CALIFORNIA'S GROUNDWATER AND THE SUSTAINABLE GROUNDWATER MANAGEMENT ACT

PRESENTATION TO MENDOCINO COUNTY, UKIAH, CA

March 26, 2015

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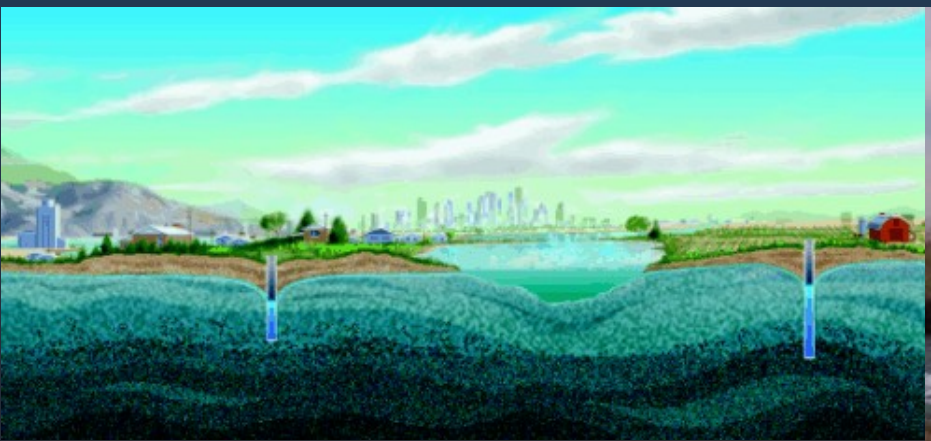
Sustainable Groundwater Management Section
California Department of Water Resources



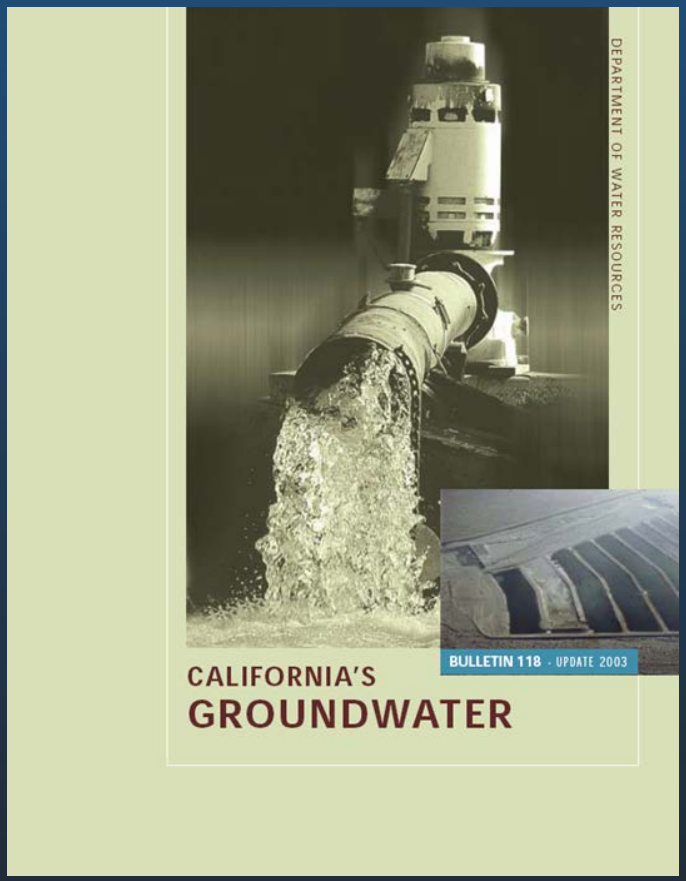
Presentation Outline

- *Bulletin 160 - California's Groundwater Update 2013 (2015)*
- Groundwater Information, Data, and Tools
- Sustainable Groundwater Management Act

DWR's Groundwater References

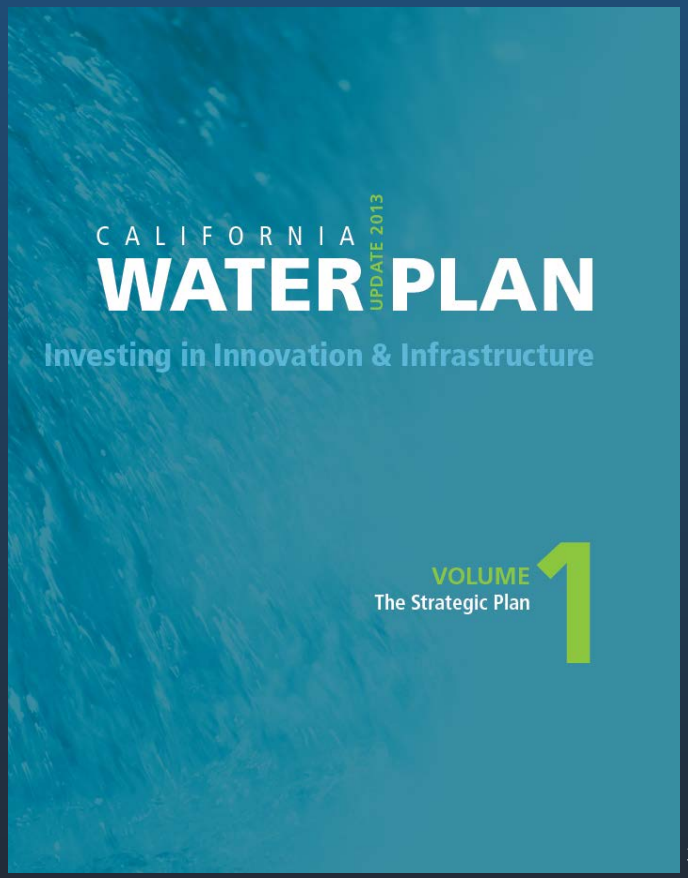
www.water.ca.gov/groundwater

Bulletin 118 (2003)



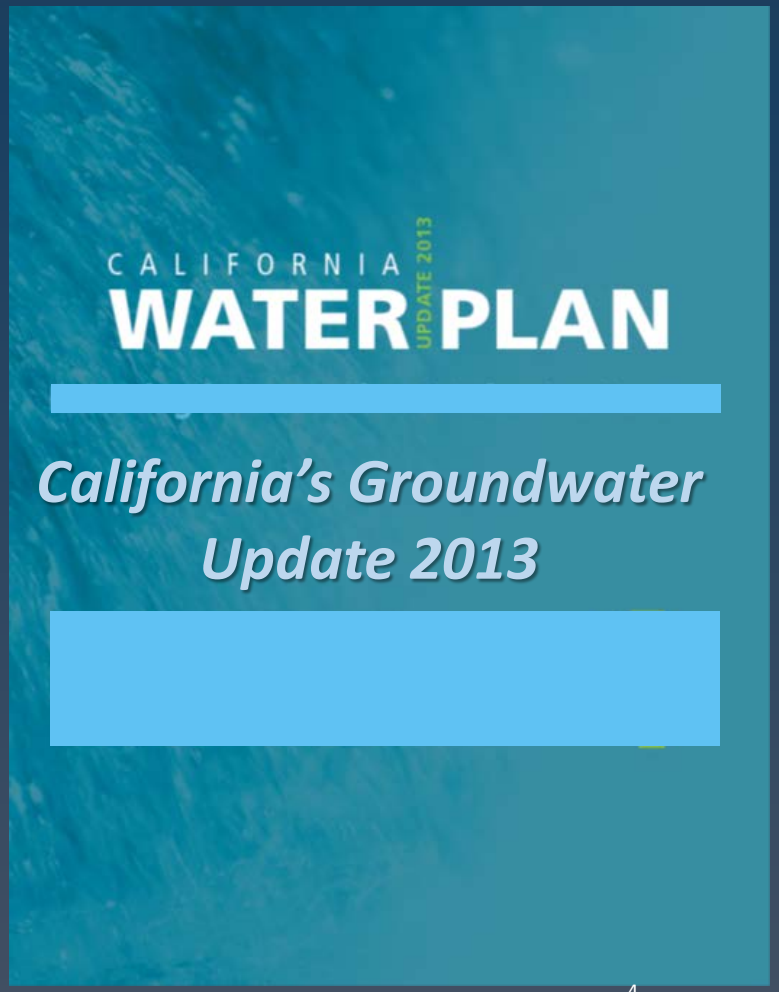
www.waterplan.water.ca.gov

Bulletin 160 (2013)



California's Groundwater Update 2013
A Comprehensive Report

1. Introduction, Findings, Gaps, Recommendations
2. Groundwater Supply and Development
   - Alluvial and Fractured Rock Aquifers
   - Well Infrastructure and Distribution
     - 1977-2010
   - CASGEM Groundwater Basin Prioritization
3. Groundwater Supply
   - Average Annual Groundwater Supply
     - 2005-2010
   - Change in Annual Groundwater Supply
     - 2002-2010
4. Groundwater Monitoring
   - Groundwater Level Monitoring
   - Groundwater Quality Monitoring
   - Land Subsidence Monitoring

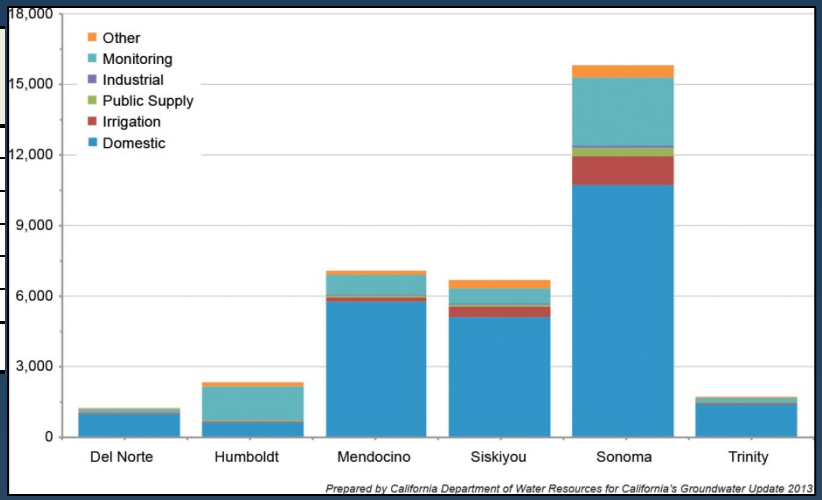


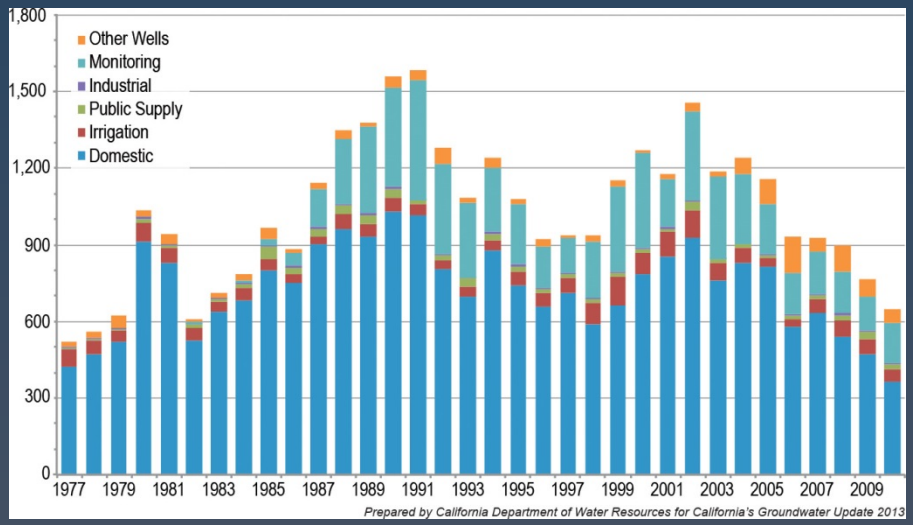
California's Groundwater Update 2013
A Comprehensive Report

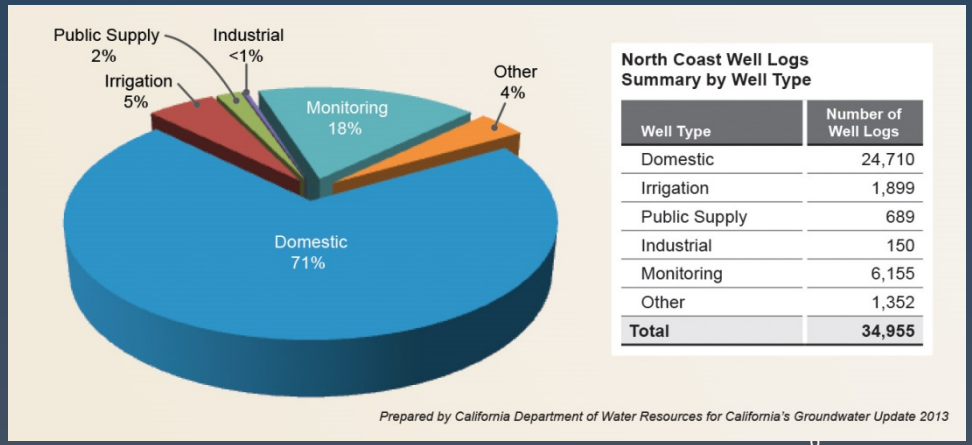
5. Aquifer Conditions
   - Groundwater Occurrence and Movement
   - Depth to Groundwater
   - Groundwater Elevation
   - Groundwater Level Trends
   - Change in Groundwater in Storage (2005-2010)
   - Groundwater Quality
   - Land Subsidence
6. Groundwater Management Planning
   - GWMP Inventory
   - GWMP Assessment
   - Groundwater Ordinances
   - Special Act Districts
   - Court Adjudications
   - Other Groundwater Management Planning Efforts
7. Conjunctive Management Inventory
   - DWR/ACWA Survey
8. References

California's Groundwater Update 2013
Findings: Well Infrastructure/Distribution (NC HR)

County	Total Number of Well Logs by Well Use						Total Well Records
	Domestic	Irrigation	Public Supply	Industrial	Monitoring	Other	
Del Norte	980	30	20	5	178	57	1,270
Humboldt	647	29	51	7	1,421	189	2,344
Mendocino	5,771	157	119	20	852	163	7,082
Siskiyou	5,120	445	86	20	663	358	6,692
Sonoma	10,750	1,215	366	95	2,878	529	15,833
Trinity	1,442	23	47	3	163	56	1,734
Total Well Records	**24,710**	**1,899**	**689**	**150**	**6,155**	**1,352**	**34,955**







California's Groundwater Update 2013 Findings: Basin Prioritization (NC HR)

California Water Code Section 10933(b):

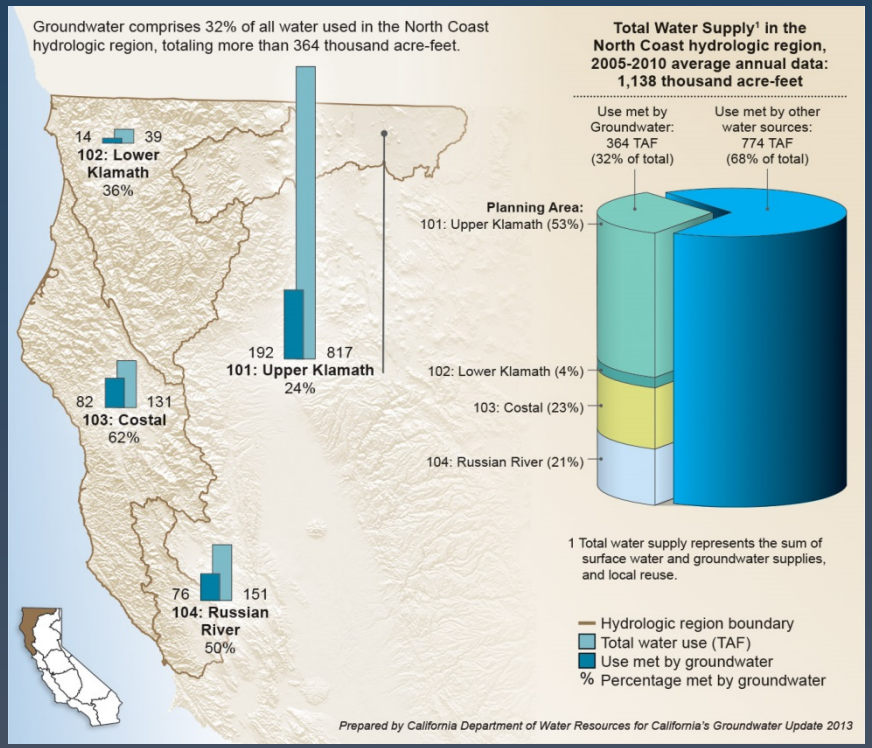
- The population overlying the basin.
- The rate of current and projected growth of the population.
- The number of public supply wells.
- The total number of wells.
- The irrigated acreage.
- The degree to which persons rely on groundwater as their primary source of water.
- Any documented impacts on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

California's Groundwater Update 2013
Findings: Groundwater Supply Data (NC HR)

2005-2010 Average Annual Total Supply
- 1,138 taf

2005-2010 Average Annual GW Supply
- 364 taf (32% of total supply)

➢ 83% GW for Agricultural Use
➢ 17% GW for Urban Use



North Coast Hydrologic Region		Agriculture Use Met by Groundwater		Urban Use Met by Groundwater		Managed Wetlands Use Met by Groundwater		Total Water Use Met by Groundwater	
PA Number	PA Name	taf	%	taf	%	taf	%	taf	%
101	Upper Klamath	182.6	33%	7.2	65%	2.5	1%	192.3	24%
102	Lower Klamath	8.2	30%	5.9	51%	0.0	0%	14.1	36%
103	Coastal	63.9	77%	18.1	37%	0.0	0%	81.9	62%
104	Russian River	46.7	62%	29.1	38%	0.0	0%	75.8	50%
2005-2010 annual average hydrologic region total:		**301.3**	**41%**	**60.3**	**41%**	**2.5**	**1%**	**364.0**	**32%**

North Coast Hydrologic Region	Agriculture Use Met by Groundwater		Urban Use Met by Groundwater		Managed Wetlands Use Met by Groundwater		Total Water Use Met by Groundwater	
County	taf	%	taf	%	taf	%	taf	%
Del Norte	4.6	49%	1.7	40%	0.0	0%	6.3	46%
Humboldt	58.5	92%	17.9	42%	0.0	0%	76.4	72%
Mendocino	24.3	47%	7.4	43%	0.0	0%	31.7	46%
Siskiyou	175.0	39%	11.4	56%	2.5	1%	188.9	30%
Sonoma	43.7	74%	29.6	35%	0.0	0%	73.3	51%
Trinity	3.2	35%	1.8	42%	0.0	0%	5.0	37%
2005-2010 annual average total:	**309.3**	**48%**	**69.8**	**40%**	**2.5**	**1%**	**381.6**	**39%**

California's Groundwater Update 2013
Findings: Groundwater Supply Trend (NC HR)

2002-2010

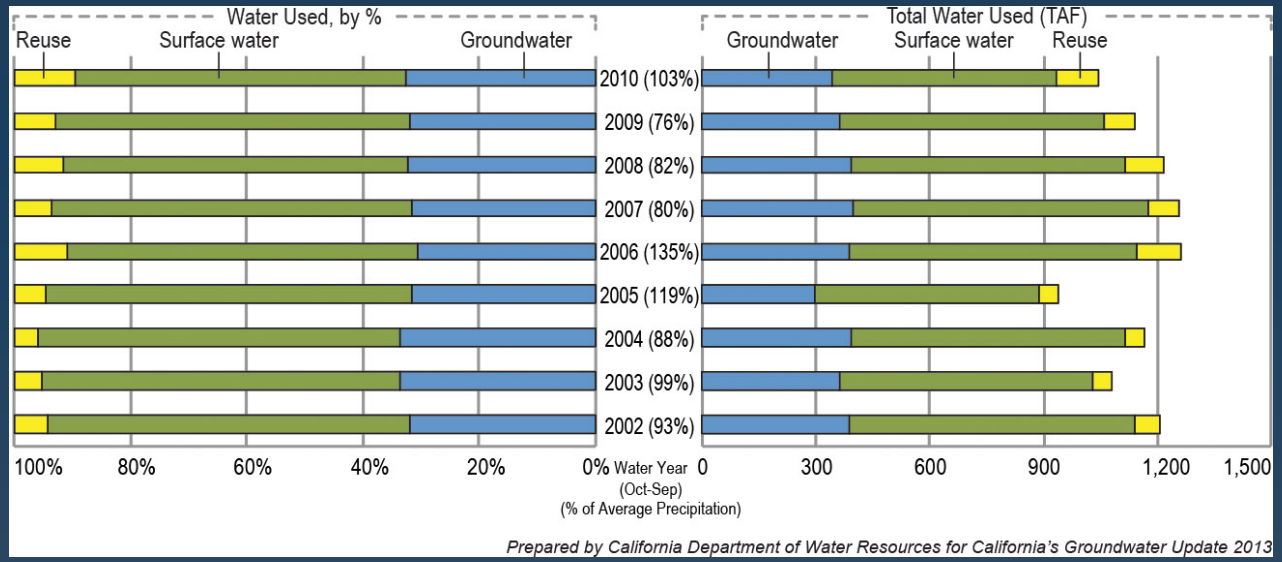
NORTH COAST DATA

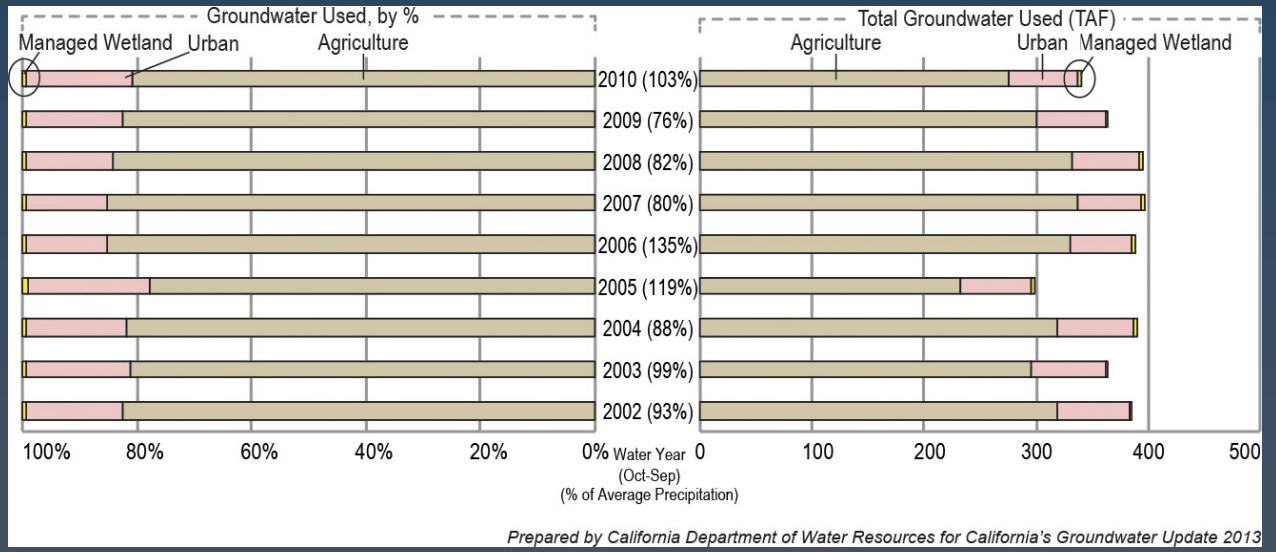
Total Water Supply

- High of 1,262 taf
  - 2006 (135%)
- Low of 939 taf
  - 2005 (119%)

Groundwater Supply

- High of 398 taf
  - 2007 (80%)
  - 32% of total supply
- Low of 298 taf
  - 2005 (119%)
  - 32% of total supply





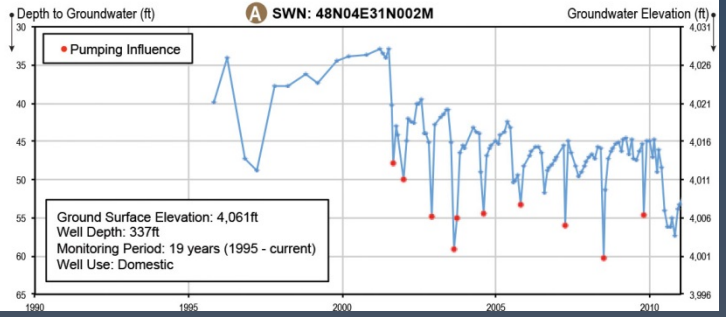
Tell-a-Story Hydrographs
Regional Examples – North Coast HR

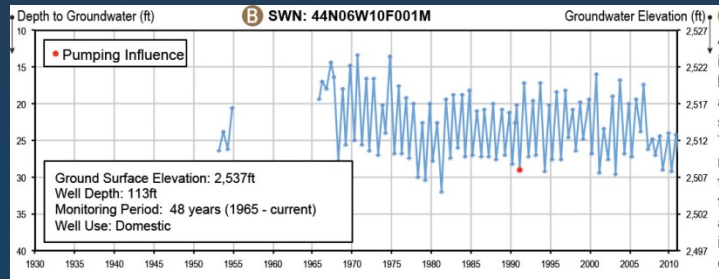
Aquifer response to changing demand and management practices

Hydrographs were selected to help tell a story of how local aquifer systems respond to changing groundwater demand and resource management practices. Additional detail is provided within the main text of the report.

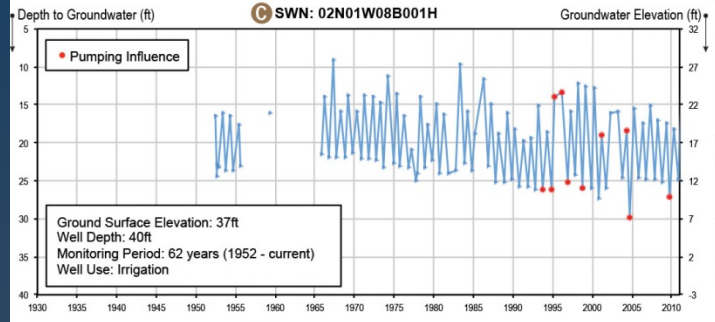
Regional locator map

A Hydrograph 48N04E31N002M: shows the impact of deep high capacity pumps, fluctuating surface water deliveries, and long-term drought conditions.

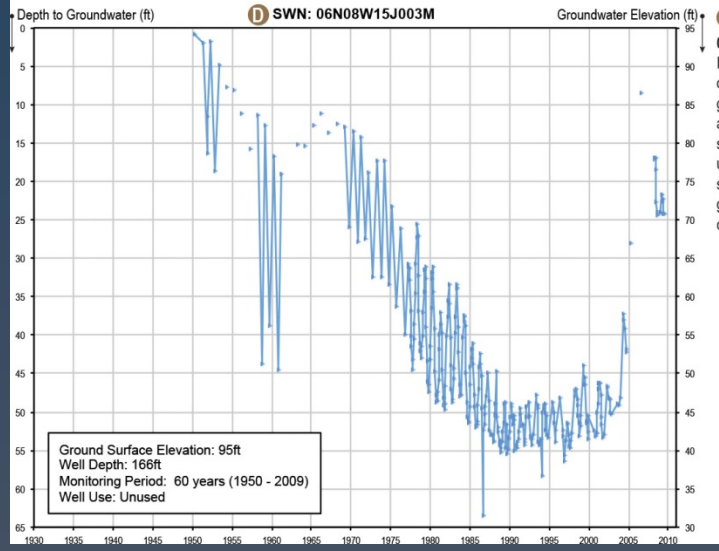




B Hydrograph 44N06W10F001M: illustrates the interplay between the groundwater aquifer and the nearby surface water conveyance. The unconfined aquifer is replenished in summer and fall when the canal runs full and vice-versa in winter and spring. Sudden drop in the seasonal variation corresponds with the lining of canal in 2007.

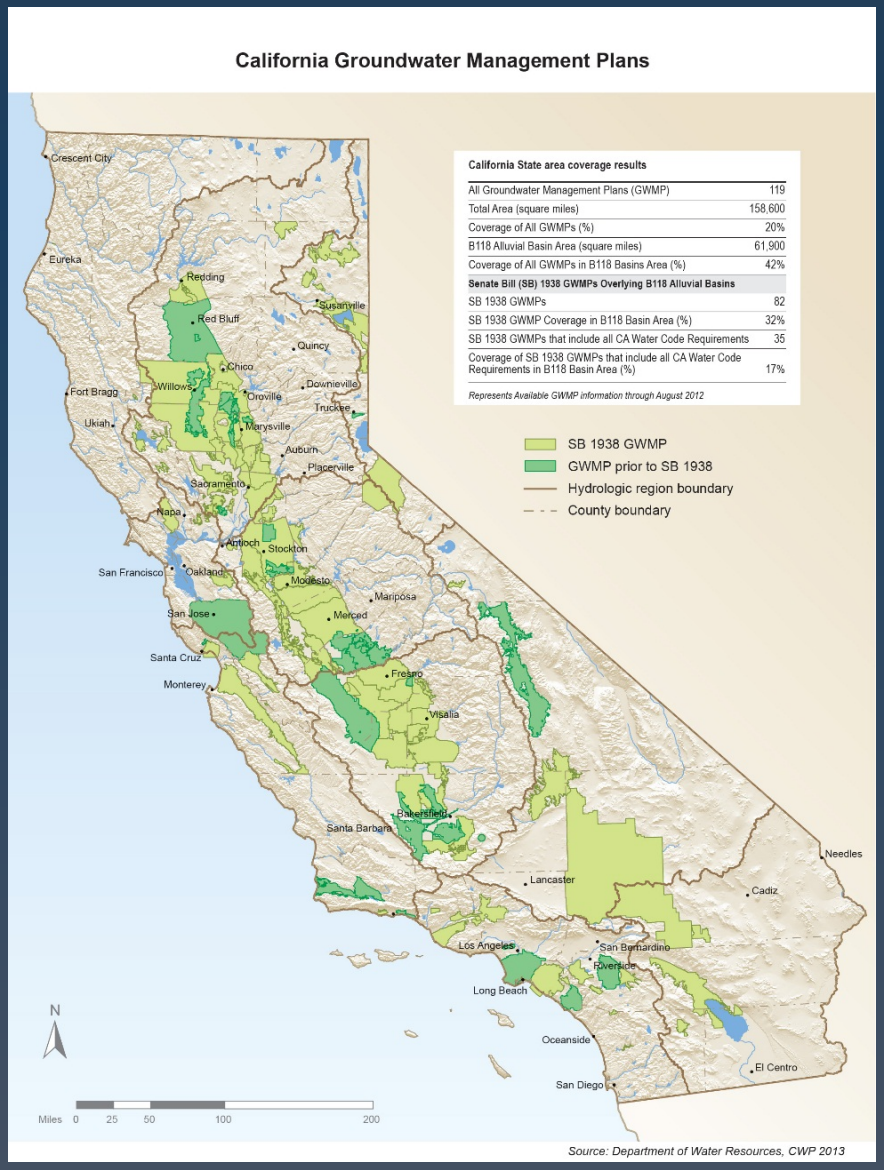


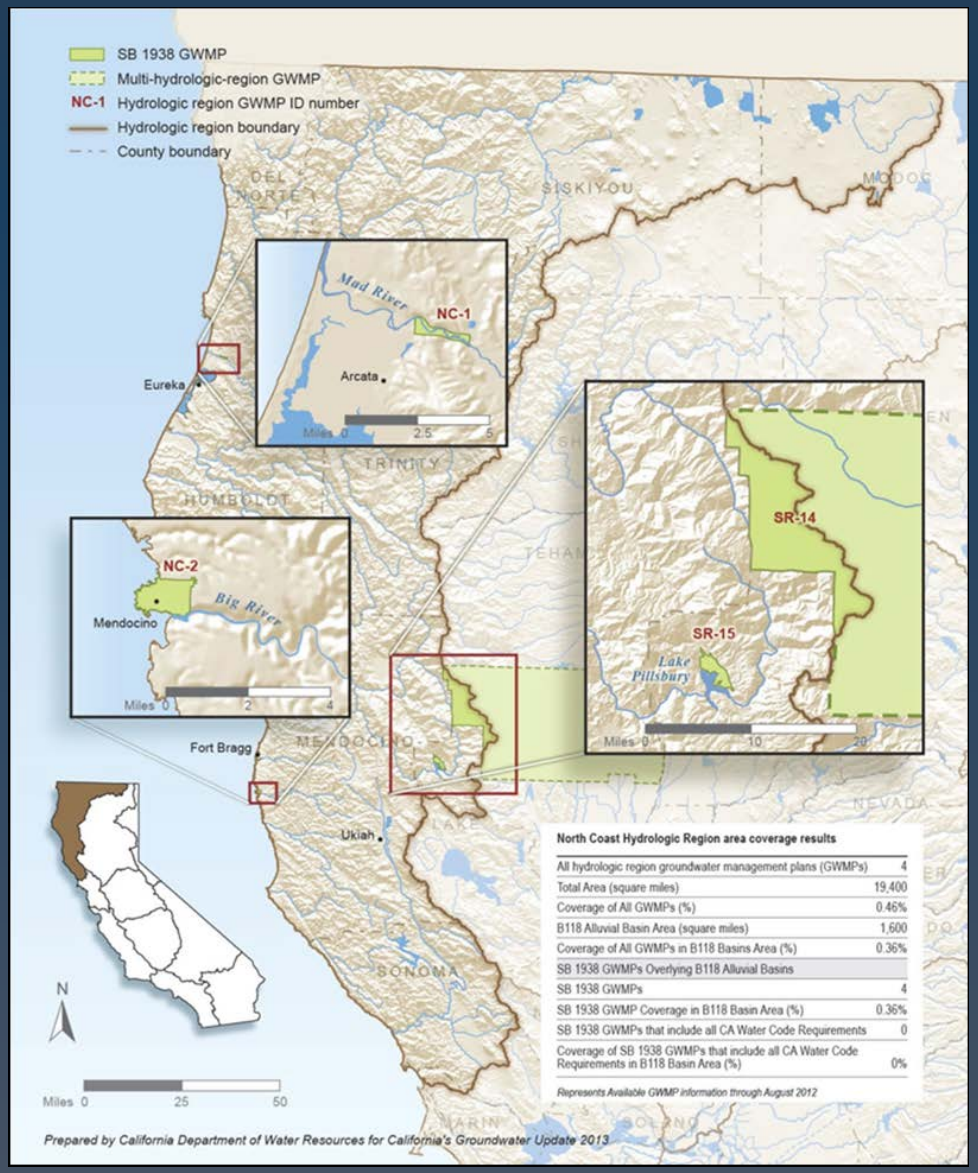
C Hydrograph 02N01W08B001H: highlights the close interaction between perennial surface water systems and the shallow groundwater wells in aquifers along the California coast where the groundwater levels have more interaction with the surface water system in wet rather than dry years.



D Hydrograph 06N08W15J003M: Illustrates stabilization of and recovery in the groundwater levels as a result of increased surface water delivery, use of recycled water supplied in lieu of pumping groundwater and water conservation.

Groundwater Management in North Coast Hydrologic Region





Groundwater Information, Data, and Tools

DWR Groundwater Main Page

- http://www.water.ca.gov/groundwater/index.cfm

DWR Sustainable Groundwater Management

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

DWR Groundwater Information Center (GIC)

- http://www.water.ca.gov/groundwater/gwinfo/index.cfm

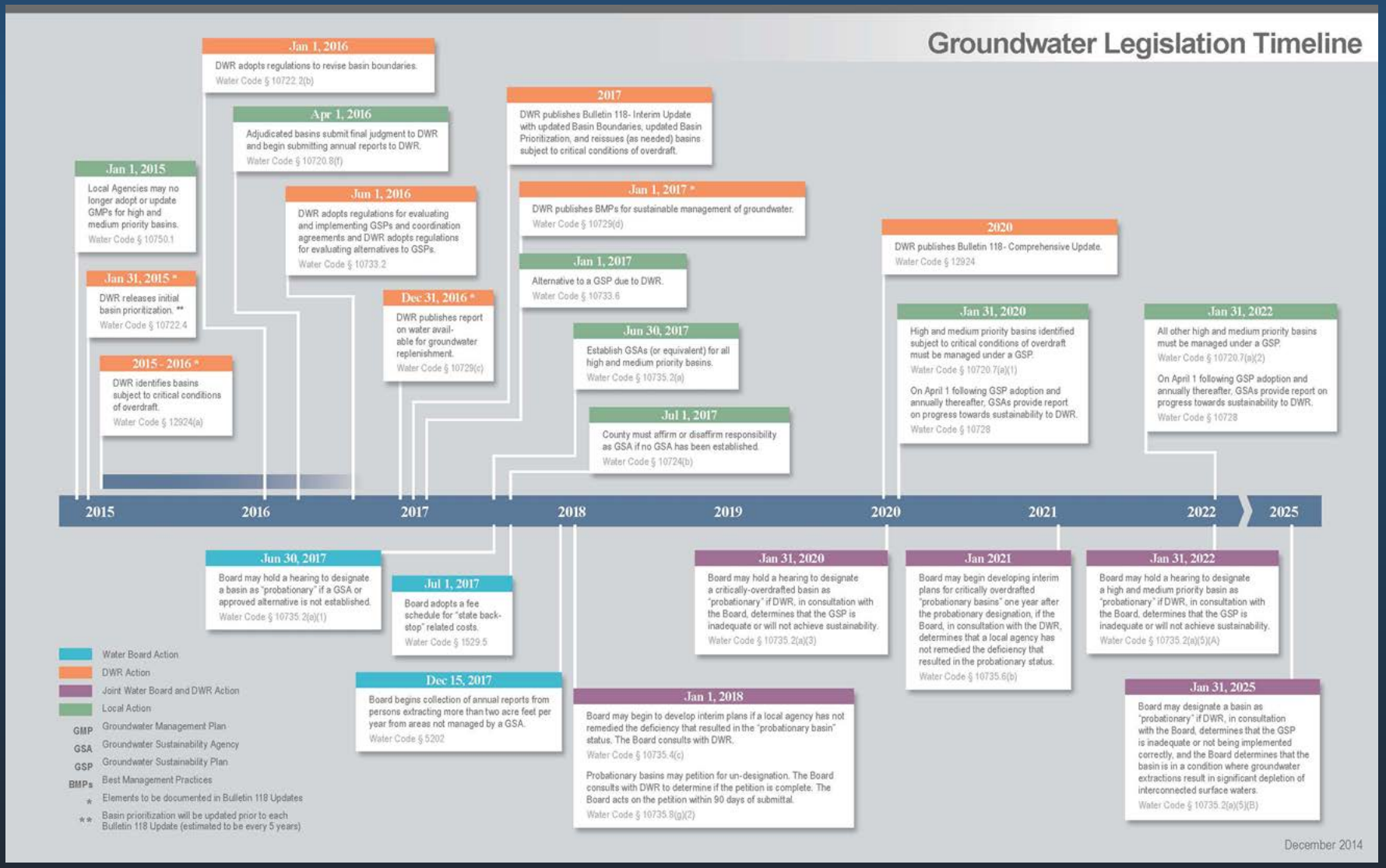
USGS National Water Information System (NWIS)

- http://waterdata.usgs.gov/nwis/gw

SWRCB Groundwater Ambient Monitoring and Assessment (GAMA) Program

- http://www.swrcb.ca.gov/water_issues/programs/gama/

Sustainable Groundwater Management Act (SGMA)



Sustainable Groundwater Management Act of 2014

- SB 1168 (Pavley), AB 1739 (Dickinson), SB 1319 (Pavley)
- Groundwater management is the responsibility of local agencies
- Requirements for medium- and high-priority basins
- Formation of Groundwater Sustainability Agencies (GSA)
- Development of Groundwater Sustainability Plans (GSP)
- State intervention if requirements are not met

Basin ranking	Basin count per rank	Percent of total for State	
		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%

Sustainable Groundwater Management Act of 2014

The legislative intent of SGMA is to do all of the following:

a) To provide for the sustainable management of groundwater basins.

b) To enhance local management of groundwater.

c) To establish minimum standards for sustainable groundwater management.

d) To provide local groundwater agencies with the authority and the technical and financial assistance necessary to sustainably manage groundwater.

e) To avoid or minimize subsidence.

f) To improve data collection and understanding about groundwater.

g) To increase groundwater storage and remove impediments to recharge.

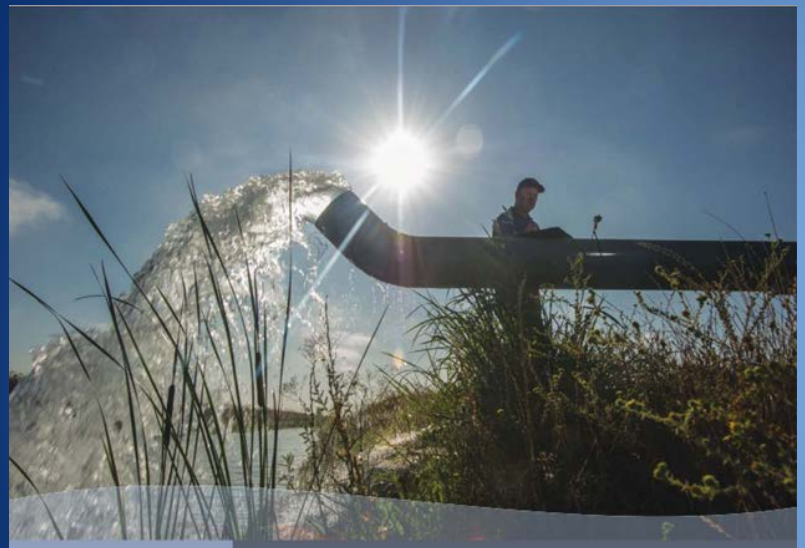
h) To manage groundwater basins through the actions of local governmental agencies to the greatest extent feasible, while minimizing state intervention to only when necessary to ensure that local agencies manage groundwater in a sustainable manner.

DWR's
Strategic Program Formulation and Implementation

Phases to Implement Groundwater Legislation and Achieve Sustainable Groundwater Management

Phase 1	Phase 2	Phase 3	Phase 4
Realignment of Governance and Area	**Development and Adoption of Groundwater Sustainability Plans (GSPs)**	**Initial Management through Water Budgets**	**Sustainable Groundwater Management**
(Oct 2014 through 2017)	(2017 to Jan 2020 or 2022)	(Jan 2020 or 2022 plus 5-10 years)	(20 years from 2020 or 2022)

Draft Strategic Plan



PHASE 1	PHASE 2	PHASE 3	PHASE 4
Realignment of Basins and Establishment of Basin Governance *(2015 – 2017)*	**Development and Adoption of Groundwater Sustainability Plans** *(2017 – 2020/22)*	**Initial Management through Water Budgets** *(2020/22 – 2040/42)*	**Sustainable Groundwater Management** *(2040/42 and beyond)*

2015 2016 2017 2018 2019 2020 2030 2040 FUTURE

Objective 1: Develop a Framework for Sustainable Groundwater Management
- Action 1.1 Develop Comprehensive Water Budgets for the Entire Basin — ONGOING
- Action 1.2 Update Basin Prioritizations
- Action 1.3 Develop Best Management Practices
- Action 1.4 Develop and Adopt Regulations for Basin Boundary Revisions
- Action 1.5 Develop and Adopt Regulations for Groundwater Sustainability Plan Assessment and GSP Alternatives
- Action 1.6 Identify Basins Subject to Critical Conditions of Overdraft
- Action 1.7 Evaluate Adequacy of Groundwater Sustainability Plans

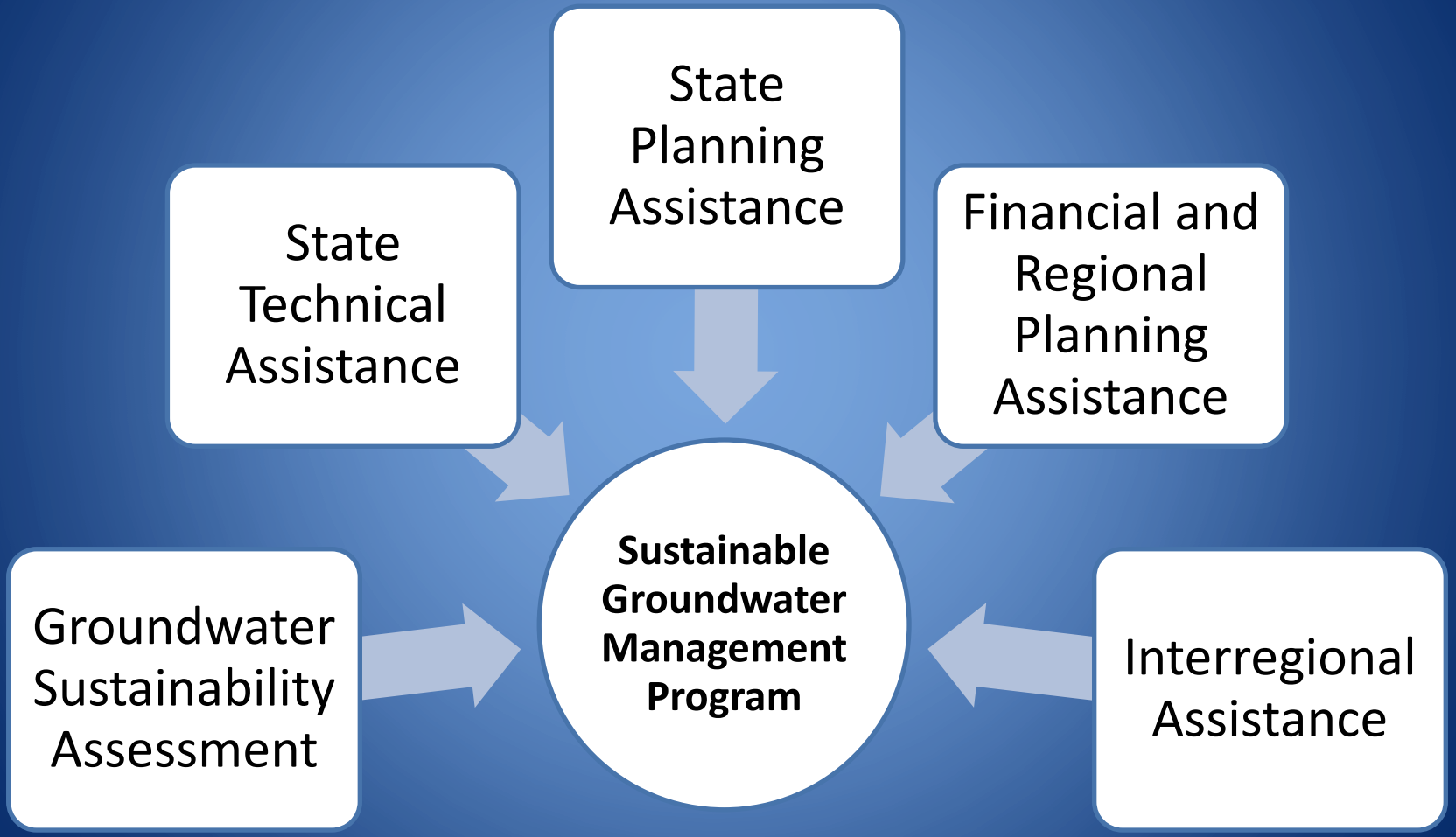
Objective 2: Provide Statewide Technical Assistance to Groundwater Sustainability Agencies
- Action 2.1 Develop a Groundwater Management Information System — ONGOING
- Action 2.2 Collect Groundwater Quality Data — ONGOING
- Action 2.3 Collect Groundwater Elevation Data — ONGOING
- Action 2.4 Collect Subsidence Data — ONGOING
- Action 2.5 Establish Well Standards
- Action 2.6 Implement the CASGEM Program — ONGOING
- Action 2.7 Promote Water Conservation — ONGOING

Objective 3: Provide Statewide Planning Assistance to Support Groundwater Sustainability
- Action 3.1 Update Bulletin 118 *(in 2017, 2020, and every 5 years thereafter)*
- Action 3.2 Integrate Groundwater Information into Bulletin 160 *(2018 and every 5 years)*
- Action 3.3 Local Assistance for Recharge Projects — TBD

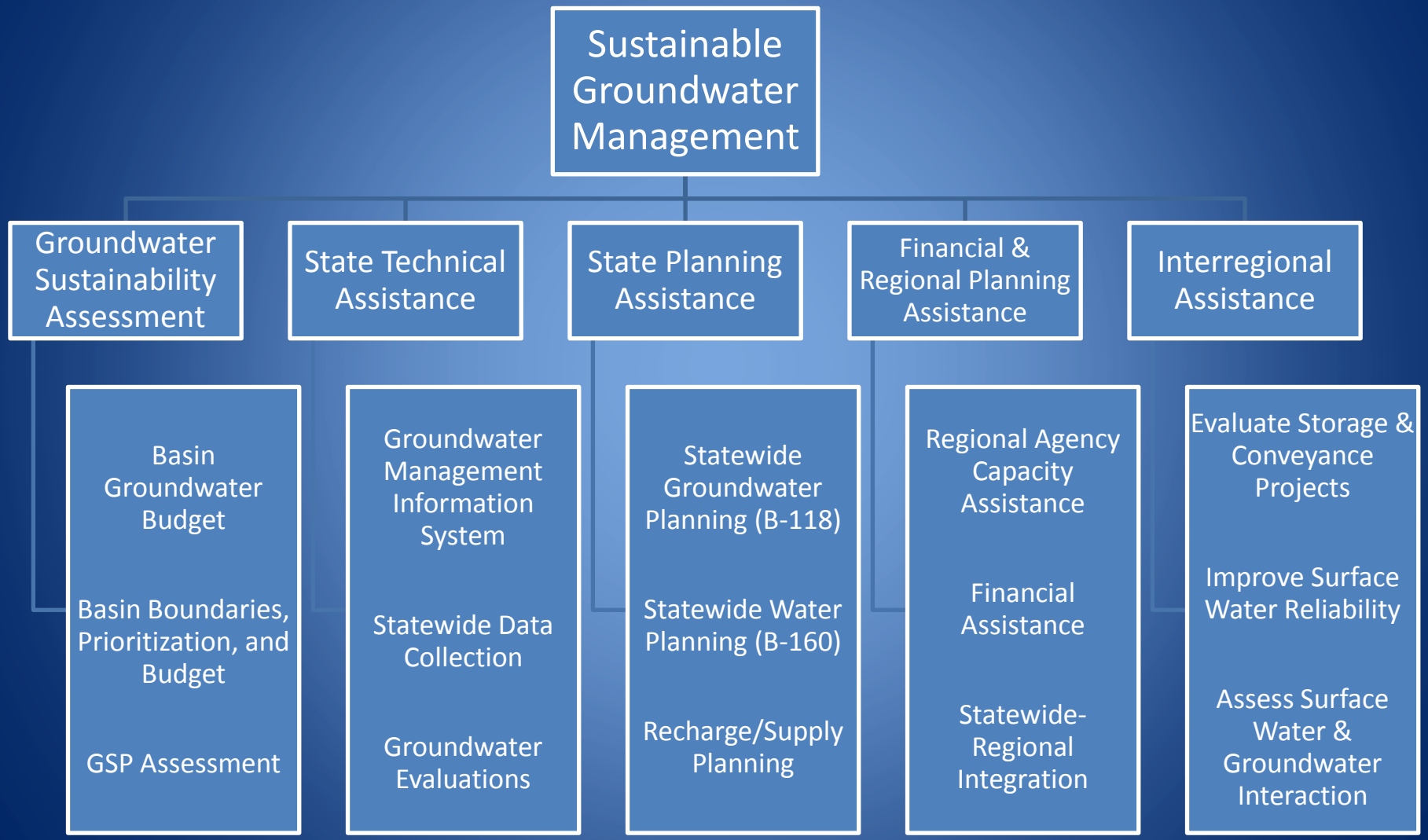
Objective 4: Assist State and GSA Alignment and Provide Financial Assistance
- Action 4.1 Alignment for Management of Groundwater Programs — ONGOING
- Action 4.2 Provide Financial Assistance
- Action 4.3 Provide Education and Communication Assistance
- Action 4.4 Provide Facilitation and Engagement Assistance

Objective 5: Provide Interregional Assistance
- Action 5.1 Assist in the Implementation of Storage and Conveyance Projects — TBD
- Action 5.2 Provide Information on Surface Water Reliability — ONGOING
- Action 5.3 Advance Studies on Surface/Groundwater Interaction — ONGOING
- Action 5.4 Provide Information for Water Availability for Replenishment

Sustainable Groundwater Management Program Functional Areas



Sustainable Groundwater Management Elements by Functional Area



1. Groundwater Sustainability Assessment

DWR will support locally developed groundwater sustainability plans

- **Update basin prioritization.**
- **ID basins subject to critical conditions of overdraft.**
- **Adopt regulations to revise basin boundaries.**
- **Adopt regulations for evaluating and implementing GSPs.**
- **Adopt regulations for evaluating alternatives to GSPs.**
- **Publish BMPs for sustainable groundwater management.**
- **Board and DWR continue to evaluate GSP effectiveness.**

2. State Technical Assistance

DWR will conduct technical activities to improve groundwater management

- **Groundwater management information system.**
- **Statewide data collection.**
- **Groundwater evaluations.**

3. State Planning Assistance

DWR will conduct planning activities to improve groundwater management

- **Publish 2017 - Bulletin 118 “Interim Update.”**
- **Publish 2020 - Bulletin 118 “Comprehensive Update.”**
- **Publish 2018 - Bulletin 160.**

4. Financial and Regional Planning Assistance

DWR will support local and regional planning activities to improve groundwater management

- **Regional Agency Capacity Assistance.**
- **Financial Assistance.**
- **Statewide/Regional Integration through the California Water Plan.**

5. Interregional Assistance

DWR will support projects and programs to improve interregional management

- **Publish report on water available for groundwater replenishment.**
- **Evaluate storage/conveyance projects.**
- **Improve surface water reliability.**
- **Assess surface water and groundwater interaction.**

Near Term Activities

Key Phase 1 Actions

- Developing Regulations for Basin Boundaries
- Updating Basin Prioritization
- Identify Basins Subject to Conditions of Critical Overdraft
- Updating Bulletin 118 (2017 Update Planned)

Updating Basin Prioritization

- Updates to include adverse impacts on local habitat and streamflow
- Consideration of impacts into basin prioritization by January 31, 2015 – (June 2014 list)
- Determination of basin priority is required so local agencies will know if and when they need to develop and implement a GSP

Identify Basins Subject to Critical Conditions of Overdraft

- Develop process to identify basins subject to critical conditions of overdraft
- Process to include local agency input and coordination
- Basins subject to critical conditions of overdraft require GSPs by 2020

Updating Bulletin 118 (2017 Update Planned)

- "California's Groundwater" – Comprehensive information on the State's groundwater conditions
- 2017 Interim Update
  - Information to aid GSAs to move forward with GSPs
    - Updated basin boundaries
    - Updated basin priorities
    - Identification of basins subject to critical overdraft

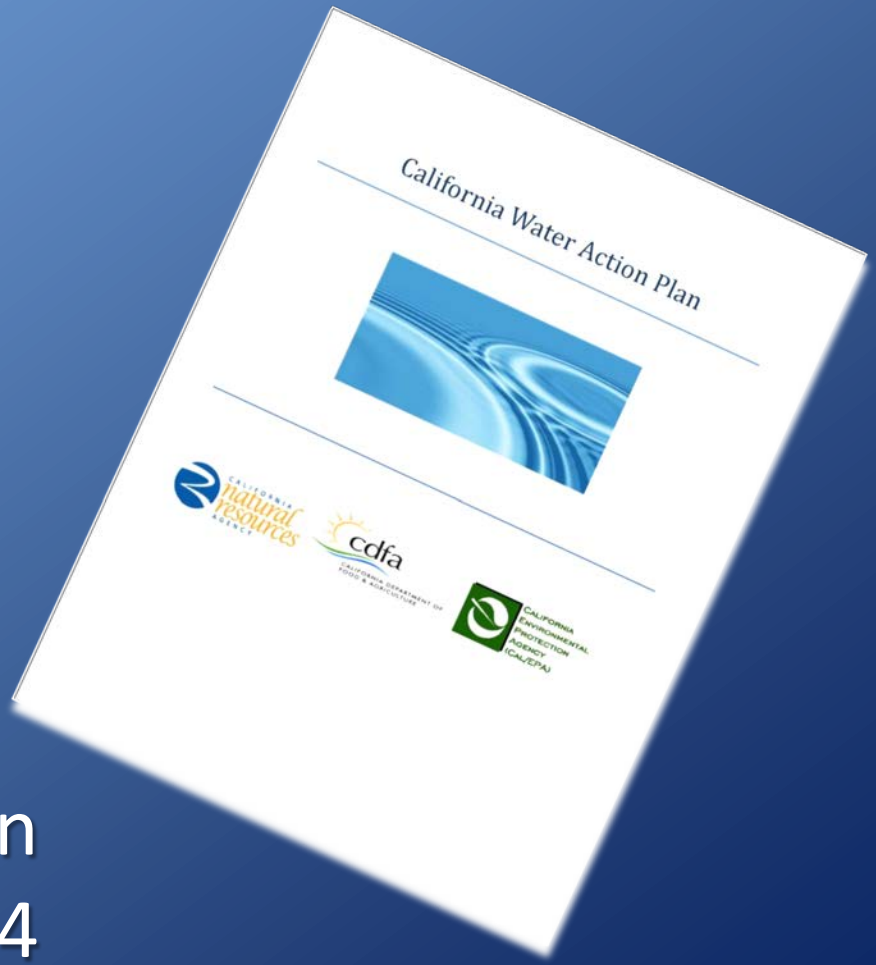
Communication and Engagement

Outreach

Agency Alignment

Final Thought

When properly managed, groundwater resources will help protect communities, farms, and the environment against the impacts of prolonged dry periods and climate change.



California Water Action Plan
2014

Q & A

- What the legislation does or doesn't do
- The authority or responsibility of a GSA
- Overview of Ukiah Valley groundwater basin
- Available DWR funding