Submitted

Abstract

We created our water and drought tracker to show our readers that the water they drink starts in the sky and ends in the hundreds of miles of aqueducts crisscrossing the state, or in an aquifer buried deep underground.

The dashboard funnels many data points collected by public agencies telling different pieces of this story into a straightforward explanation about how the state is doing when it comes to water management and access.

We weave data visualizations and interactive elements into a visual explainer that dives into issues pertaining to surface water, groundwater and water usage.

We'll walk people through the dashboard and have a conversation about the state of water data in California.

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Sluicing and slicing

How CalMatters pooled water data from across the state to visualize the wet and dry seasons

The next 30 minutes

Agenda

01 Who we are (Jeremia)

02 The thing we made (John)

03 The stories we wanted to tell (John)

04 Data sources (Jeremia)

05 Automation (Jeremia)

06 Our thoughts on water data in California

07 What's next?

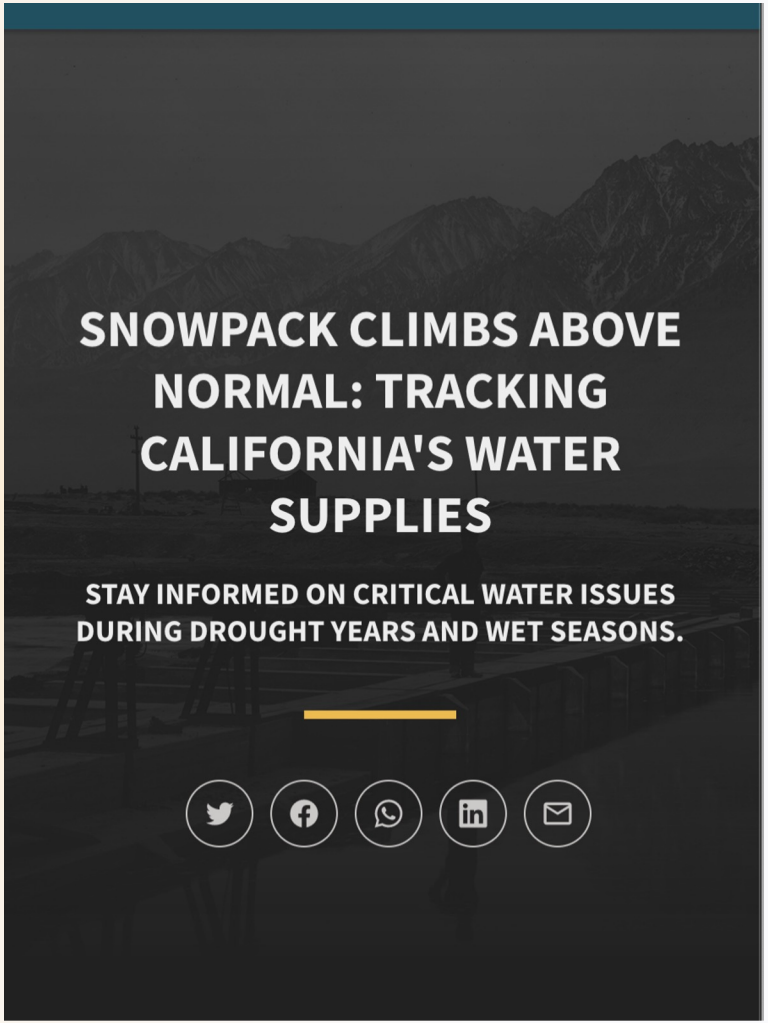
01 - Intros

Who we are

Hi, we're John and Jeremia from CalMatters.

John is the data editor for the newsroom and Jeremia is a data reporter on his team.

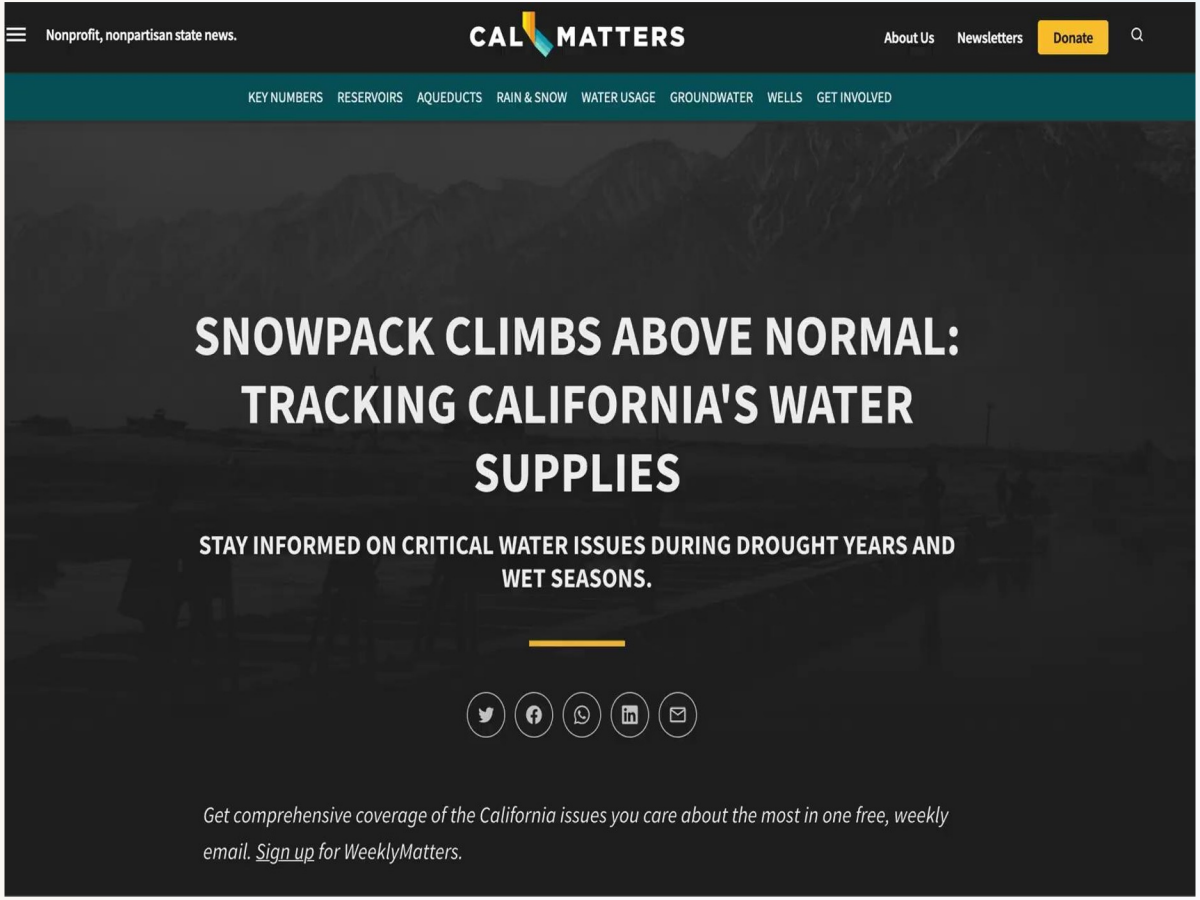
We cover state politics and policy using code, charts, and old fashioned reporting.



02 - Water and drought tracker

The thing we made

The tracker funnels many data points collected by public agencies into different pieces of the story for a straightforward explanation about how the state is managing water and access.



https://calmatters.org/california-drought-monitor/

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02 - Water and drought tracker

The sections

Key Numbers
How is California doing at managing water at a glance?

Reservoirs
How much water is stored in our system? Where do we store most of our water?

Aqueducts
How is water moved from the north where it mostly falls to the south where most of the people are?

Rain and Snow
Is it raining enough this year? How's the snow pack?

Water usage
Is urban water usage down? What about agricultural water usage since it accounts for about 80% of all water used according to DWR?

Groundwater and wells
Which aquifers are being drawn down too much? How is that impacting the households and families across the state that rely on well water to live?

03 - The stories

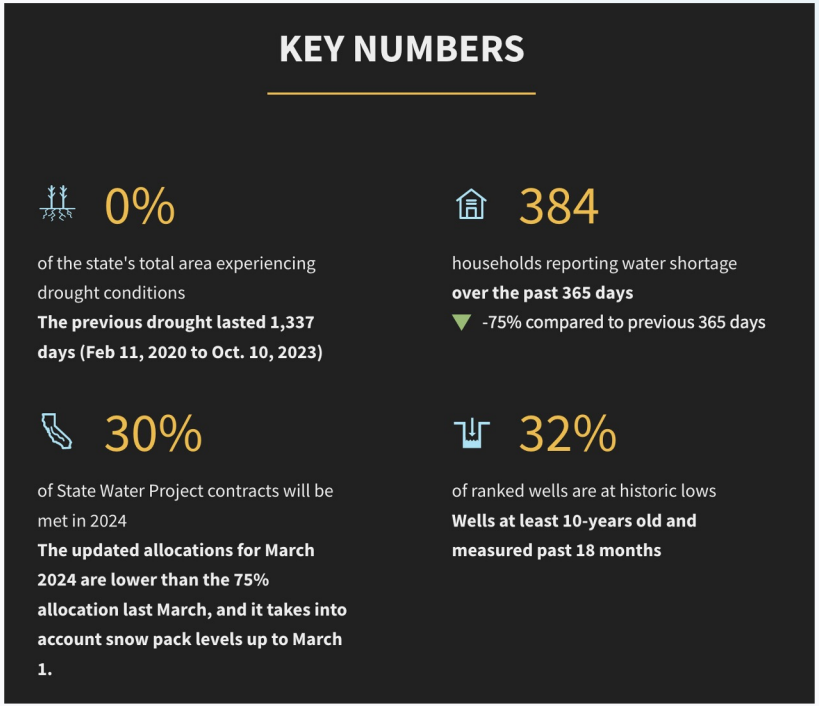
Journalism

As journalists we have a simple goal: explain matters so that our readers can understand them.

We focus on two things when we explain things with data: accuracy *and* comprehension.

03 - The stories we wanted to tell

Key numbers



03 - The stories we wanted to tell

Scrollytelling

03 - The stories we wanted to tell

Intro text made by humans

Updated April 2, 2024

Gov. Gavin Newsom trekked into the Sierra Nevada with state officials today as they conducted their last snowpack survey of the season. The result: an above-average year, the second in a row.

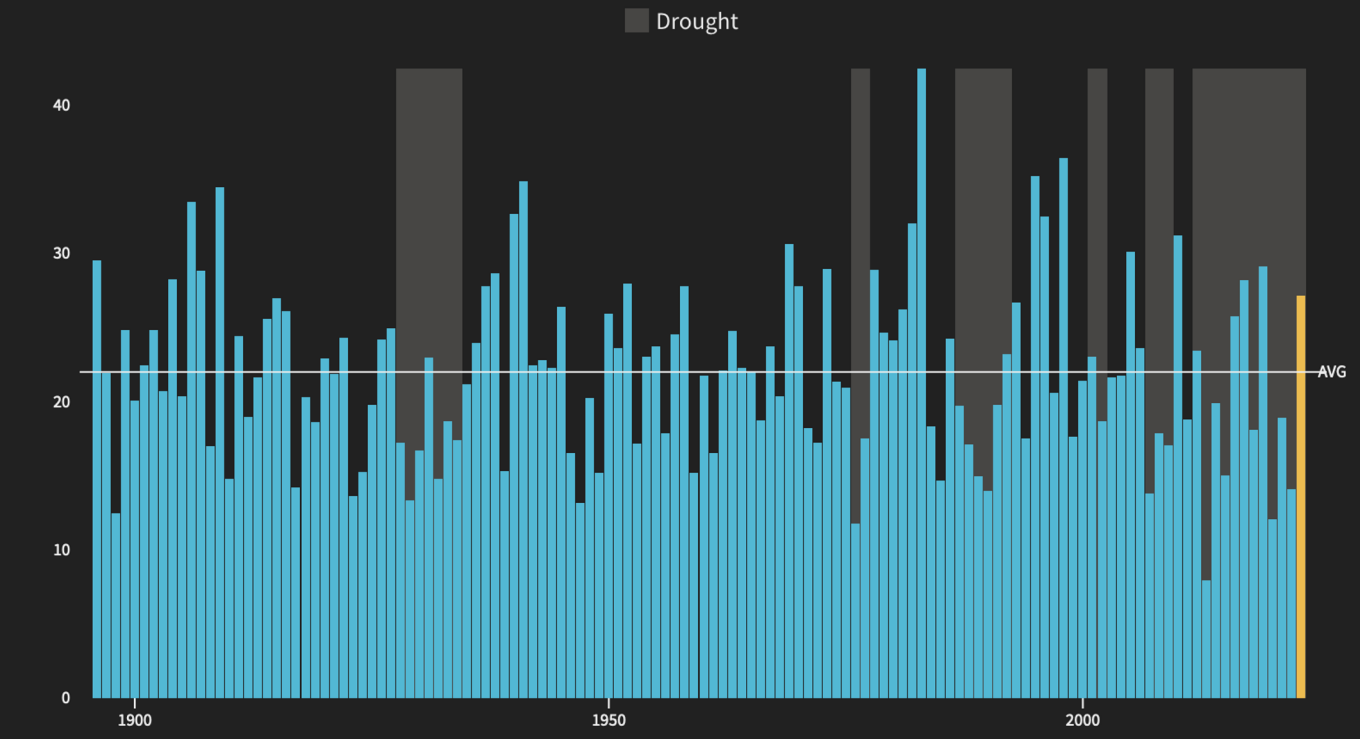
After a slow start last fall, California's wet season ended April 1 with the statewide snowpack measuring 110% of its historical average.

Last year's peak snowpack at Phillips Station was one of the highest on record — with water content measuring a whopping 221% of average and 126.5 inches of snow depth. Today, state officials measuring the same spot found 64 inches, with a water content 113% of average.

03 - The stories we wanted to tell

Visualizations

Annual precipitation in inches, 1895-2023



Source: The National Oceanic and Atmospheric Administration

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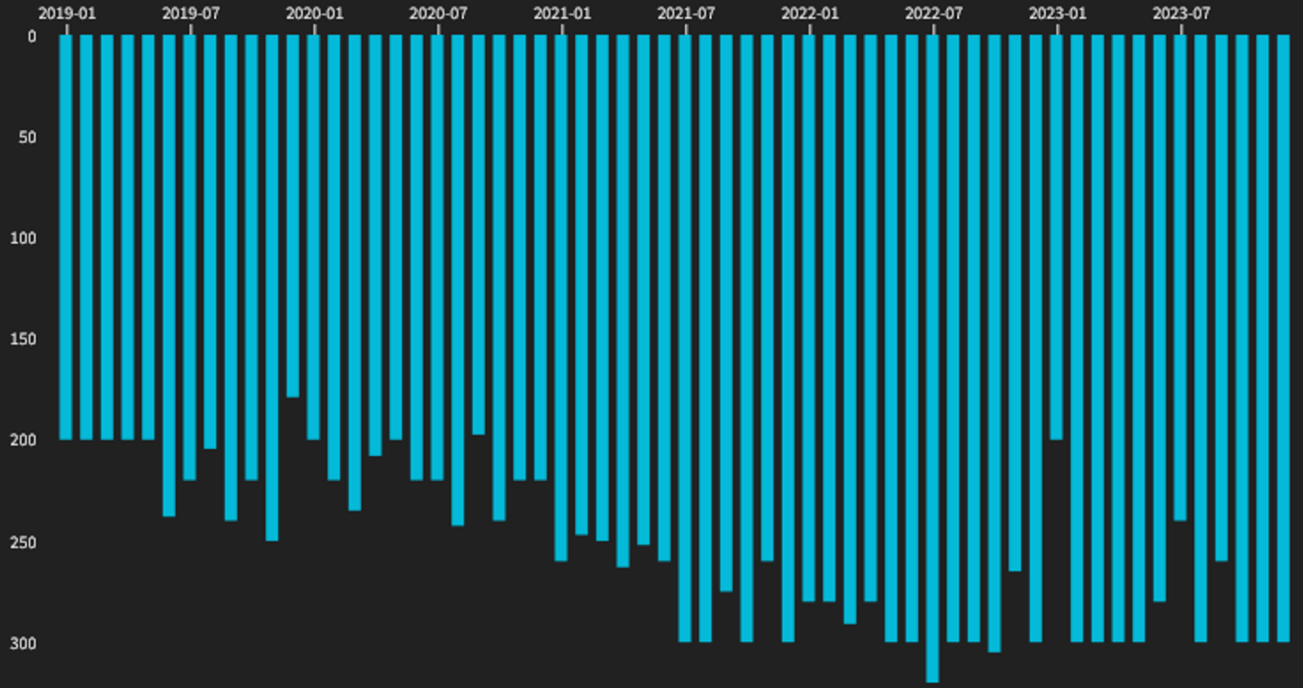
Median completed well depth in feet by month, 2019-2023



Source: CA Department of Water Resources

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How much water for urban use was conserved since July 2021

North Coast	-15%
San Francisco Bay	-11.4%
North Lahontan	-9.3%
Sacramento River	-7.8%
South Lahontan	-6.3%
South Coast	-4.9%
Central Coast	-4.7%
San Joaquin River	-4.7%
Tulare Lake	-3.2%
Colorado River	-2.1%

Note: Cumulative water savings between January 2023 and July 2021, compared to a 2020 baseline

Source: California State Water Resources Control Board

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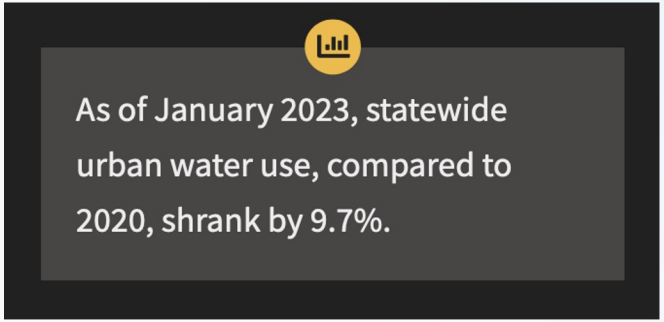
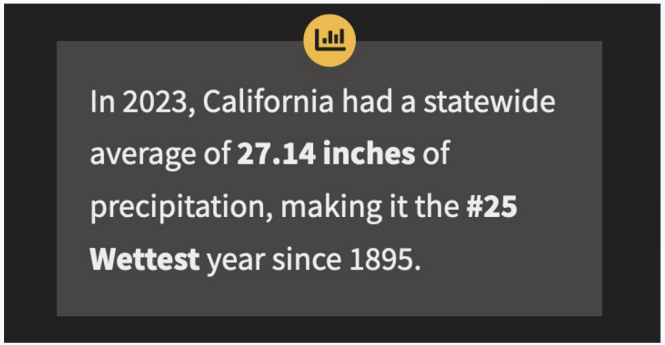
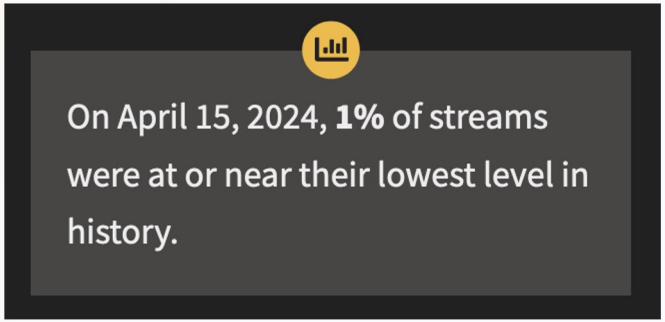
03 - The stories we wanted to tell

Spoon-fed conclusions

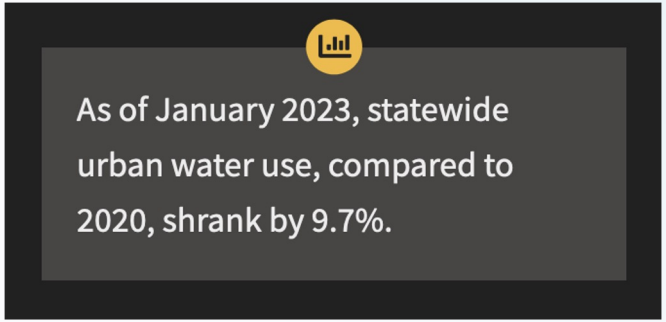






03 - The stories we wanted to tell

Spoon-fed conclusions



What's going on with residential water use?

- Since October 15, 2014, water suppliers are required to estimate or report the amount of water used for residential purposes. They are required to calculate per capita use monthly.
- This is often reflected as Residential Gallons Per Capita Day, or R-GPCD, a calculation based on the total population served by a water supplier verses the total water produced and used for residential use only over however many days are in that month.

04 - Open and public, downloaded and scraped

Data sources

The dashboard pulls data from a variety of governmental sources but mostly comes from the Department of Water Resources

Dept. of Water Resources

Snow and reservoir measurements, household water supply shortages, well completion reports, “Table A” allocations

NOAA

Precipitation data updated on the 1st of the month

USGS

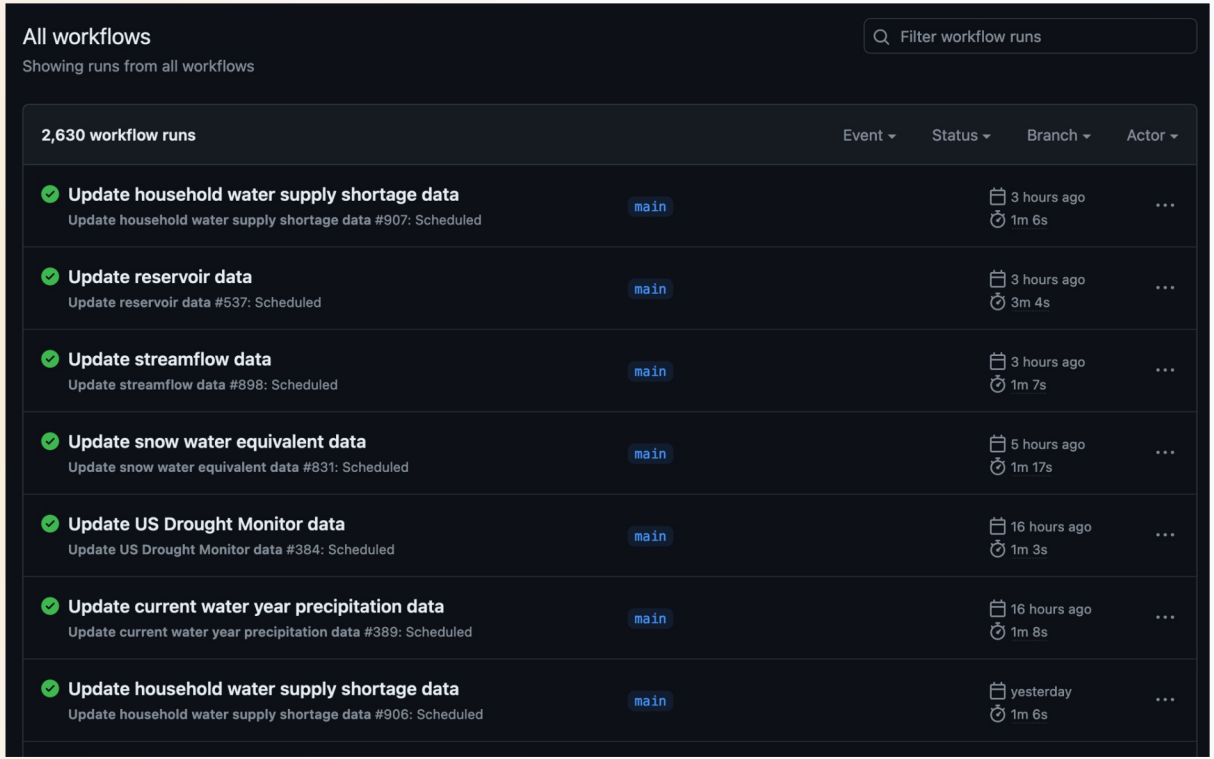
Streamflow data updated daily

04 - Data sources

DWR data

The state's water agency provides us with the bulk of our data. From this one department we get the following data:

- Daily precipitation
- Snow water equivalents
- Reservoir storage measurements
- Household water supply shortages
- Well completion reports
- Table A allocations



05 - Github Actions

Automation

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06 - You didn’t ask but…

Our thoughts on water data in California

High level: The data is very valuable and also requires both technical and scientific skills to analyze and summarize

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Positives

- Updated and documented
- Machine readable and scrapable
- Flat text files such as CSV and JSON

Could be improved

- Data stewards can be hard to contact
- Caveats can feel like minefields
- Industrial or commercial data is hard to find
- Sometimes the data just disappears!

07 - Wish List

What's next?

Our water dashboard is constantly evolving. Here are some ideas we have for what to add. Let us know if you have any ideas!

- Tracking chinook salmon and delta smelt populations
- A section on water contamination, such as "forever chemicals"
- More accountability around SGMA compliance
- Reliable agricultural water use data

Thank you!