

Sustainable Groundwater Management Act: Implementation Update



CEAC Flood Control and Water
Resources Policy Committee

August 17, 2016

Mark Nordberg

Senior Engineering Geologist

Sustainable Groundwater
Management Program



Presentation Overview

Summary of:

- GSP Emergency Regulations
- GSA Formation
- Basin Boundary Modifications
- Basin Re-Prioritization
- Bulletin 118 Updates
- Water Available for Replenishment
- Proposition 1 Funding
- Technical Assistance



Groundwater Sustainability Plan Emergency Regulations

GSP Emergency Regulations – 9 Articles

1. Introductory Provisions

2. Definitions

3. Technical and Reporting Standards

1. Monitoring Protocols
2. Data and Reporting Standards
3. Data Management System

4. Procedures

1. Information Provided by the Department
2. Reporting Provisions
3. Initial Notification
4. Comments
5. Withdrawals or Amendments

5. Plan Contents

1. Administrative Information
2. Basin Setting
3. Sustainable Management Criteria
4. Monitoring Networks
5. Projects and Management Actions

6. Department Evaluation and Assessment

7. Annual Reports and Periodic Evaluations by the Agency

8. Interagency Agreements

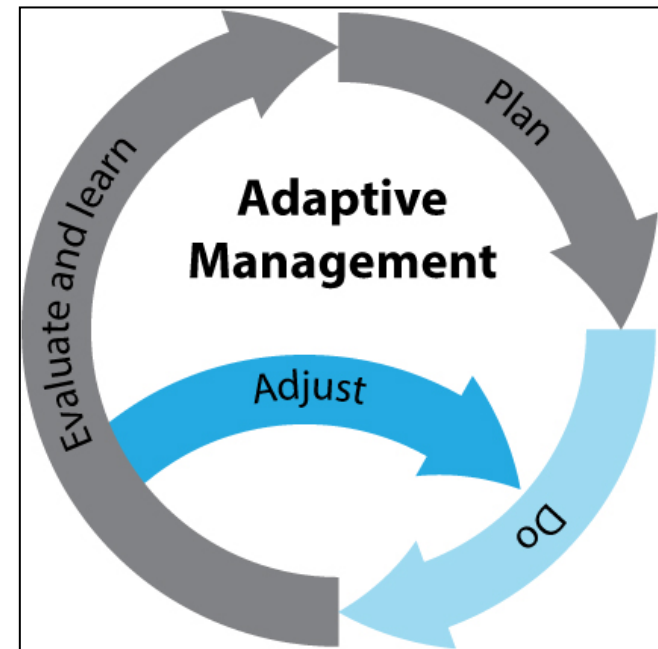
9. Alternatives

Article 1. Introductory Provisions

§ 350.4 General Principles

Groundwater Sustainability Plans:

- Must achieve the sustainability goal for the entire basin within 20 years.
- Should not adversely affect an adjacent basin.
- Must meet a substantial compliance standard.
- Defines the basin setting and basin-wide management criteria that will achieve and maintain sustainability.

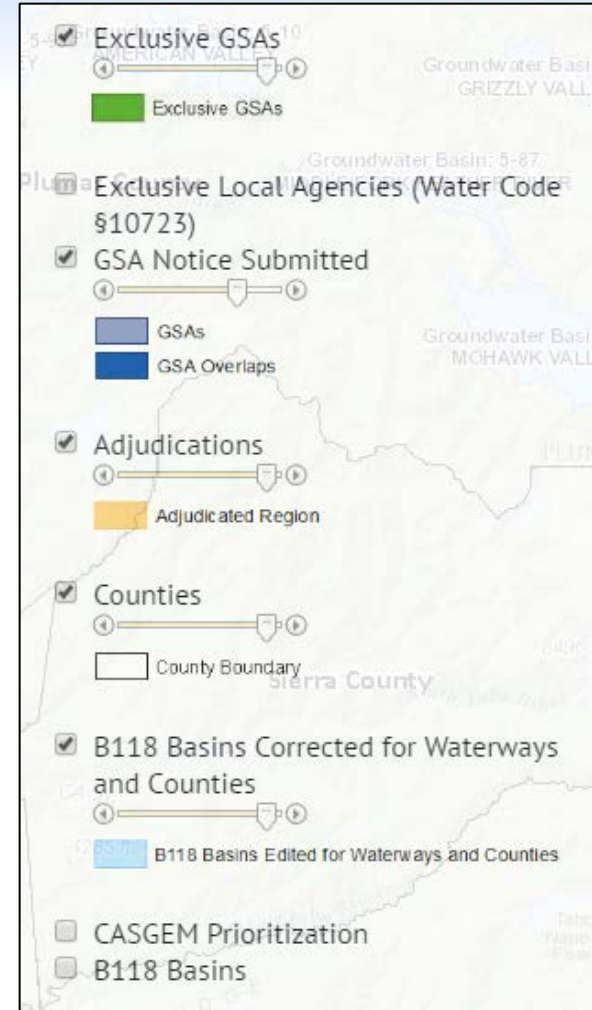
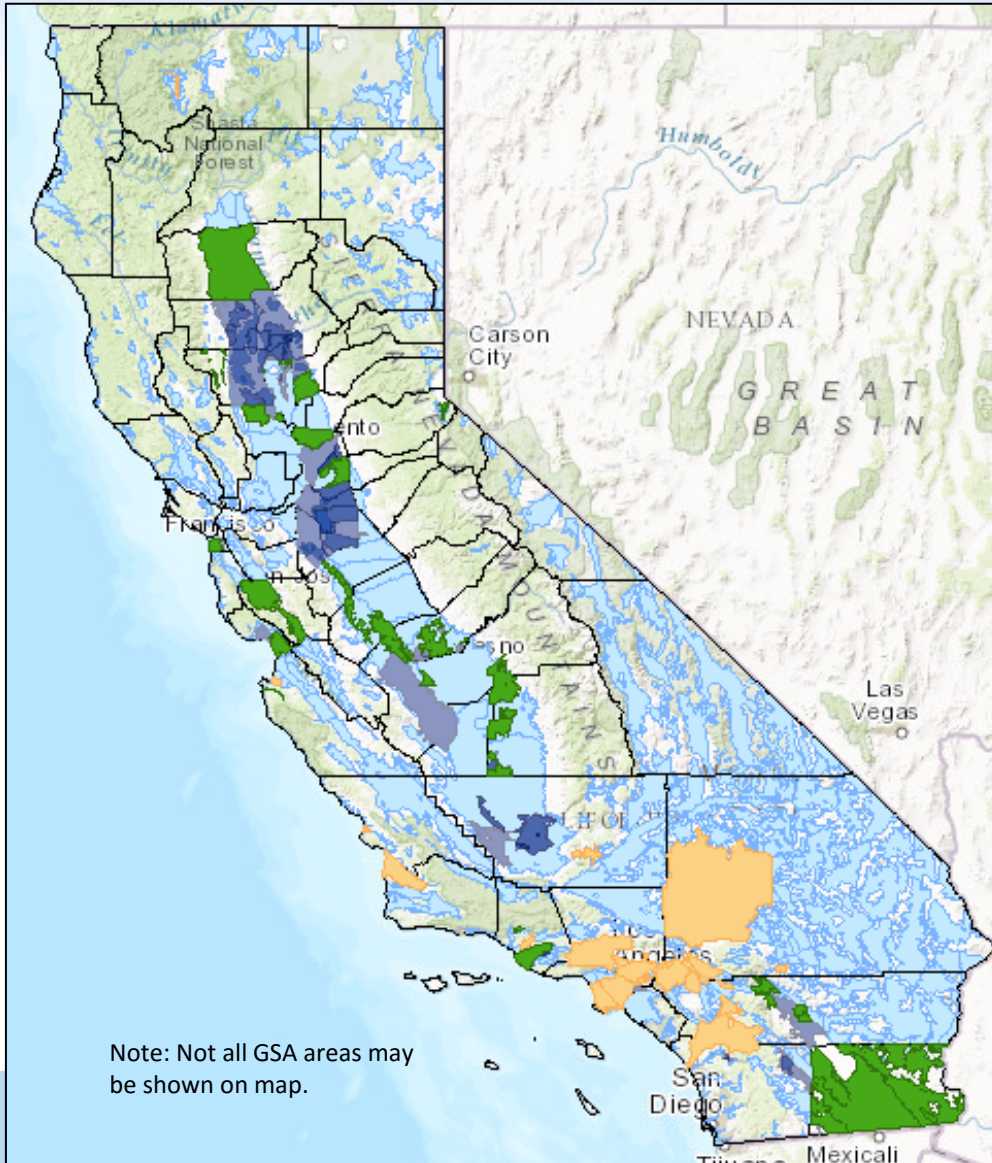




Groundwater Sustainability Agencies

Status of GSA Formations

http://water.ca.gov/groundwater/sgm/gsa_map.cfm

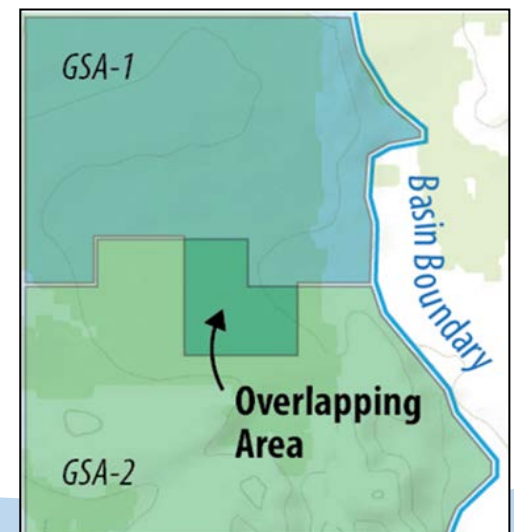


Note: Not all GSA areas may be shown on map.

Status of GSA Formations

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

- **111** separate GSA formation notices have been submitted as of August 5, 2016.
 - **66** have overlap in one or more basins that must be resolved.
 - **33** are “Exclusive GSAs” in one or more basins.
 - **13** have an active 90-day period in one or more basins.
 - **3** are incomplete.
- **74** basins have GSAs.
 - **44** basins are high- or medium-priority.
 - **30** basins are low- or very-low priority.
- **27** counties have GSAs.



GSA On-line Tool

- A GSA on-line tool is being developed.
- Local agencies will be required to upload the following:
 - Single- or multi-agency contact information
 - Service area boundaries
 - GSA area boundaries
 - Legal documents, etc.
 - All applicable information associated with Water Code Section 10723.8.
- DWR will review the information and will determine if it is complete



Basin Boundary Modifications

DWR Basin Modification Tools

1. DWR Basin Boundary Modification Website (Informational)

http://www.water.ca.gov/groundwater/sgm/basin_boundaries.cfm



Basin Boundary Modifications

- List of Draft Approved Basin Boundary Modifications - explanation of recommended modifications and link to original BBMRs submittal.
- Map of Draft Approved Basin Boundary Modifications - to view draft approved basin boundary modifications select the "Draft Bulletin 118 Basins (2016 Edits)" layer.
- Technical Memorandum - 2016 Draft Basin Boundary Modification Recommendations

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.

Following the adoption of DWR's Basin Boundary Emergency Regulations, DWR provided an online Basin Boundary Assessment Tool (BBAT) to inform local agencies and the public about the existing Bulletin 118 groundwater basins and other relevant geologic and geographic data. DWR's Basin Boundary Modification Request System (BBMRS) enables local agencies to submit their requests for basin boundary modifications online and the public to view those requests and provide comment.

Draft Approved Basin Boundary Modifications

The Draft Approved Basin Boundary Modifications were developed through DWR's technical review of basin boundary modification requests and public comment made during the submission period, January 1, 2016 through March 31, 2016. Future basin boundary modification submission periods will likely be based on demand and

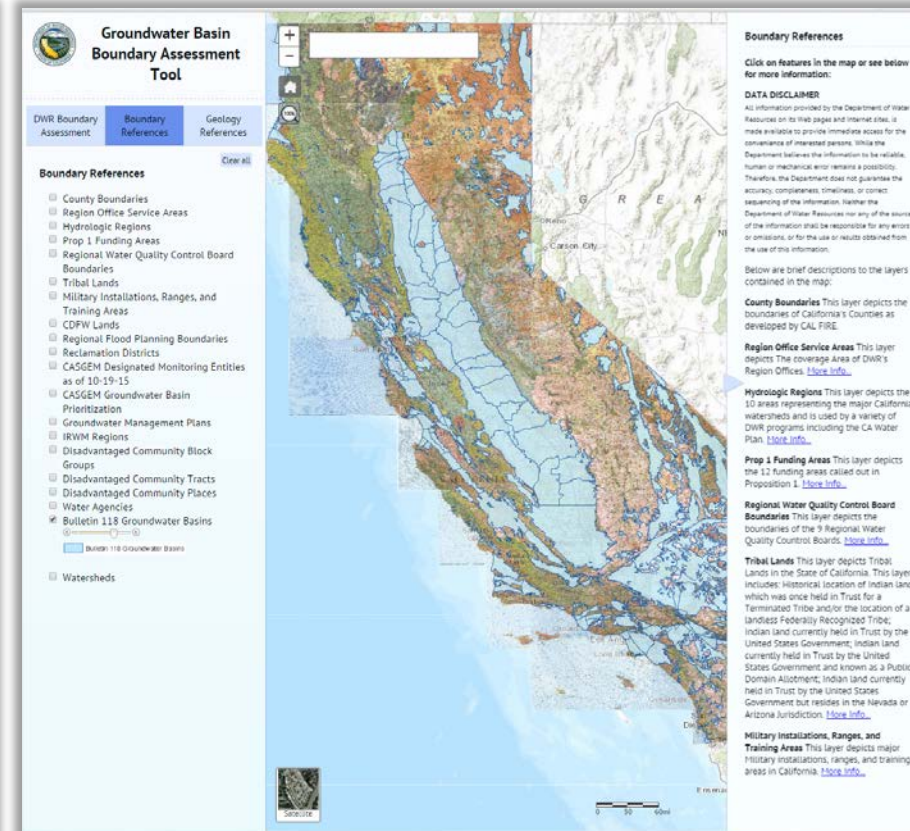
GROUNDWATER HOME

SUSTAINABLE GROUNDWATER MANAGEMENT

- Adjudicated Basin Reporting
- Basin Boundary Modifications
 - BBAT - Basin Boundary Assessment Tool
 - BBMRS - Basin Boundary Modification Request System
- Best Management Practices
- Critically Overdrafted Basins
- Communication and Outreach
 - Advisory Groups
 - Statewide SGMA Calendar
 - Region Office Contacts
 - Subscribe for Email Updates
- Groundwater Sustainability Agencies
 - GSA Formation Table
 - GSA Interactive Map
 - GSA Notice Revisions
- Groundwater Sustainability Plan Regulations

2. DWR Basin Boundary Assessment Tool (Technical)

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



Groundwater Basin Boundary Assessment Tool

Boundary References

- County Boundaries
- Region Office Service Areas
- Hydrologic Regions
- Prop 1 Funding Areas
- Regional Water Quality Control Board Boundaries
- Tribal Lands
- Military Installations, Ranges, and Training Areas
- CDPW Lands
- Regional Flood Planning Boundaries
- Reclamation Districts
- CASGEM Designated Monitoring Entities as of 10-19-15
- CASGEM Groundwater Basin Prioritization
- Groundwater Management Plans
- IKWM Regions
- Disadvantaged Community Block Groups
- Disadvantaged Community Tracts
- Disadvantaged Community Places
- Water Agencies
- Bulletin 118 Groundwater Basins
- Watersheds

Boundary References

Click on features in the map or see below for more information:

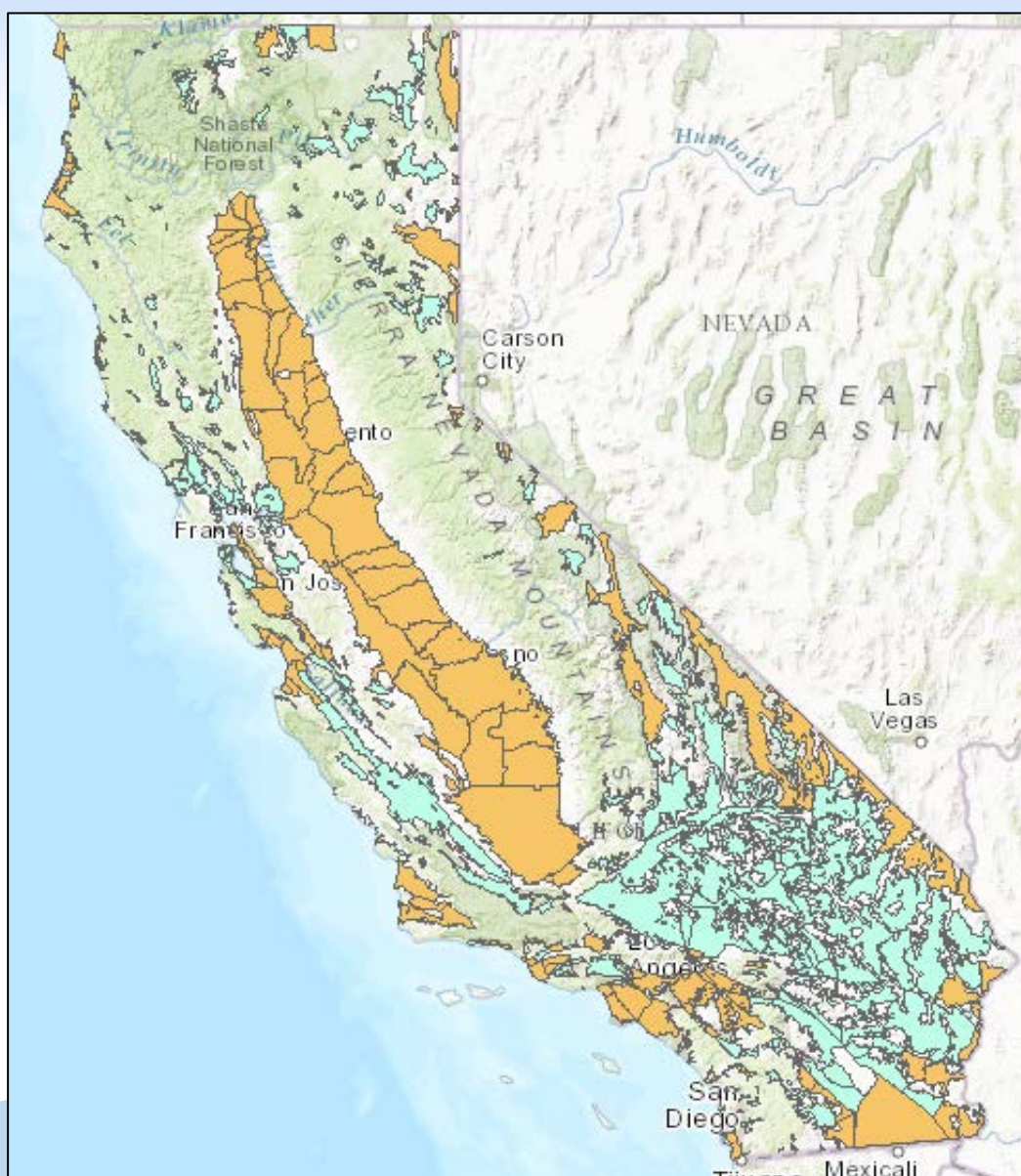
DATA DISCLAIMER

All information provided by the Department of Water Resources on its Web pages and Internet sites, is made available to provide immediate access for the convenience of interested parties. While the Department believes the information to be reliable, human or mechanical error remains a possibility. Therefore, the Department does not guarantee the accuracy, completeness, timeliness or correct sequencing of the information, neither the Department of Water Resources nor any of the sources of the information shall be responsible for any errors or omissions, or for the use or results obtained from the use of this information.

Below are brief descriptions to the layers contained in the map:

- County Boundaries** This layer depicts the boundaries of California's Counties as developed by CAL FIRE.
- Region Office Service Areas** This layer depicts the coverage Area of DWR's Region Offices. [View info.](#)
- Hydrologic Regions** This layer depicts the 10 areas representing the major California watersheds and is used by a variety of DWR programs including the CA Water Plan. [View info.](#)
- Prop 1 Funding Areas** This layer depicts the 12 funding areas called out in Proposition 1. [View info.](#)
- Regional Water Quality Control Board Boundaries** This layer depicts the boundaries of the 9 Regional Water Quality Control Boards. [View info.](#)
- Tribal Lands** This layer depicts Tribal Lands in the State of California. This layer includes: Historical location of Indian land which was once held in Trust for a Terminated Tribe and/or the location of a landless Federally Recognized Tribe; Indian land currently held in Trust by the United States Government; Indian land currently held in Trust by the United States Government and known as a Public Domain Allotment; Indian land currently held in Trust by the United States Government but resides in the Nevada or Arizona Jurisdiction. [View info.](#)
- Military Installations, Ranges, and Training Areas** This layer depicts major Military installations, ranges, and training areas in California. [View info.](#)

Boundary Modification Draft Results



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



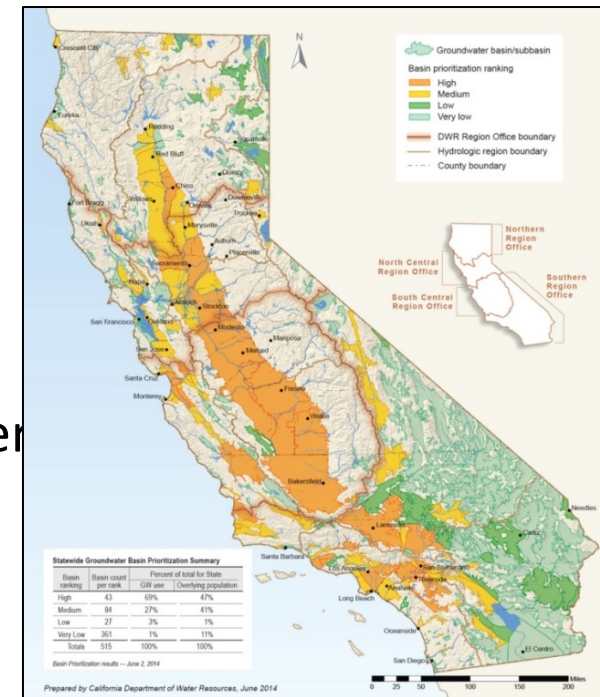
Basin Prioritization

SGMA Basin Prioritization

California Water Code §10933(b)

Must consider the following:

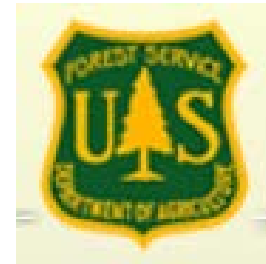
1. The population overlying the basin.
2. The rate of current and projected growth of the population.
3. The number of public supply wells.
4. The total number of wells.
5. The irrigated acreage.
6. The degree to which persons rely on groundwater as their primary source of water.
7. Any documented impacts on the groundwater, including overdraft, subsidence, saline intrusion, and other water quality degradation.
8. Any other information determined to be relevant by the Department, ***including adverse impacts on local habitat and local stream flows.***



Statewide Collaboration



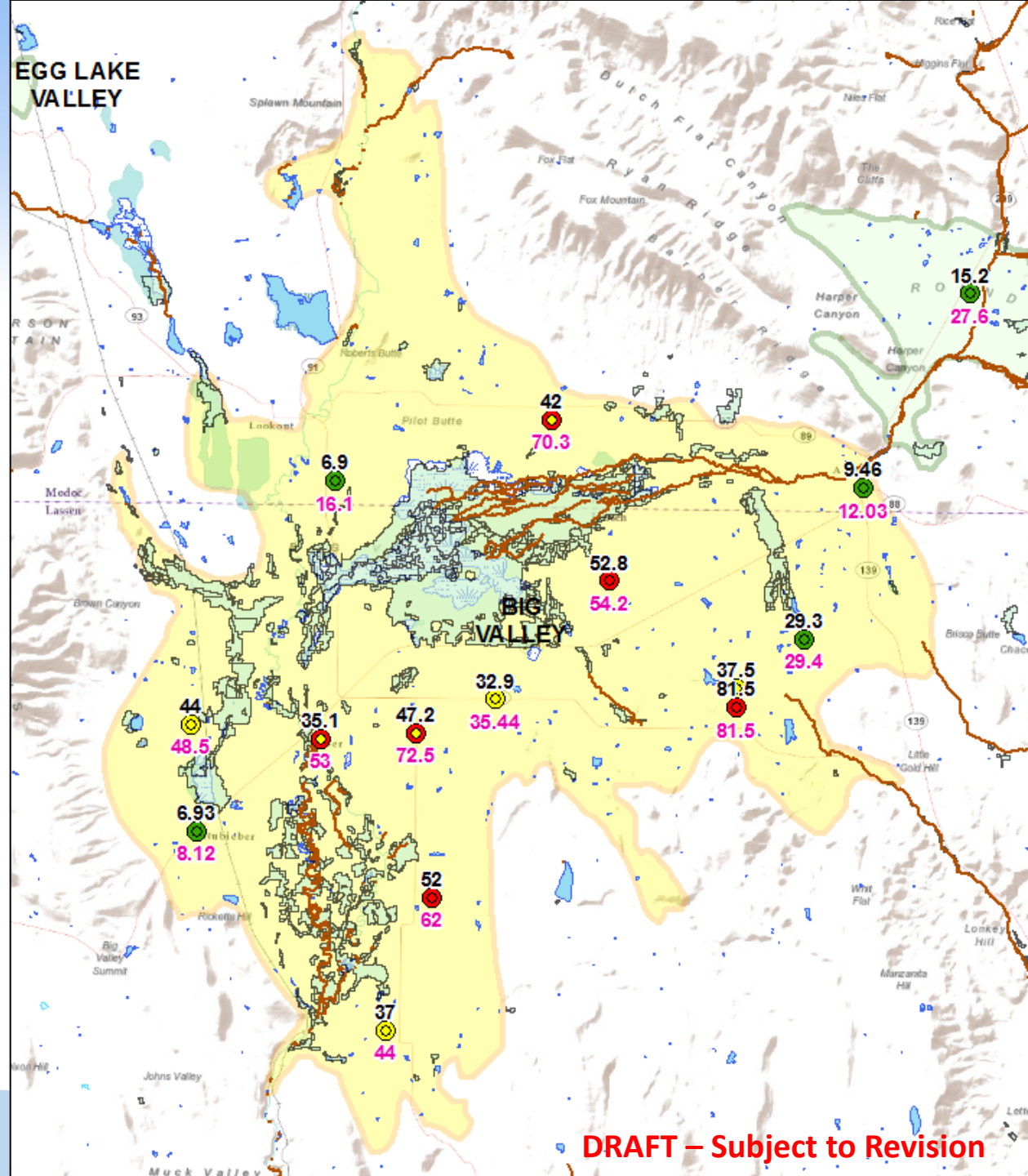
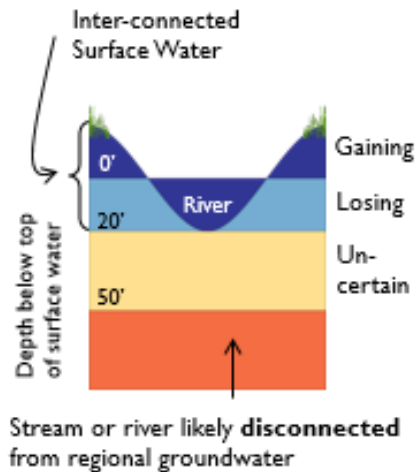
Stanford | Water in the West



NOAA FISHERIES
NATIONAL OCEANIC AND ATMOSPHERIC ADMINISTRATION



Potential Adverse Impacts to Stream Flow and Habitat





Bulletin 118 – California’s Groundwater

Interim B-118 Update (2016)

- Determination of basins with conditions of critical overdraft
 - Must be published in B-118 by January 1, 2017
- Identifies those basins needing to submit GSPs by January 31, 2020
- Basin boundary modification results
- Basin re-prioritization results
 - Published as an addendum to the Interim Update in Spring 2017

Comprehensive B-118 Update (2020)

- Referenced by SGMA and California Water Action Plan
- Must occur every 5 years beginning in 2020
- Build on California's Groundwater Update 2013
- Integrate SGMA information
- Inform California Water Plan
- Provide findings and recommendations to improve groundwater management



Water Available for Replenishment of Groundwater

WAFR Legislation

Water Code Section 10729(c):

- *The department shall prepare and publish a report by December 31, 2016, on its Internet Web site that presents the department's best estimate, based on available information, of water available for replenishment of groundwater in the state.*

Water Code Section 10727.2(d)(5):

- *A description of surface water supply used or available for use for groundwater recharge or in-lieu use.*

Report Outline

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

- Chapter 1: Introduction and Purpose
- Chapter 2: How to Use this Report
- Chapter 3: Description of Water Available for Replenishment
- Chapter 4: Water Available Information and Estimates
- Chapter 5: State Water Project and Central Valley Project and Water Available
- Chapter 6: Water Available Roadmaps, by Method
- Chapter 7: Replenishment Roadmaps, by Replenishment Method
- Chapter 8: Next Steps

Best Management Practices



BMP Legislation

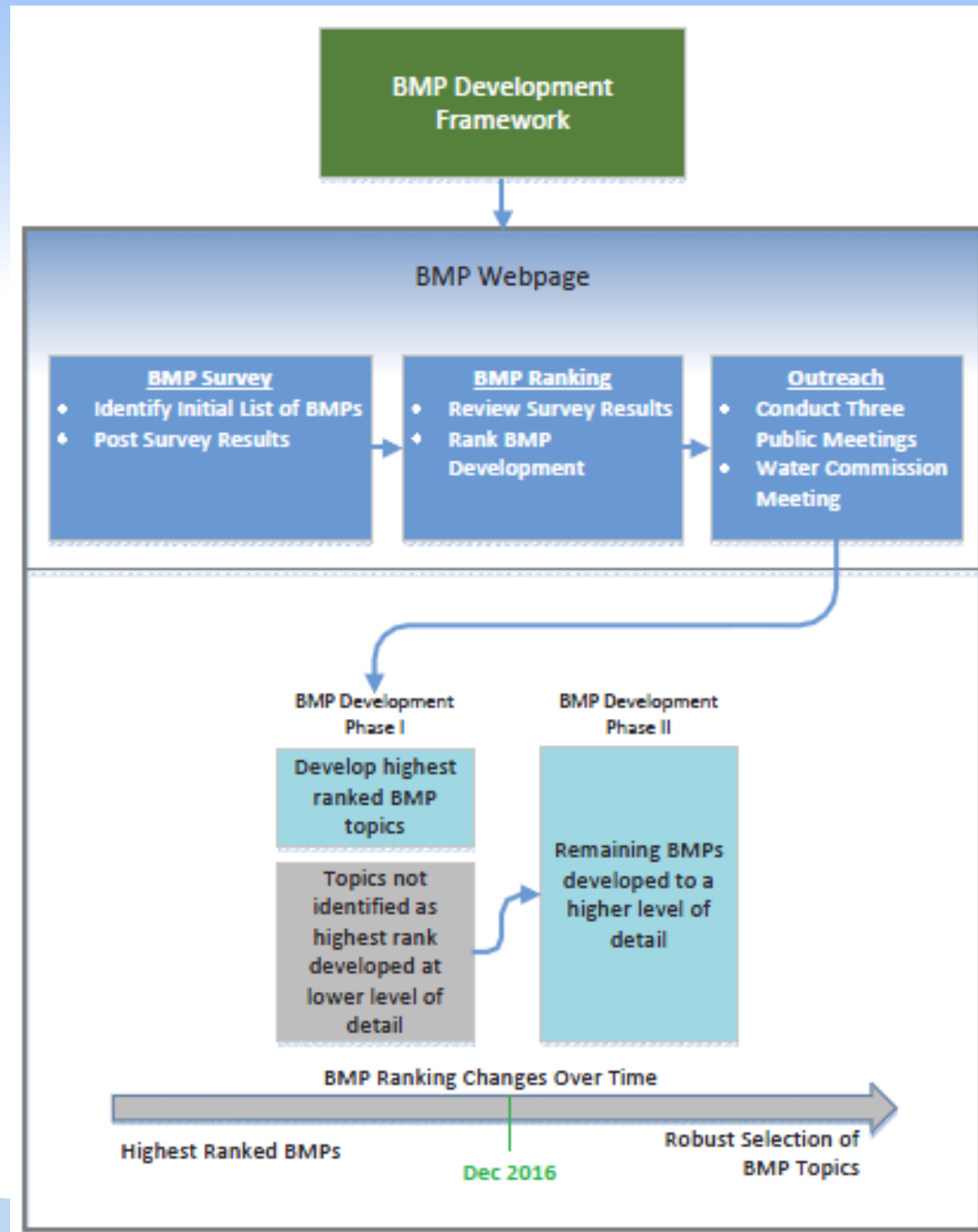
Water Code Section 10729(d):

(1) By January 1, 2017, the department shall publish on its Internet Web site best management practices for the sustainable management of groundwater.

(2) The department shall develop the best management practices through a public process involving a location in the San Joaquin Valley, one public meeting conducted at a location in southern California, and one public meeting of the California Commission.

Multi-Step Approach

- Phase I
 - Survey
 - Ranking
 - Public Meetings
- Phase II (Tentative)



BMP Survey Responses

BMP	Responses
Establishing measurable objectives	42
Assessment of undesirable results	41
Practices to assess sustainability and monitor basin conditions	36
Evaluating and presenting current and historical conditions	35
Methods for developing water budgets	32
Managing uncertainty	29
Developing and presenting hydrogeological conceptual models	29
Establishing minimum thresholds	27
Data management system requirements	25
Modeling requirements	23
Reporting standards	20
Practices to manage water supplies	18
Practices to manage water demands	18
Identification of data gaps	14
Monitoring standards	13
Evaluation checklist before GSP submittal	12
Monitoring networks	11
Development of a GSP annotated outline	8
Monitoring protocols	7
Annual report formatting tool	7
Monitoring sites	4
Map requirements	4



Proposition 1 Grants



SGWP Grant Program Overview

Proposition 1 – Chapter 10. Groundwater Sustainability

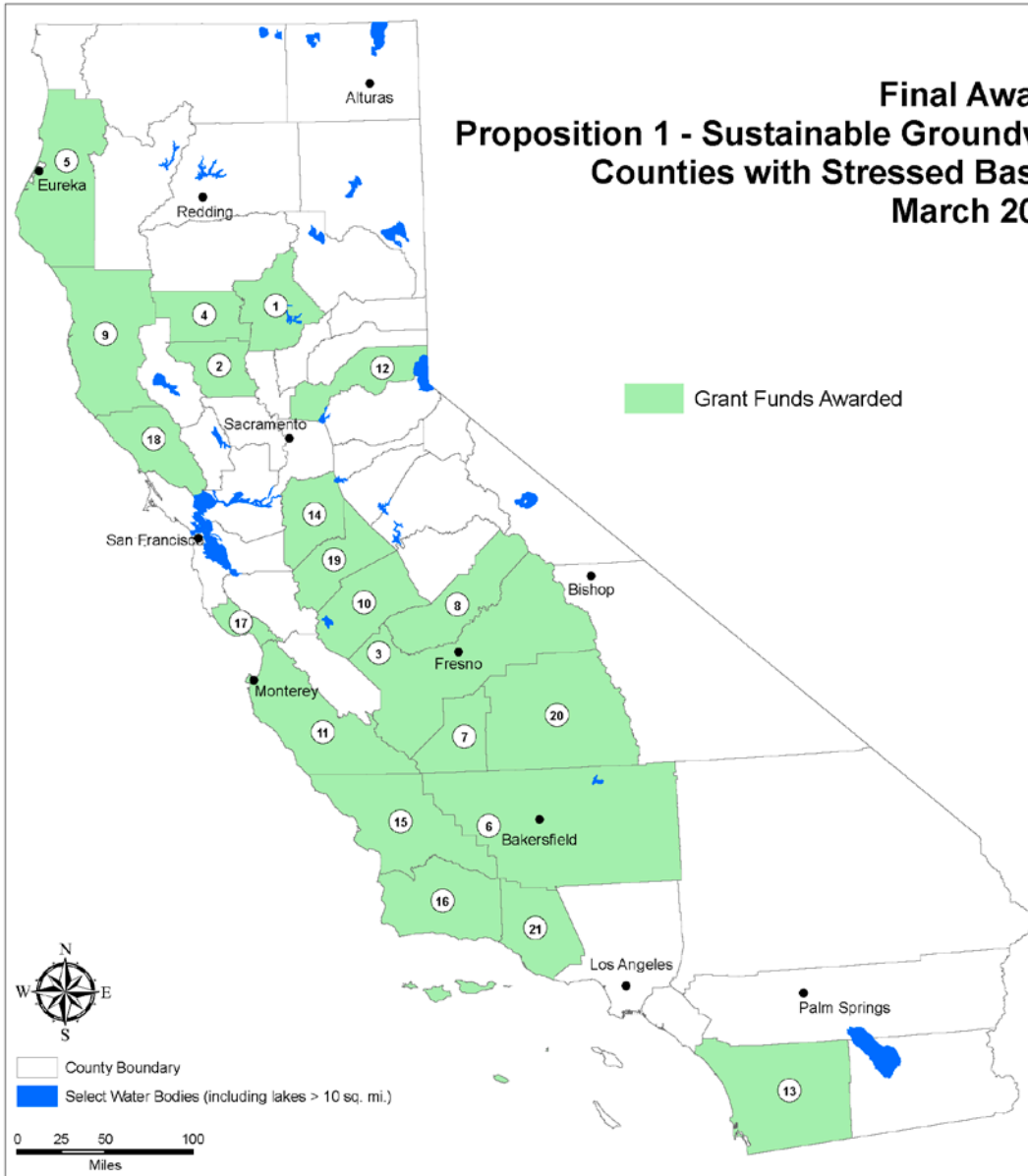
- Allocated \$900M in funds for Groundwater
 - \$800M - SWRCB
 - \$100M - DWR
- \$100M for competitive grants to develop and implement groundwater plans and projects
- Required Local Cost Share
 - At least 50% of total project cost
 - Waiver for Disadvantaged Community (DAC) or Economically Distressed Area (EDA)

Final Awards

Proposition 1 - Sustainable Groundwater Planning Grant Program

Counties with Stressed Basins Grant Solicitation

March 2016



ID	County	Project Title	Total Project Cost	Grant Award
1	Butte	Evaluation of Restoration and Recharge Potential Within the Groundwater Basins of Butte County	\$ 249,272	\$ 249,272
2	Colusa	A Program to Advance Groundwater Sustainability for Colusa County through Policy, Institutional, and Technical Refinement	\$ 375,932	\$ 250,000
3	Fresno	Kings/Westside Groundwater Basin Boundary Monitoring Program	\$ 500,000	\$ 500,000
4	Glenn	Data Management and Hydrogeologic Conceptual Modeling to Support a Groundwater Model in Support of Sustainable Groundwater Management Activities	\$ 259,962	\$ 249,962
5	Humboldt	Eel River Valley Groundwater Basin Assessment and Planning Project	\$ 270,418	\$ 250,000
6	Kern	Kern County Sustainable Groundwater Planning and Technical Support	\$ 1,001,300	\$ 500,000
7	Kings	Kings County Critically Overdrafted Groundwater Basin Modeling Plan	\$ 500,000	\$ 500,000
8	Madera	Madera Subbasin and Chowchilla Subbasin Groundwater Sustainability Agency (GSA) Formation	\$ 500,000	\$ 500,000
9	Mendocino	Mendocino County Initial Groundwater Sustainability Plan Development	\$ 235,414	\$ 200,000
10	Merced	Sustainable Groundwater Management Act Readiness Project	\$ 499,942	\$ 499,942
11	Monterey	Salinas Valley Groundwater Basin Assessment and Modeling	\$ 1,727,024	\$ 250,000
12	Placerr	Western Placer County Groundwater Assessment	\$ 568,569	\$ 242,016
13	San Diego	San Diego County GSA Formation and GSP Task Development	\$ 1,061,301	\$ 250,000
14	San Joaquin	San Joaquin County Sustainable Groundwater Management Act Readiness Project	\$ 499,900	\$ 249,950
15	San Luis Obispo	2015 County of San Luis Obispo Sustainable Groundwater Proposal	\$ 739,728	\$ 250,000
16	Santa Barbara	Santa Barbara County Stressed Basins Proposal for GSA formation for the Cuyama Valley and San Antonio Creek Groundwater Basins	\$ 519,240	\$ 249,240
17	Santa Cruz	Santa Cruz Mid-County Groundwater Management Program	\$ 506,777	\$ 249,000
18	Sonoma	Sonoma County Sustainable Groundwater Data Management System	\$ 654,100	\$ 250,000
19	Stanislaus	Programmatic Environmental Impact Report for Implementation of the Stanislaus County Groundwater Ordinance	\$ 585,000	\$ 250,000
20	Tulare	Tulare County 2015 SGMA Planning Grant	\$ 661,000	\$ 500,000
21	Ventura	Development of Groundwater Sustainability Plans for Two County of Ventura Critically Overdrafted Basins	\$ 551,807	\$ 250,000
			\$ 12,466,686	\$ 6,689,382



Technical Assistance

SGMA Technical Assistance – Water Code §10729

(b) The department may provide technical assistance to any GSA in response to that agency's request for assistance in the development and implementation of a GSP. The department shall use its best efforts to provide the requested assistance.

DWR GSA Assistance

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

Governor Jerry Brown, September 2014



Financial Assistance

- Prop 1

Planning Assistance

*- Facilitation
- GSA Support*

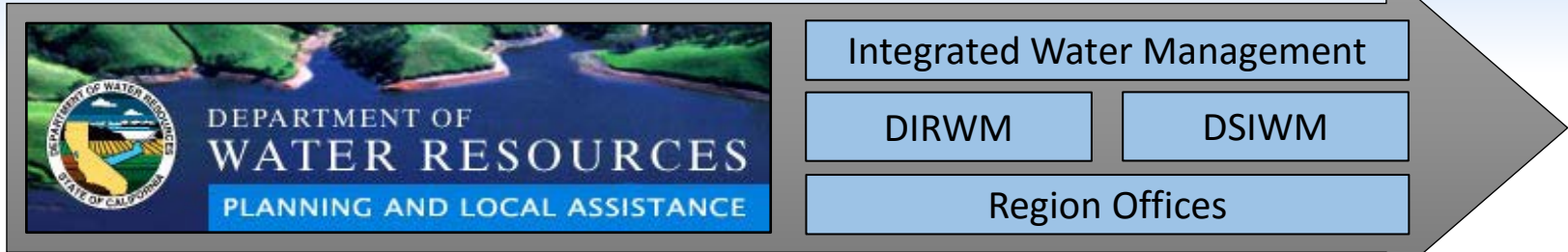
Technical Assistance

*- Statewide Datasets, Analysis, and Tools
- Best Management Practices
- Water Available for Replenishment Report*

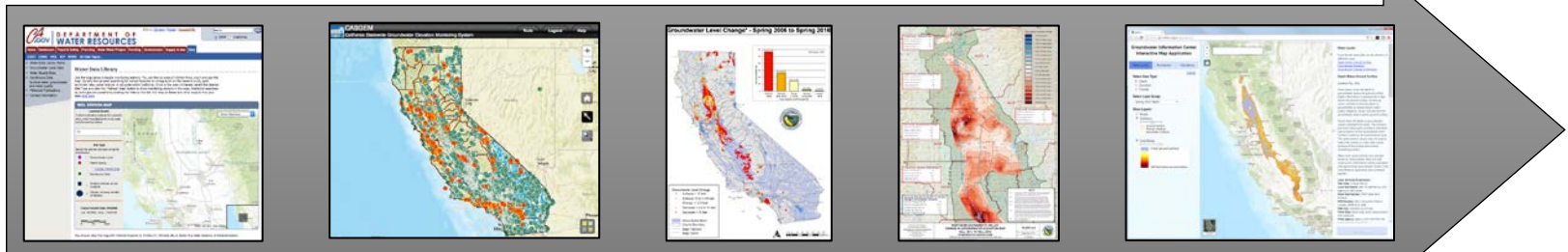
Sustainable
Groundwater
Management

Legacy of Local Assistance

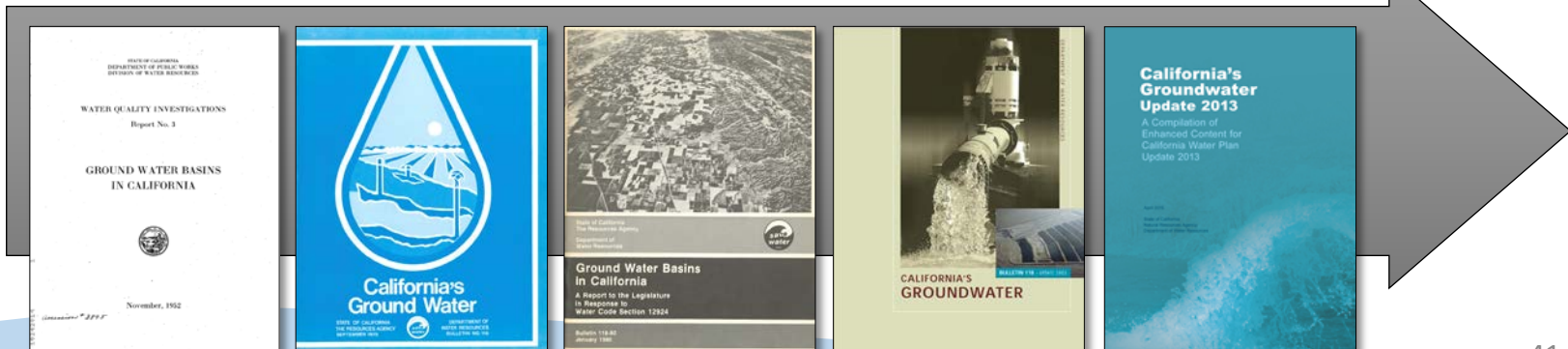
Technical Expertise



Data, Tools, and Analysis



Reports



1952

B-118-75

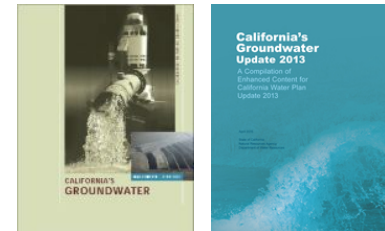
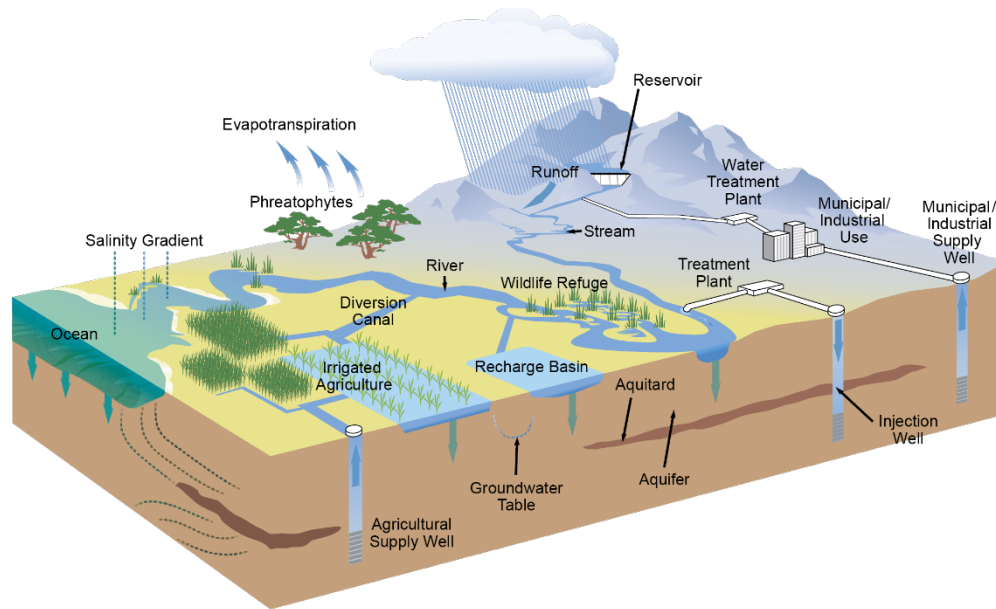
B-118-80

B-118-03

CA Water Plan

SGMA Data Needs

- >80 – GSP requirements to compile data
- >20 – Websites containing SGMA data



Existing Statewide Datasets

The screenshot displays the 'Groundwater Information Center Interactive Map Application' in a web browser. The interface includes a navigation sidebar on the left with tabs for 'Water Levels', 'Boundaries', and 'Subsidence'. Under 'Water Levels', the 'Select Data Type' section has radio buttons for 'Depth', 'Elevation', and 'Change', with 'Depth' selected. The 'Select Layer Group' dropdown is set to 'Spring 2015 Depth'. The 'Show Layers' section has checkboxes for 'Points' and 'Contours', with 'Contours' checked. A 'ColorRamp' legend shows a gradient from blue (0 feet) to red (400 feet below ground surface). The main map area shows California with a color-coded overlay representing groundwater depth, with a 'Satellite' view button at the bottom left. On the right, a 'Water Levels' panel provides information on data viewing options (Depth below Ground Surface, Groundwater Elevation, Groundwater Change in Elevation), a 'Depth Below Ground Surface' section with an update date of May 2016, and a 'Layer Attribute Explanation' table. A 'Download' button is located at the bottom right of the page.

Groundwater Information Center Interactive Map Application

Water Levels | Boundaries | Subsidence

Clear all

Select Data Type:

- Depth
- Elevation
- Change

Select Layer Group:

Spring 2015 Depth

Show Layers:

- Points
- Contours
 - Ground Surface
 - Primary Contour
 - Secondary Contour

ColorRamp

0 feet (ground surface)

400 feet below ground surface

Water Levels

Groundwater level data can be viewed in 3 different ways:

- [Depth below Ground Surface](#)
- [Groundwater Elevation](#)
- [Groundwater Change in Elevation](#)

Depth Below Ground Surface

Updated May 2016

These layers show the depth to groundwater below the ground surface. Depth information is represented in feet below the ground surface. Increasing values indicate increasing depth to groundwater (or deeper/lower water levels). Negative values indicate that the groundwater level is above ground surface.

Points show the depth to groundwater values collected from wells. The contours and color ramp layers provide a smoothed approximation of the groundwater level "surface" based on the measurement data. The measurement values may not exactly match the contour or color ramp values because of the surface and contour smoothing process.

Water level measurements are selected based on measurement date and well construction information (where available) and approximate groundwater levels in the unconfined to uppermost semi-confined aquifers.

Layer Attribute Explanation:

Site Code:	Unique Well ID
Local Well Name:	Well ID defined by local agency or well owner
State Well Number:	DWR State Well Number
WCR Number:	Well Completion Report number (DWR form 188)
Well Use:	Intended use of well
Msmt Date:	Date water level measurement was collected
Msmt Agency:	Agency that collected the water level measurement

[Download](#)

Potential Statewide Datasets

gicima
https://gis.water.ca.gov/app/gicima/

Groundwater Information Center Interactive Map Application

- GWL and GWS
 - USGS GW Data
 - Well Data
 - Domestic
 - Production
 - Aquifer Data
- Water Quality
 - GAMA
 - Base of Fresh GW
- Subsidence
 - USGS Data
 - NASA – InSAR
 - Infrastructure
- SW/GW Interaction
 - Stream Gages
 - GDE's
 - Interconnected SW
- Water Budget
 - Land Use
 - ET

CLASS1	
[Orange]	Citrus Orch
[Yellow]	Deciduous
[Red]	Field Crops
[Green]	Grain and Pasture
[Brown]	Idle
[Light Green]	Pasture
[Dark Green]	Rice
[Purple]	Truck Crops
[Pink]	Vineyard
[Light Blue]	Urban Land

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

- Adjudicated Basin Reporting
- Basin Boundaries
- BMPs
- Critically Overdrafted Basins
- Communications and Outreach
- GSAs
- GSPs
- Basin Prioritization
- Water Available for Replenishment
- Resource Links

SGM Sustainable Groundwater Management

Introduction

The Department of Water Resources (DWR) has developed a Strategic Plan for its Sustainable Groundwater Management (SGM) Program. DWR's SGM Program will implement the new and expanded responsibilities identified in the 2014 Sustainable Groundwater Management Act (SGMA). Some of these expanded responsibilities include: (1) developing regulations to revise groundwater basin boundaries; (2) adopting regulations for evaluating and implementing Groundwater Sustainability Plans (GSPs) and coordination agreements; (3) identifying basins subject to critical conditions of overdraft; (4) identifying water available for groundwater replenishment; and (5) publishing best management practices for the sustainable management of groundwater.

Announcements

🚨 GSA notification received
DWR has received a notification of formation of a Groundwater Sustainability Agency. View the notification [here](#).

🚨 GSP Emergency Regulations Guide Available
The Final GSP Emergency Regulations Guide is now available online. Access it [here](#).

🚨 DWR posts Notice of Proposed Emergency Regulatory Action
DWR proposes an emergency rulemaking action under the Administrative Procedure Act that would make the regulations that establish a process by which local agencies will establish Groundwater Sustainability Plans and Alternatives effective. View the notice [here](#). View the finding of emergency [here](#).

🚨 Draft Approved Basin Boundary Modifications - Additional Information
DWR released a list and map of Draft Approved Basin Boundary Modifications and provided additional information including the presentations given at the public meetings. View the list, map, and additional information [here](#).

Best Management Practices Framework Released
DWR has established a multi-phased approach for developing BMPs to comply with the requirements described in SGMA, which are outlined in the [BMP Development Framework](#). View more information [here](#).

Sustainable Groundwater Management Program Draft Strategic Plan

DWR has developed a *Draft Strategic Plan* for its Sustainable Groundwater Management Program. The draft plan describes DWR's responsibilities and vision for carrying out the Sustainable Groundwater Management Act, a package of laws that aim to protect the groundwater basins that provide more than half of the water Californians use in dry years. The draft plan outlines key actions DWR will undertake over the next several years to position itself to better support local agencies across California to achieve sustainable groundwater management. To read the plan, click [here](#).

California Groundwater: The Sustainable Groundwater Management Act (SGMA)

The California Groundwater website offers links to partners involved in the SGMA implementation, multi-agency news and information, a groundwater blog, and the text of the SGMA legislation. [More info...](#)

GROUNDWATER HOME

SUSTAINABLE GROUNDWATER MANAGEMENT

- » [Adjudicated Basin Reporting](#)
- » [Basin Boundary Modifications](#)
 - » [BBAT - Basin Boundary Assessment Tool](#)
 - » [BBMRS - Basin Boundary Modification Request System](#)
- » [Best Management Practices](#)
- » [Critically Overdrafted Basins](#)
- » [Communication and Outreach](#)
 - » [Advisory Groups](#)
 - » [Statewide SGMA Calendar](#)
 - » [Region Office Contacts](#)
 - » [Subscribe for Email Updates](#)
- » [Groundwater Sustainability Agencies](#)
 - » [GSA Formation Table](#)
 - » [GSA Interactive Map](#)
 - » [GSA Notice Revisions](#)
- » [Groundwater Sustainability Plan Regulations](#)
 - » [GSP Public Comments](#)
- » [Initial Basin Prioritization](#)
- » [Water Available For Replenishment](#)
- » [Resources](#)
 - » [Water Mgmt. Planning Tool](#)
 - » [SGWP Grant Program](#)
 - » [Facilitation Support Services](#)
 - » [SGMA Definitions](#)
 - » [Related Links](#)
 - » [SGM Archive](#)