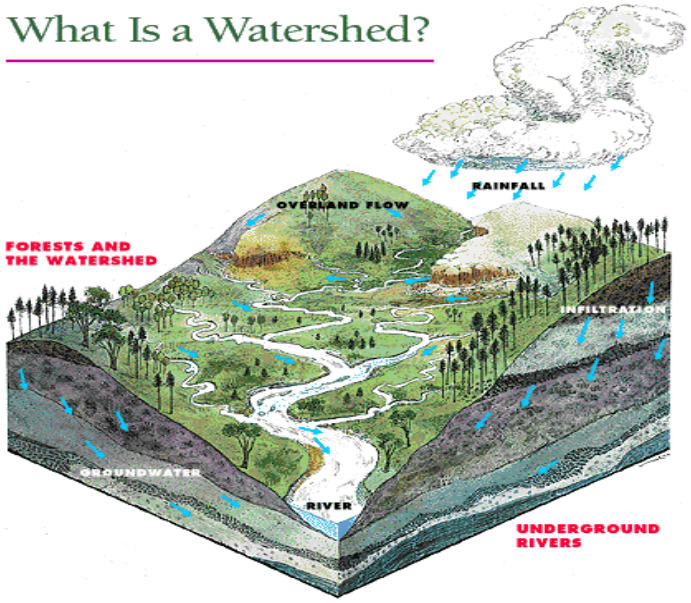
5 Things Every Californian Should Know About This Drought

1 Water Is Life – It Connects Everything.

We are inclined to see water in isolation from everything else. We see this drought as an emergency condition that we need to respond to and recover from in the same way that we see wildfires, floods, and mudslides. In fact, all of these "emergencies" are interconnected and part of the extreme and unpredictable conditions that we have today and will likely increase in the future.



West Virginia Dept of Environmental Protection

We are also inclined to see linear cause and effect when, in fact, we are witnessing interconnected, cyclical system function. How humans have altered the landscape over time is impacting our resilience to our changing climate. Indigenous peoples actively managed California's lands and waters as part of the natural system function. As settlers commandeered the land, they commandeered the natural resources too, shifting toward taming and controlling natural systems. Human choices at every scale have altered the natural system function in California.

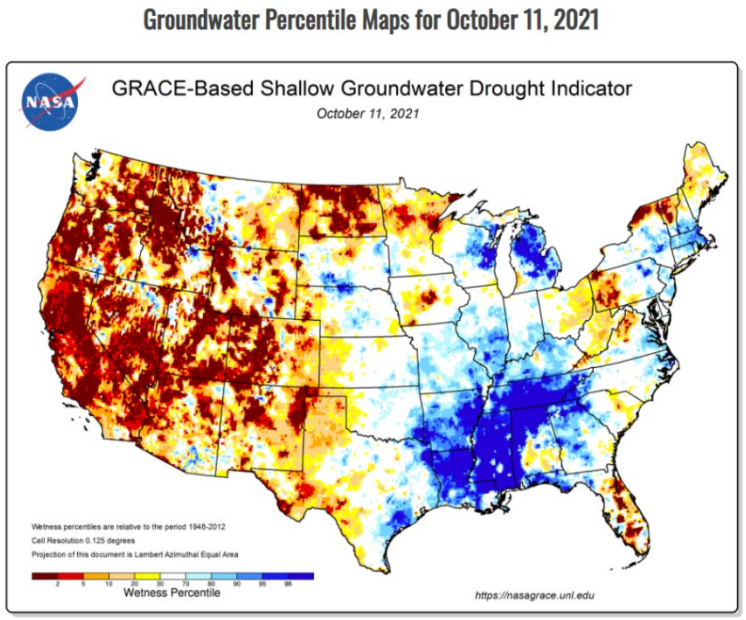
Most dramatically, we have done our best to capture water and direct it to human uses. We've disrupted the natural meanders that slow, spread, and sink water and all of the nutrients and resources water carries to hydrate and feed our landscapes and ecosystems from our forested headwaters to our wetlands and oceans. Not only does this leave vegetation, including our forests, struggling but it robs our aquifers of natural recharge, disrupting the natural interconnectivity between surface and groundwater.

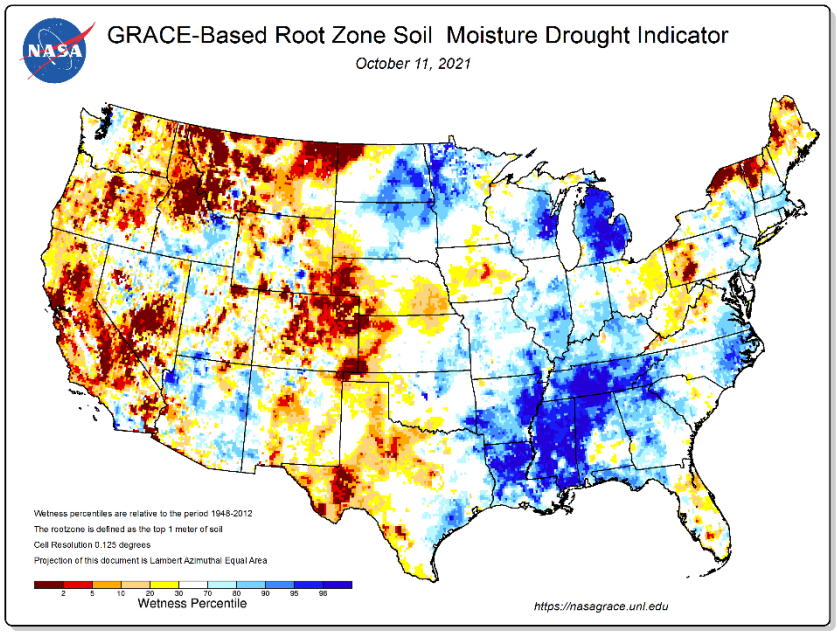
We also "reclaimed" land from water and vegetation. The entire Central Valley of California, for example, was a marshy landscape filled with tulles. Urban landscapes were also transformed by dredging bays and

other water bodies to add "real estate" in places like San Francisco. These land transformations disrupted natural flood systems leading humans to build levies and to imagining a future where the Bay is armored against sea level rise and extreme flood events. The additional physical infrastructure further disconnects the interconnectivity of the natural system.

There are many opportunities to reconsider how we manage land and water and actions that every person can take at every scale. See the outdoor water management section below for opportunities at parcel scale. At landscape scale we can restore our headwaters. That means more active forest management. While much of our attention is focused on tree thinning, forests are complex ecosystems, and we need to manage them as such. Our forests will not be healthy unless we integrate vegetation management with land and water management by restoring hydrologic function, including restoring stream meanders, upper mountain meadows, soil health and hydration, and reducing the disruptions in natural flow where appropriate (ie: dams).

Generally, taking every opportunity to slow, spread, and sink water will increase hydration and soil and vegetation health making our landscapes more resilient to extreme wet and dry conditions and to wildfires.

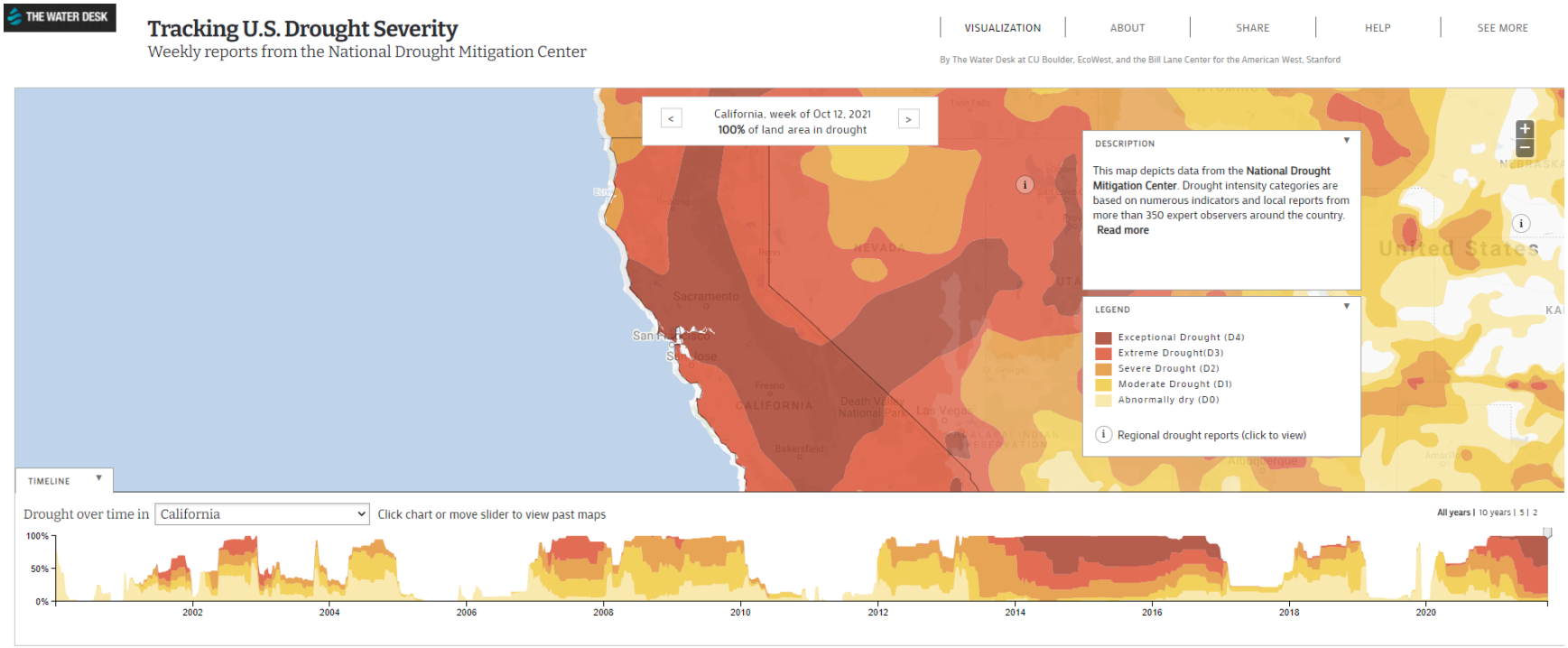




https://nasagrace.unl.edu/

2 This Drought is part of a trend toward longer dry periods exacerbated by hotter temperatures and a drier landscape.

Some call it a mega-drought.



https://graphics.waterdesk.org/interactive/drought.php

Check out the pattern at the bottom of the graphic above. The color coding tracks dry conditions. The lightest color is "abnormally dry" and may indicate the beginning or ending of drought conditions. Every darker shade indicates drought conditions of increasing severity. The y-axis indicates the percentage of the state experiencing those conditions. I think it's fair to say that most years in this 20-year horizon were dry. Click on the link to access the interactive map and explore the data for yourself.

In fact, our current conditions are consistent with a set of climate predictions that suggest California's precipitation patterns will be increasingly unpredictable and extreme, with longer dry periods punctuated by shorter very wet periods. You may have heard the term "climate whiplash". That's what we're experiencing in California. The change in

precipitation patterns is exacerbated by general warming in the state that means less snow falls and it melts earlier in the Spring. It also means an increase in evaporation and evapotranspiration which dries out soil and vegetation faster.

California used to enjoy fairly predictable patterns of rain and snow that we've built statewide infrastructure around that serves most of our urban coastal communities from San Francisco to San Diego. As conditions become less predictable based on our old models and infrastructure, water agencies are managing higher levels of risk. Some water agencies are internalizing the changing conditions and questioning their assumptions. Others are not. It's up to you to engage with your water provider to understand how they are managing risk and to weigh-in.

Unfortunately, water management is very fractured in California. We have more than 7,000 water providers of one type or another, though around 400 of them account for the bulk of California's population. There is not a centralized source to find out who your water provider is. You can do a google search for "California water provider by zip code" and look for a link in your region.

As the climate continues to change, faster than anyone expected, we may need to change our assumptions and how we manage land and water if we want to be resilient to the changes. How might we act differently if we assumed that the next year is going to be dry? Seems like a reasonable assumption.

3 Avoid Overgeneralizations – Nothing is inherently good or bad. What matters is HOW we do things.

Most of you have probably heard that Agriculture uses 80% or 50% of California's water. It is 80% of developed water for human use or 50% of all water that flows through the State. Either way, it's a lot of water. That isn't a good or bad thing. What makes it good or bad is how agricultural use is balanced with other values and priorities in the State and whether agricultural operations are improving or deteriorating conditions in the face of climate change. Agriculture is part of California's culture, and it performs an important function of feeding humans and livestock.

California has a vast diversity of agricultural operations. Many farmers and ranchers are working to be positive contributors by embracing sustainable farm practices. One challenge we face, as a State, is that each acre of land is different and what is "good practice" on one acre may not be "good practice" on the next acre. **Generally, farmers committed to sustainable practices will minimize the use of synthetic chemicals and fertilizers, use water efficiently, restore soil health, and grow appropriate types of crops in rotations that allow for regeneration.**

Each farmer has to decide how to achieve those outcomes. Take water efficiency, for example. For one farm, efficiency could mean drip irrigation, delivering the most efficient amount of water to each plant and not leaving any to infiltrate into groundwater or expand into the soils. For another farm, efficiency could mean flood irrigation for the purpose of aquifer recharge, creating habitat, and/or improving soil health.

Every Californian is part of the dynamic that farmers balance and weigh. What we choose to purchase in the grocery store has an impact. It costs more to grow organic. In many cases growing organic is easier on the land. Are you willing to pay more for organic practices?

California farming has become subject to speculators and investors. Where families that have been farming in California for generations are balancing and weighing the future in their management decisions, speculators and investors may be driven by shorter term gains at the risk of longer-term sustainability. If you have a retirement plan or an investment portfolio you may be inadvertently supporting this practice.

There are no simple answers. It sounds easy to say we should take water away from Agriculture to serve other needs. Maybe there are some agricultural practices we should not support. Maybe there are opportunities for California to expand food security by growing more food in urban communities. It's not likely that we will find meaningful answers until we embrace the complexity and build understanding across our communities.

We should be applying the "how" question to every way we use and manage water in California. Even under dry conditions, as long time Southern California water activist Dorothy Green used to say, "We've got enough water, just not enough to waste." Waste is a moving target and can only be considered in relationship to our values and the larger system of which water is a part.

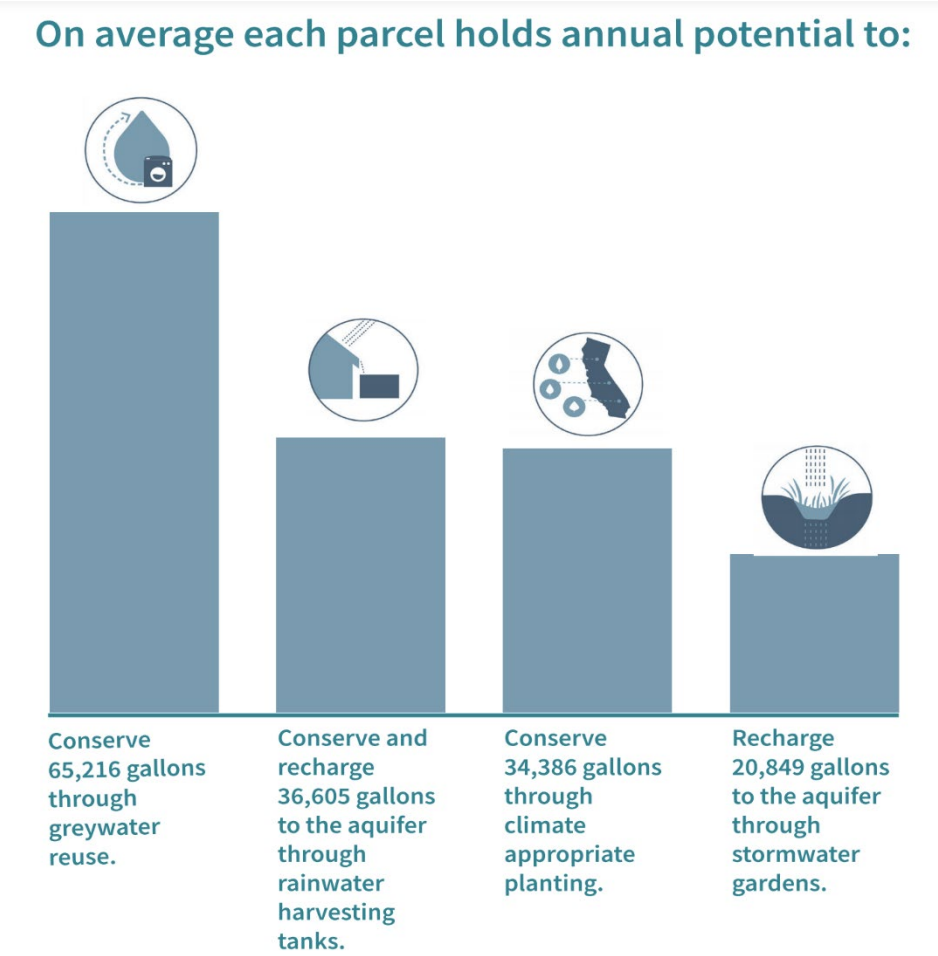
4 Every Californian is a Land and Water Manager - Whether you rent or own.

Indoor Efficiency

Start with your own home and property. You are a land and water steward whether you're an owner or a renter. Have you tested for leaks? Are all of your fixtures watersense rated? Do you have aerators on your sinks? Is your family conscious of turning faucets off when washing dishes, brushing teeth, and shaving? Do you run the dishwasher and clothes washer only when full? Save Our Water has a short list of things each of us can do, and you can search online for "water conservation" resources to find many more tips. If you are in Southern California, you can check out BeWaterWise.com for actions and rebates.

How efficient is your community's water system? To find out, check out this interactive water use map created by the Pacific Institute. Be an influencer and encourage your friends, family, faith-based community, community groups, and others to be more water efficient.

Do you have water you can harvest indoors for outdoor use? The easiest is laundry to landscape. Check out Greywater Action for resources that will help you identify opportunities to reuse your water.



may require direct irrigation depending on age, type, and location. If you're in doubt about what your trees need, contact an arborist or your local UC Master Gardener

Outdoor Water Management

Most homes in California can reduce their water use most substantially by focusing on outdoor use. If the only person to walk on your lawn is the person who mows it, it may be time to consider lawn removal. Now is the time to dig your lawn under and use sheet mulch to stop its growth when the rains come. Resist replanting right away and instead focus on building soil health. Design your new landscape with water flow, ecosystem, and food in mind.

In most parts of California, you can have a thriving landscape that uses little, if any, treated tap water. Building soil health, giving water a chance to spread and meander on your property to promote infiltration, and capturing and reusing every drop may be enough to keep native and drought tolerant plants thriving. Is there outdoor water you can capture for irrigation, in addition to the greywater you will reuse from inside your home? Rainwater is an easy option and can produce more water than you might think. If you live in a foggy area, you may be able to capture fog condensate.

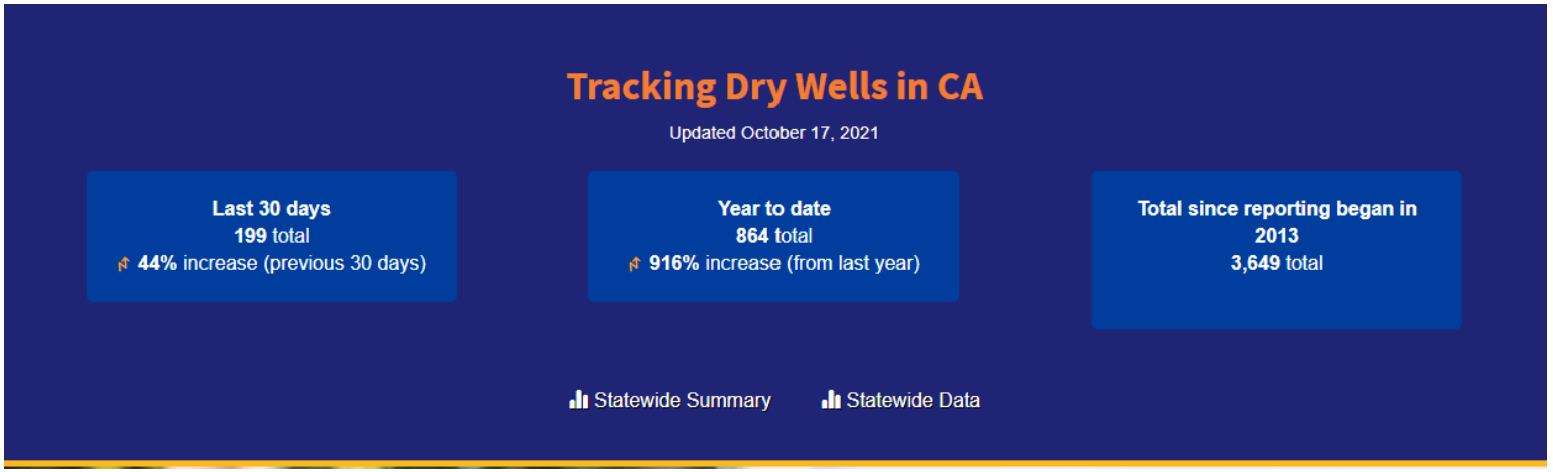
One important caveat: **TREES**. **We need our urban tree canopies**. We should be expanding the canopy, especially in communities lacking tree coverage. Trees

Program. (http://mg.ucanr.edu)

The time to plant is after the first couple of rainy days, when you expect to see consistent rain in your region but before it freezes. You may need to cover your new plants to protect them from frost or freezing the first couple of years. Check out the Land Resilience Partnership (watertoolkit.org) for a holistic approach to managing your outdoor water and land.

5 There are people and ecosystems suffering now from the impacts of the drought and the longer dry trends in the State

We are all responsible for water equity.



https://mydrywell.water.ca.gov/report/

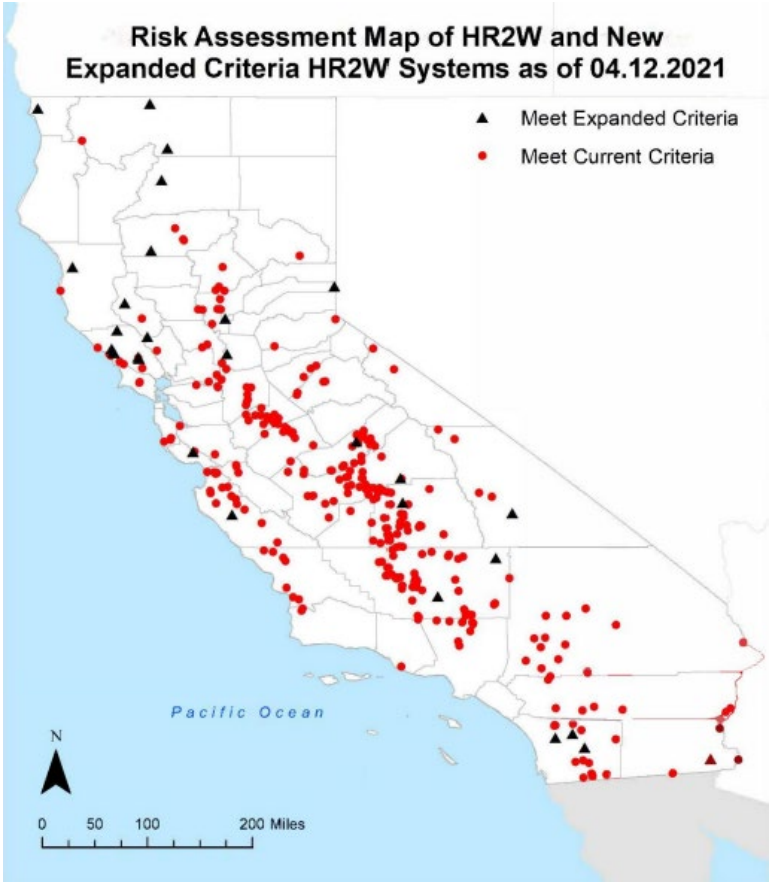
Household Water Security

There are people in California, right now, whose homes are entirely without water. The numbers may look small. We don't actually know precisely how many homes are without water because there is no requirement that anyone report water shortages. A home without water can be red tagged for unsafe living conditions. Parents fear that Child Protective Services could take their children from them. We do know that these numbers are a dramatic under-counting of the number of households without water. The percent increases are really what tells the story.

Imagine what it's like to turn on the tap and nothing comes out. Drinking water turns out to be the easiest thing to manage. If you have the money, you buy bottled water. How do you flush your toilet? How do you bathe? How do you

keep your home cool if you rely on a swamp cooler? How do you wash your clothes and dishes? Many impacted households lack resources to purchase water and can be forced to make very difficult choices between water, food, and medicine. Children miss school because there is no way to bathe them or clean their clothes.

Click here for a map of household water shortages (or visit mydrywell.water.ca.gov/report for a statewide summary). That's a start for identifying where people are struggling. Water insecurity can also come in other forms. Some communities rely entirely on contaminated water sources. They turn on the tap and water comes out but it's not safe to drink and, in some cases, skin contact is not safe. Below you can see a map of communities lacking safe water. Follow the link to learn more.



https://www.waterboards.ca.gov/water_issues/programs/hr2w/

Another way that families and communities can experience water insecurity is when water is not affordable. The State Water Resources Control Board recently issued an affordability assessment.

(https://www.waterboards.ca.gov/drinking_water/certlic/drinkingwater/documents/needs/results_and_methodology_affordability_assessment.pdf) Please click on the link to find out more.

Tribes

Dry conditions also impact Tribes. Tribes and indigenous people live everywhere in California. Each Tribe is unique, and you should learn about the Tribe(s) in your area. Many California Tribes rely on water not just for drinking, but as a relation integral to maintaining their culture and lifeway. Tribes have thousands of years of experience in honoring their responsibilities as stewards for California's lands and waters. Understanding, protecting, and enhancing Tribal control and engagement in land and water management -- and honoring their relationship with their place -- are essential components of equity, and benefit all of us if we wish to continue to live and thrive here.

https://www.washingtonpost.com/nation/interactive/2021/california-disappearing-salmon/

Ecosystems

The Washington Post story linked above lays out a stark picture of the conditions contributing to the decline in salmon populations in California. Some fear that we may be seeing the final runs of salmon in California. When we experience dry conditions in the State there is pressure to wring every drop of water out of our watersheds for human use. We have laws that are designed to protect ecosystems and endangered species, but politics are a powerful counterbalance on those laws. Salmon are not the only species suffering.

The complexity of our state's water rights and environmental laws and the fragmentation in water management make it difficult to balance the tradeoffs necessary in a dry period. We lack a venue or process that connects what we do as individuals to the impacts of our actions. How do you balance, for example, the value of a green lawn that only the person mowing it every walks on against the value of assuring every community has safe, affordable water or saving the salmon? If you, as a homeowner, business owner, farmer, forest manager, whatever your role, could choose to allocate your drops of water, what would you choose?

As our water cycle continues to be unpredictable and extreme, let's be the catalysts of conversation and action that assures we're putting every precious drop to the highest use that honors our family, community, and state values.

Water Solutions Network

Collaborating for California

Prepared by

Debbie Franco
Managing Director
Water Solutions Network

debbie@watersolutionsnetwork.org
(916)352-3321