Salinas Valley Basin GSA

Water Budgets

Presented to Langley Area
Subbasin Committee
March 3, 2021

Prepared by

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Goals

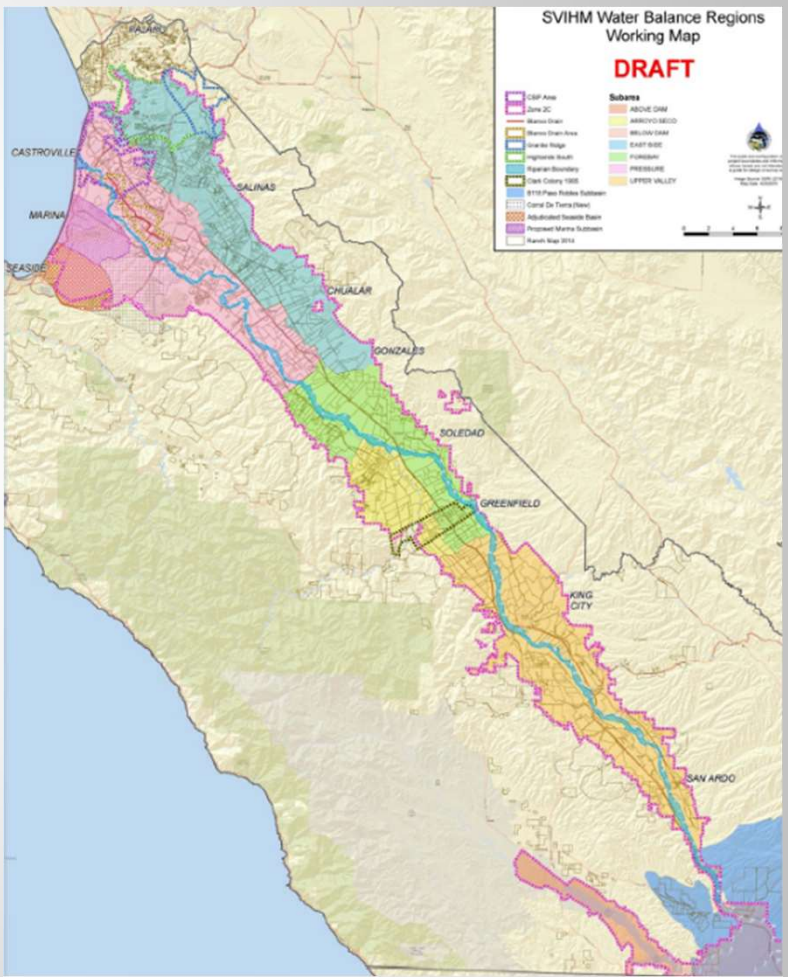
- Share preliminary findings from water budget analysis
- Establish initial estimates of the Langley Subbasin's sustainable yield

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



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Important Note

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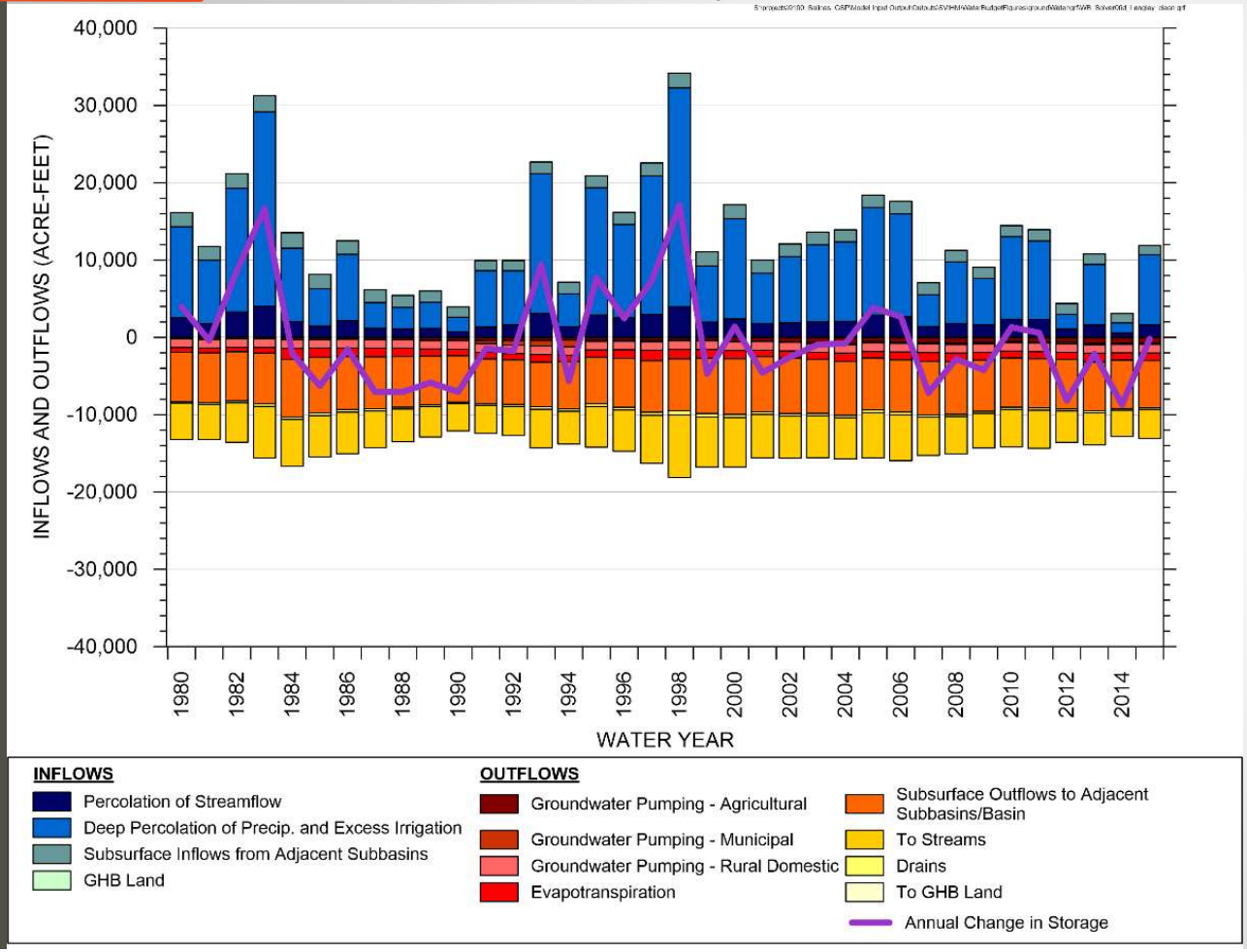
Preliminary Historical Water Budget Results*



- Annual groundwater storage loss between 1980 and 2016 is small, about 100 AF/yr.
- Simulated annual pumping is 600 AF/yr.
- Model underestimates pumping

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

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Average Annual Historical Water Budget (AF/yr.)

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	Simulated *	Revised
Net GW Extraction	-600	-600
De-Minimis Extraction	0	-600
Net Drain Flow	-300	-300
Net Stream Exchange (loss to streams)	-3000	-3000
Net Deep Percolation	9800	9800
Net flow from/to Eastside	-1100	-1100
Net mountain front recharge	100	100
Net flow from/to Pajaro Valley	-200	-200
Net flow from/to 180-400 ft	-3700	-3700
GW Evapotranspiration	-1000	-1000
Net from/to Elkhorn Slough	-100	-100
Net Storage Change	-100	-700

Preliminary Future Water Budget Results

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	2030	2070	
Net GW Extraction	-1,500	-1,600	
Net Drain Flow	-600	-600	
Net Stream Exchange (loss to streams)	**-1,100**	**-1,300**	**-3,000**
Net Deep Percolation	**11,200**	**12,100**	**-9,800**
Net flow to Eastside	-1,100	-1,100	
Net mountain front recharge	100	100	
Net flow to/from Pajaro Valley	-300	-300	
Net flow to/from 180-400 ft	-4,700	-4,900	**-3,700**
Net Storage Change	2,000	2,300	

Potential Model Inaccuracies*

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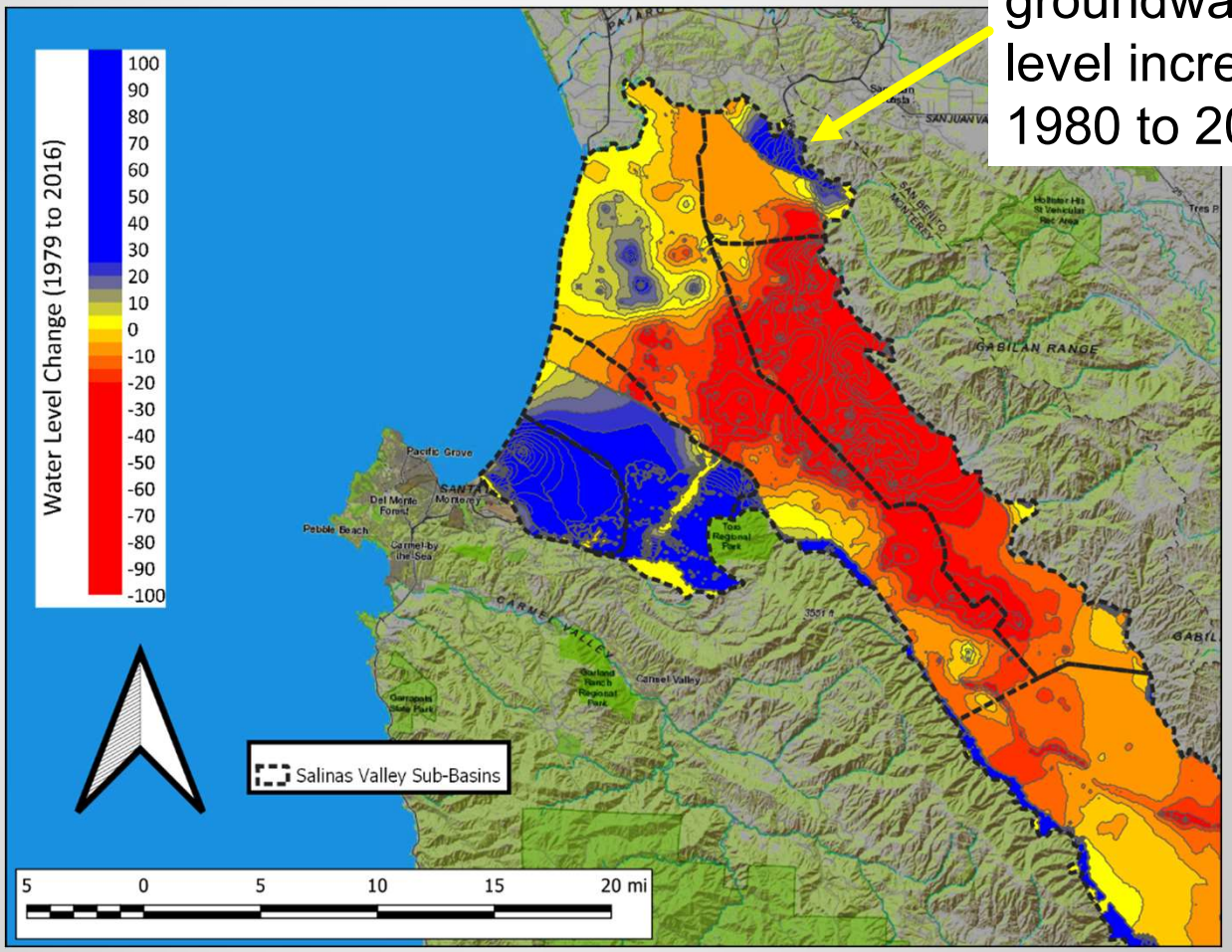

Near Highway 156 Interchange

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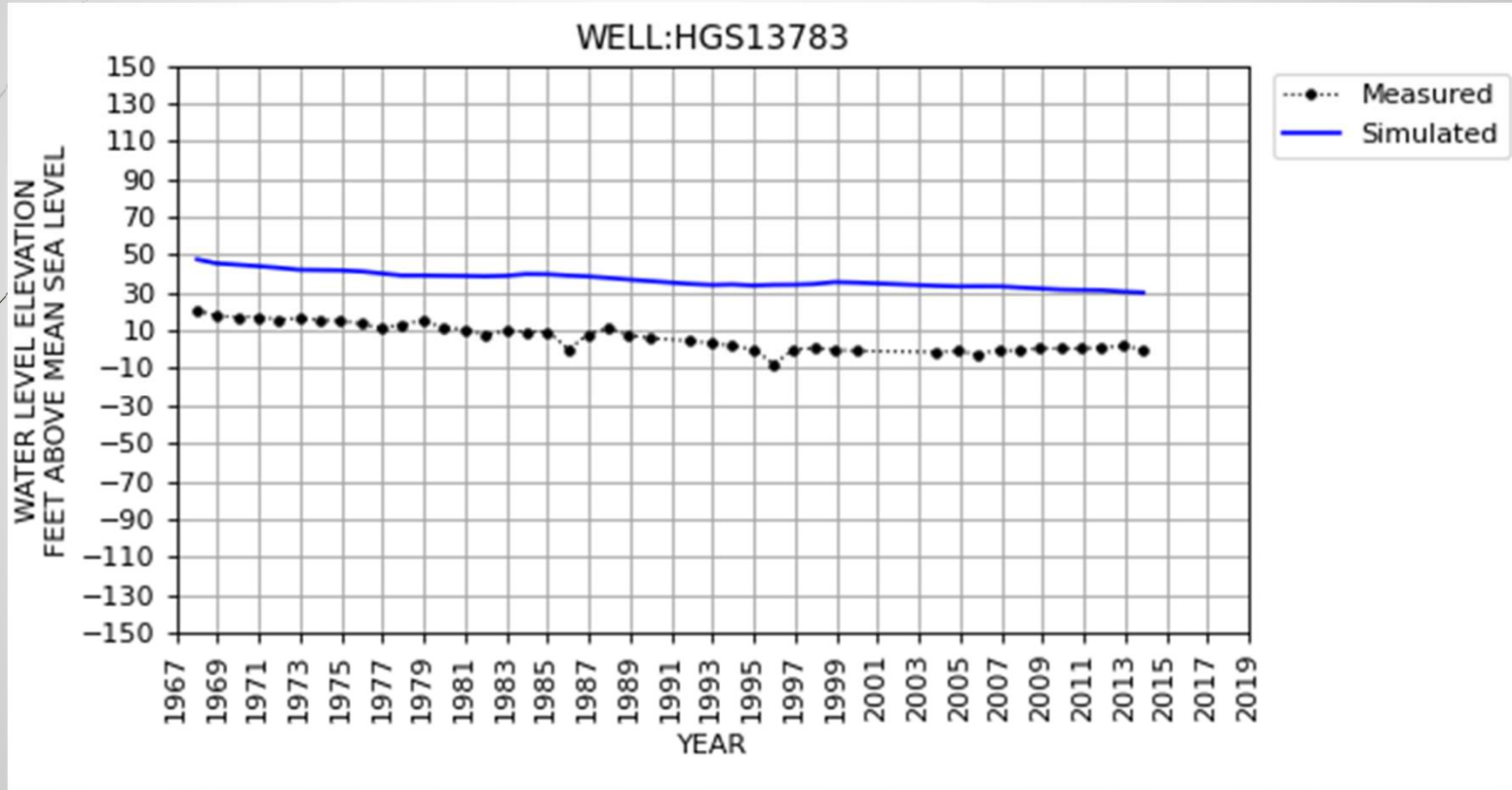

Near Wild Horse Road

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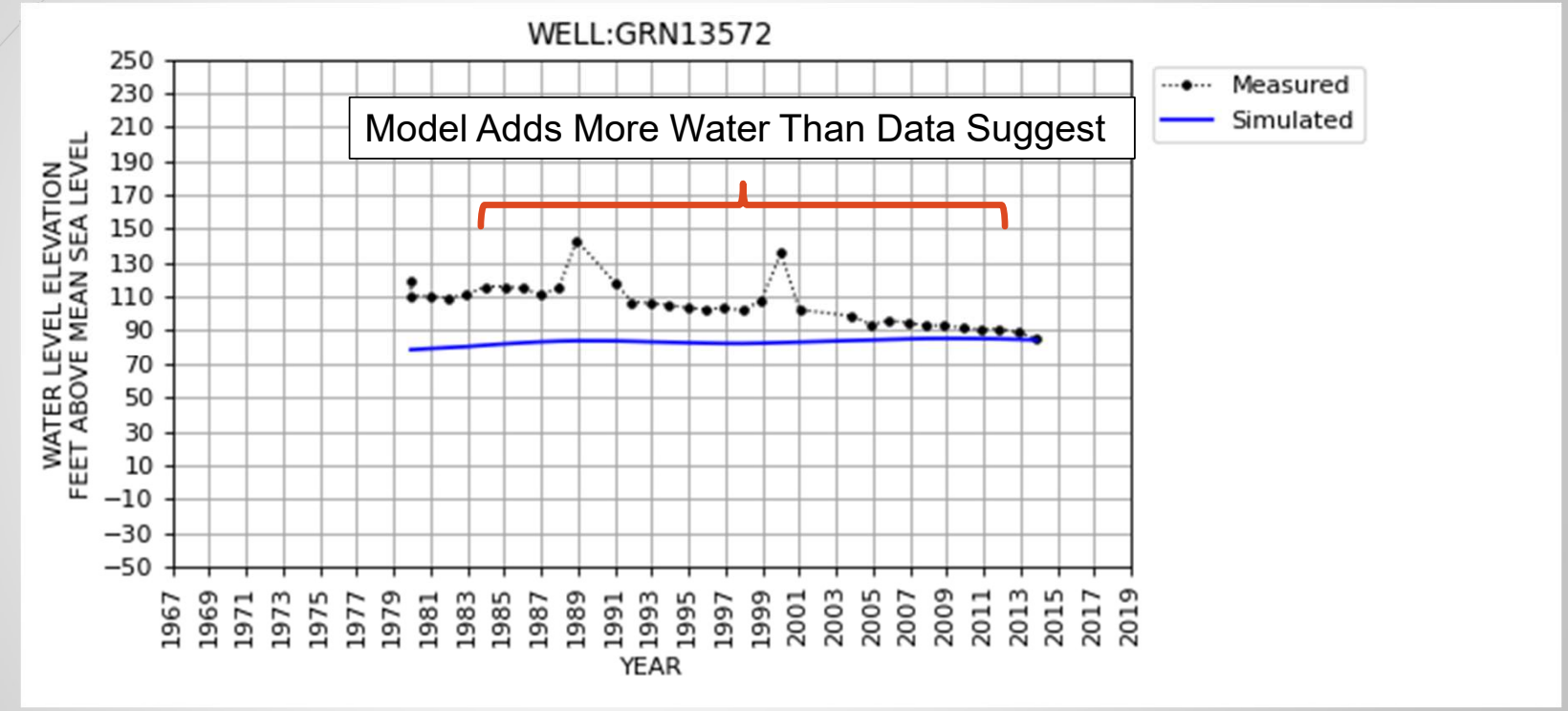

Vierra Canyon Road

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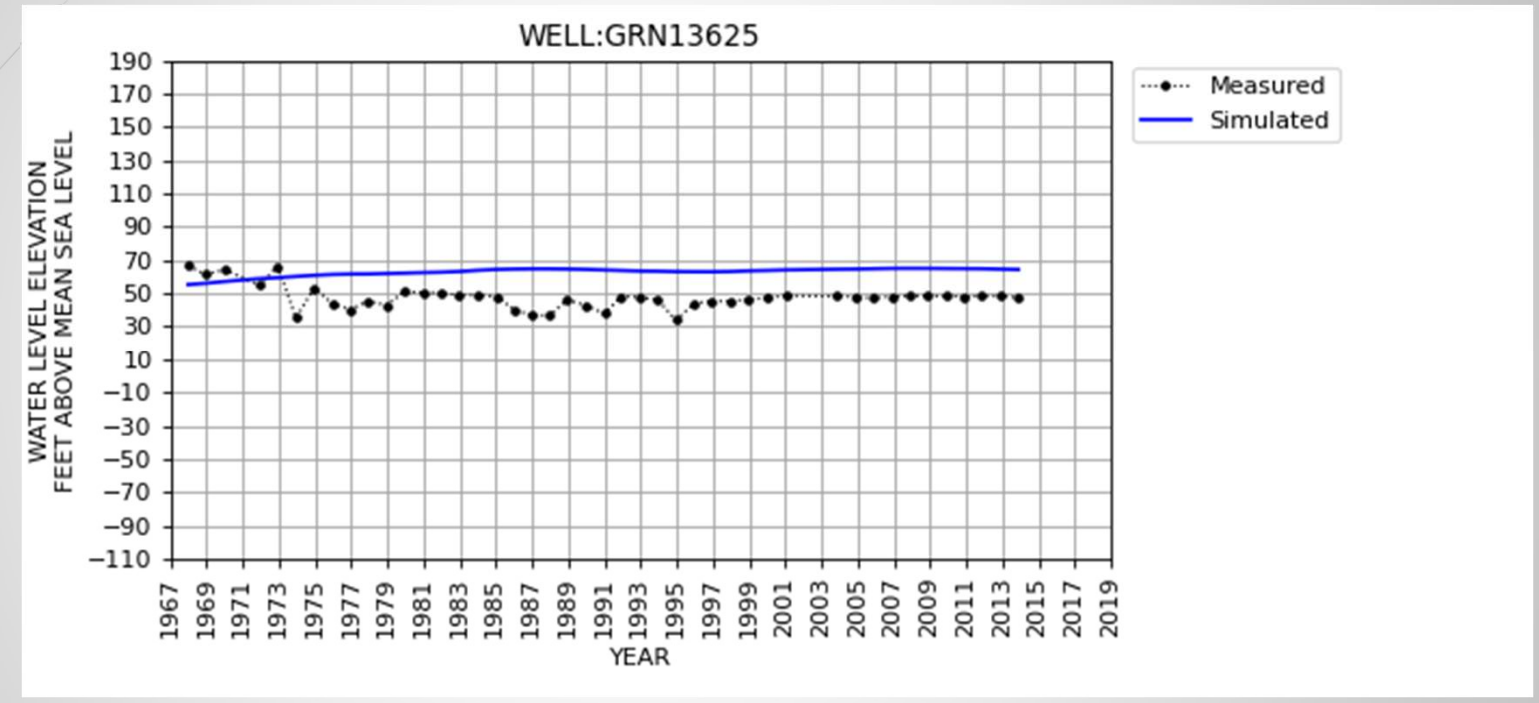

Water Storage Increase along North Edge (1980 – 2016)

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- Increase of between 8,000 and 16,000 acre feet total
- Over 37 years, between 220 and 440 acre feet of water per year. Unknown how much of this is an error
- Subbasin wide, the simulated overdraft is 700 acre-feet/year.
- Annual historical overdraft could be between a 900 and 1,100 acre-feet per year

Sustainable Yield

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- Historical pumping is approximately 1,200 acre-feet per year. Current is closer to 1,400 to 1,600 acre-feet per year
- The **current** sustainable yield is less than 1,000 acre-feet per year, and may be around 500 acre-feet per year
- Some of this might be an influence from pumping outside the Subbasin

Overall Water Budget Themes

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

- Pumping in the Langley Subbasin slightly exceeds its sustainable yield
- The current sustainable yield is likely around 500 acre-feet per year, but there is significant uncertainty in this number
- Future sustainable yield may increase due to climate change
- Some of the overdraft may be due to pumping in other subbasins near the Subbasin boundary

Questions?