WELCOME

8TH ANNUAL CA WATER DATA SUMMIT

INTELLIGENT QUESTIONING (IQ)
SHARING WATER WISDOM

SEPTEMBER 7&8, 2023

moulton niguel water district

CALIFORNIA DATA COLLABORATIVE

SWAN SMART WATER NETWORKS FORUM

STANFORD UNIVERSITY | PALO ALTO, CA

#CAWaterDataSummit #IntelligentQuestioning

DAY ONE

3PM - 4PM

TOOLS & SCIENCE FOR SUSTAINABLE GROUNDWATER MANAGEMENT:

HOW ARE OPEN SOURCE DATA TOOLS BEING USED TO FOR SUSTAINABLE GROUNDWATER MANAGEMENT?

MODERATOR

Tara Moran
President/CEO, California Water Data Consortium

Meredith Goebel
Research Scientist, Stanford University

Daniel Mountjoy
Director of Resource Stewardship, Sustainable Conservation

Mike Myatt
Senior Director of Climate Resilient Water Systems, Environmental Defense Fund

Kristin Sicke
General Manager, Yolo County Flood Control and Water Conservation District and Executive Officer, Yolo Subbasin Groundwater Agency

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CaWaterDataSummit.org

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Moderator: Tara Moran

Tara Moran is the Chief Executive Officer for the California Water Data Consortium. She advances the Consortium's goals of accessible and usable data for sustainable water management.

Prior to joining the Consortium, Tara led the Sustainable Groundwater Program with Water in the West at Stanford University. Her research focuses on the technical requirements of sustainable water management, including data collection, sharing, and integration. Tara is particularly interested in understanding the role of data and information in water management decisions and the governance structures to support them. She was a founding partner for the Groundwater Exchange, where she remains a Board Member. Tara holds a first-class honors B.Sc. in Environmental Science and a Ph.D. in Geography with a specialization in paleoclimatic reconstructions from the University of Calgary, Canada.

Panelist: Meredith Goebel

Meredith Goebel is a Research Scientist in the geophysics Department at Stanford University. Her primary research interests center on the application of geophysical methods for addressing problems surrounding the evaluation and management of groundwater resources. She received her BA from UC Berkeley, and her PhD from Stanford.

Panelist: Daniel Mountjoy

Dr. Mountjoy leads Sustainable Conservation's Water for the Future program to support groundwater sustainability through collaboration with farmers, researchers, and agencies. He directs work on field testing and monitoring groundwater recharge on active farmland, developing groundwater recharge decision-support tools for farmers and water management agencies, and informing policy decisions to ensure that the business, community, and environmental aspects of water reliability are considered. He also is collaborating with other NGOs, resource conservation districts, and agencies on development of incentive strategies to encourage land managers to contribute to groundwater sustainability through recharge, irrigation and nutrient efficiency improvements and soil health management. He earned his Ph.D. at UC Davis in Human Ecology, and worked for the NRCS for 17 years prior to joining Sustainable Conservation.

Panelist: Mike Myatt

Mike Myatt is Senior Director, Climate Resilient Water Systems at Environmental Defense Fund. He oversees EDF's California Water program, which focuses on advancing incentive-based approaches that ensure adequate water for ecosystems, improve agriculture's resilience to climate change, and address the needs of disadvantaged communities. In particular, Mike leads EDF's initiatives to advance groundwater sustainability policies and practices across the Central Valley. Mike's experience includes more than 25 years of water policy work in California. Prior to joining EDF, Mike worked as a Program Officer for the Water Foundation, Budget Officer for the California Department of Water Resources, and Policy & Finance Analyst for the CALFED Bay-Delta Program. He also co-founded the California Water Data Consortium and served as the board chair for 3 years. Mike lives in Sacramento with his wife and two teenage children. He holds Bachelor of Science degrees in Environmental Studies and Economics from San Jose State University.

Panelist: Kristin Sicke

Kristin Sicke is a civil engineer who specializes in water resources engineering. She is a registered Professional Engineer (P.E.) in the state of California and has eight years of experience in planning, developing, and managing the conjunctive use of the Yolo County Flood Control and Water Conservation District's surface and groundwater resources. Additionally, Kristin has over four years of experience in project management in the California Department of Water Resources' water supply and flood management grant planning and implementation programs; and over a year of experience in utility management focusing on wastewater and collection system master planning.

Kristin currently serves as the General Manager at the Yolo County Flood Control and Water Conservation District and the Executive Officer of the Yolo Subbasin Groundwater Agency.

Tools and Science to Support Sustainable Groundwater Management

A Panel Discussion at the 8th Annual California Water Data Summit | Sept. 7, 2023

Panel Moderator Tara Moran, California Water Data Consortium

Panel Speakers

- Kristin Sicke, Yolo County FC&WCD & Yolo Subbasin Groundwater Agency
- Meredith Goebel, Stanford University
- Daniel Mountjoy, Sustainable Conservation
- Mike Myatt, Environmental Defense Fund

What is the Sustainable Groundwater Management Act?

Statewide legislation regulating groundwater extraction and use in California

Requires the:

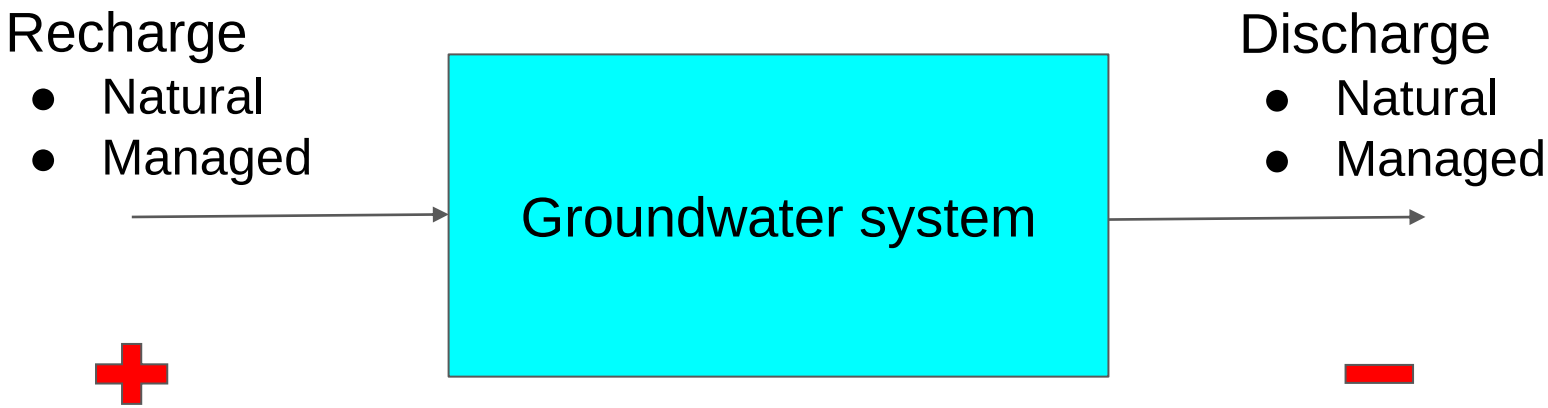
- Formation of local agencies (GSAs) to develop and implement plans
- Development and implementation to achieve groundwater sustainability

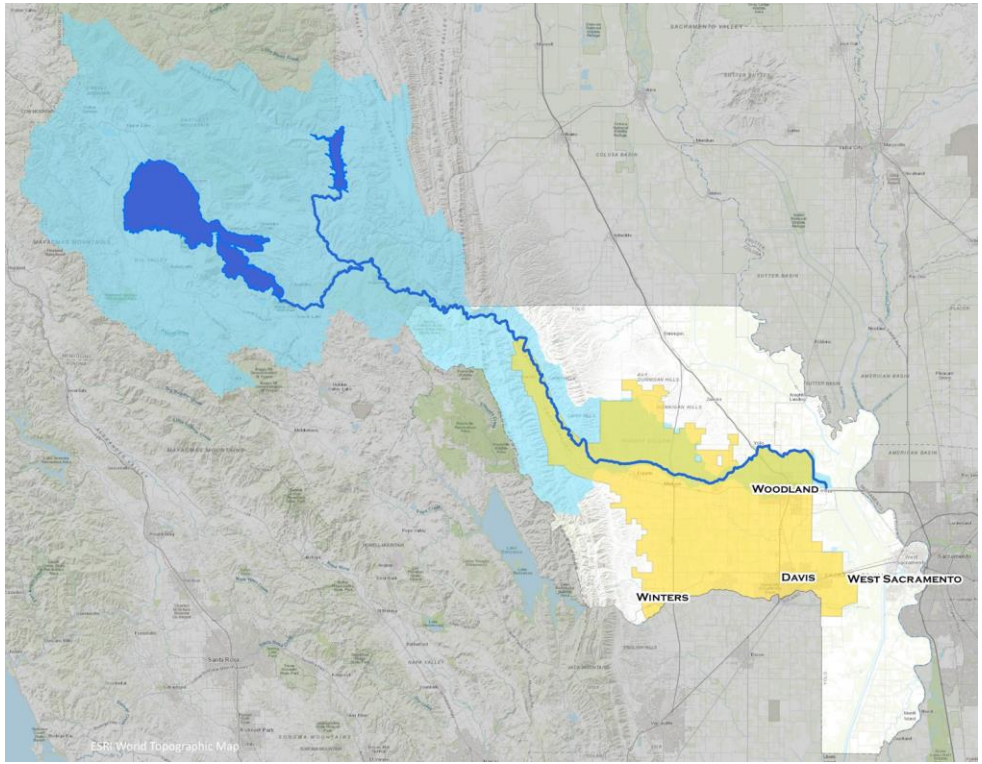
Marks an historic transition:

- From largely unregulated to regulated resource
- In understanding basin condition

Image from: CA Department of Water Resources

Achieving Groundwater Sustainability

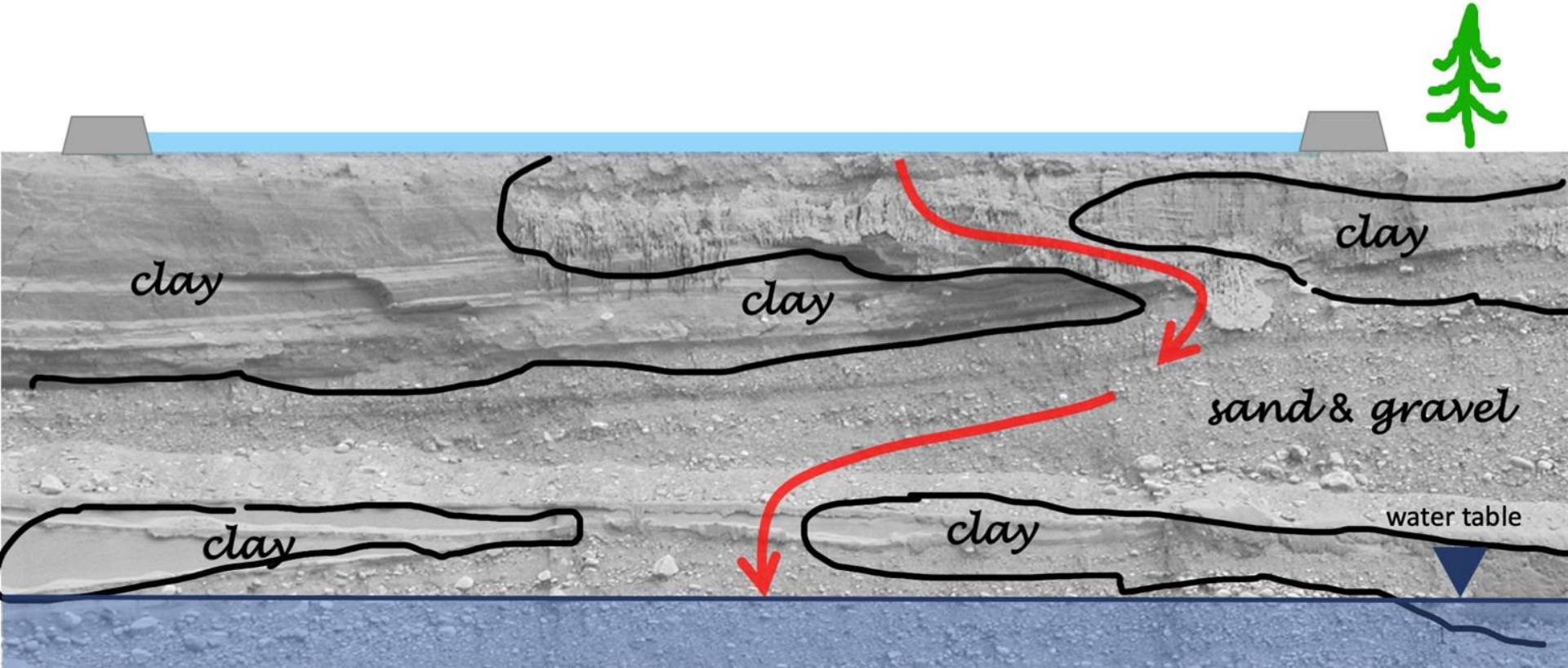




Yolo County Flood Control & Water Conservation District

WATER OUT >>> **WATER IN**

MANAGED AQUIFER RECHARGE (MAR)



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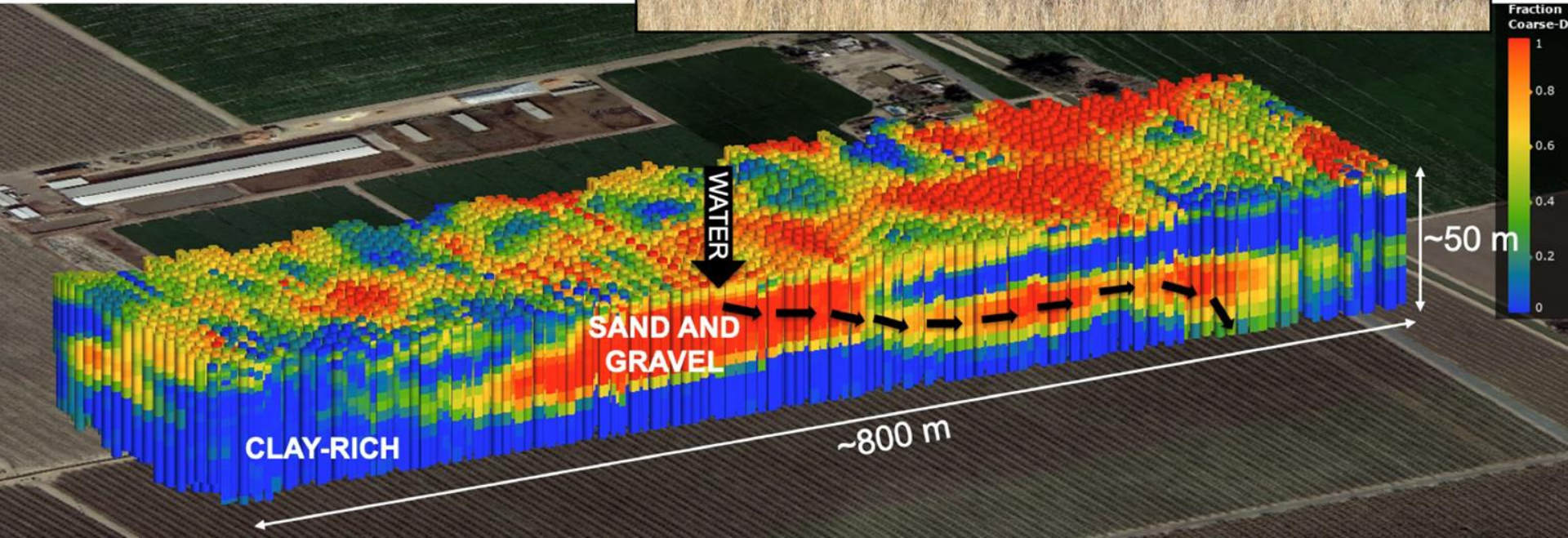
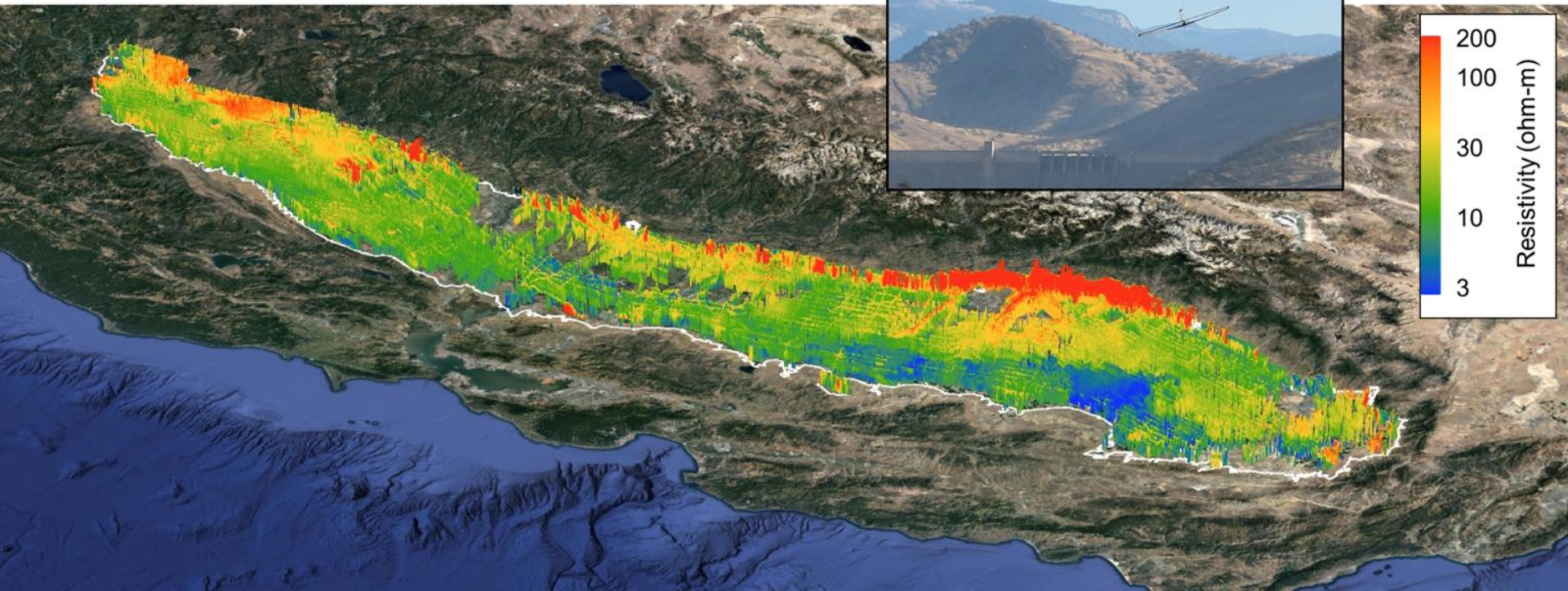

WATER
SAND AND GRAVEL
CLAY-RICH
~50 m
~800 m
Fraction Coarse-D
1
0.8
0.6
0.4
0.2
0

AEM



Fastpath Web-Based Application

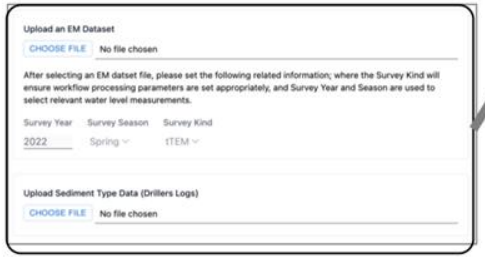
http://fastpath.stanford.edu

Online California Database

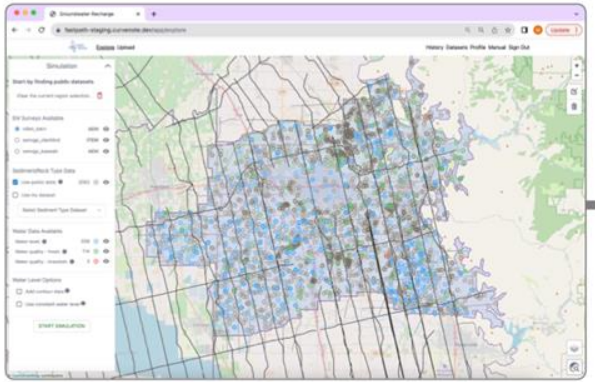
REDIVIS

- 500,000 resistivity soundings
- 43,000 lithology wells
- 20,000 water level wells
- 3,600 water quality wells

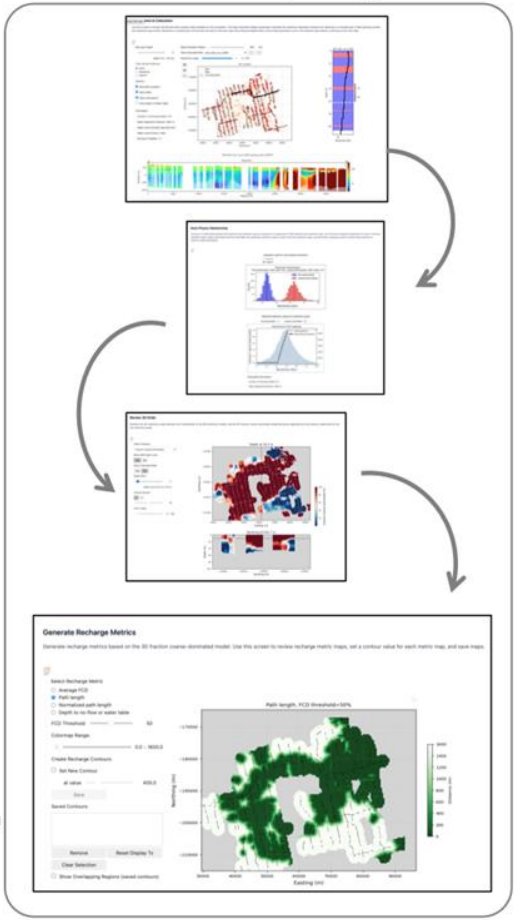
Upload Private Data



GIS Interface for Selecting Data



Stanford Workflow Using Cloud Computing



Export Decision-Support Products

Sustainable Conservation

theEARTH GENOME
REVEALING THE POSSIBLE

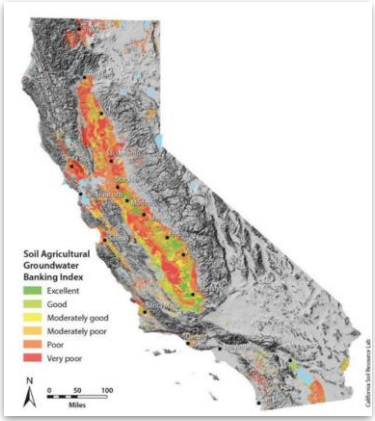
GRAT

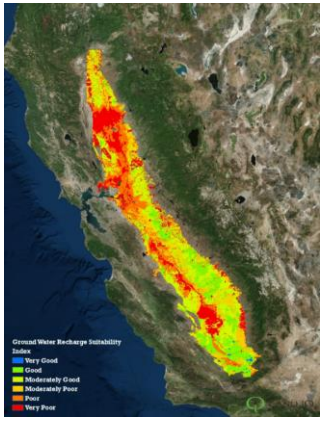
Groundwater Recharge Assessment Tool

1. **Where** is recharge best done? **When**?
2. **How much** surface water can we capture?
3. What would it **cost**?
4. **How much of our groundwater overdraft** can be addressed by increasing recharge?

Data needed to determine recharge suitability and capacity

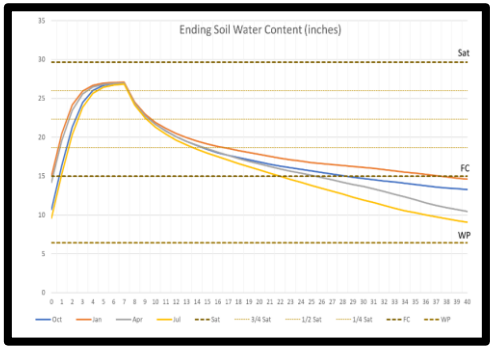
Recharge Suitability

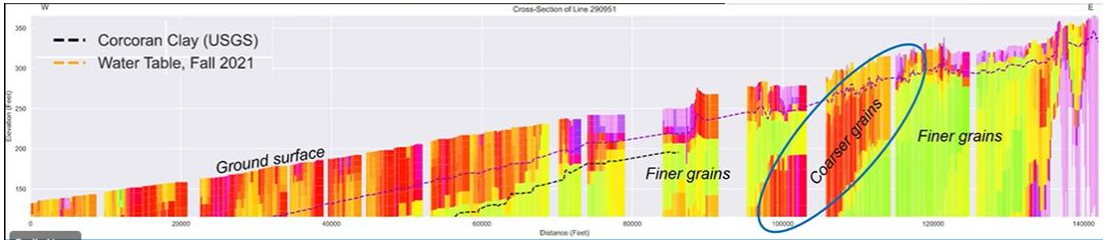




Conveyance Capacity

Land Use Compatibility



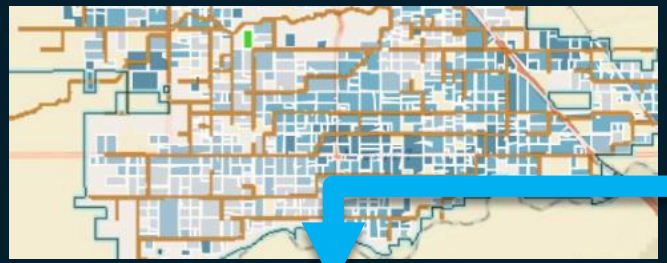


Groundwater Recharge Assessment Tool (GRAT)

Site Suitability Index

Crop Compatibility Calendar

Fields ranked



Monthly recharge by field

Groundwater

Climate Runoff & Flooding scenarios

Daily WAFR schedule

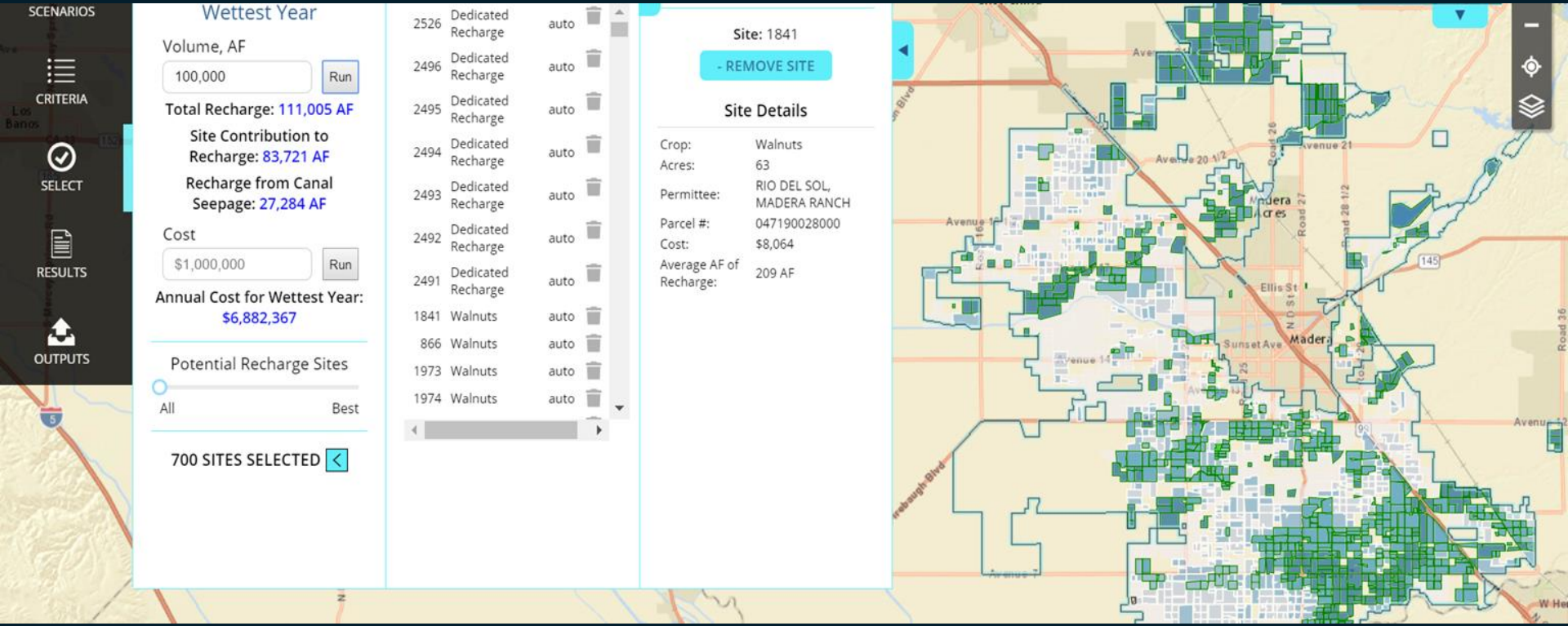
Daily canal capacity

Water applied to ranked fields

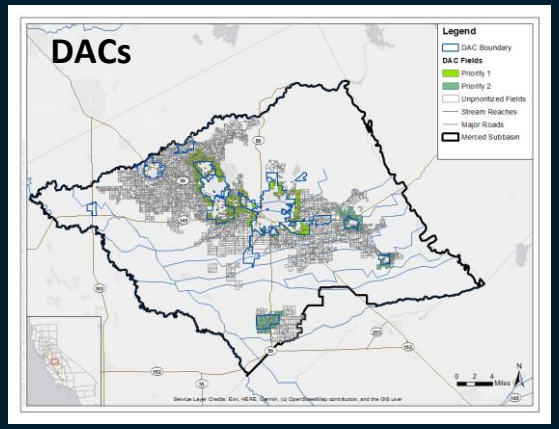
Unused water

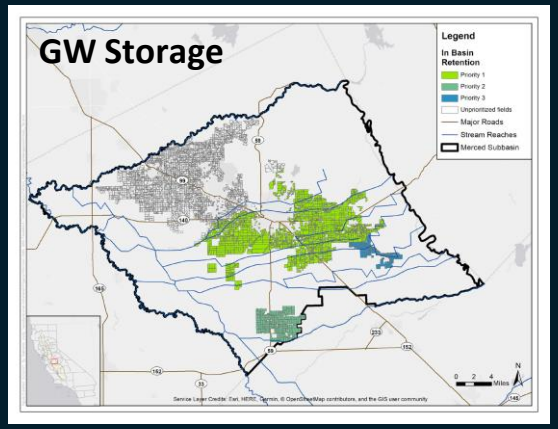
Water remaining in river

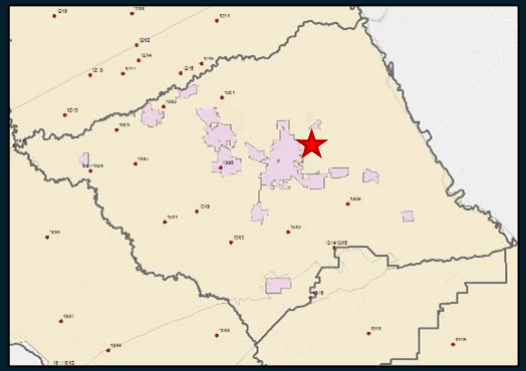
Select Sites: Recharge Quantities and Costs

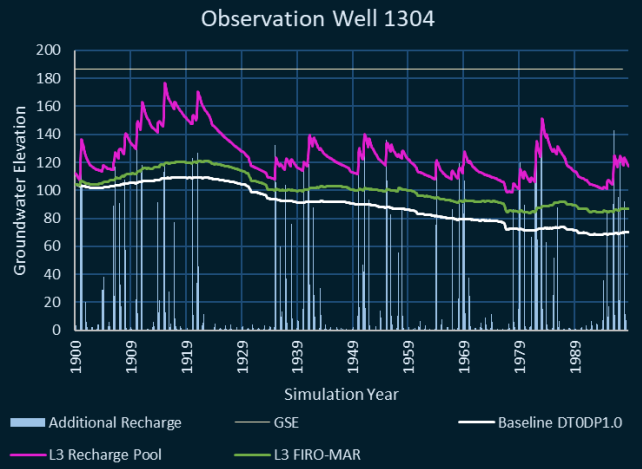


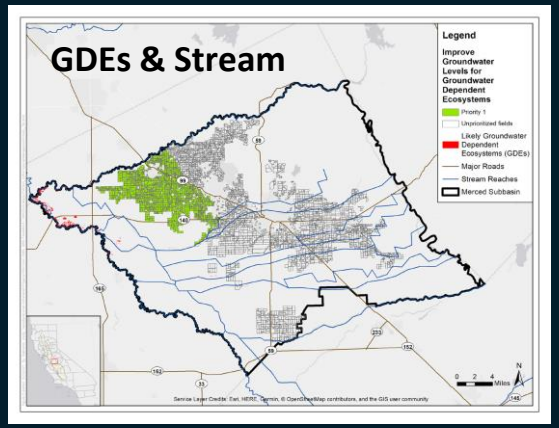
Where and when you recharge matters!

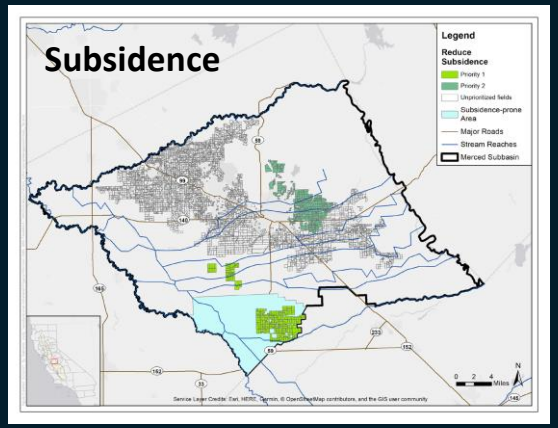








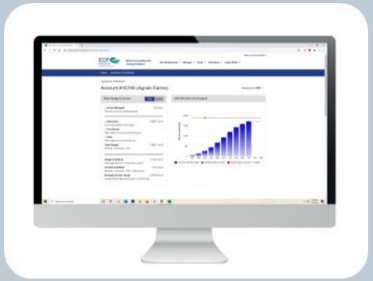




Environmental Defense Fund

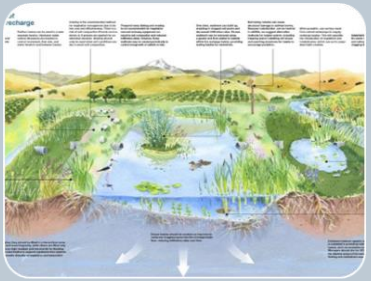
EDF Climate Resilient Water Systems

Multiple Benefits



Reliable Data

Engagement



Guidance

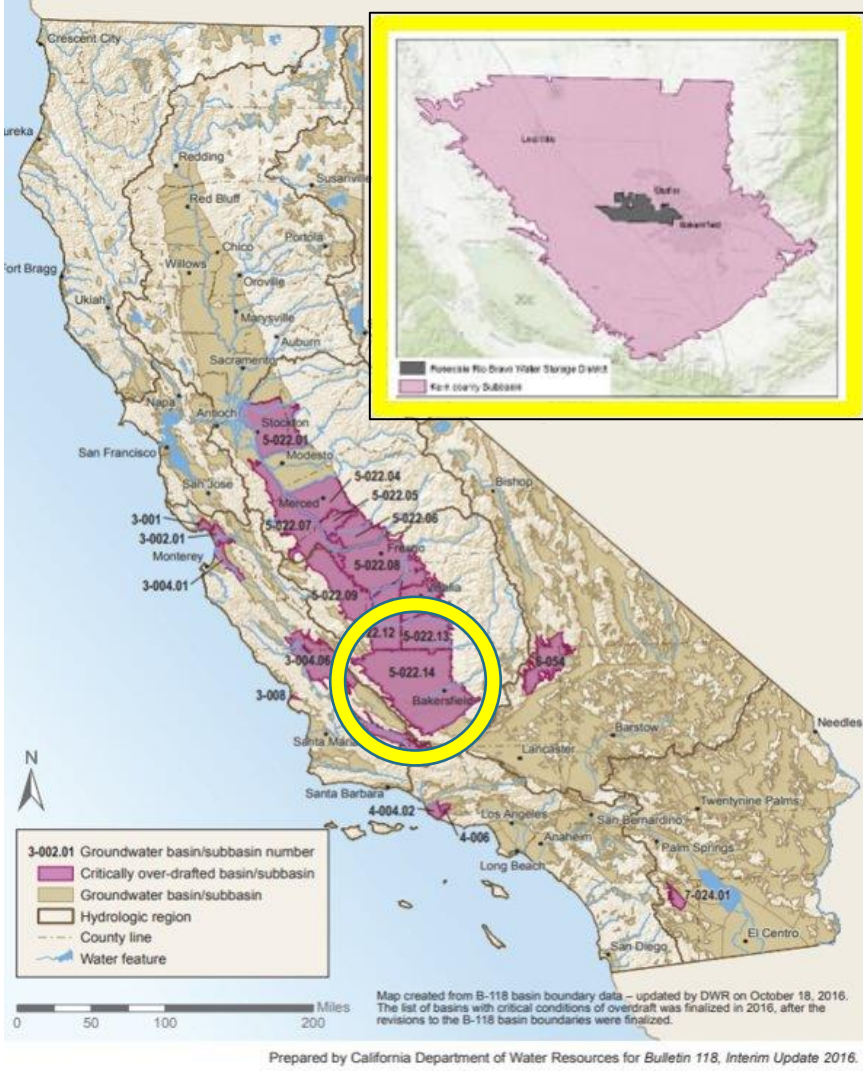
Policy

Platform Vision

The **Groundwater Accounting Platform** is an accessible open-source water accounting platform that integrates data from a variety of sources and effectively communicates this information to support local, regional, and state water management decisions.

Background

- Initially developed in 2018 by EDF and Rosedale-Rio Bravo Water Storage District
- Built for ease of use with direct input from water managers and farmers
- The current Platform is:
  - An accounting tool
    - Tracks annual water allocations and water usage in near real time
  - A water budgeting tool
- And it can do more!



DEMO WATER DASHBOARD

WATER ACCOUNT

Chicken Little's Egg Emporium (#13148) / Demo

- Water Budget
- Account Activity
- Account Map
- User Permissions

YEAR: 2022

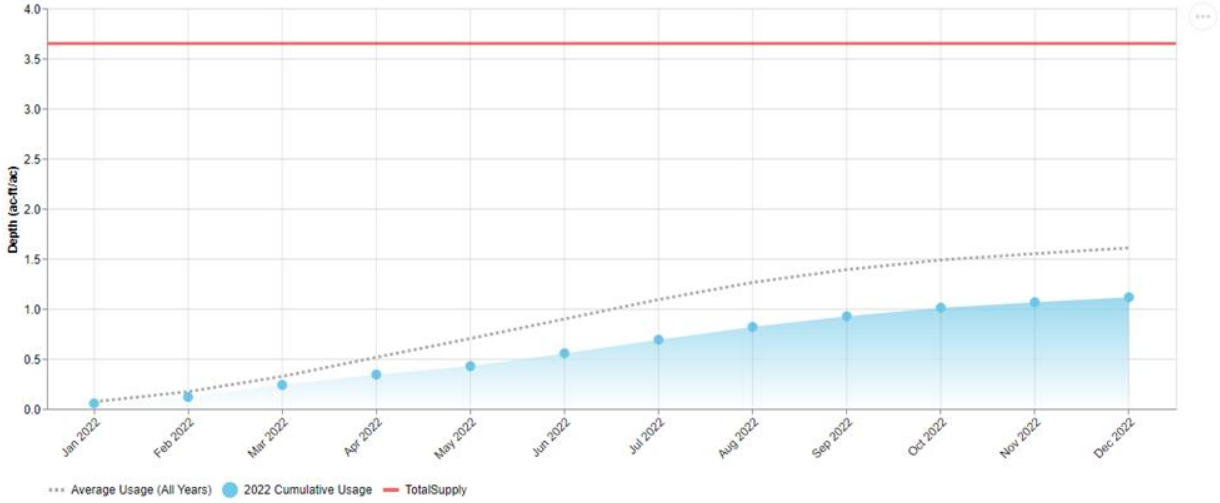
PERIOD: Calendar Year

UNITS: ac-ft/ac | ac-ft

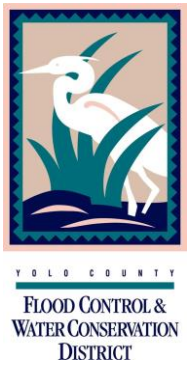
TOTAL SUPPLY	TOTAL USAGE	BALANCE
3.65 ac-ft/ac	1.11 ac-ft/ac	2.54 ac-ft/ac

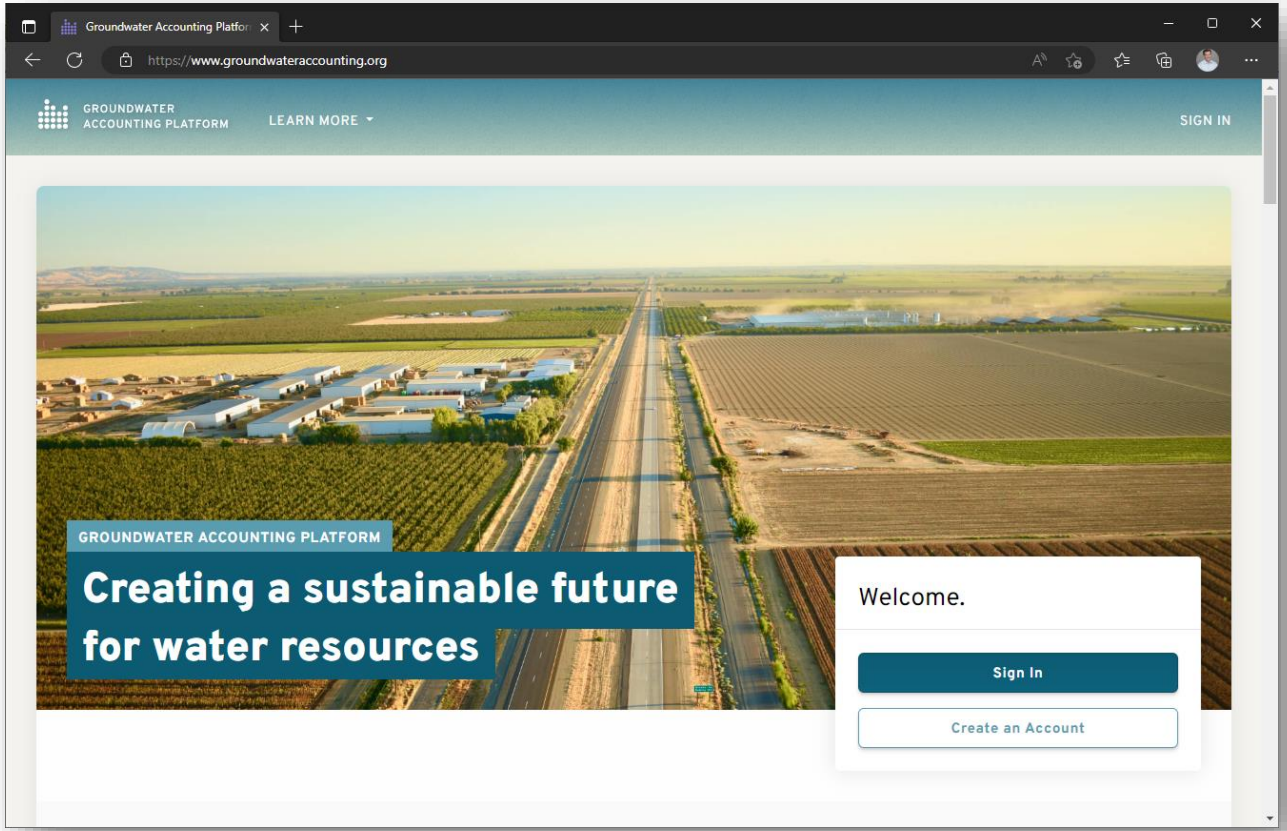
Water Usage Chart

Cumulative | Monthly



Platform Partners





https://groundwateraccounting.org

Image from: Chris Austin

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