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# GSP Development Update

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Merced Irrigation District

Board of Directors Meeting  
September 13, 2019

Image courtesy: Veronica Adrover/UC Merced



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# Agenda

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1. GSP Development Update
2. Challenges
3. Next Steps
4. Future Support from W&C
5. Questions



Image courtesy: Veronica Adrover/UC Merced



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# GSP Development Update

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Image courtesy: Veronica Adrover/UC Merced

# Sustainable Groundwater Management Act Overview

- **Merced Groundwater Subbasin is in a state of critical overdraft**
- **SGMA requires a Groundwater Sustainability Plan** by Jan 1, 2020 for sustainable groundwater management of the basin within a 20-year timeframe

Image courtesy: Veronica Adrover/UC Merced

# Sustainable Groundwater Management Act Overview

- **SGMA has two main focus areas:**
  - Halt the overdraft “balancing the water budget” (basin inputs = basin outputs)
  - Establish thresholds for six sustainability indicators to prevent “undesirable results”



Chronic lowering of groundwater levels indicating a significant and unreasonable depletion of supply



Significant and unreasonable degraded water quality



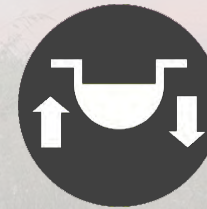
Significant and unreasonable reduction of groundwater storage



Significant and unreasonable land subsidence

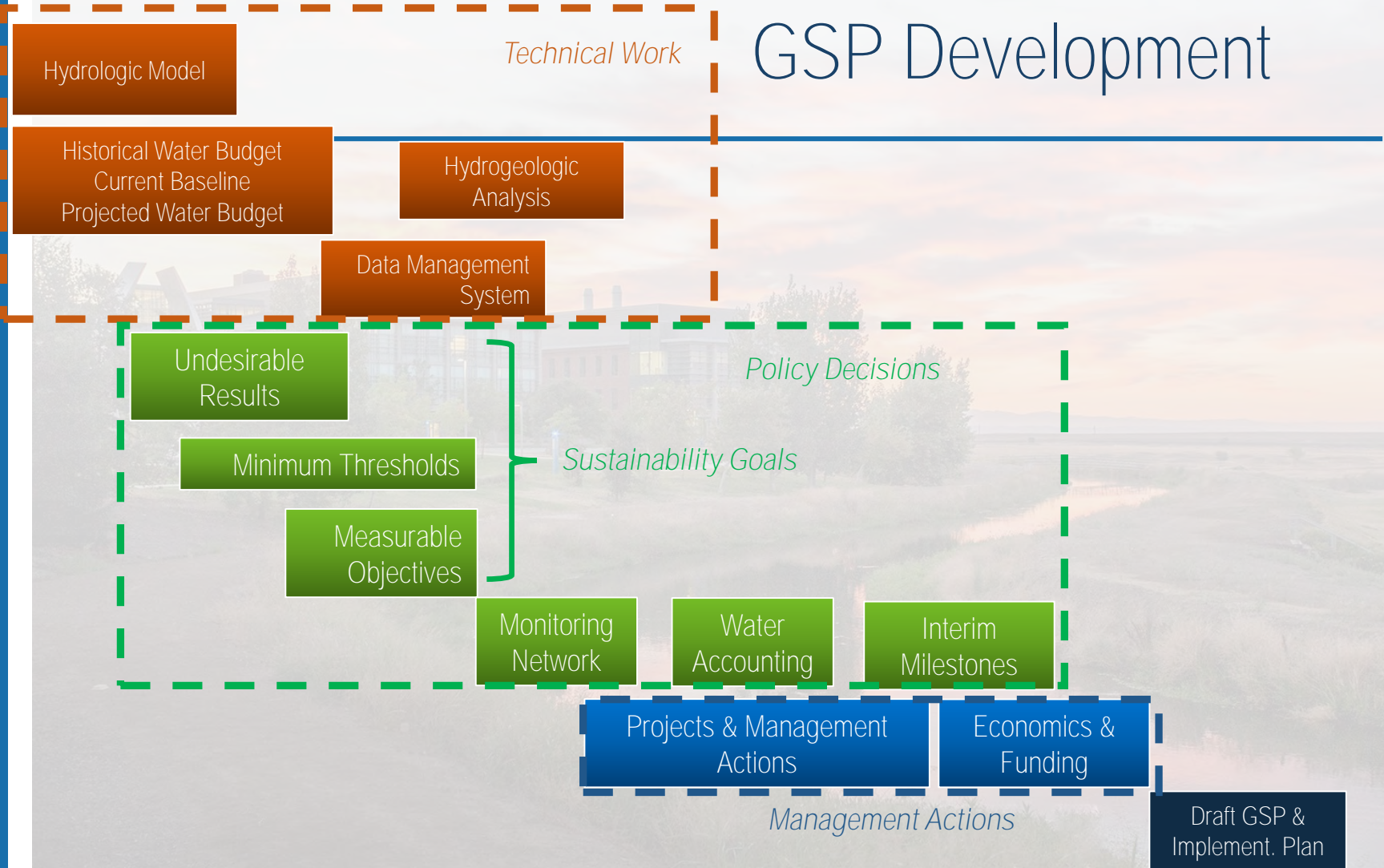


Significant and unreasonable seawater intrusion



Depletions of interconnected surface water that have significant and unreasonable adverse impacts on beneficial uses of the surface water

# GSP Development



Jun 2018 Jul 2018 Aug 2018 Sep 2018 Oct 2018 Nov 2018 Dec 2018 Jan 2019 Feb 2019 Mar 2019 Apr 2019 May 2019 Jun 2019 Jul 2019

Image courtesy: Veronica Adrover/UC Merced

# Revised Merced GSP Review & Submission Timeline

30-day Public Review Period		Consideration of Comments, Prep of Final GSP, and Public Hearings		
JULY	AUG/SEPT	OCTOBER	NOV/DEC	DEC/JAN
<p>Release Public Draft GSP - July 19</p> <p>Send Notice of Intent to Adopt to Cities and Counties – July 22</p>	<p>Review and Comments on Draft GSP</p>	<p>Consulting team revisions to incorporate comments</p>	<p>Recirculate to GSA Boards. Must be adopted by MSGSA, TIWD GSA-1, MIUGSA + its member agencies</p>	<p>Submit to DWR</p>
<p>SC &amp; CC meetings July 22</p>	<p>Joint Board meeting of the three GSA Boards on Sept 18</p>		<p>Adoption hearings begin no sooner than October 21 (90 days after NOI)</p>	<p>Must be submitted by January 31, 2020</p>

# Release of Public Draft GSP

- Published on Website **July 19**
- Executive Summary, GSP (375pp), Appendices
- 30 day public comment period closed on **August 19**



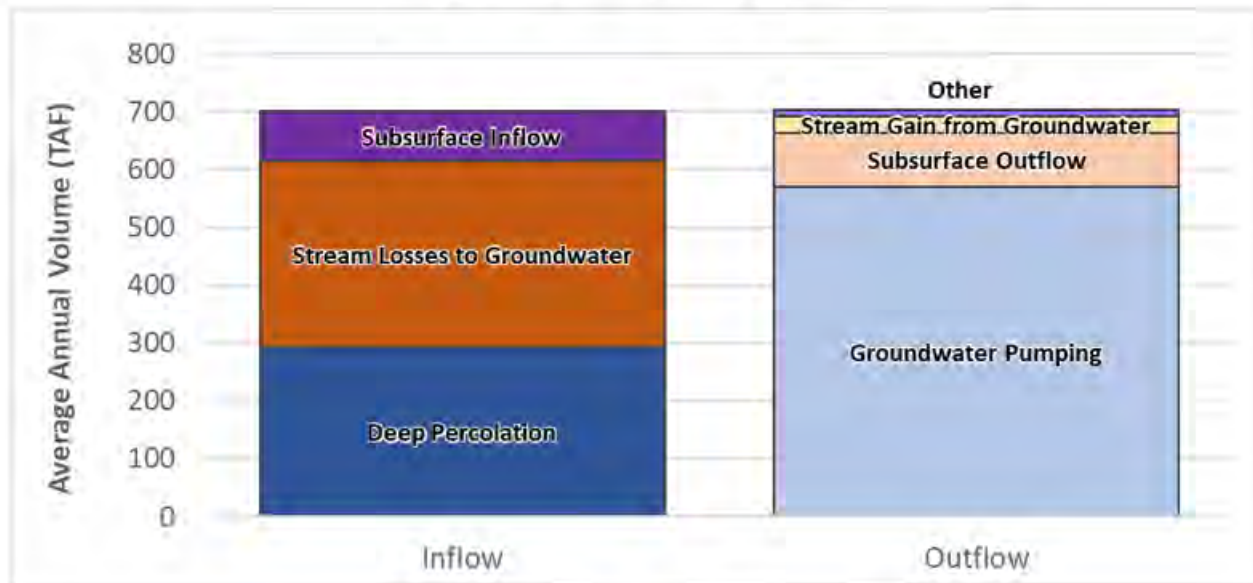
Image courtesy: Veronica Adrover/UC Merced









# Sustainable Yield

- Net change in storage over long term = zero
- Sustainable yield estimate: 570,000 AFY
- Assumes projected conditions for land use and population growth with reductions in basin pumping to result in no net change in storage over the long term

Figure ES-6: Groundwater Water Budget under Sustainable Groundwater Management Conditions  
Long-Term (50-Year) Average Annual



# Sustainable Management Criteria

Sustainability Indicator	Minimum Threshold (MT)	Measurable Objective	Undesirable Result
 Groundwater Levels	Depth of shallowest well in a 2-mile radius of each representative well or minimum pre-January 1, 2015, elevation	Projected average future groundwater level under sustainable yield modeling simulation	Greater than 25% of representative wells fall below MT in 2 consecutive wet, above normal, or below normal years
 Groundwater Storage	N/A - not present and not expected to occur in the Subbasin due to the significant volumes of freshwater in storage		
 Sea Water Intrusion	N/A - not present and not expected to occur due to the distance between the Subbasin and the Pacific Ocean (and Sacramento-San Joaquin Delta)		
 Degraded Water Quality	1,000 mg/L TDS	500 mg/L TDS	At least 25% representative wells exceed MT for 2 consecutive years
 Land Subsidence	-0.75 ft/year	-0.25 ft/year	Exceedance of MT at 3 or more representative sites for 2 consecutive years
 Depletions of Interconnected Surface Waters	Groundwater levels used as a proxy for this sustainability indicator		

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# Public Comment Letters Received

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## NGOs

The Nature Conservancy

Audubon California

Self-Help Enterprises

Leadership Counsel

Joint Environmental Letter from Audubon California, The Nature Conservancy, Clean Water Action/Clean Water Fund, American Rivers, and Union of Concerned Scientists

California Poultry Federation

Valley Land Alliance

## Other

Nickel Family LLC

Private Citizens (2)

Olam Edible Nuts

## Water Agencies

Merquin County Water District

Amsterdam Water District

Sandy Mush Mutual Water Co

East Turlock Subbasin and West Turlock Subbasin GSAs Joint Technical Advisory Committee

San Joaquin River Exchange Contractors GSA

## State and Federal Agencies

US Fish and Wildlife Service, San Luis National Wildlife Refuge Complex

California Department of Fish and Wildlife, Central Region

All written comments are posted on the [MercedSGMA.org](http://MercedSGMA.org) website

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# Public Comments Topics

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- Drinking Water (Quality/Access/Protection)
- Subsidence
- Groundwater Dependent Ecosystems
- Public Involvement
- Management Areas
- Water Allocation
- Recharge
- Demand Management

Image courtesy: Veronica Adrover/UC Merced



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# Challenges

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Image courtesy: Veronica Adrover/UC Merced

# Achieving Sustainability will Require Increased Recharge and / or Reduced Use

- Primary means of achieving sustainability in basin is through implementation of pumping reduction through management actions.
  - **Basin-wide Allocation Framework** – Public draft states that GSAs intend to allocate water to each GSA but have not yet reached agreement on allocations or how they will be implemented
  - **Merced Subbasin GSA Allocation Management Action** – text provided by MSGSA that described their plans for pumping reduction in their GSA area

Image courtesy: Veronica Adrover/UC Merced

# Allocation Framework Discussions will Continue Post-GSP Adoption

October 2018	November 2018	December 2018	January 2019	February 2019
Legal presentation at SC and CC mtgs providing overview of GW rights law and allocation options	CC and SC discuss potential allocation frameworks	Additional CC and SC discussions – not ready to make recommendation to GSA Boards	Review and revision of estimate of developed supply from seepage  More CC/SC discussion	Revised Water Budget Memo prepared with SY estimate  More CC/SC discussion of framework
March 2019	April 2019	May 2019	June 2019	July 2019
Continued SC/CC discussion on allocation framework with focus on method for allocation to overlying acres	CC approved allocation framework recommendation to Boards	Administrative draft Management Action text that includes allocation framework. GSA comments to text highlight areas of disagreement on framework	Special CC Session to discuss definition of developed supply used in GSP and allocation framework. Identified areas needing additional discussion.	Finalize text for public draft GSP  Continue CC discussions of details of allocation framework

Image courtesy: Veronica Adrover/UC Merced

# Water Allocation Framework – Confirmed Areas of Agreement

- **Water rights concepts should be considered**
  - Overlying rights, appropriative rights
- **Appropriative Users (generally the cities)**
  - Appropriators should be allocated based on their historical use
  - Historical period for appropriative use (2006-2015)
- **Overlying Users (generally irrigators)**
  - Allocation to overlayers should be based on acreage (AF/acre), not historical use
- **Each GSA will get an allocation to manage toward sustainability**

Image courtesy: Veronica Adrover/UC Merced



# Proposed Allocation Framework Structure

- **Basin Management Principles** (examples below)
  - Work together in mutual cooperation for the sustainable management of groundwater
  - Jointly develop and implement the Groundwater Sustainability Plan
  - Achieve the Merced Subbasin Sustainability Goal
- **Management Responsibilities**
  - Basinwide – Coordinating Committee
  - Each GSA
- **Monitoring and Reporting**
  - Gross vs Net groundwater use
  - Metering, Remote Sensing (e.g. MERTIC a satellite sensor estimating ET) , Other (e.g. self-reporting)
- **Credits and Trading**
  - Recharge/developed water
  - Basin trading rules
  - Groundwater Credits/Market Development

Image courtesy: Veronica Adrover/UC Merced

# Roadmap for future discussions and actions

## Post-GSP Adoption

### Principles & Management Responsibilities

- Review/confirm guiding principles.
- Identify basinwide and GSA management responsibilities.

### Definitions & Quantification

- Define and quantify terms—developed supply, seepage, etc.
- Refine & identify missing data needed to address implementation of allocation framework.

### Allocation

- Define and quantify GSA allocations.

### Monitoring & Reporting

- Establish near-term and long-term process for monitoring and reporting groundwater pumping.



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# Next Steps

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Image courtesy: Veronica Adrover/UC Merced

# GSP Implementation Timeline (full schedule detail in GSP)

2020	2025	2030	2035	2040
<ul style="list-style-type: none"> <li>Monitoring and Reporting</li> </ul>	<ul style="list-style-type: none"> <li>Preparation for Allocations and Low Capital Outlay Projects</li> </ul>	<ul style="list-style-type: none"> <li>Prepare for Sustainability</li> </ul>	<ul style="list-style-type: none"> <li>Implement Sustainable Operations</li> </ul>	
<ul style="list-style-type: none"> <li>Establish Monitoring Network</li> <li>Install New Groundwater Wells</li> <li>Reduce/Fill Data Gaps</li> </ul>	<ul style="list-style-type: none"> <li>GSA's conduct 5-year evaluation/update</li> <li>Monitoring and reporting continue</li> </ul>	<ul style="list-style-type: none"> <li>GSA's conduct 5-year evaluation/update</li> <li>Monitoring and reporting continue</li> </ul>	<ul style="list-style-type: none"> <li>GSA's conduct 5-year evaluation/update</li> <li>Monitoring and reporting continue</li> </ul>	
<ul style="list-style-type: none"> <li>GSA's allocated initial allocation</li> <li>GSA's establish their allocation procedures and demand reduction efforts</li> <li>Develop Metering Program</li> </ul>	<ul style="list-style-type: none"> <li>As-needed demand reduction to reach Sustainable Yield allocation</li> <li>Metering program continues</li> </ul>	<ul style="list-style-type: none"> <li>As-needed demand reduction to reach Sustainable Yield allocation</li> </ul>	<ul style="list-style-type: none"> <li>Full implementation demand reduction as needed to reach Sustainable Yield allocation by 2040</li> </ul>	
<ul style="list-style-type: none"> <li>Funded and smaller projects implemented</li> </ul>	<ul style="list-style-type: none"> <li>Planning/ Design/ Construction for small to medium sized projects</li> </ul>	<ul style="list-style-type: none"> <li>Planning/ Design/ Construction for larger projects begins</li> </ul>	<ul style="list-style-type: none"> <li>Project implementation completed</li> </ul>	
<ul style="list-style-type: none"> <li>Extensive public outreach regarding GSP and allocations</li> </ul>	<ul style="list-style-type: none"> <li>Outreach regarding GSP and allocations continues</li> </ul>	<ul style="list-style-type: none"> <li>Outreach continues</li> </ul>	<ul style="list-style-type: none"> <li>Outreach continues</li> </ul>	

# Merced Subbasin GSA Groundwater Demand Reduction Management Action

- MSGSA plans to implement a demand reduction program to gradually reduce pumping at a consistent annual rate during the 20-year implementation period in order to reach sustainability by 2040.
- Voluntary reductions starting 2020, mandatory reductions starting 2025
- Amount and timing of reductions to be further developed based on allocation framework GSAs develop

Image courtesy: Veronica Adrover/UC Merced

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# Key Implementation Tasks in First 5 Years

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- Finalize allocation framework
- Establish metering and/or measurement/monitoring program
- Initiate demand reduction - gage aggressiveness of reduced consumption with successful completion and yield of projects
- Create a data gaps plan
- Develop methodology for establishing minimum thresholds at new monitoring wells
- Refine MercedWRM model calibration
- Refine climate change analysis for local surface water operations
- Identify possible mitigation if future domestic well dewatering
- Pursue funding opportunities
- Set up administration of GSP (Who are the responsible staff to implement plan? How is a GSA staffed?)

# Plan Implementation - GSP Governance

- Coordinating Committee is responsible for steering the Merced GSP Implementation Program
  - Quarterly meetings
- Stakeholder Committee continues, with intent to provide input and exchange amongst broad range of stakeholder perspectives
  - Meetings held 2 to 4 weeks before CC
  - Liaison/reporting role to the CC may be created among the members of the SC
- Roadmap of key issues and decisions will guide CC process and SC input



Image courtesy: Veronica Adover/UC Merced

# Plan Implementation - Costs

- Implementation of the GSP projected to run between \$1.2M and \$1.6M per year
- Costs for projects and management actions estimated at additional \$22.9M in total
  - Costs for individual projects or management actions range between \$75K to \$8M
  - Most of these projects will be implemented within the first five years
- Development of this GSP was substantially funded through a Proposition 1 Sustainable Groundwater Planning Grant
- GSAs to seek funding through pumping fees, assessments, grants, and loans
  - MSGSA has initiated a Prop 218 process for an acreage assessment to cover GSP Implementation Costs

Image courtesy: Veronica Adrover/UC Merced





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# Future Support from W&C

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Image courtesy: Veronica Adrover/UC Merced

# Proposition 68 Round 3

## Sustainable Groundwater Management (SGM) GRANT PROGRAM



- Round 3 allows applicants previously awarded funding for Prop 1 (Round 2) funds to apply for development of GSPs and projects that help implement GSPs
- Basin eligible for up to \$500,000
- Basin should qualify for 100% local cost share waiver based on DAC percentage of basin
- Application due November 1, 2019
- W&C has prepared scope and budget to prepare grant application – requesting authorization
- Recommend assembling small working group to decide what to include in grant application

# Sustainable Groundwater Management (SGM) GRANT PROGRAM



## DWR tentative schedule for Round 3 funding:

SGM Grant Program Solicitation Schedule	Tentative Schedule*
Final 2019 Guidelines and PSP posted to open solicitation	September 9, 2019
Applicant Workshop	September 18, 2019
Grant Solicitation Closes	November 1, 2019
Public Review of Draft Funding List	January 2020
Final Awards	March 2020

*\* Dates are subject to change and will be determined based on number of comments received for the draft documents, number of applications received, amount of funds requested, and number of grant awards given.*

Image courtesy: Veronica Adrover/UC Merced

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# Coordinating Committee Recommendation

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- Authorize \$50,000 in funding for Woodard & Curran to prepare Prop 68 Grant Application
  - Use contingency under existing contract until new authorization can be secured from all three GSAs
  - Establish working group to advise on what to include in grant application

Image courtesy: Veronica Adrover/UC Merced

# W&C Potential Future Support of GSP Implementation Activities

- Preparation of First Annual Report – due April 1
- GSP Program Management (CC/SC coordination, Outreach)
- Create a data gaps plan
- Collect and analyze water level, water quality, and subsidence data
- Facilitate finalizing allocation framework between GSAs and implementation Plan
- Establish groundwater pumping monitoring and reporting program
- Develop methodology for establishing minimum thresholds at new wells
- Refine MercedWRM model calibration
- Refine climate change analysis for local surface water operations
- Pursue funding opportunities

Image courtesy: Veronica Adrover/UC Merced



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Questions?

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Image courtesy: Veronica Adrover/UC Merced

