopefully come early this year.

[Thunder Sounds]

Bruno: Before we get to our final segment, if you're not already doing so, please give us a follow over on Twitter @CourthouseNews and @SidebarCNS. There you can follow developing stories from Courthouse News reporters from coast to coast. Finally, we're heading up the coast to Sacramento where Nick Cahill gives us some insight into why California Governor Gavin Newsom, who faces a recall election next month, has yet to follow his predecessor's lead and issue water reduction mandates. And that's in the face of more severe drought impacts on the Golden State. Here's Nicholas Iovino with the story.

Iovino: We're going to talk about drought in California. But before we get into that, there's something you should know about where the state gets its water.

[Water Sounds]

Iovino: I'm talking about the H₂O that California uses to keep its rivers and wetlands healthy, to irrigate crops in the Central Valley and to send flowing from taps in cities like Los Angeles and San Francisco. It

might surprise you to learn that rainfall isn't that important to the state's water supply, what really matters is how much snow Mother Nature decides to dump in the Sierra mountains each winter.

Amir AghaKouchak: Snow is a kind of a natural water reservoir for us. And if we get the same amount of normal rainfall, but all in form of rain to rain quickly to the ocean. And we still end up in a drought situation. So, we always have to look at rain and snow separately. In fact, you can have normal precipitation, but if most of it is in form of rain, you will end up a drought.

Iovino: That's Amir AghaKouchak, a professor of civil and environmental engineering at UC Irvine, who's conducted extensive research on drought and water systems. Talk to a few water experts and they'll tell you drought is nothing new for California. Periodic dry spells have been occurring in this part of the world for thousands of years.

Fraser Shilling: We've always had periodic droughts. And if you go back through history, for as long as we've been able to detect droughts and precipitation going back into the fossil record, you get these ups and downs in precipitation. And sometimes the downs can be very long. But the thing that seems to be changing is the frequency of droughts. We're getting them more frequently, and the severity seems like it's also increasing.

Iovino: That's Fraser Shilling, an environmental science professor at UC Davis. He says there's a reason droughts are occurring more often and with more intensity. The culprit is climate change.

Shilling: In climate change, the thing to remember is that it's not just warming. We are modifying how the climate works. And the natural movement of water of trillions and trillions of gallons of water around the world is something we could never reproduce. We can't do that ourselves. We rely on it happening. We rely on that water falling from the sky, and if it didn't, we'd go extinct.

Iovino: For the last 20 years, California has endured a nearly uninterrupted string of bone-dry years, most recently from 2011 to 2017. The state had a brief reprieve toward the end of the last decade, but drought returned last year, and it hasn't gone away since. I caught up with Courthouse News reporter Nick Cahill, who's been covering droughts in California for almost a decade. I asked him how this drought compares to those of the recent past.

Cahill: This time around the impacts are coming on much faster. Officially the state is only in its second year of drought, but reservoir levels are already approaching record low levels and we still have months to go until the rainy season officially begins here.

Iovino: During the previous drought, former Governor Jerry Brown issued an edict requiring the state to reduce its water usage by 25%. This time around, the state has yet to impose any aggressive mandates like that.

Cahill: Unlike the previous drought, where then-Governor Jerry Brown was pushed to issue a state's first ever mandatory water use restrictions, Governor Newsom so far has been taking sort of a more piecemeal approach. He has declared drought emergencies in dozens of individual counties, in fact, almost every county, but so far, he's sort of shied away from a statewide mandate, like Governor Brown instituted. Instead, he's asked farmers, businesses and cities to basically voluntarily cut their water usage by about 15%, but there is sort of a strong push on him to issue a broader mandate because we're seeing municipal wells go dry up and down the state.

lovino: A drought like this can have devastating effects on every form of life. From crops grown in Central Valley fields, to endangered species that rely on healthy water quality in California's rivers, lakes and streams.

Cahill: We're seeing toxic algae blooms, choking waterways up and down the state, particularly in the Sacramento-San Joaquin River Delta, warm water temperatures are having a disastrous impact on salmon from Oregon to the Central Valley. In fact, things have gotten so bad, state and federal officials are openly admitting that we're going to see a salmon slaughter as the summer rolls on.

lovino: California dedicates about half its annual water budget to environmental uses, such as protecting sensitive wetlands and ensuring adequate water levels in wild and scenic rivers. But during a drought, the state tends to hold back some of that water to meet other demands. And this can impair water quality, threatening the survival of endangered fish like coho salmon and steelhead trout. It's a problematic scenario that Professor AghaKouchak says will probably happen more frequently in the coming years.

AghaKouchak: In a normal year, a certain amount is released for aquatic cities for maintaining environmental law in rivers. Under extreme situations, managers and decision makers can cut back on the environmental flow. And this has happened before, it will happen more and more in the future.

lovino: The environment isn't the only casualty of these increasingly frequent and intense dry spells. Nick Cahill explains how the drought has affected the state's \$50 billion a year agricultural sector.

Cahill: This drought has been particularly tough on the industry, as the federal government and the state essentially stopped water surface deliveries in the spring. As a result, farmers are having to get creative and you know rely on alternative sources such as groundwater. But this really isn't an equal playing field because major farming operations have a decided advantage. They're able to dig deeper wells, get further down into that water table and survive while smaller outfits are largely often forced to fallow their land, they have no water supplies.

lovino: Farms in other parts of the country get at least some of their water from natural rain. But in California, most growers rely exclusively on irrigation. And that makes them particularly vulnerable to drought. According to Professor AghaKouchak:

AghaKouchak: Our agriculture in California is mainly irrigated agriculture and if there is no water for irrigation, you quickly see the impacts. Usually, we see the impacts first on low value crops like alfalfa and other types of low value crops. But as drought intensifies, you even impacts on even high value crops like almonds and others.

lovino: Agriculture gulps up 80% of the water that goes to homes and businesses in California. Professor Shilling of UC Davis says that's an exceptionally large share for an industry that, while important, contributes less than 3% to the state's gross domestic product.

Shilling: A large area of California is devoted to agriculture. We think of it ourselves as a agricultural state to some degree, and we export a lot of foods to the rest of the country. But economically, the agricultural contribution to the economy is not as big as most people think. Our economy is not dependent upon agriculture, it's dependent on high tech. On the other side, the primary economic use

of water in California is from agriculture. So, agriculture is small economically in California, but its impact on the economy water is huge in California. It's very disproportionate.

lovino: Some critics argue that California's ag industry is a water hog and that farmers shouldn't be allowed to grow thirsty crops in areas of the state that lacked natural water. But Professor AghaKouchak says it's also important to remember that a lot of families depend on the ag industry for their livelihoods.

AghaKouchak: Lots and lots of people work in the ag industry, so when people lose their jobs, the impacts propagate into society. Access to health care may change, so, if for example, children are affected because of lack of food and nutrition deficit, the impact could be really long lasting beyond the life of drought. In the previous drought, for example, we noticed that crime rate went up significantly in Central Valley, because people lost their jobs and as a result, crime rates increase, so easy to blame things on agriculture, but we have to understand that it has a significant human dimension.

lovino: Nick Cahill says farmers have been complaining for decades about how California manages its water reservoirs. They've also been pushing for the state to build more dams and tunnels to increase water deliveries.

Cahill: While the farming industry and conservative politicians are sort of sticking to that familiar talking point of building new dams, there are several projects on the table. But most, if any, are decades away from fruition due to the usual culprits, you have financial concerns of building billion-dollar dams, as well as environmental concerns. Clearing those hurdles has proven to be essentially impossible for many of these projects in recent decades.

lovino: I asked Nick if California is better prepared for droughts after dealing with a long period of drought from 2011 to 2017.

Cahill: I'd say the answer is yes and no. Critics would probably tell you the state has been slow to dish out billions of voter-approved dollars that were supposed to go towards improving water infrastructure and you know, drought resiliency projects. However, on the local level, there's been some real clear progress. A lot of municipalities are breaking ground on their own projects, for example, a groundwater recharge project in the Central Valley, quite a few actually, a massive wastewater treatment plant water recycling plant here in Sacramento, and more recently, a desalination plant is underway in the Bay Area city of Antioch. So, I think you sort of have this scenario where locals are sort of taking matters into their own hands when it comes to their water supply, while the state as a whole is still trying to figure out the big picture.

lovino: Another way California is working to reduce the severity of droughts is by fighting climate change. The state has made several commitments to reduce greenhouse gas emissions over the next 25 years.

Cahill: California, of course, is known for its ambitious climate change goals, and as you would expect is pursuing, you know, some high-profile endeavors like attaining 100% of its energy from renewable clean sources, essentially an all-green grid by the year 2045. Recently, the governor's passed a sort of moratorium on phasing out hydraulic fracking bans and trying to, you know, limit fossil fuel extractions in the state. And more recently, he also issued a mandate that all new cars sold in the state will have to be zero emissions by 2035.

lovino: Doug Parker, director of the California Institute for Water Resources, told me there's no single answer that's going to solve California's water crisis. He says it's going to take a mix of different projects and strategies to cope with these more frequent and intense dry spells.

Parker: There isn't going to be one solution for this, there's going to be many different ones that make sense in different places. And sometimes it's going to be desalination. Sometimes it's going to be water reuse, not sending wastewater out to the ocean, but reusing it. Sometimes it's just more concentration and efficiency. We simply need all of these in order to operate best in California.

lovino: And though we can't control the weather, Professor AghaKouchak says average citizens can do more than just rain dance to help stop droughts from getting even worse in California.

AghaKouchak: At the individual level, obviously, we don't have any control on the weather and meteorology. But if we cut back on our emissions, at least we can have a small impact on future climate change. And again, at the individual level, if we contribute to demand management by cutting back our water use, maybe removing our lawns and put in more native species and things like that they can have big impacts. So, by both cutting back on emissions and cutting back on water use, I think at the individual well, we can have collectively.

[Music Break]

Bruno: Thanks to Nick for your report. And thanks to our listeners for tuning in. Please subscribe to Sidebar on Apple Podcast or Spotify so you never miss an episode. If you've enjoyed our show, please give us a rating and review. See you next time.

[Outro Music]