

New Approaches to Old Strategies

Putting Flood Waters to Work in the San Joaquin Valley



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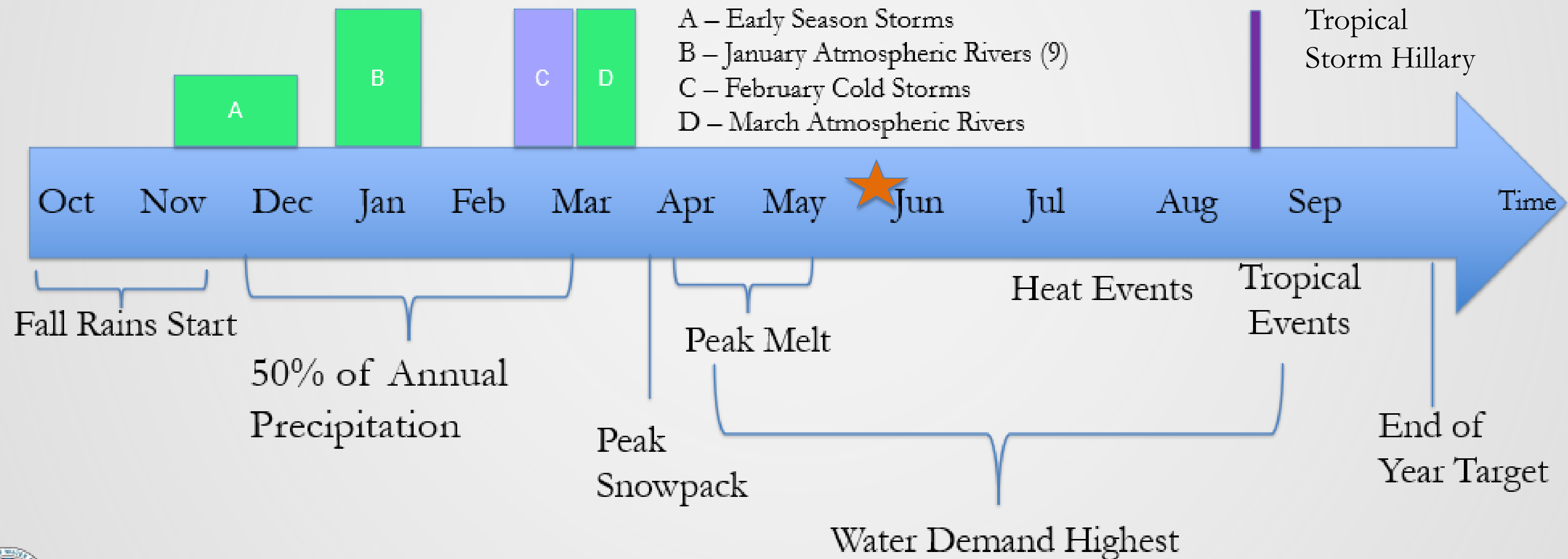
Kris Tjernell, Integrated Watershed Management

Foundations of an Extraordinary Water Year

Oct-Mar: 153% of Average Statewide – 6th wettest

Oct-Mar: 199% of Average San Joaquin Climate Division – wettest

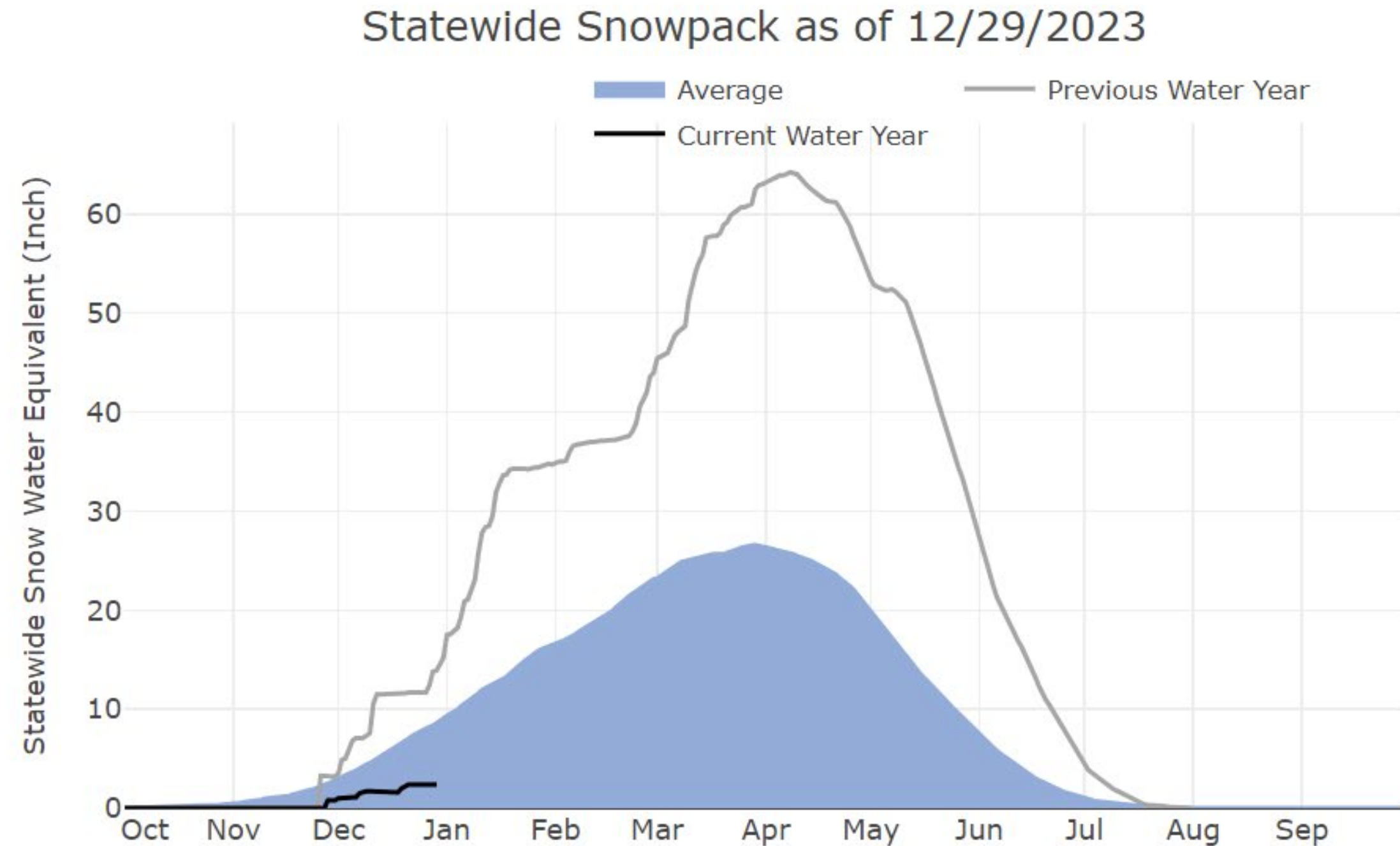
April 1 Snowpack: Only 4th year since 1950 with more than 200% of average; 1st since 1983



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★ Peak Snowmelt 2023

2023 Snowpack Far Exceeded the Average

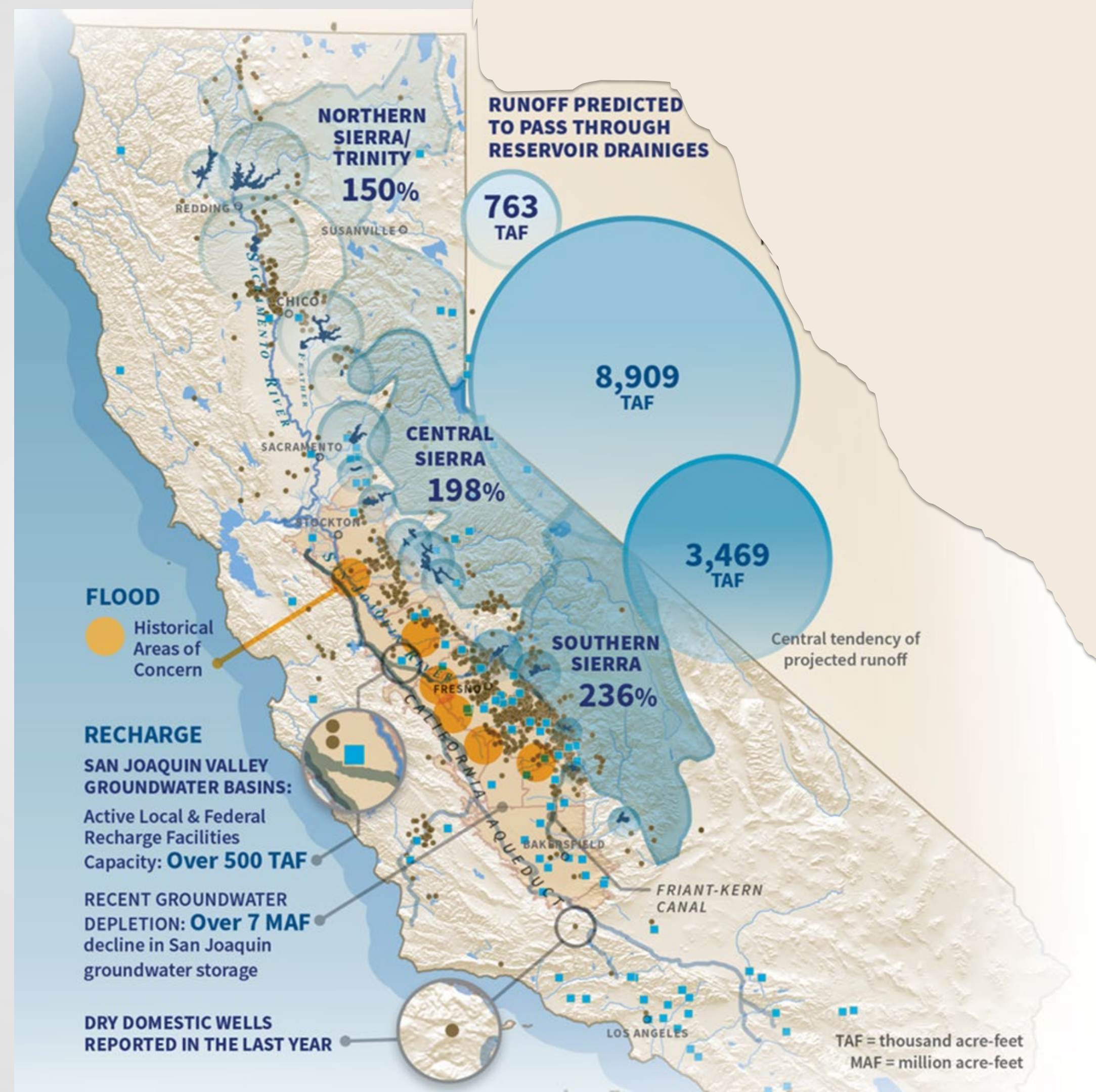


Historic Precip. & Snowpack Brought Risks and Opportunities

- Downstream Flood Risks
- Persistent Drought Impacts, Especially in Frontline Communities
- Coincident with State Budget Surpluses



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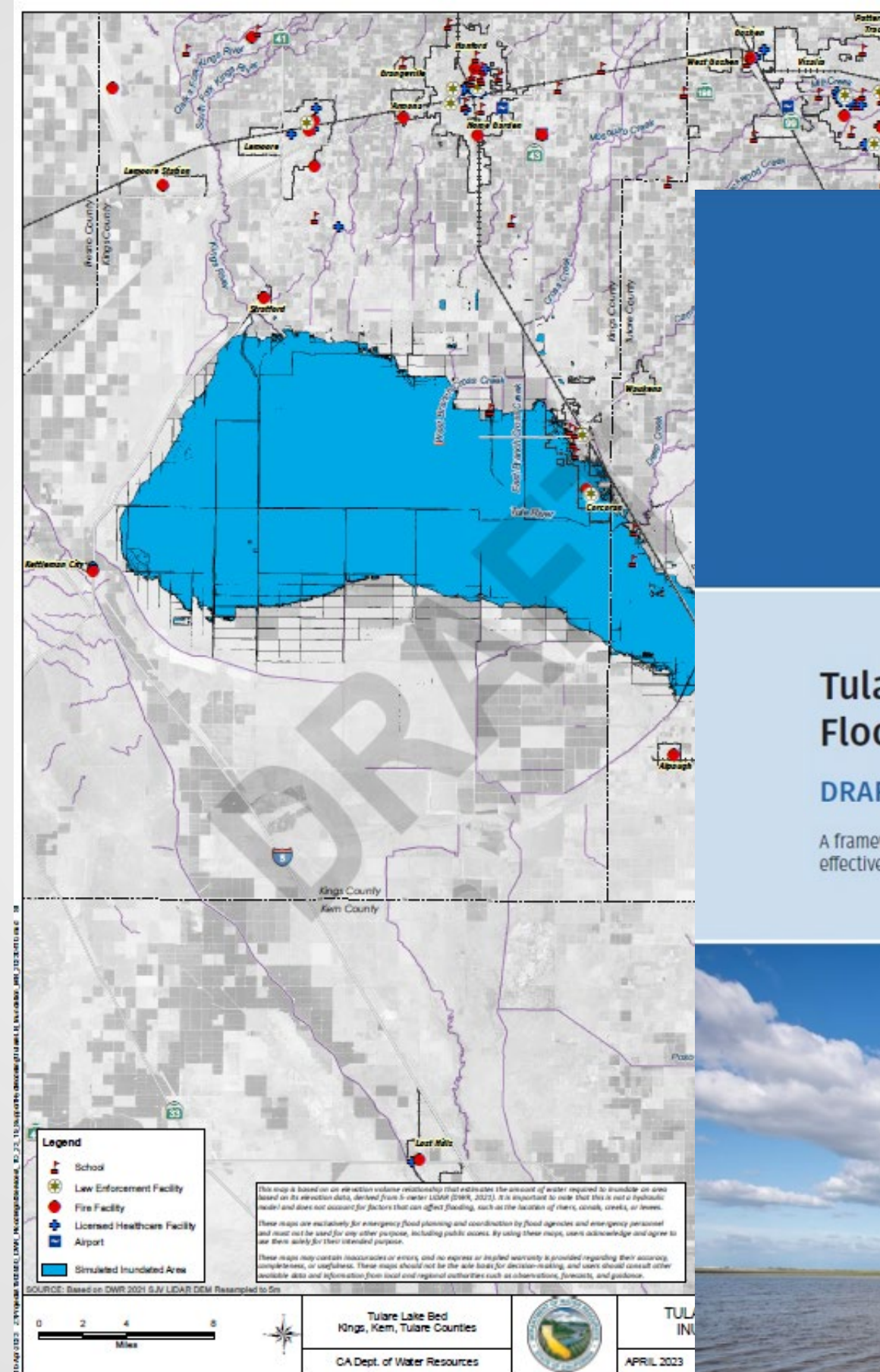


Regional Flood Response Assistance

- Flood Fight Deployment
- Tulare Lake Atlas
- Flood Emergency Action Plan Templates
- Local/State/Federal Agency Coordination
- Community Outreach



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Tulare Basin Snowmelt Runoff Flood Emergency Action Plan

DRAFT TEMPLATE

A framework for local agencies to collect and organize information to support effective coordination, contingency planning, and emergency response.



Expediting Recharge: *Foundations of State Action*

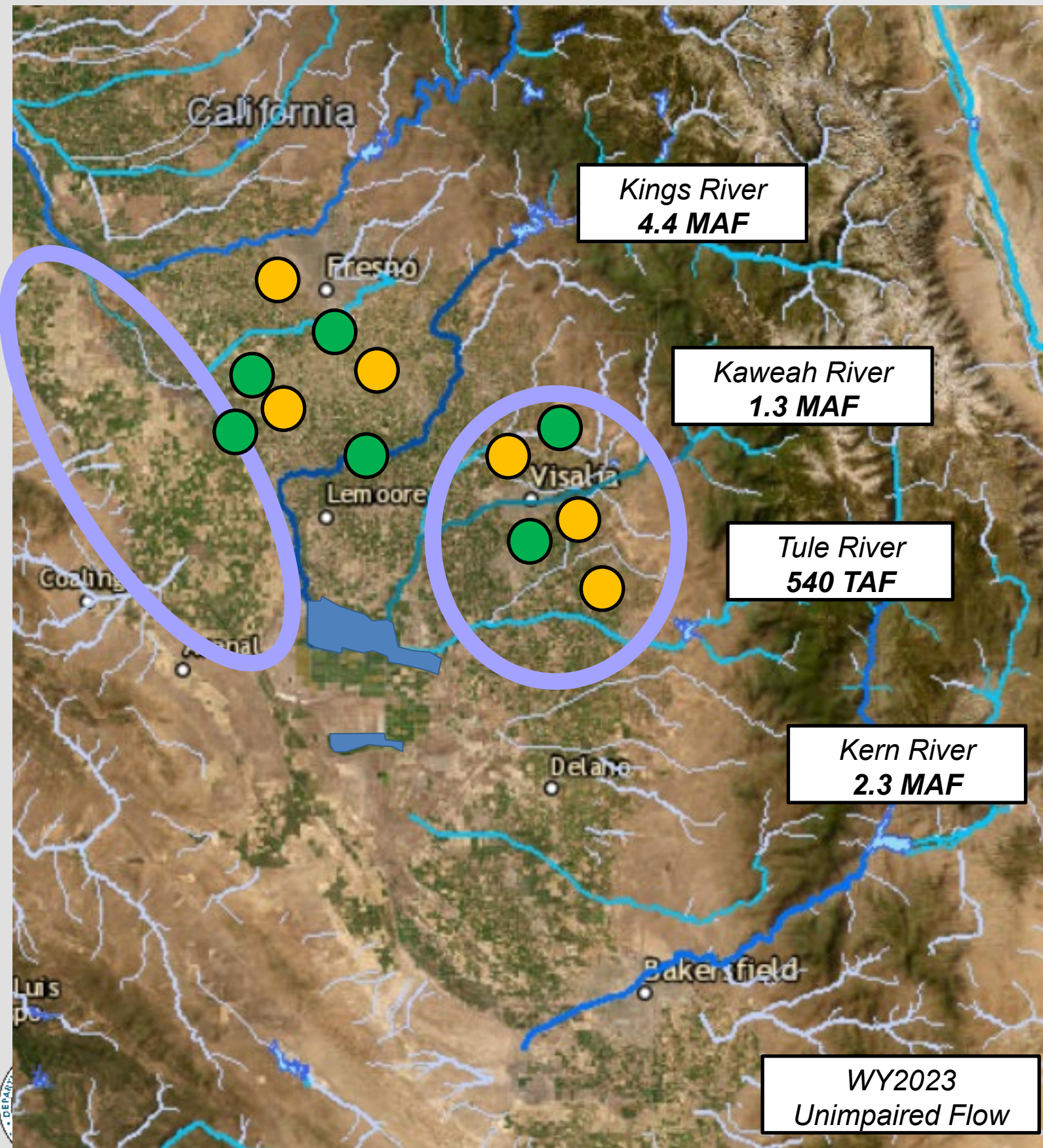
- 2022 Central Valley Flood Protection Plan
- Governor's Water Supply Strategy: Recharge targets; regulatory assistance on 180-day temporary permits; streamlined Water Rights Permits for Groundwater Storage
- Drought Executive Order: CEQA suspension for local groundwater recharge projects
- Flood Water Recharge Exec Order + New Legislation (SB 122)



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Expediting Recharge: *Land Use Incentives*



● Temporary Pumps

Increase Flood Water Diversion and Maximize Recharge

- 30 pumps, 1 siphon deployed in ~4 weeks
- Emergency Resource Request/Mission Tasking
- Enhanced Local Efforts

● Land Clearing

Increase Acreage to Divert Flood Flows and Expand Recharge

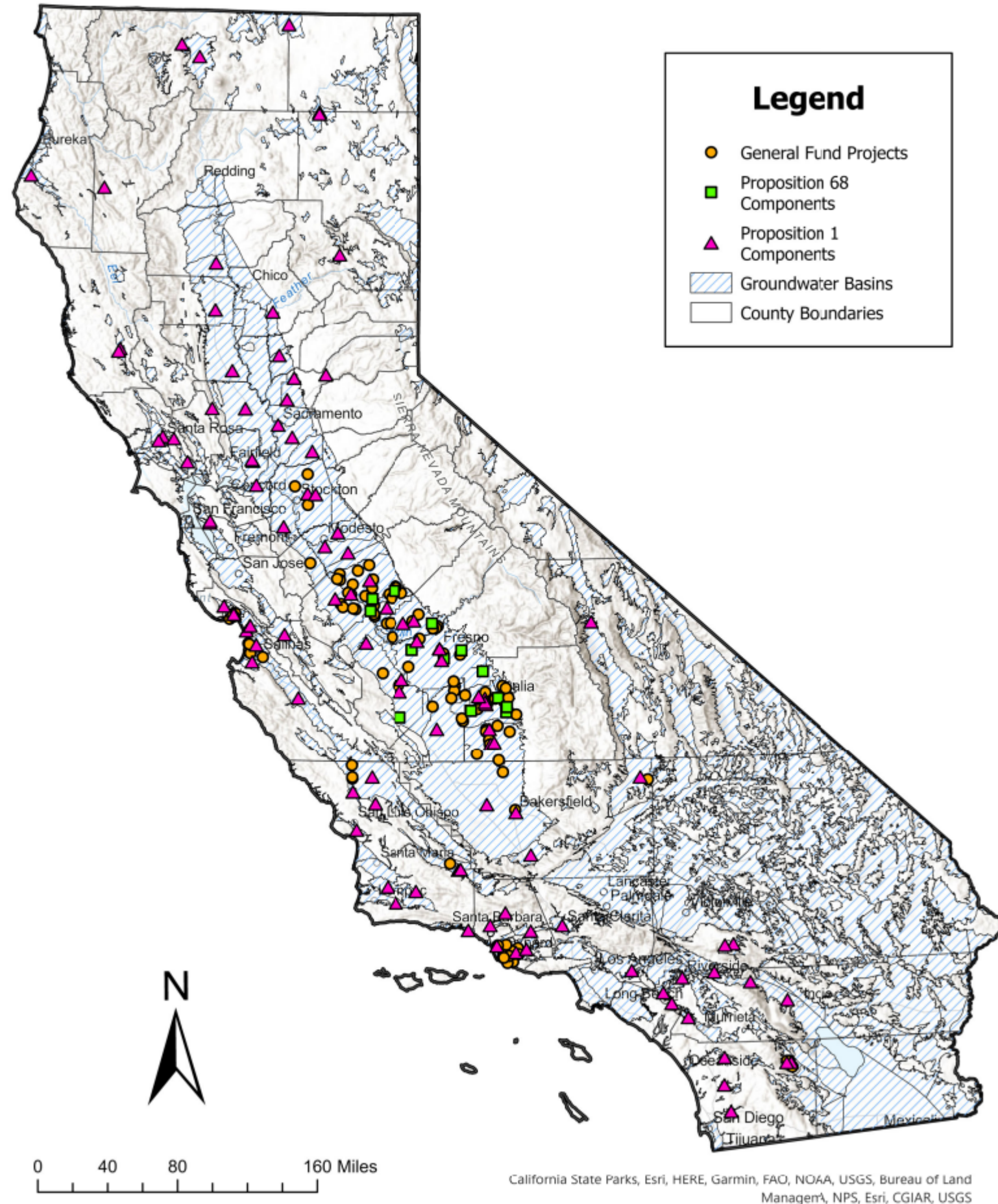
- Flood Risk Reduction
- Drought Mitigation
- Expedite transition to sustainable groundwater management

○ LandFlex

Protect vulnerable domestic wells; halt unsustainable groundwater pumping

- 6 GSAs (COD Basins)
- 4,317 acres enrolled
- Benefits to 16,500 + domestic wells
- ~140,000 ac-ft of overdraft water permanently kept in the ground
- Pivoted to include flood protection element January-March 2023

SGMA Grant Program Funding Allocations



Expediting Recharge: *SGM Local Assistance Grants*

- \$483 million granted across multiple funding sources
- 390 projects supported
- \$100+ million specifically for recharge projects



Expediting Recharge: *Land Use Incentive Outcomes*

(preliminary)

KNOWN/REPORTED:

- EO N-7-23, N-4-23 Floodwater Recharge is **390,000 acre-feet** diverted for groundwater recharge on **95,000 acres** (9/29/23)

ESTIMATED:

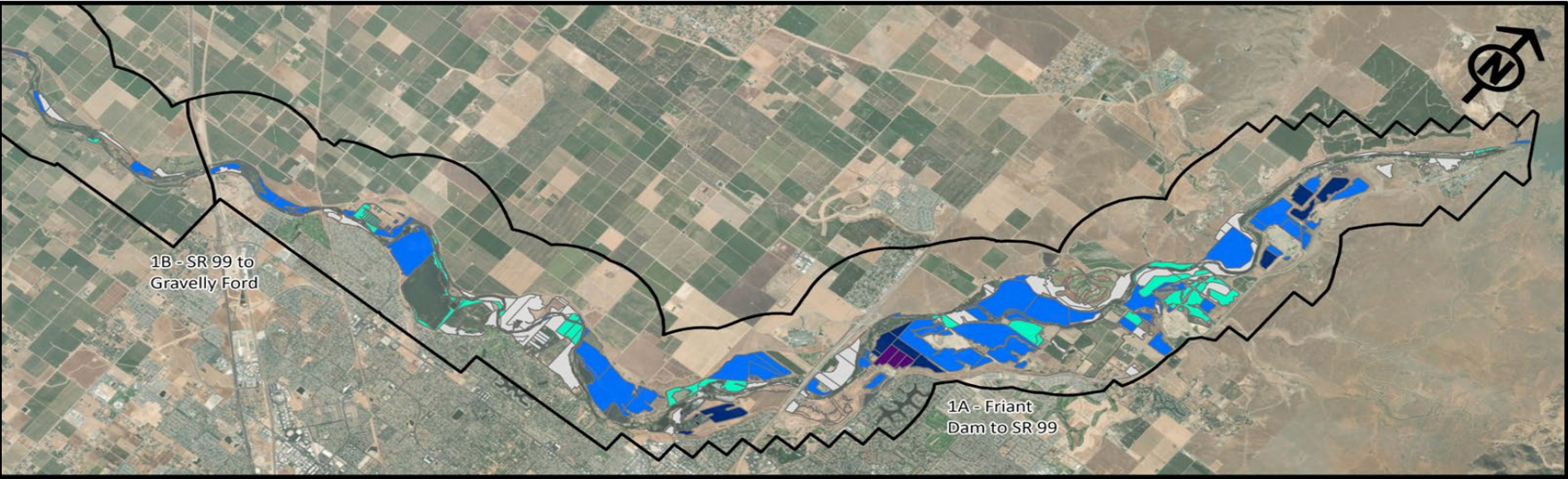
- SWRCB Streamlined Temporary Permits: Permitted **670,000 acre-feet** and TUCP to the Bureau of Reclamation for **600,000 acre-feet**
- Active Recharge Projects, Water Banks & Surface Water Diversions: **2.5 million+ acre-feet** (Final #s in Spring '24)

FUTURE ESTIMATES:

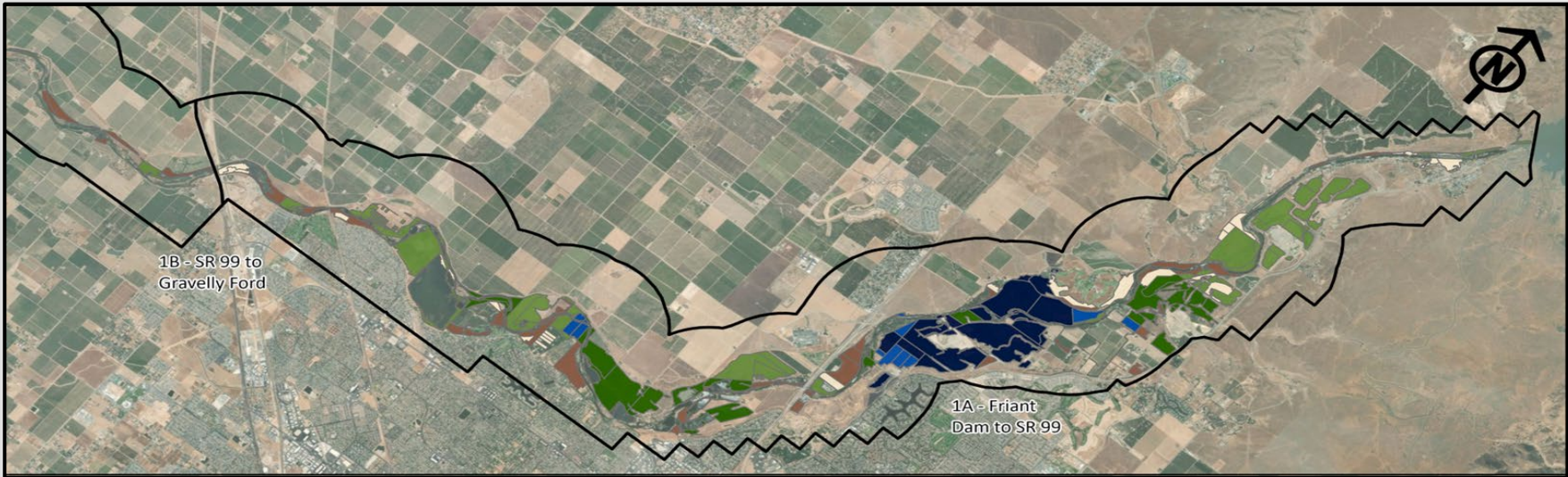
- State Funded Future Recharge Projects: Between 2021-2023 **\$102.2m** in SGM Grants awarded creating **263,000 acre-feet/yr** in recharge capacity



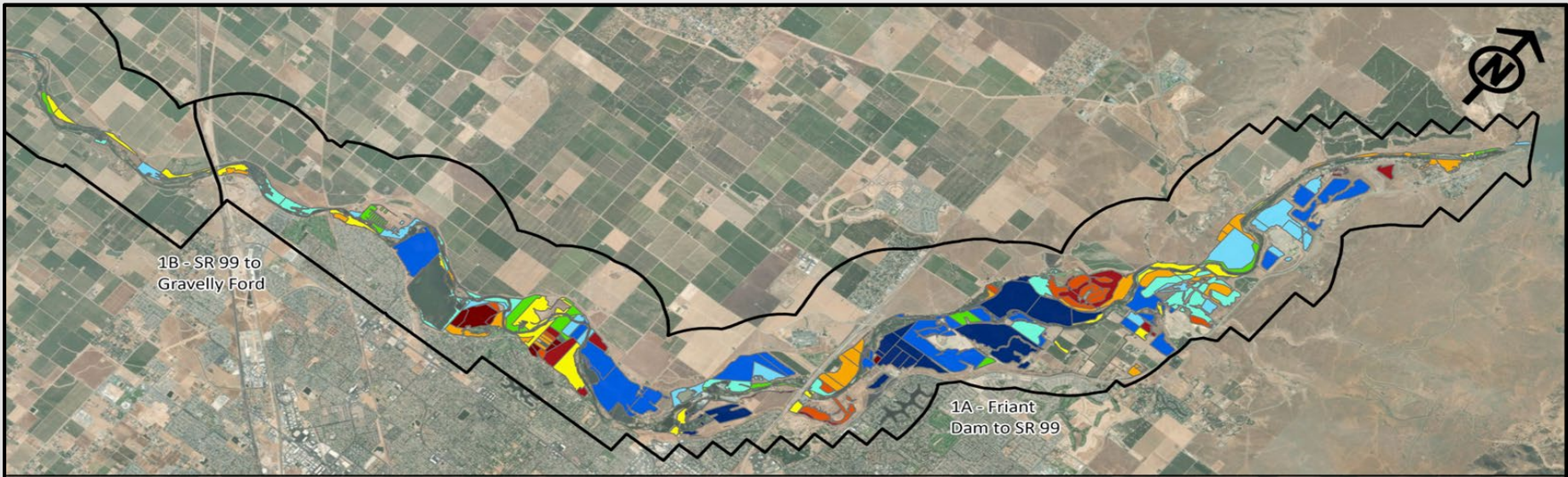
Building Recharge into Habitat Restoration Actions



Floodplain Habitat Suitability
(e.g. historic floodplains and
relative connectivity)



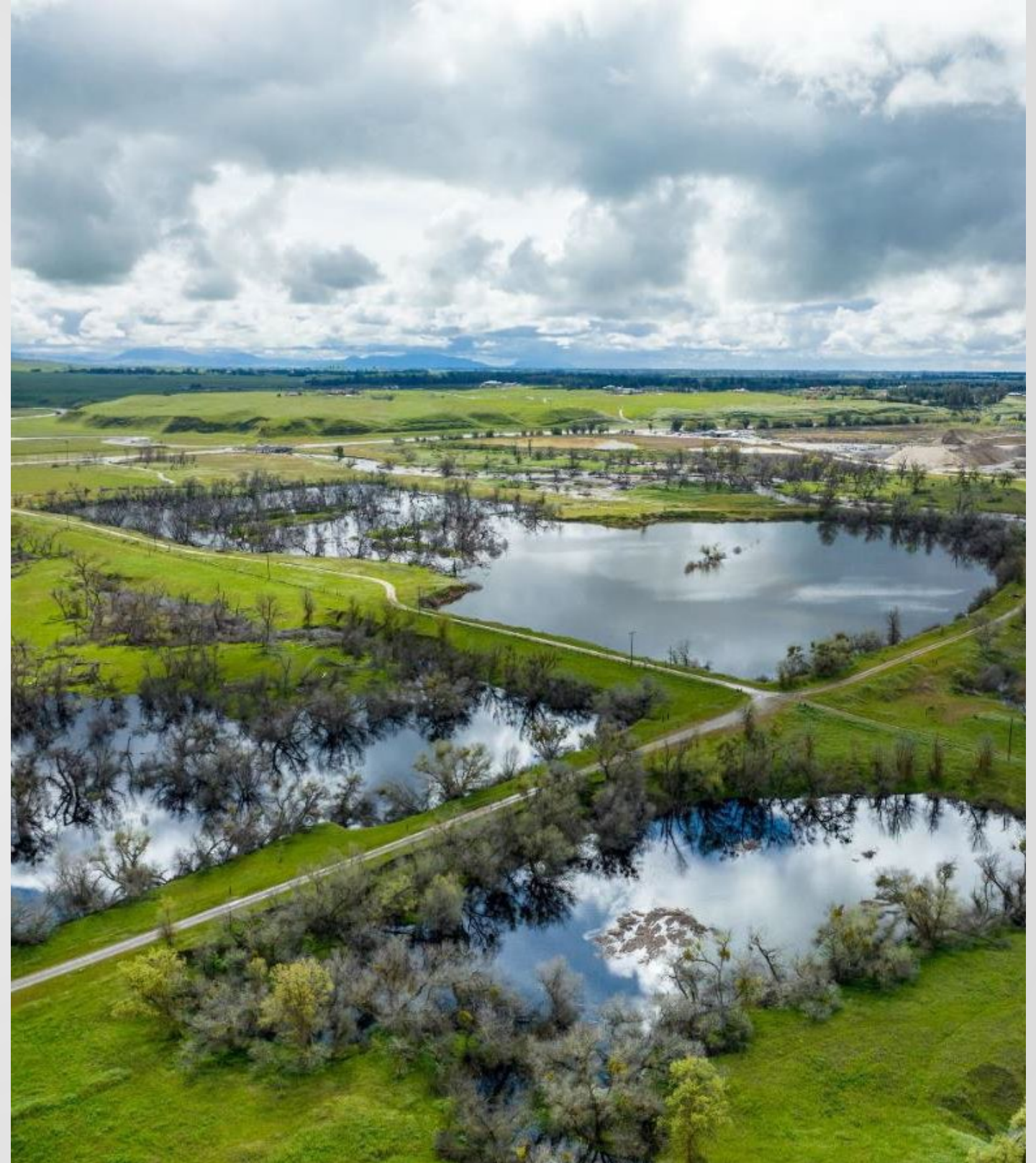
Recharge Suitability
(e.g. permeability;
compatible land uses)



Overall
Ranking

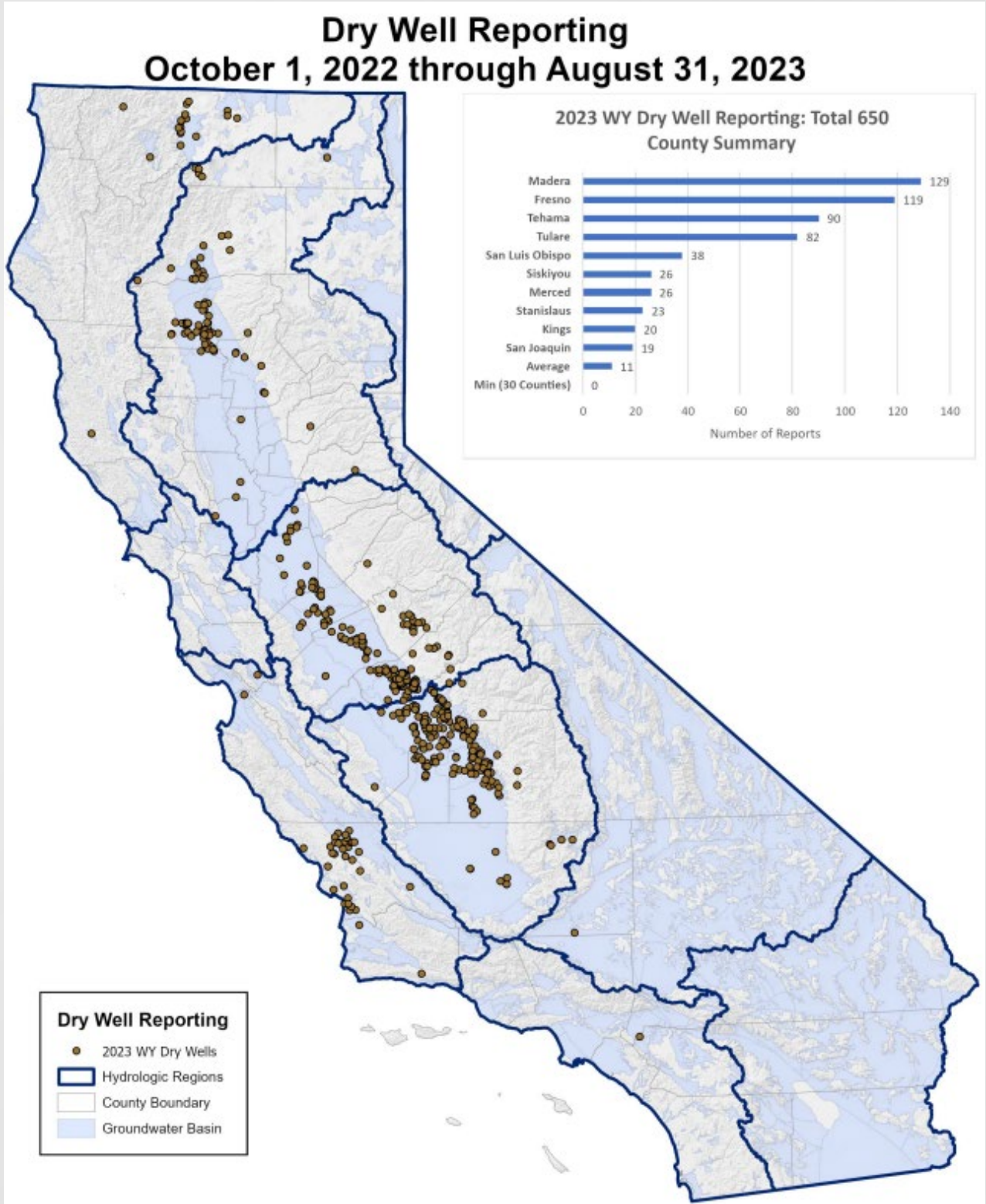
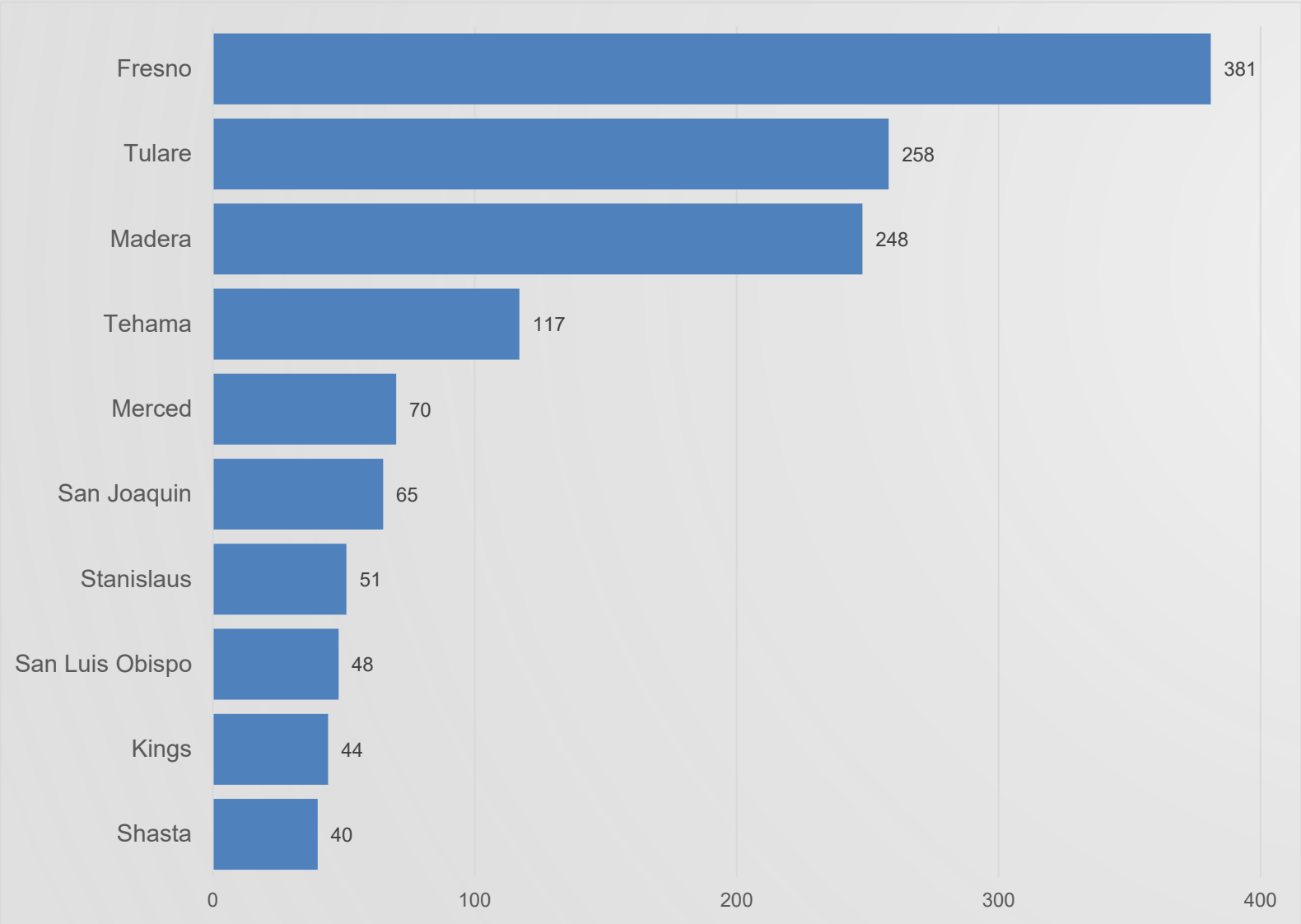
Expediting Recharge: *Future Years*

- Continue connecting flood managers with groundwater and drought managers
- Improve understanding of climate change impacts to underserved populations
- Prepare for the upcoming winter & runoff season – expand flood diversion & recharge efforts
- Continue tracking and reporting statewide groundwater conditions with an emphasis on recharge activities
- Explore longer-term opportunities to maximize flood diversion and recharge



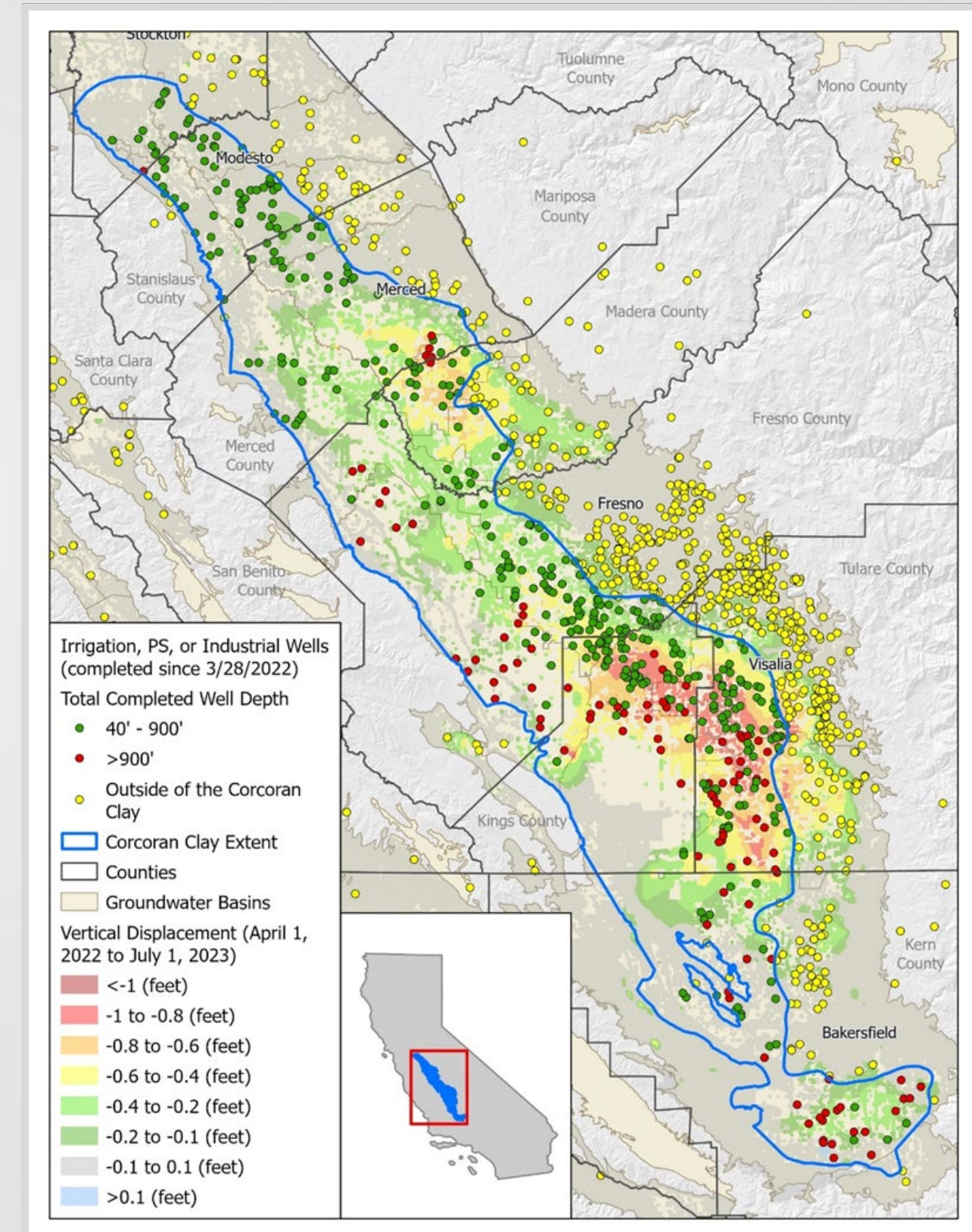
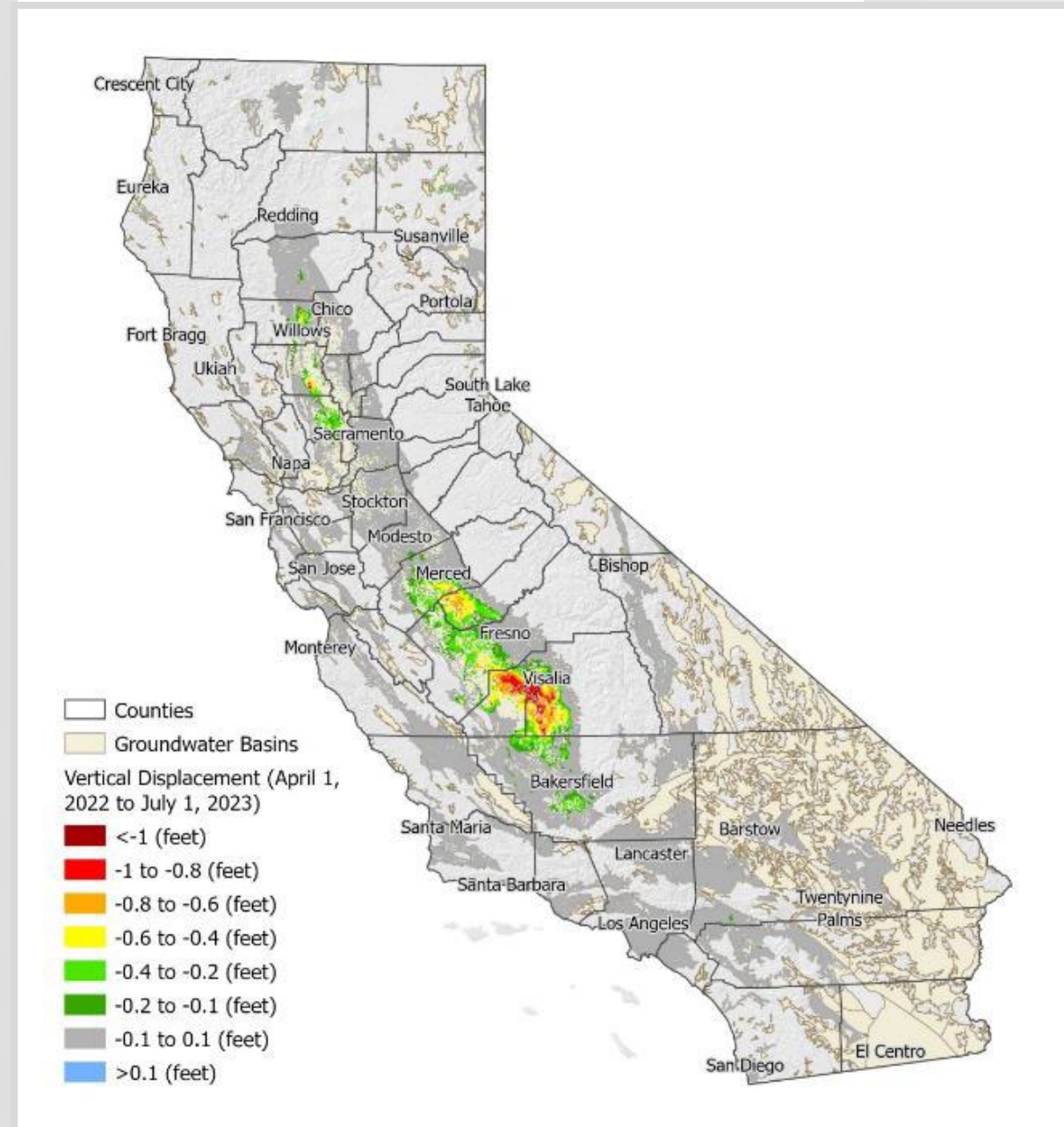
Looking Ahead: *GW Basins Remain in Drought Conditions*

Top 10 Counties for Dry Well Reporting (WY 2023)



Looking Ahead: *GW Basins Remain in Drought Conditions*

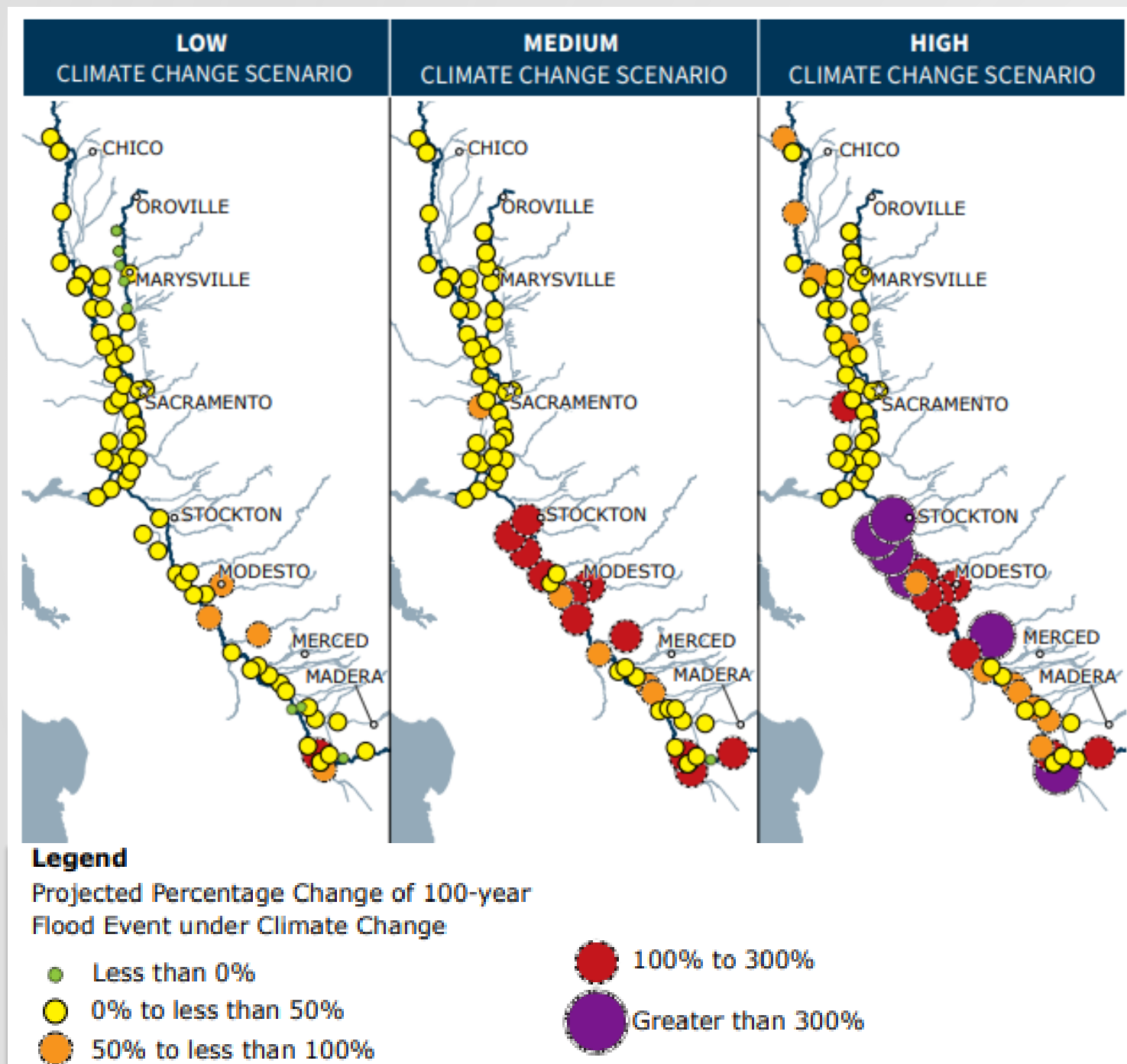
Land Subsidence Data *April 1, 2022 to July 1, 2023*



Climate-Driven Flood Risks in the SJ Valley

Peak San Joaquin Trib. Flood Flows Will Increase up to 200% on Average

Some Reservoirs Lack Enough Dedicated Flood Storage Capacity to Manage Expected Flows



3-Day Tributary Unregulated Runoff (TAF)	Calaveras River	Stanislaus River	Tuolumne River	Merced River	Upper San Joaquin River
1% chance Flood Event	167	364	513	299	332
0.5% chance Flood Event	188	479	648	361	427
0.5% chance Flood Event with Climate Change	242	836	1,188	638	514
Reservoir Flood Storage Capacity (TAF)	165 <i>New Hogan Reservoir</i>	450 <i>New Melones Reservoir</i>	340 <i>New Don Pedro Reservoir</i>	350 <i>Lake McClure</i>	170 <i>Lake Millerton</i>

Note: TAF = thousand acre-feet

Source: California Department of Water Resources 2017c

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Thank you

