



# Advancing Groundwater Sustainability in Sierra Valley: Key Messages from the Sierra Valley Groundwater Study and the GSP Planning Grant Effort

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Sierra Valley Groundwater Management District Board Meeting  
Monday, Mar 18, 2019 at 6:00 pm  
Golden West Restaurant, Loyalton, CA

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## 2-Year Feather River Land Trust Project



**Goal and Partners**

- Goals
  - Promoting groundwater sustainability in Sierra Valley through better understanding groundwater conditions and considering potential solutions
- Project Partners and Collaborators
  - Helen Dahlke, UC Davis
  - Thomas Getts, UC Cooperative Extension Plumas – Sierra County
  - Kristi Jamason

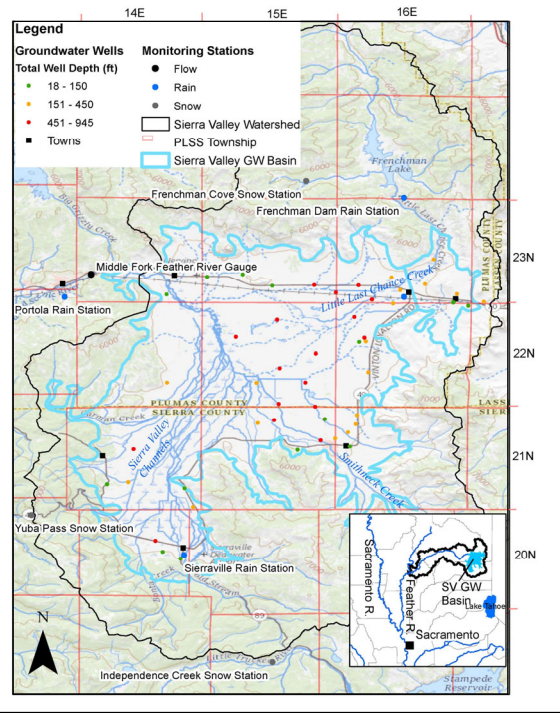
**Project**

- Groundwater Study
- Irrigation efficiency study
- Groundwater Sustainability Plan (GSP) Planning Grant

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# Presentation Outline

- Groundwater Report Highlights
- Sustainable Groundwater Management Act (SGMA) Considerations
- Groundwater Sustainability Plan (GSP) and Planning Grant



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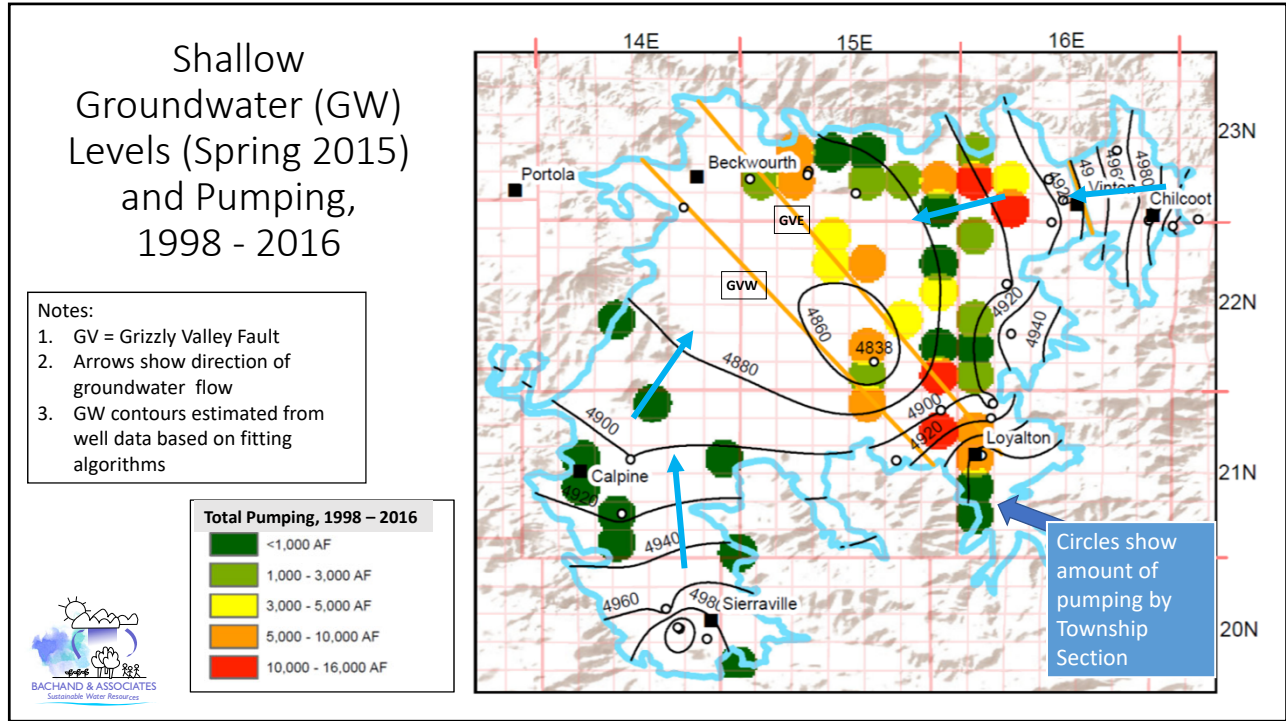
# Groundwater Report Highlights

- Results
- Data Gaps and Uncertainty

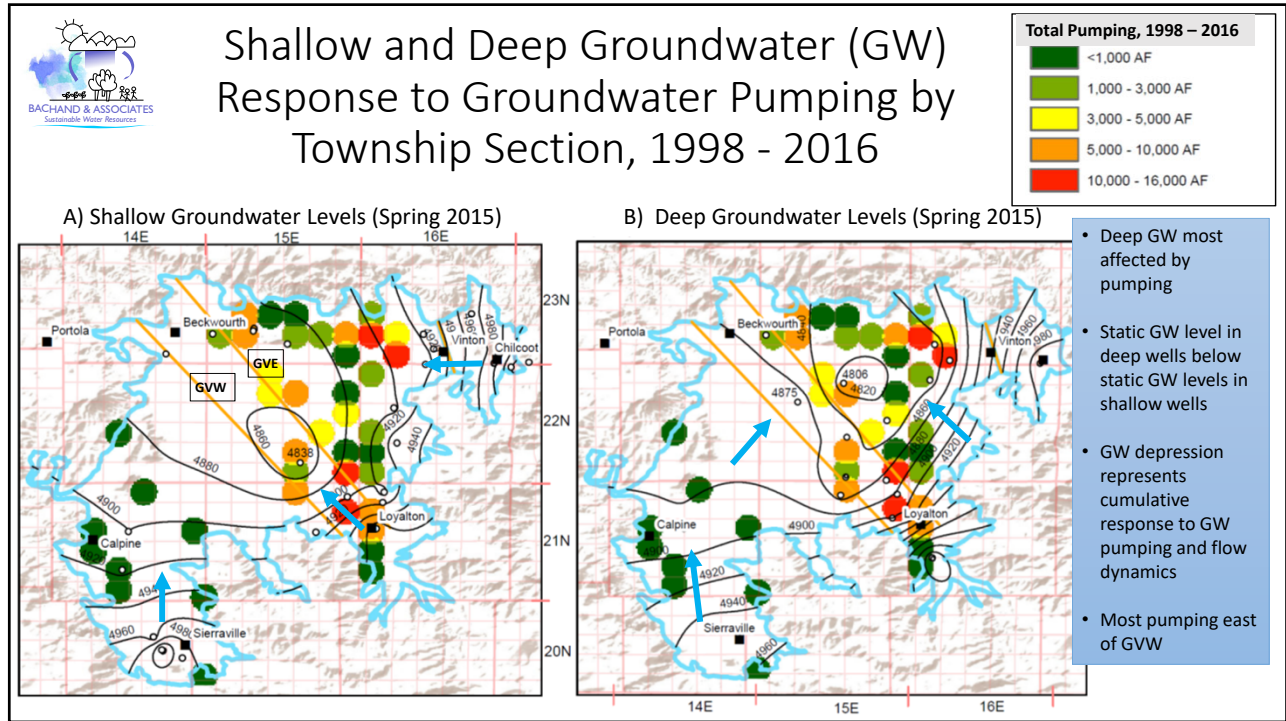


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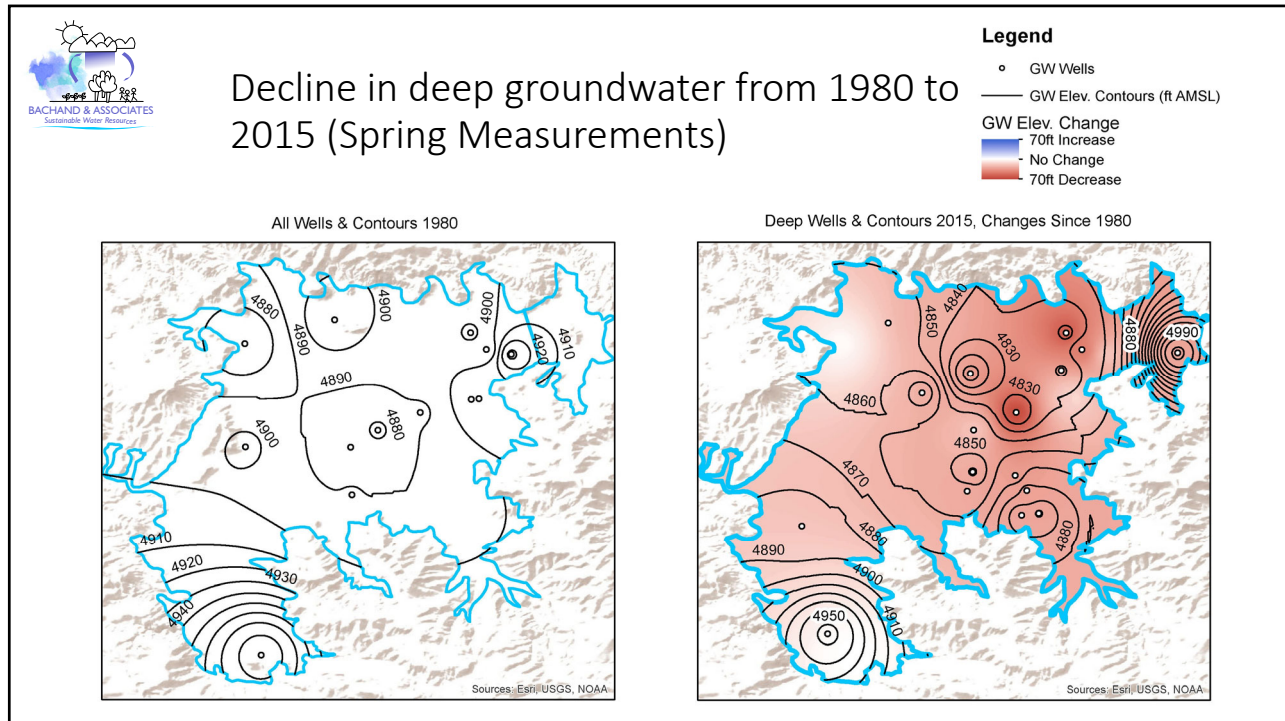




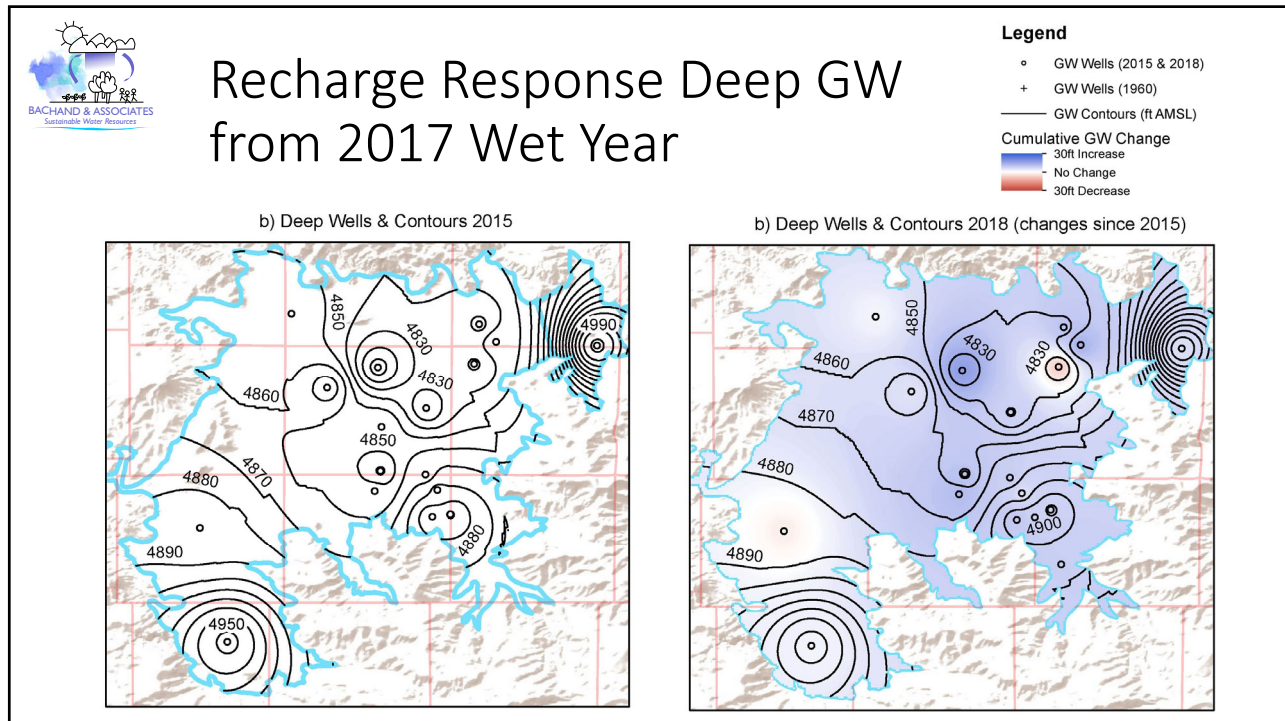
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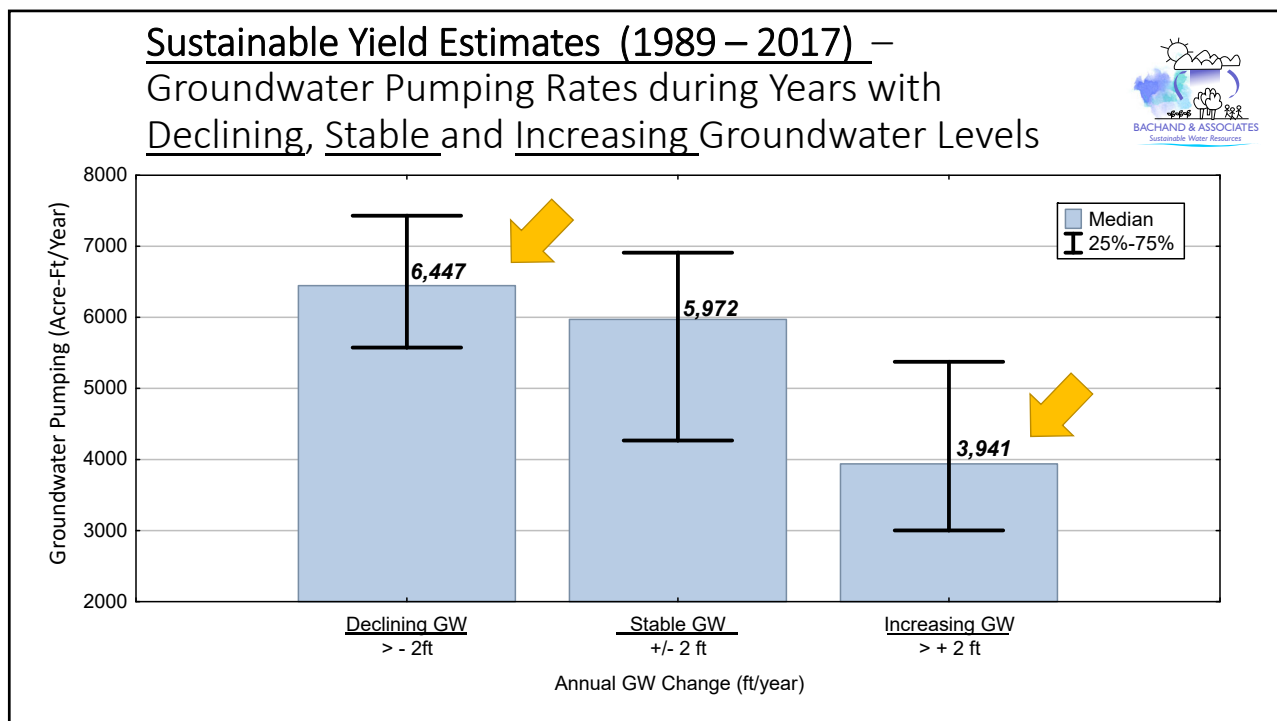
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## Sources of Current and Future Uncertainty

- Geologic, e.g.,
  - Flow paths and flow timing to aquifer
  - Basin stratigraphy and sediment deposition
  - Characterization of basin faults
- Hydrology; e.g.,
  - Evapotranspiration (e.g. basin, forests) and effects of climate change and future management
  - Recharge rates and effects of climate change on precipitation, effects of future upland and lowland management, and opportunities from reservoir re-operation
  - Current and future rainfall and snowfall spatial distribution
  - Limited set of monitoring wells
  - Pumping record data (e.g. completeness, accuracy, QAQC)

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### Uncertainty Example

Well Selection and Density  
Effects on Data  
Interpretation and Decision  
Making

- Affects predicted groundwater elevations using contouring programs
- Affects adaptive management decisions with increased uncertainty about cause (e.g. pumping rates) and effect (i.e., resulting groundwater elevation changes)

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### Uncertainty Example

Climate Change Considerations

- Affects estimates of precipitation amount and type due to upward migration of snowline
  - Greater uncertainty north of Tahoe
- Affects estimates of precipitation frequency within seasons and through years

**Figure 3-22 Snowpack Projections**

April 1 Snow Water Content in inches: 0 10 20 30 40+

Note: Historical and projected April 1st snow-water content for the Sierra for lower and higher warming scenarios depicting the effect of human-generated GHGs and aerosols on climate. By the end of this century, the Sierra snowpack is projected to experience a 48-65 percent loss from its average at the end of the previous century (Pierce and Cayan 2013).

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## Uncertainty and Adaptive Management



- Total Sierra Valley Water Budget approximately 250,000 AF annually
  - Sustainable Yield in the 5000 – 6500 AF range in Eastern Valley
  - 2 - 3% error in Water budget equivalent to total Sustainable Yield
  - Water budget error likely around 10 – 30% due to propagation of error in calculations
- Best solution to act on direct measures (e.g. groundwater levels, subsidence, water quality)
- Better data –
  - Constrains effects spatially and temporally
  - Informs on strategies and actions for adaptive management

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## Key SGMA Considerations

- Undesirable Results
- Process and Timeline
- State Water Board Intervention



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## Achieving Sustainable Yield and Avoidance of Undesirable Results (DWR 2017)

**Lowering of GW Levels**

**Reduction of GW Storage**

**Seawater Intrusion**

**Water Quality Degradation**

**Land Subsidence**

**Depletion of Interconnected Streams**

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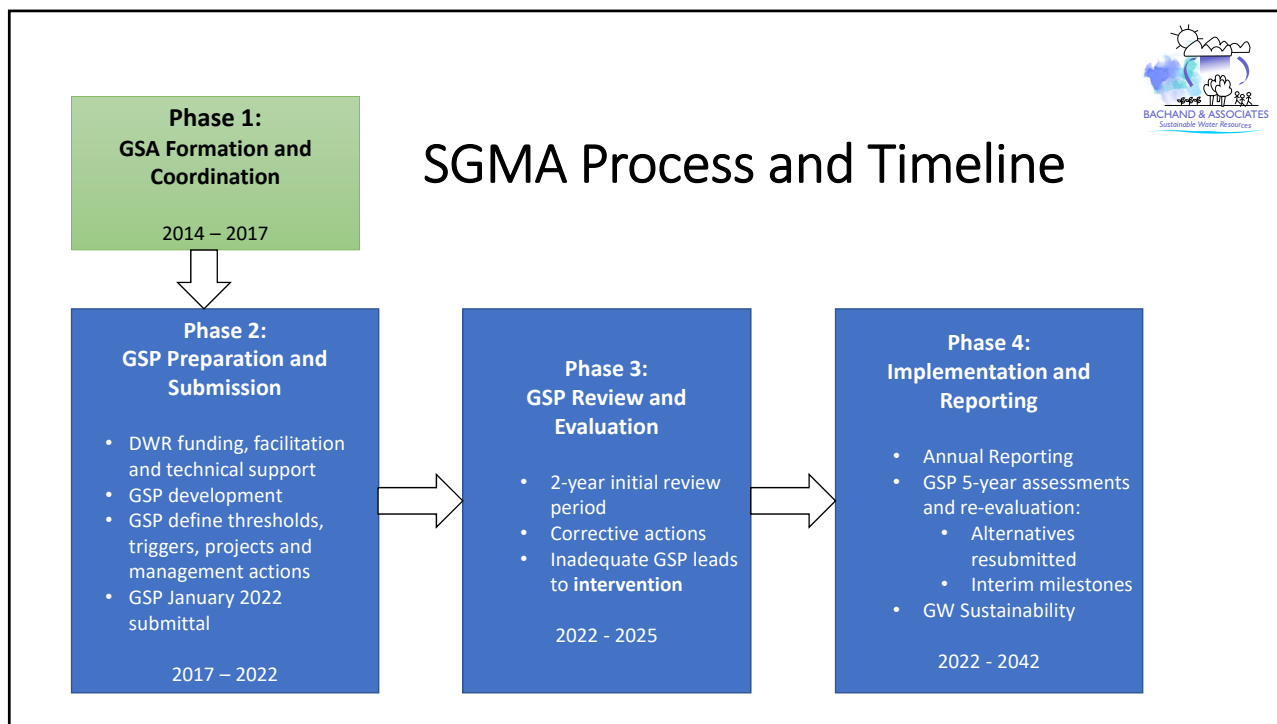
**Water Quality Degradation**

**Land Subsidence**

**Depletion of Interconnected Streams**

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## State Water Board (Board) Intervention

**Local Agency Qualification**

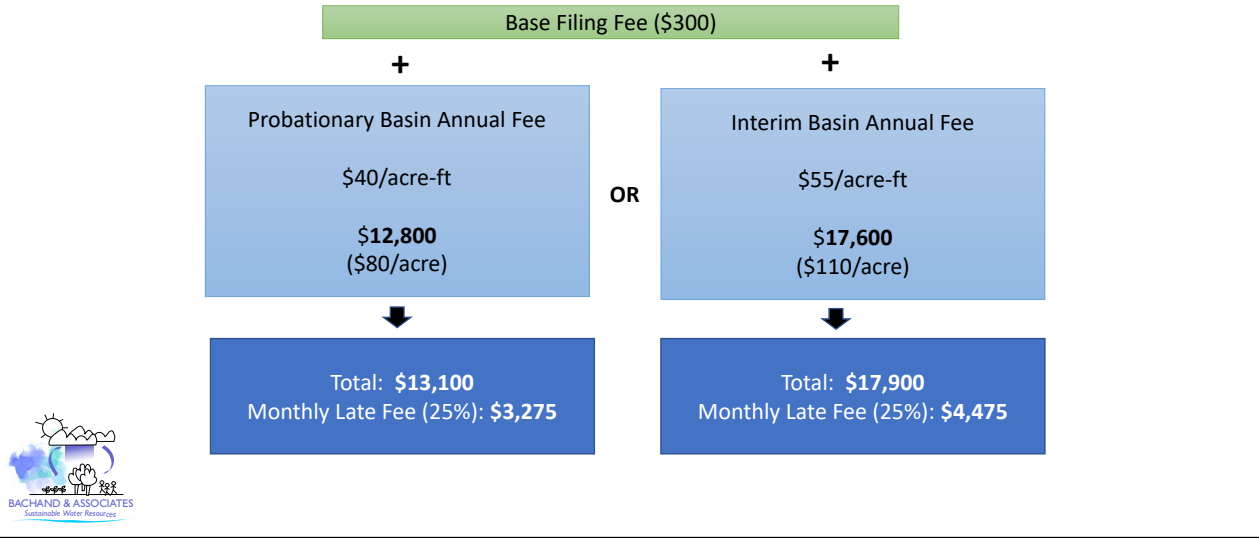
- Qualifies as probationary:
  - fails to form a GSA,
  - fails to develop an adequate sustainability plan,
  - fails successfully implement plan.
- When Board designates a basin probationary
  - All extractors must file extraction reports (unless specifically excluded by the Board).
  - May require meters to measure extractions
  - May require additional reporting

**Interventions**

- Board will allow agencies time to correct issues that led to probation
- Board will develop an interim plan if local agencies cannot fix the issues, which will include –
  - directly manage groundwater extractions,
  - contain corrective actions,
  - Contain timeline to basin sustainability
  - Contain a monitoring plan to validate effectiveness of actions

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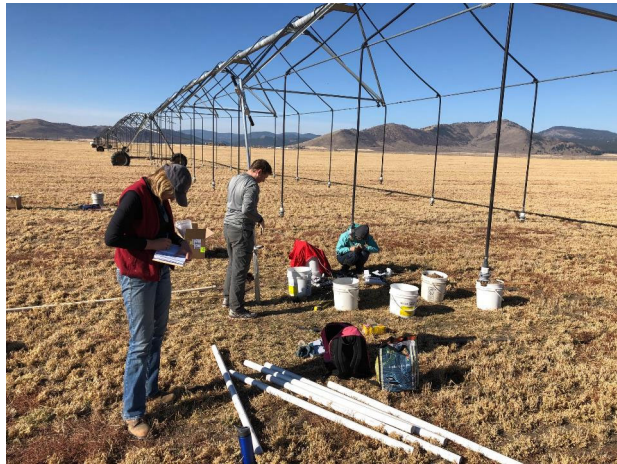
Example: Annual fee for rancher with one well irrigation 160 acres with 320 ac-ft of groundwater per year



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## Groundwater Sustainability Plans (GSP) and GSP Planning Grant

- General Grant Information
- Expected Cost Share Requirements
- Moving Forward



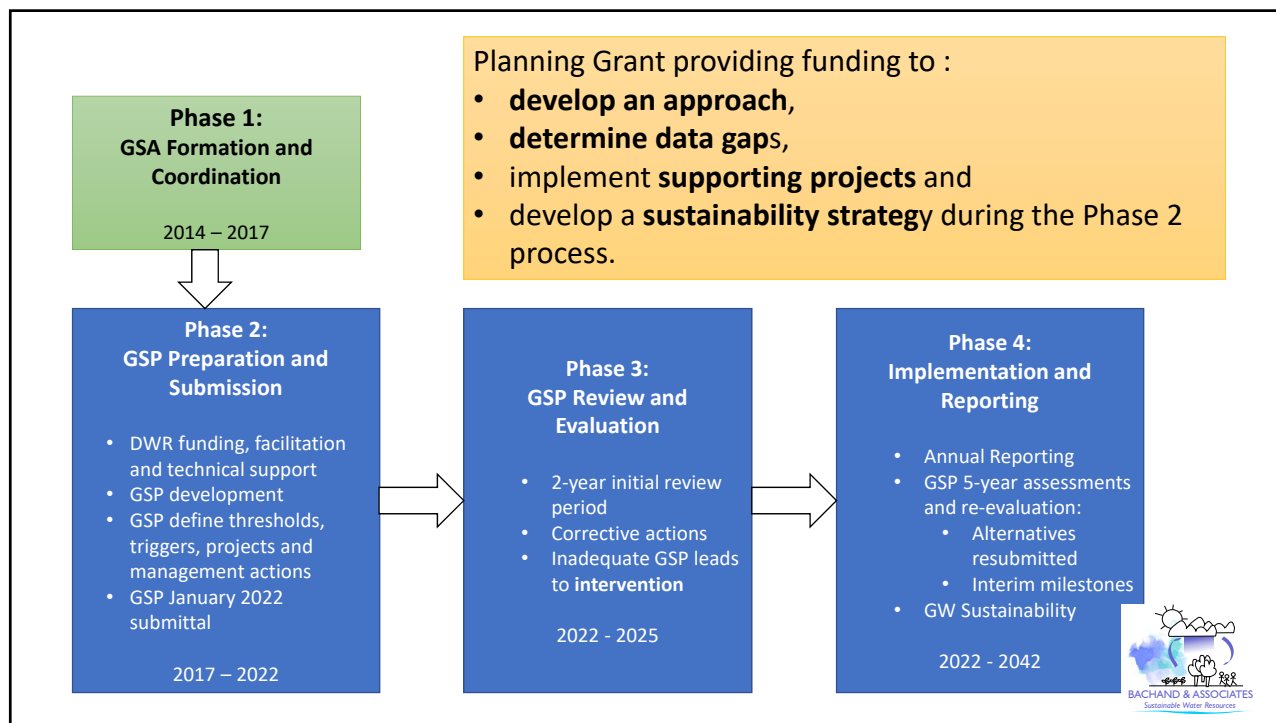
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## 2017 GSP Grant Example Applications Category 2 Projects (GSP Development)




Budget Component	Big Valley	Tulelake	Siskiyou County	Colusa
EDA/DAC/SDAC	SDAC	SDAC	SDAC	EDA
Basin Priority	Medium	Medium	Medium	Medium
Cost Share Required by Proposal	0%	0%	0%	0%
Project Cost	\$1,045,541	\$836,800	\$1,614,000	\$1,497,400
Amount Requested	\$999,185	\$721,120	\$1,367,000	\$1,000,000
Amount Awarded	\$999,185	\$721,120	\$1,367,000	\$1,000,000
Local Contribution Provided	4%	14%	15%	25%
<i>GSP Prep &amp; Writing</i>	<i>\$143,076</i>	<i>\$298,000</i>	<i>\$276,000</i>	<i>\$293,220</i>
<i>Public / Stakeholder Engagement</i>	<i>\$130,853</i>	<i>\$84,000</i>	<i>\$75,000</i>	<i>\$63,840</i>
<i>Data &amp; model development</i>	<i>\$531,816</i>	<i>\$405,000</i>	<i>\$1,263,000</i>	<i>\$761,180</i>

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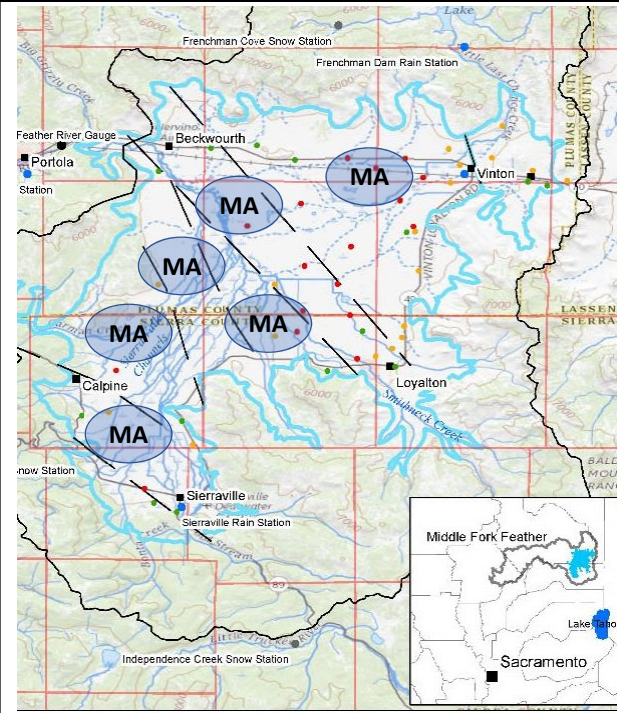
## Example Planning Grant Proposed Activities: e.g.,

- Groundwater Sustainability Plan
- Monitoring network development (e.g. subsidence, groundwater level)
- Data collection (e.g. water quality, subsidence, groundwater level)
- Vulnerability assessment and identification of data gaps
- Public / Stakeholder engagement
- Pilot studies

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## Considering Management Areas (MAs) under GSP strategy



- Fault effects on groundwater table, response to funding and potential management
- Manageable number
- Incorporate West – East climate gradient

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## Current Expectations for Prop 68 Planning Grant\*

\*could be adjusted in response to public comment

- **Planning Grant Purpose**
  - Category 1: projects to help implement GSP
  - Category 2: GSP planning, development and preparation
- **Expected Timeline**
  - Draft Solicitation – Late March or Early April
  - 60 day Public Comment
  - Final Solicitation – Late June / Early July
  - Application Due – Late August / Early Sept?
- **\$48M** in funding
- Approximately **40 new applicants** eligible for funding
  - New applicants will be priority
- Awards expected to range from **\$0.4M – \$1M** per project

Match Required	%EDA or DAC by population or by geographic area
25%	<50% in basin
10%	51 – 71% in basin
0%	>76% in basin

Analyzed Sierra Valley with DWR tools and checked with DWR:

- Area appears eligible for **\$Total Cost Share Waiver (0\$)**
- **Documentation required**

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## Planning Grant Application Organization



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### Example Planning Grant and GSP Timeline

Year	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
2019	BA Developing Planned Tasks and Budgets with input from Board, Plumas Co., GSP Planning Group and technical experts						BA Develop Planning Grant Application for Board / Plumas		Planning Grant Award by DWR			
			Form Board Subcom.	BA provides Public Comment on draft solicitation								
2020	Planning Grant Contracting by DWR		Board / Plumas: Solicit Bids for GSP Project.			Board / Plumas: Select Team & Contract		Selected Team(s) Develop GSP and Conduct Related Projects with review by Board and Plumas Co.				
	Board/Plumas: RFP and Bidding Documents		Teams Submit Proposals									
2021	Selected Team(s) Develop GSP and Conduct Related Projects with review by Board and Plumas Co.											
2022	GSP Due to DWR											



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