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The Sustainable Groundwater Management Act and Climate Change

Climate Change and Groundwater Workshop

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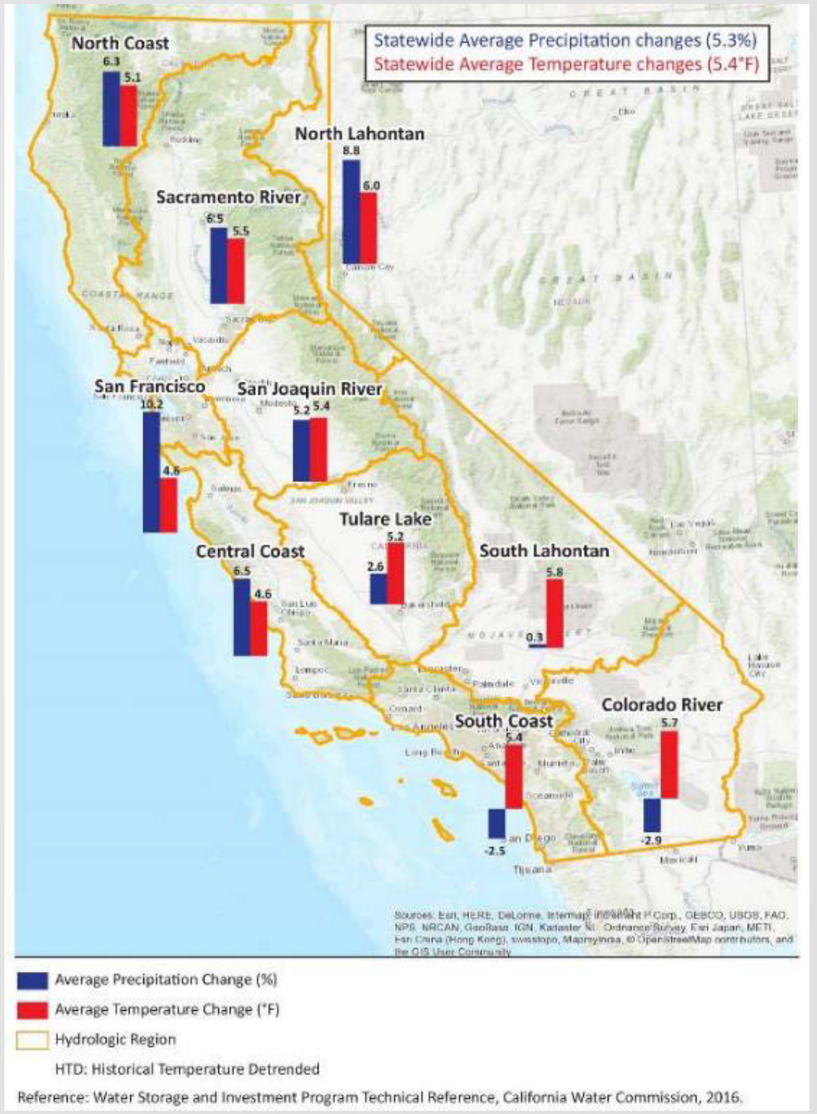
Overview of Presentation

- SGMA Overview.
- Incorporating climate change data into a GSP.
- SGMA climate change tools and resources.
- How are other GSAs addressing climate change in their GSPs?

Water Resilience Portfolio

Executive Order N-10-19

Whereas, climate change is having a profound impact on water and other resources, making the climate warmer and more variable, which reduces mountain snowpack, intensifies drought and wildfires, and drives shorter, more intense wet seasons that worsen flooding;



CalEPA California Environmental Protection Agency

California Natural Resources Agency

cdfa California Department of Food & Agriculture

SGMA Overview

Local Control

"Groundwater management in California is best accomplished locally."

Governor Jerry Brown, September 2014

Sustainability Indicators

Lowering GW Levels

Reduction of Storage

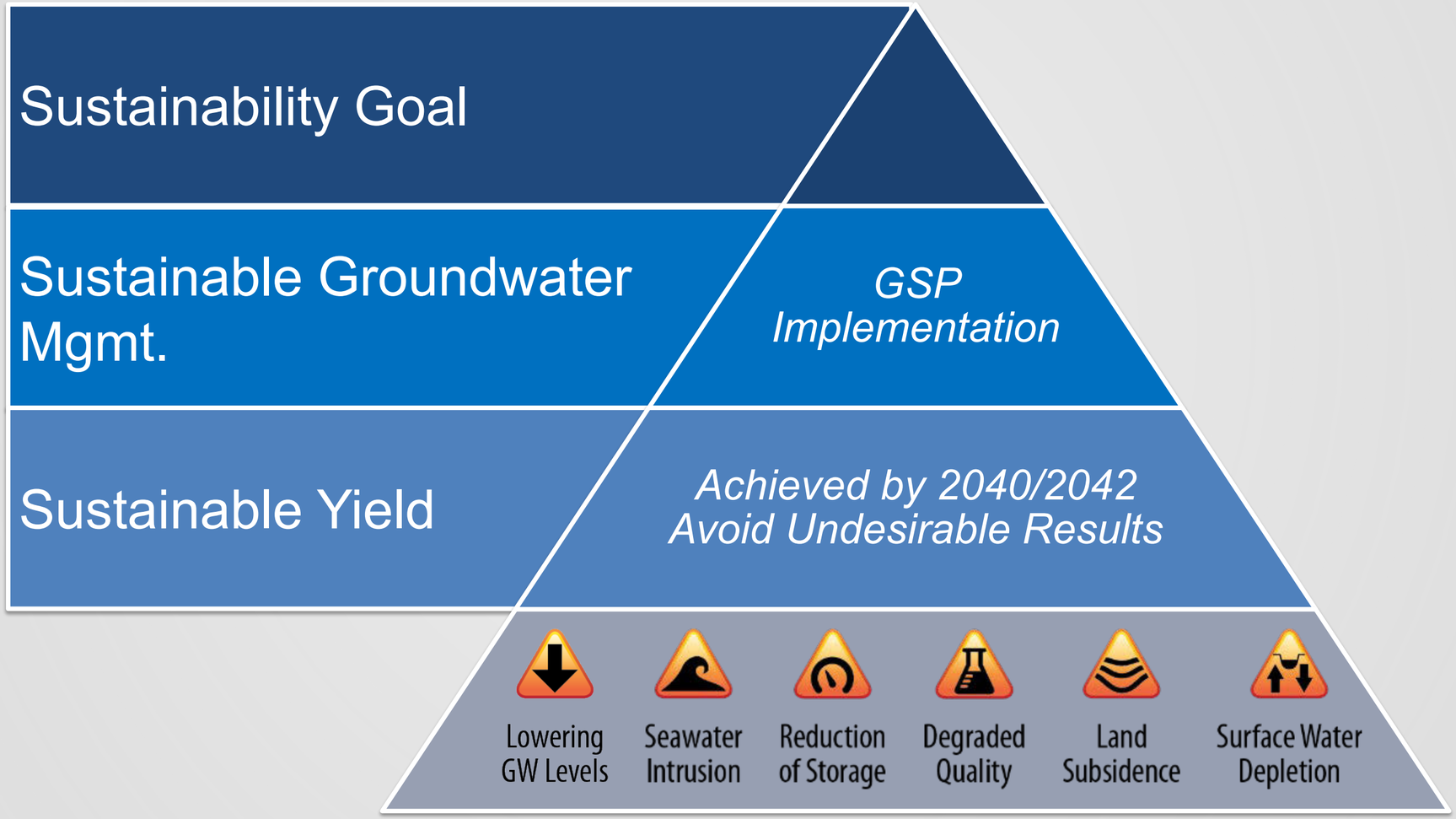
Seawater Intrusion

Degraded Quality

Land Subsidence

Surface Water Depletion

Sustainability



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DWR's Roles

Engagement and Advisory Role

Financial Assistance
- Prop 1 & Prop 68

Planning Assistance
- Facilitation
- GSA and GSP Support

Technical Assistance
- Statewide Datasets and Analysis
- Best Management Practices
- Technical Support Services

Regulatory Role

DWR Evaluation of GSPs

Sustainable Groundwater Management

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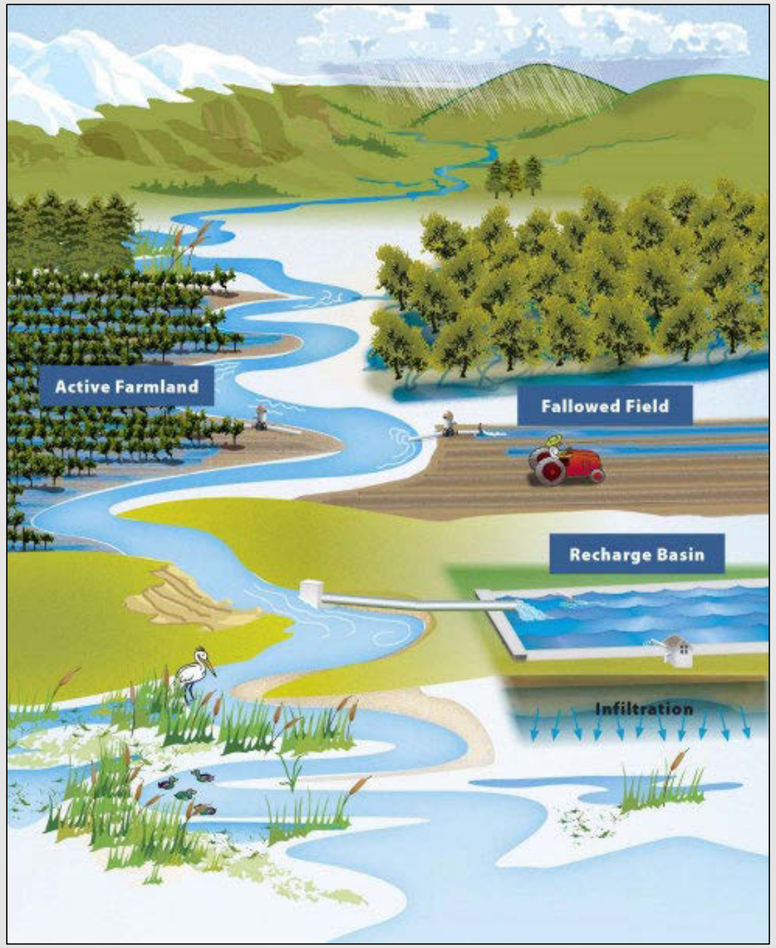
Incorporating Climate Change into a GSP

1. Administrative Information

- General Information
- Agency Information
- Description of Plan Area
- Notice & Communication

2. Basin Setting

- Hydrogeologic Conceptual Model
- Groundwater Conditions
- Water Budget
- Management Areas



3. Sustainable Management Criteria

- Sustainability Goal
- Undesirable Results
- Minimum Thresholds
- Measurable Objectives

4. Monitoring Networks

- Monitoring Network
- Representative Monitoring
- Assessment & Improvement
- Reporting Monitoring Data to the Department

5. Projects and Management Actions

- Projects & Management Actions

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GSP Regulations – Climate Change

354.18 Water Budget

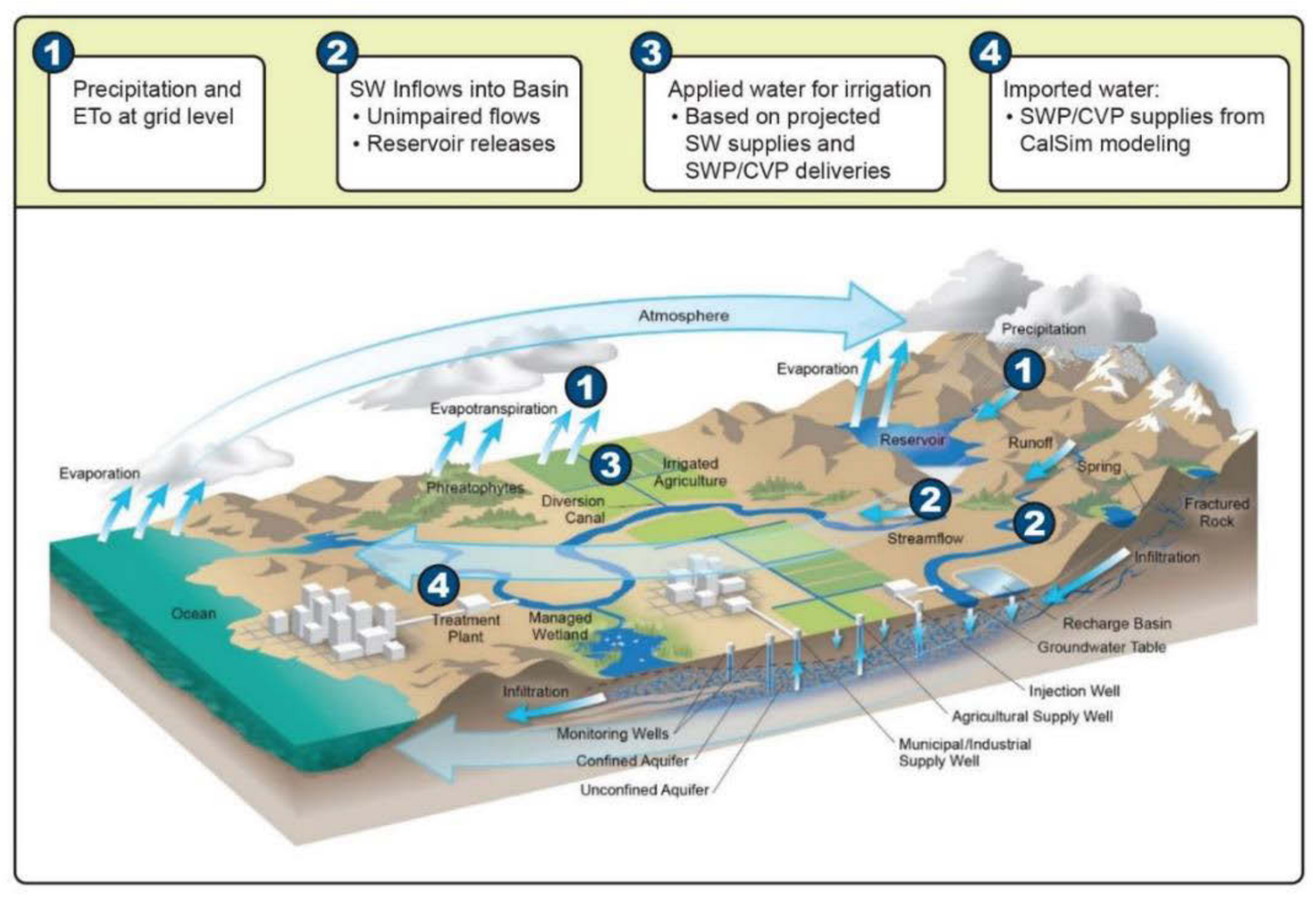
(c) (3) Projected water budgets shall be used to estimate future baseline conditions of supply, demand, and aquifer response to Plan implementation, and to identify the uncertainties of these projected water budget components.

(A) Projected hydrology shall utilize 50 years of historical precipitation, evapotranspiration, and streamflow information as the baseline condition for estimating future hydrology. The projected hydrology information shall also be applied as the baseline condition used to evaluate future scenarios of hydrologic uncertainty associated with projections of climate change and sea level rise.

354.18 (e) Modeling

Each Plan shall rely on the best available information and best available science to quantify the water budget for the basin in order to provide an understanding of historical and projected hydrology, water demand, water supply, land use, population, climate change, sea level rise, groundwater and surface water interaction, and subsurface groundwater flow. If a numerical groundwater and surface water model is not used to quantify and evaluate the projected water budget conditions and the potential impacts to beneficial uses and users of groundwater, the Plan shall identify and describe an equally effective method, tool, or analytical model to evaluate projected water budget conditions.

Water Budget



Historical Water Budget

Incorporate Climate Change and Other Components

Projected Water Budget

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Monitoring

- Monitoring networks must include:
  - Monitoring objectives.
  - Monitoring protocols.
  - Data reporting requirements.

- Must promote the collection of data of sufficient quantity, frequency, and distribution to characterize groundwater and related surface water conditions.

- Monitoring network must be able to evaluate changing conditions in the basin.

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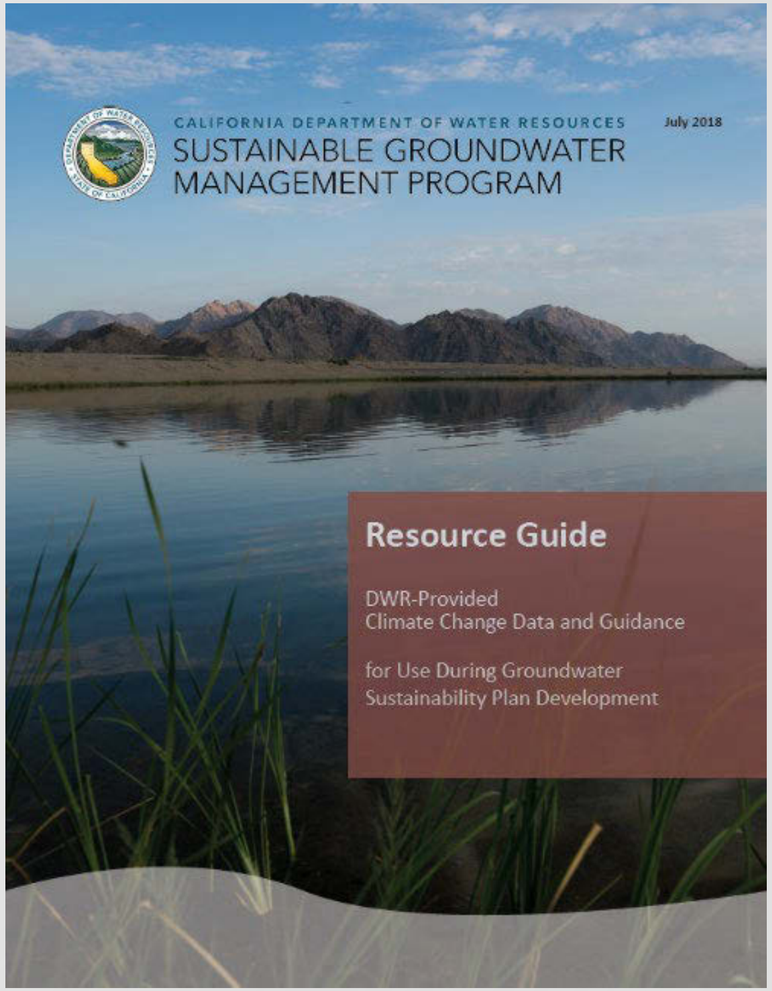
Climate Change Resource Guide

- The Resource Guide gives an overview of the climate change resources including:
  - Datasets provided by DWR.
  - Tools for working with the DWR-provided datasets.
  - Guidance for using DWR-provided data and tools in developing GSPs.
- The datasets and methods can provide technical assistance to GSAs for developing projected water budgets.



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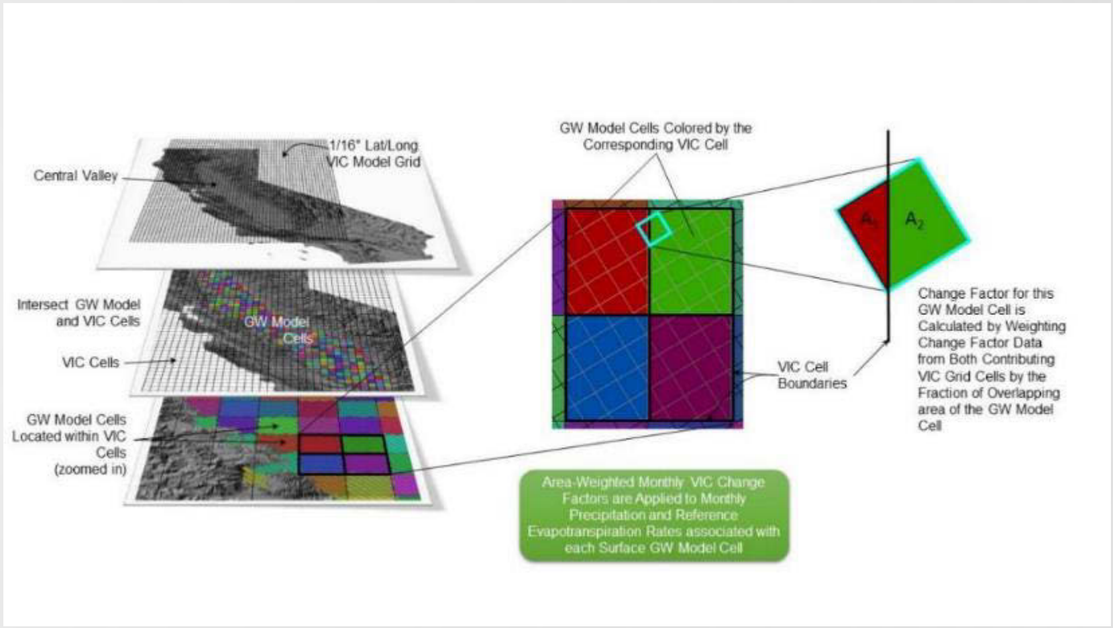
SGMA Climate Change Data and Analysis for GSP Development

The climate data source is consistent with other State programs and leverages Water Storage Investment Program developed products.

- Data related to future projected climate conditions around 2030 and 2070.
- Statewide gridded datasets of change factors for precipitation and reference evapotranspiration (6km by 6km).
- Routed streamflow change factors for watersheds.



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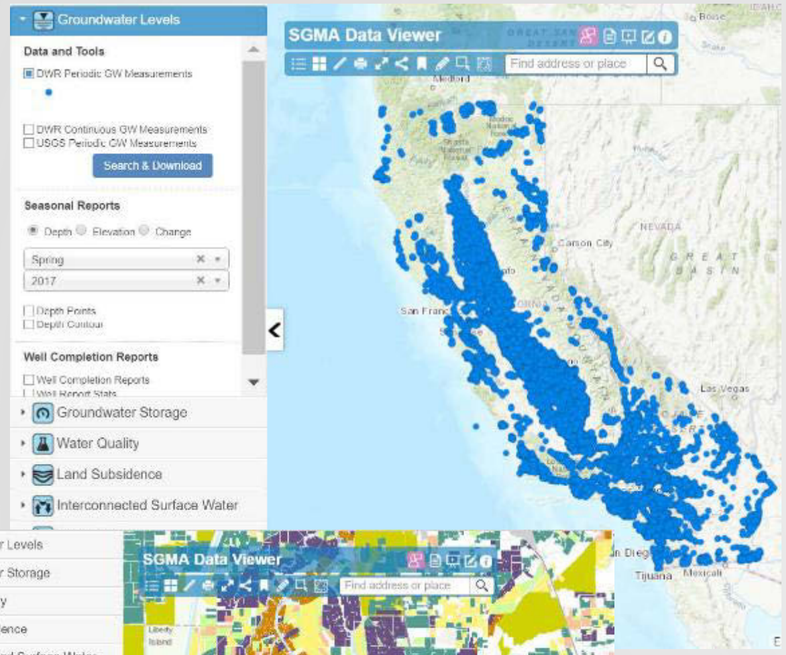
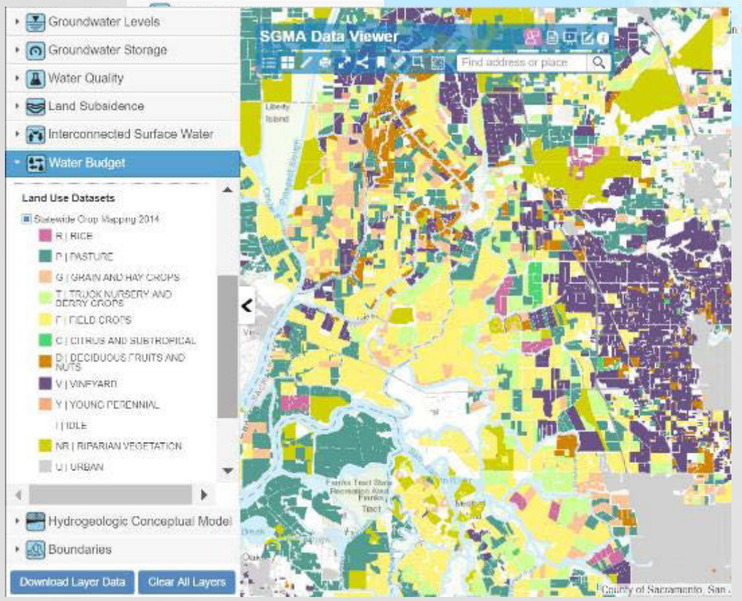
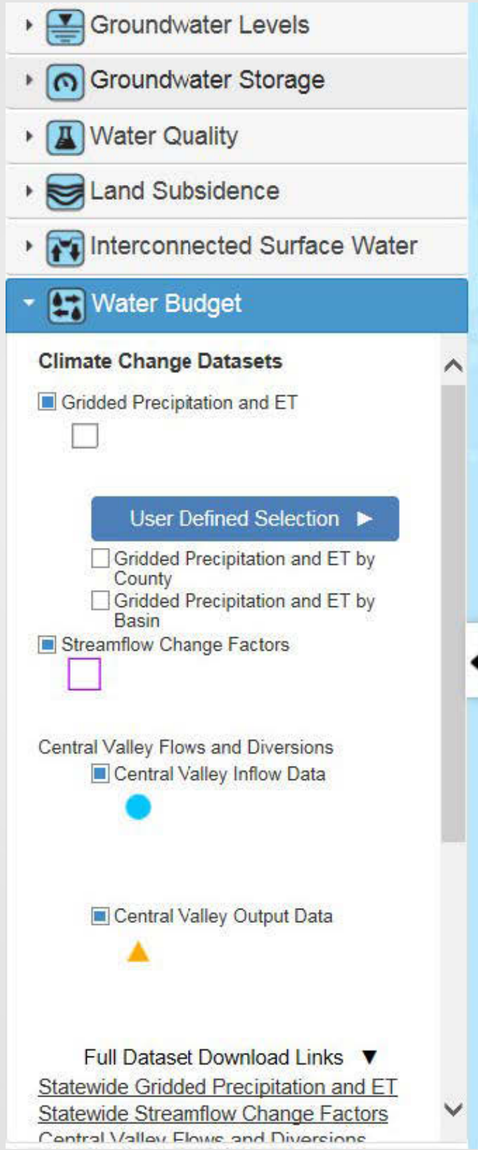
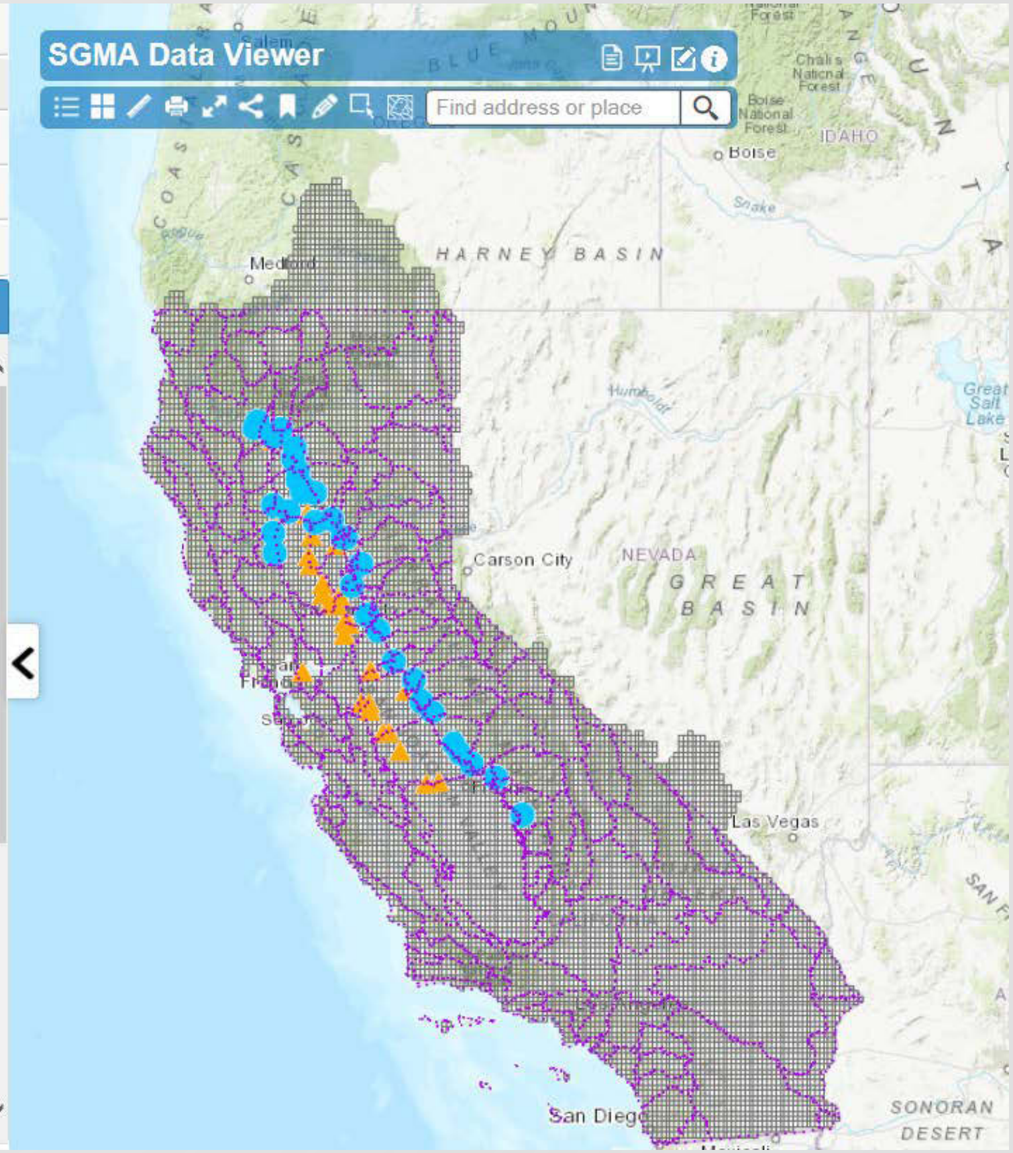
SGMA Data Viewer









Other Data and Tools

Available Now

Well completion reports

Disadvantaged Community (DAC) map tool

Natural communities commonly associated with gw. dataset

2014 statewide land use data

Modeling tools: IWFM, C2VSim-CG

Planned

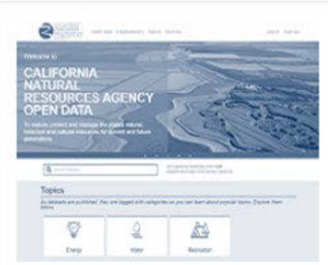
Airborn electromagnetic surveys

Annual subsidence monitoring

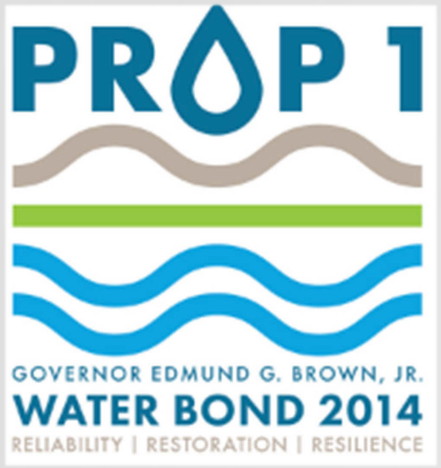
Expanded groundwater monitoring network

2016 and 2018 statewide land use data

Modeling tools: C2VSim-FG, SVSim



Sustainable Groundwater Planning Grant Program



$6.7M awarded to counties with stressed basins in February 2016

$250K awarded to Sonoma County

$85.8M awarded to78 applicants in April 2018

$1.0M each awarded to the Santa Rosa Plain GSA, the Petaluma Valley GSA, and the Sonoma Valley GSA

~$46M from Prop 68 and ~$1M from Prop 1

Draft PSP and Guidelines out for public comment

Maximum grant amount – difference between previous award amount and $2M.

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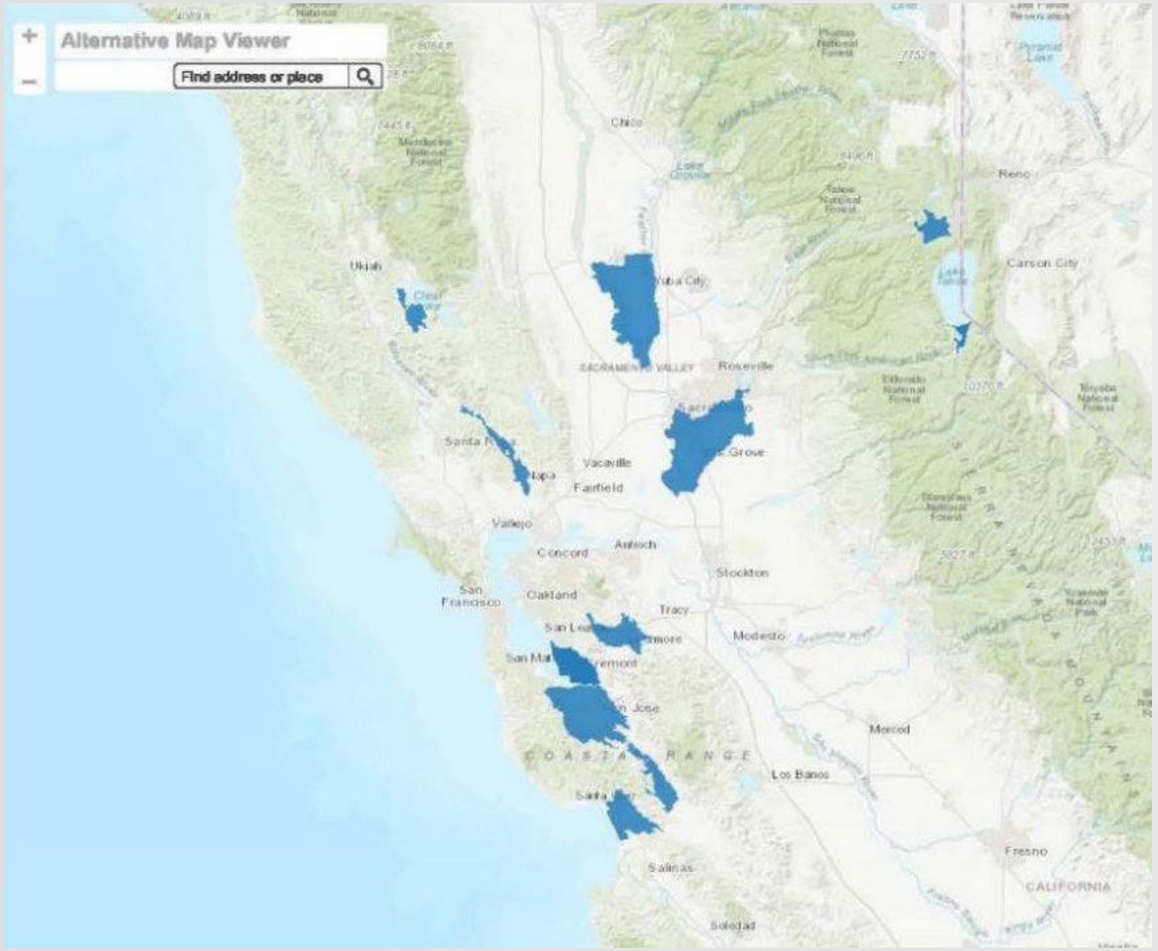
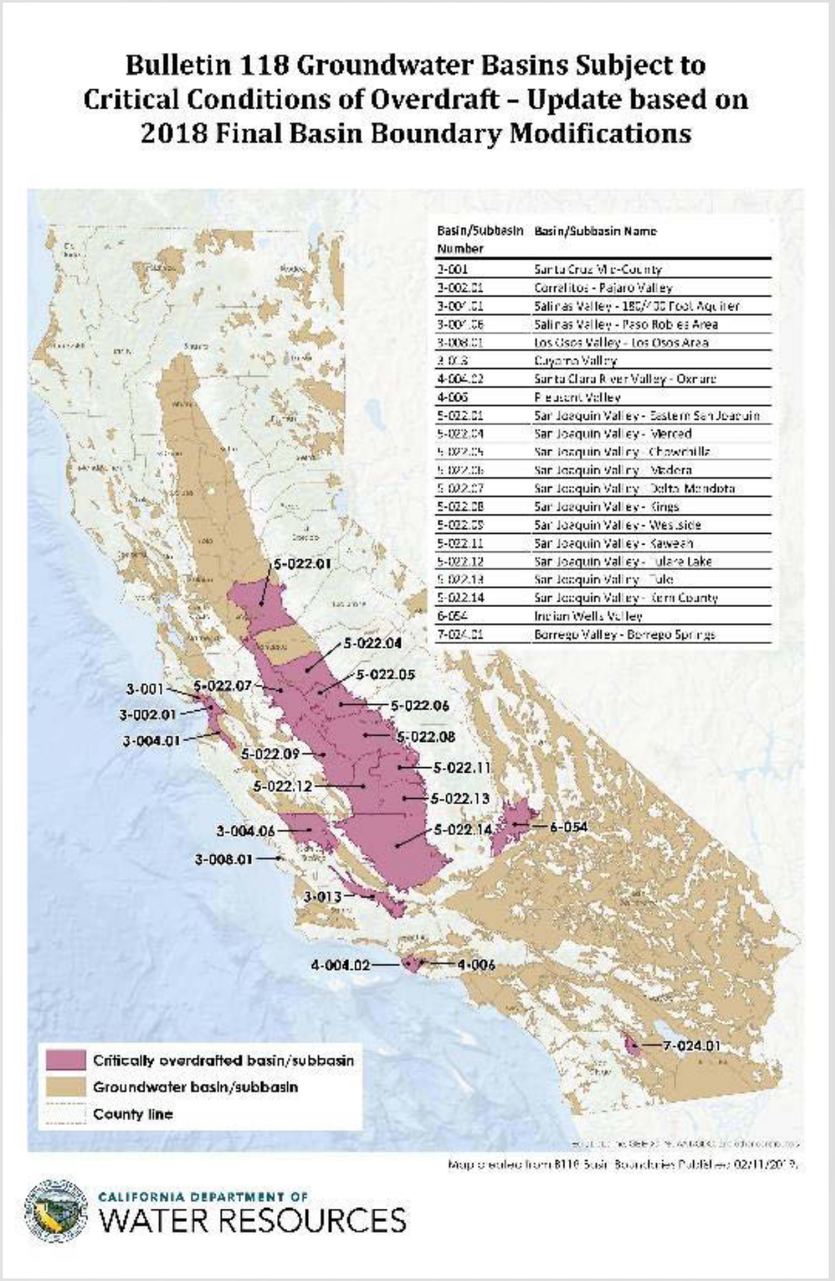
How are GSAs Addressing Climate Change?





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