

Merced GSP Joint Meeting of Coordination Committee & Stakeholder Advisory Committee

May 24, 2023

Meeting will begin at 10 am or a few minutes after – thank you
for joining us!

Merced Irrigation-Urban GSA
Merced Subbasin GSA
Turner Island Water District GSA-1

Image courtesy: Veronica Adrover/UC Merced

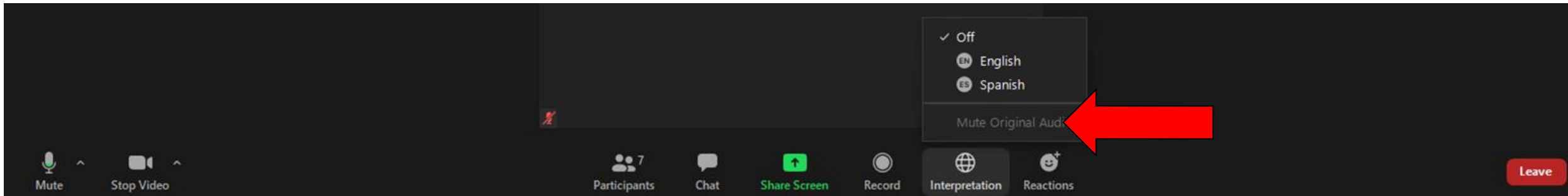
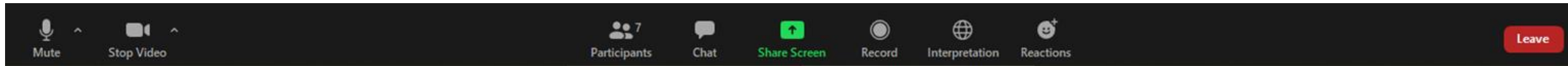


Welcome, Instructions for Zoom

Bienvenidos, Instrucciones para Zoom

We have two language audio channels available. English only speakers, please select English.

Si solamente habla español, debe seleccionar un canal de idioma



The meeting will have simultaneous interpreting, so you are welcome to comment in your native language.
La junta será interpretada simultáneamente, así que le invitamos a que haga comentarios en su lenguaje nativo.

Agenda

1. Call to Order and Welcome
2. Roll Call
 - a) Coordination Committee
 - b) Stakeholder Advisory Committee
3. Approval of February 27, 2023 Coordination Committee Meeting Minutes
4. Public Comment
5. Reports
6. Flood-MAR Pilot Project Presentation
7. Grant Updates
8. GSP 5-Year Update Preview
9. Next Steps and Adjourn

Image courtesy: Veronica Adrover/UC Merced

Coordination Committee Roll Call

Representative	GSA
Hicham ElTal	Merced Irrigation-Urban GSA
Stephanie Dietz	Merced Irrigation-Urban GSA
Justin Vinson	Merced Irrigation-Urban GSA
Daniel Chavez	Merced Irrigation-Urban GSA
Ken Elwin (<i>alternate</i>)	Merced Irrigation-Urban GSA
Mike Gallo	Merced Subbasin GSA
Nic Marchini	Merced Subbasin GSA
Eric Swenson	Merced Subbasin GSA
George Park (<i>alternate</i>)	Merced Subbasin GSA
Kel Mitchel	Turner Island Water District GSA #1
Tim Allan (<i>alternate</i>)	Turner Island Water District GSA #1

Image courtesy: Veronica Adrover/UC Merced

Stakeholder Advisory Committee Members

Committee Member	Interest/Affiliation	Alternate	Interest/Affiliation
Arlan Thomas	MIDAC member	Ben Migliazzo	Live Oak Farms
Bob Kelley	Stevinson Representative	Blake Nervino	Stevinson/Merquin
Breanne Ramos	MCFB		
Craig Arnold	Arnold Farms		
Darren Olguin	Resident of Merced County		
Dave Serrano	Serrano Farms - Le Grand		
David Belt	Foster Farms		
Emma Reyes	Martin Reyes Farm/Land Leveling		
Greg Olzack	Atwater Resident		
Jean Okuye	E Merced RCD		
Joe Sansoni	Sansoni Farms/MCFB		
Joe Scoto	Scoto Brothers/McSwain School Dist.		
Jose Moran	Livingston City Council		
Lacy Carothers	Cal Am Water		
Lisa Baker	Clayton Water District		
Lisa Kayser-Grant	Sierra Club		
Mark Maxwell	UC Merced		
Maxwell Norton	Unincorporated area		
Nav Athwal	TriNut Farms		
Olivia Gomez	Community of Planada	Nataly Escobedo Garcia	Leadership Counsel
Caitie Campodonico	ESJWQC		
Darcy Brown	River Partners		
Rick Drayer	Merced/Mariposa Cattlemen		
Simon Vander Woude	Sandy Mush MWC		
Susan Walsh	City of Merced	Bill Spriggs	Resident City of Merced
Thomas Dinwoodie	Master Gardener/McSwain		
Trevor Hutton	Valley Land Alliance		
Wes Myers	Merced Grassland Coalition	Lou Myers	Benjamin Land LP



Approval of Meeting Minutes

Image courtesy: Veronica Adrover/UC Merced

Approval of Meeting Minutes

- February 27, 2023 (Coordination Committee)

Image courtesy: Veronica Adrover/UC Merced



Questions/Comments from Public:

For remote attendees, If you would like to make a comment, please type the comment in the chat or raise your hand to request to be taken off mute



Reports

Image courtesy: Veronica Adrover/UC Merced



GSA Reports

- Updates from each GSA on activities they are undertaking in their own jurisdiction:
 - Merced Subbasin GSA
 - Merced Irrigation-Urban GSA
 - Turner Island Water District GSA #1

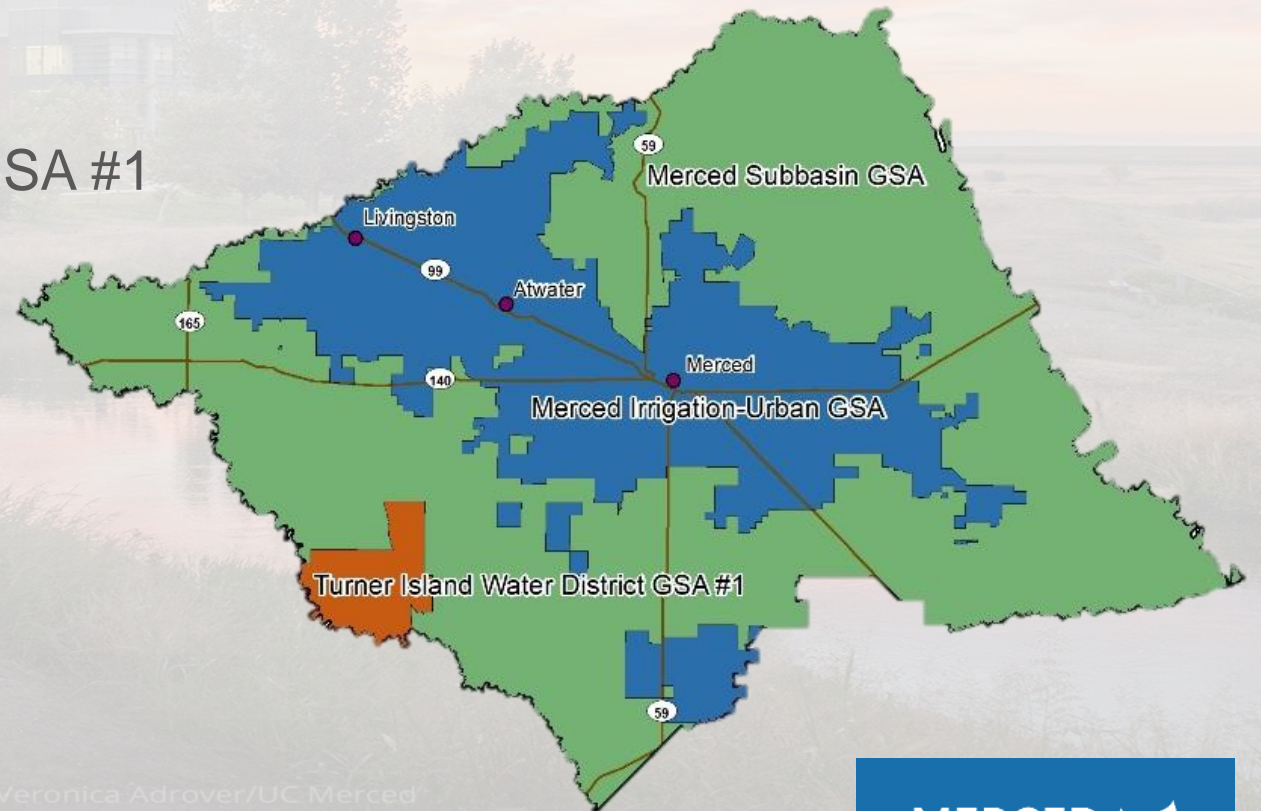


Image courtesy: Veronica Adrover/UC Merced



CALIFORNIA DEPARTMENT OF WATER RESOURCES
SUSTAINABLE GROUNDWATER
MANAGEMENT OFFICE

Sustainable Groundwater Management Update

May 2023

GSP & Alternatives Evaluation Submittals

- Critically Overdrafted (COD) Basins
 - **21 basins submitted 46 GSPs** by January 31, 2020
 - 12 of the 21 basins were deemed Incomplete by DWR in January 2022 and resubmitted their GSPs in July 2022
- High and Medium Priority Basins (Non-COD)
 - **63 basins submitted 65 GSPs** by January 31, 2022
 - DWR Approved 4 basins January 2023 & 12 basins in April 2023
- Alternatives to GSPs
 - Alternatives were initially submitted by January 1, 2017
 - DWR **Approved 9 Alternatives** in 2019
 - Basins submitted 9 Alternatives for Periodic Evaluation by January 1, 2022 (the periodic update)



The screenshot shows the SGMA Portal website. The header includes the CA.GOV logo, Department of Water Resources, and SGMA PORTAL. A navigation menu contains Home, GSA, GSP, Alternatives, Adjudicated Areas, Basin Modification, and Resources. A 'Sign In' button is in the top right. The main content area features a background image of a landscape with a river and the text 'SUBMIT AND VIEW SGMA INFORMATION AND DATA'. Below this are six circular icons: GSA (GSA Formation), GSP (GSP Submittal), ALT (Alternative Submittal), ADJ (Adjudicated Areas), BBM (Basin Modification), and RES (SGMA Portal Resources). A dark blue box at the bottom contains the text: 'Please visit the SGMA Portal to find submitted Plans, Public Comments, and DWR Assessments:' followed by the URL <https://sgma.water.ca.gov/portal/>.

30

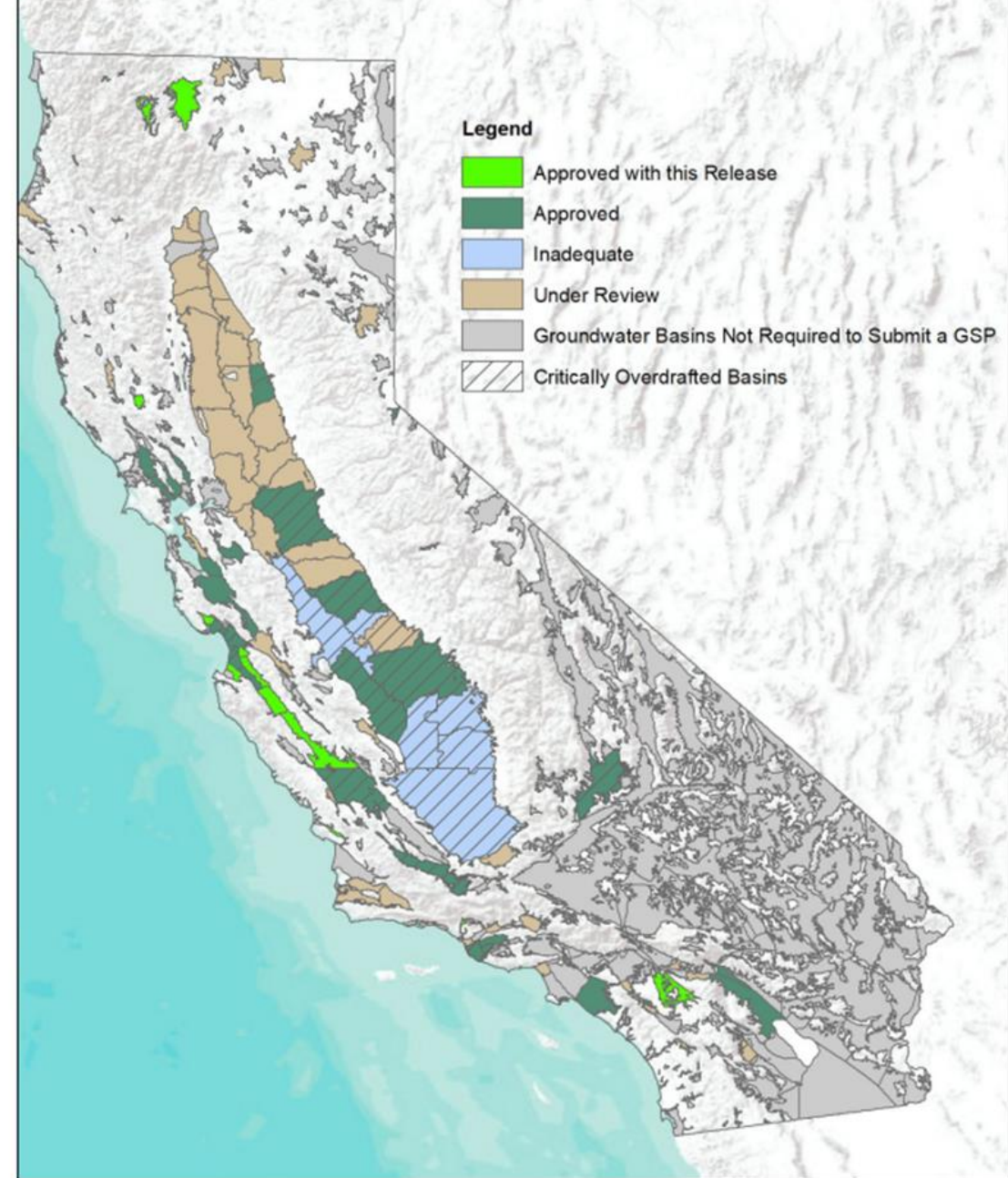
Basins

Approved Plan Determinations

Approved Basins:

- | | |
|----------------------------------|-----------------------------------|
| 1. Santa Cruz Mid-County Basin | 19. Shasta Valley Basin |
| 2. 180/400 Foot Aquifer Subbasin | 20. Scott River Valley Basin |
| 3. North Yuba Subbasin | 21. Big Valley Basin |
| 4. South Yuba Subbasin | 22. East Side Aquifer Subbasin |
| 5. Oxnard Basin | 23. Forebay Aquifer Subbasin |
| 6. Pleasant Valley Subbasin | 24. Langley Area Subbasin |
| 7. Las Posas Basin | 25. Monterey Subbasin |
| 8. Indian Wells Valley Basin | 26. Upper Valley Aquifer Subbasin |
| 9. Sonoma Valley Subbasin | 27. San Luis Obispo Valley Basin |
| 10. Petaluma Valley Basin | 28. Santa Margarita Basin |
| 11. Napa Valley Subbasin | 29. Upper Ventura River Subbasin |
| 12. Santa Rosa Plains Subbasin | 30. San Jacinto Basin |
| 13. Eastern San Joaquin Subbasin | |
| 14. Merced Subbasin | |
| 15. Paso Robles Subbasin | |
| 16. Cuyama Basin | |
| 17. Westside Subbasin | |
| 18. Kings Subbasin* | |

*Multi-Plan Basin



Note: Map updated with latest April 27, 2023 Approved basins

Non-Approved Plan Determinations

6
Basins

INADEQUATE BASINS:

1. Chowchilla Subbasin
2. Tulare Lake Subbasin
3. Delta Mendota Subbasin*
4. Kaweah Subbasin*
5. Tule Subbasin*
6. Kern Subbasin*

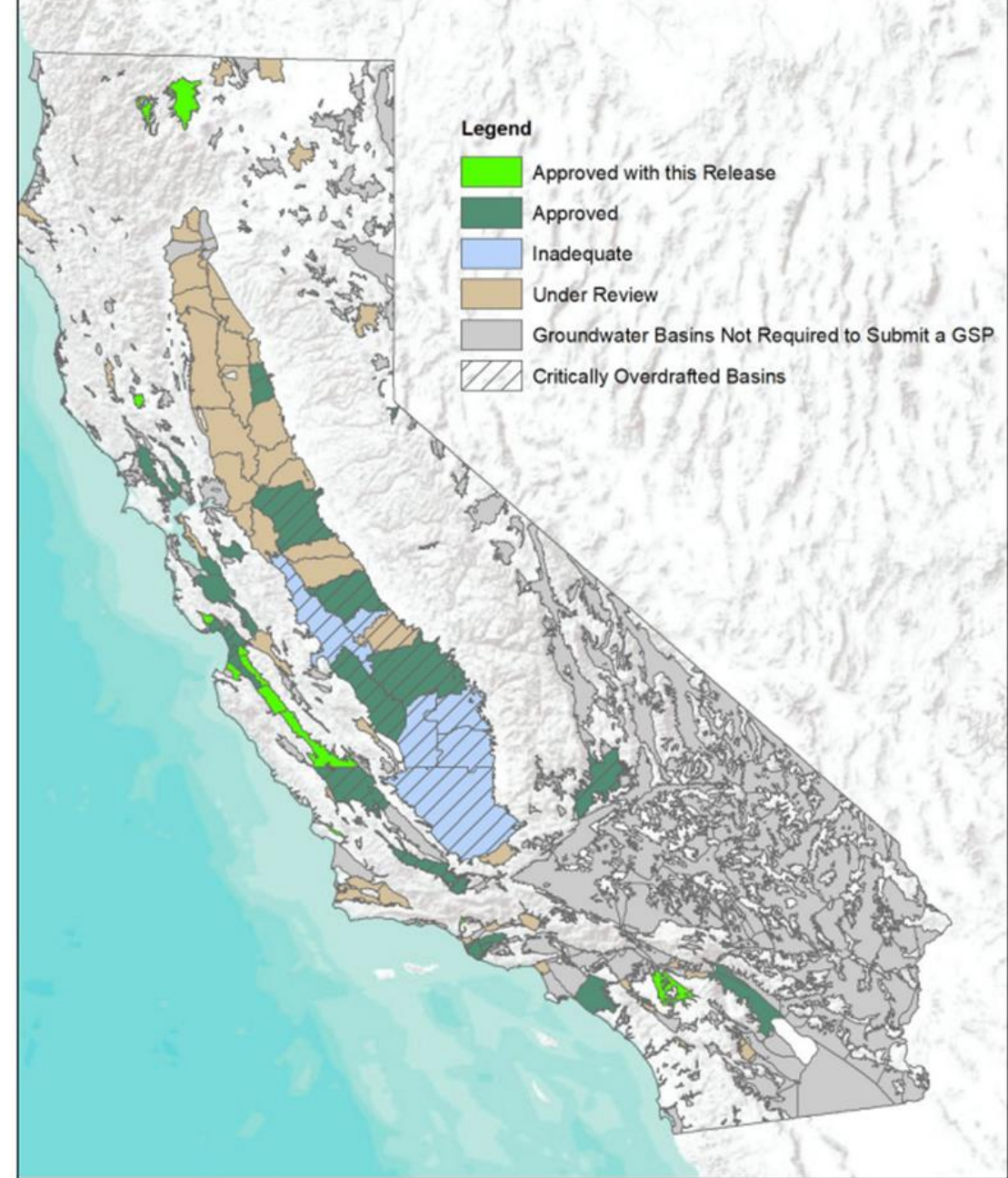
1
Basin

INCOMPLETE BASIN

(180 days to address deficiencies):

7. Madera Subbasin* – Resubmitted on March 24, 2023

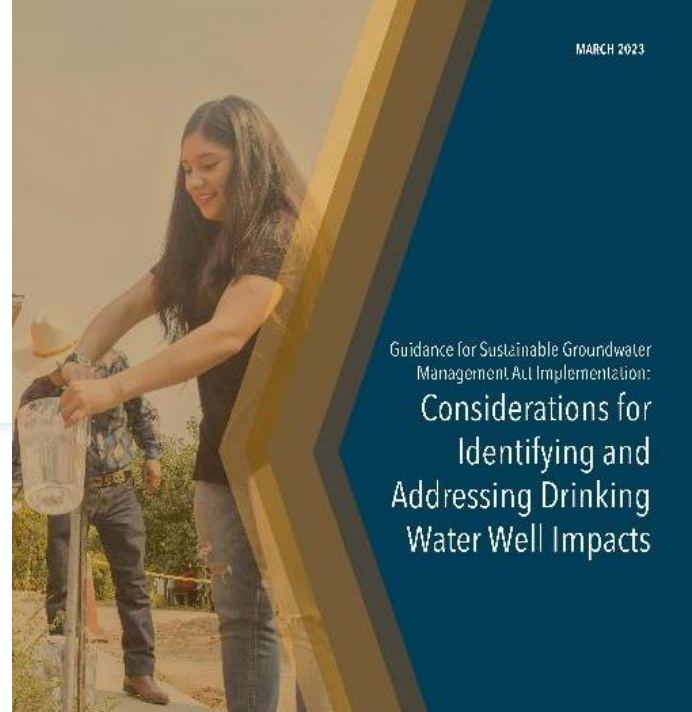
**Multi-Plan Basins*




Note: Map updated with latest April 27, 2023 Approved basins

Release of Drinking Water Guidance

Guidance for Sustainable Groundwater Management Act Implementation:
Considerations for Identifying and Addressing Drinking Water Well Impacts




- Drinking water users addressed under SGMA and GSP Regulations
- Online Toolkit and Resources to Enhance GSP Implementation and Engage Users
- Opportunities for alignment and coordination with counties implementing Senate Bill 552, Drought Resilience Plans



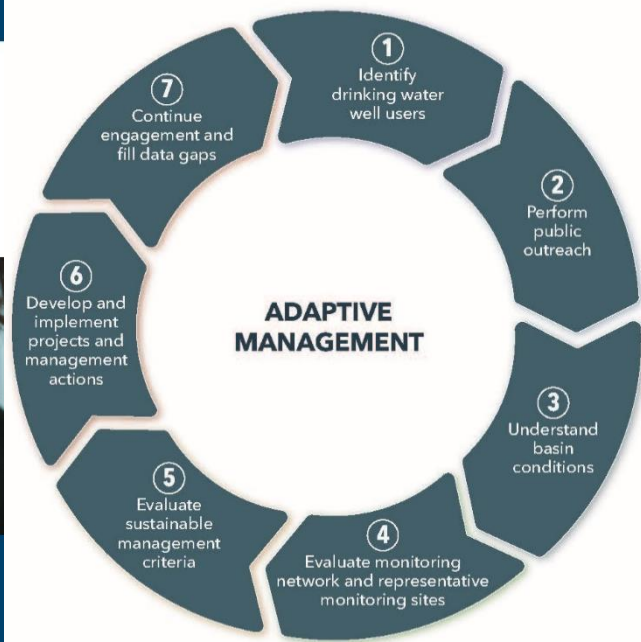
Alignment & Coordination

Water Shortage Planning for Rural Communities and Sustainable Groundwater Management



The purpose of this document is to identify opportunities and encourage counties and groundwater sustainability agencies (GSAs) to align and coordinate their respective responsibilities for drought and water shortage planning efforts for rural communities under Senate Bill (SB) 552 and the long-term sustainability goals of groundwater basins under the Sustainable Groundwater Management Act (SGMA).

MARCH 2023



Online Toolkit: <https://water.ca.gov/Programs/Groundwater-Management/Drinking-Water-Well>

Annual Report Evaluations

- As part of tracking implementation progress, DWR will be evaluating Annual Reports for Approved Basins
- Pilot evaluation began in 2022
- Anticipate Annual Report evaluations this year





Well Permitting Considerations & Analysis Report

- Executive Order N-7-22, Action 9 directs well permitting entities to coordinate with GSAs and consider nearby wells and potential subsidence impacts when issuing new well permits
- DWR is conducting a survey and developing an analysis report of the EO – what have been the challenges and where has there been success?
- Target for Final Report: September 2023

SURVEY DEADLINE
EXTENDED TO:
MAY 23, 2023



Anticipate Additional Guidance

- DWR is developing guidance for the Periodic Evaluation requirement under SGMA
 - Target: Summer 2023
- DWR is developing Interconnected Surface Water guidance
 - Starting Summer 2023 to 2024



Current Conditions Report

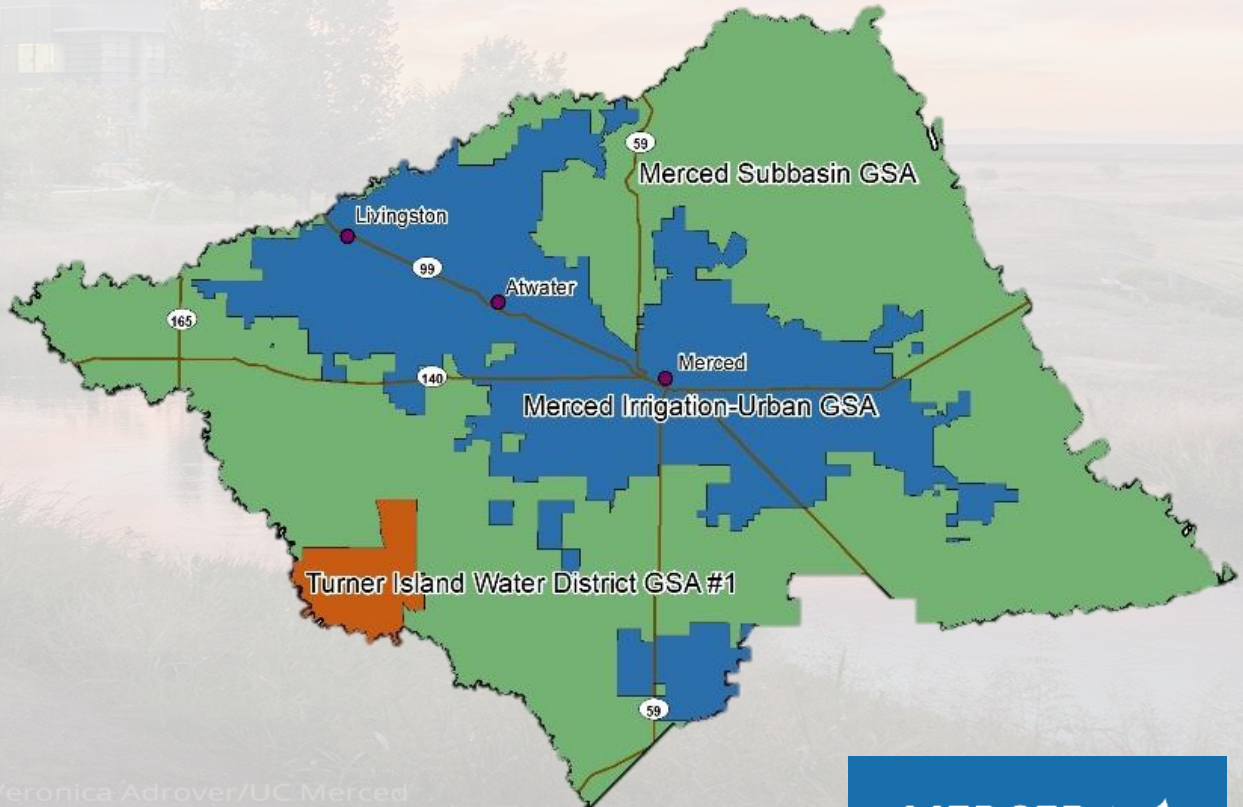
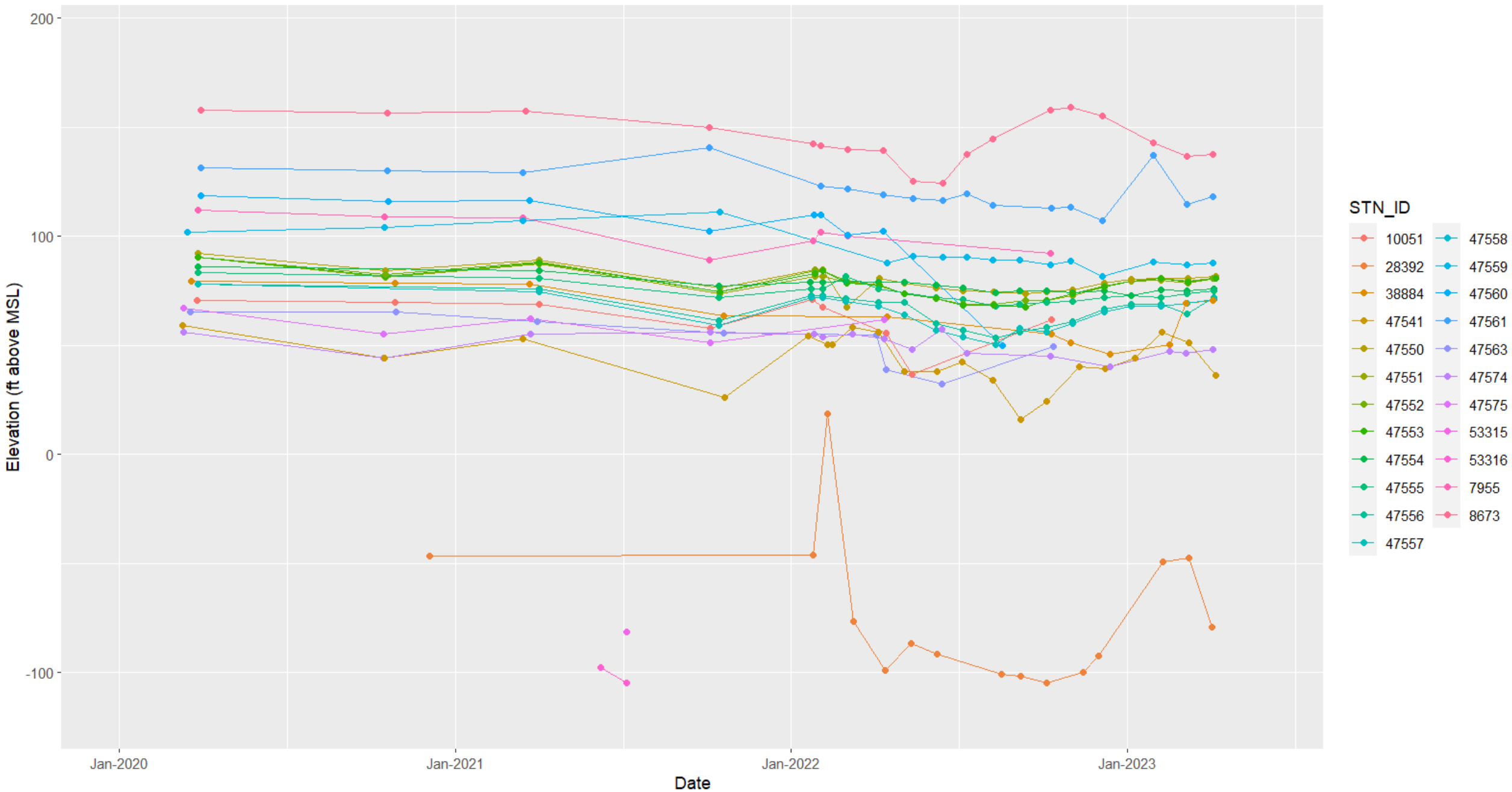


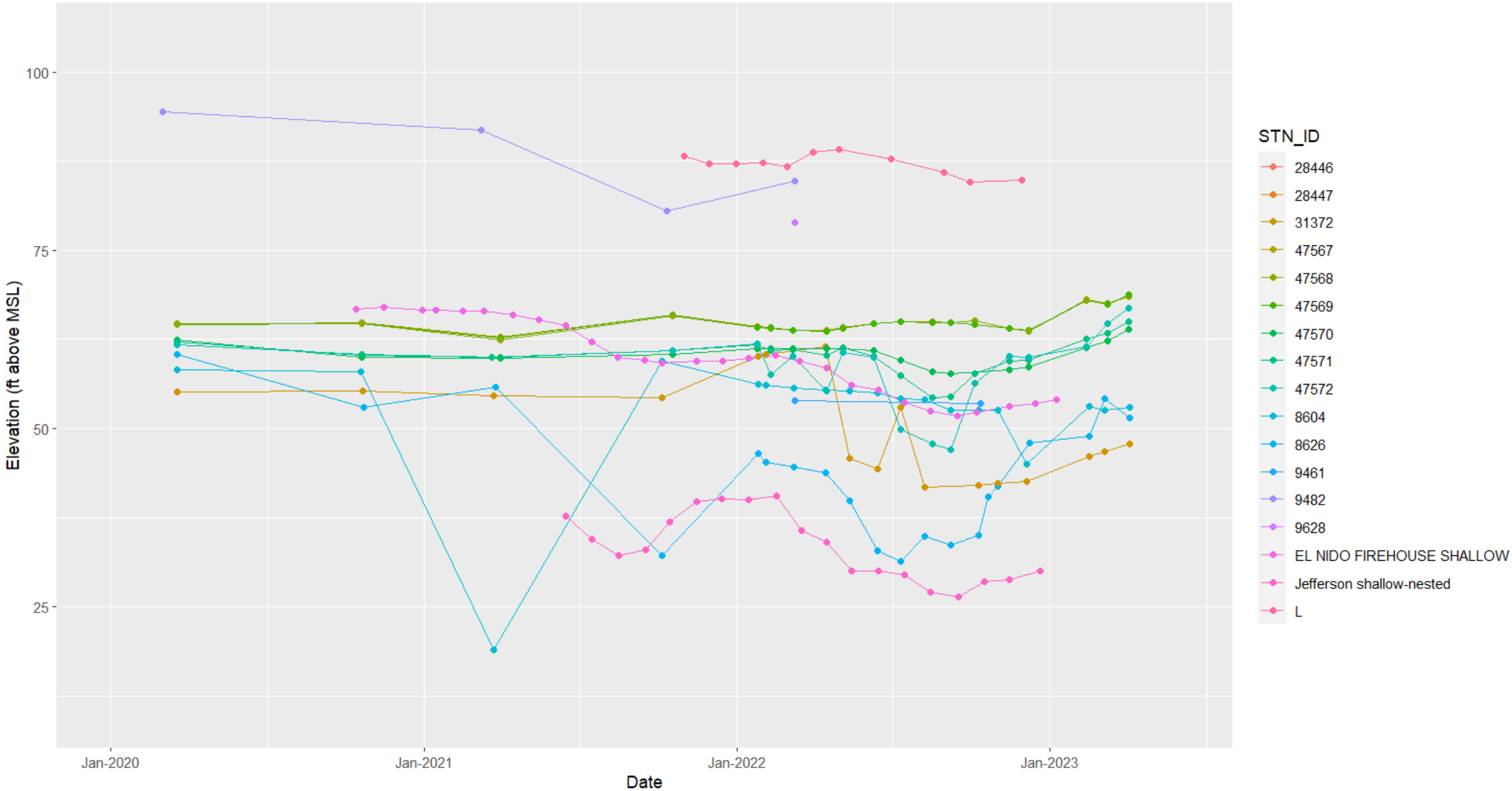
Image courtesy: Veronica Adrover/UC Merced



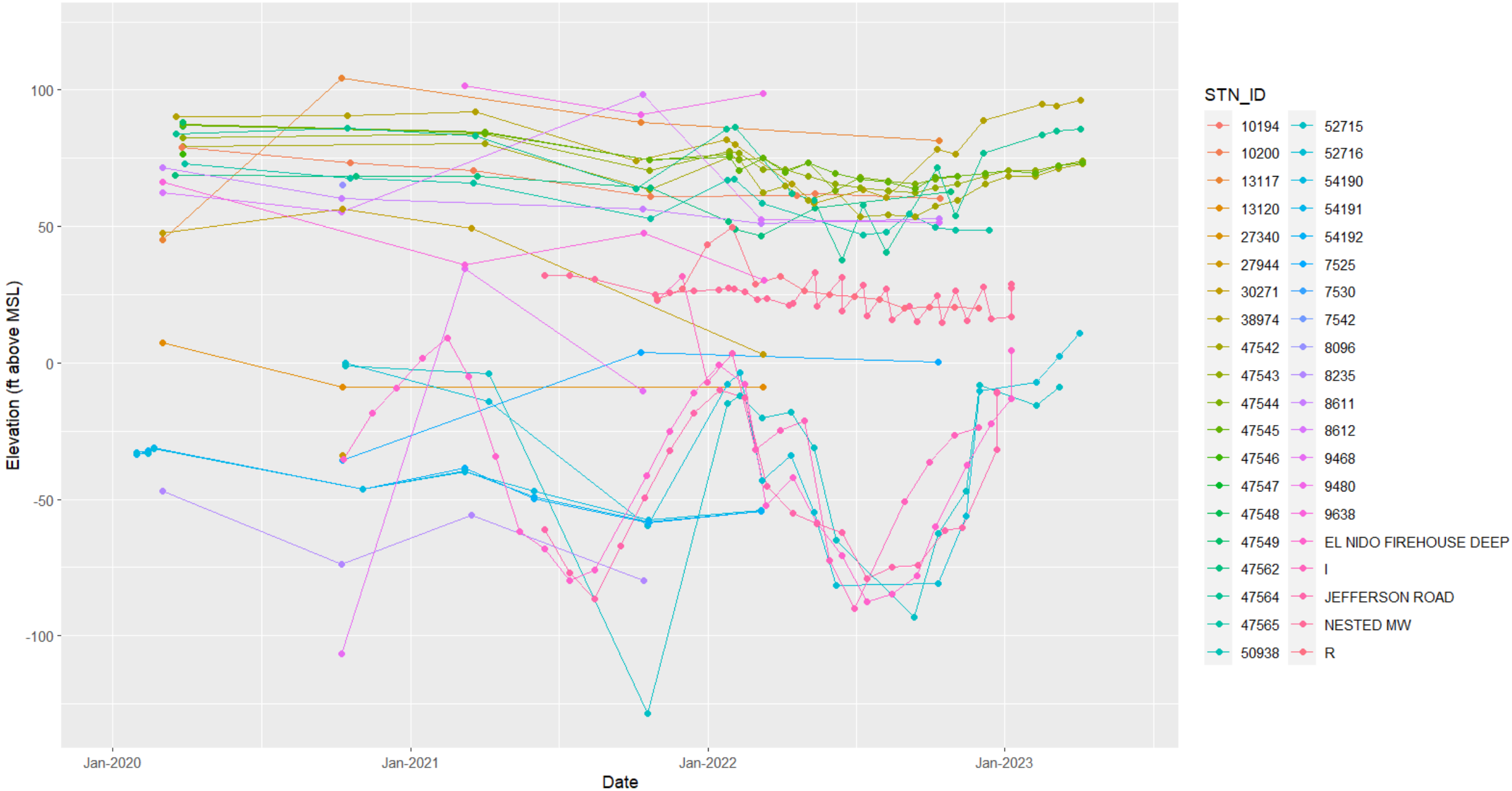
Outside Corcoran Clay Monitoring Wells Hydrographs



Above Corcoran Clay Monitoring Wells Hydrographs



Below Corcoran Clay Monitoring Wells Hydrographs





Flood-MAR Pilot Project Presentation

Image courtesy: Veronica Adrover/UC Merced



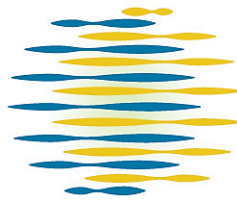
MERCED RIVER FLOOD-MAR RECONNAISSANCE STUDY

MERCED GSP COORDINATION & STAKEHOLDER ADVISORY COMMITTEES MEETING | MAY 24, 2023





Sustainable Conservation



theEARTH
GENOME
REVEALING THE POSSIBLE



MERCED
IRRIGATION
DISTRICT

WATER & POWER

Discussion Topics

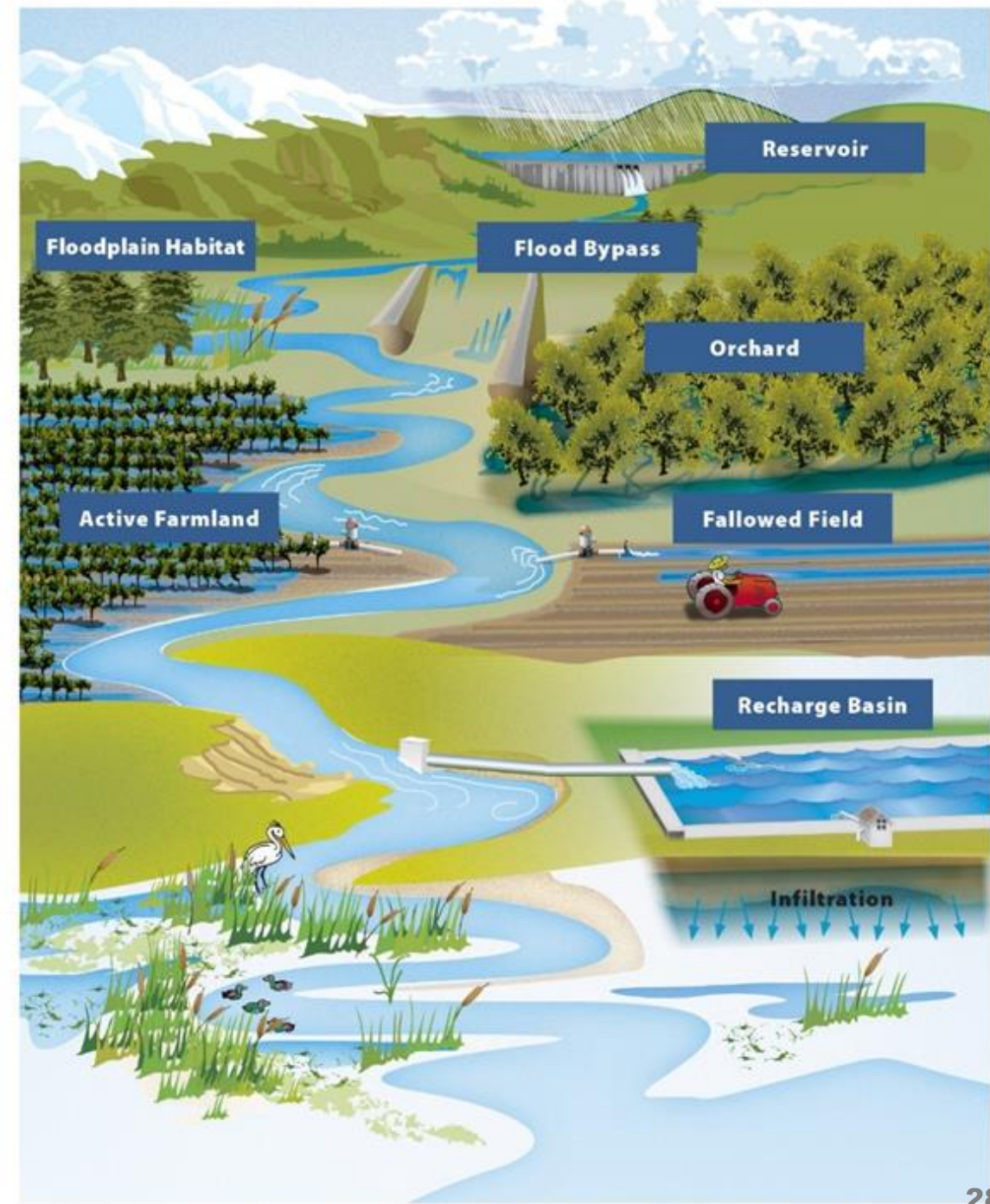
1. Study Overview
2. Climate Conditions & Flood-MAR Scenarios
3. Key Conclusions
4. Next Steps

Discussion Topics

1. Study Overview
2. Climate Conditions & Flood-MAR Scenarios
3. Key Conclusions
4. Next Steps

WHAT IS FLOOD-MAR?

- **Integrated strategy** to manage water resources for sustainability & climate resiliency
- **Using high flows** from (or in anticipation of) rainfall or snowmelt for **managed aquifer recharge**
- On **agricultural lands, working landscapes, and natural managed lands**



Flood-Managed Aquifer Recharge Assistance

- DWR services include:
 1. Tools for assessment of recharge opportunities
 2. On-farm recharge pilot demonstration projects
 3. Technical and financial support with temporary permits
 4. Collaborating with SWRCB on expediting temporary permits
 5. Collaborating with Army Corps for reservoir re-operation concepts
- DWR hopes to leverage recent successes and move beyond the Executive Orders to streamline flood diversions for recharge



Merced Flood-MAR Recharge Strategies and Projected Impacts

Level 3: infrastructure expansion + reservoir reoperation + on-farm recharge

Level 2: reservoir reoperation + on-farm recharge

Level 1: diversion of high flows for on-farm recharge



31%

46%

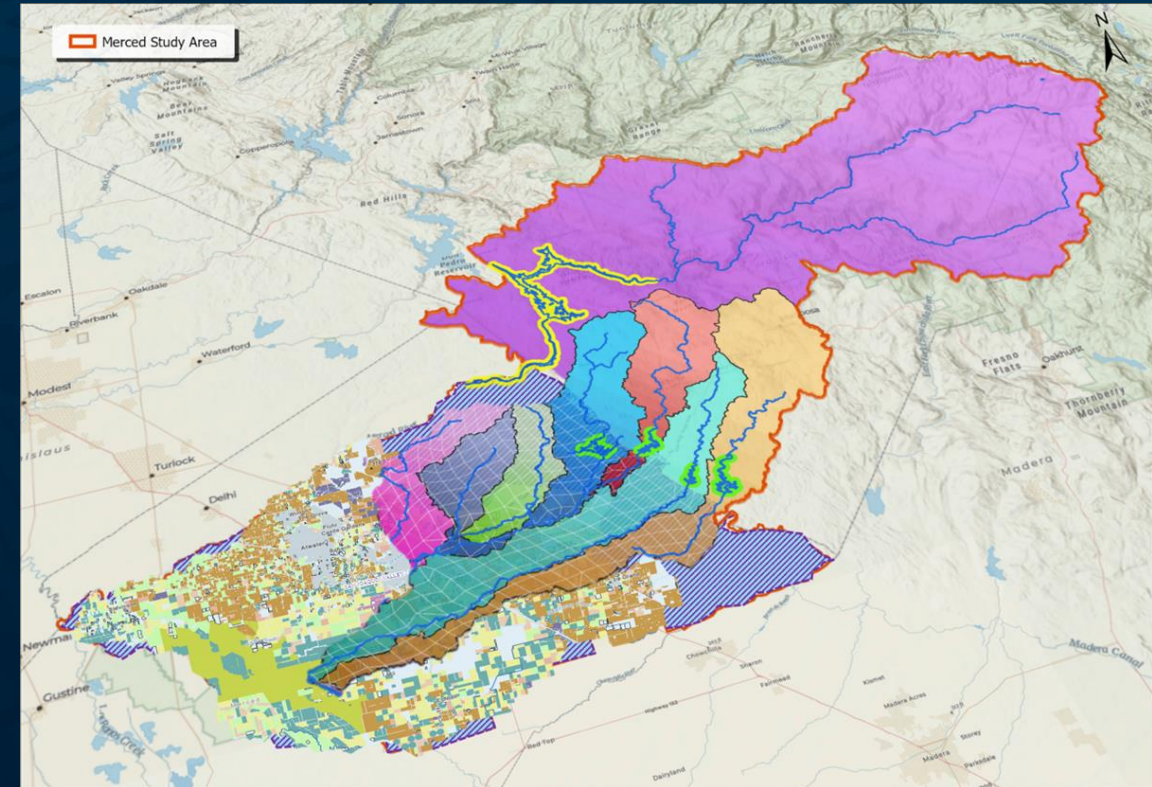
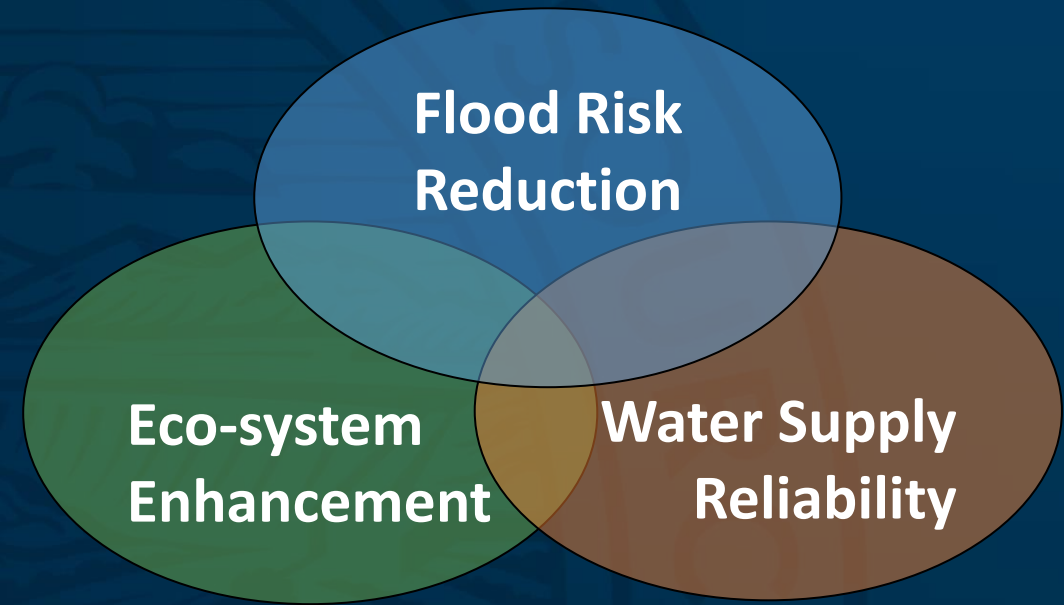
63%

percent of average annual overdraft recharged

Reduce peak flood flows by **65%**

Study Purpose & Goals

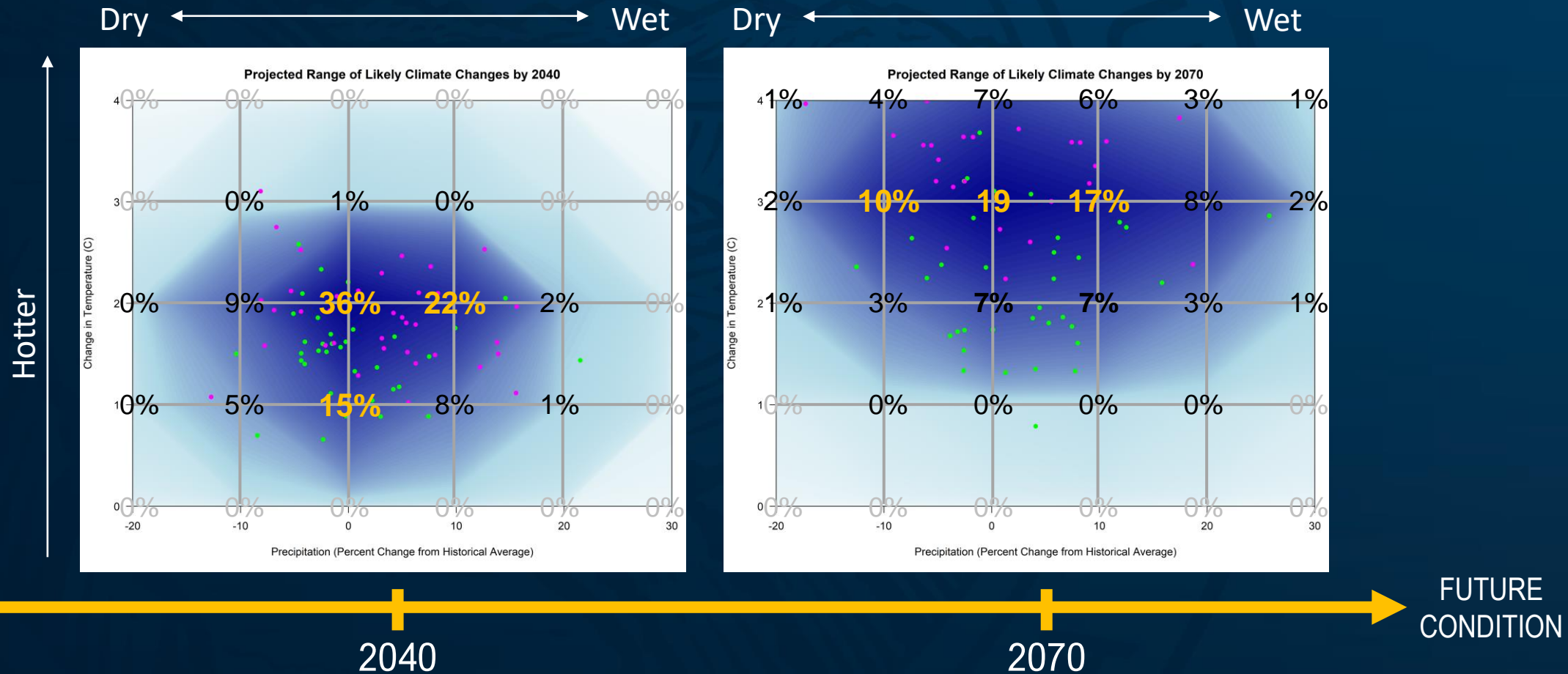
- Proof of concept study
- Integrated Watershed Modeling
- Assess vulnerability and adaptation
- Evaluate multi-sector effects
- Template for future studies and projects



Discussion Topics

1. Study Overview
2. Climate Conditions & Flood-MAR Scenarios
3. Key Conclusions
4. Next Steps

Decision scaling: what and why?

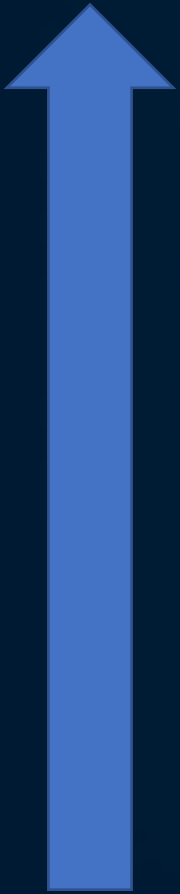


Instead of selecting handful “representative” climate scenarios, evaluated across a full spectrum of possible climate futures.



Scenarios

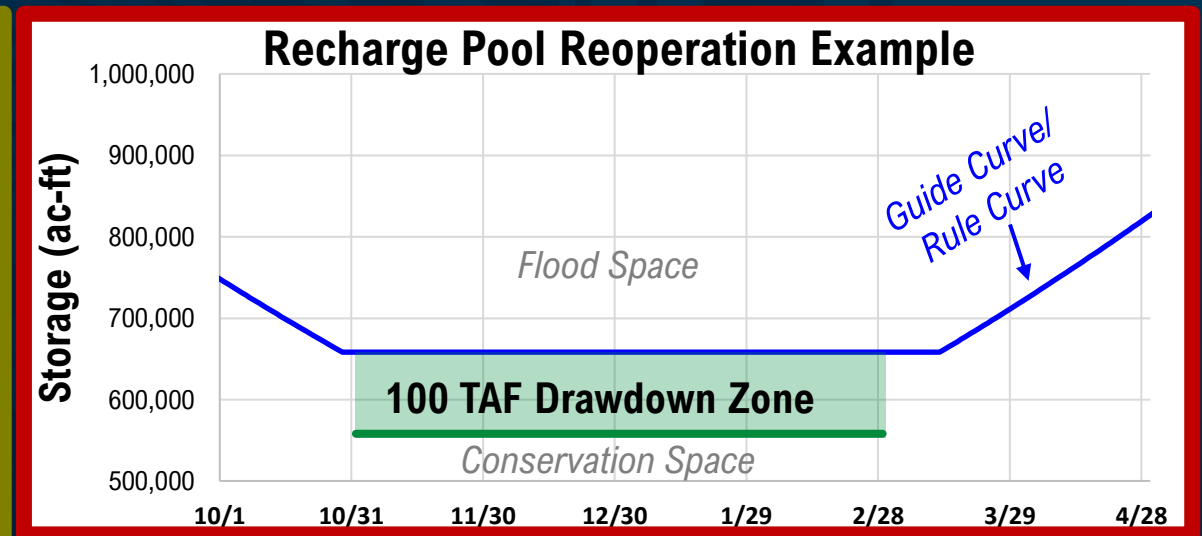
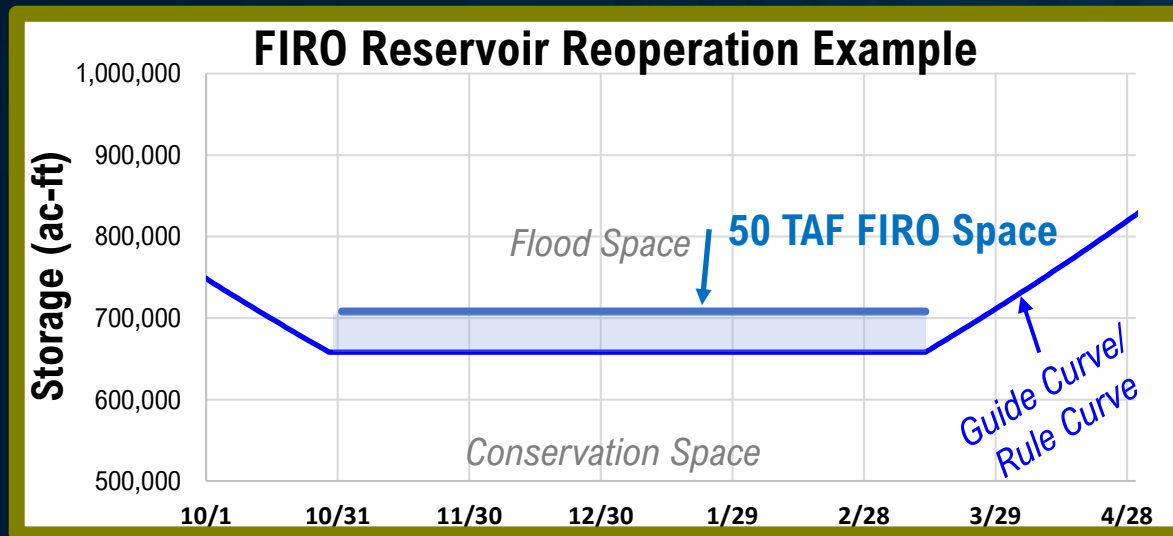
<i>Level 3 Infrastructure Expansion</i>	FIRO-MAR	Hybrid-MAR	Recharge Pool- MAR
<i>Level 2 Reservoir Reoperations</i>	FIRO-MAR	Hybrid-MAR	Recharge Pool- MAR
<i>Level 1 Diversion of High Flows</i>	Initial	Intermediate	Robust



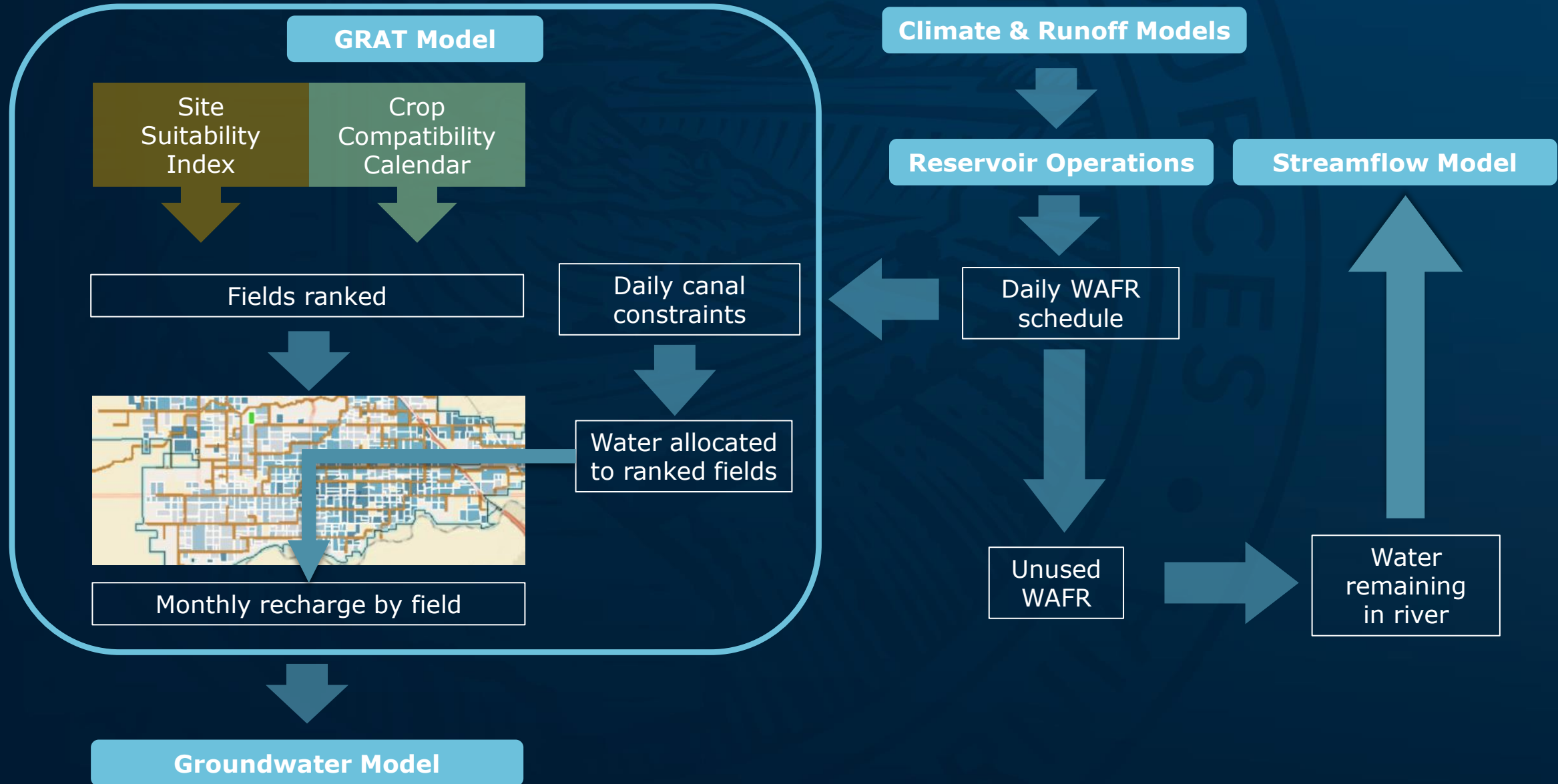
Range of scenarios illustrate how FloodMAR program can be operated to meet different management objectives



DWR working collaboratively with USACE to explore new ways to operate reservoirs



Recharge Optimization



Discussion Topics

1. Study Overview
2. Climate Conditions & Flood-MAR Scenarios
3. Key Conclusions
4. Next Steps

Key Conclusions – Climate Vulnerability

Climate change is altering the fundamental hydrology – driving up the **extremes**

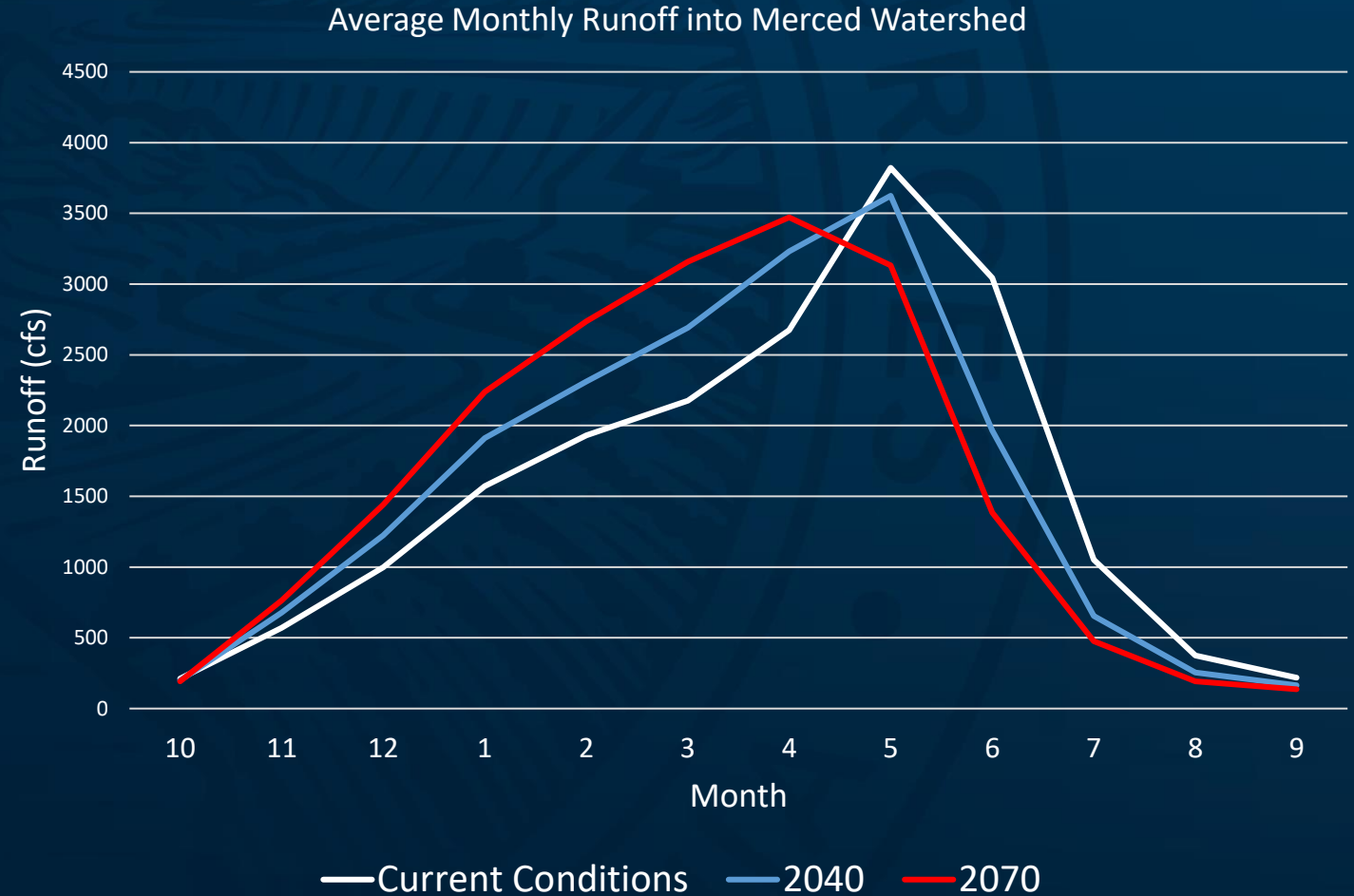
DWR has a role and **responsibility** to improve understanding of the quantitative effects of climate change to water management

Each sector – flood, water supply, ecosystem – is **vulnerable**. Sector vulnerabilities are often connected

Strategies span **broadly** across the management spectrum

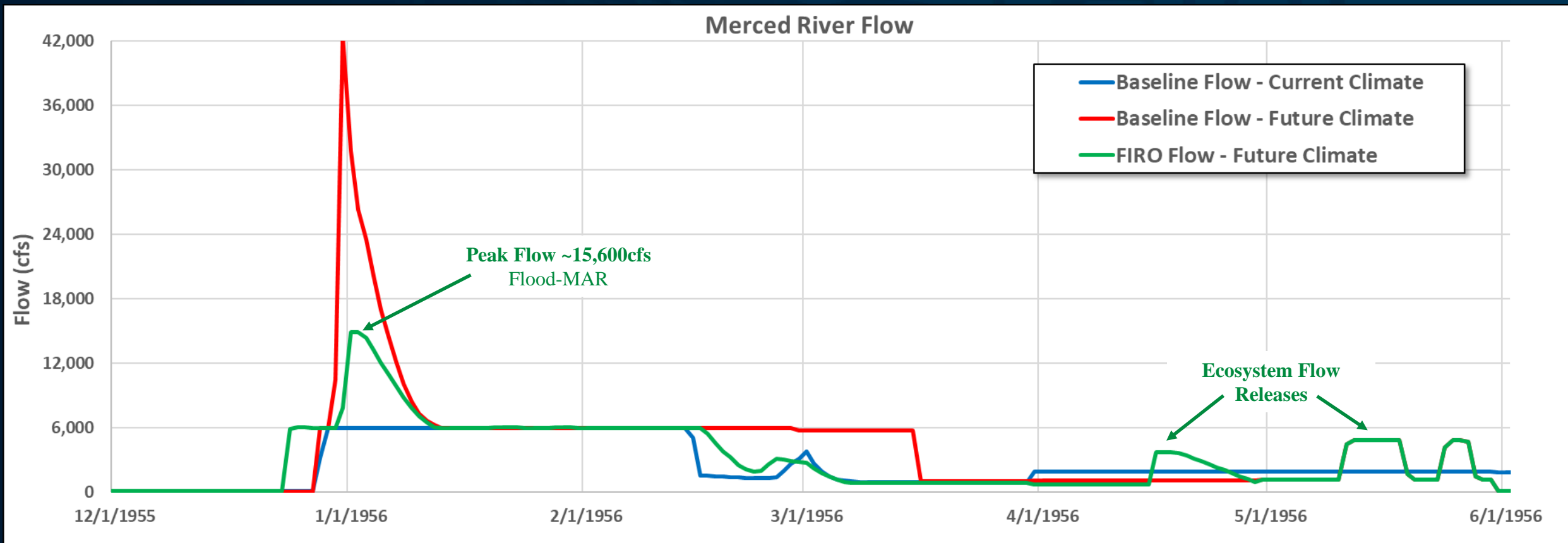
Key Conclusions – Watershed Conditions

1. As temperatures increase, inflow into Lake McClure decreases
2. **Shift in runoff** to earlier in the season results in increased runoff during Nov – Mar period and less runoff between Apr - Oct



Key Conclusions – Flood Risk

1. Climate change can increase flood risk: higher peak flows and more frequent high flow events
2. Flood-MAR with reservoir reoperations provide the most flood risk reduction benefits



Key Conclusions – Ecosystem

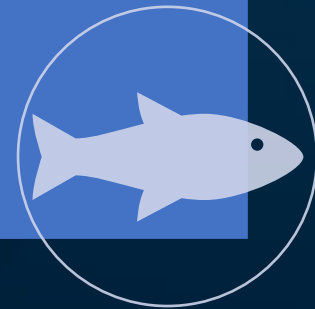
- Targeted **pulse flows**
- **Reservoir operations** to maximize in-stream habitat
- Off-channel habitat

Potential
Eco-Actions

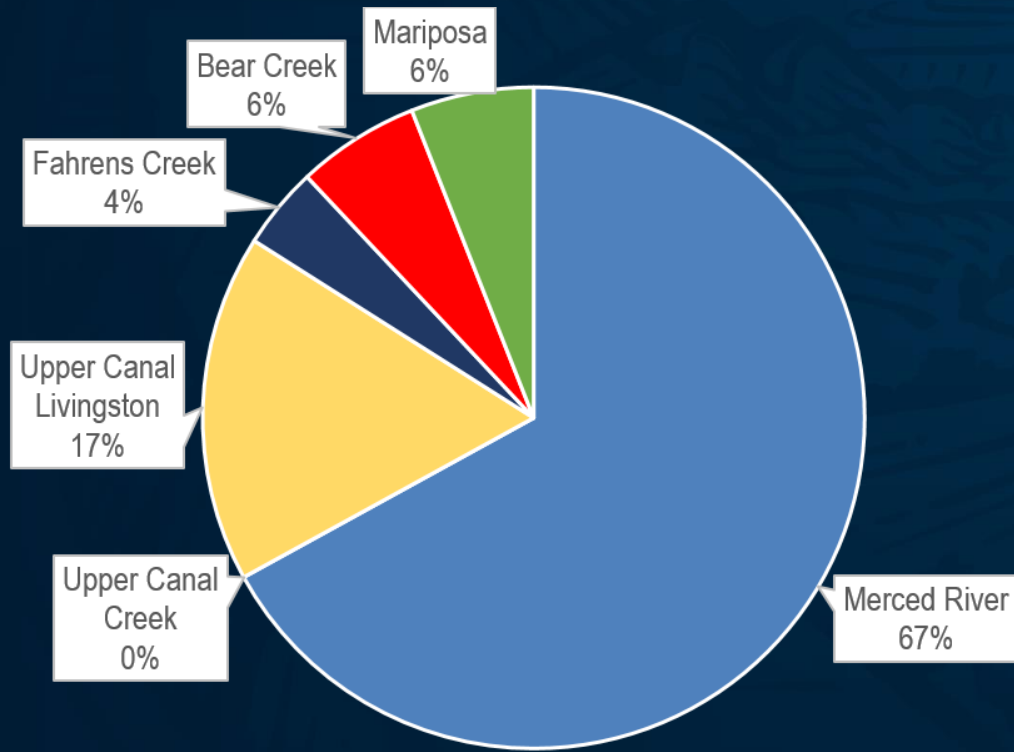


- Expanded **habitat** for aquatic rearing and critical life stages
- Benefits to **trees** and **shorebirds** near recharge locations

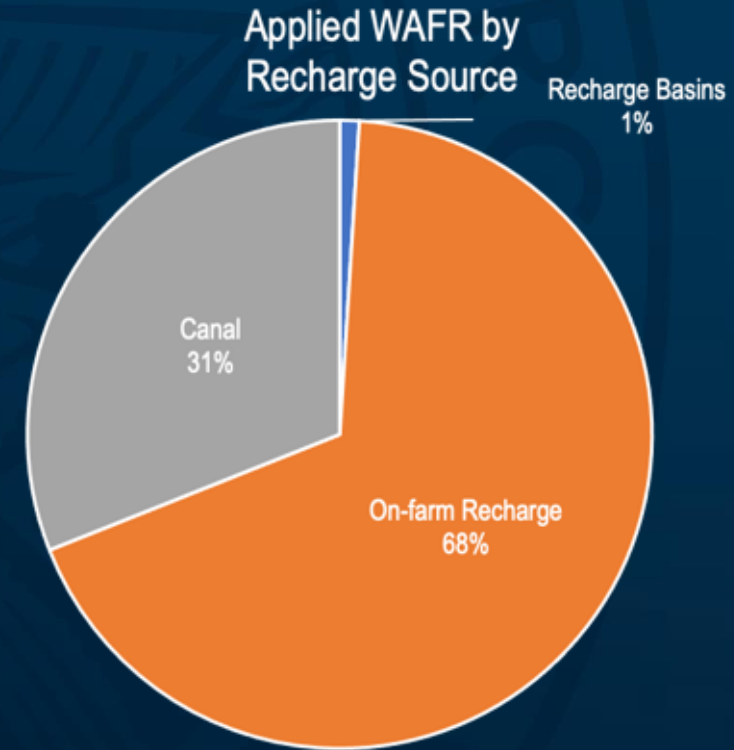
Eco-System
Benefits



Key Conclusions – Recharge



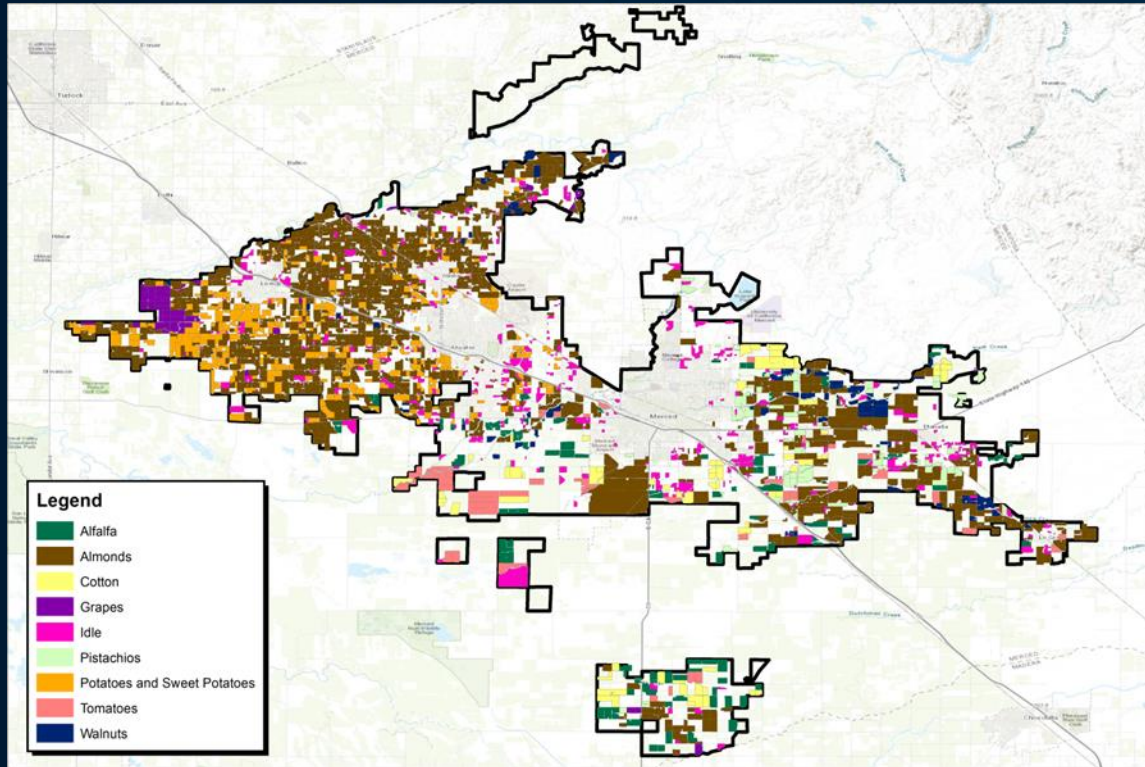
Small creeks provide small, consistent recharge volumes



One third of water recharged through canal system

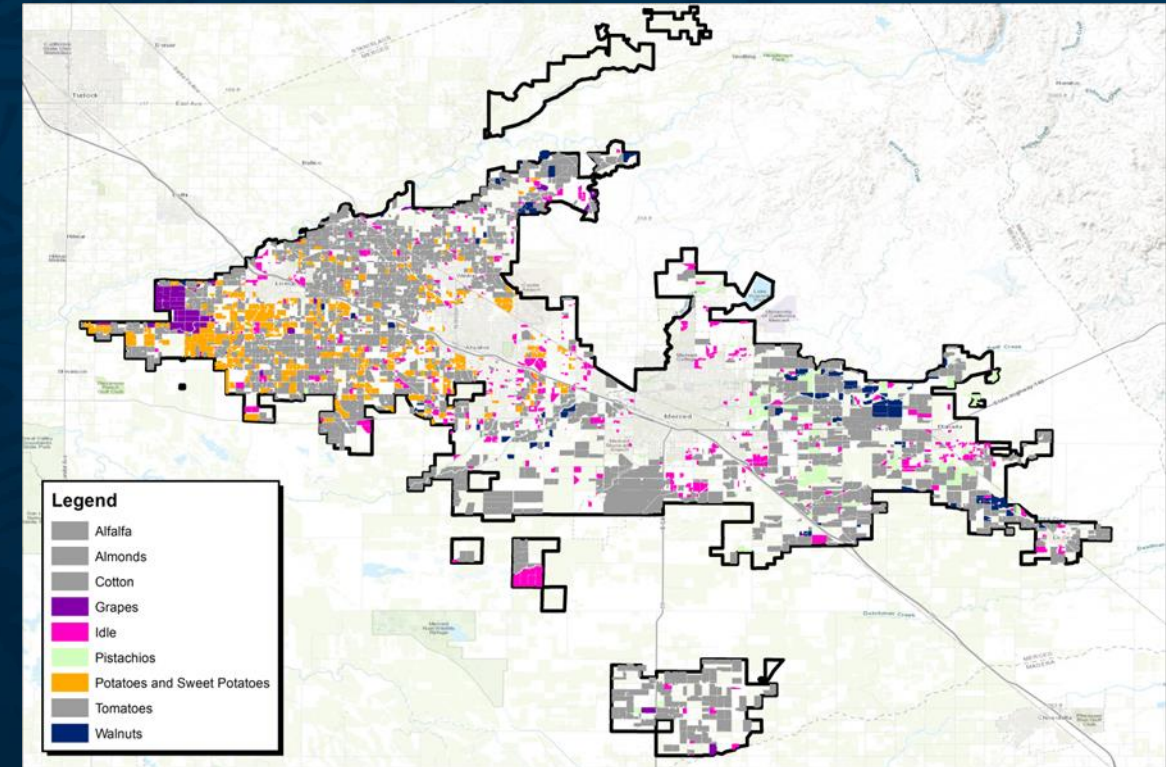
Potential to Capture Reservoir Releases

Fields Available for Recharge Nov-Feb



~ 700,000 - 1,000,000 AF Maximum Monthly Recharge Capacity

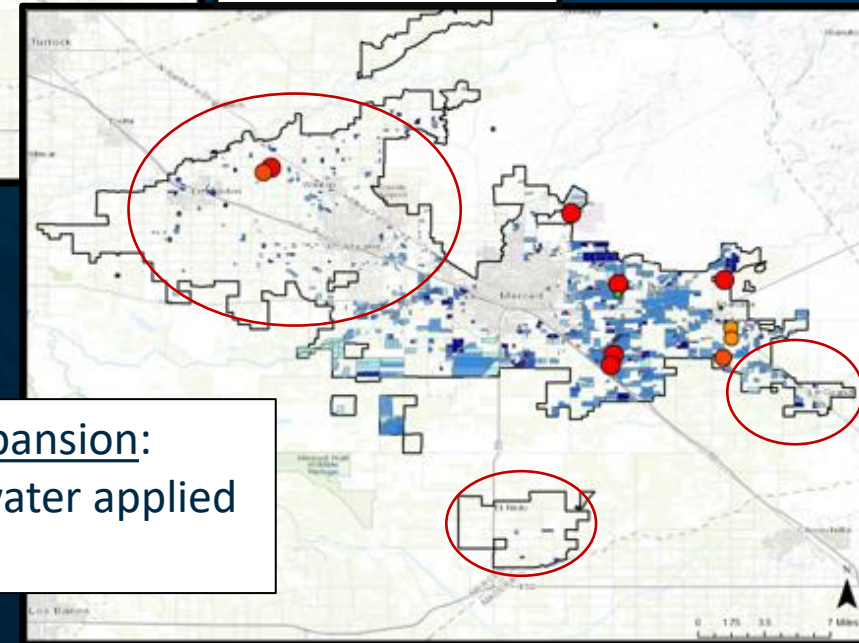
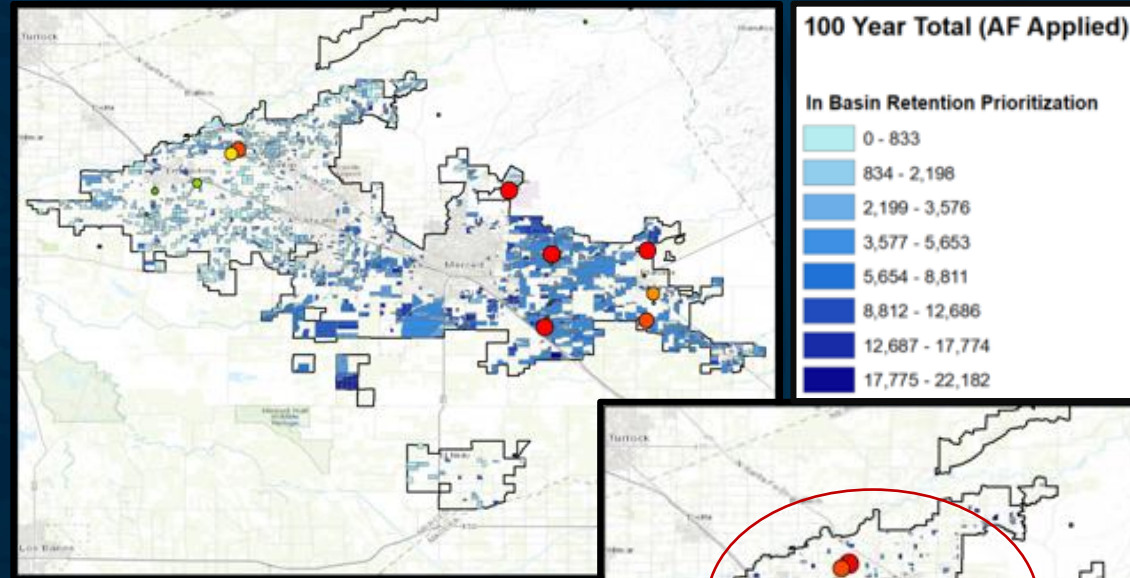
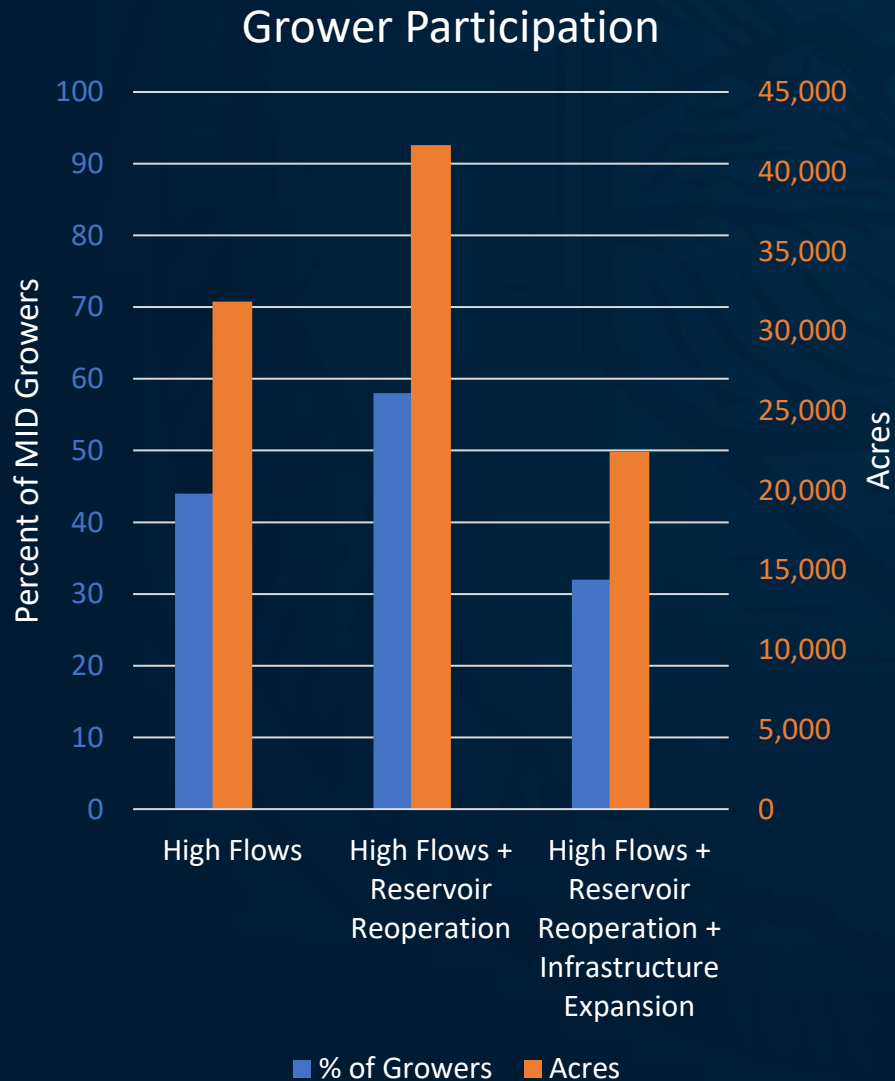
29% of acreage available for recharge in March



~200,000 AF Maximum Monthly Recharge Capacity

Fewer compatible fields in March: requires more intense recharge per acre

Grower Participation Needed Varies



Less growers needed if recharge intensely on key fields

Key Conclusions – Groundwater Supply

Climate Vulnerability

Projected Conditions:
Increased Water
Demands

- Reduced precipitation
- Increased temperature

Increased reliance on
groundwater pumping
to meet demand

Flood-MAR Adaptation Performance

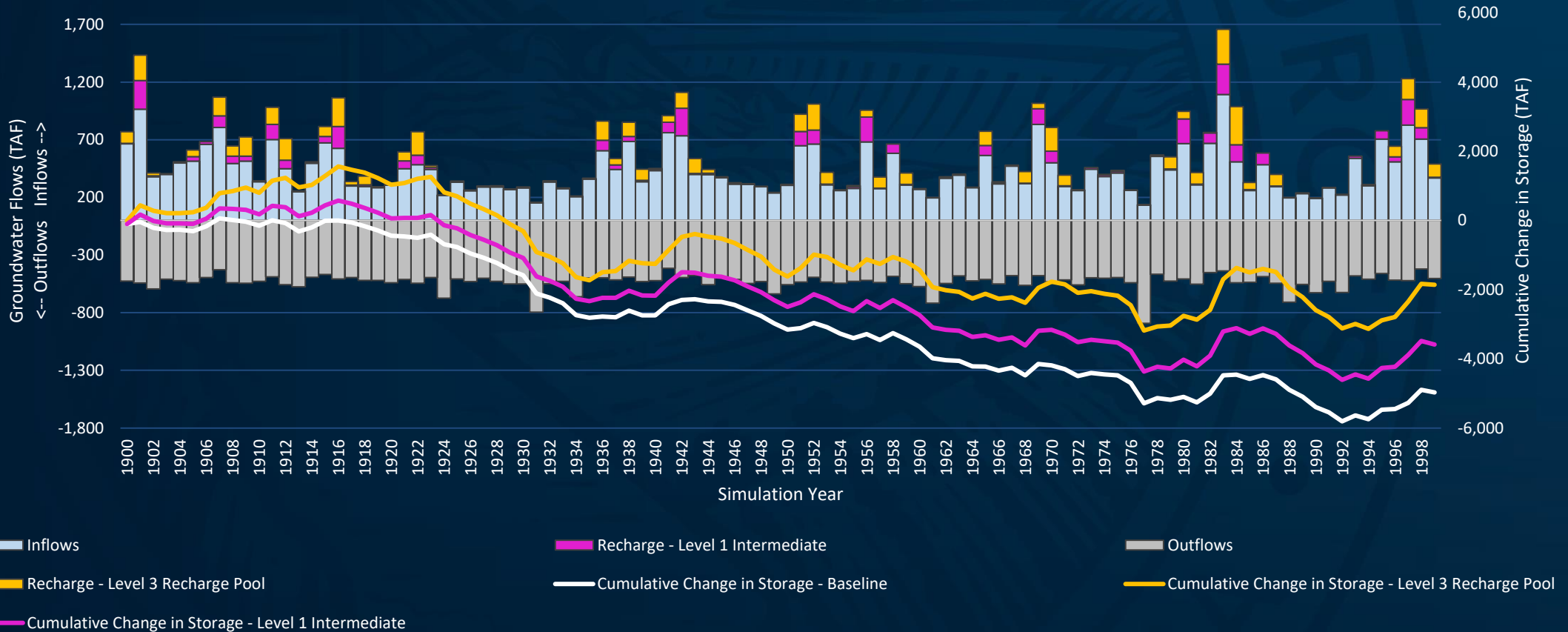
Flood-MAR is **scalable, flexible and adaptable** to meet management objectives

Approximately **one-third** of recharge remains in aquifer storage within Merced Subbasin

Flood-MAR builds **water supply resilience** with more water in the aquifer system

Groundwater conditions of **neighboring subbasins** impact Flood-MAR efficiency

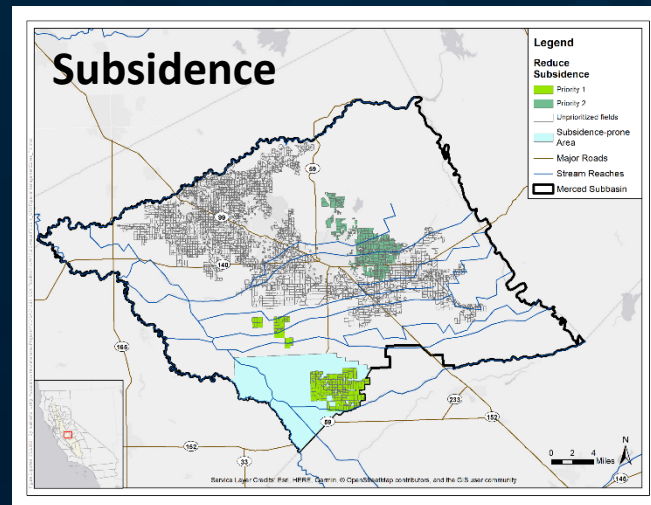
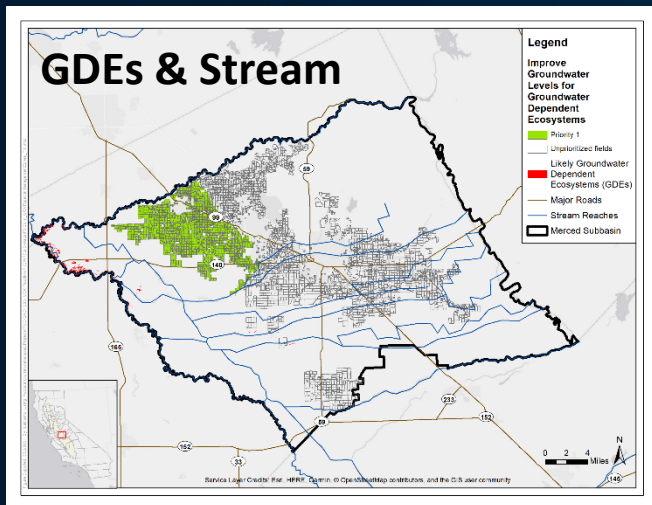
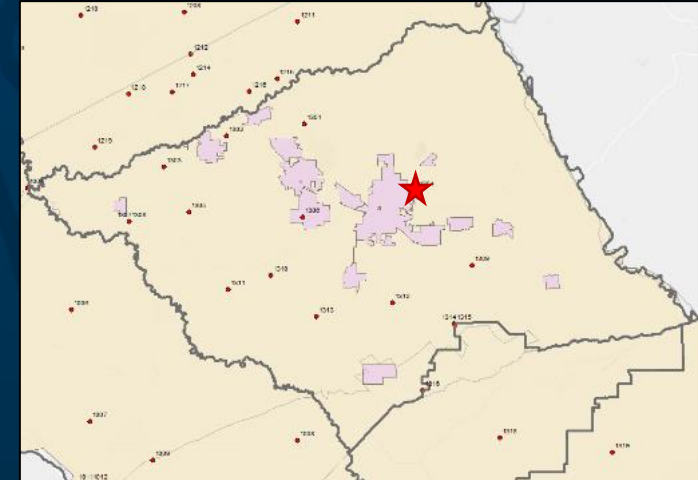
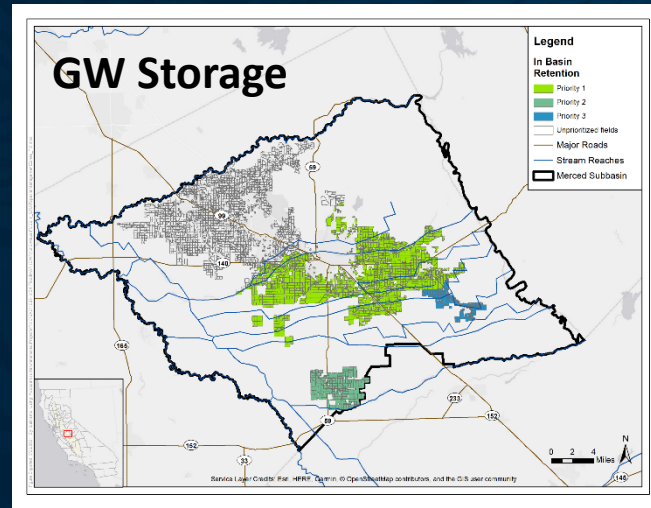
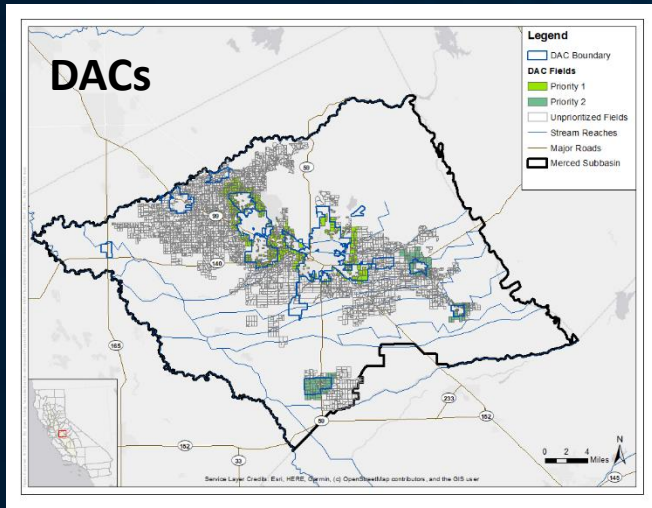
FloodMAR provides water supply resilience



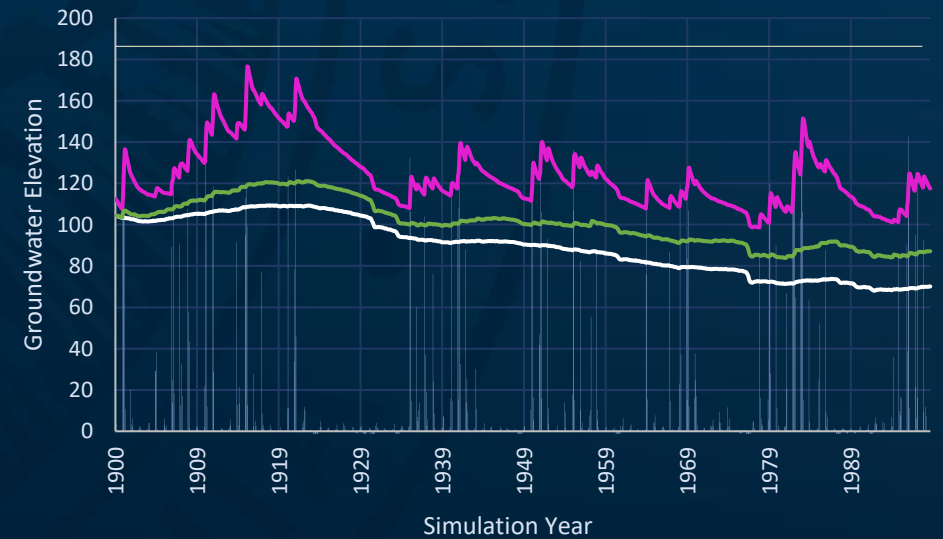
Higher FloodMAR "levels" (reservoir reoperations, increases turnout capacity, etc.) results in more benefits to the aquifer system

While reservoir reoperations allow for significant MAR, can limit surface water deliveries in dry years

Flexibility in location and timing of recharge to achieve management objectives



Observation Well 1304



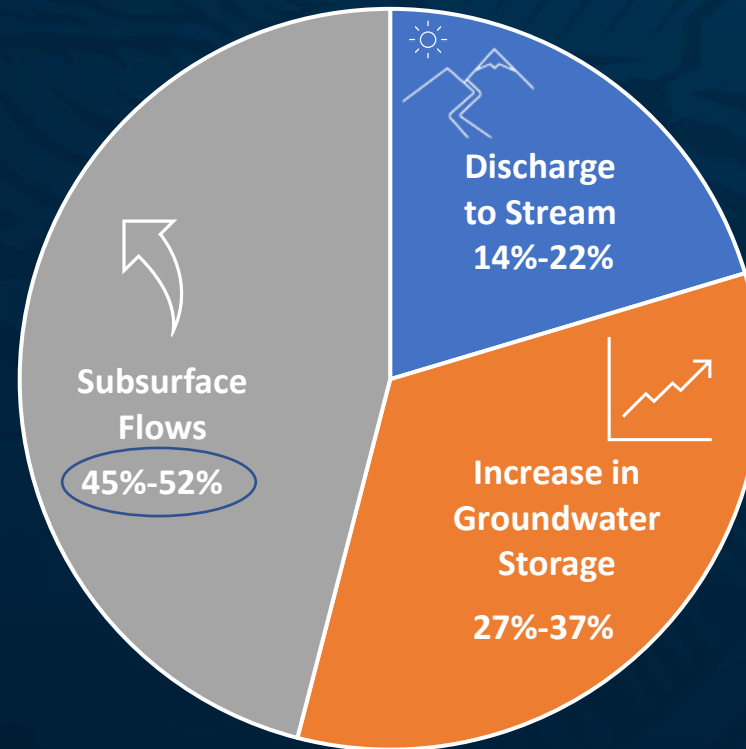
■ Additional Recharge
 — GSE
 — Baseline DT0DP1.0
— L3 Recharge Pool
 — L3 FIRO-MAR

Fate of Recharge Water

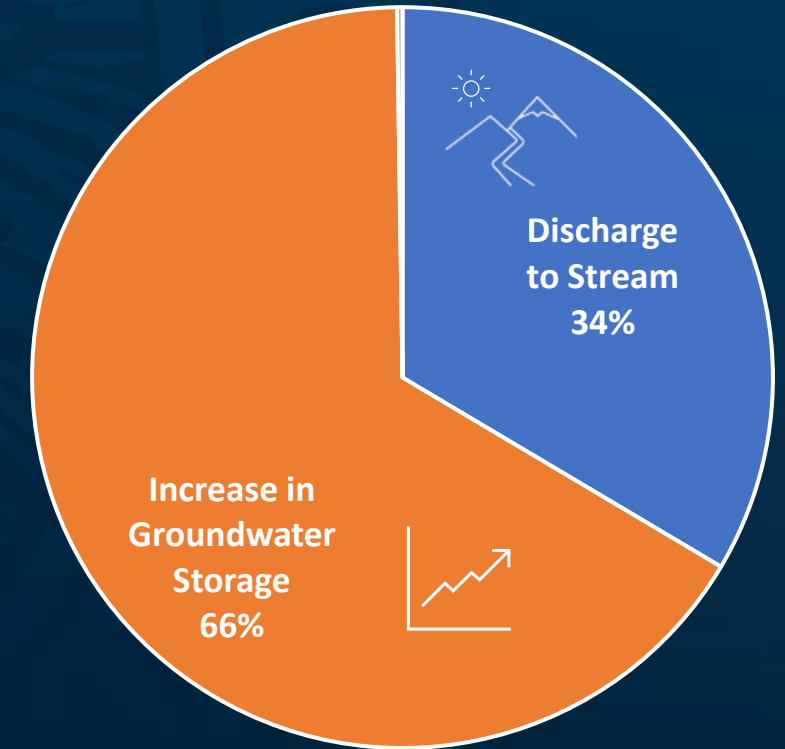
Recharge Factors:

- Volume Recharged (*Level*)
- Recharge Location (*Management Objective*)
- Boundary Conditions (*SGMA implementation*)
- Climate Conditions

Baseline Conditions
Flood-MAR (L1-L3)

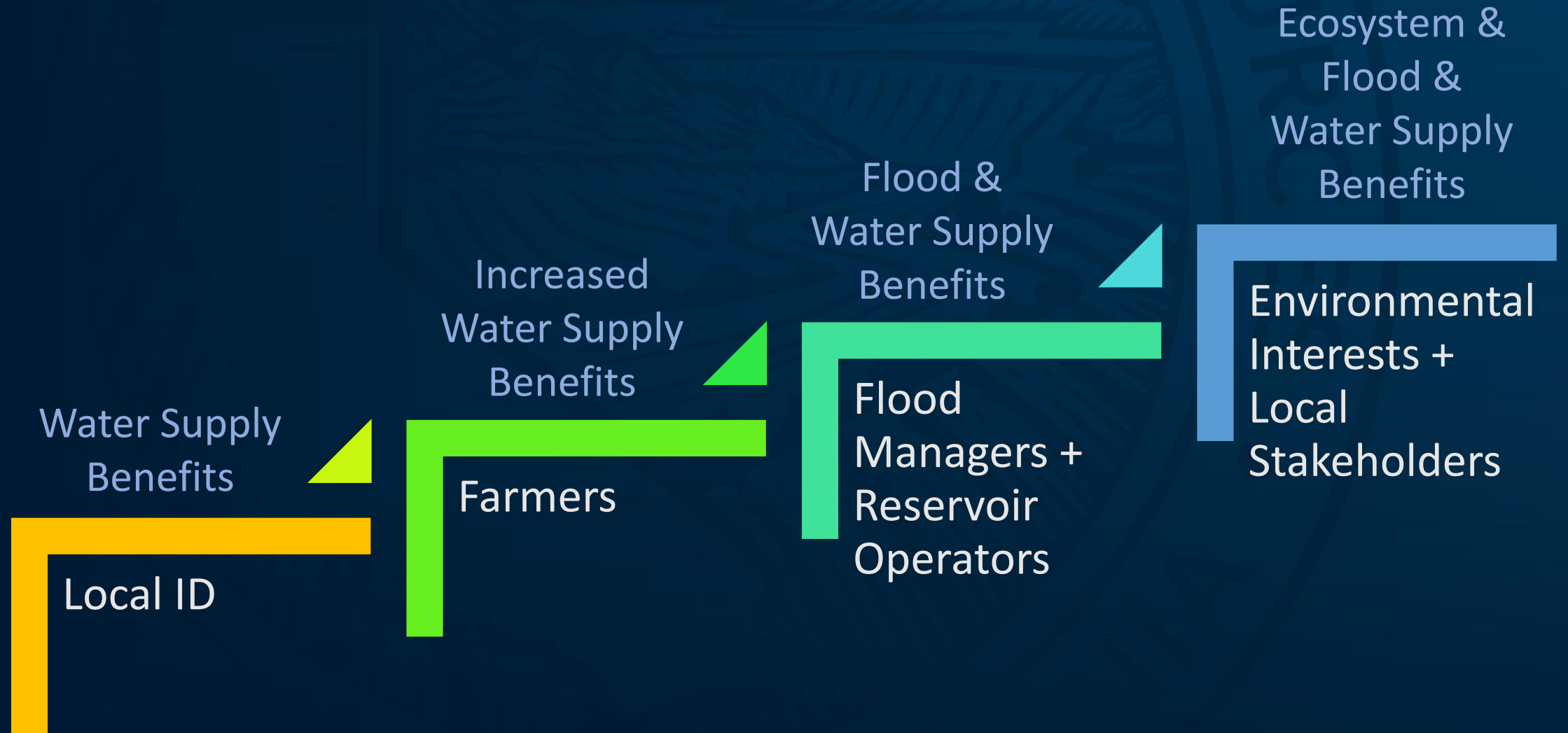


SGMA Conditions
Flood-MAR (L2 RP + MA)



Lose less water to neighboring subbasins when they are sustainable

Broader Partnerships = Greater, Diversified Benefits = More Funding (& Less Regulatory Hurdles)

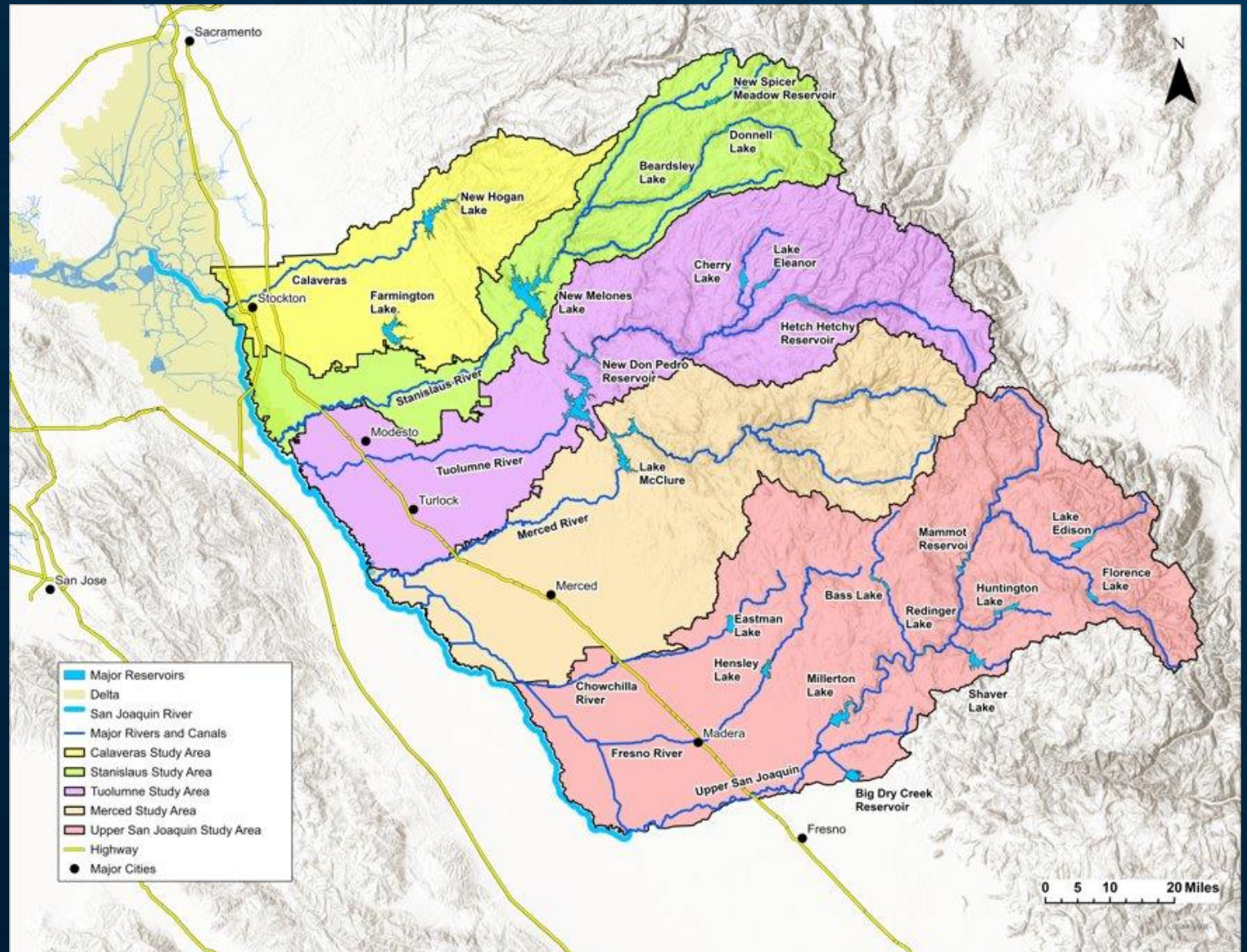


Discussion Topics

1. Climate Vulnerability & Adaptation Strategies
2. Multi-sector Metrics
3. Key Conclusions
4. Next Steps

What's next: San Joaquin River Basin Watershed Studies

- Merced Study Technical Information Reports and Summary Report
- San Joaquin Watershed Study
 - In progress

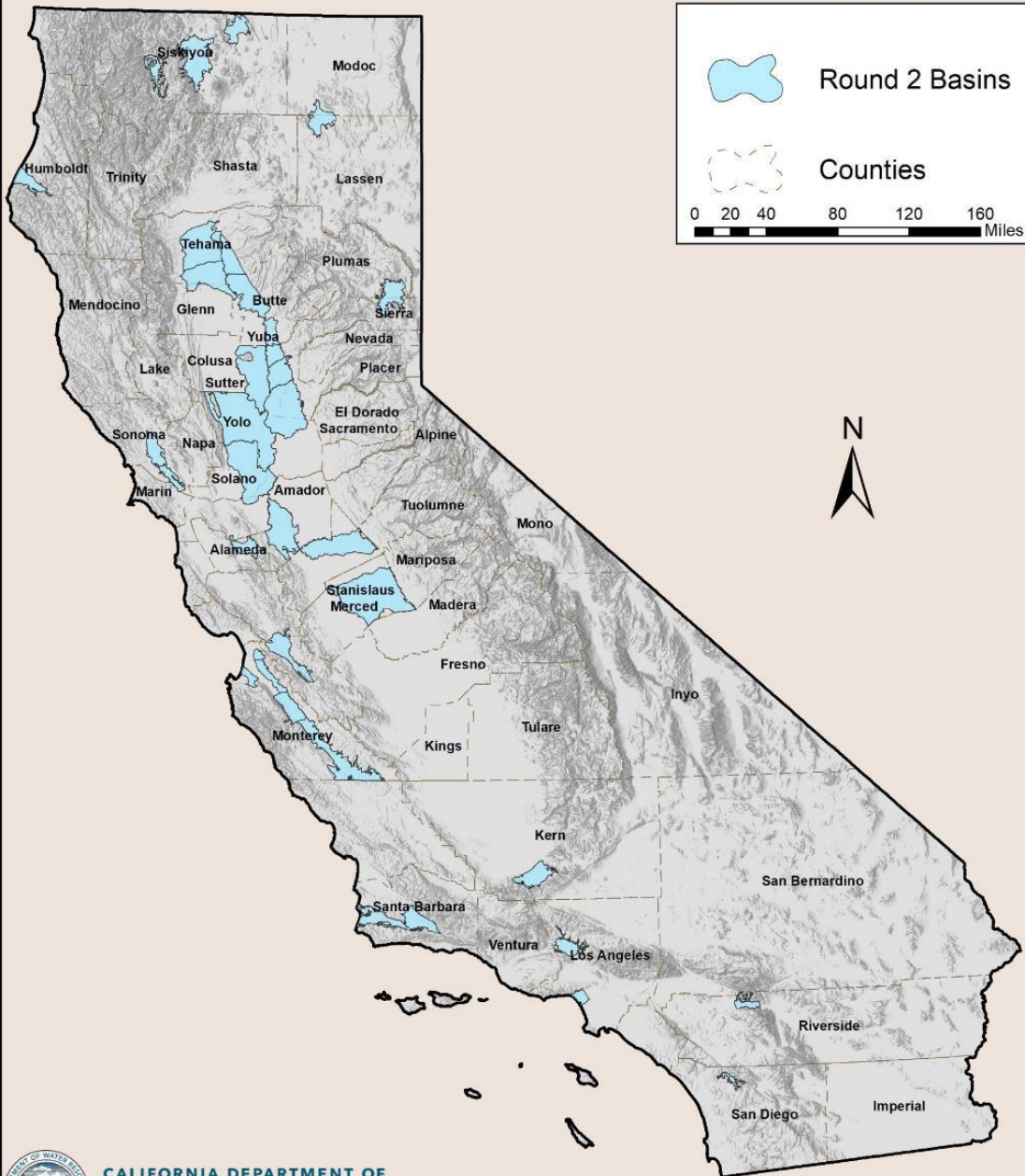




Grant Updates

Image courtesy: Veronica Adrover/UC Merced





Prop 68 Implementation Planning & Projects Grant Round 2: Funded Basins Map

- Application submitted December 2022 for \$18.4M across 7 projects
- DWR received 82 Applications totaling \$780M for ~\$187M in available funds
- Priority to non-Critically Overdrafted Subbasins (that is, basins other than Merced)
- Draft award of \$3.4M announced last week for 2 of 7 Merced projects (*see next slide*)
- Merced is the only critically overdrafted basin to be funded

es: Veronica Adrover/UC Merced



Prop 68 Implementation Planning & Projects Grant Round 2

Submitted Ranking	Name
1	Grant Administration (\$200K)
2	Merced Irrigation-Urban GSA Pilot, Small-Scale Recharge Projects
3	Lone Tree Mutual Water Company Storage and Recharge Reservoir
4	Merced Subbasin GSA Water Platform Development
5	Merced Irrigation-Urban GSA Well Registration and Extraction Measurement Program
6	La Paloma Mutual Water Company G Ranch Groundwater Recharge, Habitat Enhancement, and Floodplain Expansion – Phase II (Construction) (\$2.61M) <ul style="list-style-type: none"> • Implementation and construction of groundwater recharge ponds. • Designed to enhance the Pacific Flyway wetland habitat. • Enhance 270-acres of existing wetlands and re-establish the remaining 169 acres of double-cropped farmland to floodplains. The entire project would be utilized for habitat enhancement and groundwater recharge, providing additional wetland habitat for migrating waterfowl. • Total project net benefit 4,270 AFY.
7	La Paloma Mutual Water Company Bear Creek Ranch Groundwater Recharge, Habitat Enhancement, and Floodplain Expansion – Phase I (Planning) (\$750K) <ul style="list-style-type: none"> • Planning and design of dual-purpose groundwater recharge ponds to enhance Pacific Flyway wetland habitat • Re-establishment of 1,171 acres of irrigated farm ground to floodplains • Net benefit of decreased pumping of approximately 5,400 AFY.
8	Lone Tree Mutual Water Company and Sandy Mush Mutual Water Company Shallow Well Investigation and Construction in the Subsidence Area

Image courtesy: Veronica Adrover/UC Merced

Recommended for funding in draft award list from DWR



Filling Data Gaps – Funding Sources

- [Awarded] SGMA Implementation and Planning Grant – Round 1:
 - Funding may be used to install monitoring wells and instrument a subset of the existing monitoring network. Need to optimize the funding available.
 - **\$484,265 (including design and permitting)**
 - Work must be completed by 11/30/2024.
- [Potential] DWR Technical Support Services
 - See next slides...

Image courtesy: Veronica Adrover/UC Merced

Filling Data Gaps: DWR – Technical Support Services (TSS)

- DWR provides
 - In house expertise – South Central Region Office
 - Consultants
 - Contractors
- TSS supports
 - Monitoring well installation
 - Groundwater level monitoring training
 - Borehole video logging
 - Other field activities
- Program is fully allocated, but future funding expected
- General application approved
- Pending service request

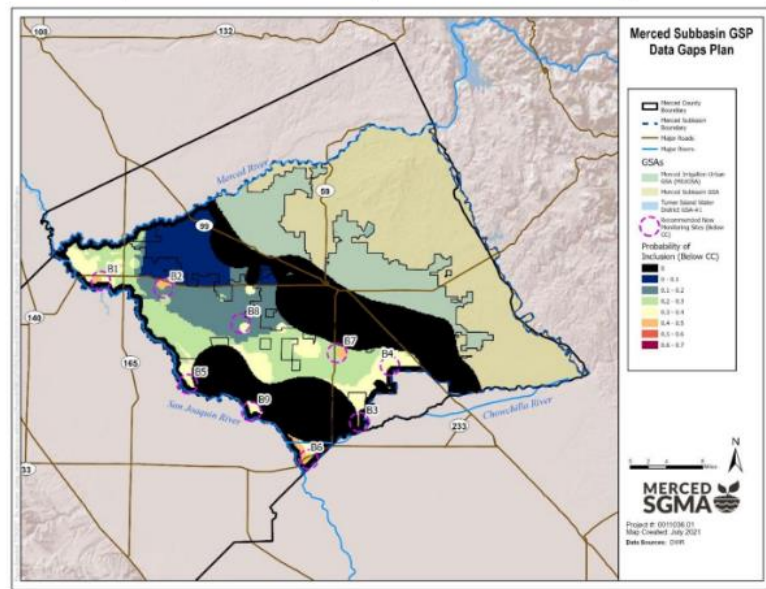


Image courtesy: Veronica Adrover/UC Merced

Filling Data Gaps: Next Steps

- GSAs to collaboratively identify proposed location(s) and construction of monitoring wells and/or other field activities
- Build on data gaps plan, progress by GSAs, and grant funded activities
- Ability to obtain access agreement is critical
- Effort can support installations by other programs if funding is not available

Figure ES-1: Below Corcoran Clay Recommended New Monitoring Sites



Merced Subbasin Integrated Managed Aquifer Recharge Evaluation Tool (MercedMAR)

- Funding Source: SGMA Implementation and Planning Grant – Round 1.
 - **\$725,000 (including component administration)**
 - Work must be completed by 03/31/2025
- Includes 3 specific tasks:
 - Update model with geophysical (AEM) data collected by DWR, update model data sets, perform climate change scenarios, etc.
 - Expand DWR's Merced Flood-MAR pilot study GRAT for the entire Merced Subbasin with added functionality to address planning needs for all 3 GSAs
 - Integrate GRAT and Merced WRM and build a visualization dashboard to provide a platform for assessment of the recharge conditions in meeting sustainability goals, including groundwater hydrographs, groundwater level contours, comprehensive water budgets, and stream flows.

Image courtesy: Veronica Adrover/UC Merced



GSP 5-Year Update Preview

Image courtesy: Veronica Adrover/UC Merced



5-Year Evaluation and Update – Required by Regulation

- § 356.4 Periodic Evaluation by Agency
 - “Each Agency shall evaluate its Plan at least every five years...and describe whether the Plan implementation, including implementation of projects and management actions, are meeting the sustainability goal in the basin...”
 - Groundwater conditions
 - Implementation of projects/management actions & effect on groundwater conditions
 - Evaluation of basin setting in light of significant new information or changes in water use
 - Update on data gaps
 - (and more)
- § 355.6 Periodic Review of Plan by Department
 - Periodic review to ensure remains consistent with SGMA and is being implemented in a manner that will likely achieve the sustainability goal for the basin.

Image courtesy: Veronica Adrover/UC Merced

Potential Considerations in Update

- Consider incorporation of new wells into groundwater level representative monitoring network
- Consider modifications to groundwater quality monitoring network
- Consider updating model and other tools
- Consider updating hydrogeologic conceptual model
- Consider incorporating forthcoming recommendations from DWR
- Other modifications, as appropriate

Stakeholder involvement will continue to be a critical component

Image courtesy: Veronica Adrover/UC Merced

Timing

- Not cost effective to begin until DWR releases their final assessment
- March 2, 2023 determination letter identified final assessment by March 30, 2023 - Final assessment has not been received
- DWR guidance:
 - Targeting Summer 2023 for releasing guidance for the 5-year evaluation
 - Interconnected Surface Water Guidance “Starting Summer 2023 to 2024”

Image courtesy: Veronica Adrover/UC Merced



Next Steps

Image courtesy: Veronica Adrover/UC Merced



What's coming up next?

- Receive final assessment from DWR
- Finalize approach to 5-year update
- Coordinate on locations for filling data gaps (including current funding and TSS service request)
- Continue implementing grant-funded projects
- Continue implementing GSP
- Adjourn to next meeting: date to be determined

Image courtesy: Veronica Adrover/UC Merced

Merced GSP Joint Meeting of Coordination Committee & Stakeholder Advisory Committee

May 24, 2023

Merced Irrigation-Urban GSA
Merced Subbasin GSA
Turner Island Water District GSA-1

Image courtesy: Veronica Adrover/UC Merced

