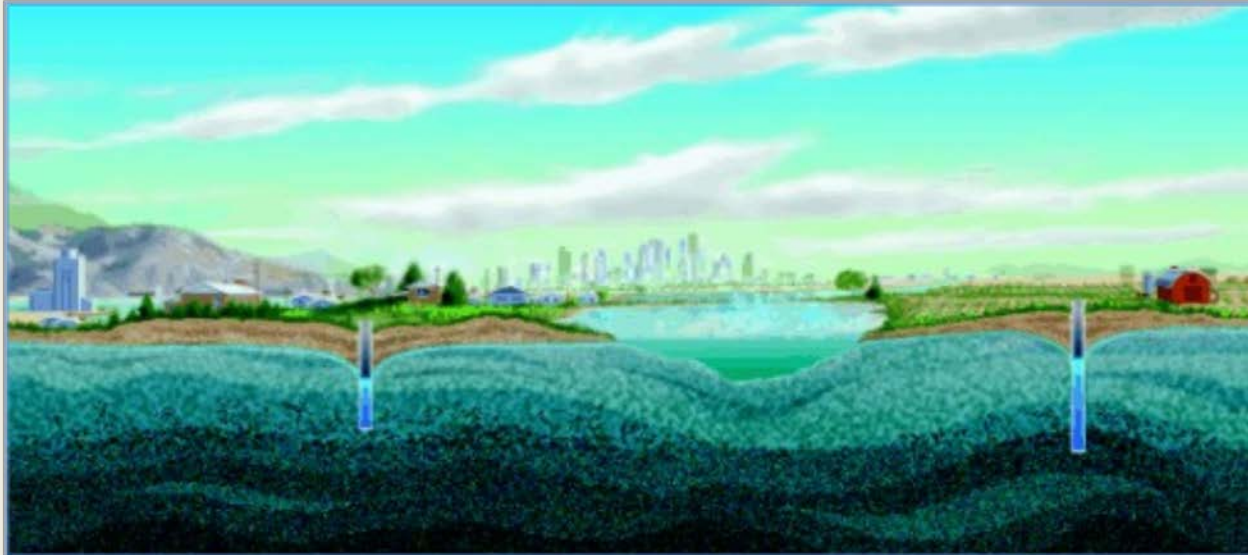




# ***Sustainable Groundwater Management***



**WEF Tour  
October 2016**

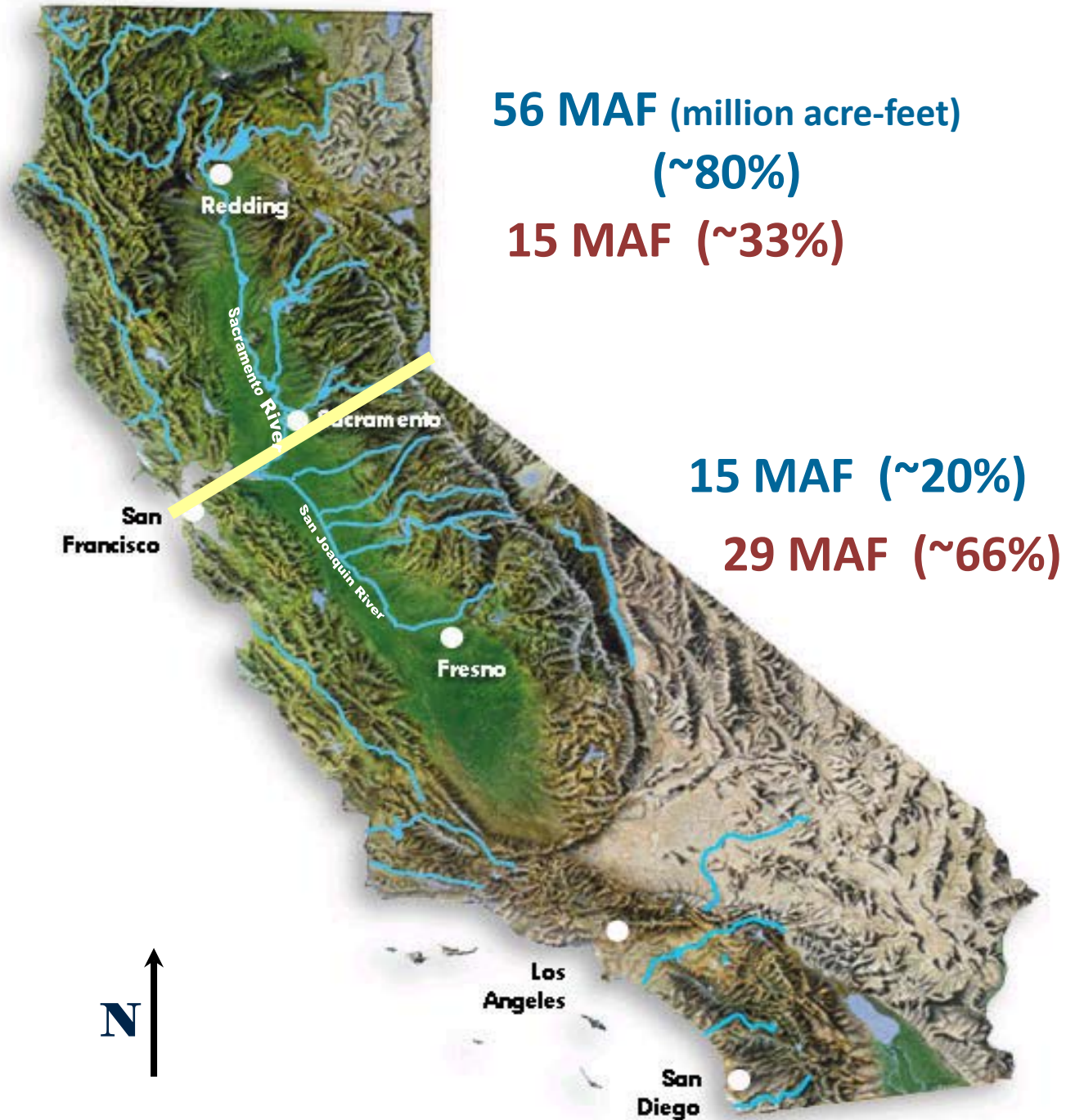
***Division of Integrated Regional Water Mgt.  
Sustainable Groundwater Mgt. Section***



# California Hydrology and Water Use

**Distribution of  
Average Runoff  
(major river  
systems)**

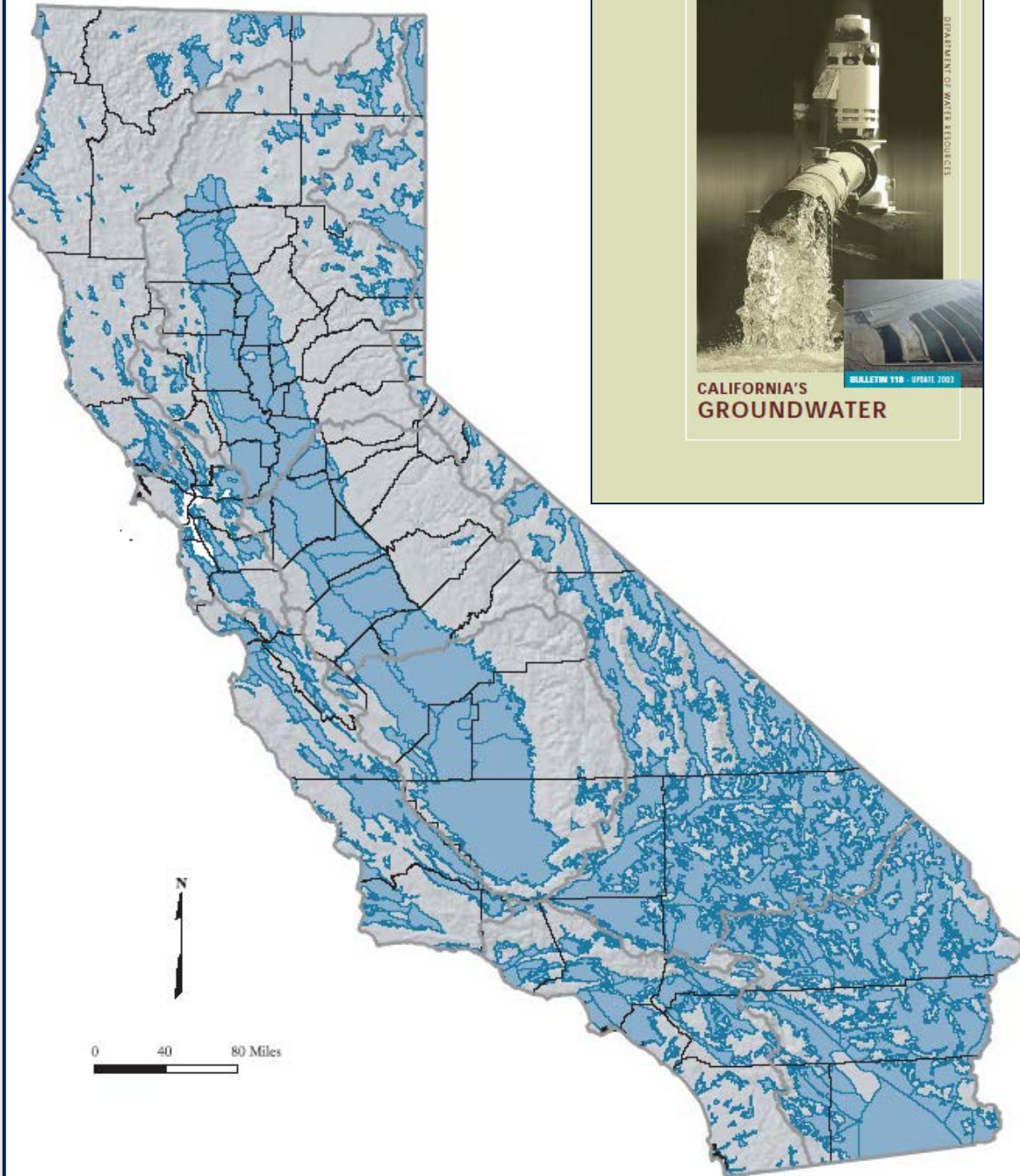
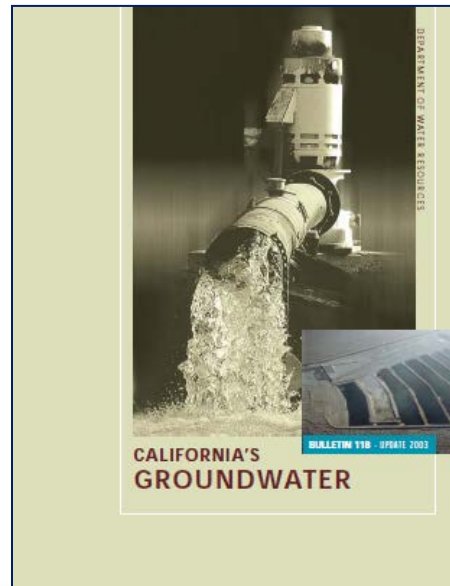
**Distribution of  
Water Use**





# California's Groundwater Basins

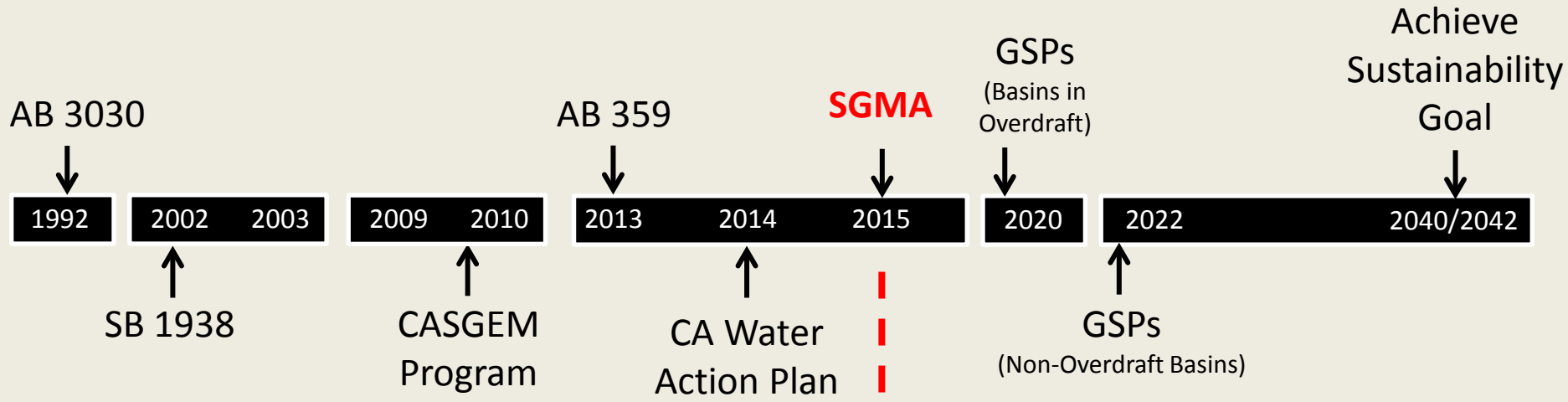
- ▣ 515 alluvial basins/subbasins
- ▣ ~ 35-65% of state's water supply
- ▣ Basins, precipitation, population, and demands are not evenly distributed





# Background

## California's Major Groundwater Milestones



### Voluntary Groundwater Management (Non-Regulatory)

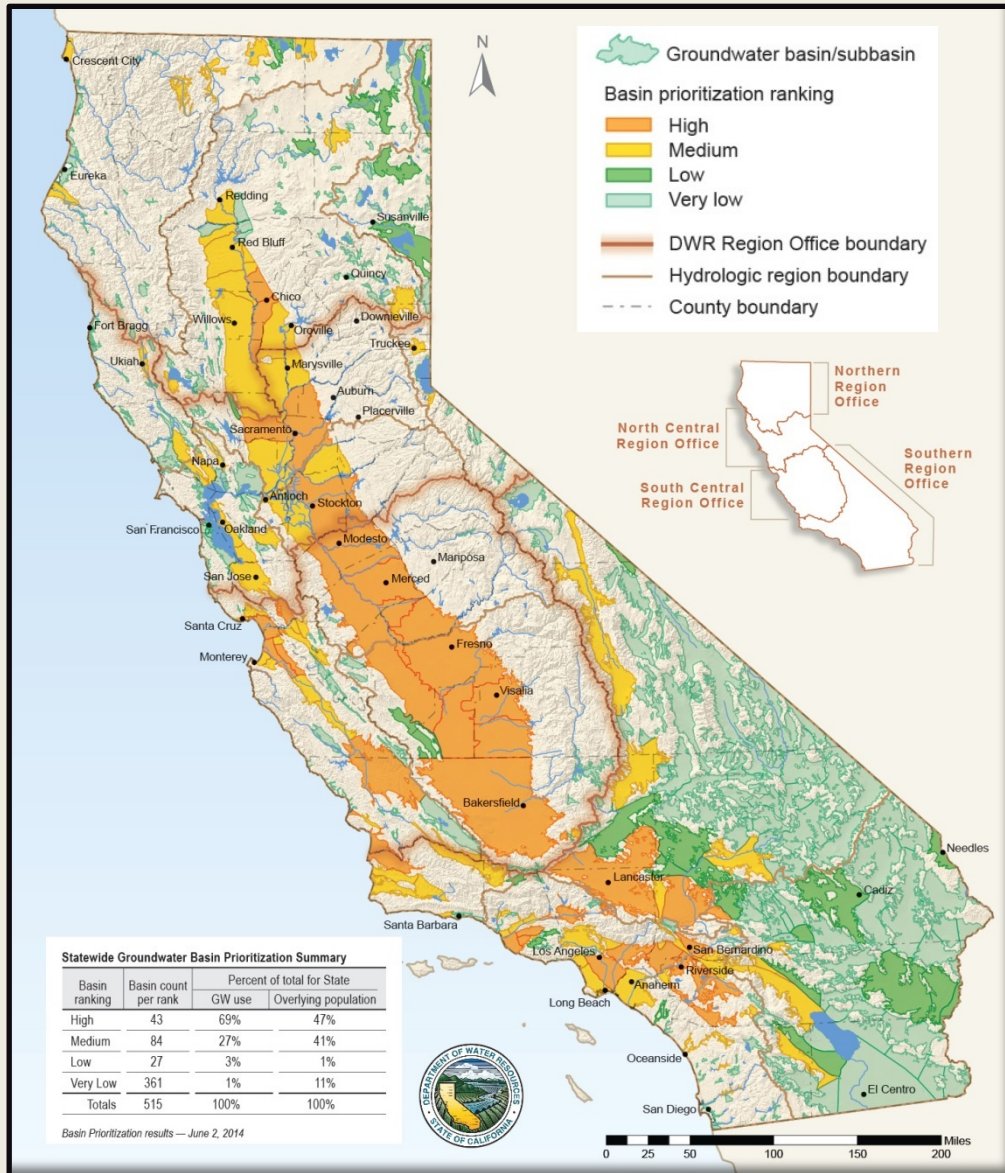
- Service Area Planning
- Variable Levels of Implementation
- Variable Authority
- Grant Incentives

### Required Groundwater Management (Regulatory)

- Entire Basin Planning
- Required Implementation
- New GSA Authorities
- State Backstop (SWRCB)



# CASGEM Basin Prioritization



## Statewide Breakdown

Basin Ranking	Basin Count per Rank	Percent of Total for Hydrologic Region	
		GW Use	Overlying Population
High	43	69%	47%
Medium	84	27%	41%
Low	27	3%	1%
Very Low	361	1%	11%
Totals	515	100%	100%

## 127 High & Medium Priority basins

- 96% of groundwater use
- 88% of overlying population

<http://www.water.ca.gov/groundwater/casgem/>





# *The Sustainable Groundwater Management Act of 2014*



*“...recognition that groundwater management in California is best accomplished locally.”*





# ***SGMA Overview (cont.)***



## **Framework**

- Applicability
- Definitions

## **Local's Role**

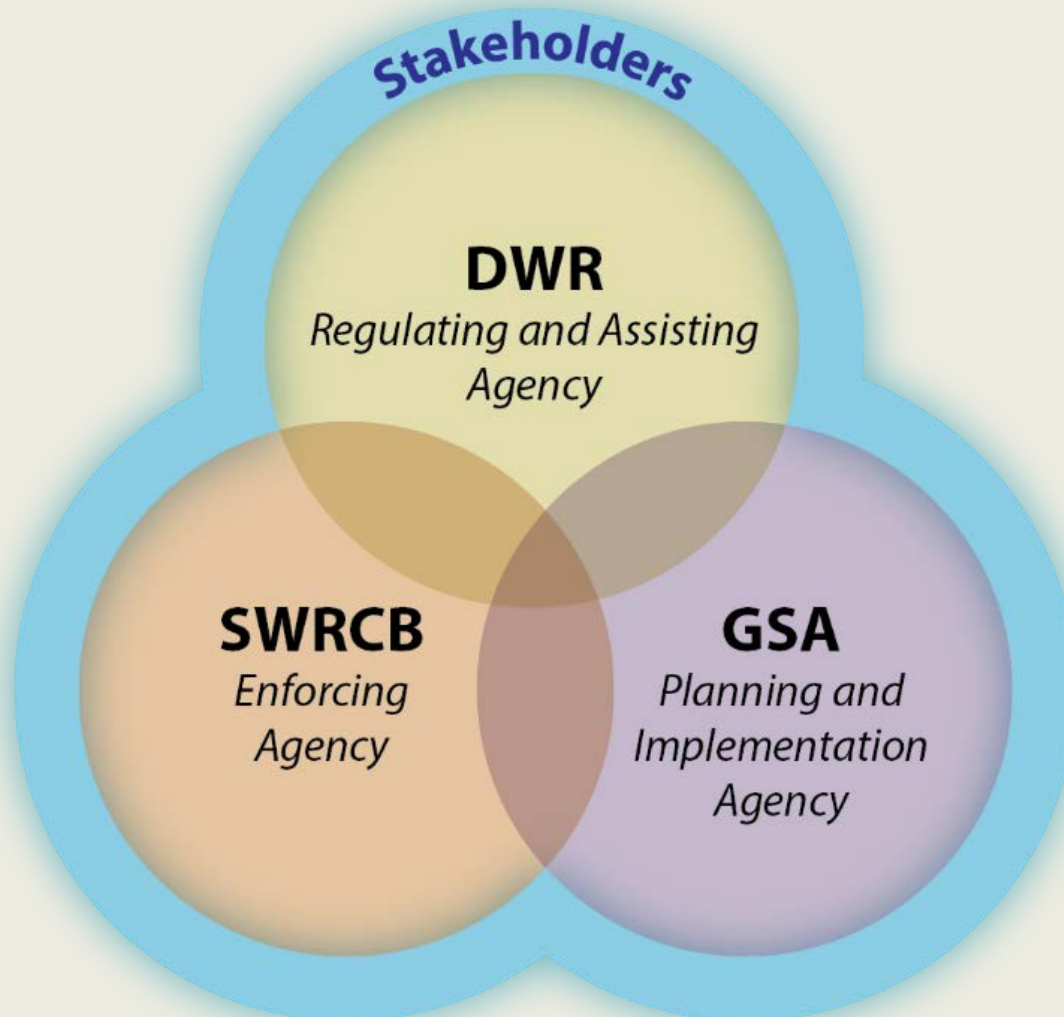
- Establish Groundwater Sustainability Agencies (GSAs)
- Powers & Authorities
- Groundwater Sustainability Plans (GSPs)

## **State's Role**

- Basin Boundaries & Priorities
- Technical Assistance
- State Evaluation and Assessment
- State Intervention

# Sustainable Groundwater Management Act

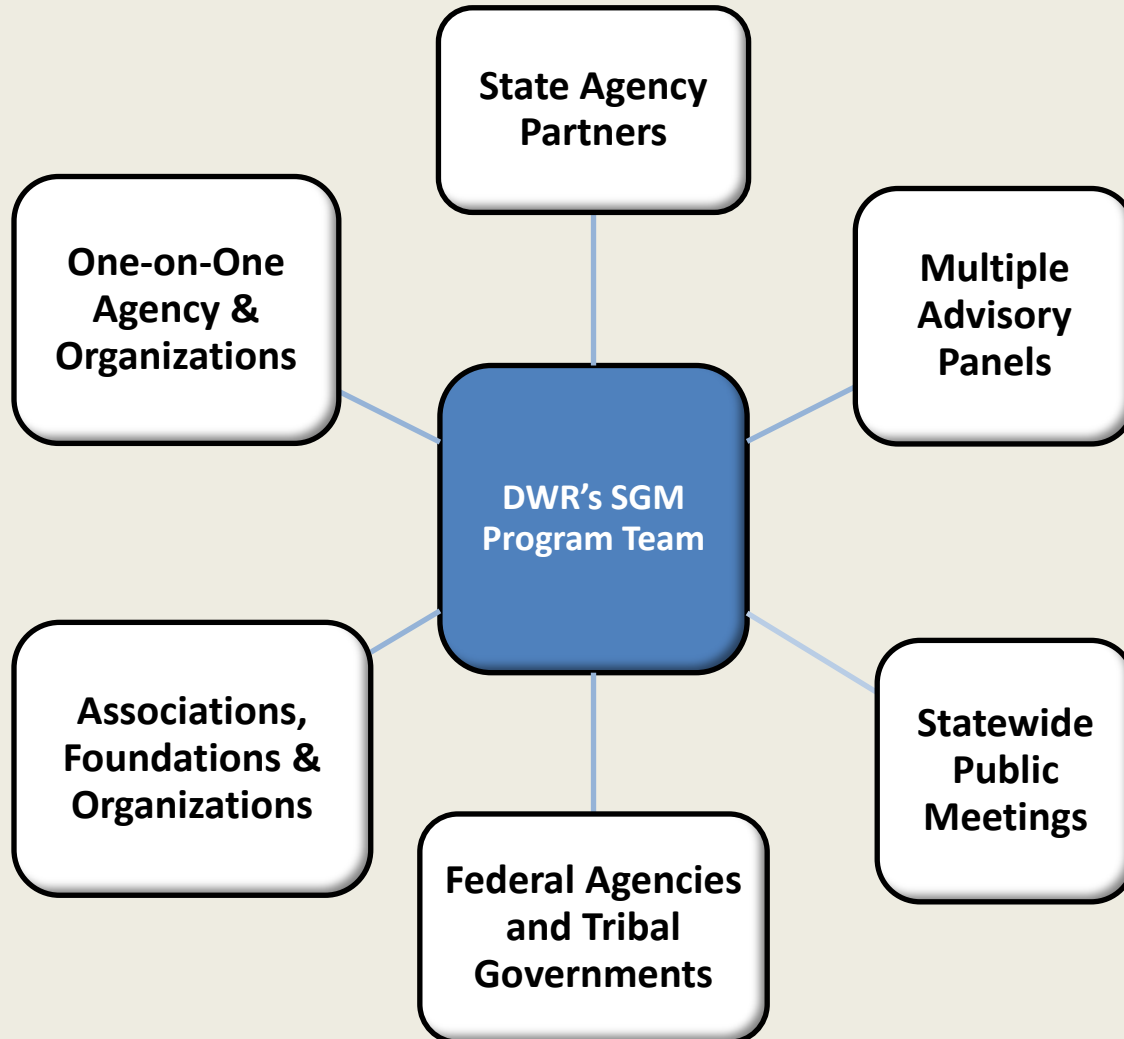
## General Roles and Responsibilities







# SGM Communication and Outreach



## SGMA ADVISORY GROUPS

- Practitioners Advisory Panel
- Tribal Advisory Group
- Non-Governmental Organizations
- Association of California Water Agencies (ACWA)
- Northern California Water Association (NCWA)
- San Joaquin Tributaries Authority
- San Luis & Delta Mendota Water Authority
- Central Coast Area
- RCRC & CSAC
- Agricultural Community
- Tulare Lake Hydrologic Group
- Numerous other meetings with Local Agencies



# **SGM Program – Project Status Updates**

- **Basin Boundary Modifications**
- **GSA Formation**
- **Best Management Practices (BMPs)**
- **GSP Regulations**

# DWR's SGMA Responsibilities and Due Dates



- ✓ **Initial Basin Prioritization: §10723.4**
  - Completed by January 31, 2015
- ✓ **Regulations for Modifying Groundwater Basin Boundaries: §10722.2**
  - Completed by January 1, 2016
- ✓ **Identification of Critically Overdrafted Basins: §12924**
  - Completed January 2016
- ✓ **Groundwater Sustainability Plan and Alternatives Regulations: §10733.2**
  - Due June 1, 2016

- |  |  |
|--|--|
| <ul style="list-style-type: none"><li>• <b>Modifying Groundwater Basin Boundaries</b><ul style="list-style-type: none"><li>– Estimated September 1, 2016</li></ul></li><li>• <b>Water Available for Replenishment: §10729(c)</b><ul style="list-style-type: none"><li>– Due January 1, 2017</li></ul></li><li>• <b>Best Management Practices: §10729(d)</b><ul style="list-style-type: none"><li>– Due January 1, 2017</li></ul></li><li>• <b>Bulletin 118: §12924</b><ul style="list-style-type: none"><li>– Interim Update due January 2017;</li><li>– Comprehensive Update due 2020</li></ul></li></ul> | <ul style="list-style-type: none"><li>• <b>Revised Basin Prioritization</b><ul style="list-style-type: none"><li>– Estimated mid 2017</li></ul></li><li>• <b>Alternatives Reviews</b><ul style="list-style-type: none"><li>– Begins January 1, 2017</li></ul></li><li>• <b>Groundwater Sustainability Agency Formation: §10723</b><ul style="list-style-type: none"><li>– Due by June 30, 2017</li></ul></li></ul> |
|--|--|

# Basin Boundary Modification - Draft Results

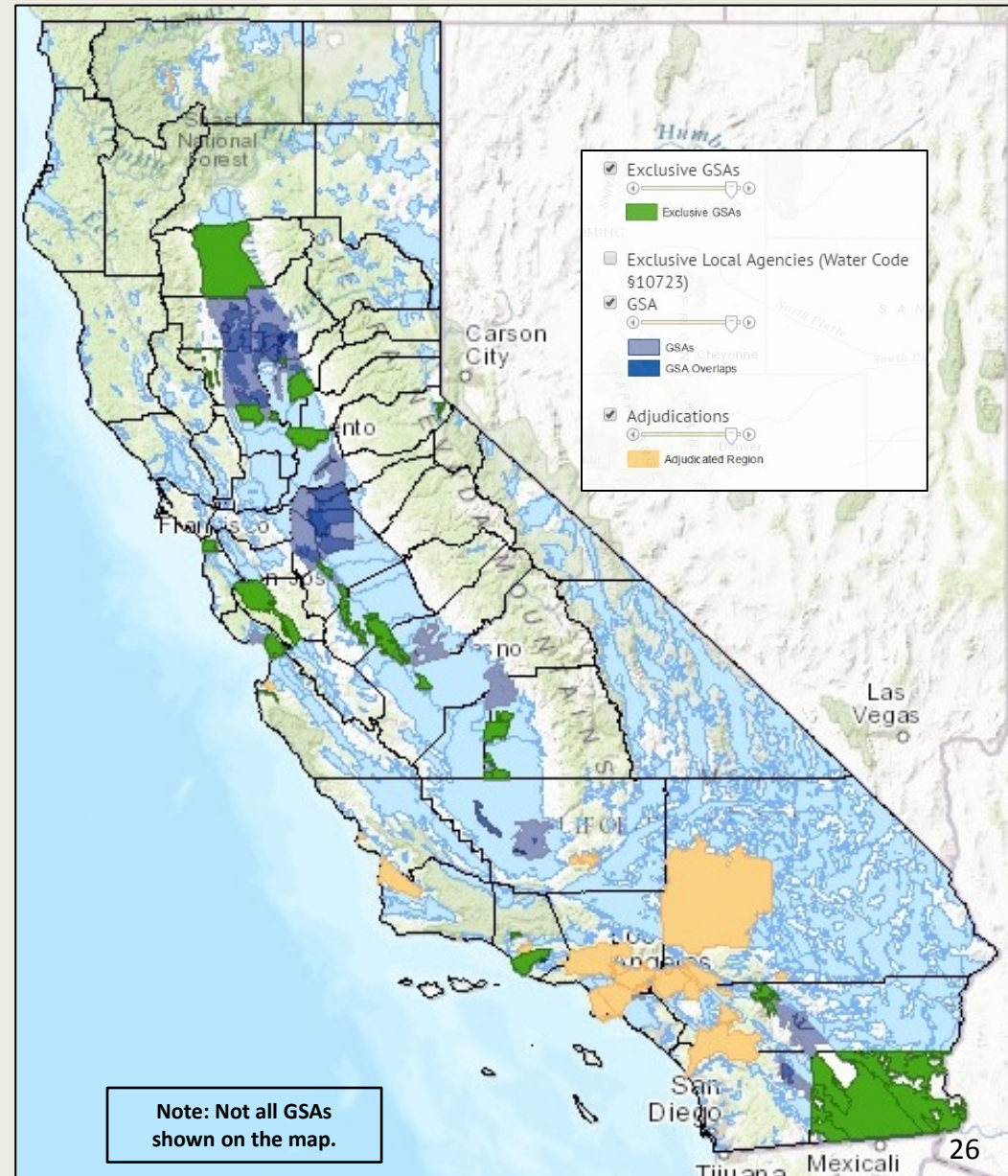


- 54 Requests
  - 39 Approved
  - 11 Denied
  - 3 Incomplete
  - 1 Unresolved
- Finalize September 1
  - Re-Prioritization
  - GSA Formation
- 2018 Next Submission Period

# Status of GSA Formations (June 22, 2016)



- Many GSAs have submitted for multiple basins in multiple counties
- **90** separate GSA formation notices are posted on-line
  - **50** have overlap in one or more basins that must be resolved
  - **24** are “Exclusive GSAs” in one or more basins
  - **21** have an active 90-day period in one or more basins
- **74** basins have GSAs
  - 44 basins are high- or medium-priority
  - **30** basins are low- or very-low priority
- **26** counties have GSAs



# Types of BMPs

Guidance

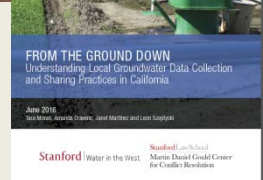
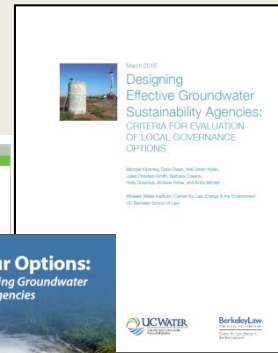
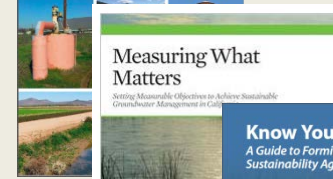
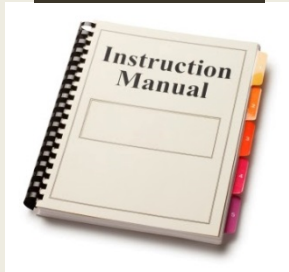
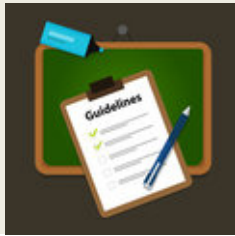
Case Studies



BMPs

Standards

References



# GSP - Overall Regulatory Approach



***“A central feature of these bills is the recognition that groundwater management in California is best accomplished locally.”***

Governor Jerry Brown, September 2014



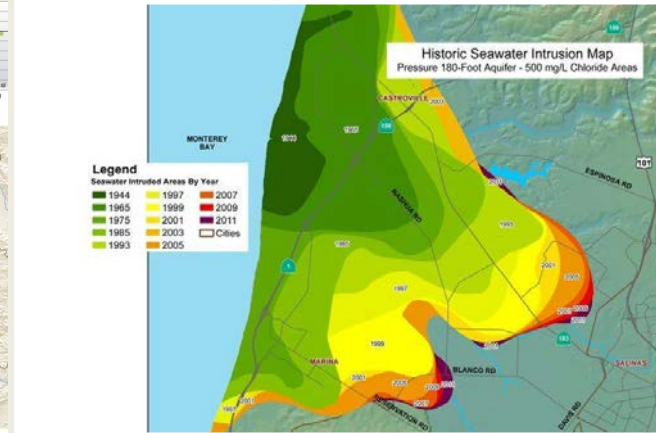
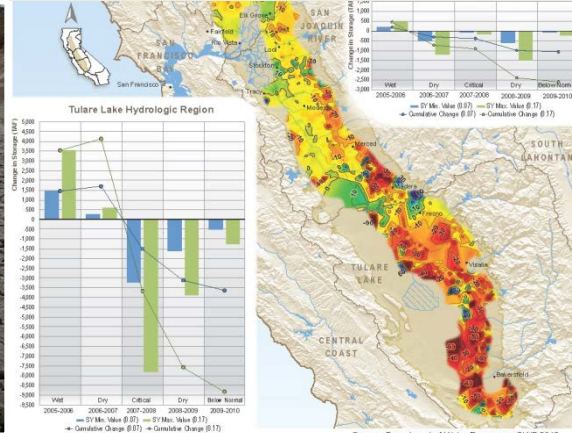
**Public  
Engagement**

**Local Agencies**  
*Plan Development*  
*Plan Implementation*

**Department of Water Resources**  
*Plan Evaluation*  
*Statewide Minimum Standards*  
*Technical & Financial Assistance*

**Sustainable  
Groundwater  
Management**

# Undesirable Results



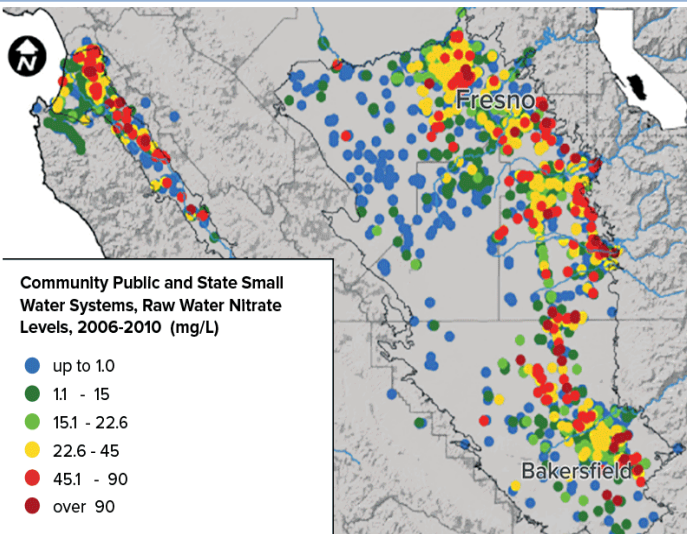
**Lowering of GW Levels**



**Reduction of GW Storage**



**Seawater Intrusion**



**Water Quality Degradation**



**Land Subsidence**



**Depletion of Interconnected Streams**



# Sustainable Management Criteria – Framework (cont.)



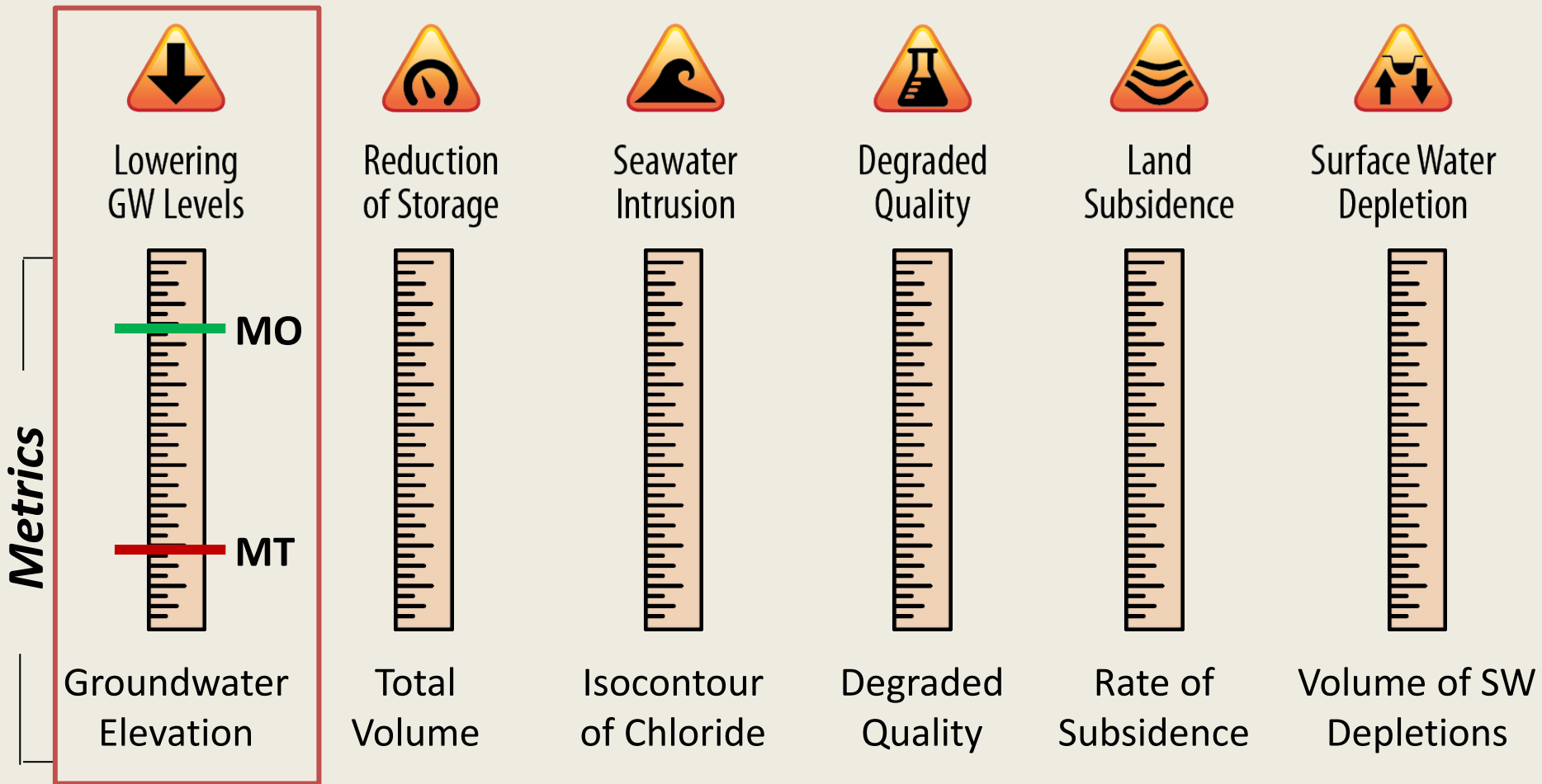
## § 354.24. Sustainability Goal

- A single sustainability goal for the basin
- Achieved within 20 years of GSP implementation
- Maintained without causing undesirable results



# Minimum Threshold Metrics - Statewide Framework -

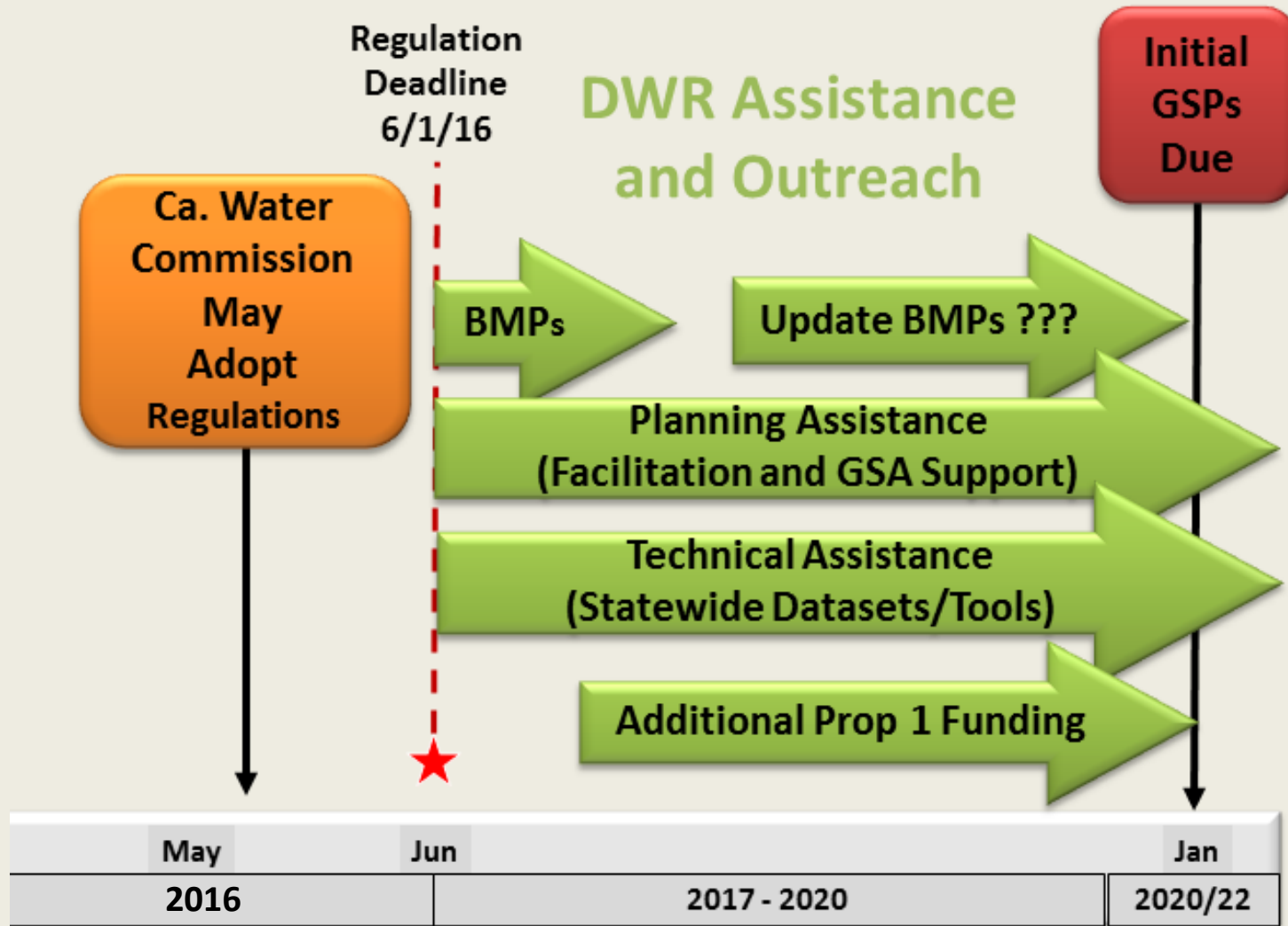
## Sustainability Indicators



\*Groundwater Elevations - can be used for multiple minimum thresholds



# Next Steps



Dates and Durations are Subject to Change

- Data Management Framework
- Regional Water Budget Support
- Update Well Standards



- **DWR Sustainable Groundwater Management (SGM)**

<http://www.water.ca.gov/groundwater/sgm/index.cfm>

- **Subscribe to DWR SGM Email List**

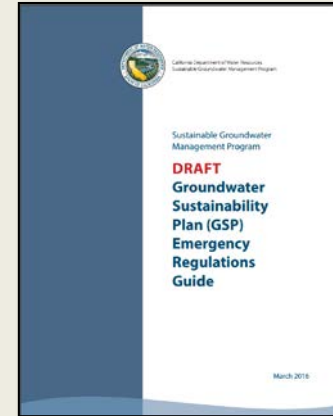
<http://www.water.ca.gov/groundwater/sgm/subscribe.cfm>

- **DWR GSP/Alt. Regulation Website**

<http://www.water.ca.gov/groundwater/sgm/gsp.cfm>

- **DWR Water Management Planning Tool**

<https://gis.water.ca.gov/app/boundaries/>



## Groundwater Sustainability Plan Emergency Regulations

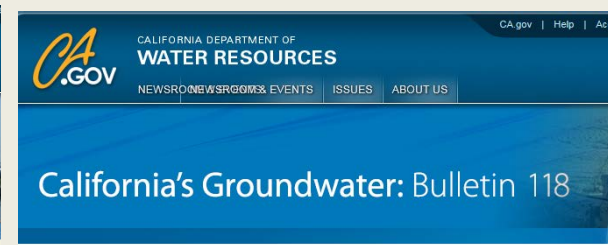
California Water Commission Approved Groundwater Sustainability Plan Emergency Regulations  
(May 18, 2016 - Clean version)

California Water Commission Approved Groundwater Sustainability Plan Emergency Regulations (May



## Basin Boundary Modifications

The Sustainable Groundwater Management Act (SGMA) established a process for **local agencies** to request that the Department of Water Resources (DWR) revise the boundaries of existing groundwater basins or subbasins, including the establishment of a new subbasin. The **Basin Boundary Emergency Regulation** was developed through an extensive **stakeholder outreach process** and was adopted on October 21, 2015. The provisions of the emergency regulation go into effect on November 16, 2015.



## Bulletin 118

The California Department of Water Resources (DWR) has long recognized the need for collection, summary, and evaluation of groundwater data as tools in planning optimal use of the groundwater resource. An example of this is DWR's Bulletin 118 series. Bulletin 118 presents the results of groundwater basin evaluations in California.

The following topics are discussed in this Bulletin 118 section.