



# Water Education Foundation

*Water 101  
February 5, 2015*

CALIFORNIA  
  
**WATER**  
FOUNDATION®

*An initiative of Resources Legacy Fund*

# What's in Store for 2015

- The Drought
- Groundwater Issues and Legislation
- Integrated Water Management
- Other Key Topics for 2015



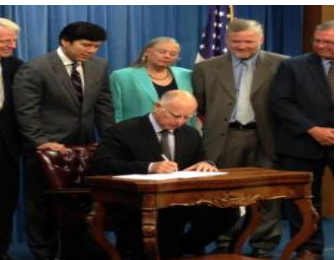
# 2014: Year of Water



Historic Drought



Governor's Water Action Plan



Historic Groundwater Legislation



Passage of Proposition 1



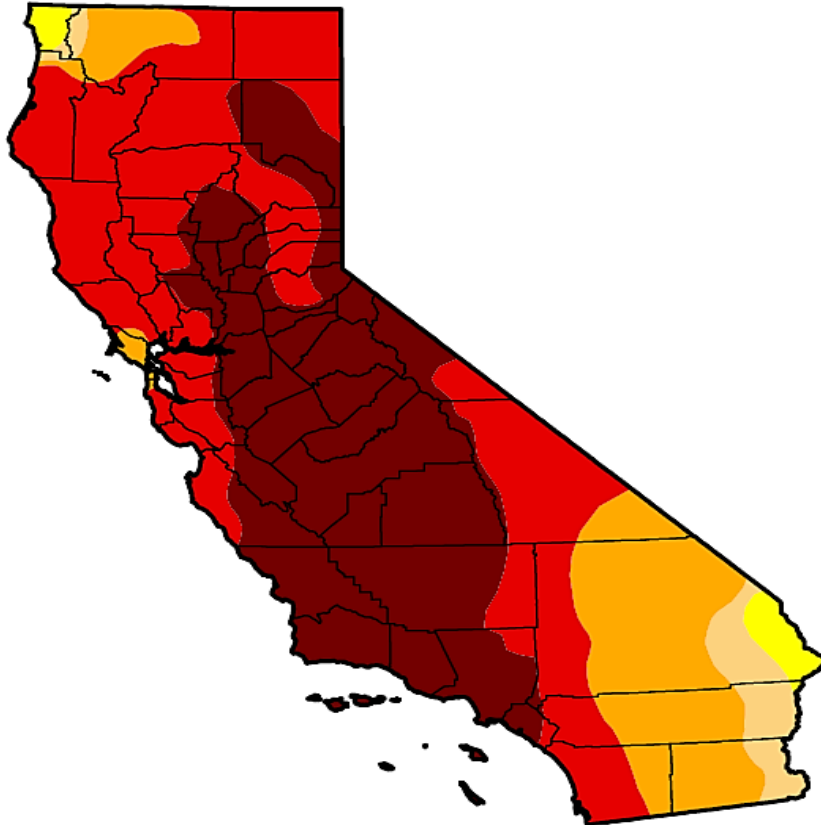
# 2015 Issues and Opportunities

- Drought Conditions
- SGMA Implementation
- Bond Implementation
- Bay Delta Conservation Plan (BDCP)
- Federal Policy Shift



# Current Drought Conditions

## U.S. Drought Monitor California



**January 27, 2015**  
(Released Thursday, Jan. 29, 2015)  
Valid 7 a.m. EST

*Drought Conditions (Percent Area)*

	None	D0-D4	D1-D4	D2-D4	D3-D4	D4
<b>Current</b>	0.00	100.00	98.13	94.34	77.52	39.99
<b>Last Week</b> <i>1/20/2015</i>	0.00	100.00	98.13	94.34	77.52	39.15
<b>3 Months Ago</b> <i>10/28/2014</i>	0.00	100.00	100.00	95.04	81.92	58.41
<b>Start of Calendar Year</b> <i>12/30/2014</i>	0.00	100.00	98.12	94.34	77.94	32.21
<b>Start of Water Year</b> <i>9/30/2014</i>	0.00	100.00	100.00	95.04	81.92	58.41
<b>One Year Ago</b> <i>1/28/2014</i>	1.43	98.57	94.18	89.91	67.13	8.77

*Intensity:*

- D0 Abnormally Dry
- D1 Moderate Drought
- D2 Severe Drought
- D3 Extreme Drought
- D4 Exceptional Drought

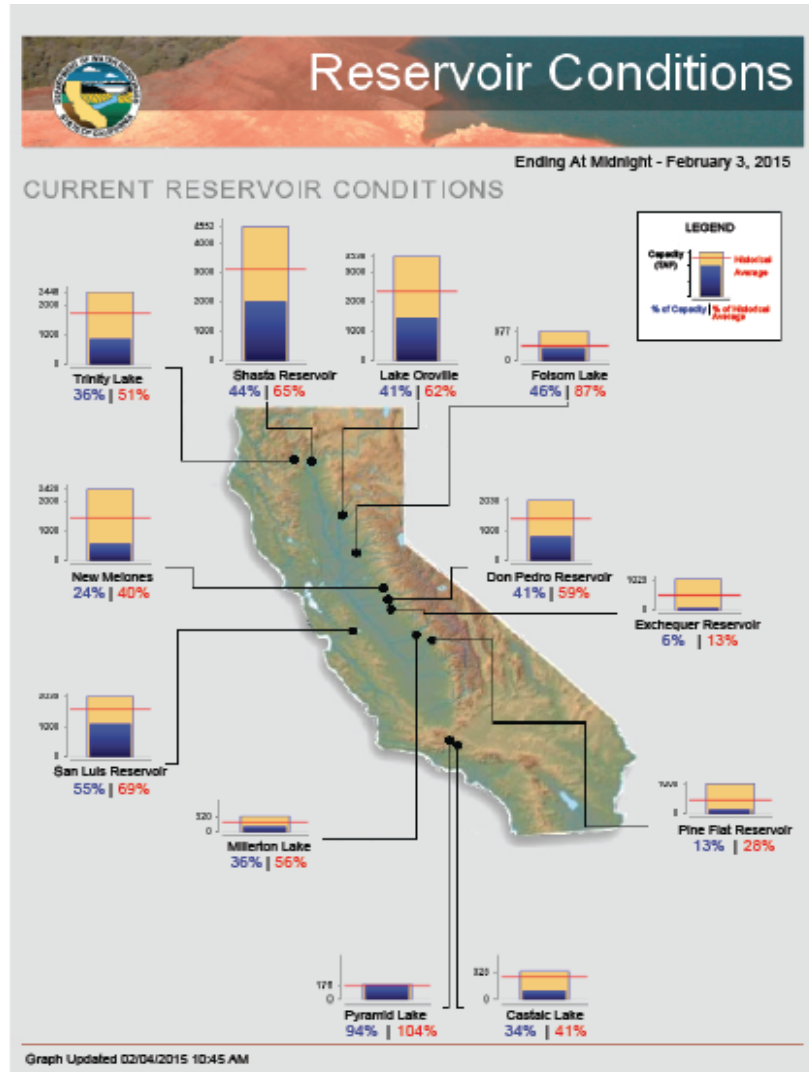
*The Drought Monitor focuses on broad-scale conditions. Local conditions may vary. See accompanying text summary for forecast statements.*

**Author:**  
*Brian Fuchs*  
*National Drought Mitigation Center*

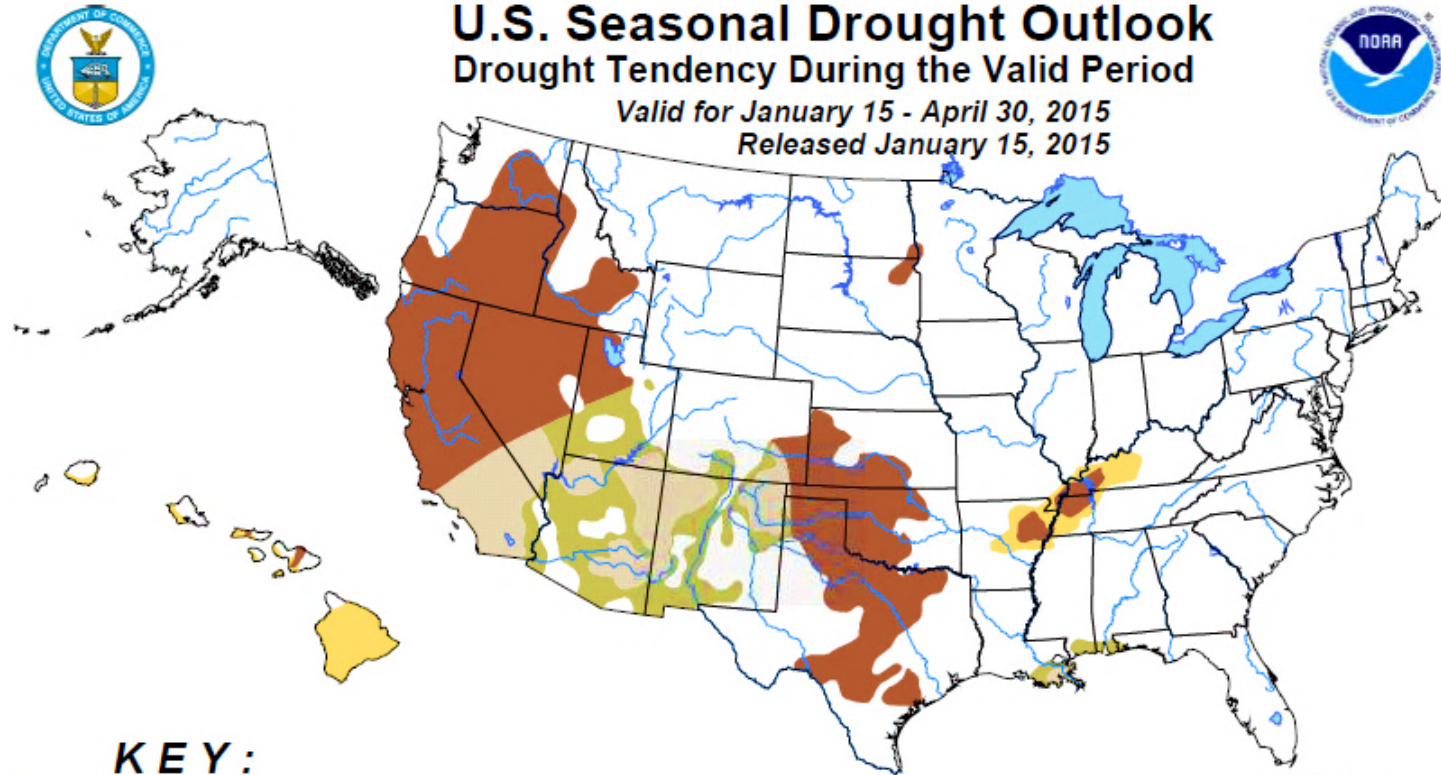


<http://droughtmonitor.unl.edu/>

# Storage Conditions



# Drought Forecast







## U.S. Seasonal Drought Outlook Drought Tendency During the Valid Period

Valid for January 15 - April 30, 2015

Released January 15, 2015

### KEY:

-  Drought persists or intensifies
-  Drought remains but improves
-  Drought removal likely
-  Drought development likely

Author: David Miskus, Climate Prediction Center, NOAA

[http://www.cpc.ncep.noaa.gov/products/expert\\_assessment/sdo\\_summary.html](http://www.cpc.ncep.noaa.gov/products/expert_assessment/sdo_summary.html)

Depicts large-scale trends based on subjectively derived probabilities guided by short- and long-range statistical and dynamical forecasts. Short-term events – such as individual storms – cannot be accurately forecast more than a few days in advance. Use caution for applications – such as crops – that can be affected by such events. "Ongoing" drought areas are approximated from the Drought Monitor (D1 to D4 intensity). For weekly drought updates, see the latest U.S. Drought Monitor.

NOTE: The tan areas imply at least a 1-category improvement in the Drought Monitor intensity levels by the end of the period although drought will remain. The green areas imply drought removal by the end of the period (D0 or none)

# Shrinking Snowpack





## Groundwater in Context

- About 40% of supply in an average year; 60% in dry
- Many urban/rural areas 100% dependent
- Critical part of integrated management
- Excellent Drought Buffer (at risk)
- Groundwater overdraft Impacts



## Groundwater in Context

- Several decades of increasing use
  - Reduction in surface supplies
  - Hardening of demand
- Increasing landowner conflicts

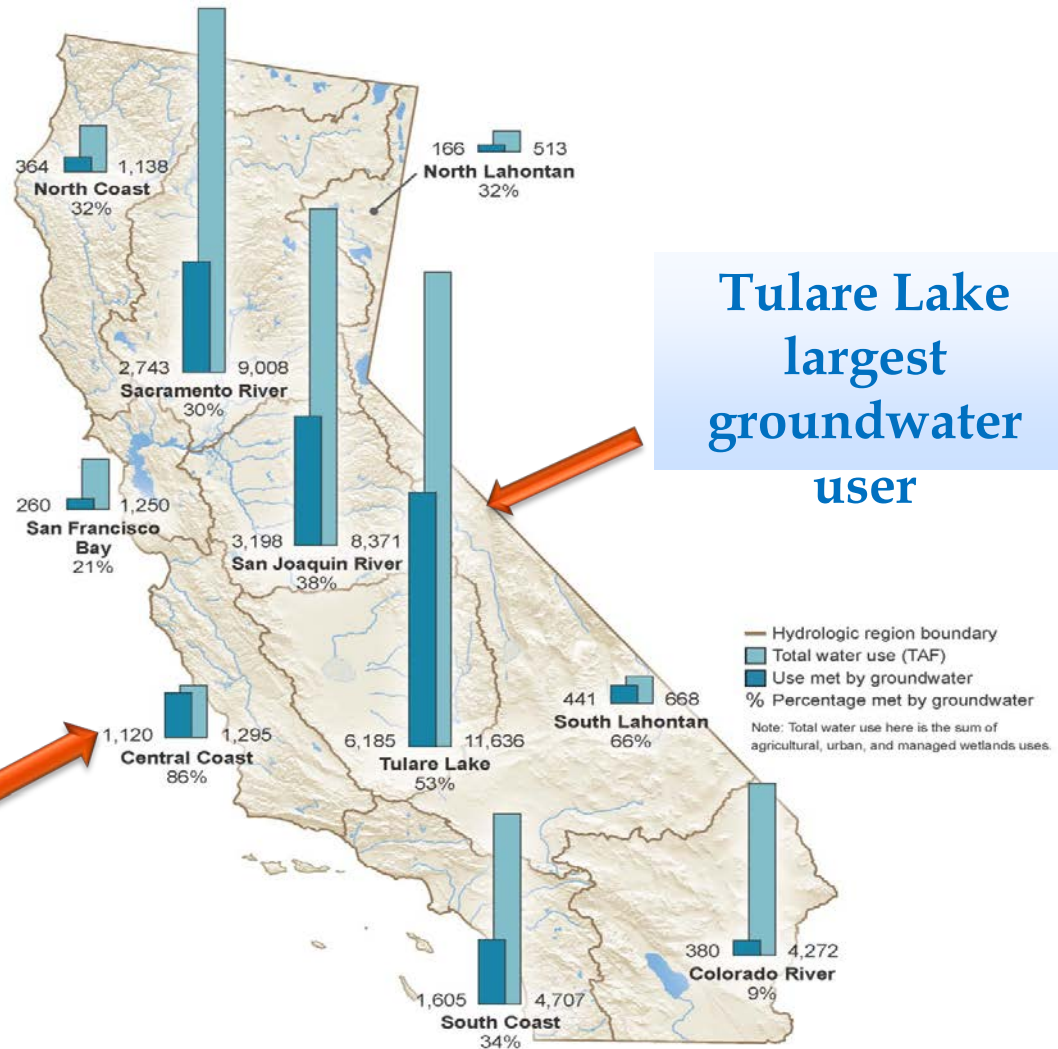


## Problems With Overdraft

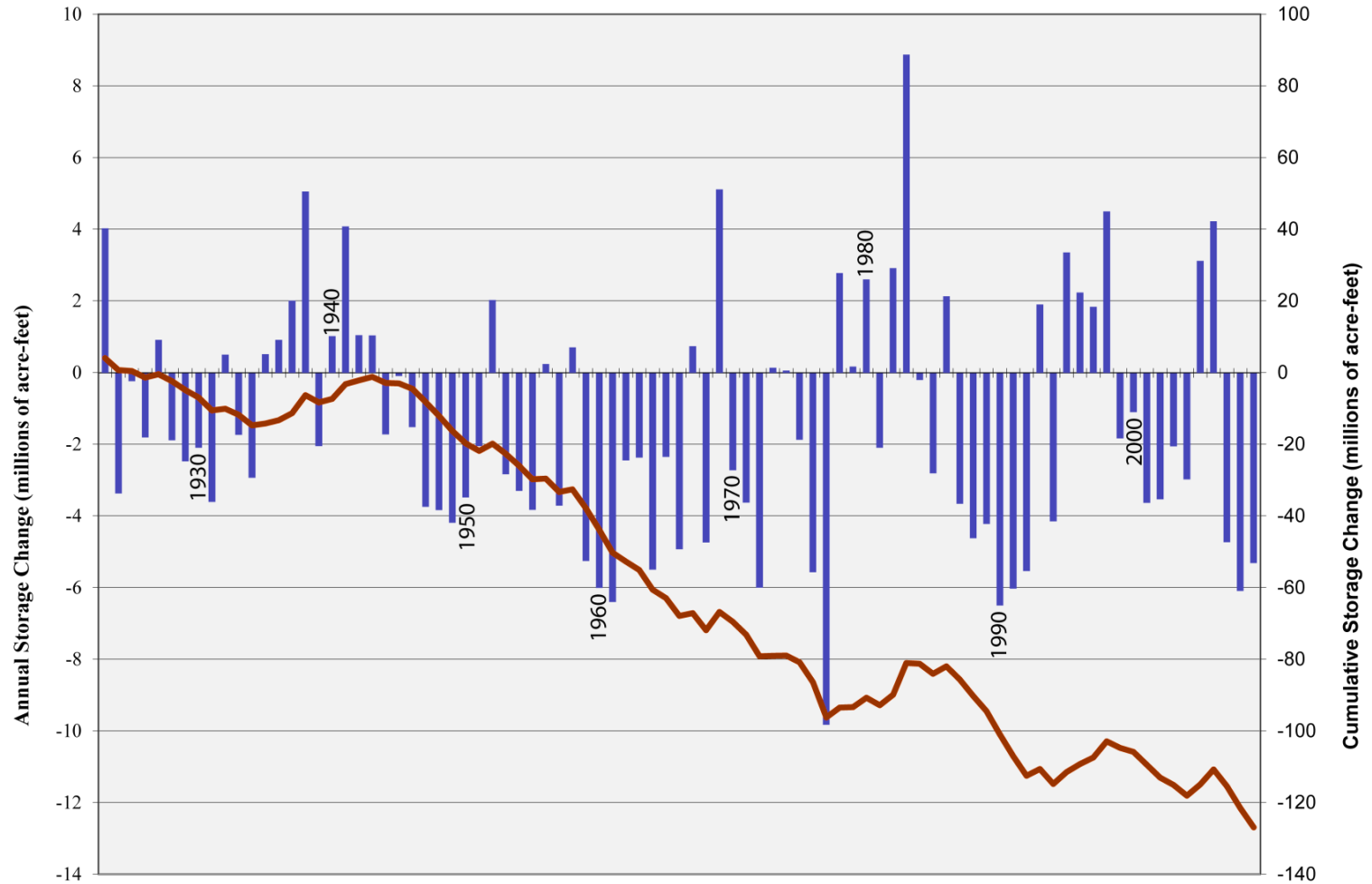
- Subsidence threatens infrastructure
- Reduced surface water flow/ecosystem impacts
- Reduced surface supplies
- Increased drilling/pumping costs/ghg emissions
- Increased costs for taxpayers, business, farmers



# Groundwater Use



# Change in Groundwater Storage for the Central Valley



Source:  
RMC analysis of C2VSIM historical simulation results, 2012.

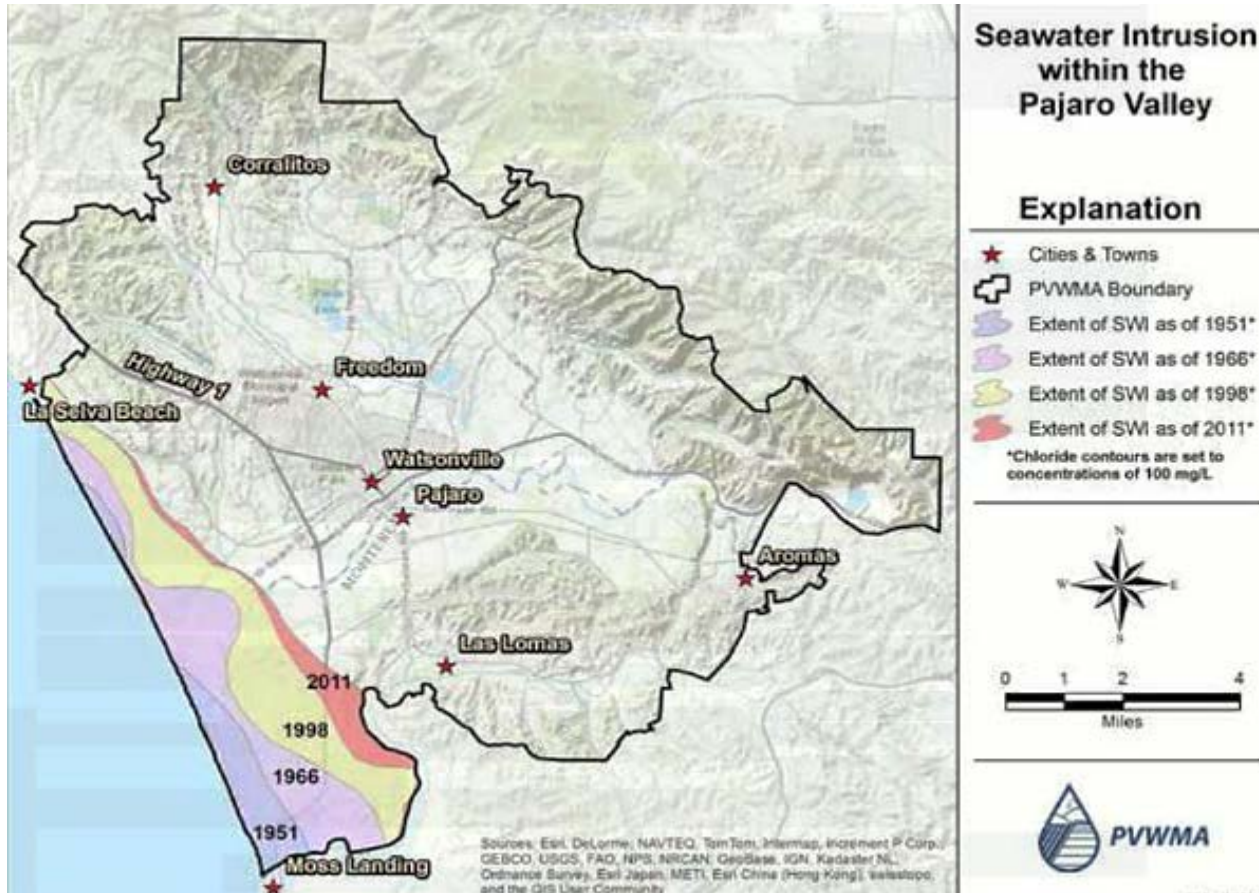
■ Annual Storage Change

— Cumulative Storage Change


## Problems with Overdraft



# Problems with Overdraft




## Sustainable Groundwater Management Act (SGMA)

- Fundamental change in groundwater management
  - Sustainability Goal (20 years with 5 year milestones)
  - Local Empowerment
    - Local authorities to manage groundwater
    - Local agency formation (GSAs)
    - Local plans (GSPs)
    - “Exempts” adjudicated basins
  - State Role
    - Assistance (financial and technical)
    - Plan Review
    - Back-Stop
- 



*Sustainability:* Manage groundwater to prevent undesirable results (significant & unreasonable):

- Chronic lowering of groundwater levels
  - Reduction of groundwater storage
  - Seawater intrusion
  - Degraded water quality
  - Land subsidence
  - Depletions of interconnected surface water
- 

## Time Frame for Success

Time	Action
6/30/2017	Formation of GSAs
1/31/2020	Completion of GSPs in critically overdrafted basins
1/31/2022	Completion of GSPs in all other basins
20-year implementation period	Implementation of GSPs under local management


Taking these actions shields local managers from state intervention

## The “Backstop” State Board Intervention

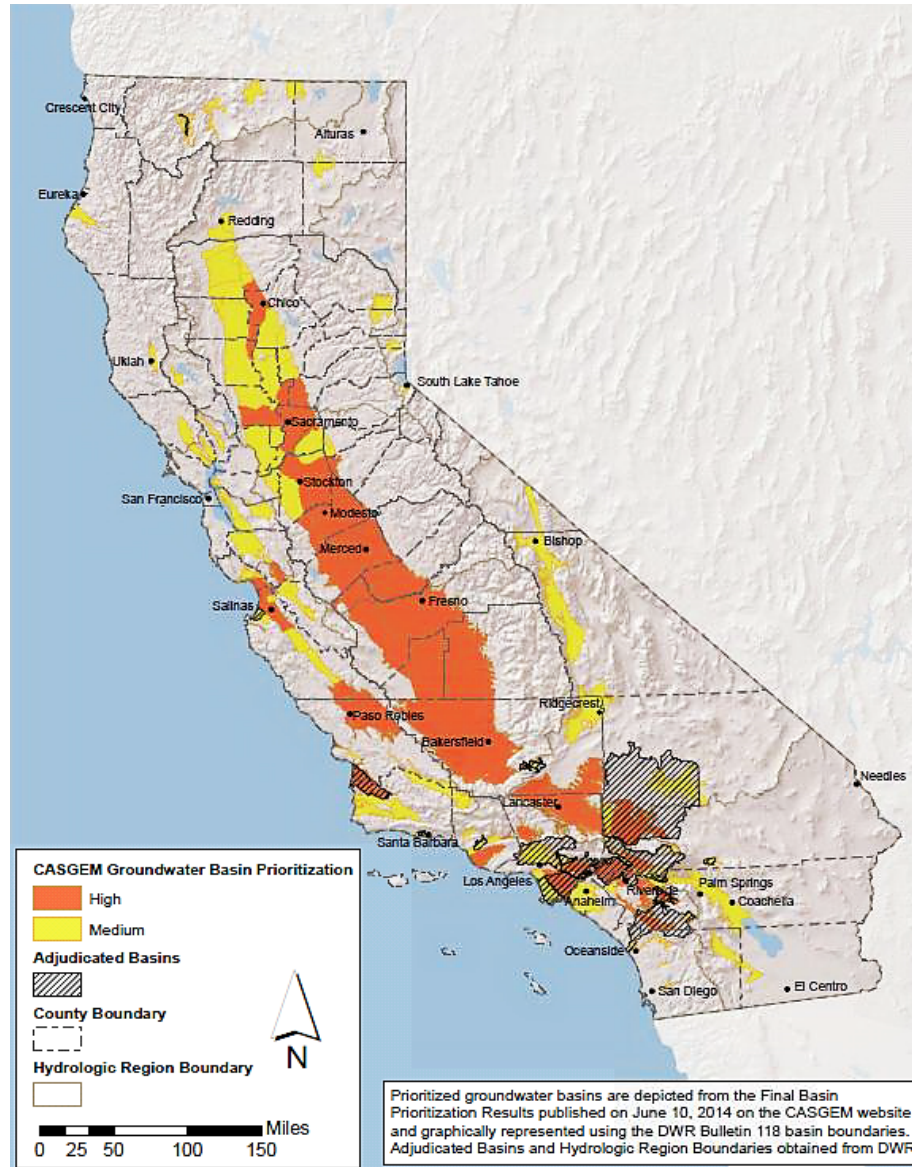
After	Cause of Intervention
6/30/2017	No GSAs
1/31/2020	In critically overdrafted basins, no GSA or GSP is inadequate
1/31/2022	In other basins, no GSA or GSP inadequate and basin in long-term overdraft
1/31/2025	GSP is inadequate and significant depletions of interconnected surface waters

In all triggering events, interventions is the result of a failure by the locals to create a GSA and adopt and implement a GSP.

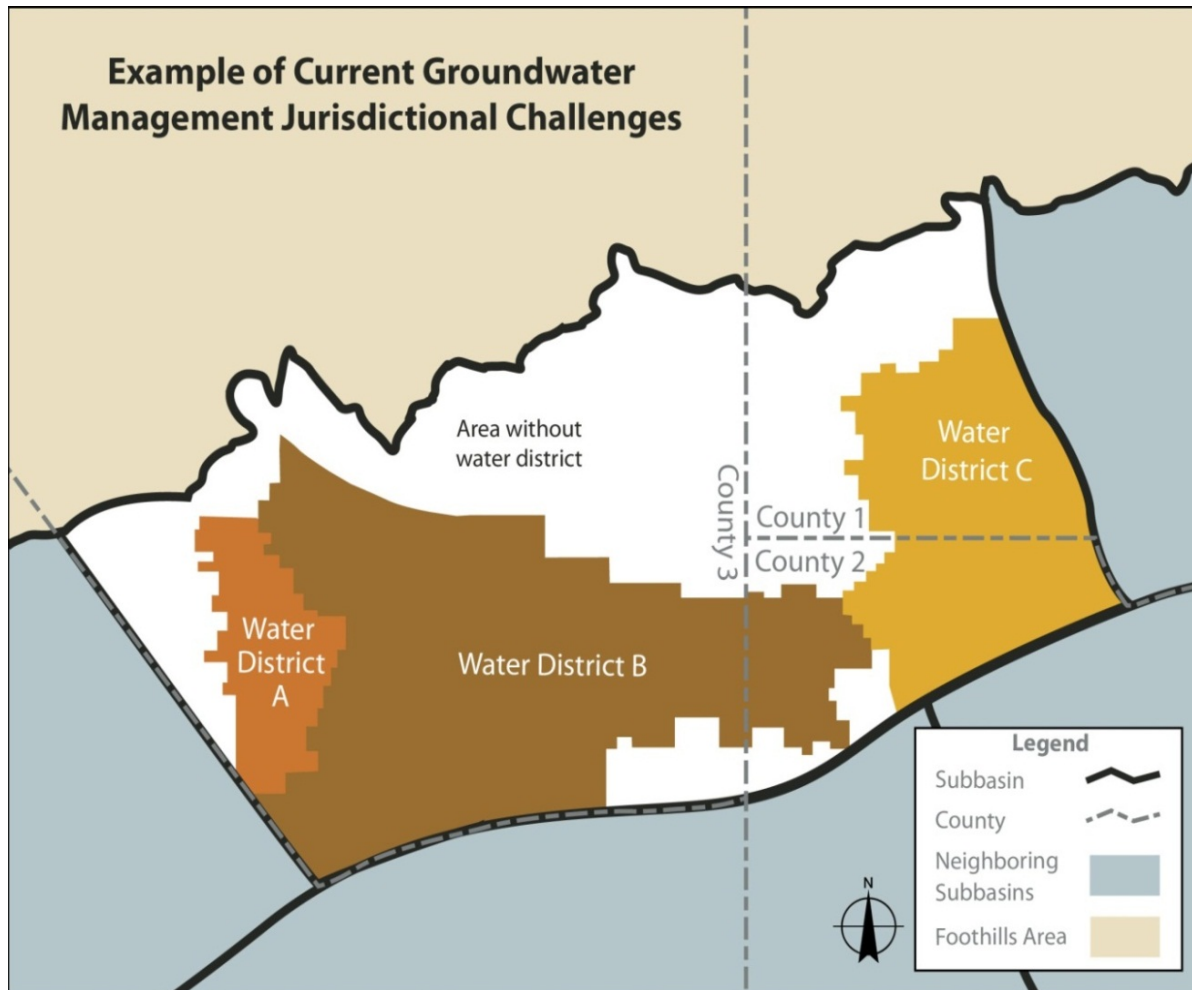
*Comprehensive legislation to manage groundwater to sustainable levels*

- High and Medium Priority Basins
  - Formation of a GS Agency
  - Preparation of GS Plan
    - Basin conditions & water budget
    - Measurable objectives & 5-year milestones
    - Achieve sustainability in 20 years
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# CASGEM Basin Prioritization



# Jurisdiction Formation

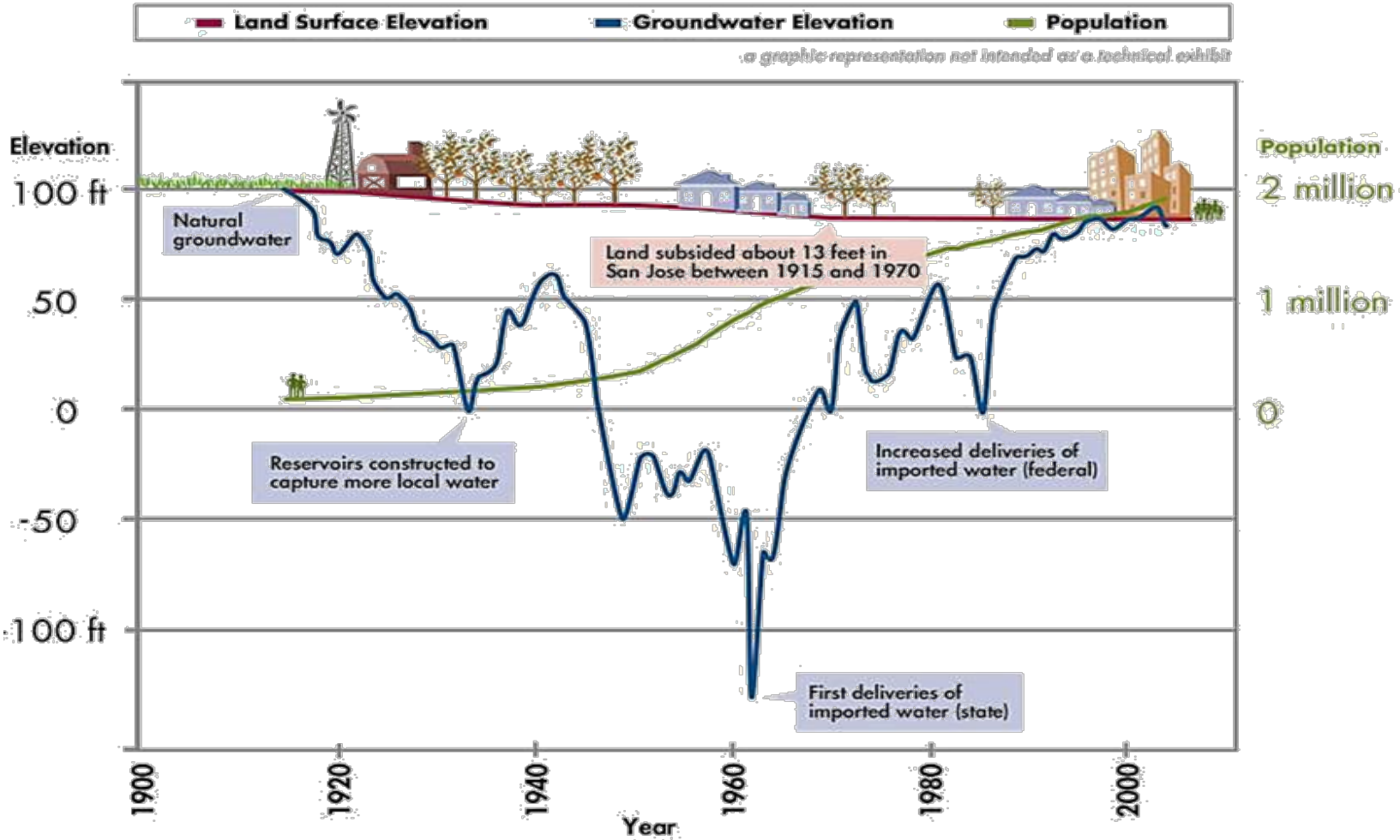


### *Groundwater Management Must Be Part of Statewide Comprehensive Program*

- Local managers cannot tackle this problem alone  
Groundwater sustainability will require action at the state and federal level
- We must act on a comprehensive plan
- The governor's California Water Action Plan and Proposition 1 are a good start



# Groundwater Lessons Learned: Santa Clara County





## Bond Summary

- \$520 million for projects that provide clean, safe and reliable drinking water
- \$1.495 billion for multibenefit ecosystem & watershed protection & restoration projects
- \$810 million to the Integrated Regional Water Management Program for projects that respond to climate change & contribute to regional water security
- \$2.7 billion for statewide water system operational improvements & drought preparedness
- \$725 million for water recycling & advanced treatment technology projects
- \$900 million for groundwater sustainability
- \$395 million statewide flood management projects and activities

# Conservation Efforts



Drip Irrigation

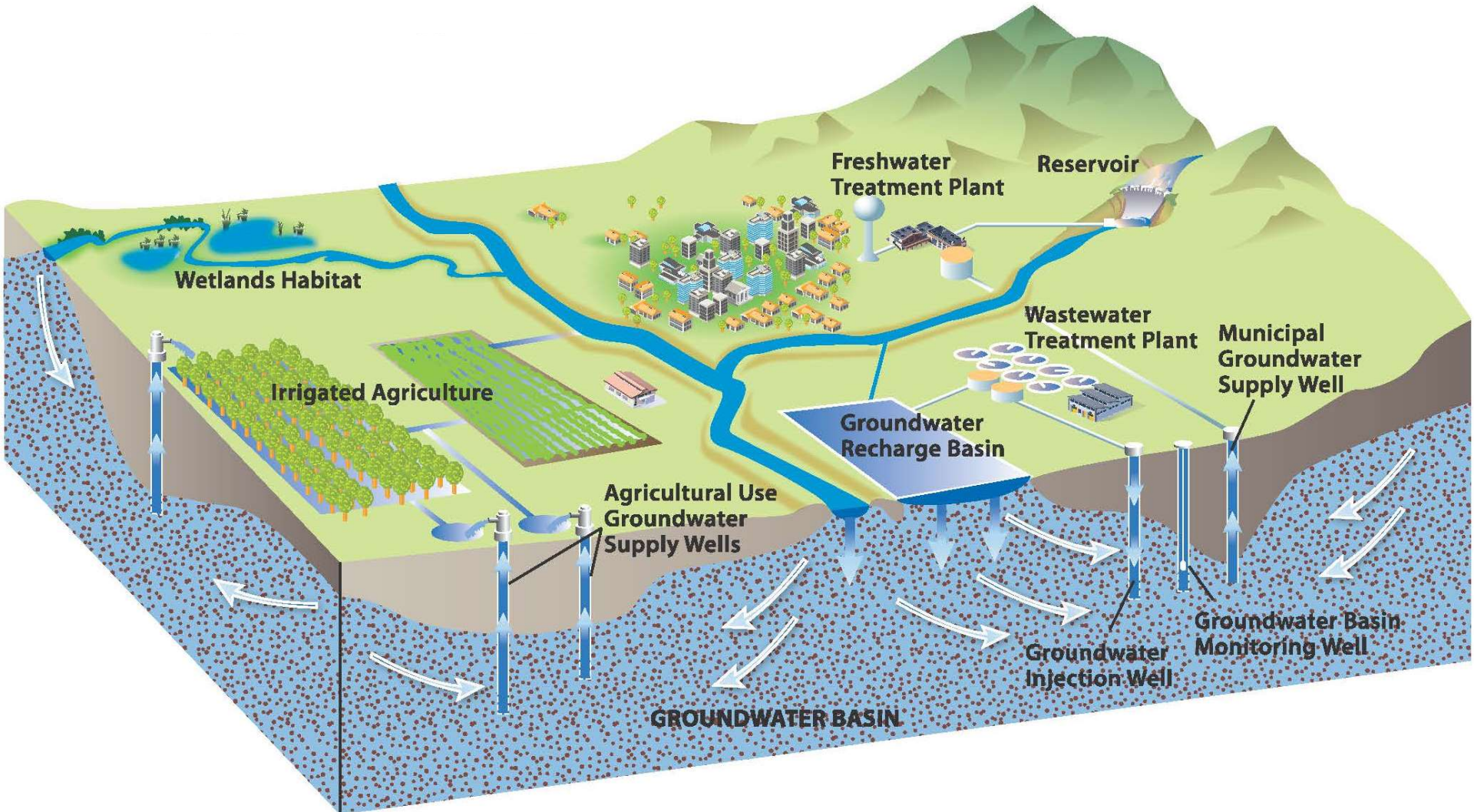


Water Use Efficiency



Recycled Water

# Integrated Water Management



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