Groundwater and Sustainability

Department of Water Resources

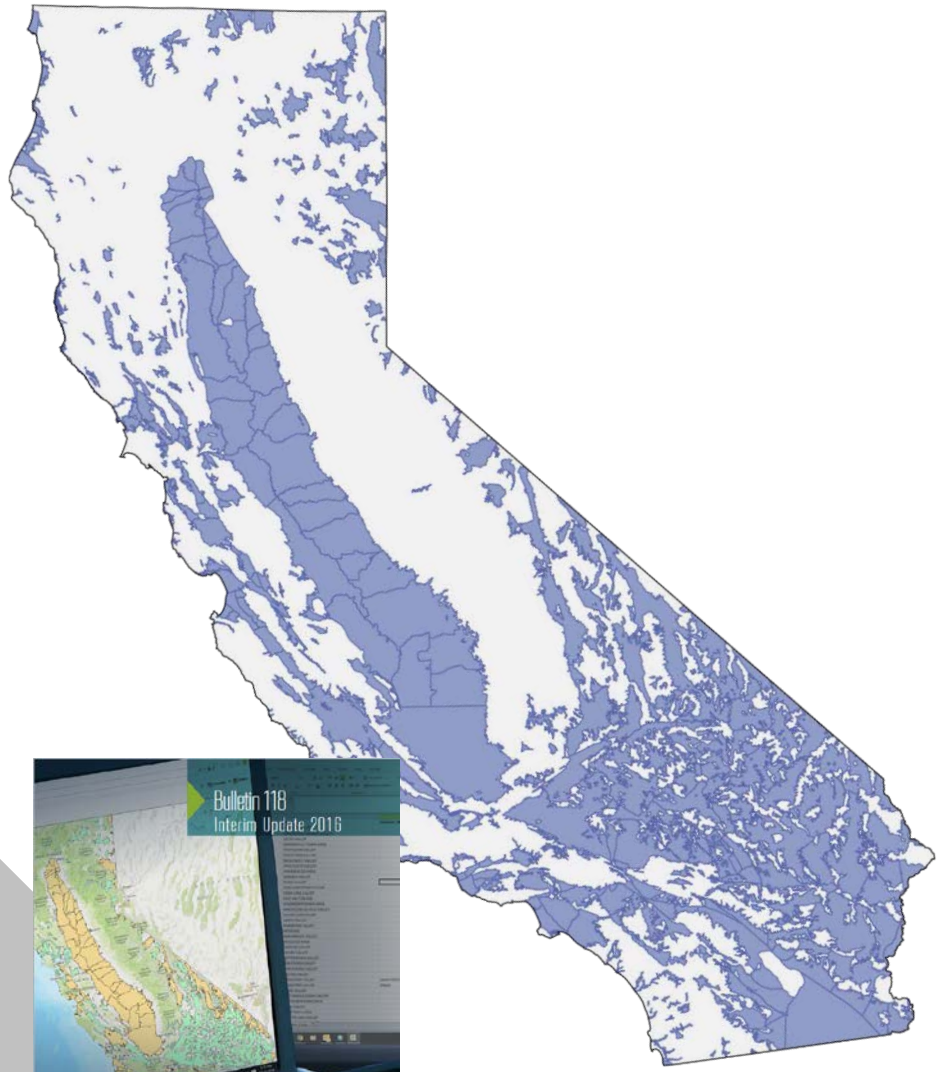
South Central Region Office

May 2018

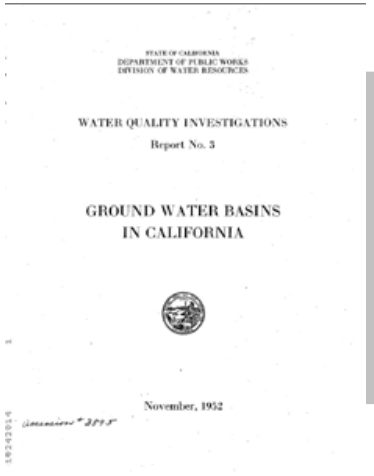
Outline

- B-118 and Groundwater Basins
- Groundwater Use
- SGMA Overview

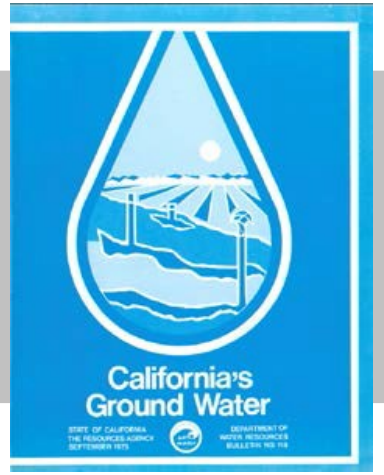
Development of California Groundwater Basins and Subbasins



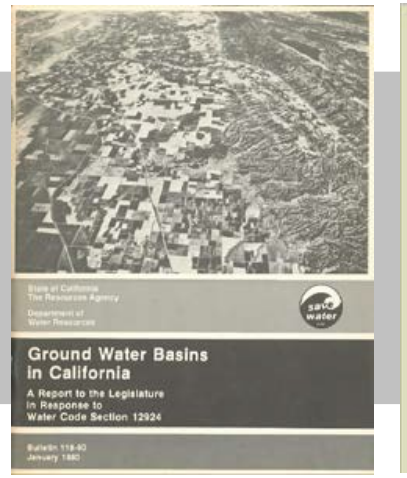
- Groundwater Basins & Subbasins Are Defined in DWR Bulletin 118 Using the Best Available Data
- Modifications to Basin Boundaries Have Occurred During B-118 Updates



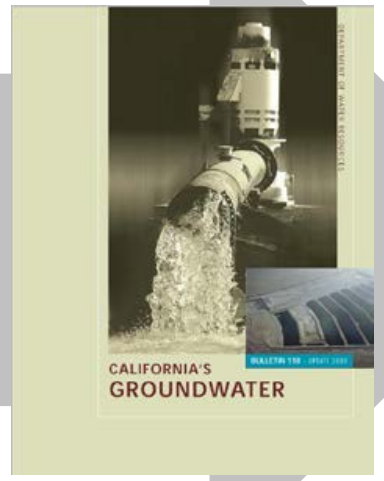
1952



Bulletin 118
1975



Bulletin 118
1980



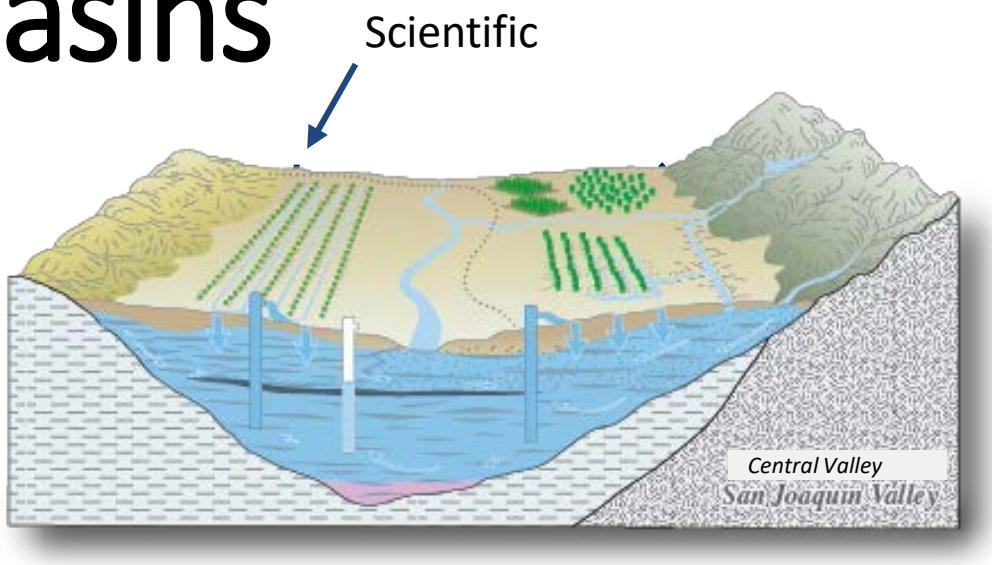
Bulletin 118
2003

Bulletin 118
Interim update 2016

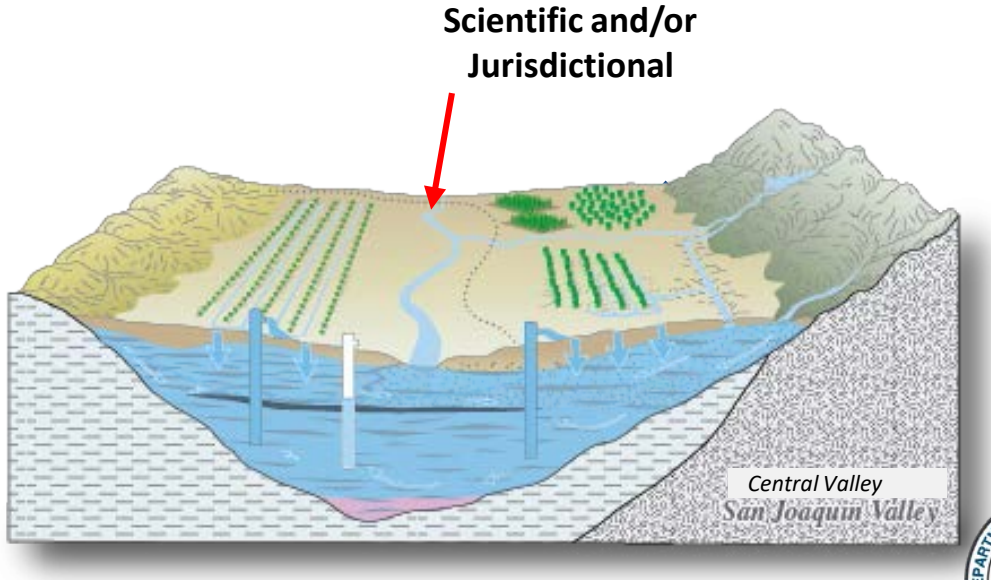
Alluvial Groundwater Basins

Groundwater Basin – An alluvial aquifer or a stacked series of alluvial aquifers with reasonably well-defined boundaries in a lateral direction and having a definable bottom

Groundwater Subbasin – A subbasin is created by dividing a groundwater basin into smaller units using geologic and hydrologic barriers or institutional boundaries



Modified from Faunt, 2009



Modified from Faunt, 2009

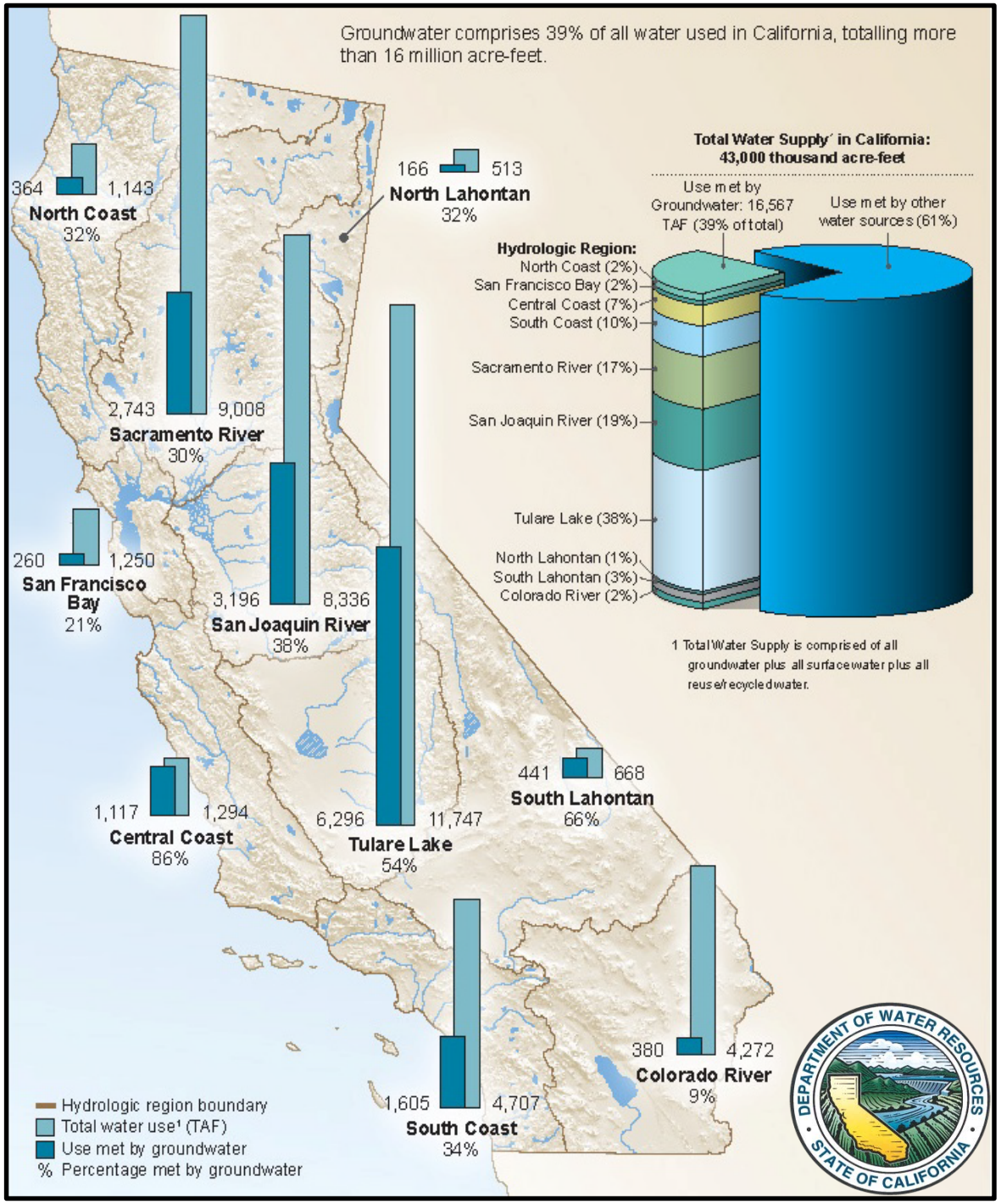
Statewide Groundwater Use

Regions with highest use:

(relative to statewide total)

- Tulare Lake 38%
- San Joaquin River 19%
- Sacramento River 17%
- South Coast 10%

(2005 to 2010 Average Annual Data)

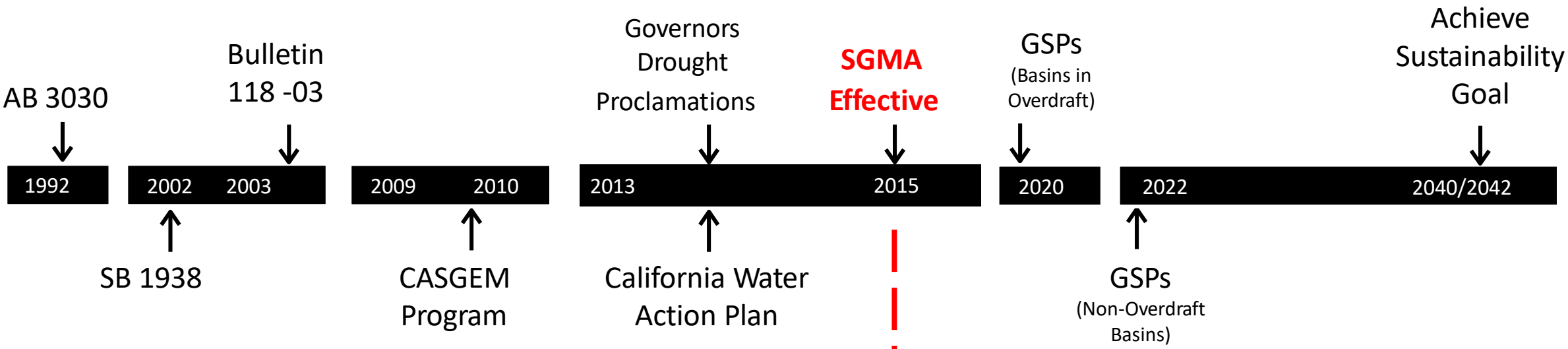


2014 Historic Groundwater Legislation

Sustainable Groundwater Management Act (SGMA)

"…recognition that groundwater management in California is best accomplished locally."

California's Major Groundwater Milestones



Voluntary Groundwater Management

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

Required Groundwater Management

- Entire Basin Planning
- Required Implementation
- GSA Have New:
  - Authorities
  - Responsibilities
- State Backstop

CASGEM Basin Prioritization

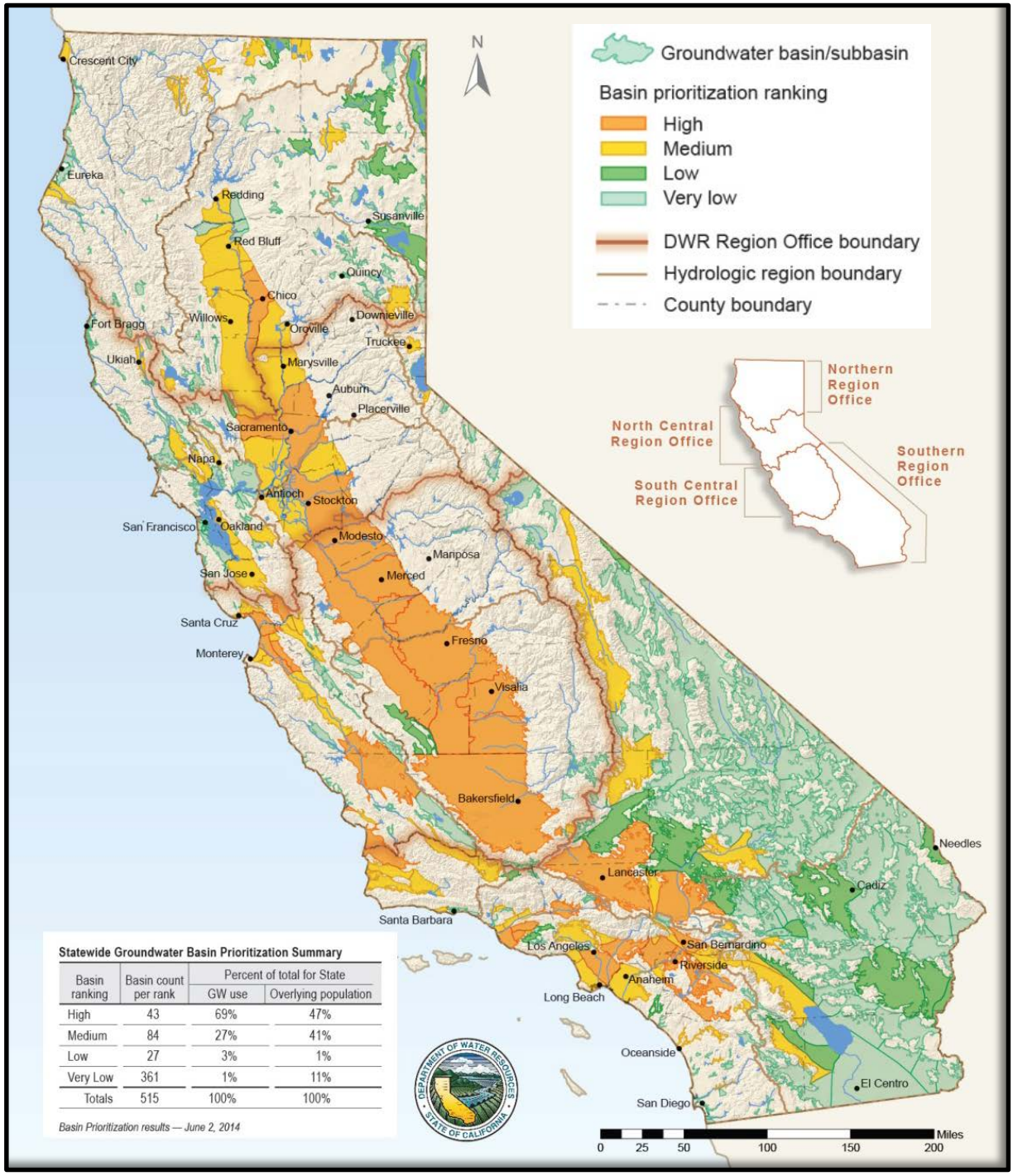
Statewide Breakdown

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%

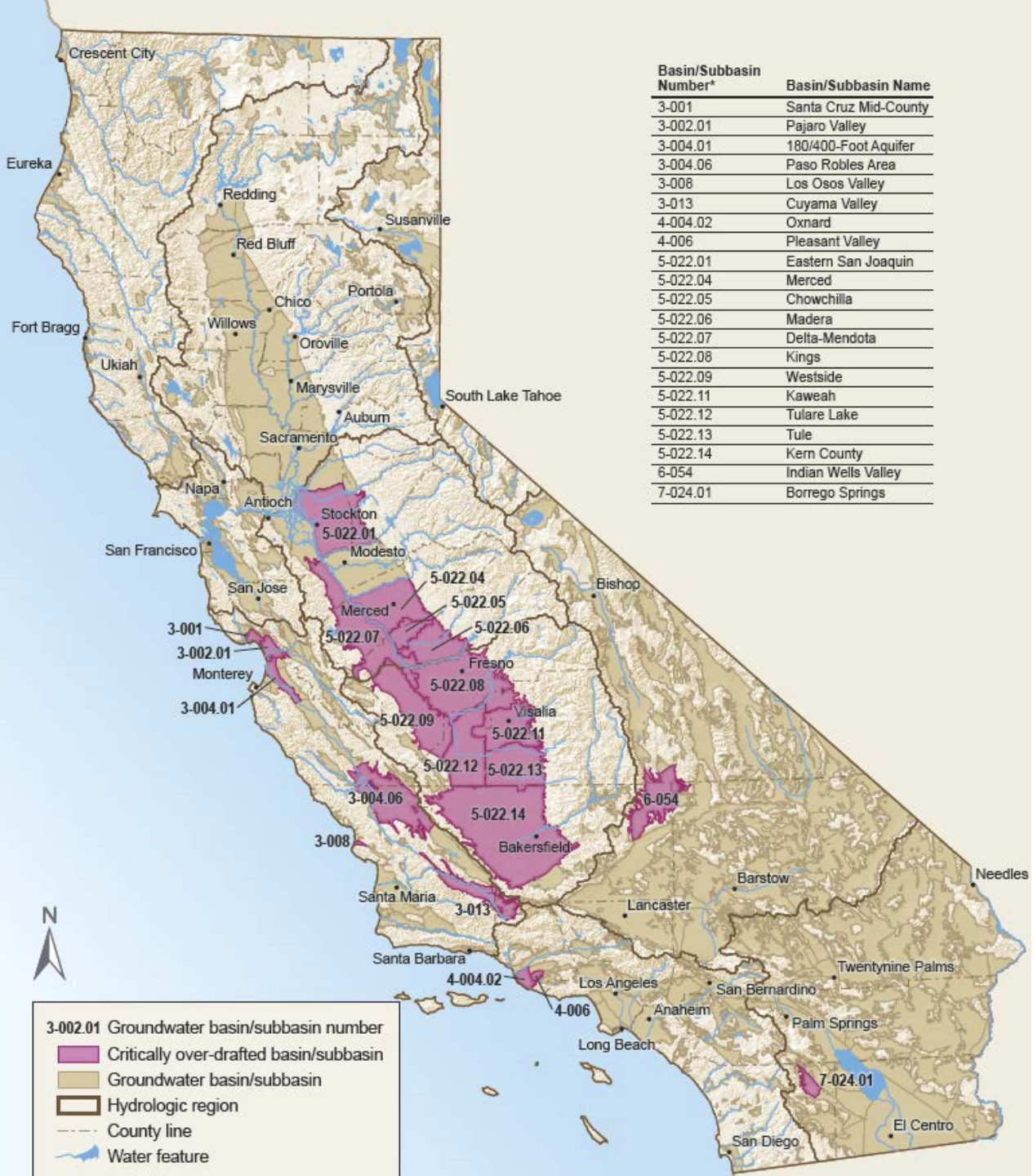
127 High & Medium Priority basins

96% of groundwater use
88% of overlying population

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



Critically Overdrafted Basins/Subbasins



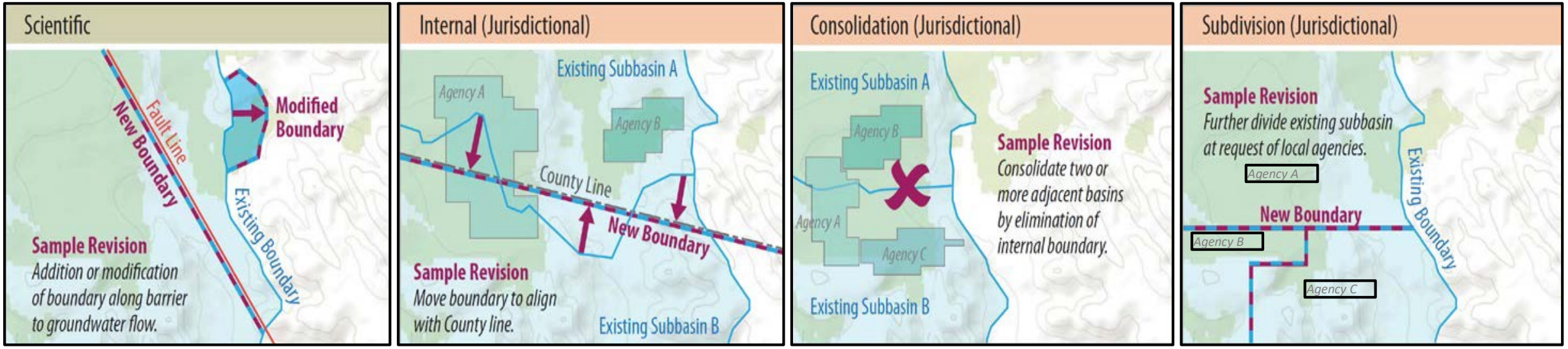
Basin/Subbasin Number*	Basin/Subbasin Name
3-001	Santa Cruz Mid-County
3-002.01	Pajaro Valley
3-004.01	180/400-Foot Aquifer
3-004.06	Paso Robles Area
3-008	Los Osos Valley
3-013	Cuyama Valley
4-004.02	Oxnard
4-006	Pleasant Valley
5-022.01	Eastern San Joaquin
5-022.04	Merced
5-022.05	Chowchilla
5-022.06	Madera
5-022.07	Delta-Mendota
5-022.08	Kings
5-022.09	Westside
5-022.11	Kaweah
5-022.12	Tulare Lake
5-022.13	Tule
5-022.14	Kern County
6-054	Indian Wells Valley
7-024.01	Borrego Springs

- Updated in 2016
- 7 new basins/subbasins
- 21 Total
- 11 in Central Valley

Basin Boundary Modifications

- Reviewing requests by local agencies to modify current groundwater basin/subbasin boundaries
- Requests are based on
  - Scientific Evidence
  - Jurisdictional Reasoning

Scientific	Jurisdictional



Groundwater Sustainability Agencies

Groundwater Sustainability Agency - means one or more local agencies that may impose fees or take other actions to develop and enforce a groundwater sustainability plan

Local Agency – A local public agency that has water supply, water management, or land use responsibilities within a groundwater basin

**May be one or more GSA's within each basin or subbasin but must coordinate together*

Sustainable Groundwater Management Act General Roles and Responsibilities

- 2016

DWR • Regulations for:
  - Basin boundaries
  - GSPs and Alternatives

- 2017

DWR • BMPs

GSA • GSAs (H&M) **Failure Triggers SWRCB Review**

- 2020

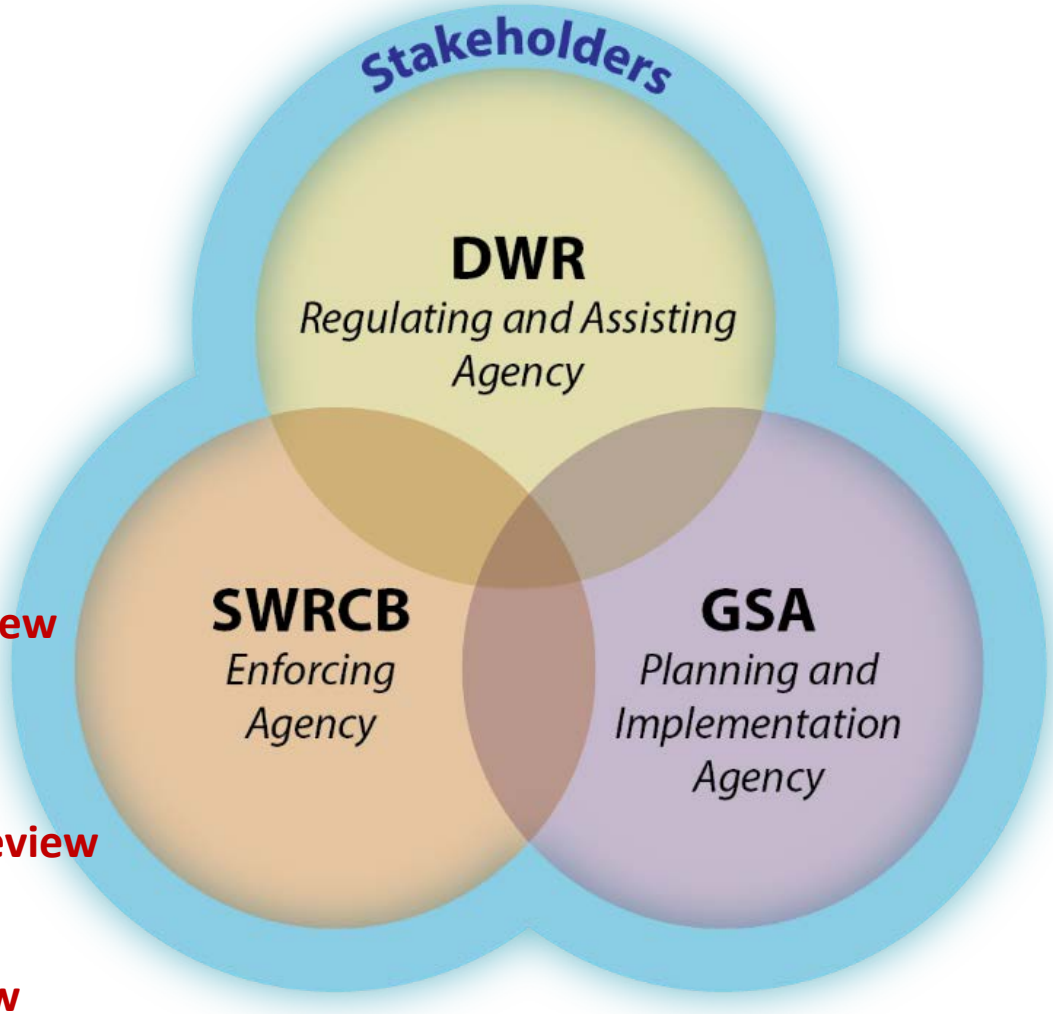
GSA • Critical overdraft basins managed under GSPs **Failure Triggers SWRCB Review**

- 2022

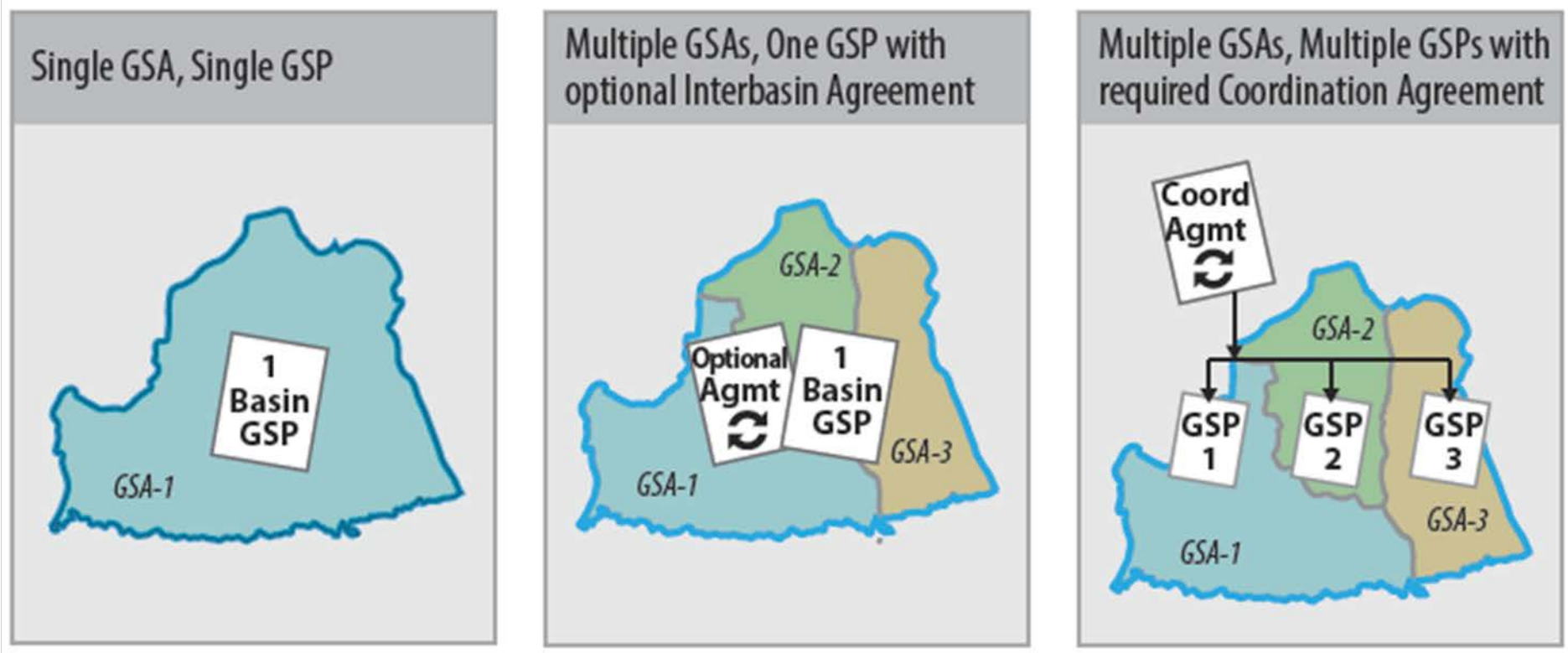
GSA • All H&M basins under GSP **Failure Triggers SWRCB Review**

- ~2040

GSA • Achieve sustainability **Failure Triggers SWRCB Review**



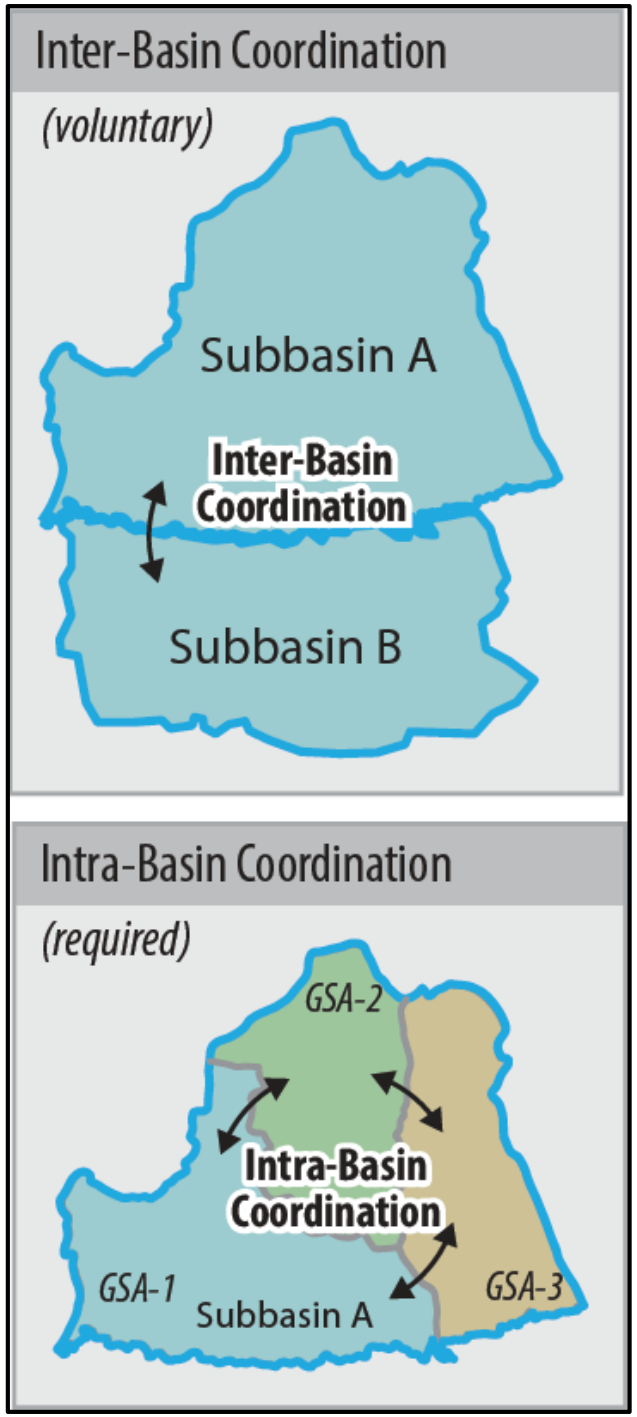
GSP Possibilities Within a Basin/Subbasin



Coordination for Multiple GSA's

1. **Inter-Basin Coordination:** Voluntary coordination between two or more basins that are hydraulically connected

2. **Intra-Basin Coordination:** Required coordination for basins with multiple GSPs and recommended for basins with multiple GSAs preparing a Single GSP



Groundwater Sustainability Plans

- Article 1. Introductory Provisions
- Article 2. Definitions
- Article 3. Technical and Reporting Standards
- Article 4. Procedures
- **Article 5. Plan Content**
- Article 6. Evaluation and Assessment
- Article 7. Reports, Assessments, and Amendments
- Article 8. Coordination Agreements
- Article 9. Alternatives and Adjudicated Areas

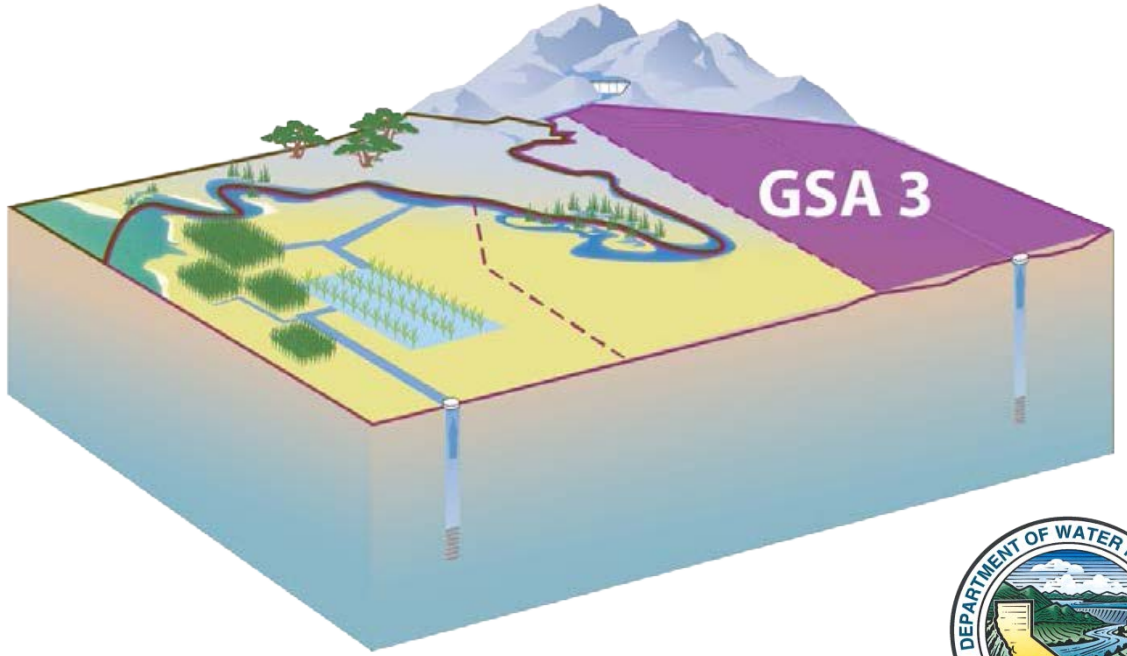
Article 5. Subarticle 1. Administrative Information

Executive Summary

Agency Information

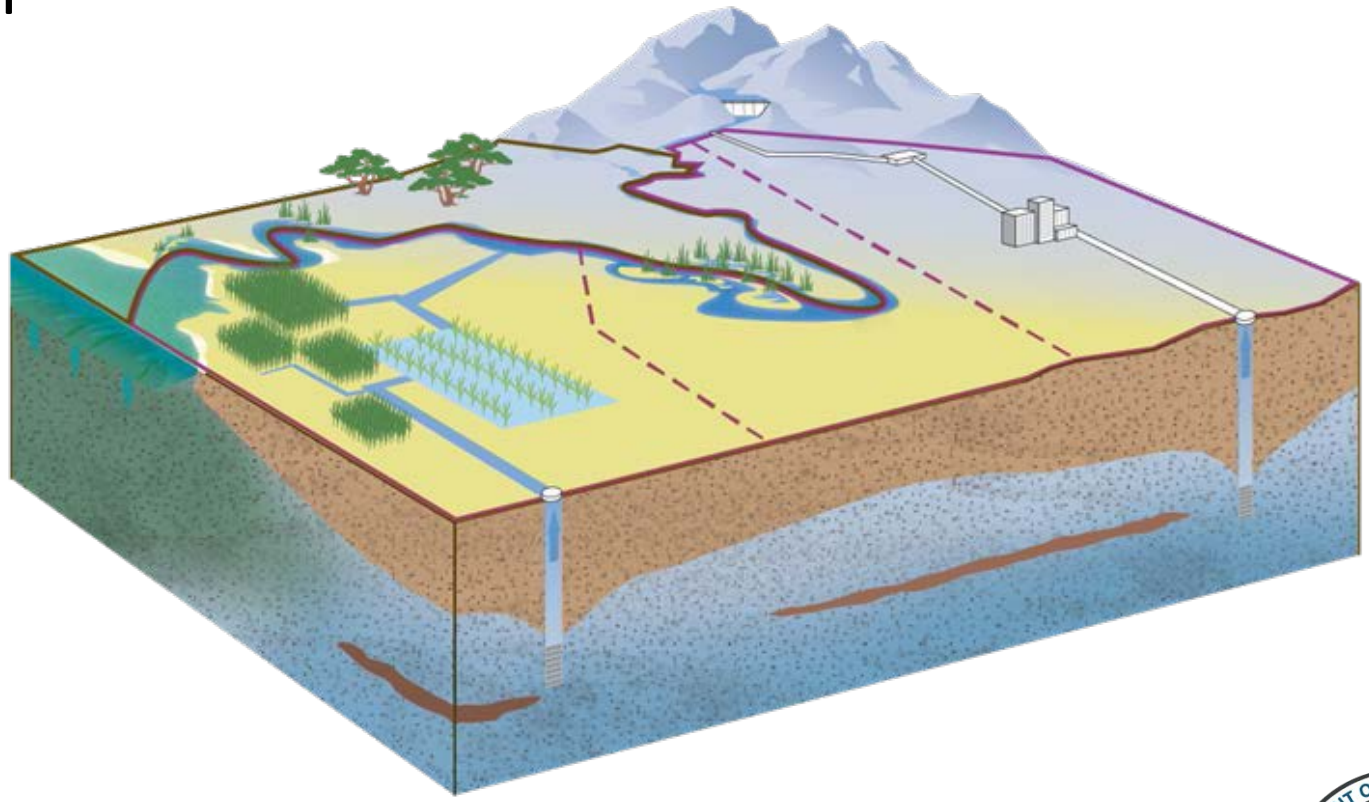
Description of Plan Area

- Introduction
- General Information
- Agency Information
- Description of Plan Area
- Notices and Communication



Article 5. Subarticle 2.
Basin Setting

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



Article 5. Subarticle 3.
Sustainable Management Criteria

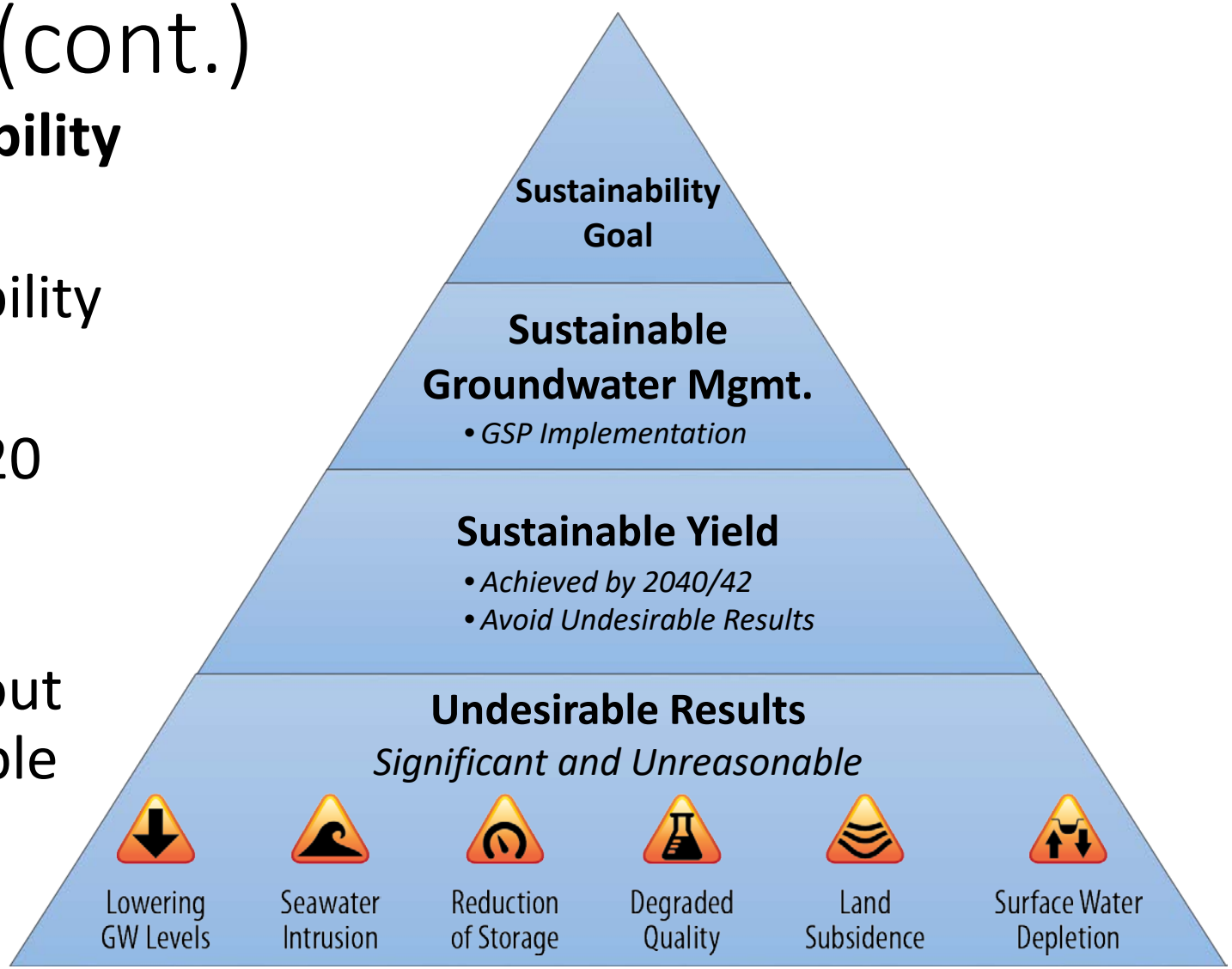
- Sustainability Goal ***(Basin Wide – Goal)***
- Undesirable Results ***(Basin Wide - Impacts)***
- Minimum Thresholds ***(Site Specific - Impacts)***
- Measurable Objectives ***(Measures Taken to Achieve Goal)***

Sustainability Goal	•Basin wide Goal •Achieved by 2040/2042
Sustainable Groundwater Management	•During Plan Implementation •Avoid Undesirable Results
Sustainable Yield	•Basin wide Sustainable Yield •Achieved by 2040/2042 •Avoid Undesirable Results

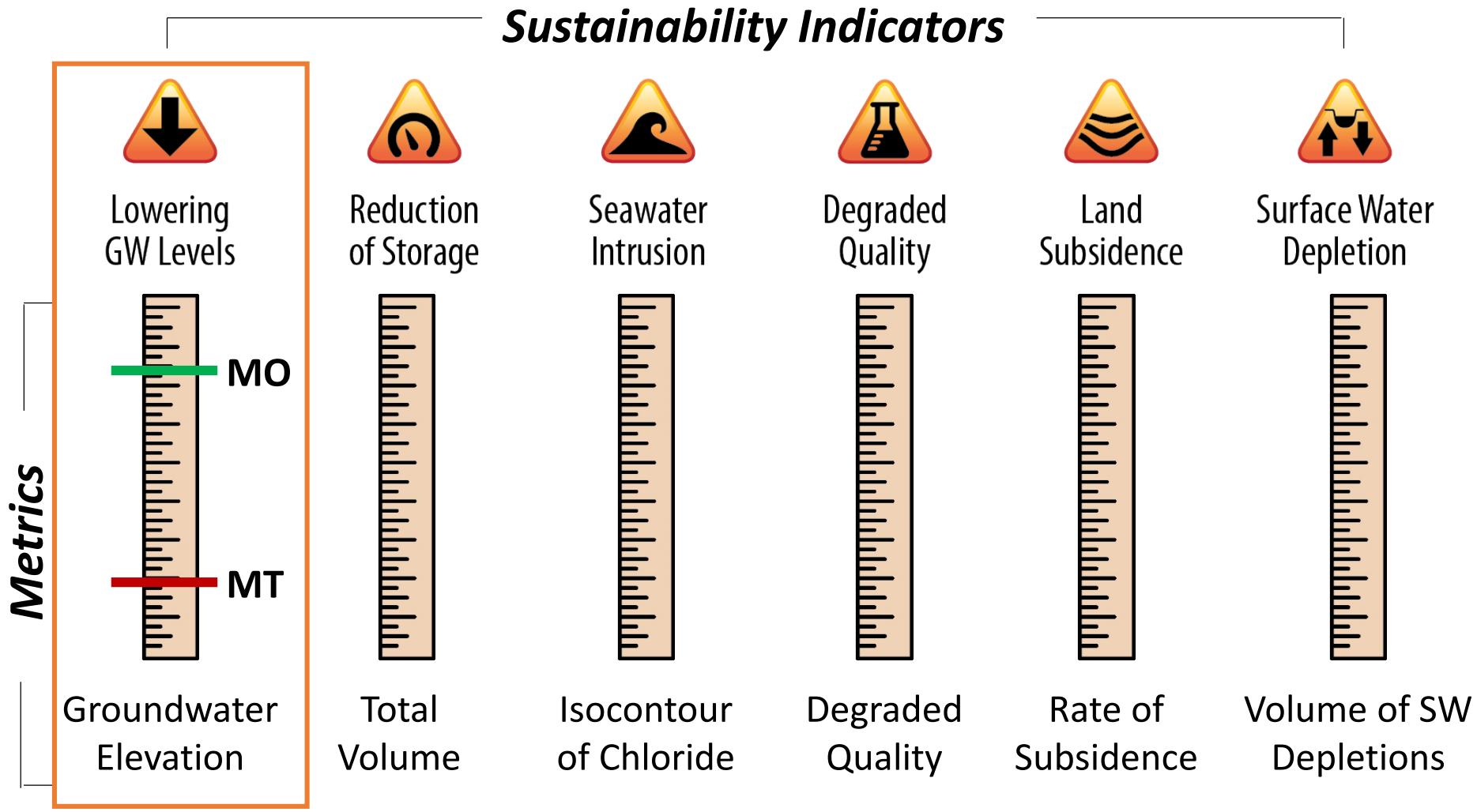
Sustainable Management Criteria – Framework (cont.)

§ 354.24. Sustainability Goal

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



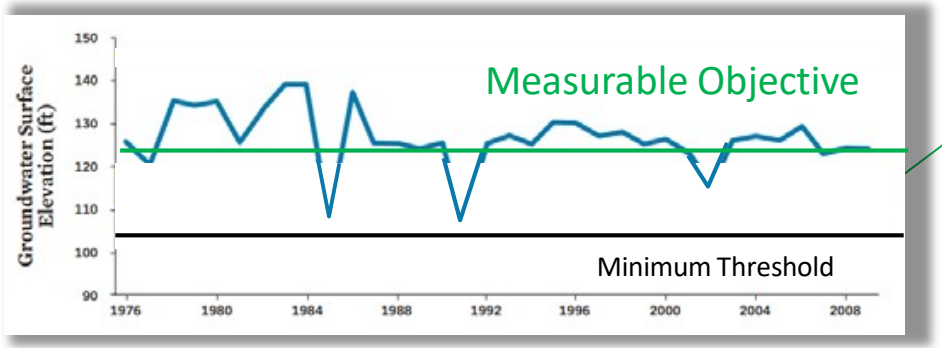
Minimum Threshold Metrics
- Statewide Framework -

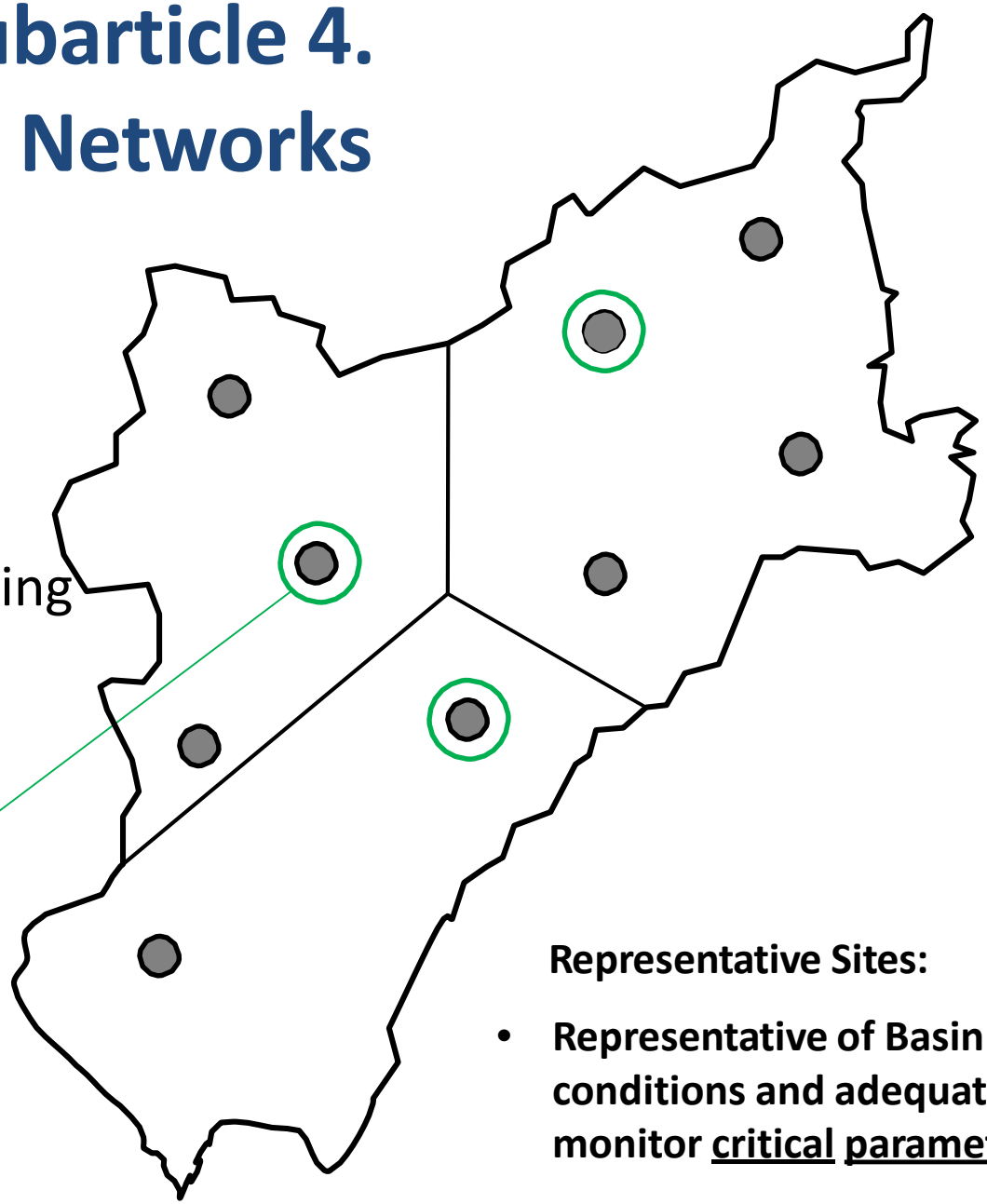


***Groundwater Elevations - can be used for multiple minimum thresholds**

Article 5. Subarticle 4. Monitoring Networks

- Monitoring Network
- Representative Monitoring
- Assessment and Improvement of Monitoring Network



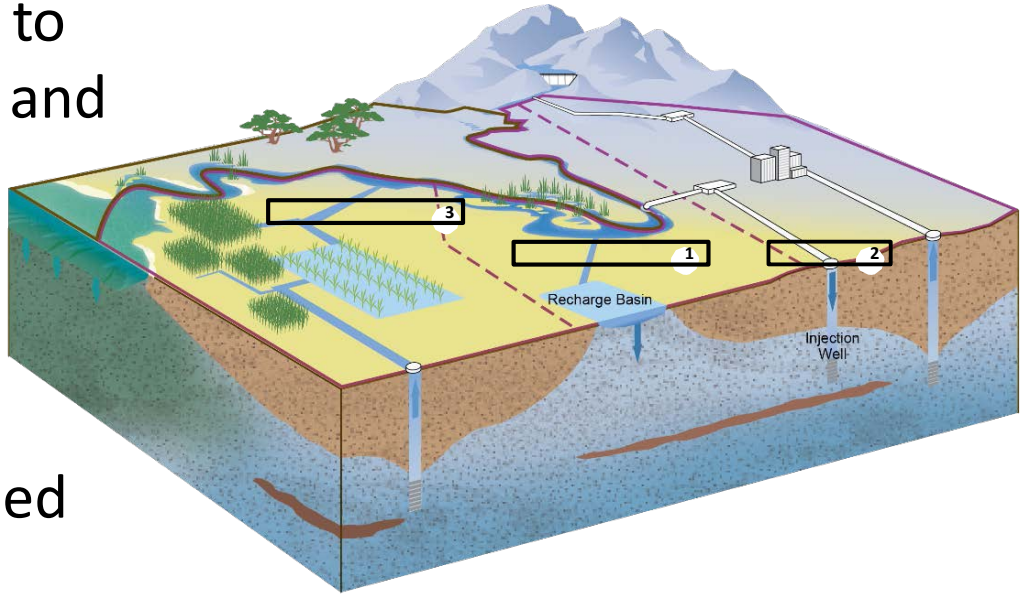


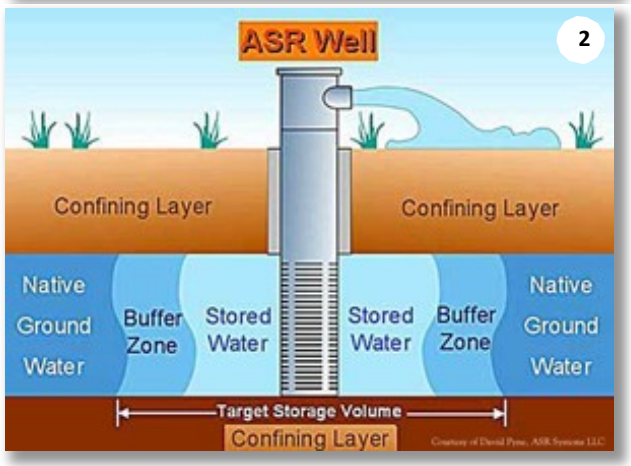
Representative Sites:

- **Representative of Basin conditions and adequate to monitor <u>critical</u> <u>parameters</u>**

Article 5. Subarticle 5. Projects and Management Actions

- GSP developed and adopted to meet measurable objectives and prevent undesirable results
- Contingency projects or actions that would be triggered if groundwater conditions have not responded to previous management actions
  - Supported by available scientific data, analytical methods, and groundwater models, if available





DWR Groundwater

https://www.water.ca.gov/Programs/Groundwater-Management