

Sierra Valley Technical Advisory Committee

July 19, 2021



Sierra Valley
Groundwater
Management District



Stillwater Sciences

Introduction to Projects and Management Actions

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

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Project and Management Actions (PMAs)

- **The PMAs are needed to address two over-arching goals:**
 - Achieve the goals of the lowering levels and interconnected surface water sustainability indicator
 - Prevent future degradation of water table conditions to protect wells from outages, groundwater-dependent ecosystems (those not associated with instream flow), and to avoid additional stresses to interconnected surface water

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Key Drivers in the Design of PMAs

- **Legal Obligations for the GSAs**
 - **Prevent further lowering of water table** below historic 2015 conditions - protect wells, groundwater-dependent ecosystems, interconnected surface water
 - **Address stream/wetlands depletion concerns**
 - **May reconsider fees**, 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)

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PMA Description Required by Regulation (§354.44)

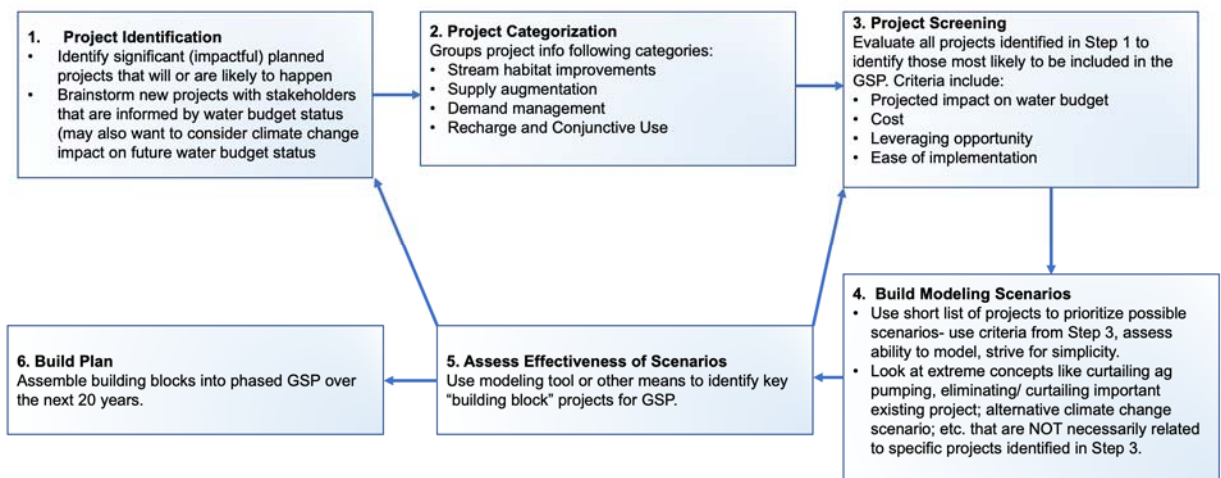
1. Description of Measurable Objective expected to benefit from implementation of PMA
2. Summary of permitting and regulatory process required for PMA
3. **PMA status and expected timetable** of implementation and accrual of benefits
4. **Explanation of how the PMA will be accomplished** including source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

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Simple approach to implementation

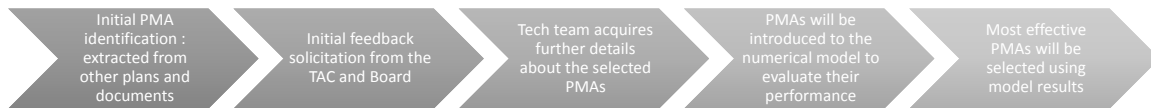
- 1) Learn more about the basin
- 2) Create priority list for more feasible PMAs
- 3) Select PMA
- 4) Feasibility study
- 5) Implementation (and benefit evaluation)

PMA Development Process



PMA Categories:

- Demand management
- Supply augmentation
- Others



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PMAs Tier Organization

Tier 1: Existing PMAs currently being implemented, or that can be immediately implemented in Feb 2022.

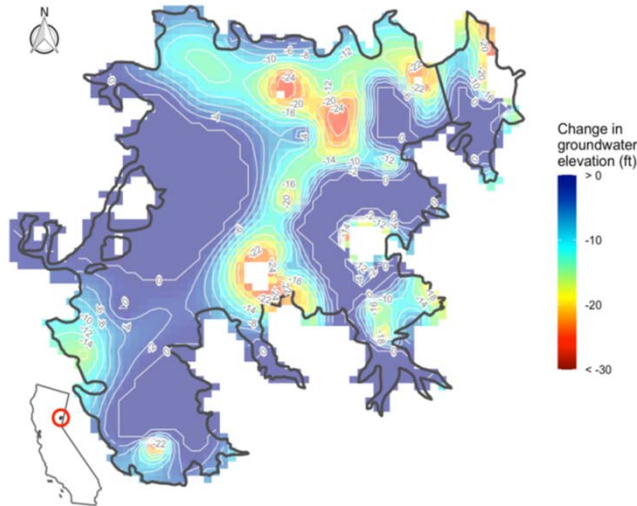
Tier 2: PMAs planned for near-term initiation and implementation by individual agencies.

Tier 3: Additional PMAs that may be implemented in the future as needed.

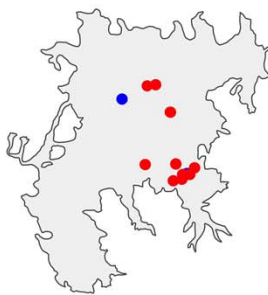
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Why do we need to think about PMAs?

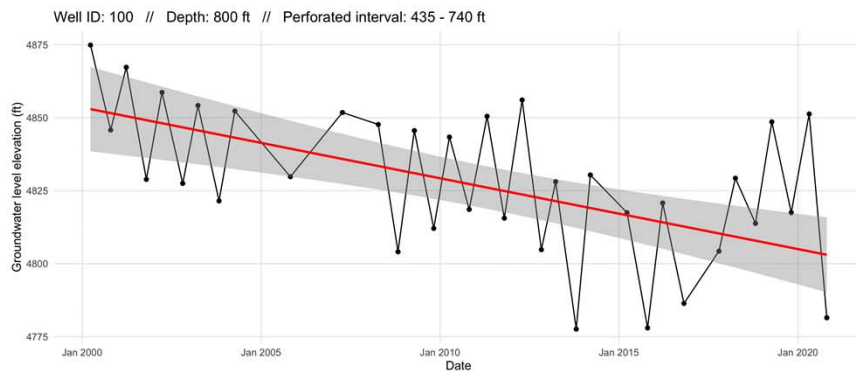
Difference in groundwater elevation between present day and 2000



Most groundwater elevations are decreasing (2000-2020)

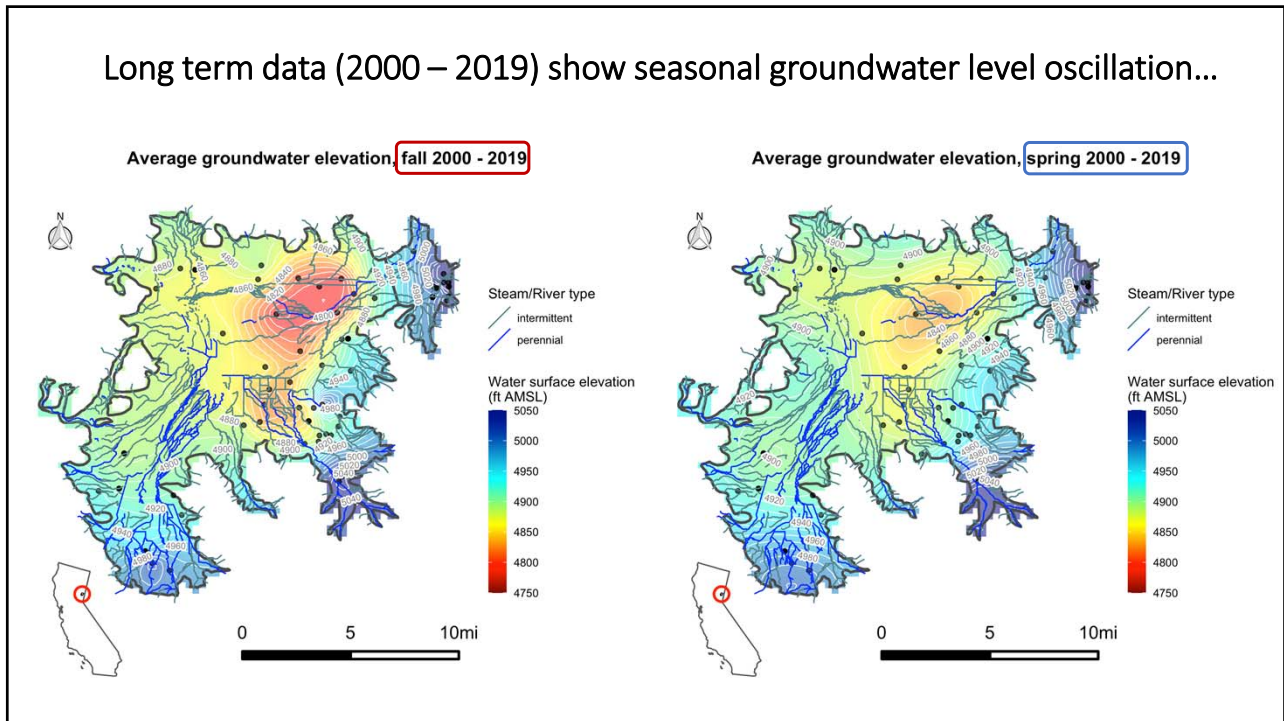
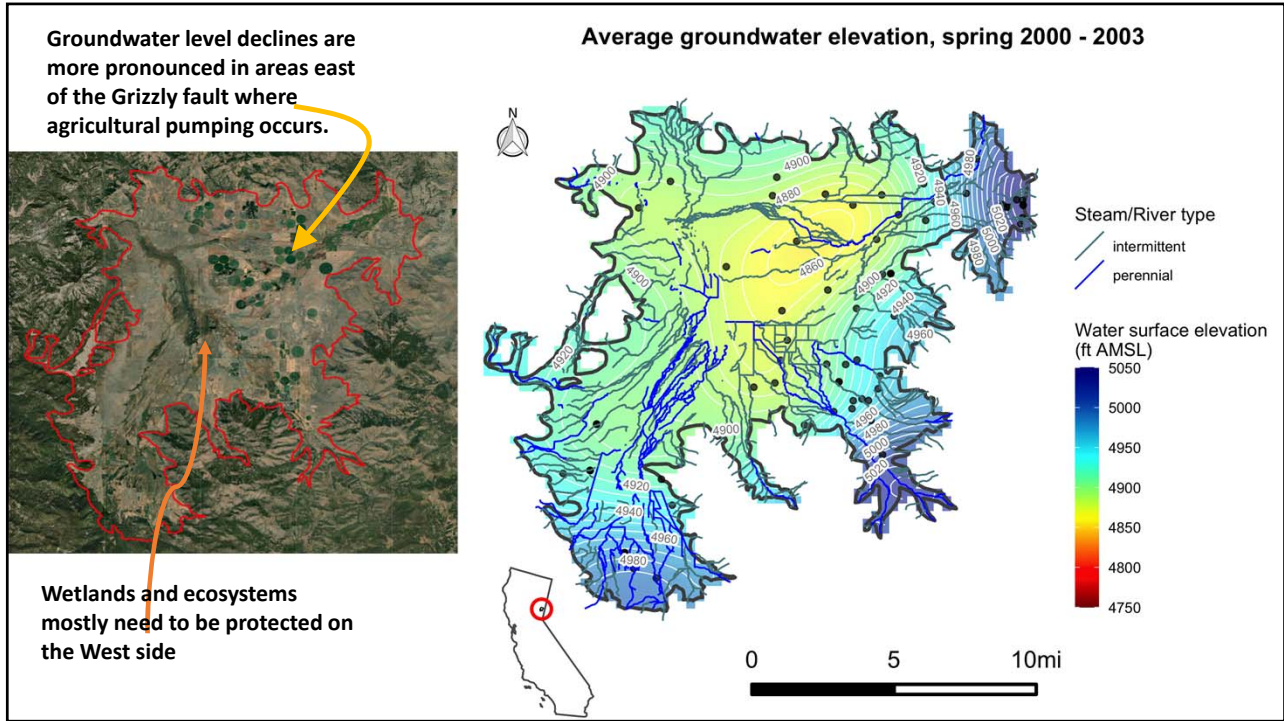


(39.7527403, -120.2566675)



- increasing
- decreasing

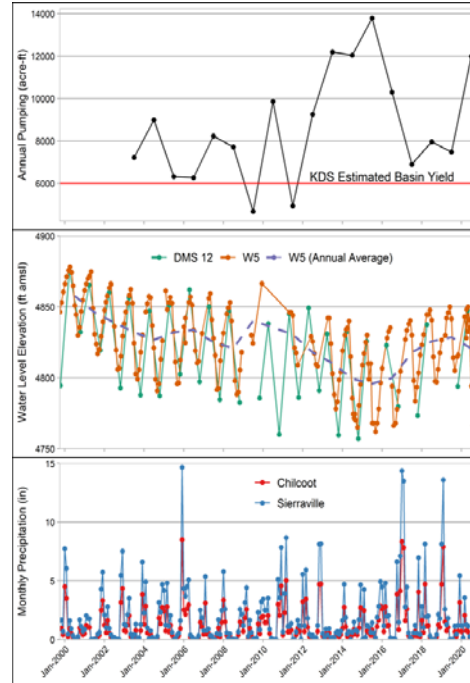
All groundwater level data is available in the Data Management System.



Where are we now?

• GOALS:

1. prevent undesirable results
2. Protect all beneficial users and uses of water



Example list of Project and Management Actions by Category: to start the discussion

Demand Management

- Irrigation Efficiency Improvements
- Voluntary conservation / Pumping Limitations in Time
 - Water-year type dependent
 - Water-year type independent
- Pumping Restrictions

Supply Augmentation

- Upland management / Green Infrastructure → multi-benefit project
- Instream flow leases
- Reservoirs

Other Management Actions

- Data collection: need to learn more about the basin (pumping test, soil moisture, infiltration rates, ...)
- Education and Outreach

Recharge

- Managed Aquifer Recharge (MAR)
- In-Lieu Recharge (ILR)
- Injection wells for deep aquifer recharge

Tier 1: Existing PMAs currently being implemented

- Demand Management
- Supply Augmentation
- Habitat Improvement
 - Local General and Management Plans
 - Plumas County's General Plan
 - Sierra County's General Plan
 - City of Loyalton General Plan
 - Plumas National Forest Land and Resource Management Plan
 - Tahoe National Forest Land and Resource Management Plan
- SVGMD flow meter maintenance and calibration
- Conjunctive Use
 - Loyalton WWTP recycled water use for alfalfa field irrigation
 - Use of surface water when feasible for irrigation

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Tier 2: PMAs planned for immediate/near-term initiation and implementation, early years (2022-2027)

- Demand Management
 - Irrigation Efficiency Improvements **(P)**
- Supply Augmentation
 - Conservation Easements **(P)**
- Habitat Improvements (with potential for supply augmentation)
 - Conservation Programs and Green Infrastructure in the Upper Watershed **(P)**
 - Recharge enhancement in the upper watershed
- Recharge
 - MAR or injection wells?

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Irrigation Efficiency Improvements- Demand Management

Purpose: Increase irrigation efficiency

- Status: Planning Phase.
- Example: Project involves replacing wheel-line sprinklers and center-pivots with LESA systems, exploring and securing funding options.
- Management: Decreases water demand for irrigation, increases the likelihood of river connection during critical periods to support fish migration and habitat. Supports desired in-stream flow

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What else can and should be considered?

Final Thoughts

- PMAs will evolve and be managed adaptively. Many options.
 - Increase recharge (stormwater and managed aquifer)
 - Increase conservation (mandatory, voluntary, or incentive-based; also, for cannabis growers)
 - Increase storage (off-stream and along the tributaries)
 - PMAs to seasonally offset irrigation season pumping (July-September)
- Recognize the importance of partnerships and multi-benefit projects
- Interested in maintaining dialogue regarding PMA options in years to come.

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Final Thoughts (Regs Requirements for PMAs in GSP)

§ 354.44. Projects and Management Actions

- List of PMAs with a description of MOs to benefit
 - Circumstances/criteria to implement/terminate PMAs
 - Public notification process for implementation of PMAs
- For overdraft conditions describe PMAs including quantification of demand reduction or other methods, for the mitigation of overdraft.
- Summary of the permitting and regulatory process required
- The status of PMA, including a time-table for expected initiation and completion, and the accrual of expected benefits.
- Explanation of the benefits and how those benefits will be evaluated.
- Explanation of how the PMA will be accomplished.
- Description of legal authority required for PMA and the basis for that authority within GSA.
- Estimated cost for each PMA and plans to meet those costs.

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Examples and Next Steps



Potential Project

Potential Recharge Project Locations:

- To assess potential with model and setup special studies
- We need multiple locations for geophysical study feasibility.

Next Steps:

- Need your input on existing and potential projects
- Collect information to quantify scenarios and model forecast
- Interview with stakeholders to explore, assess, and confirm PMAs

Existing Project

PROJECTS & MANAGEMENT ACTIONS	
Date	2020 (Completion of Phase III out of IV)
Project Title	Purple Pipe Project
PROJECT PROPONENT	
Agency Name	City of Ukiah's Water Resources Department
Key Contact	Jarod Thiele, Public Works Management Analyst
Email	jthiele@cityofukiah.com
Phone	(707) 463-6755
PROJECT LOCATION	
Map	
PROJECT DESCRIPTION	
Description of Project Elements	The Purple Pipe Project is a recycled water project that includes nearly eight miles of pipeline, a 66-million-gallon water storage reservoir, upgraded treatment facilities and improved water and wastewater infrastructure on Oak Manor Drive.
Actions	Design and construction of about 8 miles of recycled water pipeline to serve agricultural and urban irrigation and frost protection demands of about 1,320 AFY. The project also includes design and construction of associated storage and pump stations. The project will serve about 59 parcels of land.
Project Goals	Construction of pipelines, storage, and pump station to deliver recycled water for irrigation and agriculture.
Project Benefits	This allows the City to serve approximately 325 million gallons of water to farmers, parks, and schools. This project promotes a vibrant agricultural region, reducing diversions from the Russian River, assisting in conformation to State conservation objectives and improving environmental habitat by providing an alternative source for frost protection.
Project Impacts	
Project Costs/Financing	\$32,085,000.00
PROJECT STATUS	
Concept <input type="checkbox"/>	Planned <input type="checkbox"/>
In-Design <input type="checkbox"/>	Under Construction <input type="checkbox"/>
Completed <input checked="" type="checkbox"/>	
Project Schedule	The first three phases were completed in 2020 and Phase IV is planned to be completed in 2021.

Main closing message: consider all the possible options!
 What is in the GSP has more chances of being funded
 through future grants!

Questions?