



Stanislaus & Tuolumne Rivers Groundwater Basin Association
Groundwater Sustainability Agency
1231 11th Street | Modesto, CA 95354
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Well Mitigation Program & Management Actions Workshop

February 19, 2025 1:30 p.m.

Webinar Digital Platform or Phone Meeting

<https://us02web.zoom.us/j/84822337389>

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In person: Modesto Irrigation District Board Room, 1231 11th Street, Modesto



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AGENDA

1. Welcome and Introductions
2. Overview of Sustainable Groundwater Management Act (SGMA)
3. Modesto Subbasin 2024 Groundwater Sustainability Plan (GSP)
4. Well Mitigation Program
5. Groundwater Management Program
 - Well Accounting and Reporting Program
6. Up Next
 - Groundwater Allocation Program



MODESTO SUBBASIN GSP

STRGBA WELL MITIGATION PROGRAM & MANAGEMENT ACTIONS

WORKSHOP I

FEBRUARY 19, 2025



TODD
GROUNDWATER

AGENDA

MODESTO SUBBASIN WELL MITIGATION PROGRAM & MANAGEMENT ACTIONS

- Overview of Sustainable Groundwater Management Act (SGMA)
- Modesto Subbasin 2024 GSP
- Well Mitigation Program
- Groundwater Management Program
 - Well Accounting and Reporting Program
- Up Next
 - Groundwater Allocation Program



SGMA OVERVIEW

OVERVIEW OF SUSTAINABLE GROUNDWATER MANAGEMENT ACT (SGMA)

- Landmark legislation passed in 2014
- First comprehensive groundwater legislation in California
- Provides a framework for the **sustainable management of groundwater basins**
- Promotes *local* groundwater management
 - Led by local Groundwater Sustainability Agencies (GSAs)
 - Preparing and implementing a Groundwater Sustainability Plan (GSP) or submitting an Alternative Plan
- Sets regulatory deadlines for submitting plans, reporting progress, and achieving sustainable management

WHAT DO WE MEAN BY SUSTAINABLE MANAGEMENT?

Management and use of groundwater in a manner that can be maintained without causing undesirable results:



**Chronic lowering of
Groundwater Levels**



Seawater Intrusion



**Reduction of
Groundwater Storage**



**Groundwater Quality
Degradation**



Land Subsidence

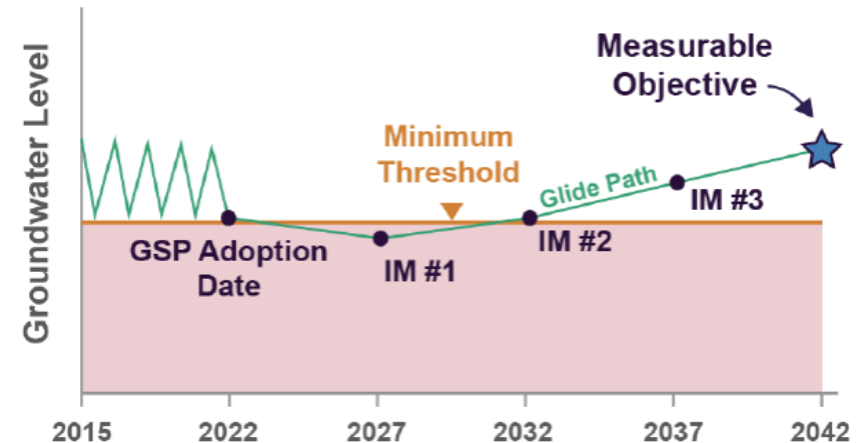


**Depletion of Interconnected
Surface Water**

SUSTAINABILITY CRITERIA ARE USED TO ASSESS SUSTAINABILITY

- **Sustainability Goal** defines basin status in 2042
- **Minimum Threshold** defines undesirable impacts
- **Measurable Objectives** are desired conditions
- **Interim Milestones** provide check-in points
- Above the minimum threshold is **Margin of Operational Flexibility**

Interim Milestones



Source: Department of Water Resources

SGMA REQUIREMENTS

- Adopt and submit one or more GSPs detailing the pathway to sustainability to the Department of Water Resources (DWR)
 - Due by January 31, 2022, for non-critically overdrafted high- and medium-priority basins
- “Sustainable groundwater management” must occur within 20 years
 - By 2042 for all for non-critically overdrafted high- and medium-priority basins





MODESTO SUBBASIN 2024 GSP

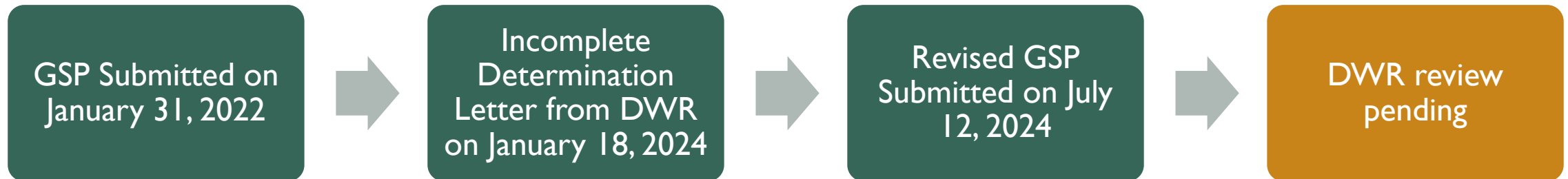
WHAT IS A GROUNDWATER SUSTAINABILITY PLAN?

A GSP is:

- A Plan meeting SGMA requirements that provides for a sustainably managed groundwater basin
- Outlines how the GSA(s) will implement, manage, and measure specific actions for the health and viability of a basin
- Describes the **Projects and Management Actions** to be implemented to achieve and maintain sustainability

DWR evaluates and determines if the GSP is consistent with SGMA regulations, and provides any necessary recommendations for modifications

MODESTO SUBBASIN GSP STATUS



ADDRESSING THE NEED FOR MANAGEMENT ACTIONS

- The GSP established Interim Milestones which indicate groundwater levels may reach undesirable results by 2027.
- DWR's 2024 incomplete determination letter stressed the need to “raise groundwater levels to avoid undesirable results that would occur as a result of groundwater levels dropping below minimum thresholds towards the proposed interim milestones”.
- The timing and volume of supply-side projects is variable; Demand Management Actions could serve as the backstop to quickly address the potential undesirable results.
- Demand Management Actions are adaptive and may be implemented or escalated/deescalated by the GSA as needed.

MODESTO GSP

- **Management Actions** listed in Tables 8-1 of the 2024 Revised GSP
- **Group 1 and 2 Projects** listed in Table 8-2 of the 2024 Revised GSP
- **Develop Demand Management Actions** (including a Dry Well Mitigation Program) no later than January 31, 2026
- **Start Demand Management Actions** no later than January 31, 2027

POSSIBLE DEMAND MANAGEMENT ACTIONS

- Groundwater Use Management Program
 - Groundwater Allocation and Pumping Management Program
 - Groundwater Extraction and Surface Water (Water) Accounting and Reporting Program
 - Groundwater Extraction Fees
 - Groundwater Pumping Credit Market and Trading Program
- Demand Reduction Strategies
 - Voluntary Conservation/Land Fallowing Program
 - Conservation Practices
- Dry Well Mitigation Program

POSSIBLE DEMAND MANAGEMENT ACTION

- Groundwater Use Management Framework
 - Groundwater Allocation and Pumping Management Program
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WELL MITIGATION PROGRAM

WHY DO WE NEED A WELL MITIGATION PROGRAM?

- Groundwater levels are anticipated to decline before recovering due to projects and management actions
- DWR requires that GSA provide mitigation for affected wells
- 2024 GSP estimated that 29 wells could go dry if groundwater levels fall below Minimum Thresholds to Interim Milestones
 - Water Year 2023: four dry wells reported
 - Water Year 2024: zero dry wells reported
- GSA is now developing its Well Mitigation Plan (WMP)

WELL MITIGATION PLAN DOCUMENT

GSA is developing a WMP based on 2024 GSP and review of other WMPs, for example:

- Eastern San Joaquin Subbasin
- Turlock Subbasin
- Chowchilla Subbasin
- Delta-Mendota Subbasin
- Mid-Kaweah Subbasin
- Madera Subbasin

WELL MITIGATION PLAN: KEY TOPICS

- Purpose - what is covered and what is not?
- Dry Well Services - what are they and who provides which services?
- Application Process - generally what it is and how it will roll out.

GSA is asking for input from public and stakeholder on *key topics*

PURPOSE OF WELL MITIGATION PLAN

Purpose: to provide mitigation for drinking water wells having adverse impacts due to declining groundwater levels from groundwater management activities since the January 31, 2022, GSP Adoption.

- ✓ For domestic and small water system wells
- ✓ Due to basin management, not other problems
- ✓ Indirect impacts of water quality and subsidence have not been documented
- ✓ After January 2022

What should be covered and what should not be included?

DRY WELL SERVICES

Services:

- What services are provided for dry wells?
 - ✓ Emergency water supply (bottled water)
 - ✓ Interim short-term solutions (bottled water or filling a water tank)
 - ✓ Long-term solutions (deepen pump setting, deepen well, new well, connection to a water system)
- Other non-governmental organizations provide such services
- GSA is responsible for dry wells due to management activities and will collaborate with other organizations

Who should provide which services?

APPLICATION PROCESS

Application Process:

- ✓ Other organizations have an initial eligibility review and application
- ✓ Document location, basic well/pump/facility information, right of entry, etc.
- ✓ GSA will:
 - Establish committee(s) to administer the program
 - Develop its own process to determine eligibility
 - Develop its own application and process to determine dry well mitigation
 - Provide outreach

What should the application process look like? How should it be rolled out?



WATER ACCOUNTING AND REPORTING PROGRAM

WATER ACCOUNTING AND REPORTING PROGRAM FRAMEWORK: KEY TOPICS

- Purpose of a Water Accounting and Reporting Program Framework - why do we need it?
- Program Application - If we decide to do this, where will this program be required? How would the information in the program be used?
- Program Components - what could be required?
- How to Measure Use - what are the options for measuring use?

WATER ACCOUNTING AND REPORTING PROGRAM: PURPOSE

As Stated in the GSP

- Intended to collect data to improve future water budget and sustainable yield estimates
- *De minimis* users are **not** included
- Supports studies to better understand land subsidence and groundwater flows
- Supports local control over groundwater management

What are your initial thoughts? What should be measured and reported? Should well registration be included?

WATER ACCOUNTING AND REPORTING PROGRAM: PROGRAM APPLICATION

- Program application can be uniform or varied
 - ✓ Different rules for different parts of the basin (east, west, central)
 - ✓ Different rules for different types of groundwater users (municipal, commercial, industrial, institutional, agricultural)
 - ✓ Different rules based on average annual groundwater use
 - ✓ Other
- Used to administer other programs
 - ✓ Groundwater Use/Recharge Credit Program
 - ✓ Groundwater Banking/Trading Program
 - ✓ Groundwater Extraction Fee
- Requires linkage to use
 - ✓ Extraction location
 - ✓ Water application/use location

Where will this program be required? Same rules for everyone?
How would information in the program be used?

COMMONALITIES IN REGISTRATION & REPORTING PROGRAMS ELSEWHERE

- Required for all wells extracting more than two (2) acre-feet per year (AFY)
- Existing wells to be registered by pre-determined date
- New wells to be registered within 30 days after completion of construction
- Groundwater extraction volumes must be reported using approved methods
- Surface water delivery volumes per metering and State reporting
- Deadline of November 1 for reporting groundwater extraction data
- Reporting period is prior Water Year (October 1 – September 30)

Which of these components do you want in your program? Are there other requirements?

WATER ACCOUNTING AND REPORTING PROGRAM: OPTIONS FOR MEASURING GROUNDWATER USE

1. Data from Flowmeters

- Most accurate
- Requires meter installation

OR

2. Estimated Consumptive Use

- Less accurate
- Uses evapotranspiration (ET) and land use/cropping information

OR

3. Allow both methods

- Estimated consumptive use would be default as it can be applied everywhere

What is your preference for a required measurement method?



UP NEXT – GROUNDWATER
ALLOCATION PROGRAM

WHAT IS A GROUNDWATER ALLOCATION?

If the groundwater system is a bank account for water, an allocation is like a budget designed to fairly distribute water use so we don't run out.

An allocation is a spending plan that decides:

- **Who** can take water
- **How** much they can take
- **When** they can take it

This helps make sure:

- **Farmers** have water for crops
- **Cities** have water for homes and businesses
- **Nature** has water for rivers and wetlands
- **Future generations** will have access to a sustainable water supply.

GROUNDWATER ALLOCATION OVERVIEW

LOCAL AUTHORITY AND DISCRETION

GSAAs have broad authority to develop and implement GSPs that reflect local conditions, priorities, and management objectives.

- **California Water Code § 10725:** *"A groundwater sustainability agency may perform any act necessary or proper to carry out the purposes of this part."*
- **California Water Code § 10726.4(a)(2):** *"A groundwater sustainability agency shall have the authority to control groundwater extractions by regulating, limiting, or suspending extractions from individual wells or from groundwater extraction facilities within a basin."*
- **California Water Code § 10726.8(b):** *"Nothing in this part shall be construed to authorize a [GSA] to make a binding determination of the water rights of any person or entity."*

This includes the authority to allocate resources to meet sustainability goals while balancing the needs of its users and protecting existing legal rights.

GROUNDWATER ALLOCATION OVERVIEW

ADAPTIVE MANAGEMENT

The allocation framework to be developed as part of the STRGBA management actions is a **starting point** and will be refined over time.

- This is the first step in planning the region's management actions
- Decisions made over the next few years may be revisited periodically
- Recommendations will be solicited and considered in program development.

SGMA allows for adaptive management, enabling GSAs to adjust allocations based on evolving conditions, such as:

- Changes in groundwater levels.
- Improved understanding of basin conditions.
- Success or failure of specific projects or management actions.

GROUNDWATER ALLOCATION OVERVIEW

POLICY DEVELOPMENT PROCESS

Allocation Method

- Total Area
- Developed Area
- Irrigated Area
- Historical Use
- Water Rights
- Hybrid

Management Parameters

- Exemptions & Credits
- Developed Supply
- Historical Period
- Management Zones
- Glide Path

Adaptive Management

- Metering & Reporting
- Groundwater Accounting
- Banking/Trading
- Other Projects and Management Actions

GROUNDWATER ALLOCATION OVERVIEW

ALLOCATION METHOD

Method	Description	Pros/Cons
Pro Rata Allocation per Overlying Area	Allocate available supply based on property size	<ul style="list-style-type: none">• Simple approach• Treats landowners equally• Does not recognize some legal limitations/nuances• Creates inequities to those who have not invested to developed right from those who have
Pro Rata Allocation per Overlying Irrigated Area	Allocate available supply based on land use	<ul style="list-style-type: none">• Simple approach• Allocations can vary based on land use• Acknowledges existing pumping by overlying landowners• Does not consider historic pumping or unexercised pumping rights on overlying lands
Pro Rata Allocation per Historic Pumping	Allocate available supply based on historic use	<ul style="list-style-type: none">• Requires historic groundwater use data• Does not apply law of correlative rights• Does not recognize potentially disproportionate impacts by pumpers• Does not consider who has access to surface water supplies and rely solely on groundwater
Comprehensive Allocation Method	Allocate available supply based on CA water law	<ul style="list-style-type: none">• Process is complicated, recognizes seniority based on existing water rights systems.• Abides by CA groundwater law, increases likelihood of surviving legal challenges
Hybrid	Use some combination of options	<ul style="list-style-type: none">• May be difficult to justify• Makes the best of all worlds

GROUNDWATER ALLOCATION OVERVIEW

LOCAL MANAGEMENT OBJECTIVES

GSAAs may make special considerations for certain water users or sectors:

- **Existing Legal Rights:** GSAAs may regulate the use of groundwater, but they must respect pre-existing water rights as established under California state water law.
- **Equitable Access:** GSAAs may ensure groundwater availability by prioritizing drinking water for disadvantaged communities and *de minimis* water use.
- **Economic Sectors:** GSAAs may prioritize economically significant uses of groundwater, such as irrigated agriculture or municipal, or industrial uses.
- **Environmental Needs:** GSAAs may include measures to maintain streamflow or wetlands that depend on groundwater.

GROUNDWATER ALLOCATION OVERVIEW

LOCAL MANAGEMENT OBJECTIVES

Local Management Factors - SGMA grants GSAs flexibility to implement local groundwater management objectives, including the ability to provide special treatment in groundwater allocations.

- Management Zones
- *De Minimis* Water Use
- Small-Scale Agriculture
- Disadvantaged Communities
- Urban Growth and Conservation
- Developed vs Undeveloped Land
- Water Accounting, Credits, and Trading

Thinking Ahead:

What special considerations that should be considered or evaluated?

MODESTO SUBBASIN GSP

STRGBA ALLOCATION PROGRAM – EXAMPLE

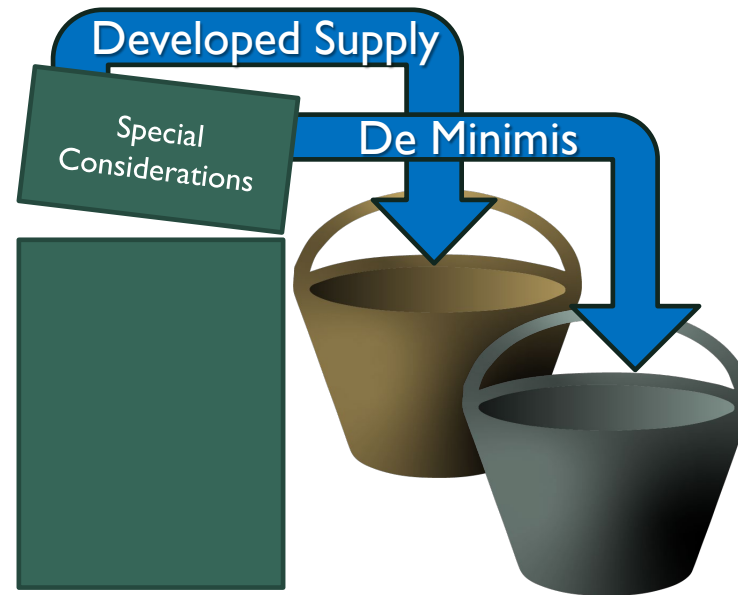
EXAMPLE ALLOCATION FRAMEWORK

- ✓ Determine **sustainable yield** of the Subbasin
2. Account for special considerations to obtain allocatable water
 - **Legal Exemptions** (developed supply, adjudicated basins, federal & tribal lands)
 - **Local Management** (disadvantaged communities, small-scale users, etc.)
3. Allocate remaining sustainable yield of native water
 - **Overlying Users** (Land-based Rights)
 - **Appropriative Users** (Permit-Based Rights)
4. **Establish framework** as basis for basin-wide management.
 - Determine triggers, impacts, or conditions to mitigate or intensify PMAs

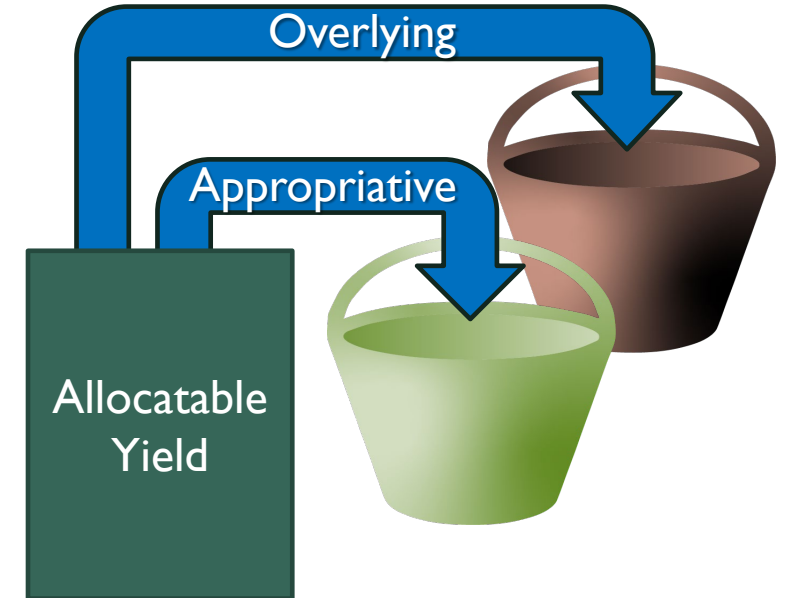
EXAMPLE ALLOCATION FRAMEWORK

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Sustainable Yield: long term average annual groundwater pumping sustainable without causing undesirable results. Will be refined as data gaps are filled.



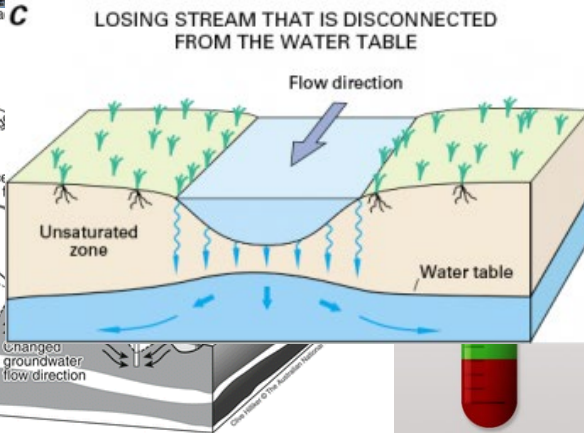
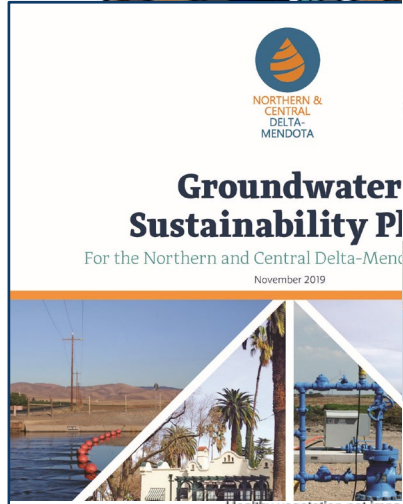
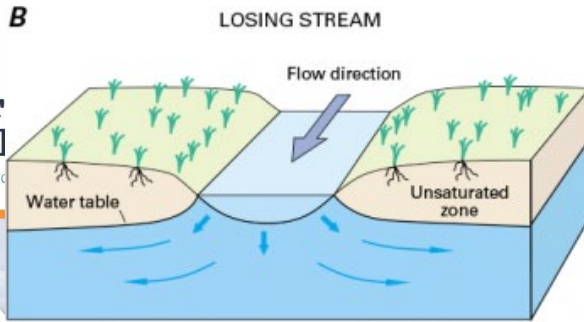
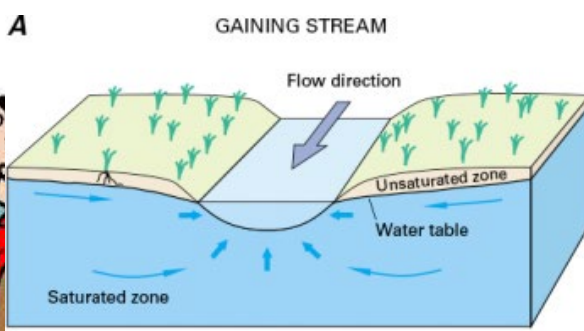
Recovery of Developed Supply: The right to extract artificially introduced water (imported water, recycled water) without traditional limits.



Allocatable Yield: The sustainable groundwater available for use, divided between overlying and appropriative users based on seniority, availability, and need.

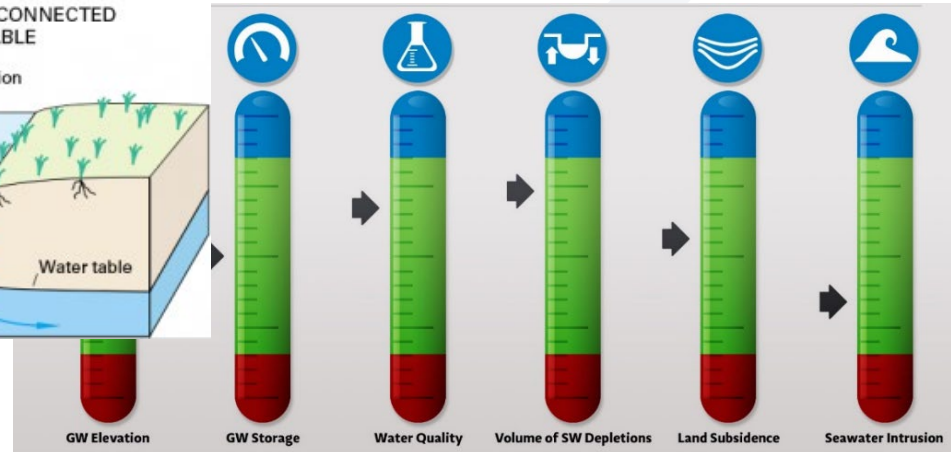


THANK YOU FOR ATTENDING



KEY TERMS

- Groundwater Sustainability Agency (GSA)
- Groundwater Sustainability Plan (GSP)
- Sustainable Management Criteria (SMC)
- Groundwater Dependent Ecosystems (GDEs)
- Interconnected Surface Waters (ISW)
- Projects and Management Actions (PMAs)



MODESTO GSP GOALS & OBJECTIVES FOR MAs

- **Groundwater Allocation and Pumping Management Program**
 - Allocate sustainable yield of native groundwater as policy-driven approach to stop groundwater level declines
 - Reduce groundwater extraction and lowering of groundwater levels
 - Create program to allow for land use planning
- **Groundwater Extraction and Surface Water Reporting Program**
 - Excludes *de minimis* users
 - Intended to collect data to improve future water budget and sustainable yield estimates
- **Groundwater Extraction Fees**
 - Work in conjunction with groundwater allocation and reporting programs
 - Generate revenue to pay for program administration, enforcement and implementation of a variety of activities
 - Could also incentivize the use of supplemental or alternative water supplies

MODESTO GSP GOALS & OBJECTIVES FOR MAs

- **Groundwater Pumping Credit Market and Trading Program**
 - Used to exchange and trade allocated groundwater
 - Requires implementation of groundwater reporting and allocation programs
 - Allow for flexible groundwater use on a subbasin level
- **Voluntary Conservation/Land Fallowing Program**
 - Incentivize voluntary conservation and/or land fallowing
 - Temporary or permanent land fallowing could be combined with recharge projects
 - Reduce groundwater extractions permanently and/or temporarily in dry periods

MODESTO GSP GOALS & OBJECTIVES FOR MAs

■ Conservation Practices

- Urban and agricultural conservation practices
- Could include conservation programming and/or changing standards
- Incentivize reductions in groundwater consumption

■ Dry Well Mitigation Program

- Provide mitigation measures for water supply wells that have experienced adverse impacts due to declining groundwater levels
- Cover eligible mitigation claims accrued after January 31, 2022
- Will specify short- and long-term mitigation measures, organization of program, estimated costs and means for funding
- Define eligibility criteria to guide well owners considering a claims application

REPORTED DRY WELLS

Water Year 2023

