

SGMA Roadmap: February 2019

*Where We've Been, and Where We're Headed
Next*

Water Education Foundation
Water 101
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SGMA Basics:
A Brief Review

Sustainable Groundwater Management Act (SGMA) of 2014

SGMA is intended to provide for sustainable management of groundwater through local management, while preserving the security of water rights. State intervention only when necessary.

Fundamental Principles

Sustainability

Basins "must be managed sustainably for long-term reliability and multiple economic, social and environmental benefits for current and future beneficial uses." Water Code § 113

No alteration of water rights

"Nothing in this part, or in any groundwater management plan adopted pursuant to this part, determines or alters surface water rights or groundwater rights under common law or any provision of law that determines or grants surface water rights." Water Code § 10720.5(b)

Local primacy, with State backstop

Management "is best achieved locally through the development, implementation, and updating of plans and programs based on the best available science." Water Code § 113.

Definition of "Sustainable Yield"

"[T]he maximum quantity of water, calculated over a base period representative of long-term conditions in the basin and including any temporary surplus, that can be withdrawn annually from a groundwater supply without causing an undesirable result."

Cal. Water Code § 10721(v) (emphasis added)

Definition of "Undesirable Result" (aka the "Six Deadly Sins")

One or more of the following effects caused by groundwater conditions occurring throughout the basin:

- (1) Chronic lowering of groundwater levels;
- (2) Significant/unreasonable reduction of groundwater storage;
- (3) Significant/unreasonable seawater intrusion;

Cal. Water Code § 10721(w)

"Undesirable Result" cont.

- (4) Significant and unreasonable degraded water quality;
- (5) Significant and unreasonable land subsidence; and
- (6) Depletions of interconnected surface water that have significant and unreasonable adverse impacts on beneficial uses of the surface water.

SGMA's Regulatory Framework

Step 1: Establishment of Groundwater Sustainability Agency

- GSAs must be formed across the basin by June 30, 2017.
- If no GSA by June 30, 2017, County is the GSA by default.
- If no GSA or alternative plan by deadline, basin is at risk of being designated "probationary" by SWRCB

Step 2: Adoption of a Groundwater Sustainability Plan

- Each medium/high priority basin must be covered by a GSP by the statutory deadline (2020/2022)
- Basins may be covered by multiple coordinated GSPs
- If no GSP or approved alternative covers the entire basin, basin is at risk of being designated "probationary" by SWRCB

Step 3: Attainment of Sustainability Goal

- Basin must be sustainably managed within 20 years of plan implementation
- Plans must be designed to achieve and maintain their designated sustainability goals over a 50-year planning and implementation horizon

Key Requirements

Medium and high-priority basins:

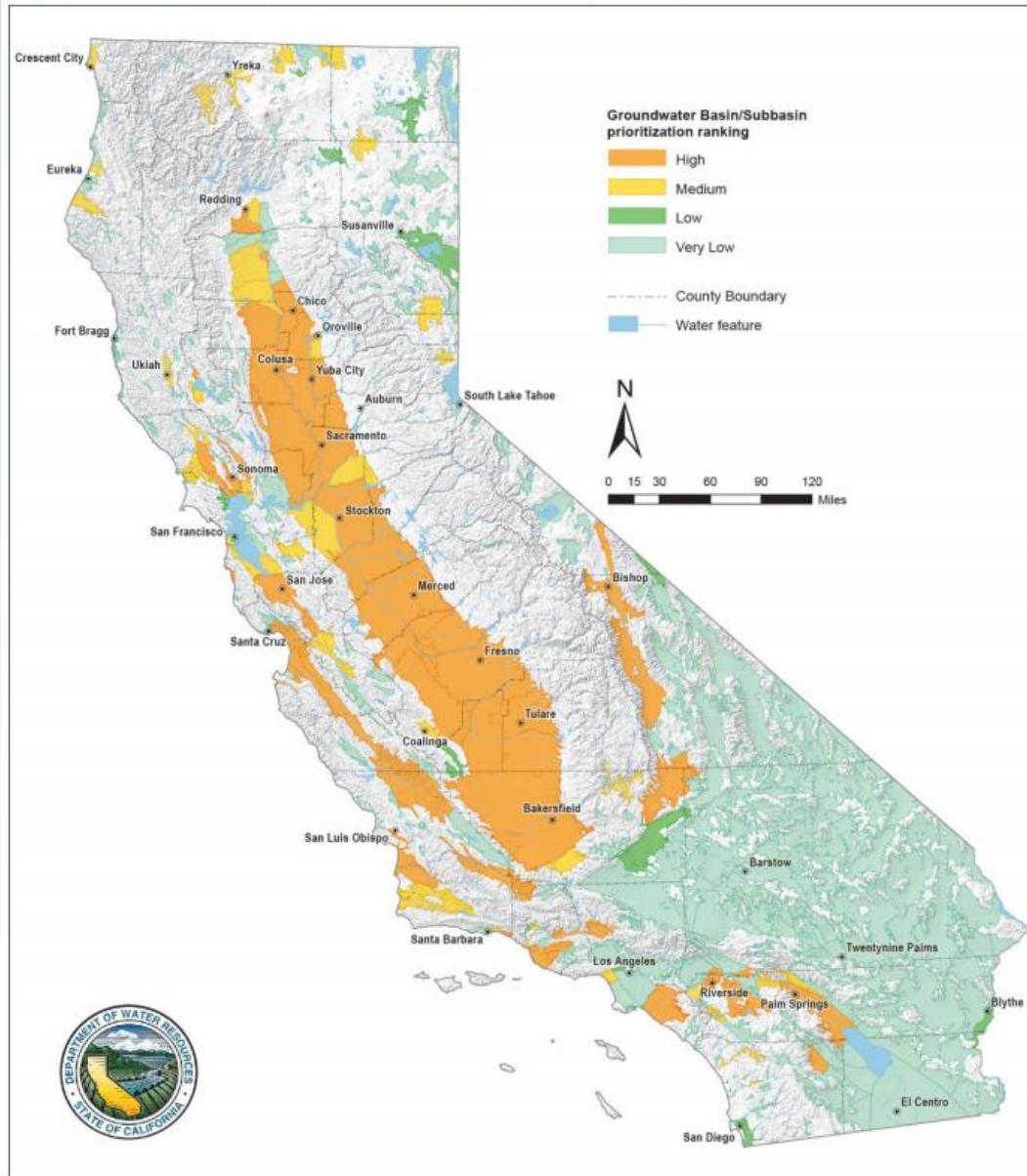
- Must be managed under a GSP or coordinated GSPs;
- That are implemented by one or more GSAs;
- To achieve the sustainability goals of the basin...

...by the statutory deadlines.

Basin Prioritization

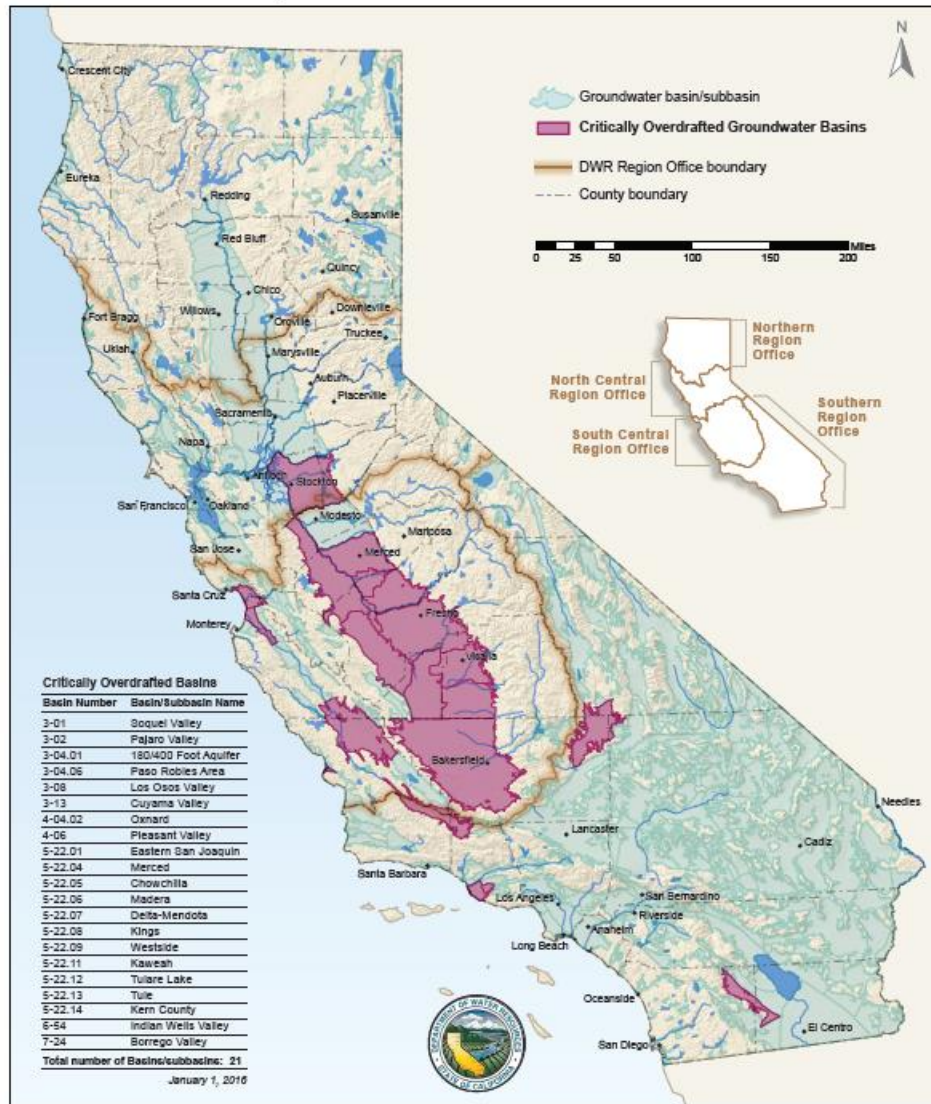
- Basins designated by DWR as medium and high priority are subject to SGMA
- Updated prioritization (draft) in 2018 replaced 2014 effort
- Criteria:
 - pop. (overall, growth), wells (# public supply), irrig. acres, reliance on GW, GW impacts, impacts on local habitat and streamflow
- 109 out of 517 basins are medium and high-priority
 - 21 designated as critically-overdrafted

Figure 1 Statewide Map of 2018 SGMA Basin Prioritization Results



2018 Draft Results

Critically Overdrafted Groundwater Basins – January 2016





SGMA in February 2019:
Status, Next Steps, and Strategic
Considerations

Step 1: Establish the GSA

Status: Complete*

Vast majority of basins subject to SGMA are presently within the boundaries of a GSA (but some governance questions remain)

Next Steps/Areas of Development:

- Representation and funding in "white areas"
- Coordination among GSAs within the basin, and with neighboring basins
- Where there are multiple GSAs in a basin, agencies must coordinate to develop a Plan (or multiple coordinated plans) for that basin.

Step 2: Develop the GSP(s) for the Basin

Status: In Process

Deadlines

- January 31, 2020: Plan (or coordinated plans) must be in place in critically-overdrafted basins
- January 31, 2022: Plan(s) in place in all other medium and high priority basins

Plans optional in low, and very-low priority basins. SGMA does not apply to certain adjudicated basins.

Water Code §§ 10720.7, 10720.8

Step 3: Achieving Sustainable Management

Status: Up Next

Each GSA "shall establish in its Plan a **sustainability goal** for the basin that culminates in the absence of **undesirable results** within 20 years of the applicable statutory deadline."

Cal. Code Regs, tit. 23, § 354.24

Key Functions of the GSP

(the 50,000 foot view)

- Describe the basin conditions
- Identify & eliminate undesirable results
- Plan for long-term sustainability of the basin (20/50+ year time horizons)
- Developed and implemented by the GSA(s)

GSP Components

(a closer look)

- Basin Setting
- Sustainability Goal(s), supported by:
 - Measurable Objectives (§ 354.30)
 - Minimum Thresholds (§ 354.28)
 - Projects & Management Actions (§ 354.44)
- Planning and Implementation Horizon
- Monitoring Network & Protocols (§ 354.34)

Describing the Basin

- **Basin Setting** portion of the GSP describes current conditions in the basin. Includes:
 - Hydrogeologic Conceptual Model
 - Water Budget
 - Basin Conditions
- Serves as the basis for defining and assessing reasonable sustainable management criteria and projects and management actions. (GSP Regs § 354.12)

Moving Toward Sustainability

GSP sets a **sustainability goal** that:

1. Culminates in the absence of **undesirable results** in the basin by 2040 (critically-overdrafted) or 2042 (medium/high priority basins).
2. Maintains sustainability in the basin through the **planning and implementation horizon**.

Moving Toward Sustainability

Each GSA must establish **measurable objectives**, including interim milestones in increments of 5 years to:

- Achieve the sustainability goal within the statutory deadline.
- Continue to manage the basin sustainably over the planning and implementation horizon.

Moving Toward Sustainability

GSP sets **minimum thresholds** for certain **sustainability indicators**:

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

→ See GSP Regs §§ 354.22-28; Water Code § 10721(w)

Moving Toward Sustainability

Minimum thresholds quantify groundwater conditions at a monitoring site. When the minimum threshold for a sustainability indicator is exceeded, an **undesirable result** occurs.

Monitoring and Reporting on Sustainability Status

- Annual monitoring reporting
- Status relative to measurable objectives, minimum thresholds, and milestones
- Assessment of effectiveness of projects and management actions

Stakeholder Involvement

- Must provide opportunities for public and stakeholder involvement
- Before, during, and after GSP development and preparation
- Certain stakeholder groups must specifically be considered (see Water Code § 10723.4.)



**Approaches to Achieve
Sustainability:
Projects & Management Actions**

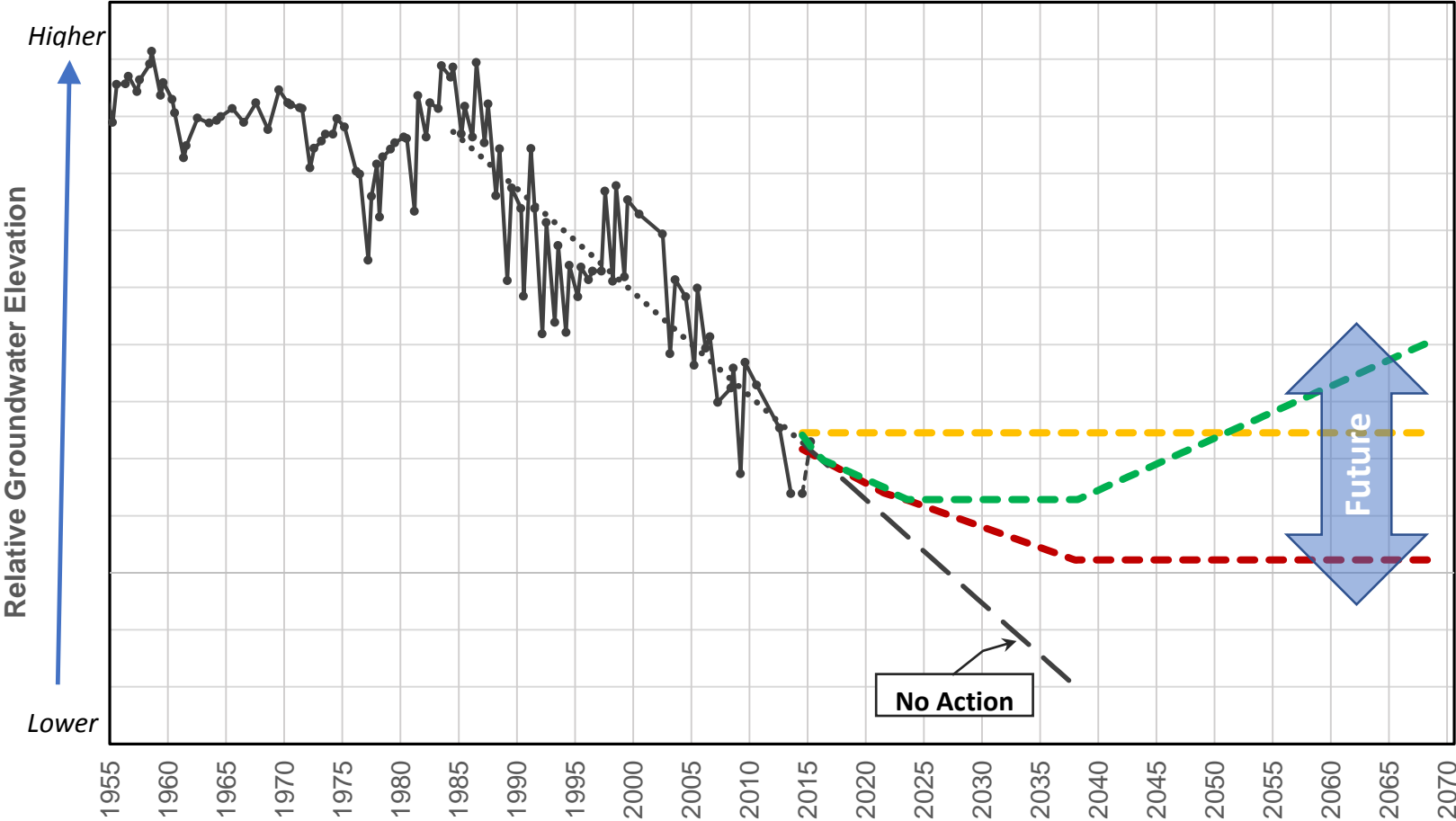
GSA's Implement the GSP

GSA's implement the GSP, in pursuit of the sustainability goal:

- Investigatory authority to prepare plan, and to monitor compliance and enforcement. §10725.4
- May require registration of groundwater extraction facilities, and may impose measurement requirements. §§ 10725.6, 10725.8 (*but see de minimus exception*)
- Imposition of spacing requirements on new groundwater well construction and "reasonable operating regulations on existing groundwater wells to minimize well interference, including requiring extractors to operate on a rotation basis." §10726.4(a)(1)
- Authority to regulate, limit, or suspend extractions from individual wells or wells in the aggregate. §10726.4(a)(2)

Choices for Path to Sustainability

Example Water Levels



Implementation of Projects and Management Actions

- In accordance with GSP
- 20 years to achieve sustainability
 - 2040 for critically overdrafted basins
 - 2042 for other medium/high priority basins
- Projects = supply augmentation
- Management Actions = demand management, allocation, water markets

Projects: Supply Augmentation

Enhanced recharge

- Flood flows for recharge projects (wet year supplies)
- Utilization of excess surface water supplies for conjunctive use projects
- Injection wells

Water treatment

Infrastructure projects

- District interties
- Surface water storage and conveyance facilities

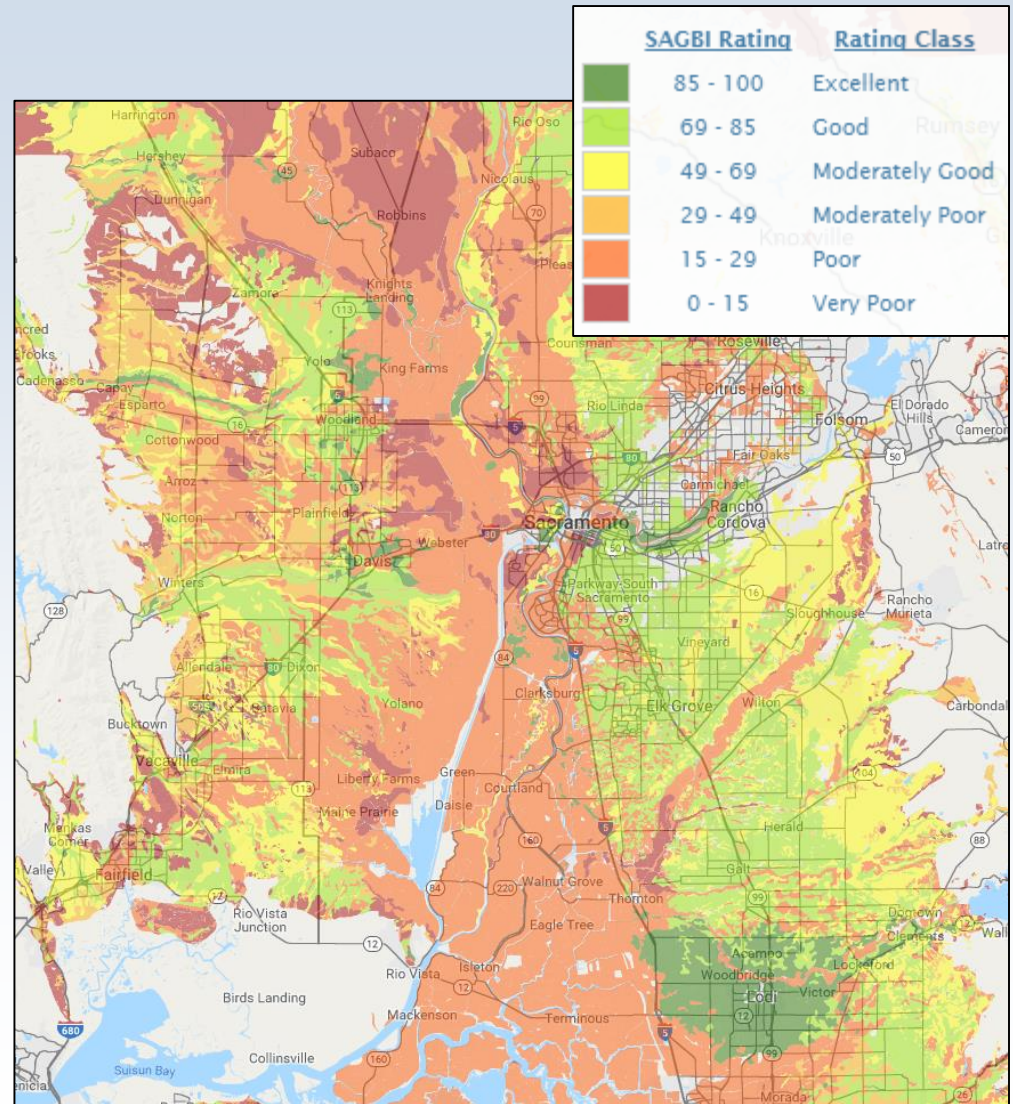
Economic, timing and water availability considerations

A Closer Look: Recharge Projects

Project Category	Pros	Cons
Agricultural field recharge	Often can utilize existing conveyance/irrigation systems; helps with flood control; broad distribution	Potential limitations by land use and timing; only in ag. areas; hard to recharge confined aquifers; WQ?
Flood flow routing through conveyance	Utilizes existing conveyance; helps with flood control	Distribution depends on conveyance system; recharge limited by permeable surface area; hard to recharge confined aquifers
Recharge basins	Utilizes existing conveyance	Spatial limited by locations; recharge volume limited by surface area; hard to recharge confined aquifers
Injection wells	Can recharge confined aquifers and specific locations	Cost and time to permit, implement, and maintain

Ex: Agricultural Field Recharge

- Requirements
 - Physical characteristics
 - Benefits/undesirable results
 - Land owner participation



Management Actions

- Water Use Reduction
 - Focused and/or basin-wide
 - » Incentivize and/or limit GW use to achieve sustainable yield and avoid undesirable results
 - Urban and Ag water conservation
- Intra-basin water transfers/trading
 - Direct transfer or water market
 - » Develop rules based on sustainable yield/undesirable results
 - Fundamental decision: Allocations (acre foot of water per acre)

Management Action Example: Water Use Reduction

- Conservation (irrigation efficiency improvements)
- Pumping fees
- Groundwater trading programs
- New well installation restrictions (well location, depth, spacing, interference)
- Limits on groundwater pumping (location, depth)
- Limitations on groundwater substitution water transfers
- Recycled water use in lieu of pumping

Water Use Reduction

- **Administrative considerations**
 - Define sustainable yield
 - Define baseline allotment
 - Define any phase-in period and trading rules/limits
- **Implementation**
 - Range of options: pumping limits to full water market
 - Consistent with undesirable results specified in GSP
- **Operational considerations**
 - Flexibility to adjust over time and reduce costs
 - Monitoring and enforcement
 - Cost recovery

Water Use Reduction

What is an allotment?

- Proportional amount of the sustainable yield of the subbasin

Allotments can be defined:

- Spatially (across GSAs, management areas, parcels)
- Across time (considering water supply conditions)
- Consideration of equity and fairness

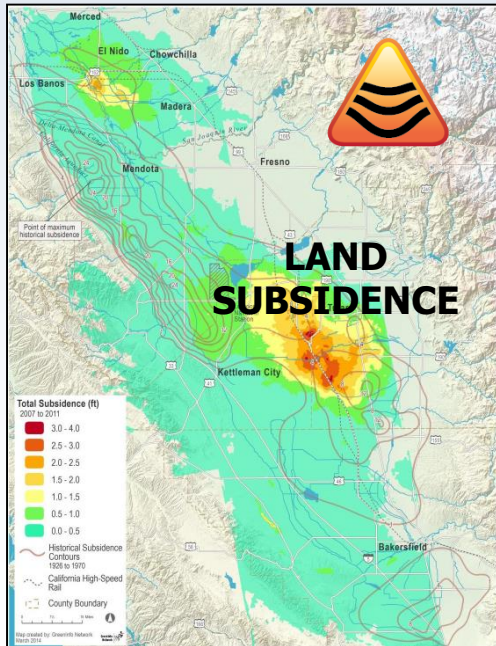
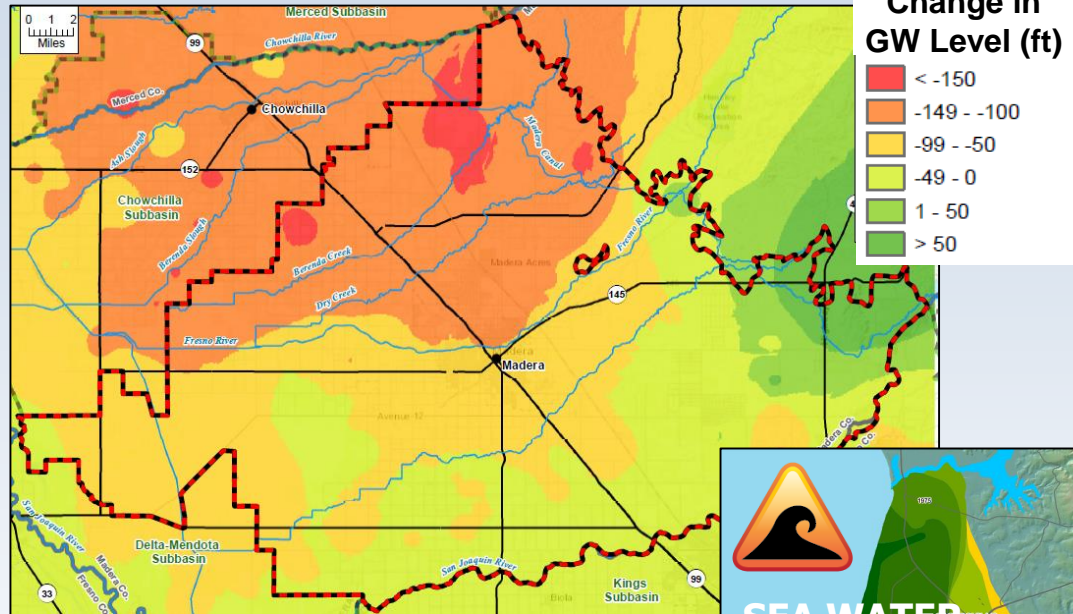
Why are allotments important? Demand management requires:

1. How much do we have?
2. How do we measure it?
3. Who gets it?

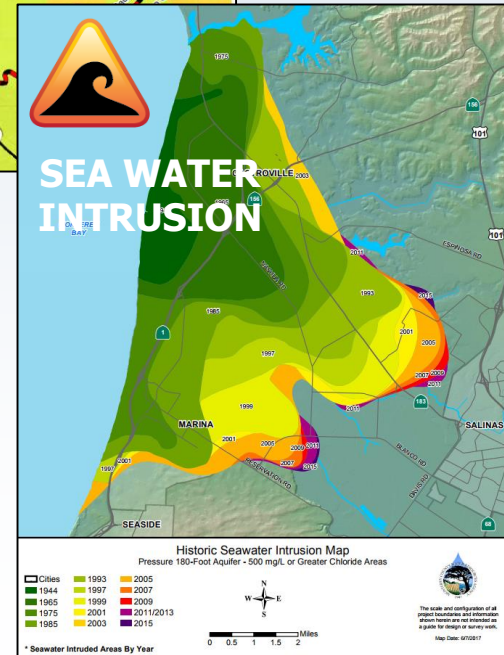
Trading system rules must consider undesirable results



**LOWERING GW LEVELS/
STORAGE DEPLETION**



SW DEPLETION



Coming Next...

January 31, 2022

Groundwater Sustainability Plans are adopted and implementation under way for basins not in critical overdraft

Plans are submitted to DWR for adequacy review upon adoption

Interim milestones are reviewed by DWR every five years

January 31, 2042

Groundwater Sustainability Agencies in basins not in overdraft achieve sustainability goal

January 31, 2020

Groundwater Sustainability Plans are adopted and implementation under way for basins in critical overdraft

Plans are submitted to DWR for adequacy review upon adoption

Interim milestones are reviewed by DWR every five years

January 31, 2040

Groundwater Sustainability Agencies in critically overdrafted basins achieve sustainability goal

Developments to Watch

- DWR Determinations on proposed Alternative Plans (end of 2018/early 2019)
- Basin Boundary Modification Decisions (2018/2019) & prioritizations
- GSP Funding & Development in Critically Overdrafted Basins
- Basin adjudications
- Locally: Governance structure development & stakeholder outreach

Questions?



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