Sierra Valley Technical Advisory Committee

May 10, 2021

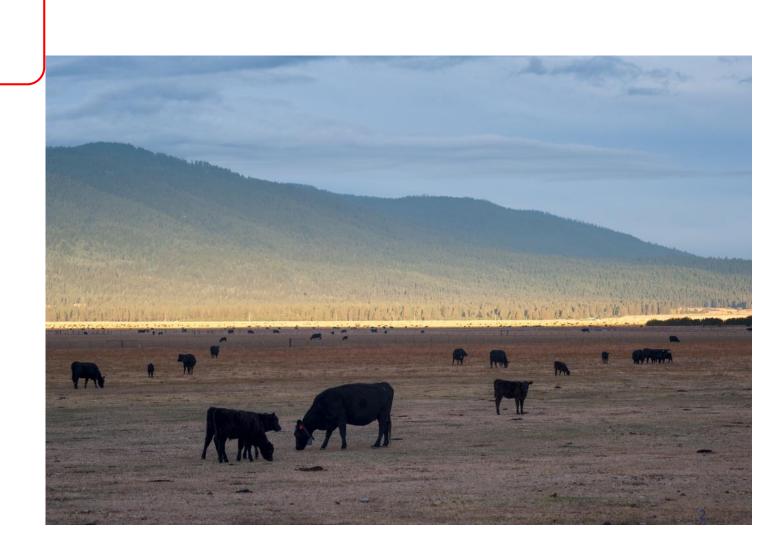




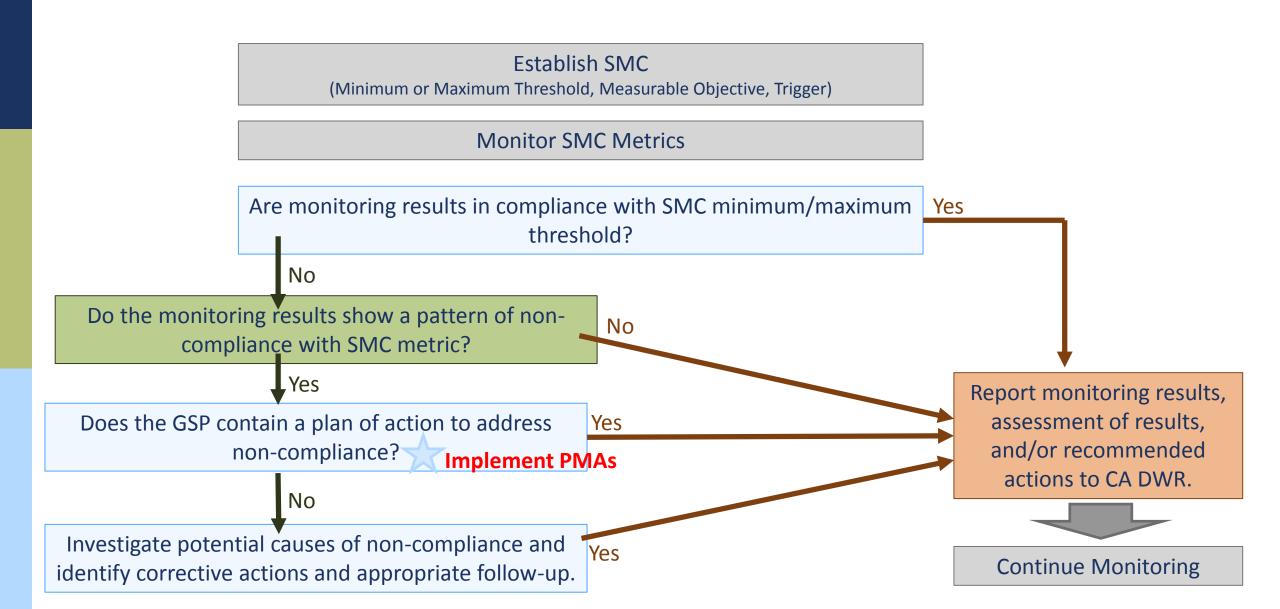




- Review of Groundwater levels decline
- Groundwater Dependent Ecosystems
- Interconnected Surface Water
- Introduction to Project and Management Actions

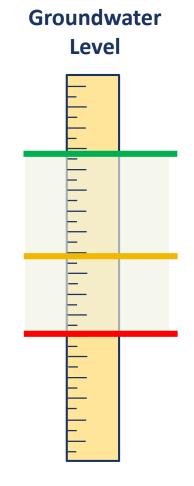


SMC Monitoring and Compliance Flow Chart



Sustainable Management Criteria (SMC) for groundwater level

- A ruler to measure significant and unreasonable impacts to beneficial users/uses.
- Groundwater level SMC is perhaps the most important Sustainability Indicator because it is directly measurable and can be used as a proxy for groundwater storage, interconnected surface water, and GDEs.



*Example SMC

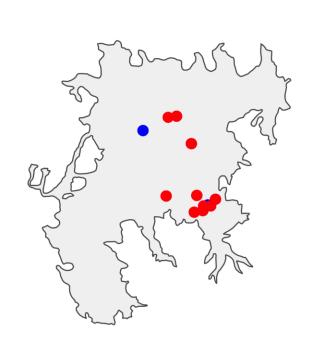
Measurable Objective: Avg post-2015 groundwater level

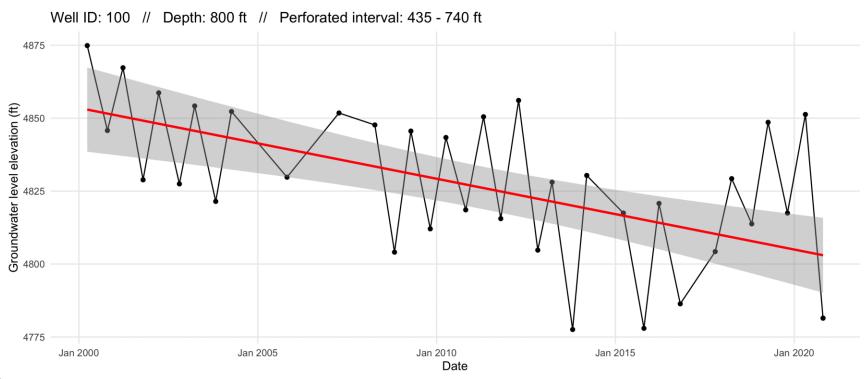
Action Trigger: Average post-2015 fall groundwater level

Minimum Threshold: 10 year projected groundwater level or the post 2015 groundwater low, whichever is lower

(Feet below ground surface)

Most groundwater elevations are decreasing (2000-2020)

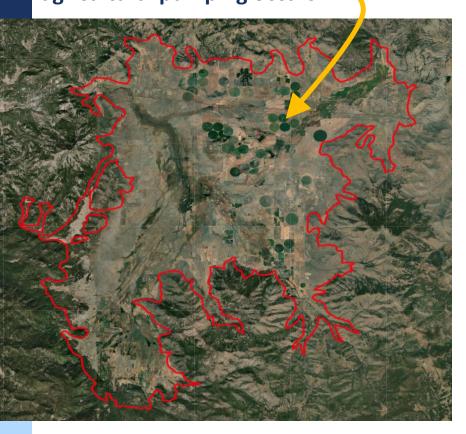




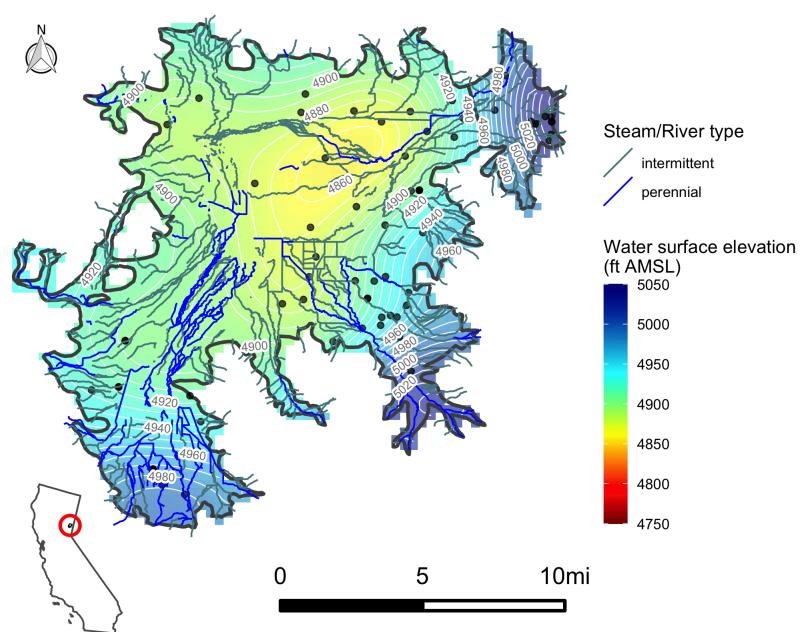
(39.7527403, -120.2566675)



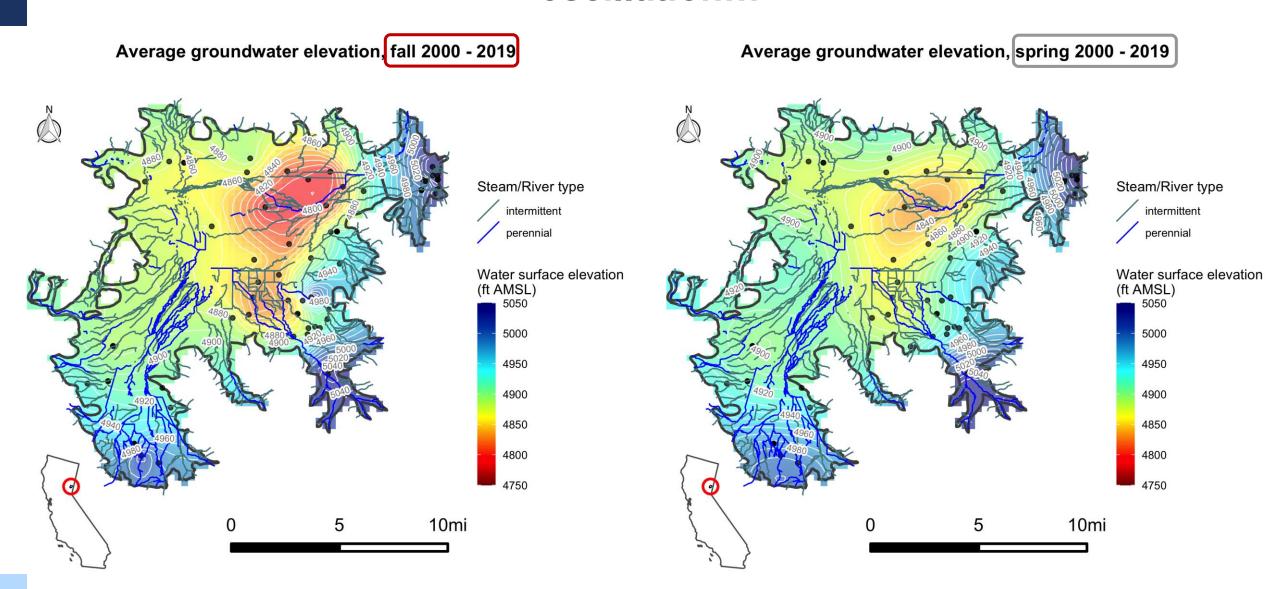
Groundwater level declines are more pronounced in areas east of the Grizzly fault where agricultural pumping occurs.



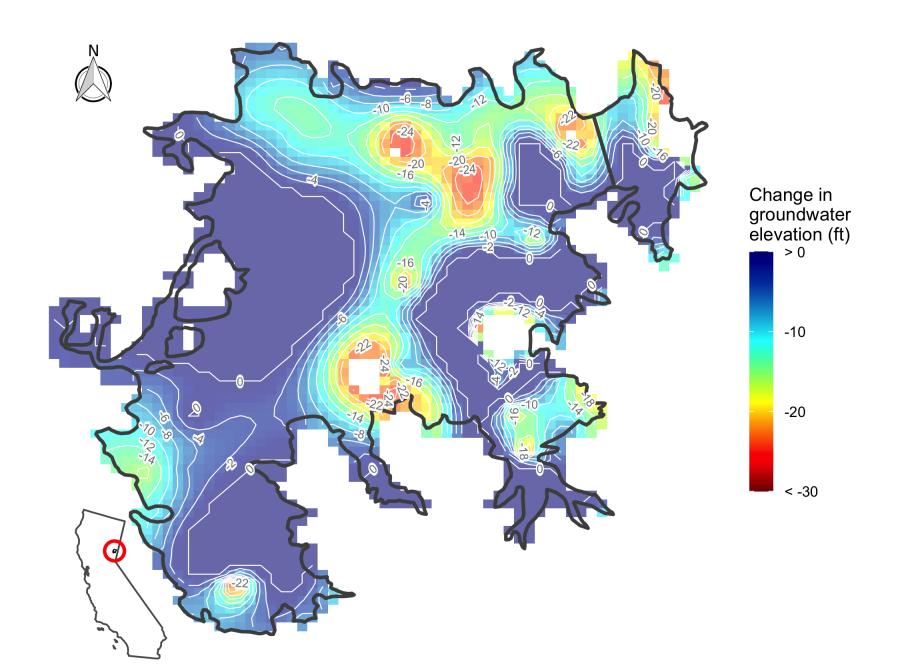
Average groundwater elevation, spring 2000 - 2003



Long term data (2000 – 2019) show seasonal groundwater level oscillation...



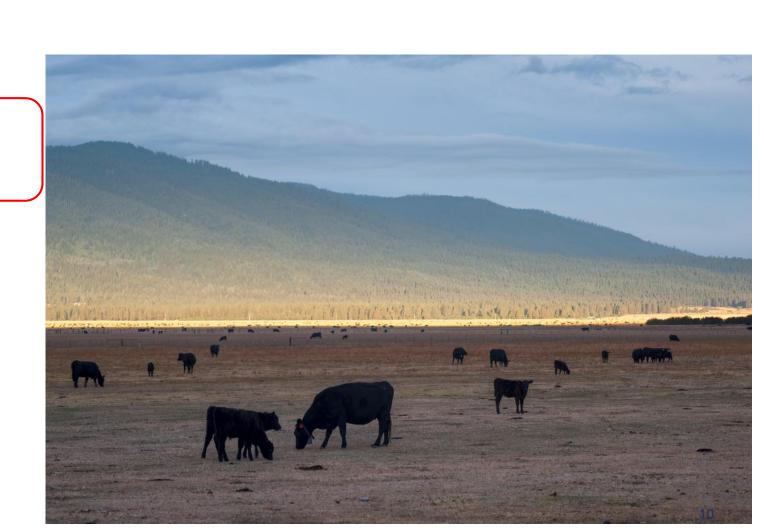
Difference in groundwater elevation between present day and 2000



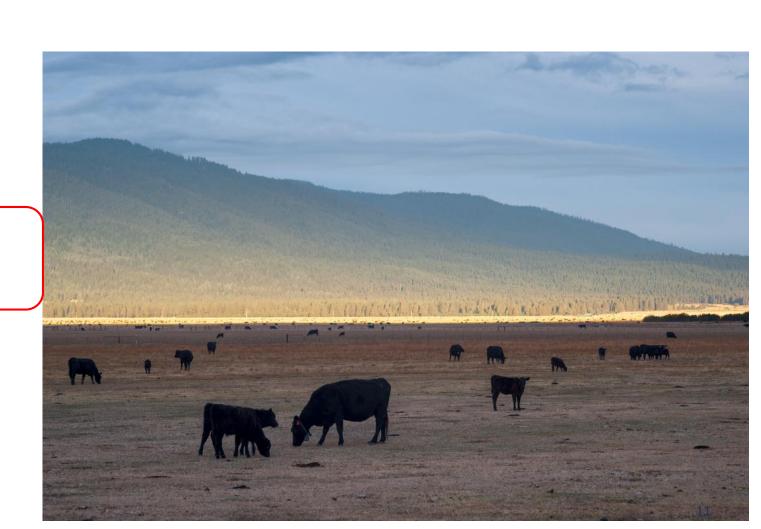
Summary

- Analysis of the data is still ongoing, but the suggested SMC obtained with a gradual reduction of the decline results in very different outcome in the Eastern and Western part of the basin
- The Western part of the basin is expected to keep current levels, which are generally never lower than 2015
- This proposed SMC has been already compared with the domestic wells analysis
- And will be now compared with the results for the GDE and ISW SMC

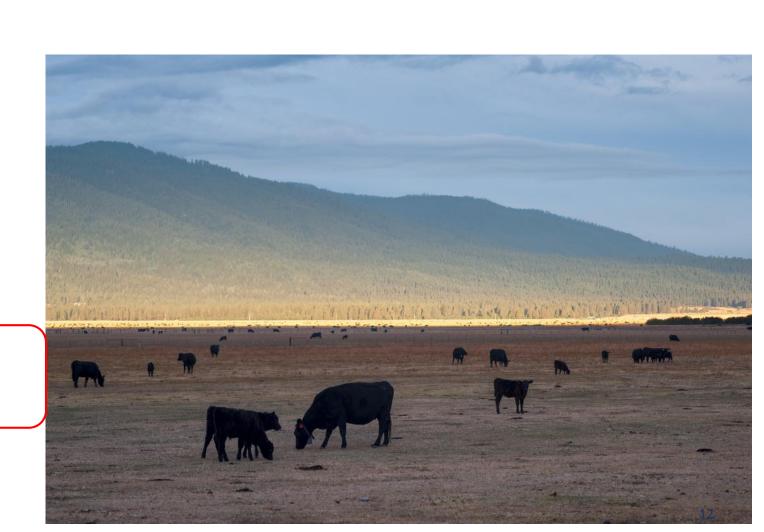
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Project and Management Actions (PMAs)

Definition

- Project (P): creation or modification of a physical structure / infrastructure
- Management Action (MA): creation of policies, procedures, or regulations
- Implemented over 2022-2042 to achieve basin sustainability

Project and Management Actions (PMAs)

PMAs are needed to address two over-arching goals:

 Achieve the goals of the sustainability indicators, mostly GW levels and interconnected surface water

 Prevent future degradation of currently stable water table conditions to protect wells from outages, groundwaterdependent ecosystems (those not associated with instream flow), and to avoid additional stresses to interconnected surface water

Key Drivers in the Design of PMAs

- Legal Obligations for the GSA
 - Address habitat concerns
 - Prevent lowering of water table below historic conditions protect wells, groundwater-dependent ecosystems, interconnected surface water
 - May impose fees on groundwater users, if GSP cost cannot be recovered from grants and other external funding
 - Adopt a plan that State will accept
- Priorities
 - Minimize impacts to basin economy (predominantly agriculture)
 - Minimize cost / maximize external funding
 - Emphasize carrot (voluntary/incentives) over stick (mandatory)

PMA Description Required by Regulation (§354.44)

- 1. <u>Description of Measurable Objective</u> expected to benefit from implementation of PMA
- 2. <u>Summary of permitting and regulatory process</u> required for PMA
- 3. PMA status and expected timetable of implementation and accrual of benefits
- **4. Explanation of how the PMA will be accomplished** including source and reliability of water source.
- 5. <u>Description of legal authority</u> required for PMA (not addressed today)
- 6. Estimated cost for PMA and how those costs will be met (Economic analysis in-progress)
- 7. A description of the management of groundwater extractions

PMA Development Process

1. Project Identification

- Identify significant (impactful) planned projects that will or are likely to happen
- Brainstorm new projects with stakeholders that are informed by water budget status (may also want to consider climate change impact on future water budget status

2. Project Categorization

Groups project info following categories:

- Stream habitat improvements
- Supply augmentation
- Demand management
- Recharge and Conjunctive Use

5. Assess Effectiveness of Scenarios

Use modeling tool or other means to identify key "building block" projects for GSP.

3. Project Screening

Evaluate all projects identified in Step 1 to identify those most likely to be included in the GSP. Criteria include:

- Projected impact on water budget
- Cost
- Leveraging opportunity
- · Ease of implementation

4. Build Modeling Scenarios

- Use short list of projects to prioritize possible scenarios- use criteria from Step 3, assess ability to model, strive for simplicity.
- Look at extreme concepts like curtailing ag pumping, eliminating/ curtailing important existing project; alternative climate change scenario; etc. that are NOT necessarily related to specific projects identified in Step 3.

6. Build Plan

Assemble building blocks into phased GSP over the next 20 years.

PMA Categories:

Demand management

Supply augmentation

Habitat improvements

Recharge

PMAs Tier Organization

Tier 1: Existing PMAs currently being implemented.

Tier 2: PMAs planned for <u>near-term</u> initiation and implementation by individual agencies.

Tier 3: Additional PMAs that may be implemented in the <u>future</u> as needed.

Example of possible Project and Management Actions by Category:

Different PMAs may or may not be feasible in Sierra Valley, but the following examples can be used to start the discussion

Demand Management

- County Pumping Restrictions
- Irrigation Efficiency Improvements
- Conservation / Pumping Limitations in Time
 - Water-year type dependent
 - Water-year type independent

Supply Augmentation

Instream flow leases

Habitat Improvements

- Habitat Restoration
- Upland management / Green Infrastructure

Recharge

- Managed Aquifer Recharge (MAR)
- In-Lieu Recharge (ILR)
- High mountain Reservoirs

Question?

