Sierra Valley Technical Advisory Committee

November 2, 2020

Sierra Valley Groundwater Management District

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Stillwater Sciences

Agenda

- Introductions
- SGMA Overview
- Data Collection Efforts
- Introduction to Sustainable Management Criteria
- Water Quality SMC
- Subsidence SMC
- Discussion

Introduction
Organization and Team Structure

Roles and Responsibilities

- GSAs: have authority and responsibility for GSP and content within
- Planning Committee: coordinates logistics, outreach and high-level content
- Technical Team: researches technical issues, prepares draft content for the GSP
- TAC: members will provide advice, input, and recommendations to the GSAs on all aspects of the GSP

How does the TAC fit in?

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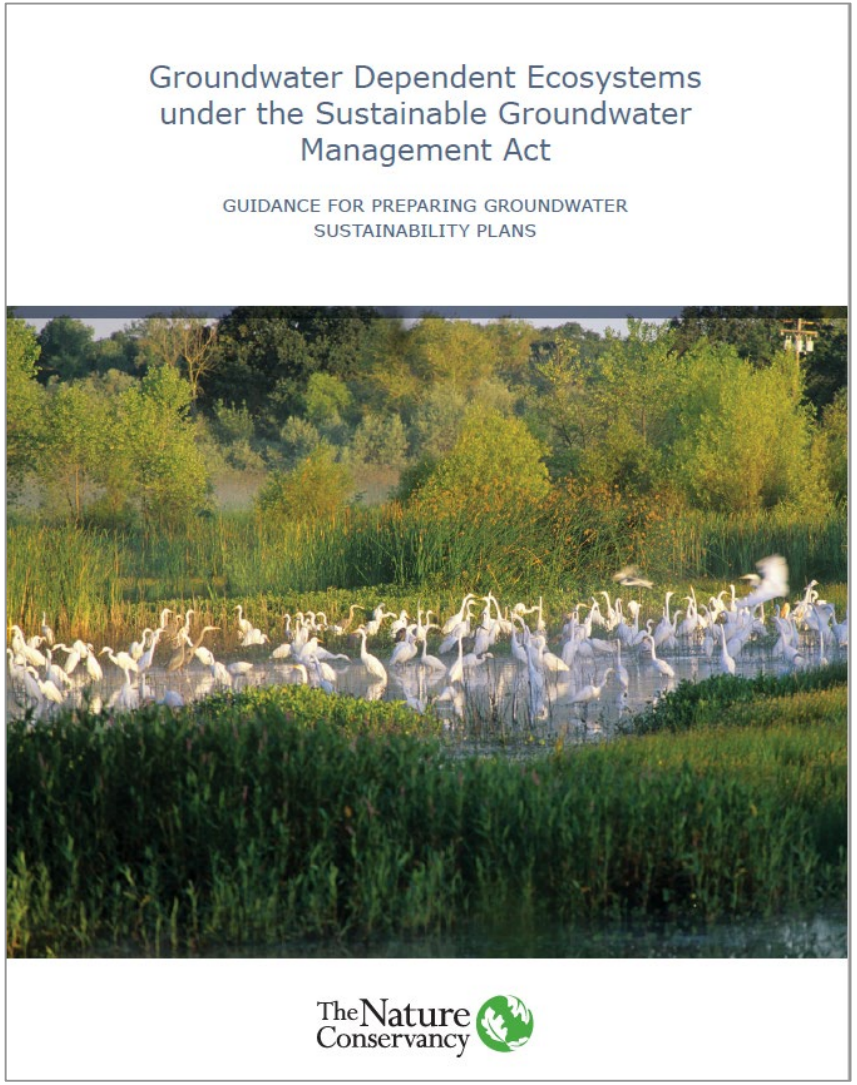
(Pre-SGMA Overview)
Terms and Acronyms

- Groundwater Sustainability Agency - GSA
- Groundwater Sustainability Plan - GSP
- Sustainable Groundwater Management Act - SGMA
- Technical Advisory Committee - TAC
- Undesirable Result - UR
- Sustainable Management Criteria - SMC
- Measurable Objectives - MO
- Minimum Threshold - MT

SGMA (Sustainable Groundwater Management Act) Overview

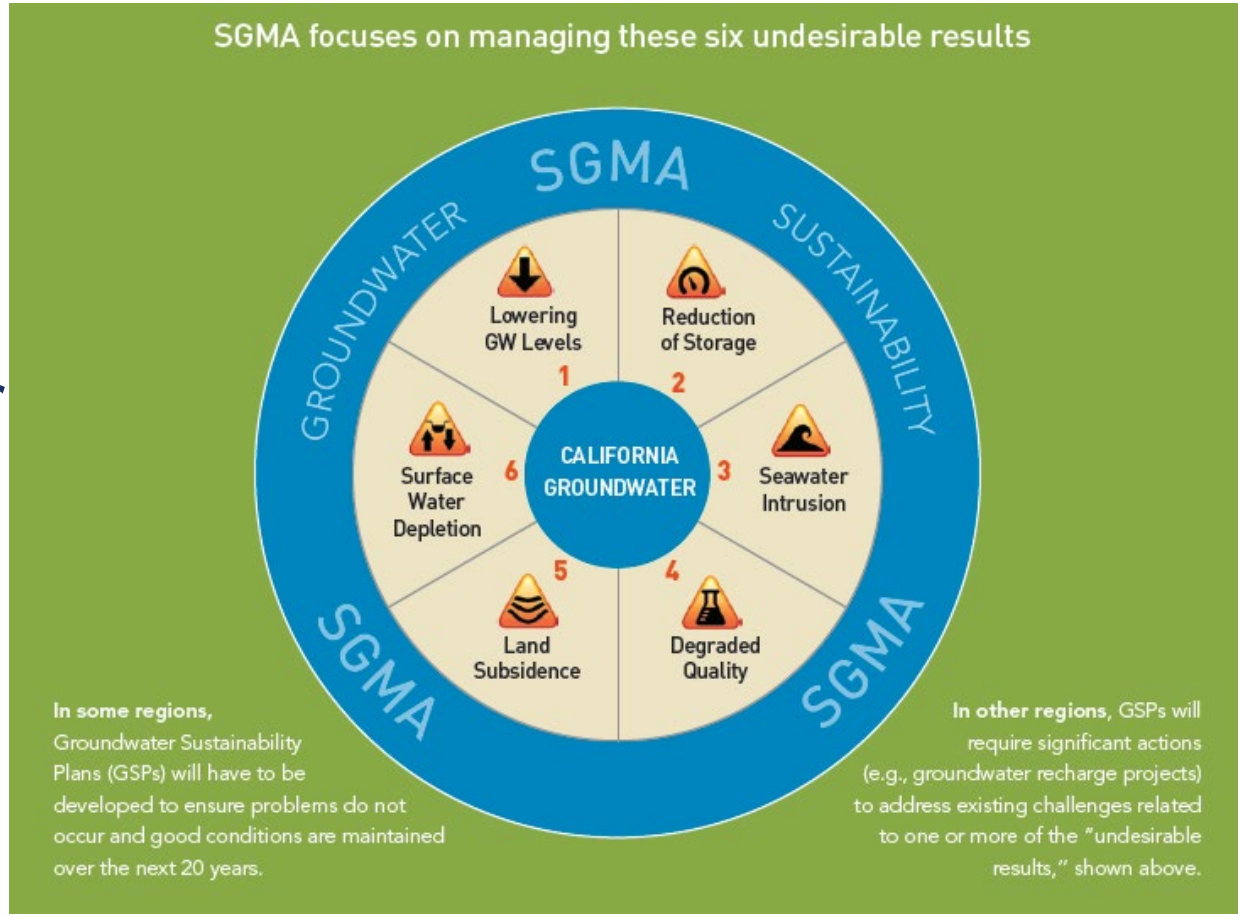
- Historic drought
- Became law on January 1, 2015
- Medium/high priority basins must be managed sustainably
- Emphasis on local control with State oversight
  - State intervenes if local action not taken
- Requires Groundwater Sustainability Agencies (GSAs)
- Requires Groundwater Sustainability Plans (GSPs)

Who is interested?



Sustainability Indicators: Learning a New Language

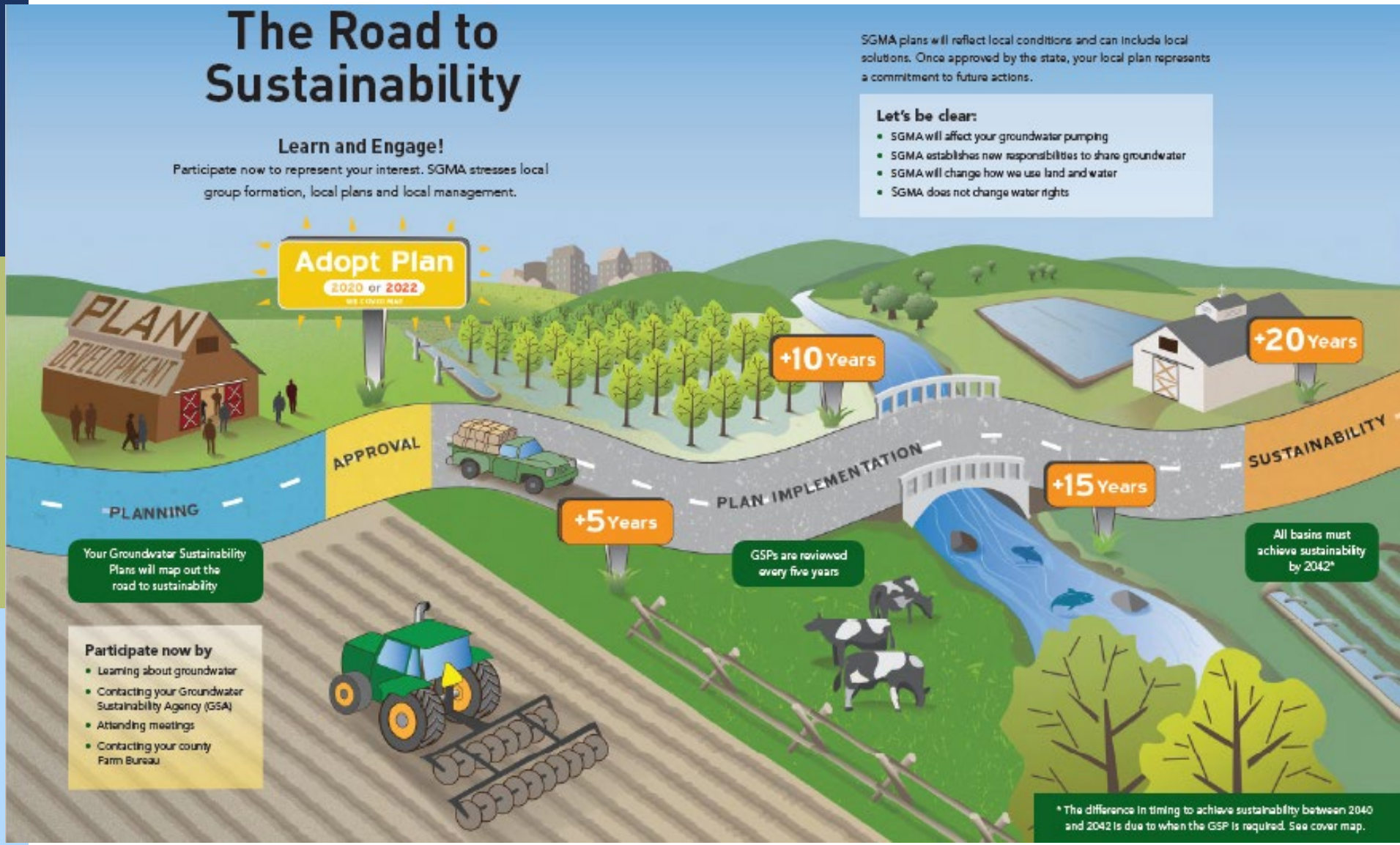
Sustainable Management Criteria and *Projects and Management Actions* are the Key Components of the GSP



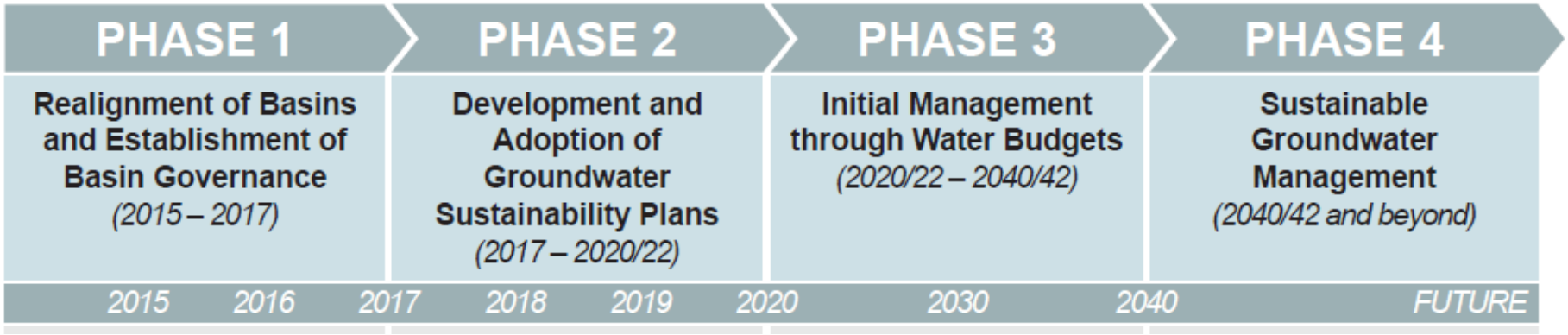
Keys to success

GSP accepted by DWR and Local Stakeholders

- Effective communication and community involvement
- On-time, effective, and successful plans and implementation
- Tools (database, models) useful into the future

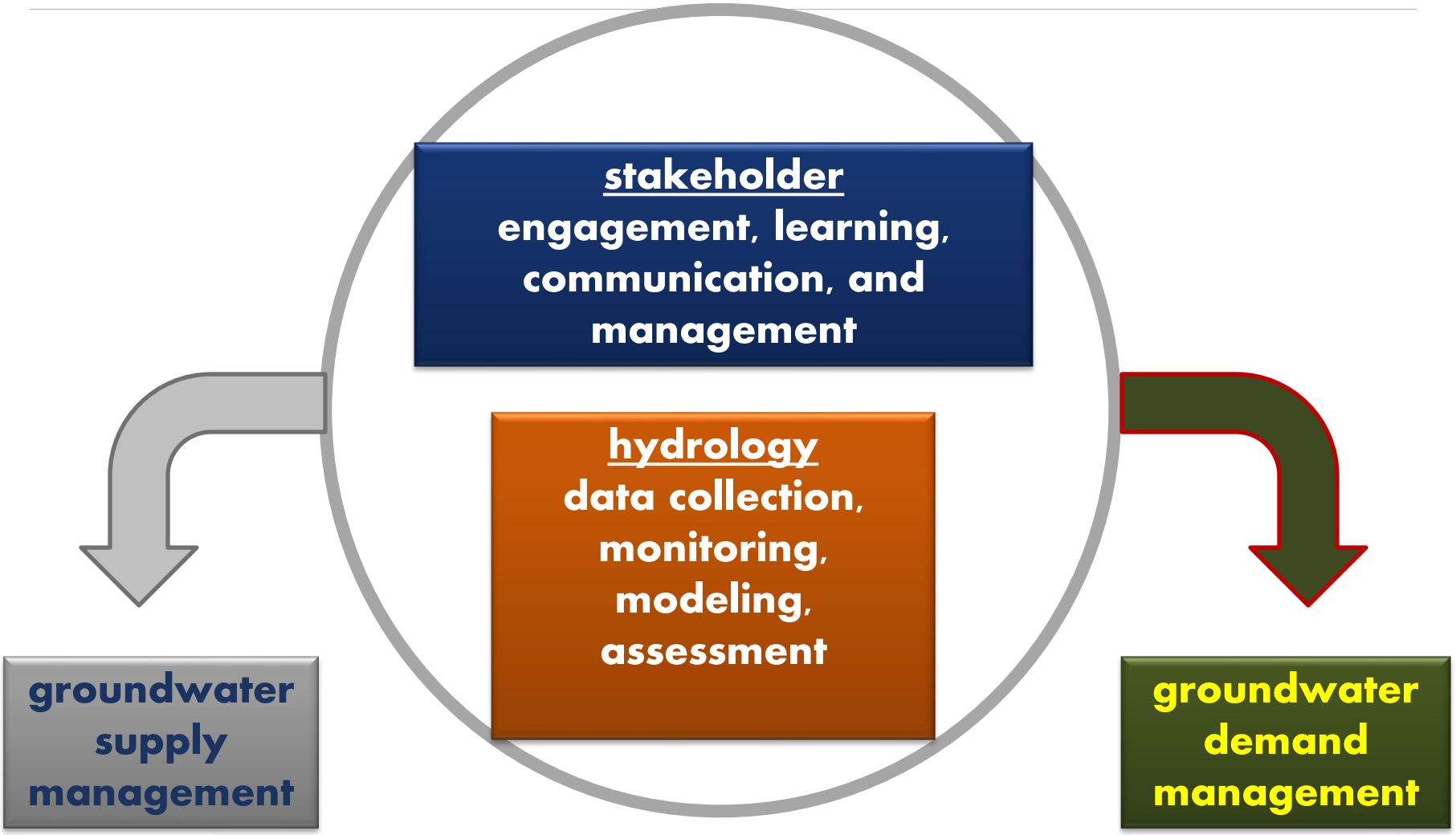

The Road to Sustainability
Learn and Engage!
Participate now to represent your interest. SGMA stresses local group formation, local plans and local management.
SGMA plans will reflect local conditions and can include local solutions. Once approved by the state, your local plan represents a commitment to future actions.
Let's be clear:
SGMA will affect your groundwater pumping
SGMA establishes new responsibilities to share groundwater
SGMA will change how we use land and water
SGMA does not change water rights
Adopt Plan
2020 or 2022
PLAN DEVELOPMENT
APPROVAL
PLANNING
PLAN IMPLEMENTATION
SUSTAINABILITY
+5 Years
+10 Years
+15 Years
+20 Years
Your Groundwater Sustainability Plans will map out the road to sustainability
GSPs are reviewed every five years
All basins must achieve sustainability by 2042*
Participate now by
Learning about groundwater
Contacting your Groundwater Sustainability Agency (GSA)
Attending meetings
Contacting your county Farm Bureau
* The difference in timing to achieve sustainability between 2040 and 2042 is due to when the GSP is required. See cover map.

So What Exactly Will Happen?

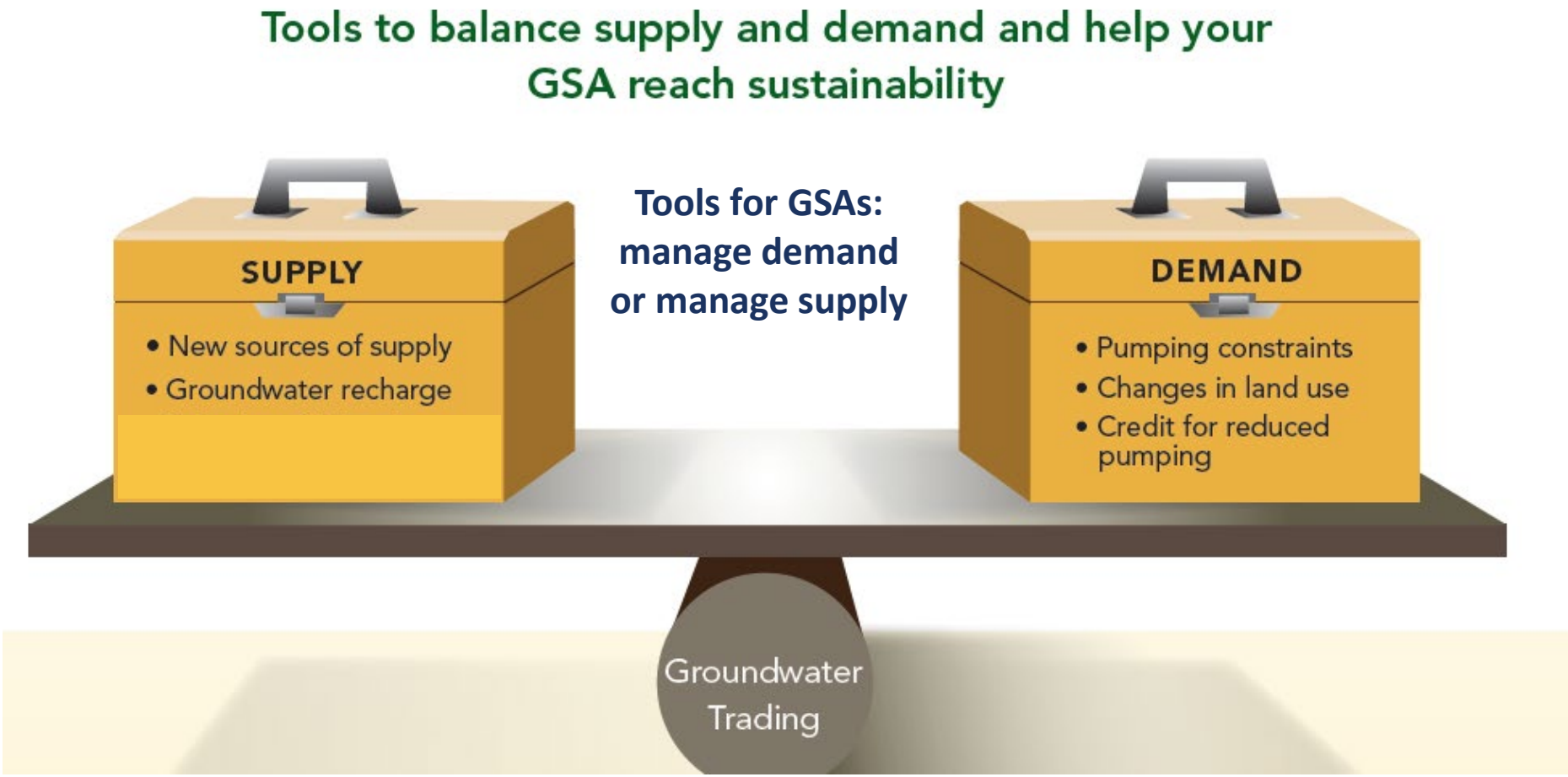


- **First Step: forming a Groundwater Sustainability Agency (GSA)**
  - By June 2017 → Done
- **Second Step: developing a Groundwater Sustainability Plan (GSP)**
  - January 2022 → Working On It Now

Getting There: GSAs plan & implement GSP



SGMA – opportunities and challenges



GSP development and implementation: balancing act – between different interests, between water supply and water demand, between beneficial uses.

Communication & Engagement requirements under SGMA

- GSPs need to consider the interests of users and uses of groundwater in the basin, as well as those who will implement the GSPs
- The GSAs need to describe, in writing, how those interested parties can participate in developing and implementing the GSP
- A diverse array of interests should be encouraged to participate

Broader participation contributes to:

- Well-informed policies and actions, that
- Address multiple objectives, with
- Fewer unintended consequences, and
- Stronger support for implementation

Summary

- Key to SGMA success:
  - Local management,
  - Outreach effort and community involvement,
  - Good science, and
  - Data collection
- Need to support GSAs in overcoming challenges and develop opportunities

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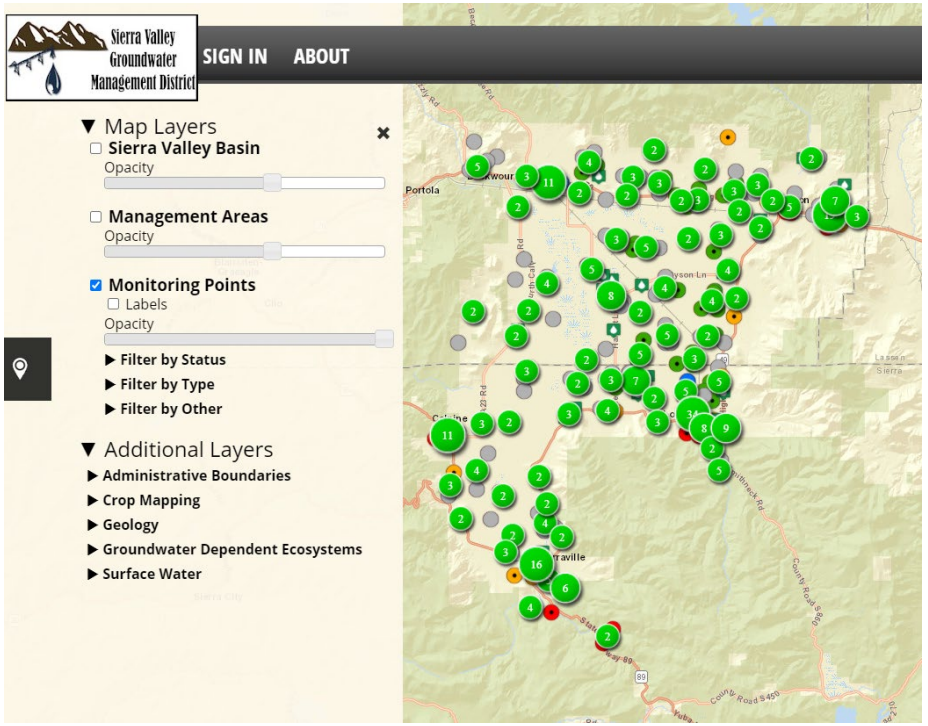
Data Collection Efforts

- Reviewing collected data and publicly available data.
- Feedback requested: Are there data we should be looking at?

Data Management System https://sierra-valley.gladata.com/

- 360 wells
- Crop maps from 2014 and 2016
- Geology map and faults
- Groundwater Dependent Ecosystem Database
- Surface Water Features



Data Requests

- Operations and flow from Frenchman Lake and Lake Davis.
- Preliminary vegetation mapping from CDFW.
- Database and data products developed for the SGMA Concept Document.
- Annual pumping data in Sierra Valley.

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Introduction to Sustainable Management Criteria

- Review of Sustainable Management Criteria (SMC)
  - What will our process look like?
- Sustainability Goals
  - Group discussion

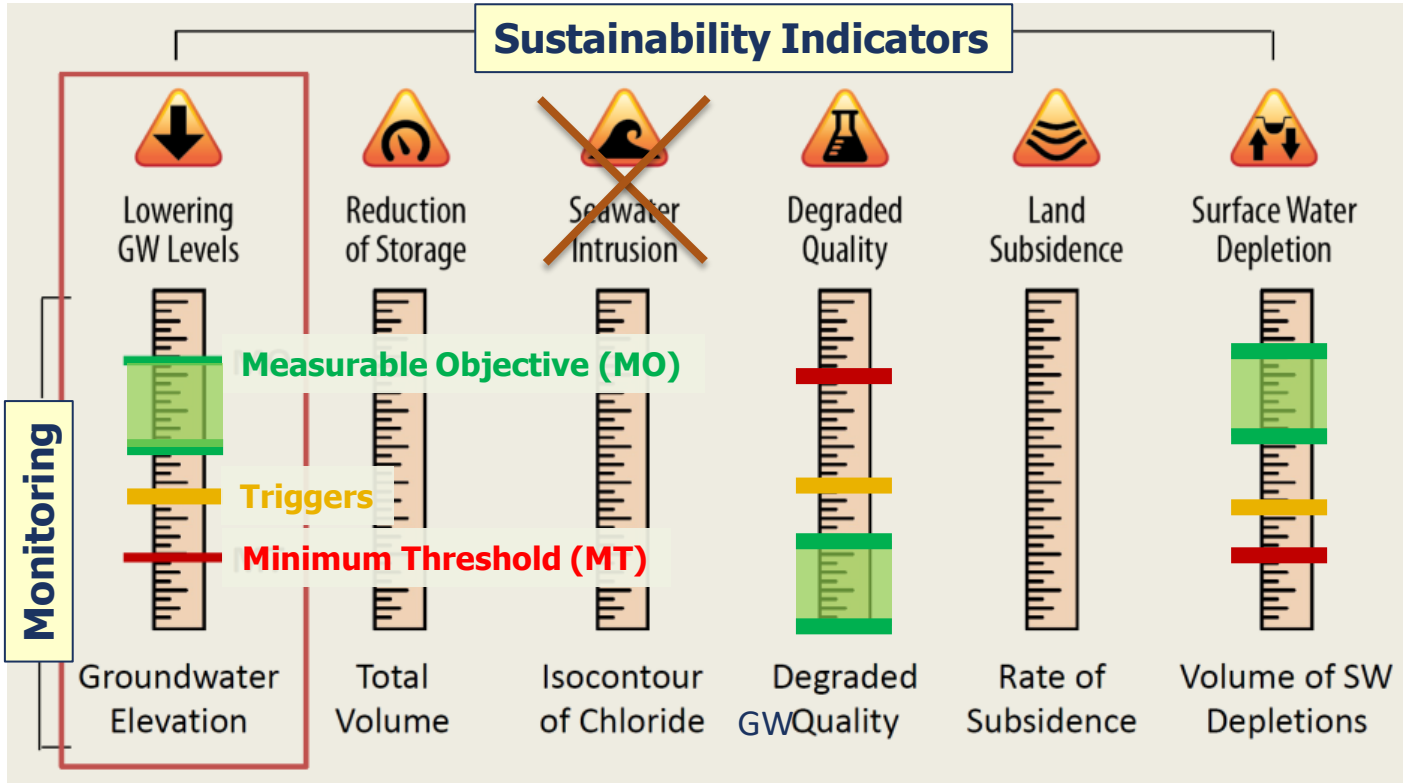
Groundwater Sustainability Plan Development

A GSP has five chapters:

1. Introduction 
2. Plan Area and Basin Setting 
3. Sustainable Management Criteria 
4. Projects and Management Actions 
5. Plan Implementation 

Monitoring and Managing Sustainability

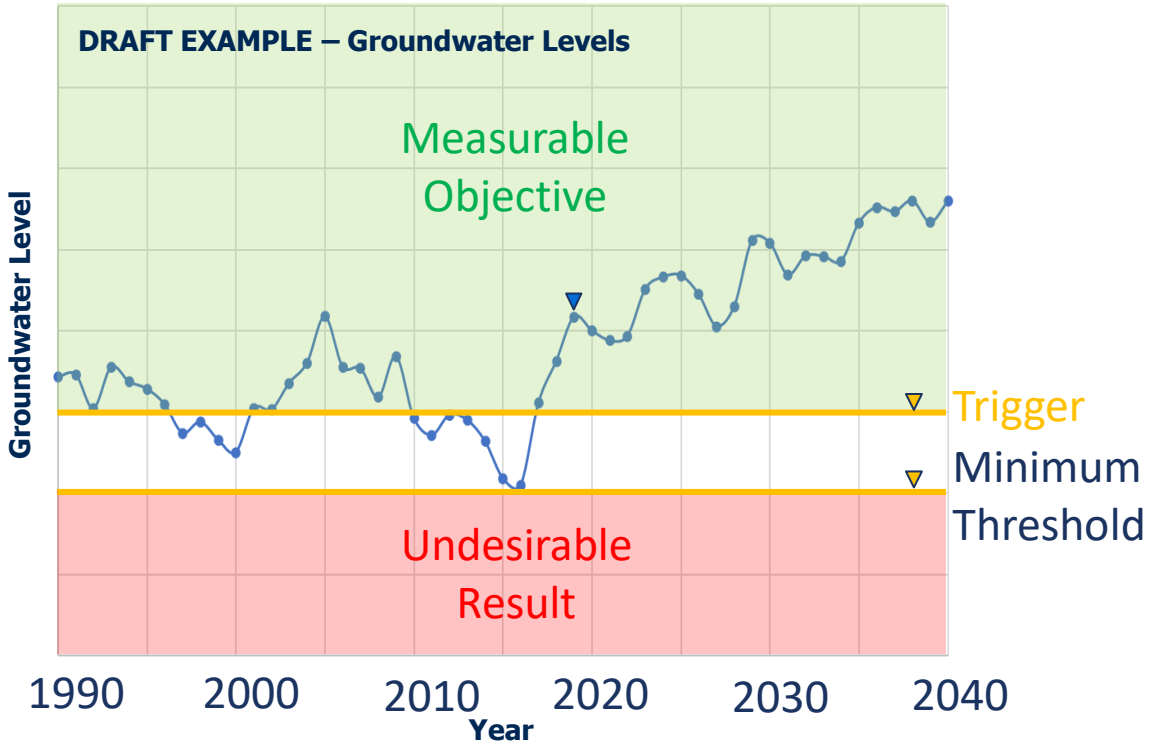
Sustainable Management Criteria (SMCs) are defined ***locally*** and based on ***basin conditions*** to avoid significant and unreasonable ***undesirable results*** for five SGMA ***sustainability indicators***.



modified from Ca DWR 2016

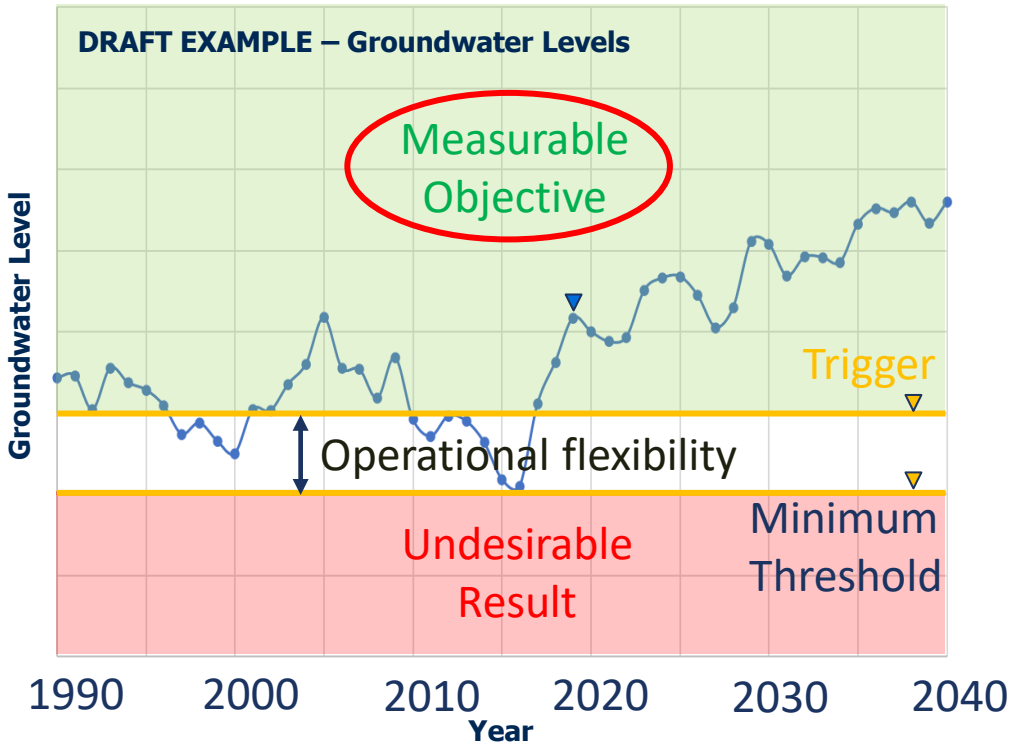
Review of Sustainable Management Criteria Components

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



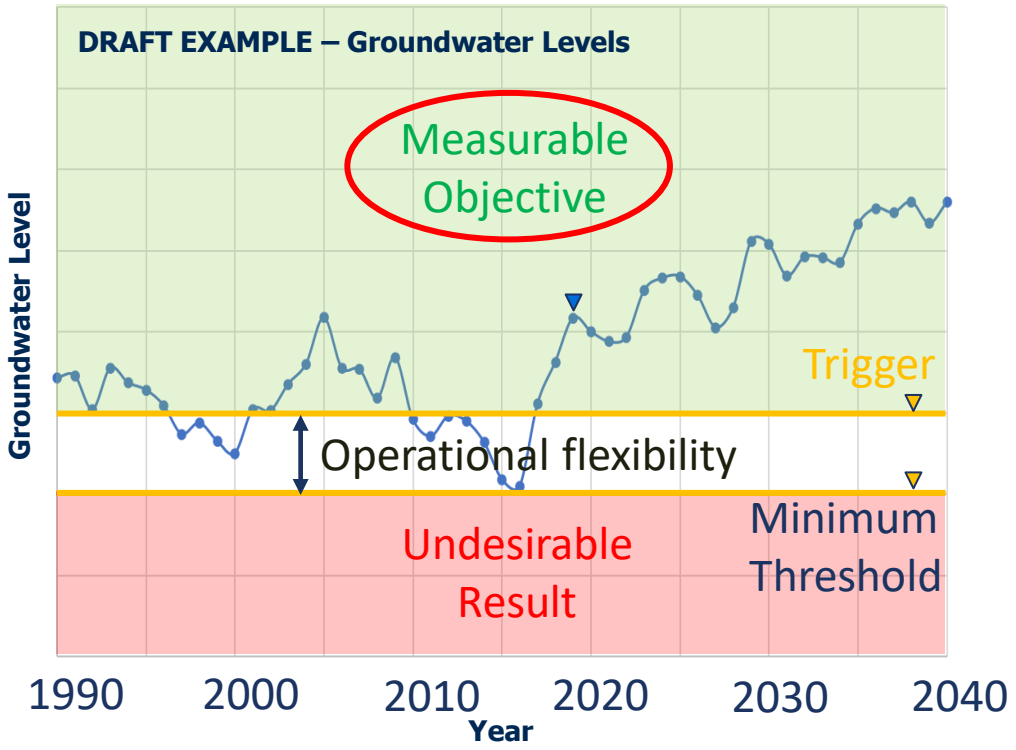
Review of Sustainable Management Criteria Components

- Measurable Objectives
  - A management target that provides a usable buffer for use during droughts, etc.
  - Establishes the lower/upper targeted boundary for basin management
  - Should provide a reasonable margin of operational flexibility



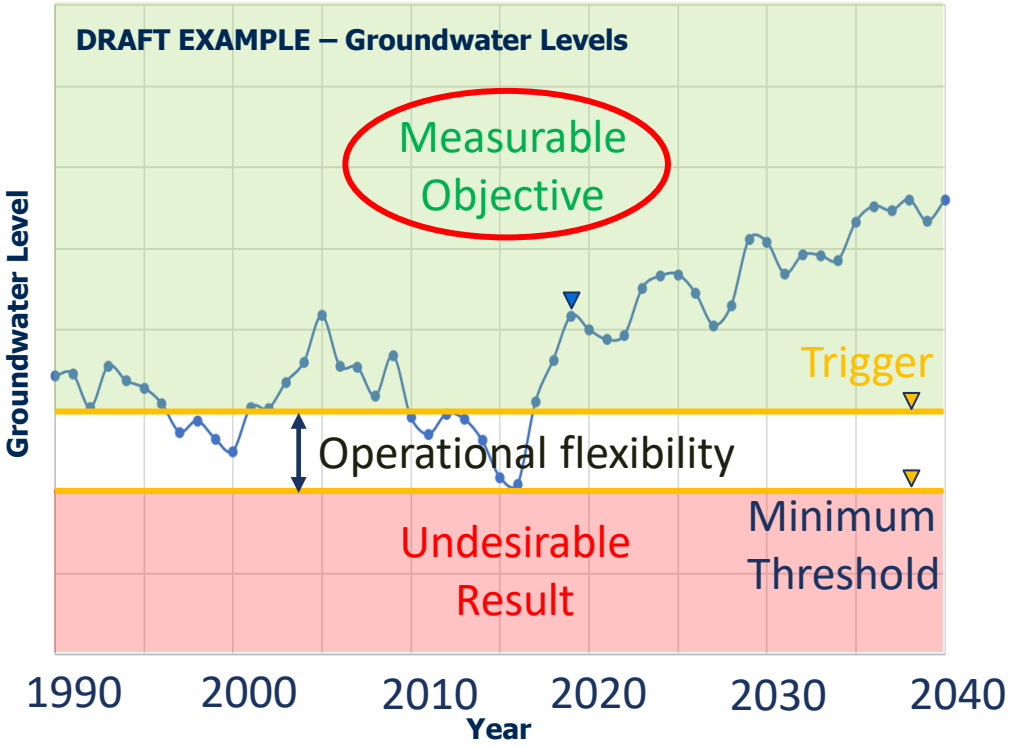
Review of Sustainable Management Criteria Components

- Undesirable Results
  - Must be "Significant and Unreasonable"
  - Statement that describes conditions that we do not want to happen
  - Defined for each sustainability indicator
    - (e.g. groundwater levels, groundwater quality, etc.)



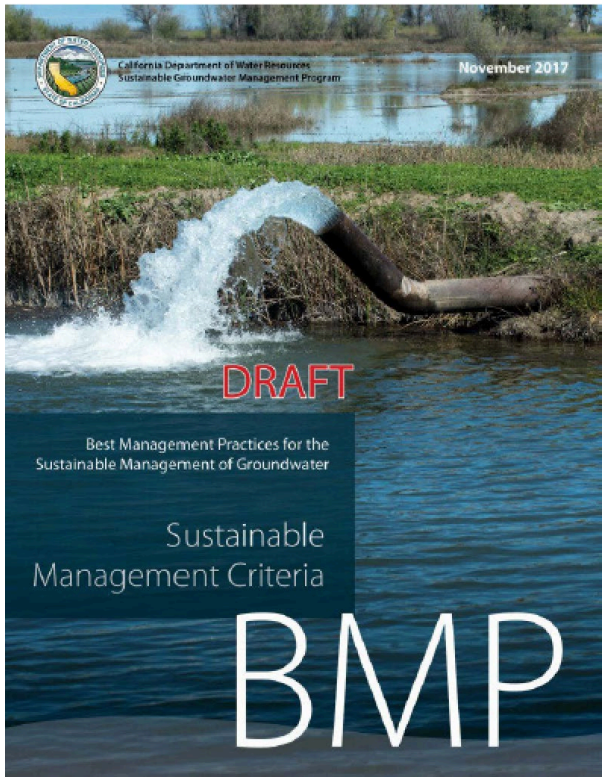
Review of Sustainable Management Criteria Components

- Minimum Threshold
  - Anything worse is considered an "undesirable result"
  - The highest/lowest a basin can go without something significant and unreasonable happening to groundwater

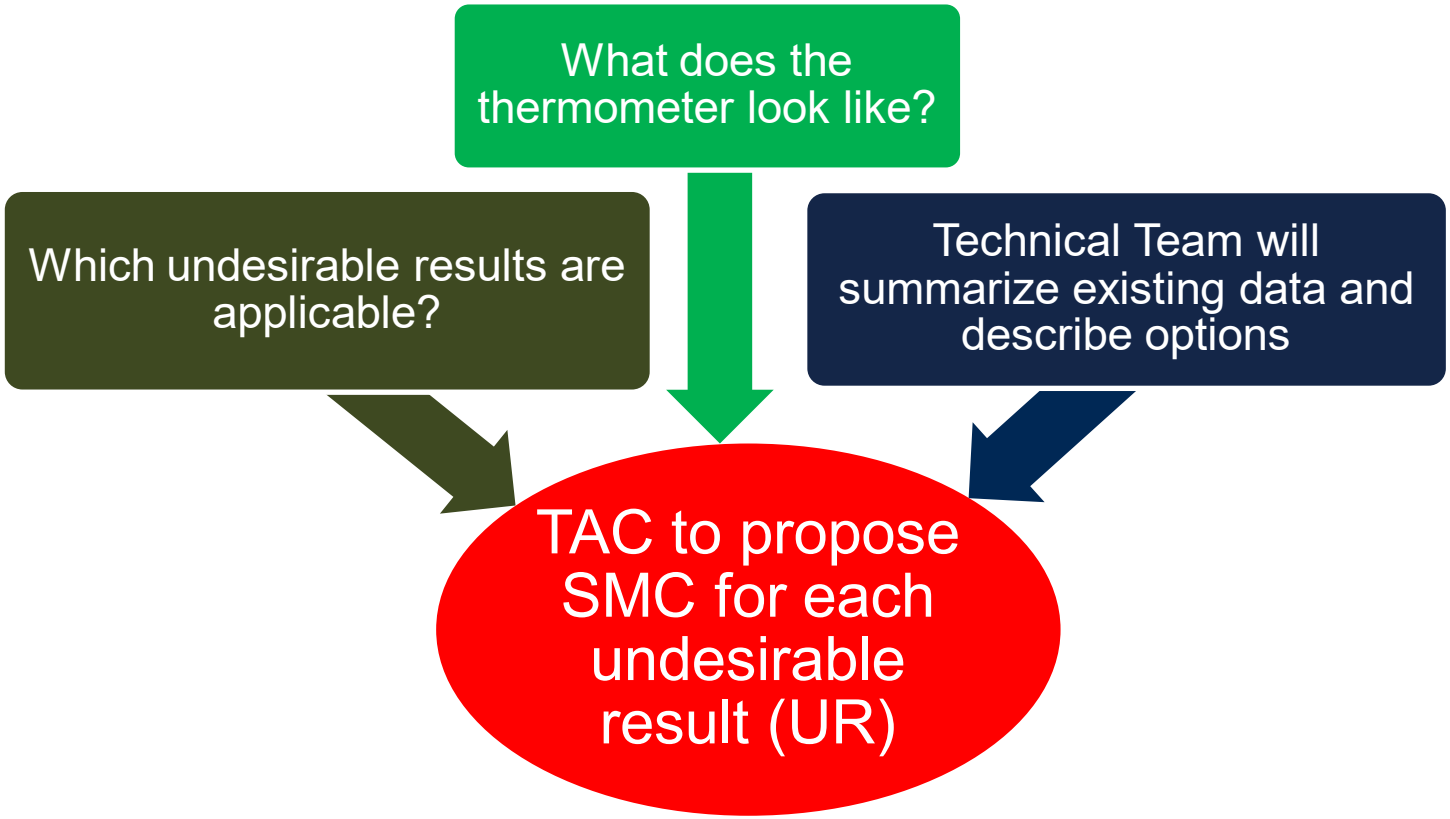


Interconnected SGMA Activities that Inform Sustainable Management Criteria

- Understand the basin setting:
  - Hydrogeologic conceptual model
  - Current and historical conditions
  - Estimated water budget
  - Potential management areas
- Inventory existing monitoring programs and evaluate and build potential representative monitoring points
- Engage interested parties (i.e. beneficial uses and users of groundwater)



Proposed SMC Development Process and how does the TAC fits in?



Initial Exploration of a Sustainability Goal

Key SGMA text (GSP Emergency Regulations 354.24)

"Each agency shall establish in its Plan a sustainability goal for the basin that culminates in the absence of undesirable results"

Initial Exploration of a Sustainability Goal

1. What social and natural qualities do you want to see maintained in the Sierra Valley Basin, long into the future?
2. What do you not want to see happen in the Sierra Valley Basin?
3. What qualities might others want to see maintained in the Basin?

Questions and Comments

BREAK and Meet & Greet

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Water Quality SMC

- Let's start with this to demonstrate the process!

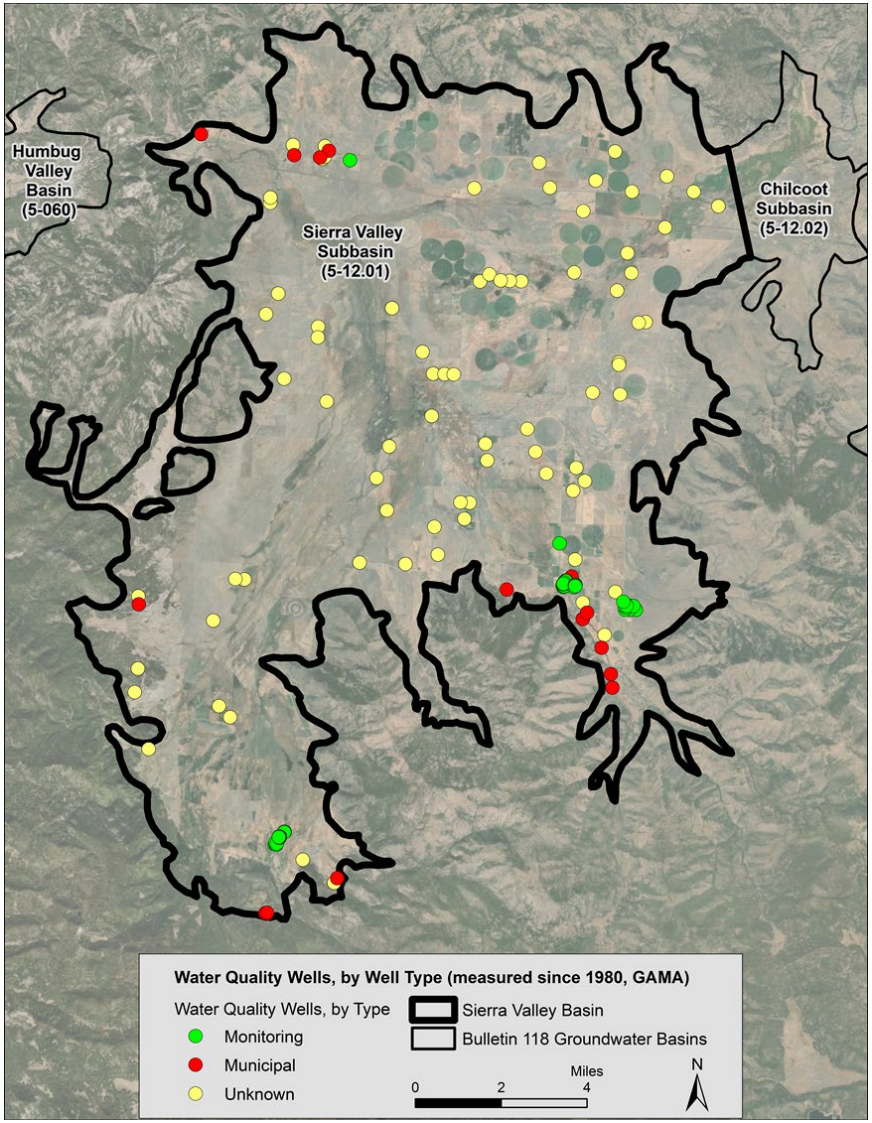
- What are your concerns/goals related to groundwater quality?
  - Drinking water quality
  - Impacts from man-made or naturally occurring contaminants
  - Contributions of contaminants to a Wild & Scenic River

Sierra Valley Groundwater Quality: Data Selection and Approach

- Data from Groundwater Ambient Monitoring and Assessment Program (GAMA)
- 206 wells with data included
  - 31 Deep (greater than 200 feet)
  - 29 Shallow (less than 200 feet)
  - 146 Unknown depth
- Well Type
  - Monitoring (51), Municipal (17), Unknown (138)
- Reviewed 189 unique analytes
- Time period (earliest to latest)
  - 5/11/1955 – 7/6/2020

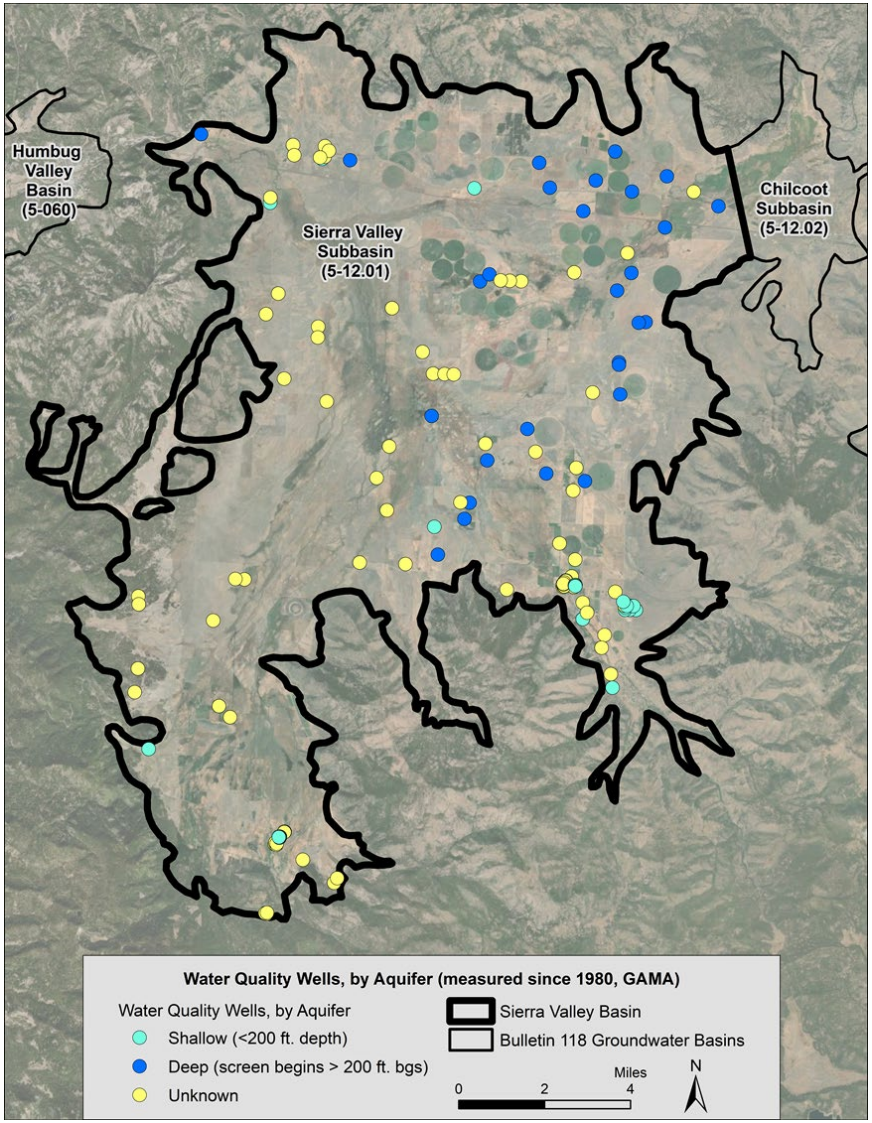
SV: Data Selection and Approach

- 150 Wells Sampled Since 1980
  - Monitoring = 51 (green)
  - Municipal = 17 (red)
  - Unknown = 82 (yellow)



SV: Data Selection and Approach

- 150 Wells Sampled Since 1980
  - Deep = 29 (blue)
  - Shallow = 27 (green)
  - Unknown = 94 (yellow)



Before Considering the "Thermometer" we need to understand "Medical Treatment" Options: GSP Projects & Mgmt Actions for GW Quality

- Existing regulatory agencies (and programs):
  - SWRCB/RWBs, DTSC, DPR
- GSA is the main steward of groundwater basin sustainability (closer to the "pulse" than state)
- GSA has monitoring duties
- In case of man-made pollution: May act as a proactive "facilitator" to move forward on processes that protect gw quality
- For recharge / pumping projects:
  - Consider effects on existing man-made pollution
  - Consider effects on existing naturally occurring contaminants

Potential Chemicals of Concern (Shortlist)

- Potential Chemicals of Concern (COCs) developed from document review of past work
- Constituent either (a) shows exceedances of a threshold, (b) shows a strong likelihood of exceeding a threshold, or (c) is commonly addressed in other GSPs.
- This list is not all-inclusive or exhaustive, but a first pass
- Refinements based on TAC input

Potential COCs

- TDS
- Boron
- Iron
- Manganese
- Arsenic
- Nitrate (as N)
- Fluoride
- Chloride

MCLs, NLs, and WQOs for a handful of Chemicals of Concern

Constituent	Units	Applicable Regulation	Regulatory Threshold
Arsenic	µg/L	Primary MCL	10
Boron	mg/L	CA-NL*	1
Chloride	mg/L	Secondary MCL	250
Fluoride	mg/L	Secondary MCL	2
Iron, Total	µg/L	Secondary MCL	300
Manganese, Total	µg/L	Secondary MCL	50
MTBE	µg/L	Primary Secondary	13 5
Nitrate	mg/L as N	Primary MCL	10
TDS	mg/L	Secondary MCL	500 (Recommended) 1,000 (Upper)

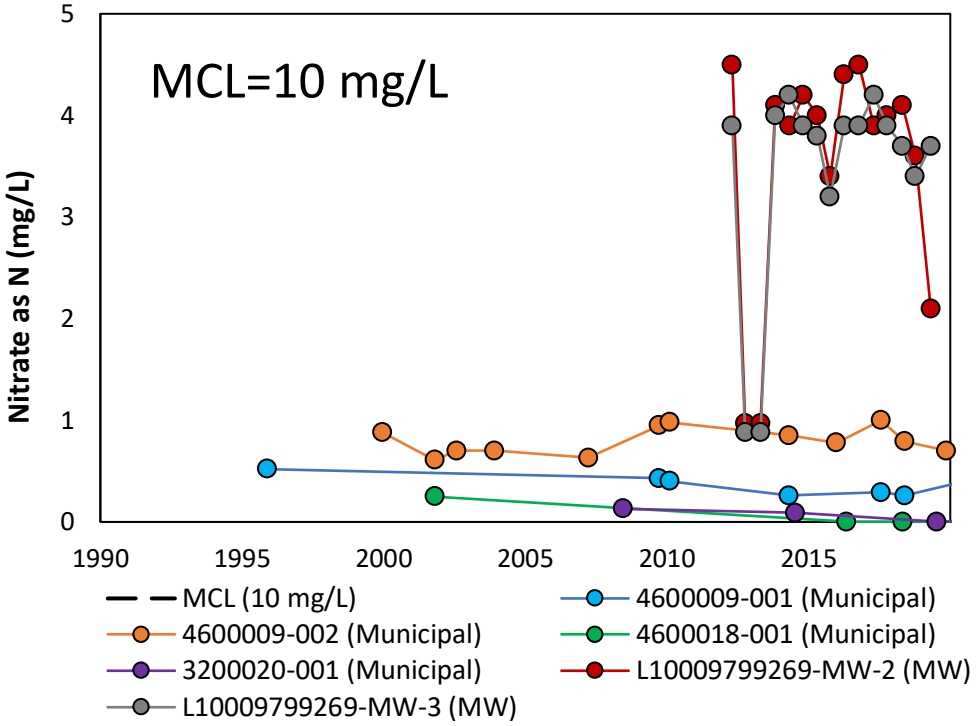
- CA state notification level

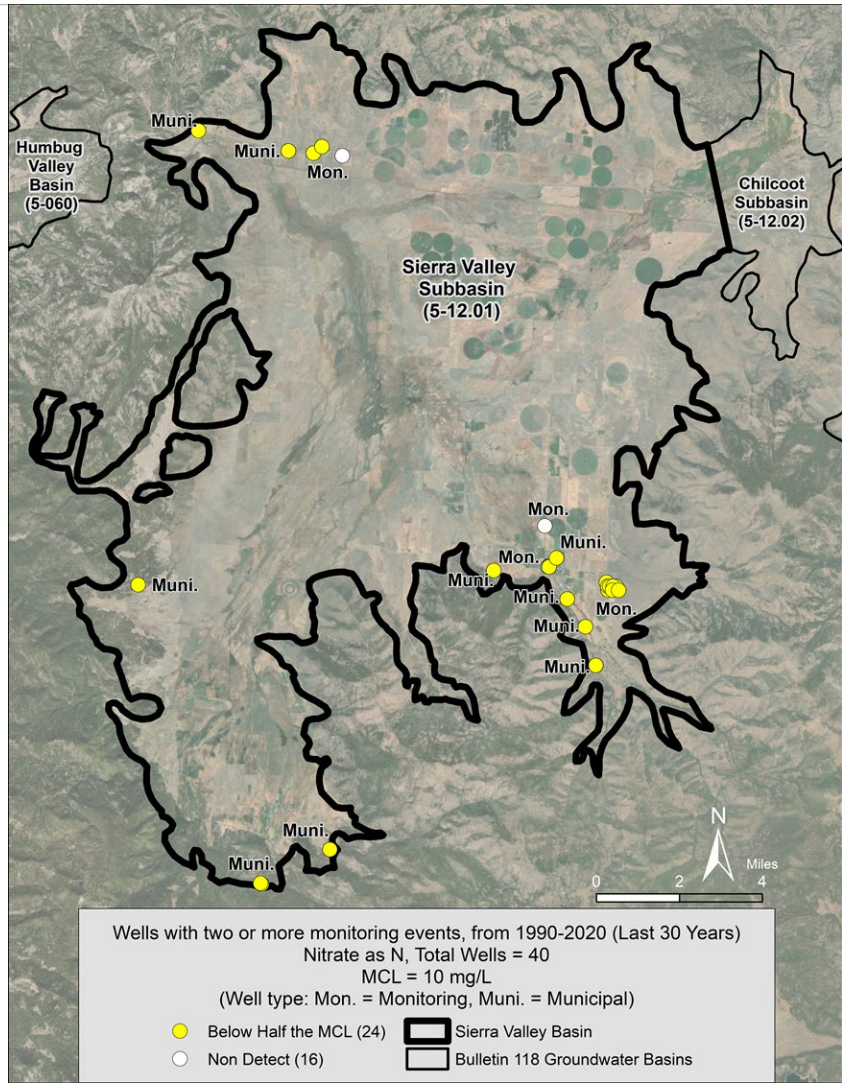
No Exceedance

Measured Exceedance

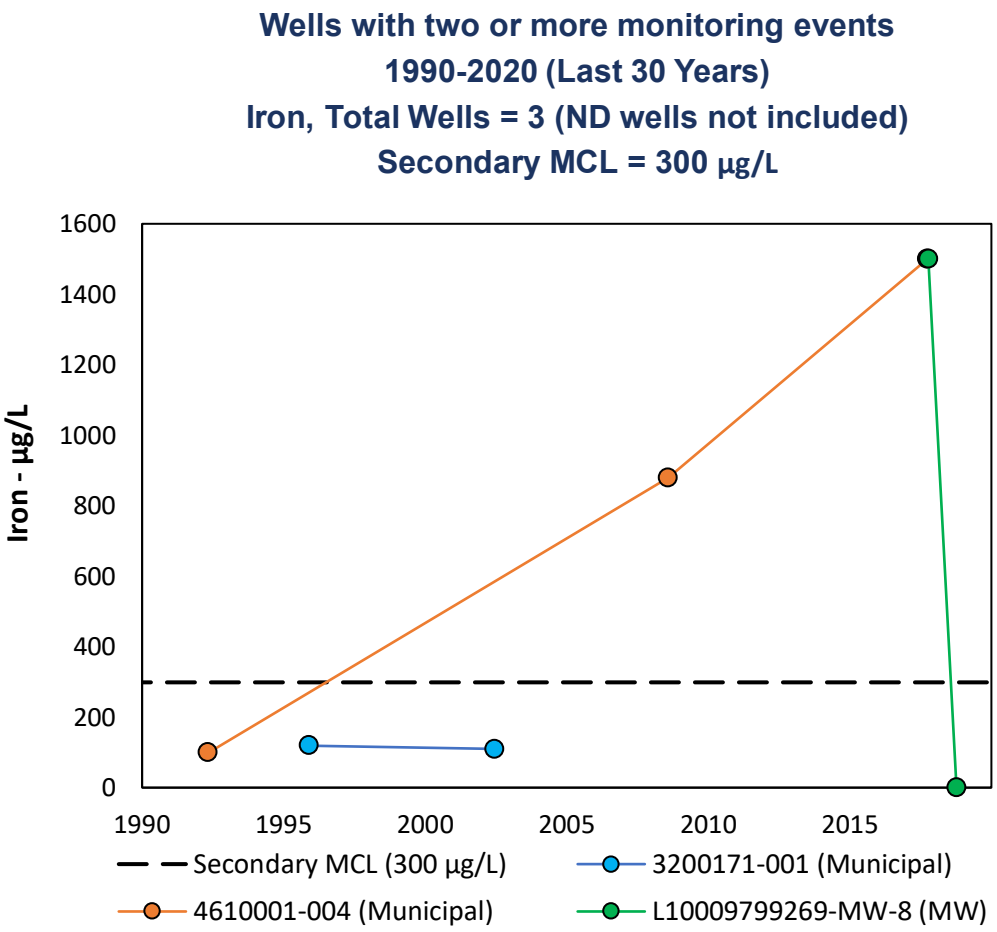
Nitrate – Example of Data

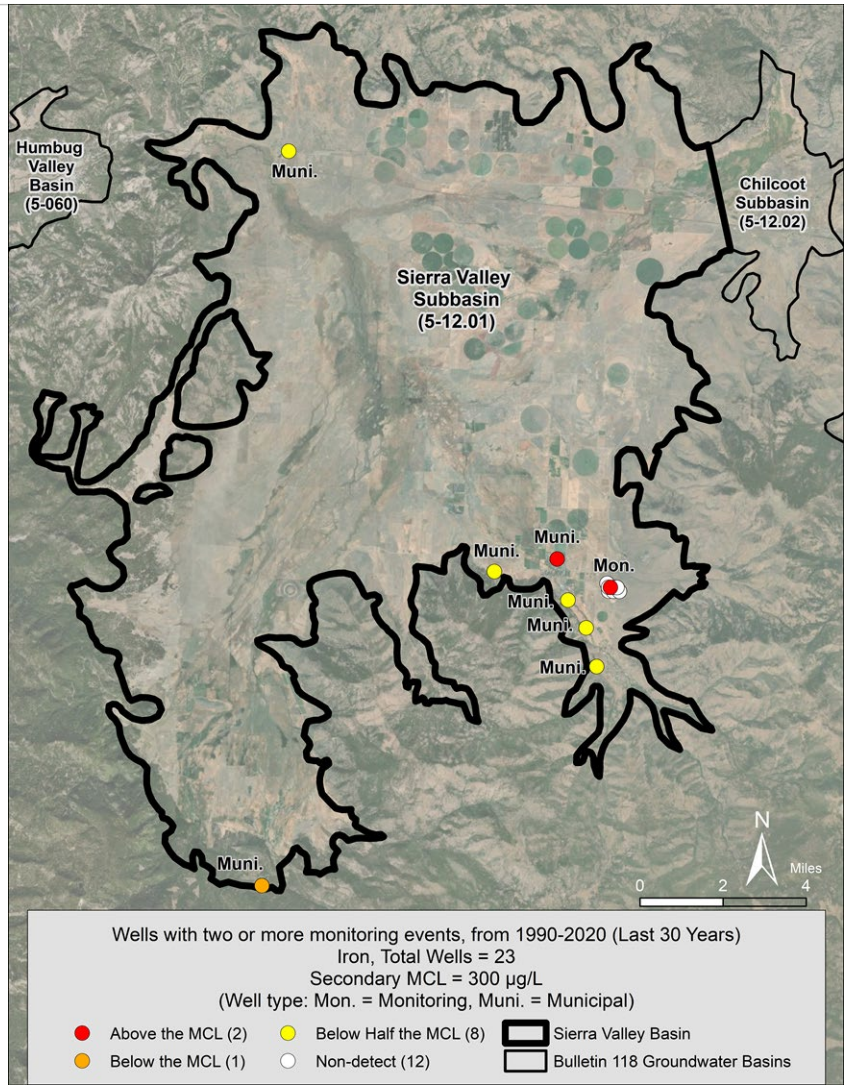
Wells with two or more monitoring events
1990-2020 (Last 30 Years)
Nitrate as N, Total Wells = 29 (ND wells not included)
MCL = 10 mg/L





Iron– Example of Data





Examples from other GSPs

Basin	Constituents of Concern	SMCs Set For:	Approach
Mid- County Santa Cruz	Fe, Mn, Cr, Cr(VI), As, NO_3^-, TDS, ClO^-_4, organic compounds	All but Cr (VI)	SMCs set for all constituents of concern
Eastern San Joaquin	Salinity, NO_3^-, As , point-source contamination	TDS	No SMCs set for point-source contaminants or naturally occurring contaminant
Greater Kaweah	As, NO_3^-, Cr (VI), DBCP, TCP, PCE, Cl^-, Na, TDS, ClO^-_4	All	SMCs set for all constituents of concern
Cuyama	TDS, As, NO_3^-	TDS	SMCs set only for TDS
Delta Mendota	TDS, NO_3^-, B	All	SMCs set for all constituents of concern

Naturally occurring constituents

contamination/ contamination sites

Next steps

- Refine the shortlist of constituents
- Some constituents will be presented in the Groundwater Sustainability Plan (Chapter 2), but no need to set limits (SMCs) within the Plan
- Need to develop the monitoring network for groundwater quality

Water Quality SMC Discussion

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