

# Salinas Valley Basin GSA

## Water Budgets

Presented to Upper Valley  
Aquifer Subbasin Committee  
April 5, 2021

Prepared by





# Goals

- ▶ Share preliminary findings from water budget analysis
- ▶ Establish initial estimates of the Upper Valley Subbasin's sustainable yield



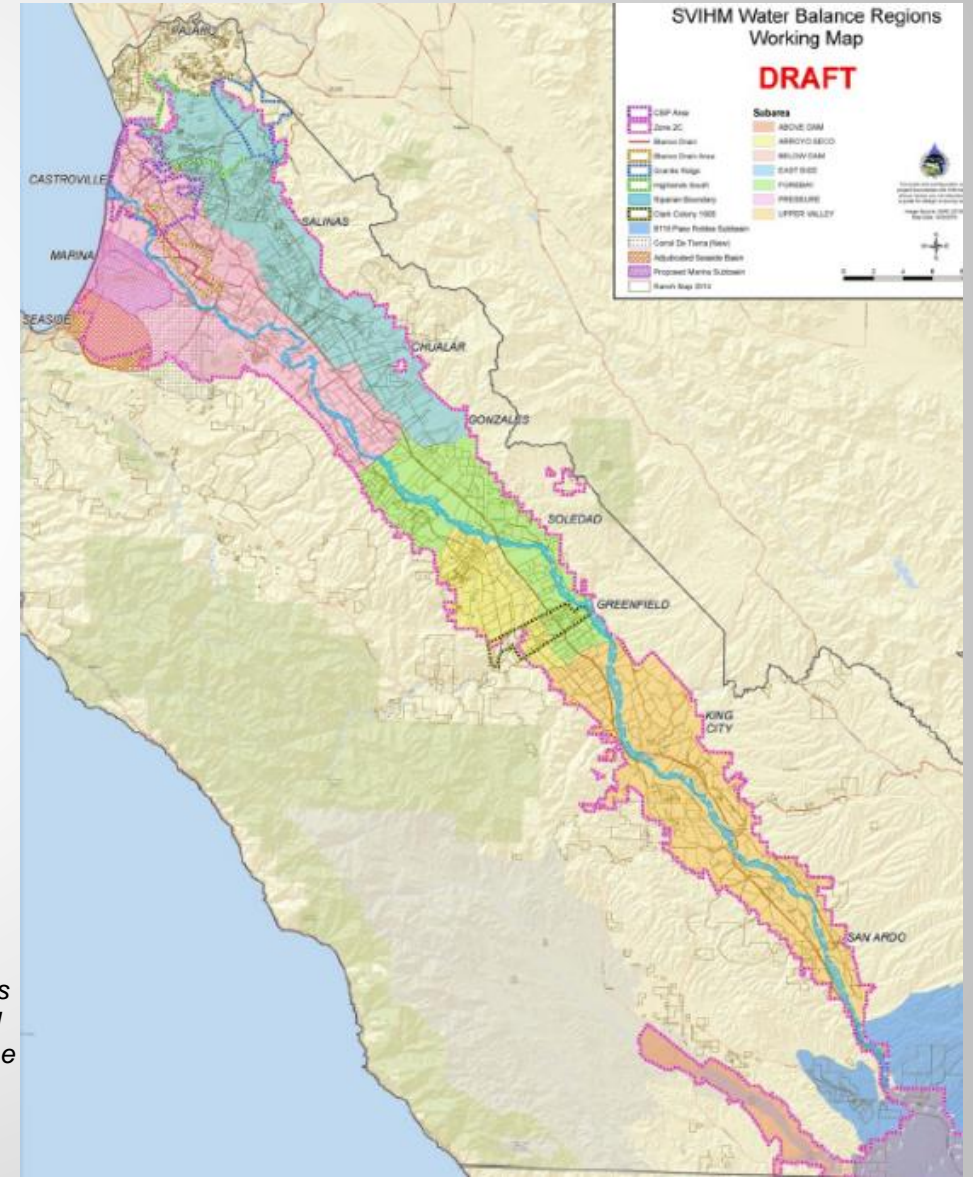
# Background

- ▶ A general water budgets overview was given at a valley-wide workshop on February 24, 2021.
- ▶ Each Subbasin must pump within its sustainable yield (CCR §1071(t))
  - ▶ Sustainable yield can change as projects or management actions are initiated



# Water Budget Tools

- ▶ Two models developed by USGS
  - ▶ Salinas Valley Integrated Hydrologic Model (SVIHM) – historical conditions
  - ▶ Salinas Valley Operational Model (SVOM) – future conditions
- ▶ Both models will also be used by MCWRA and USBR for other studies in the Valley
- ▶ Both models are preliminary. MODELS CONTINUE TO BE UPDATED.



*This data (model and/or model results) are preliminary or provisional and are subject to revision. This model and model results are being provided to meet the need for timely best science. The model has not received final approval by the U.S. Geological Survey (USGS). No warranty, expressed or implied, is made by the USGS or the U.S. Government as to the functionality of the model and related material nor shall the fact of release constitute any such warranty. The model is provided on the condition that neither the USGS nor the U.S. Government shall be held liable for any damages resulting from the authorized or unauthorized use of the model.*

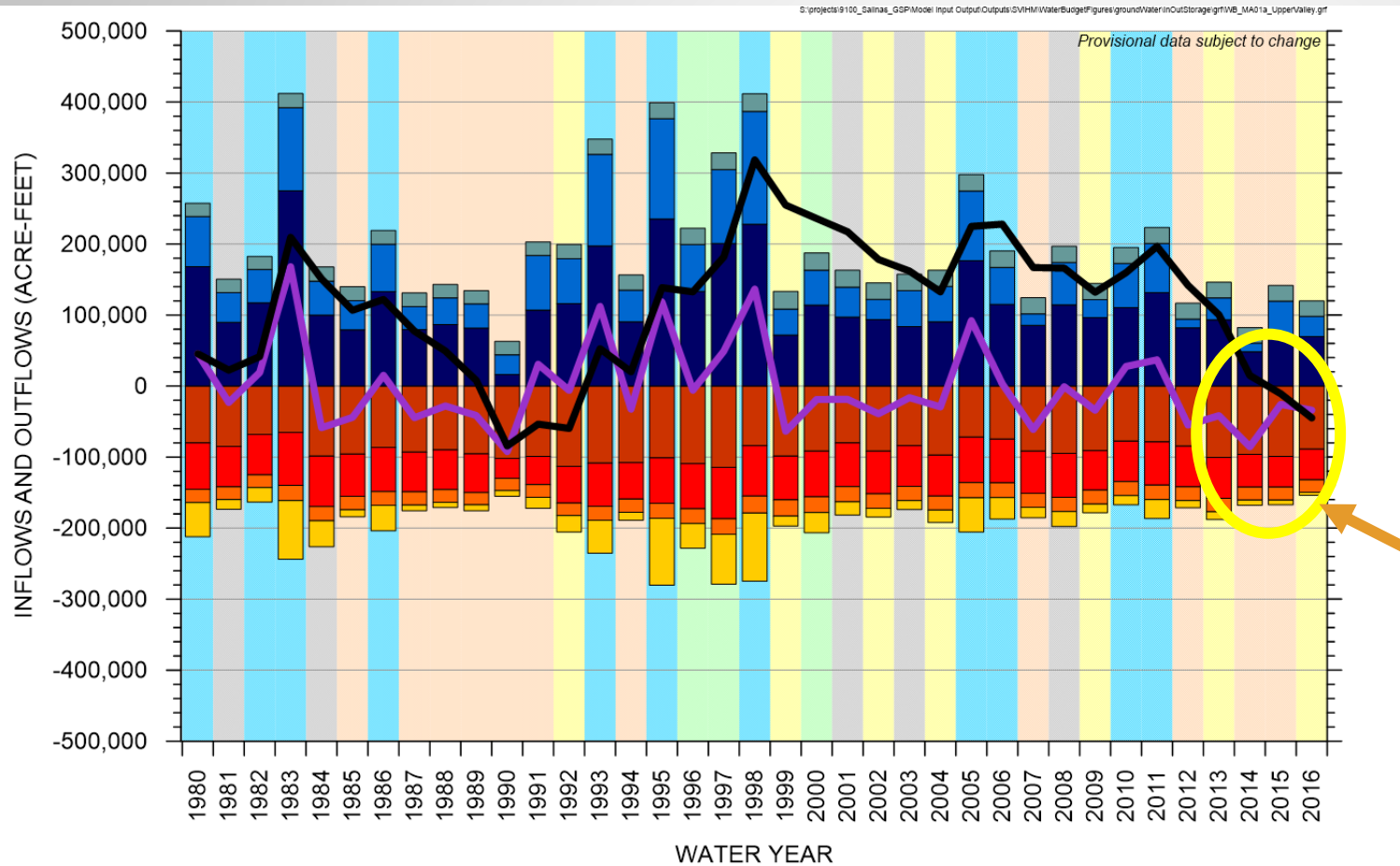


## Important Note

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# Preliminary Historical Water Budget Results\*



Modeled storage loss from 1980-2016 is 1,210 AF/yr.

Dependent on choice of time period

*\*All model results are preliminary and subject to revision.*

# Average Annual Simulated Historical Water Budget

	<b>Simulated (AF/yr.)</b>
Groundwater Pumping	-91,606
Net Stream Exchange (gain from streams)	89,097
Net Deep Percolation of Precipitation and Irrigation	57,342
Net Flow from Forebay Aquifer Subbasin	-2,548
Net Flow from Paso Robles Area Subbasin	2,507
Net Flow from Other Areas	1,944
Groundwater Evapotranspiration	-57,946
Net Storage Change	-1,210

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# Preliminary Future Water Budget Results

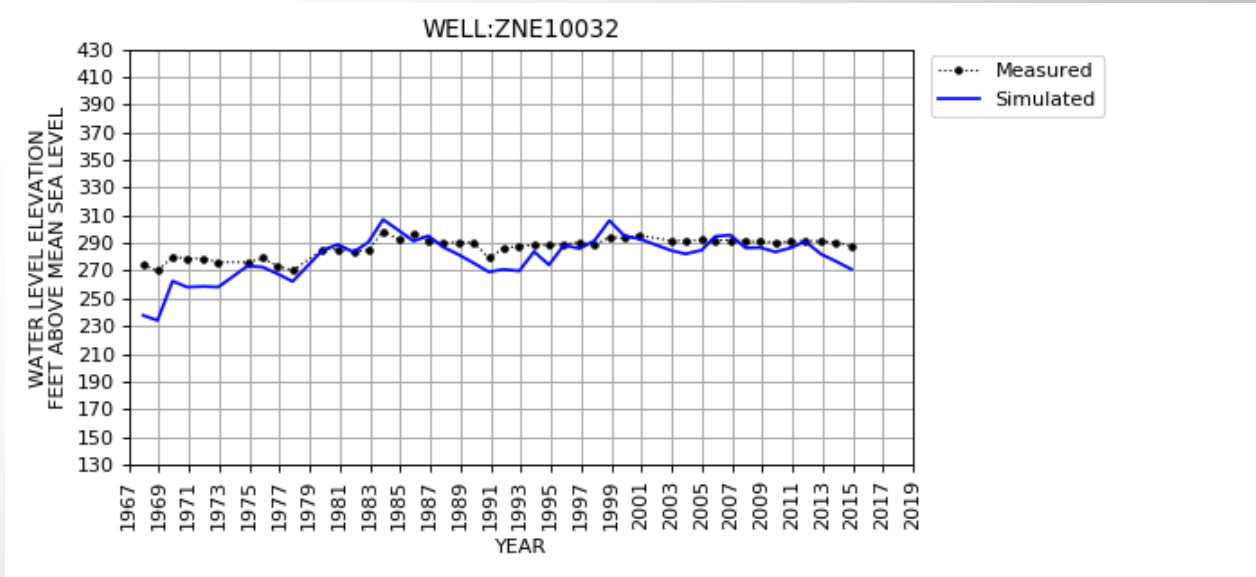
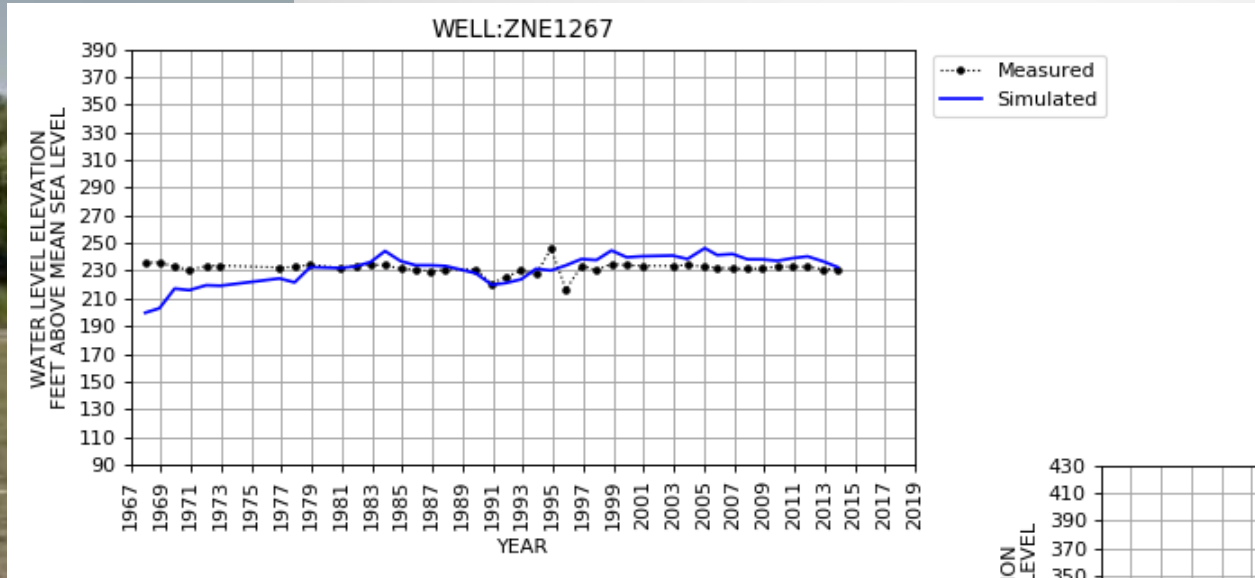
	<b>2030 (AF/yr.)</b>	<b>2070 (AF/yr.)</b>	<b>Significant Changes (Historical to 2070)</b>
Groundwater Pumping	-83,900	-87,500	4,100 less pumping
Net Stream Exchange (gain from streams)	71,300	72,200	16,900 less from streams
Net Deep Percolation of Precipitation and Irrigation	58,800	64,100	6,800 more from precipitation and irrigation
Net Flow from Forebay Aquifer Subbasin	-1,400	-1,400	
Net Flow from Paso Robles Area Subbasin	4,800	4,900	
Net Flow from Other Areas	6,300	6,600	
Groundwater Evapotranspiration	-44,800	-47,300	
<b>Net Storage Change</b>	<b>10,800</b>	<b>11,400</b>	

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# North of King City

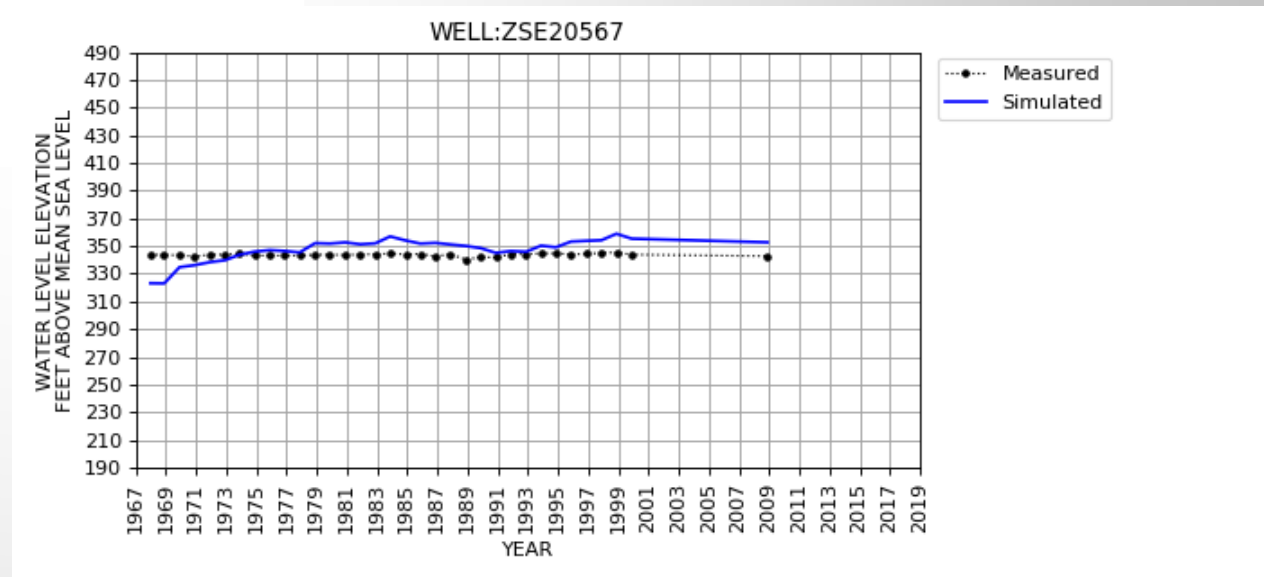
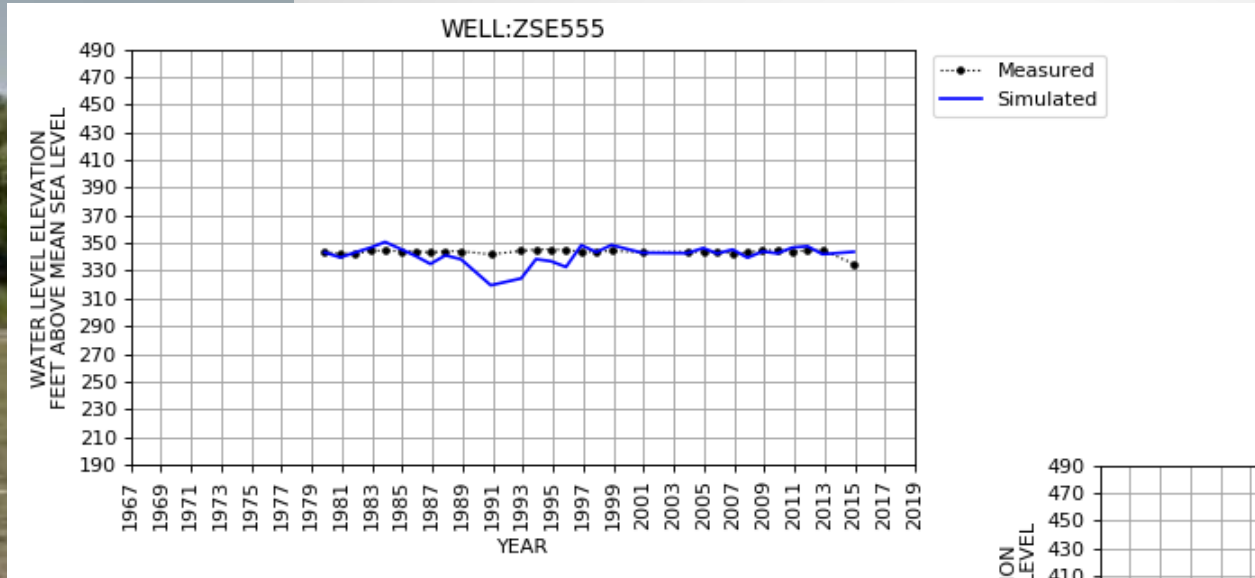
Relatively Accurate Model



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# Near San Lucas

Relatively Accurate Model

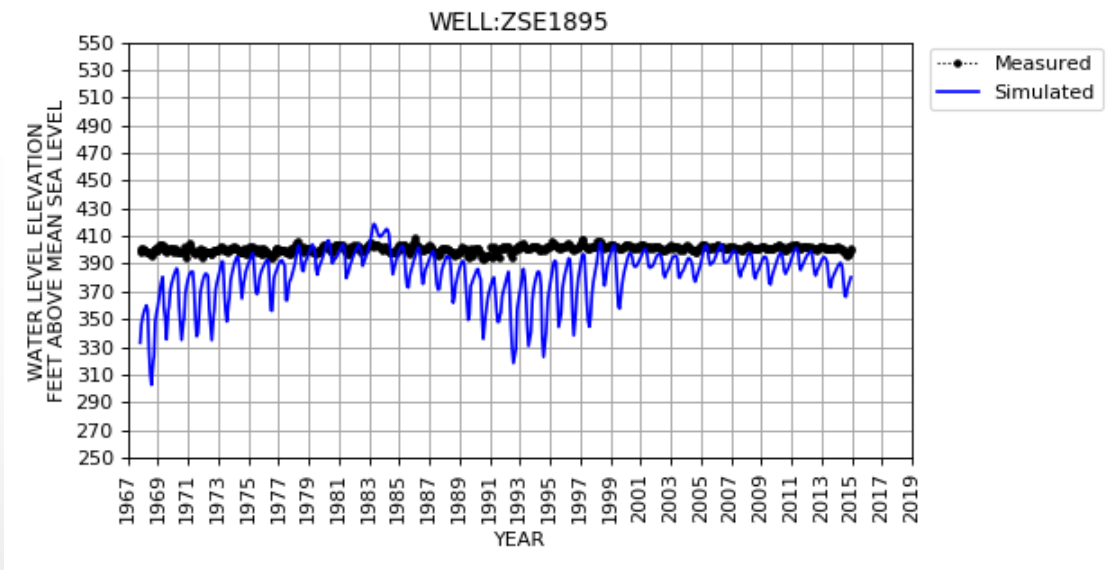
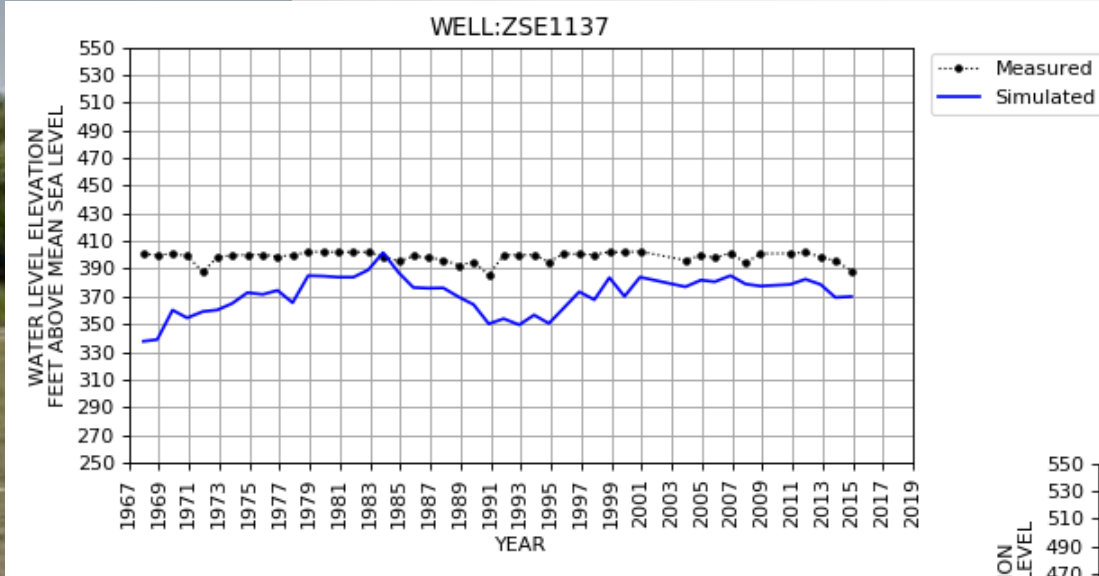


*\*All model results are preliminary and subject to revision.*

# Near San Ardo

Relatively Accurate  
Model

Overestimates  
Climatic Impacts



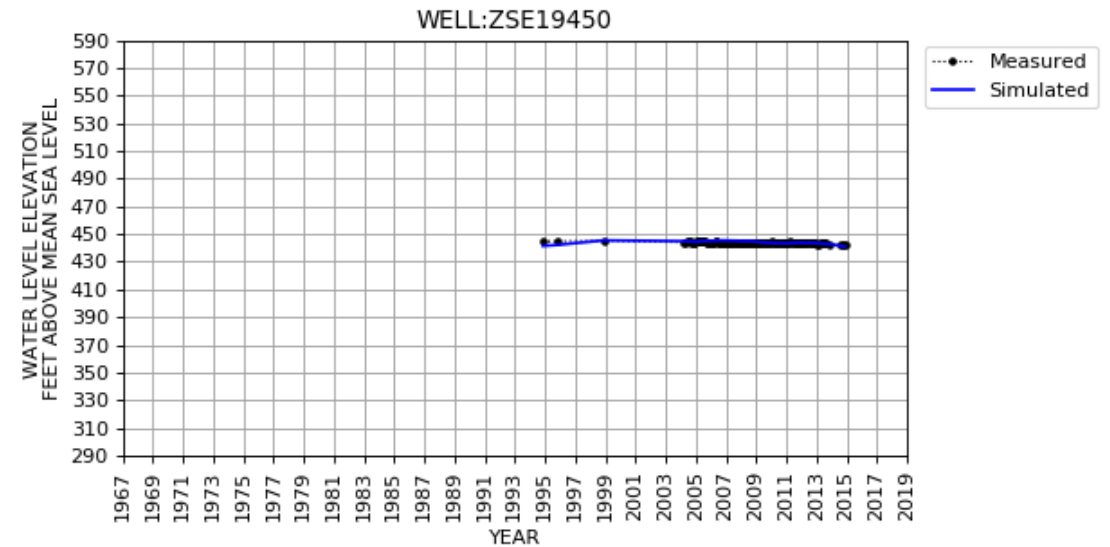
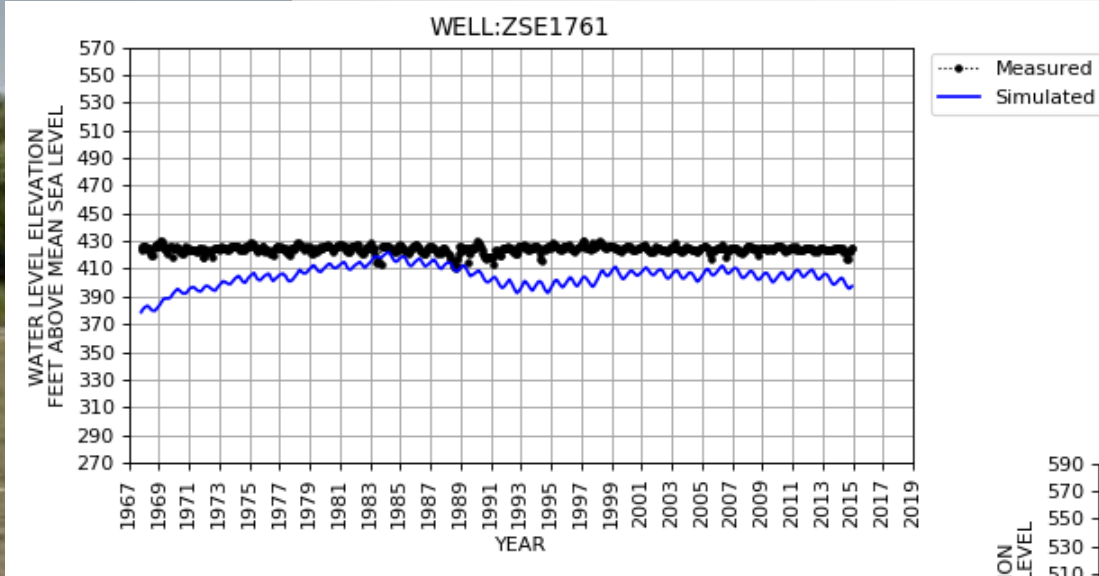
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# A Few Miles South of San Ardo

Relatively Accurate  
Model

Overestimates  
Climatic Impacts

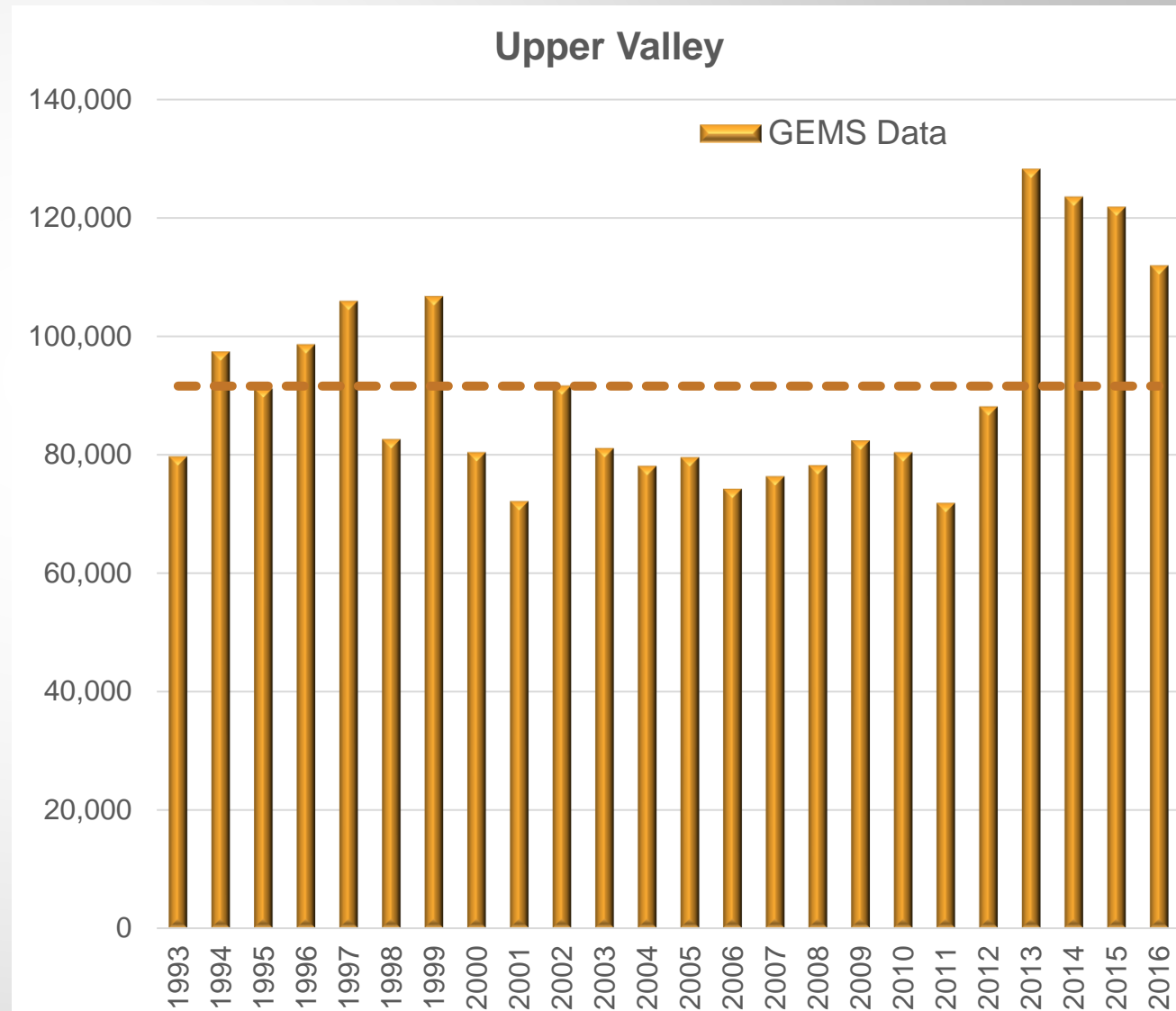


*\*All model results are preliminary and subject to revision.*

# Sustainable Yield

*\*All model results are preliminary and subject to revision.*

- Based on difference between pumping and overdraft
- Historical pumping is estimated by the model at 91,600 acre-feet per year.



# Sustainable Yield

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- The model estimates a future overdraft of 1,200, yielding a sustainable yield of approximately 90,400 acre-feet per year.
- The basin is close to in balance, so the sustainable yield is likely at least (or larger than) the historical pumping rates
  - The overdraft is within model error
- Sustainable yield relies heavily on river flows.



# Overall Water Budget Themes

*\*All model results are preliminary and subject to revision.*

- Historical pumping in the Upper Valley Subbasin does not appear to exceed the sustainable yield
- The sustainable yield of the Upper Valley is estimated at 90,400 acre-feet per year, but is likely at or above the historical pumping, estimated at 91,600 acre-feet per year **without climate change**
- The estimated sustainable yield at 2070 rises to 98,900 acre-feet per year

# Overall Water Budget Themes

*\*All model results are preliminary and subject to revision.*

- ▶ Little is known about the sustainable yield of areas away from the Salinas River
- ▶ Changes in reservoir operations could influence the sustainable yield
- ▶ Additional accuracy for the sustainable yield is likely neither necessary nor defensible



# Questions

