BMO Threshold Development and Recharge Mapping: Project Update

Sacramento Central Groundwater Authority

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RMC water and environment

Complex Challenges | Innovative Solutions

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Agenda

- Background and Need
- Update on Groundwater Elevation BMO Threshold Development
- Next Steps

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- **Background and Need**
- Update on Groundwater Elevation BMO Threshold Development
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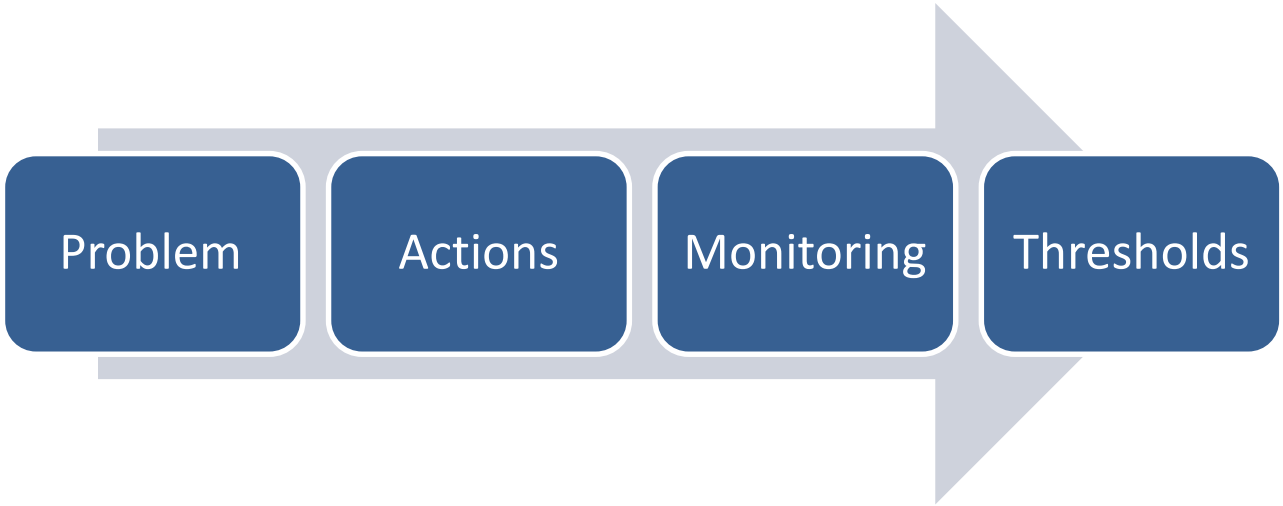
Project Background

- Two Major Components
  - **Groundwater Elevation BMO Threshold Development**
  - Recharge Mapping

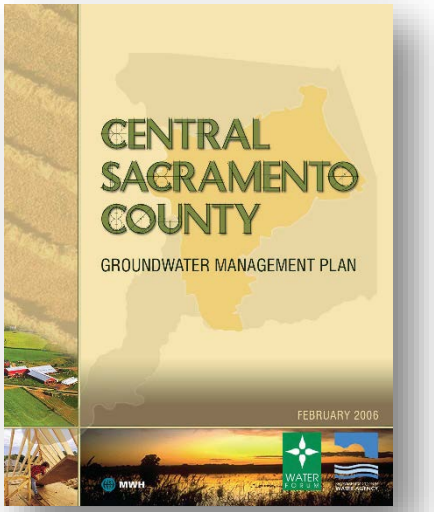
Background - BMOs

1. Maintain a long-term average groundwater extraction rate of 273,000 AF/year.
2. Establish specific minimum groundwater elevations within all areas of the basin consistent with the Water Forum “Solution.”
3. Protect against any potential inelastic land surface subsidence.
4. Protect against any adverse impacts to surface water flows.
5. Develop specific water quality objectives for several constituents of concern.

BMO Threshold Development



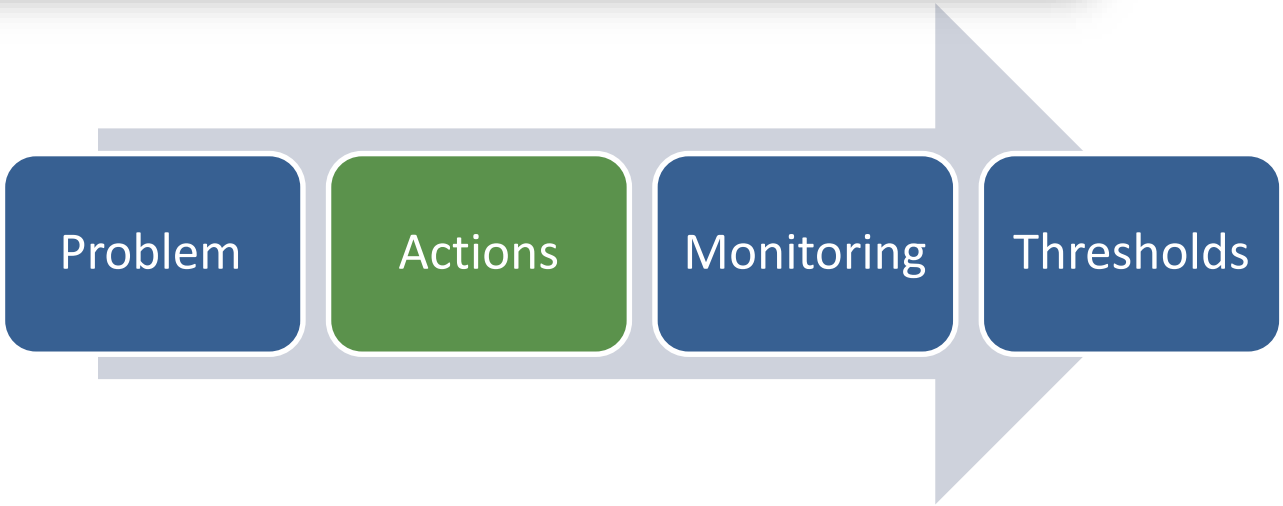
BMO Threshold Development



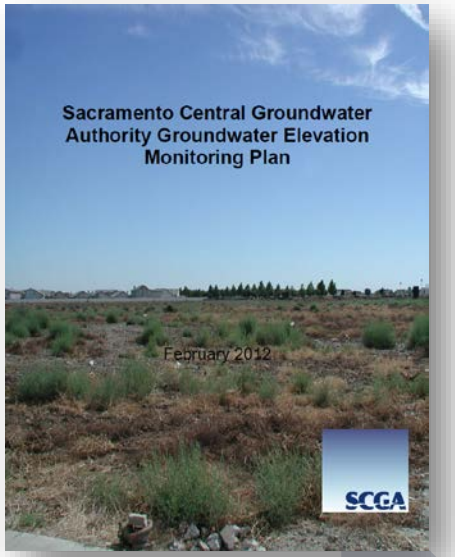
Problem → Actions → Monitoring → Thresholds

BMO Threshold Development

Monitoring Action	Trigger Points	Recommended Action
BMO No. 2. Maintain specific groundwater elevations within all areas of the basin consistent with the Water Forum "solution."		
A monitoring methodology to meet specific objectives in managing groundwater levels requires a systematic, repeatable, and scientific approach. The objective of this monitoring program is to take measurements from selected monitoring wells that have sufficient construction and hydrogeologic data. Wells will be assigned to represent the polygon areas defined in **Appendix B**, and may be grouped within the basin in areas that are sufficiently distinct in	Trigger Point 1. A 25 to 50 percent encroachment into the designated bandwidth of a polygon.	Alert stage that informs the basin governance body and the overlying groundwater extractor(s) that a specific polygon area is being compromised. Activation of this trigger will take place only after the cause of the condition is thoroughly investigated.
	Trigger Point 2. A 50 to 75 percent encroachment into the designated bandwidth of a polygon.	In the event groundwater level measurements hit Trigger Point 2 without first initiating Trigger Point 1, the recommended actions of Trigger Point 1 still apply. Additionally, this stage initiates a requirement to collect a fee to secure supplemental water supplies or to reduce pumping in a predefined area(s).



BMO Threshold Development



Problem → Actions → Monitoring → Thresholds

BMO Threshold Development

Appendix B

Summary of the development of Basin Management Objective #2 (Maintain specific groundwater elevations within all areas of the Central Basin consistent with the Water Forum solution).

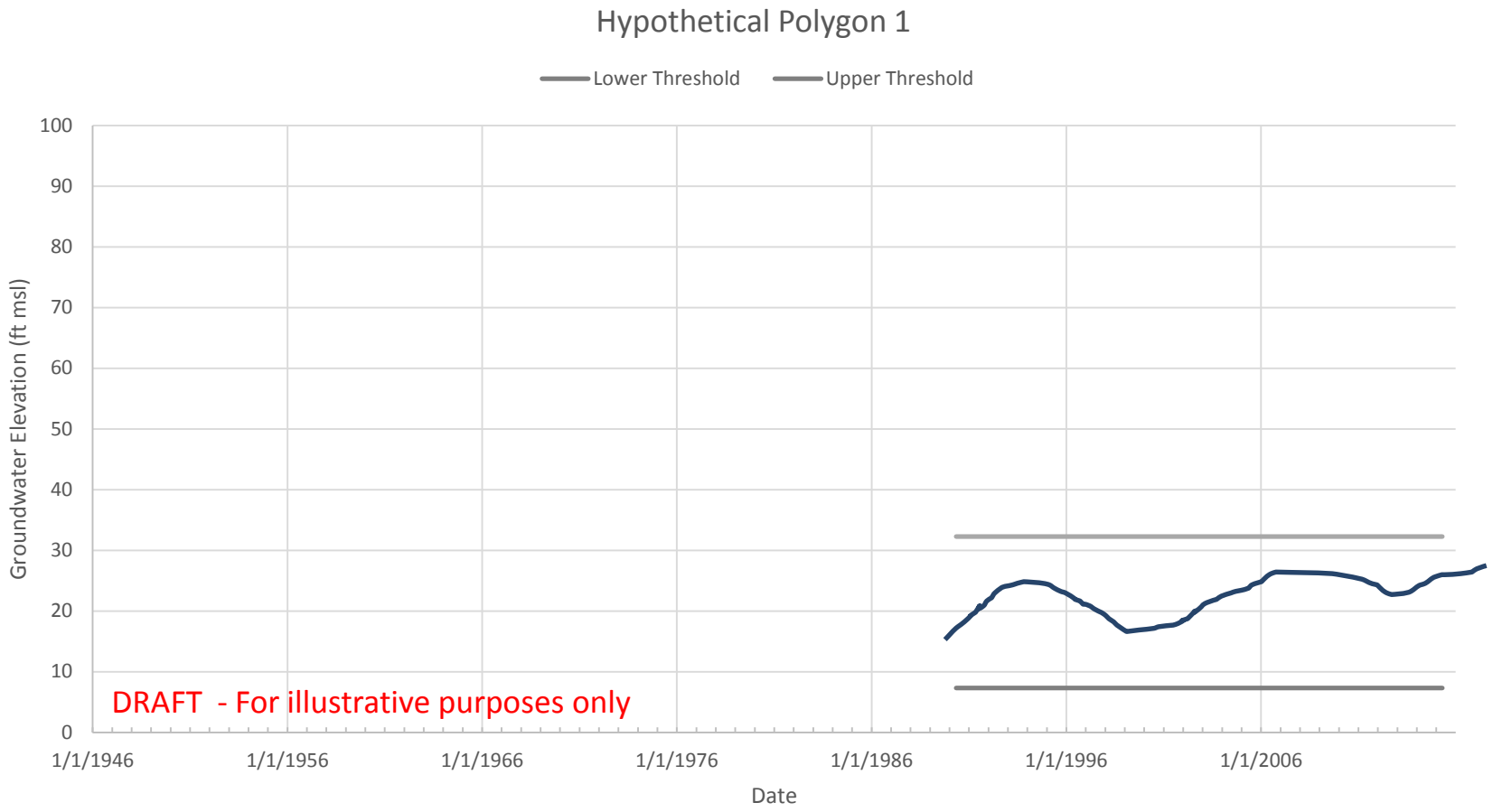
Agenda

- Background and Need
- **Update on Groundwater Elevation BMO Threshold Development**
- Next Steps

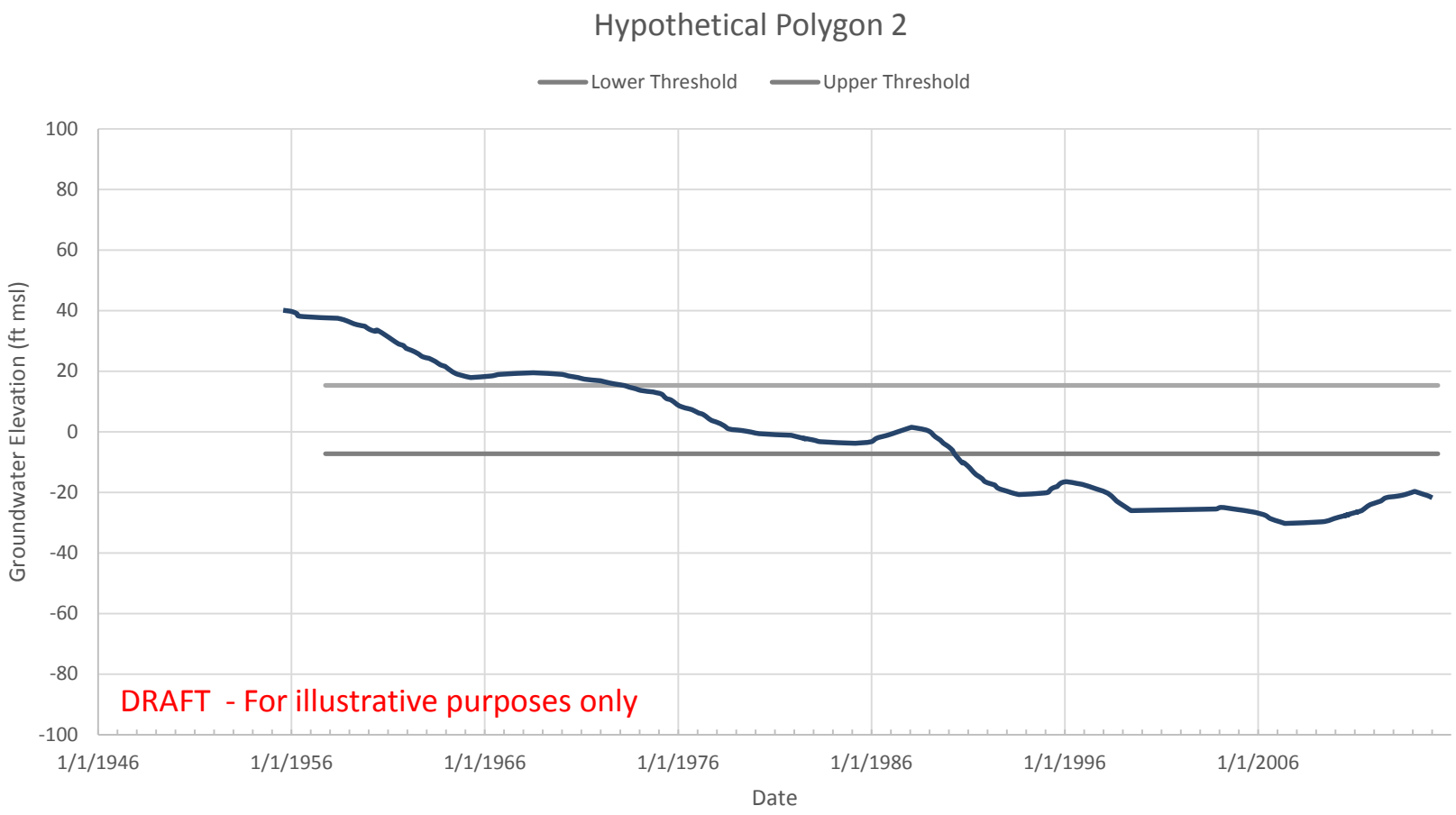
BMO Threshold Development

- Last meeting
  - Some wells: water levels below Appendix B range

Case 1: Historical Data within Appendix B Bandwidth



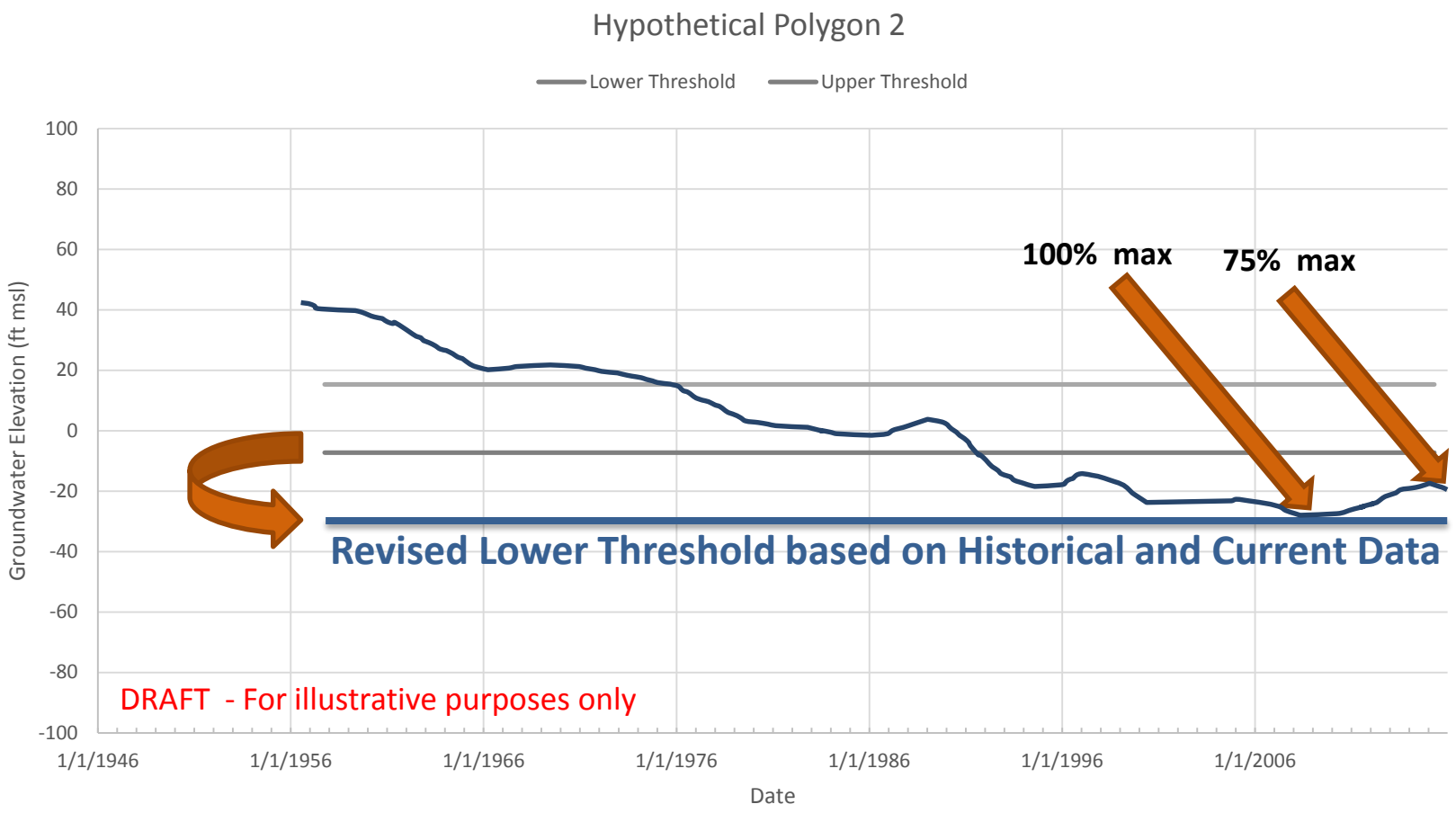
Case 2: Historical Data outside Appendix B Bandwidth



Recommendations – Current and Historical Data

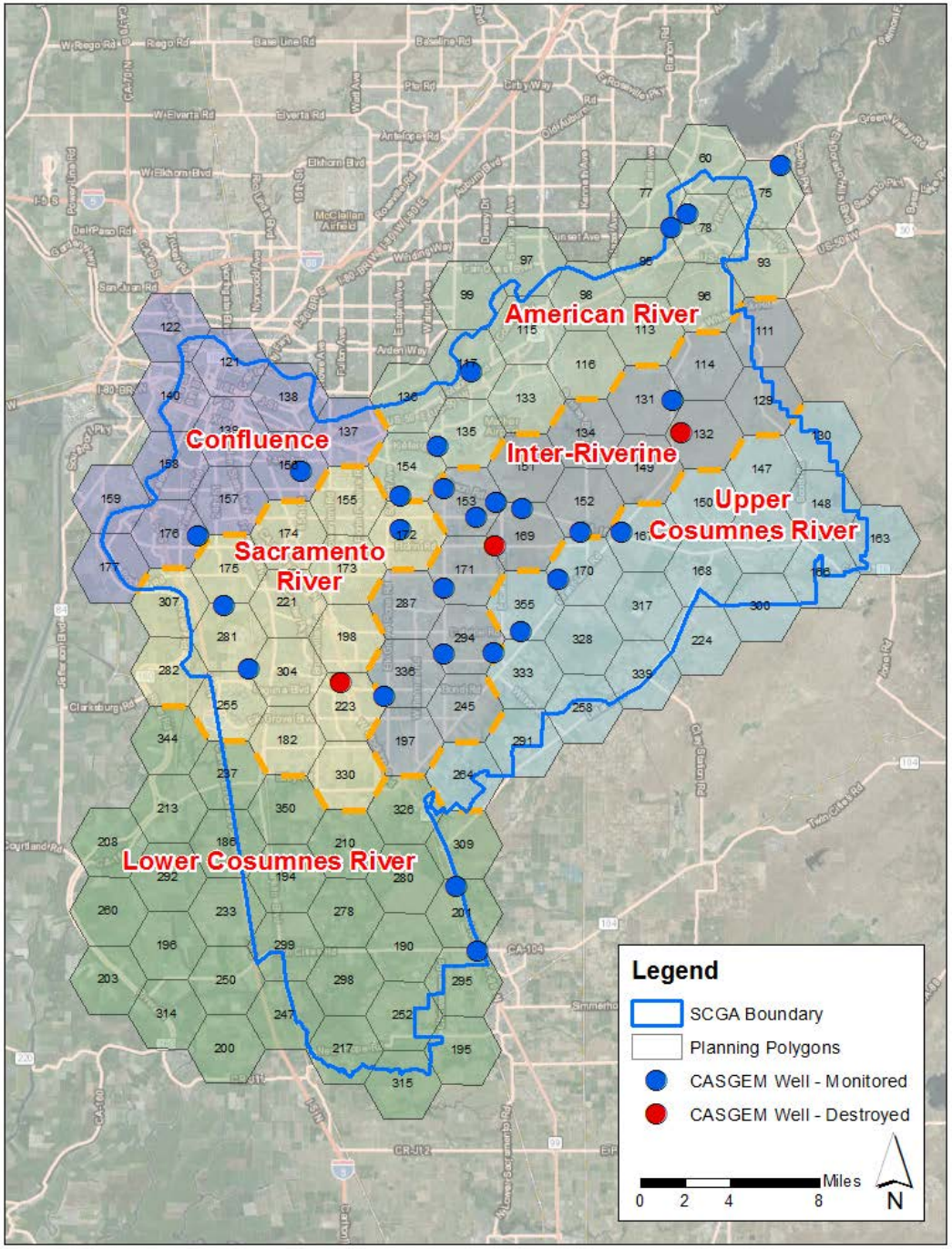
- **Historical groundwater elevations:** adjust bandwidth to incorporate all historical data within the 0 - 100% range.
  - Justification – Historical conditions considered appropriate without requiring acquisition of supplemental water supplies and constructing infrastructure
- **Current groundwater elevations:** Adjust lower threshold so well is within the 0 - 75% range.
  - Justification – Existing conditions considered appropriate without levying assessments

Revised Lower Threshold based on Historical and Current Data



BMO Threshold Development Proposed

- 6 Management Zones
- Based on similar hydrologic responses



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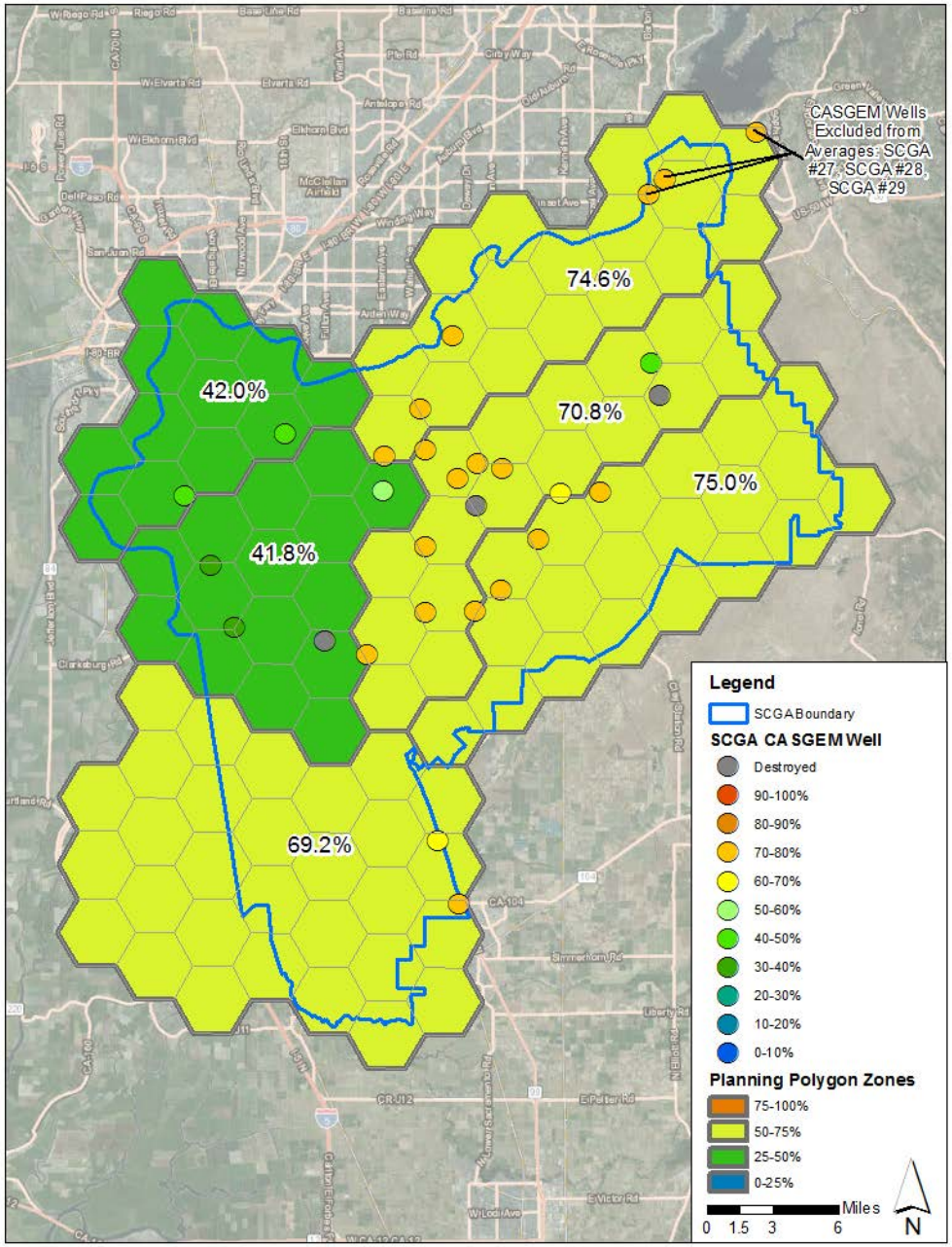
Current Threshold Status

- Based on Fall 2014 groundwater elevation data
- Shows areas with low groundwater elevations compared to bandwidths



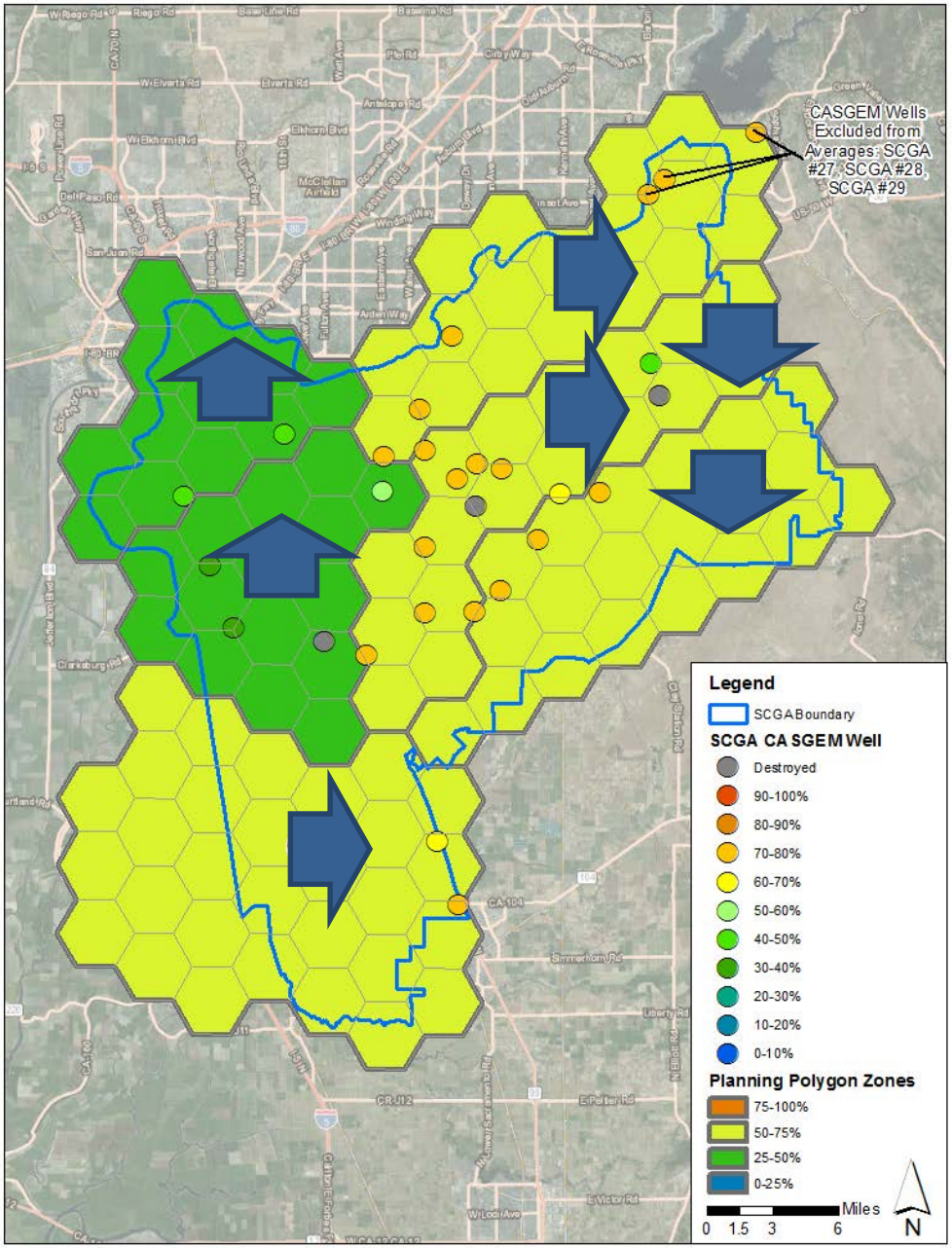
Implications of Current Thresholds

- 25-50% - Informational
- 50-75% - Initiate a requirement to collect a fee

- Needs
  - Determine cause – long-term decline or drought conditions?
  - Recognize existing actions – Vineyard SWTP

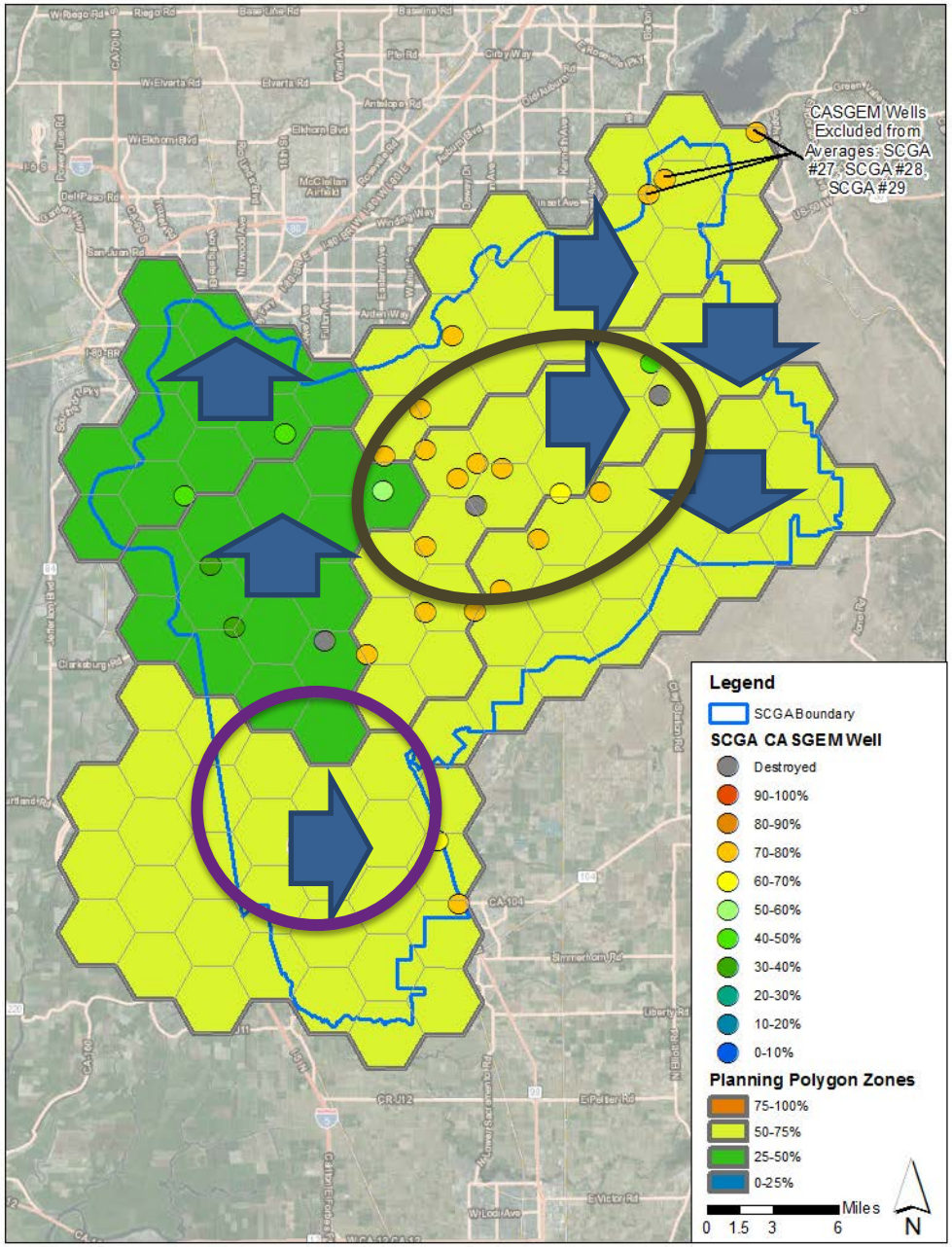
Trends

- Generally increasing
  - Confluence
  - Sacramento River
- Generally stable
  - American River
  - Lower Cosumnes
- Mixed stable/decreasing
  - Inter-riverine
- Generally decreasing
  - Upper Cosumnes

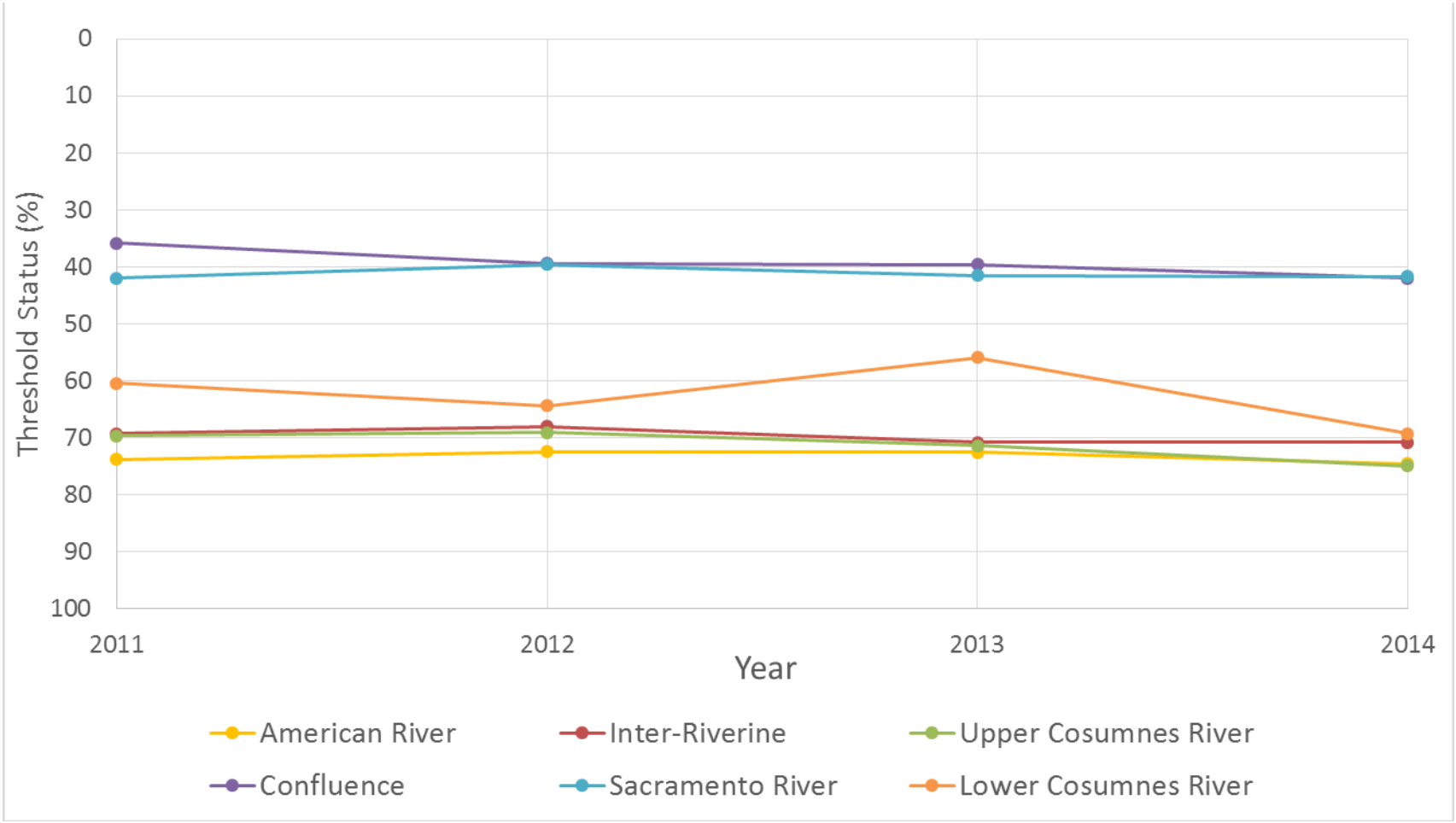


Trends

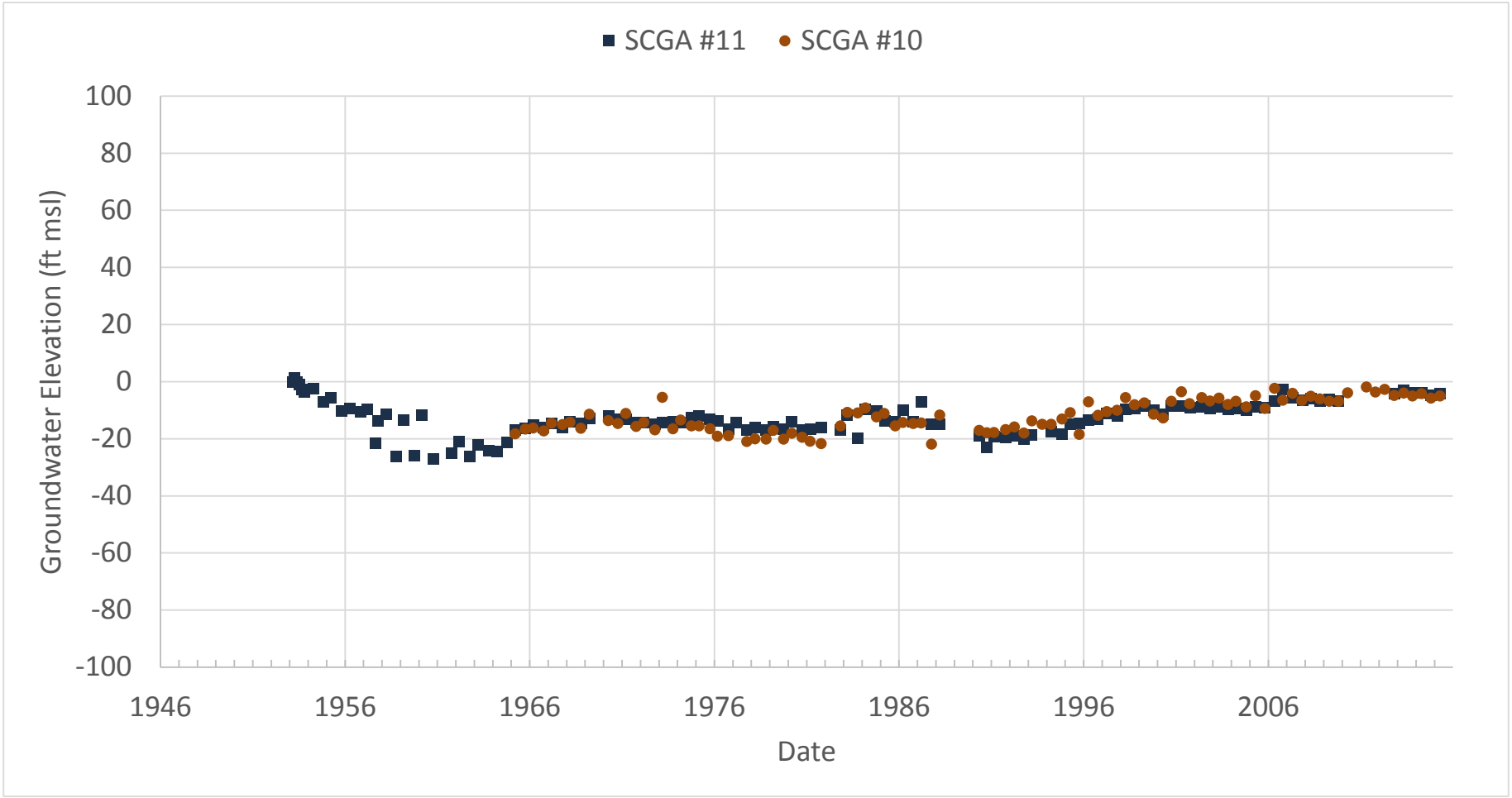
- Stable and decreasing areas to benefit from planned projects
  - Vineyard SWTP buildout
  - South County Ag Program



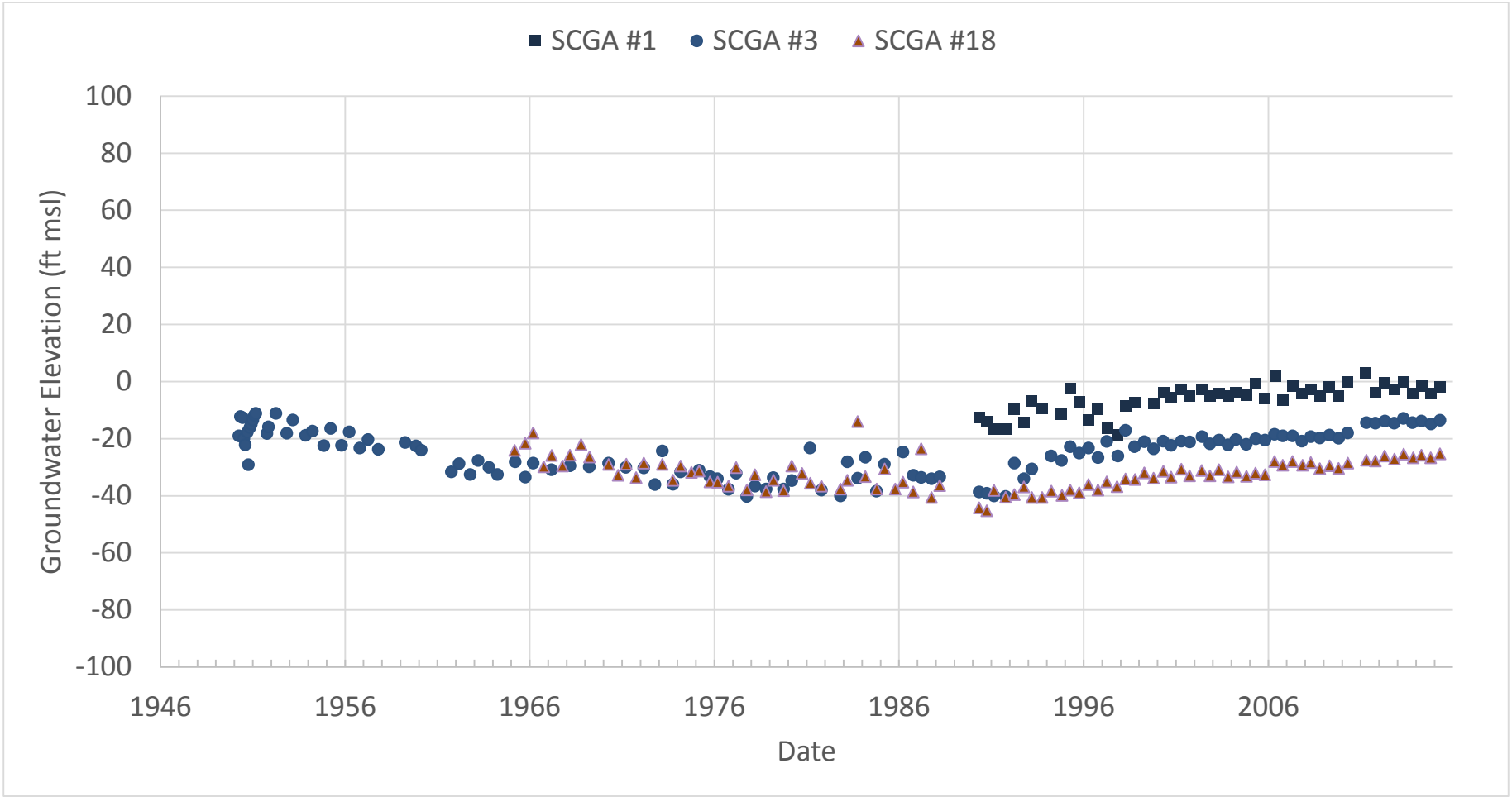
Trends – 2011 to 2014



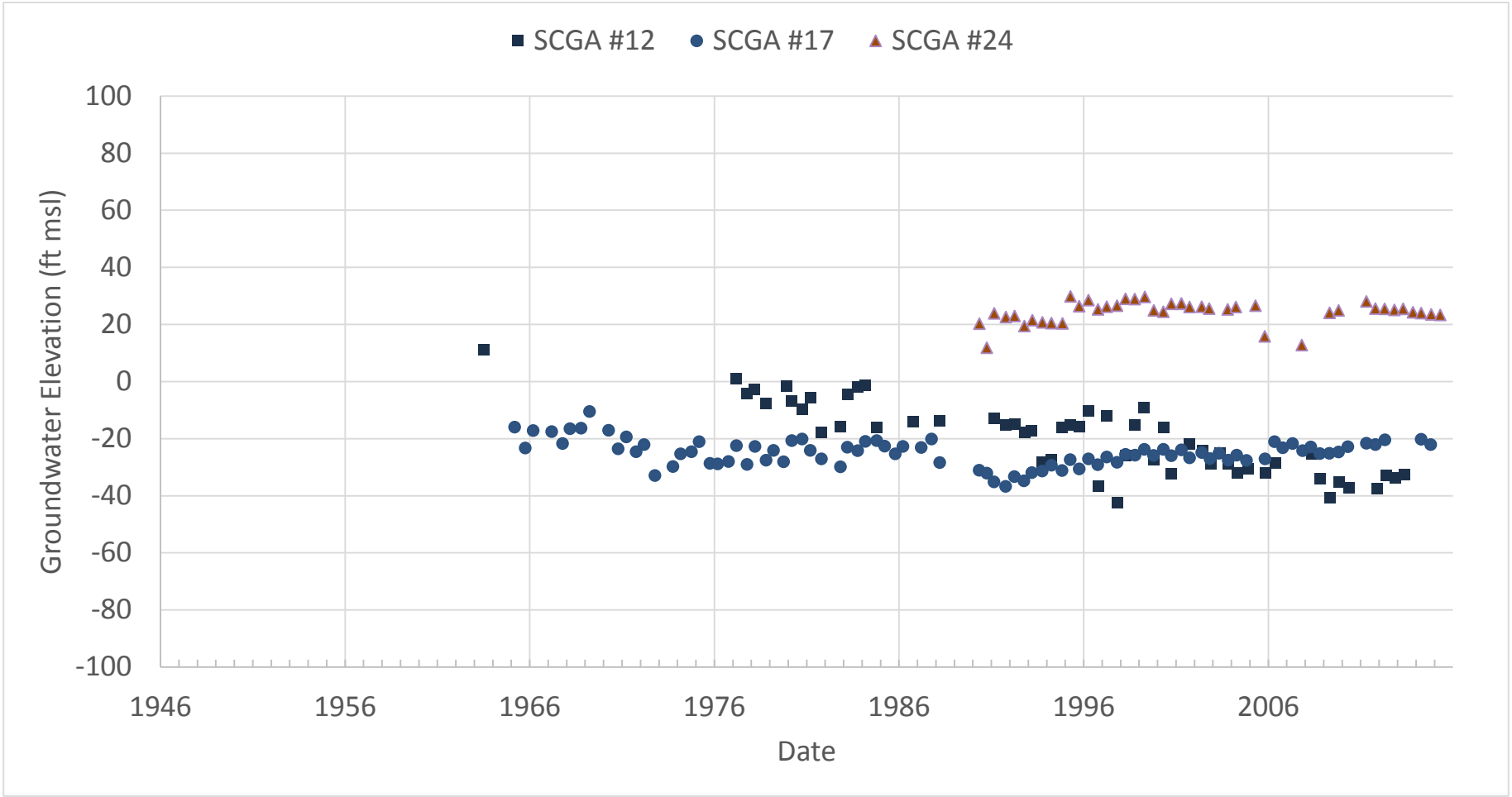
Trends– Confluence: Generally Increasing



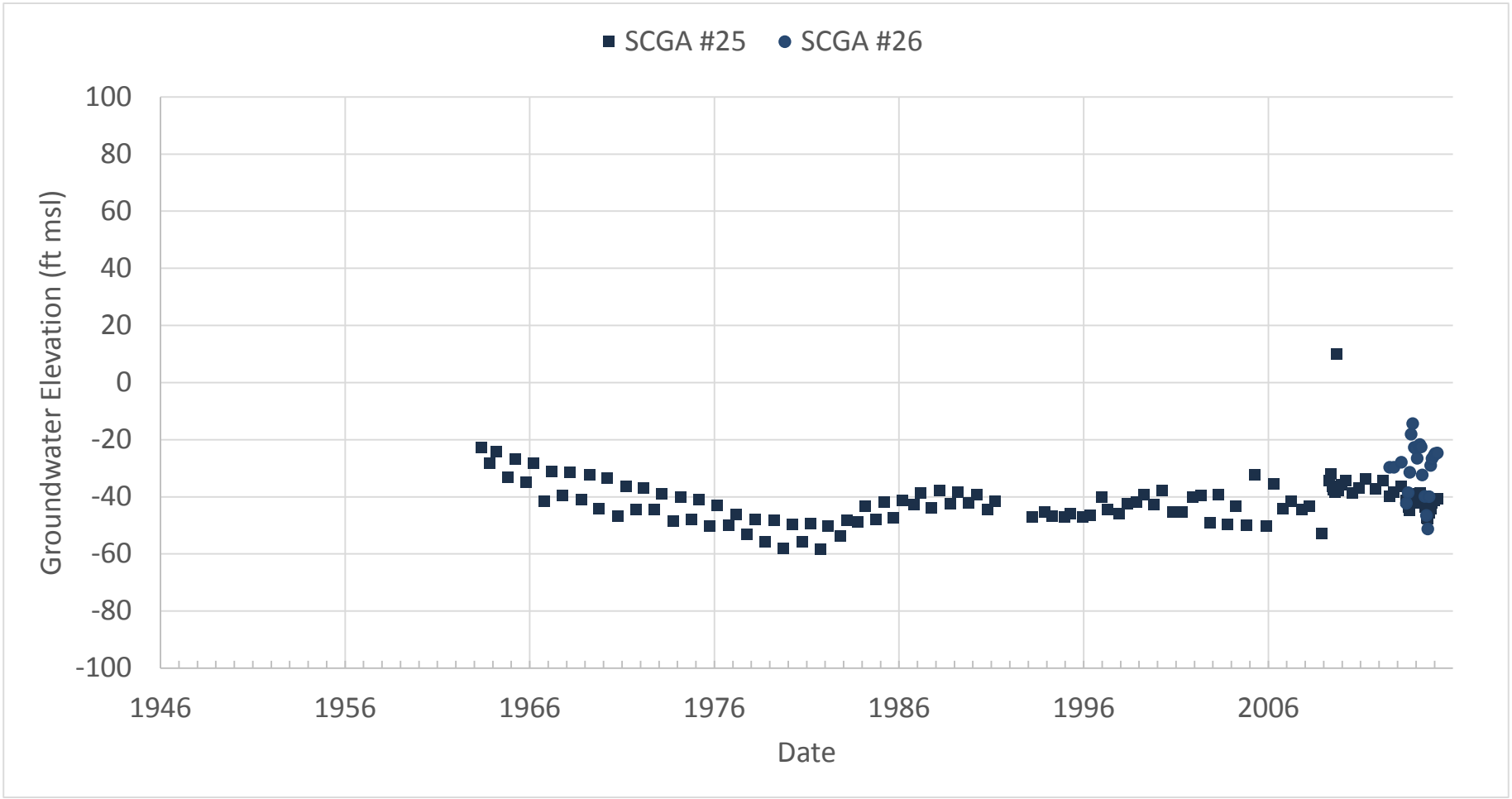
Trends– Sacramento River : Generally Increasing



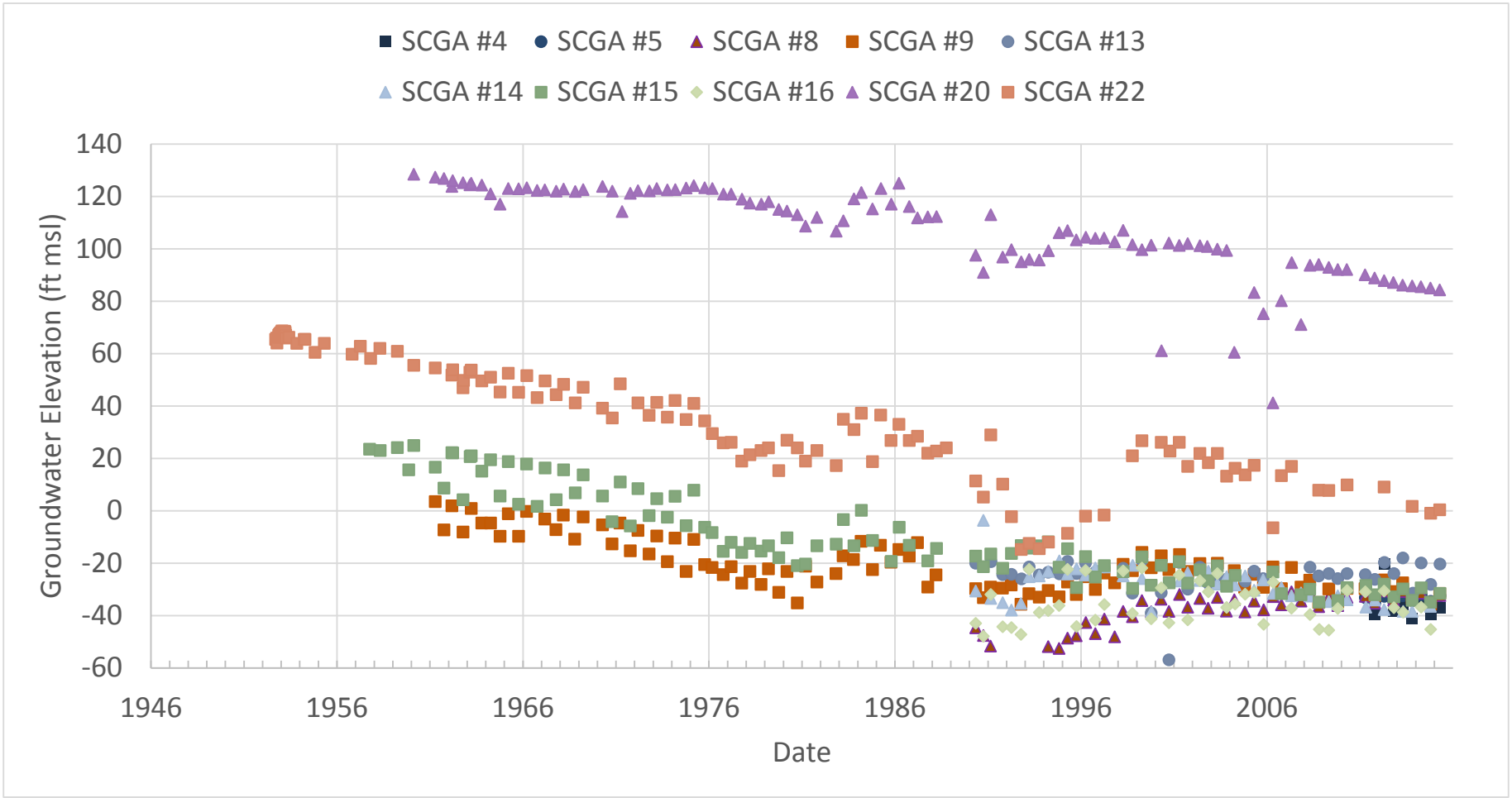
Trends– American River: Generally Stable



Trends– Lower Cosumnes : Generally Stable

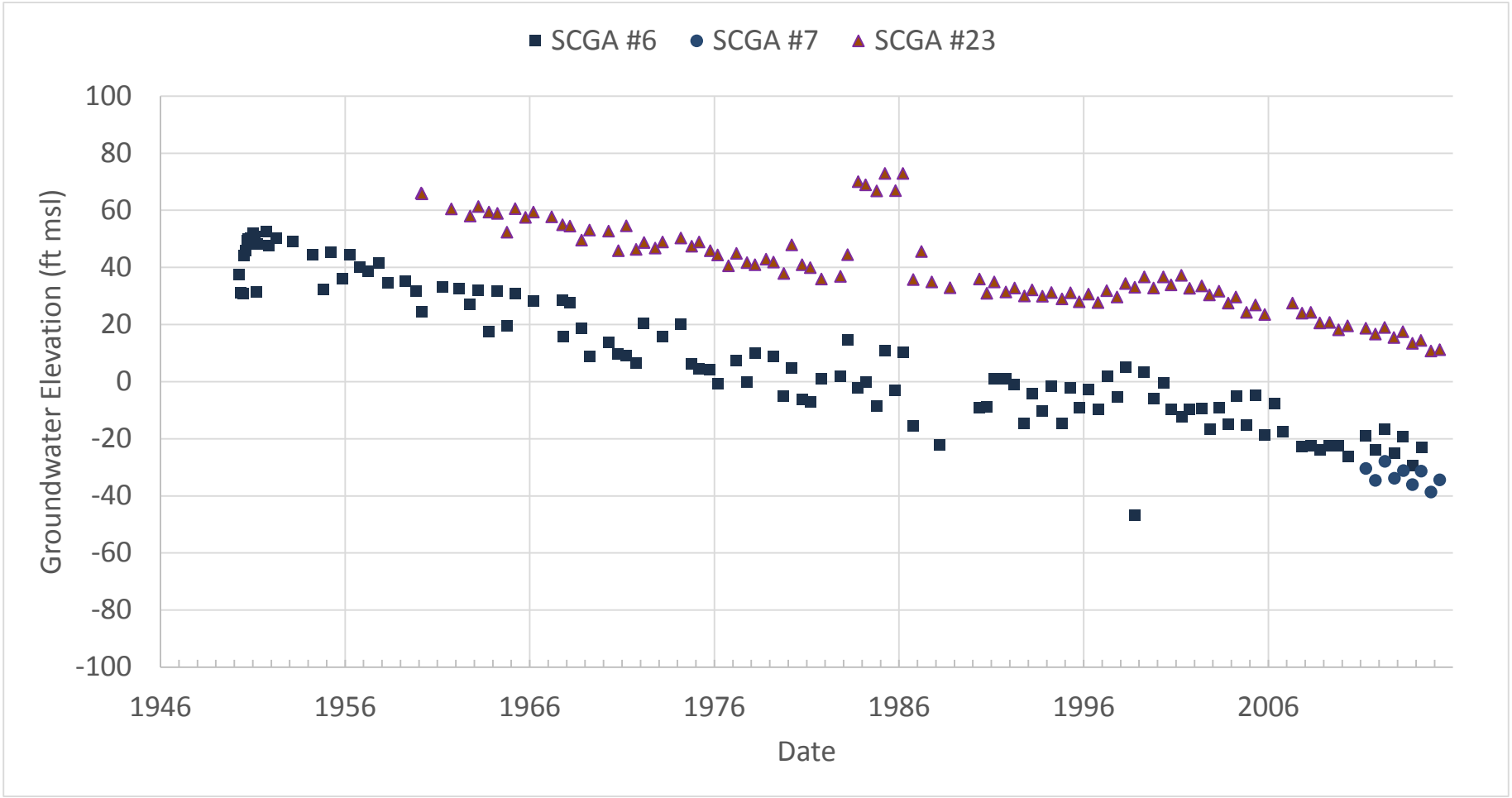


Trends– Inter-Riverine: Mixed Decreasing / Stable



Note: does not include destroyed wells 19 and 21

Trends– Upper Cosumnes: Generally Decreasing



Potential Responses

- Monitor to
  - Track benefits from increased use of Vineyard SWTP
  - Separate drought impacts from long-term storage changes

Potential Reponses

Develop physically-based thresholds

- Depth of private wells
- Historical conditions near rivers

Will require data collection effort, potentially part of GSP development.

Next Steps

- Present information in a draft and final TM
- Implement BMOs under GSP

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