



Implementing SGMA at Ground Zero: Challenges and Opportunities for the San Joaquin Valley

Joint Water Parks & Wildlife and Local Government Committee
Informational Hearing—February 15, 2022

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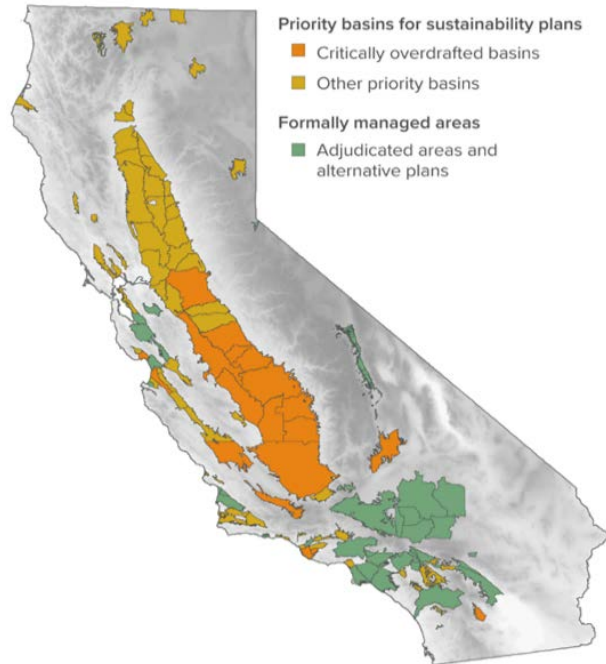
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California's 2014 Sustainable Groundwater Management Act (SGMA)

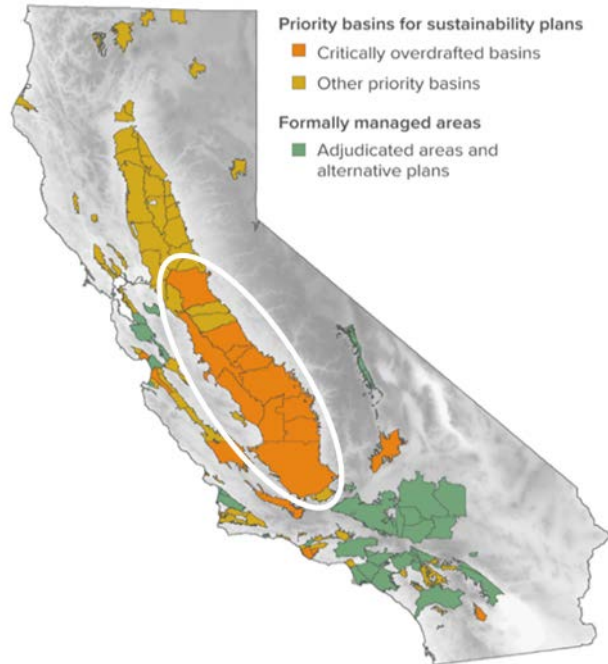
Main groundwater basins



- Local responsibility, state backstop
 - ~85 priority basins
 - > 250 sustainability agencies
- Sustainability plan deadlines: 2020/2022
 - Annual data reporting
 - Plan updates every 5 years
- Flexible timeline, with guardrails
 - 20 years to attain sustainability...
 - ...as long as no significantly unreasonable, undesirable effects

San Joaquin Valley is ground zero for implementing SGMA

Main groundwater basins



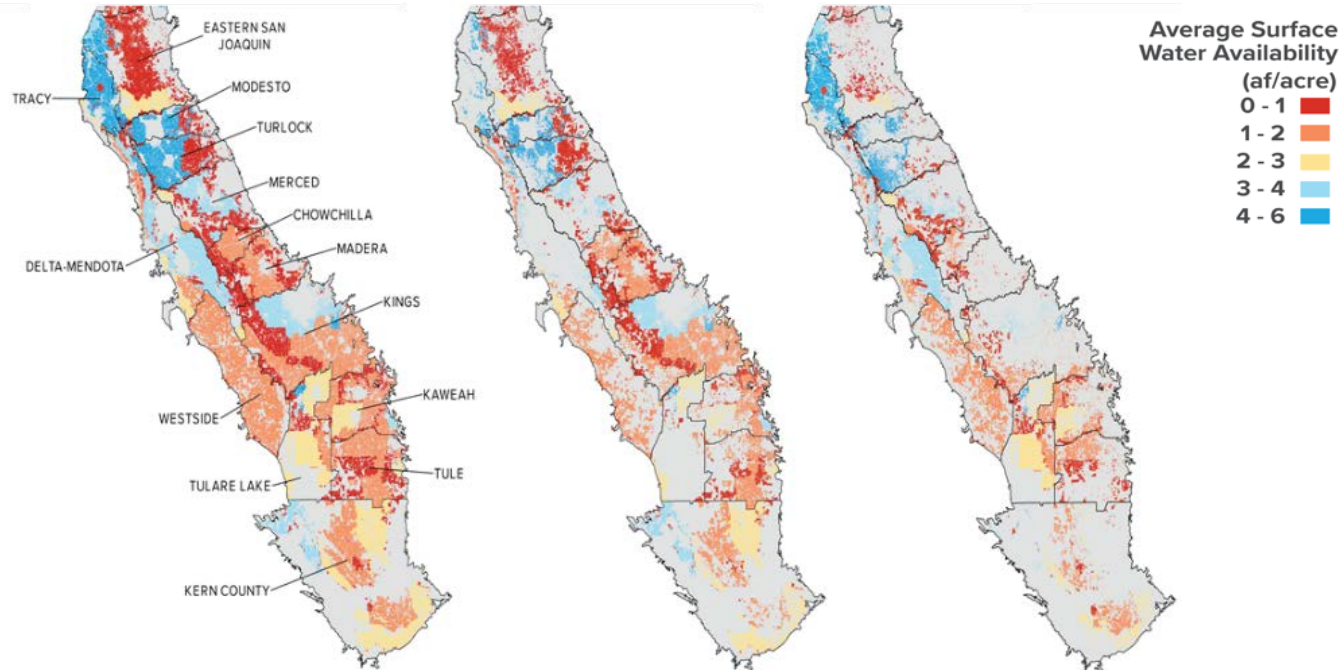
- Largest ag region: >50% of CA output
- Biggest imbalance: ~2 M acre-feet/yr overdraft; 11% of net water use
- Consequences: dry wells, sinking lands, reduced reserves for droughts
- Groundwater math problem: attaining balance means more supply, less water use, or both
- Socioeconomics problem: some solutions are more costly than others
- Governance problem: big basins, diverse conditions make coordination especially hard

Variable access to surface water highlights importance of—and challenges to—cooperation

Irrigated acres (2016)

Perennial crops

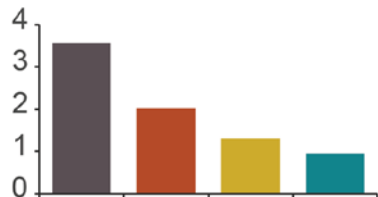
Annual crops



Flexibility can lower regional costs of managing farm water demand; new supplies can reduce land fallowing

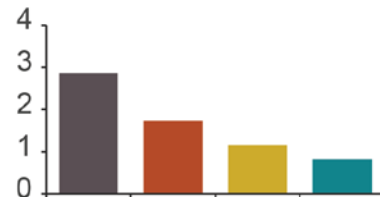
Crop revenue losses

(billions of \$)



Farm-related GDP losses

(billions of \$)



■ Inflexible local water use

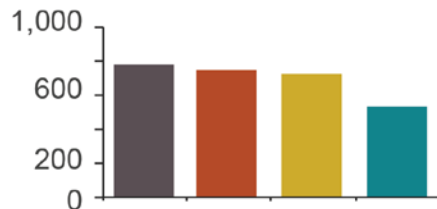
■ Local water trading

■ Valley-wide surface water trading

■ Valley-wide surface water trading + new supplies

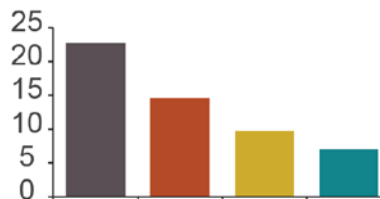
Land fallowing

(thousands of acres)



Farm-related job losses

(thousands of jobs)



Source: Hanak et al. [A Review of Groundwater Sustainability Plans in the SJ Valley: Public Comments to DWR](#) (PPIC, 2020)

DWR's reviews of first groundwater sustainability plans highlight some key areas for improvement

- Plans don't adequately address undesirable results of groundwater use—e.g., impacts on drinking water wells, subsidence
- In some basins, plans don't coordinate adequately on data, methods, management approaches
- Some plans don't propose enough supply and demand actions to bring basins into balance

Our work highlights some additional issues with the plans' groundwater math problem

- Overly optimistic assumptions about:
 - The extent of groundwater overdraft
 - The potential for new supplies to address it
- Too little emphasis on:
 - Managing demand
 - Contingencies for warmer, more intense droughts in our changing climate

We're already back in severe drought—which will make the balancing act even harder

- Fewer opportunities to recharge basins
- More groundwater pumping, more risks of undesirable results

*Wells impacted in the Central Valley
by fall 2022 if drought persists*



Source: Escriva-Bou & Pauloo ([CalMatters, June 9, 2021](#))

Five near-term priorities for state support

1. Address undesirable results of overdraft
 - Hold GSAs accountable
2. Accelerate demand management
 - Support strong water accounting, common tools
3. Promote realistic efforts on new supplies
 - Determine what's available, incentivize cooperation, facilitate permitting
4. Assess smart infrastructure investments
5. Plan for successful farmland transitions

Additional PPIC resources (ppic.org/water/)

- [“Priorities for California’s Water: Responding to the Changing Climate”](#) (report, Nov 2021)
- [“Improving California’s Water Market: How Water Trading and Banking Can Support Groundwater Management”](#) (report, Sept 2021)
- [“Groundwater and Urban Growth in the San Joaquin Valley”](#) (report, Sept 2021)
- [“A Review of Groundwater Sustainability Plans in the San Joaquin Valley”](#) (public comments submitted to DWR, May 2020)
- [“Water and the Future of the San Joaquin Valley”](#) (report, Feb 2019)
- [“Replenishing Groundwater in the San Joaquin Valley”](#) (report, April 2018)
- [“Water Stress and a Changing San Joaquin Valley”](#) (report, Feb 2017)

Notes on the use of these slides

These slides were created to accompany a presentation. They do not include full documentation of sources, data samples, methods, and interpretations. To avoid misinterpretations, please contact:

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Thank you for your interest in this work.