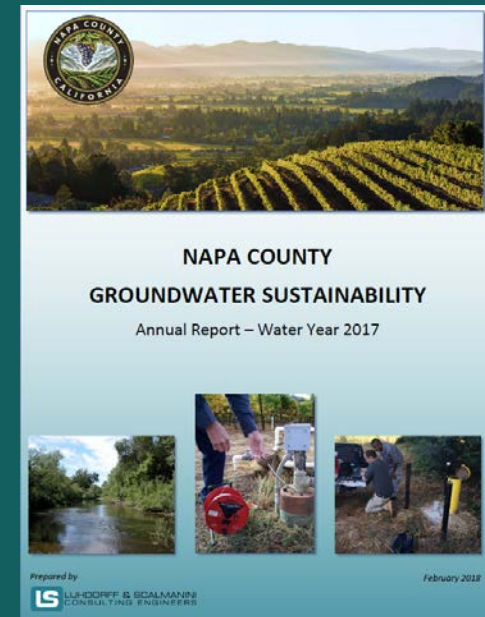
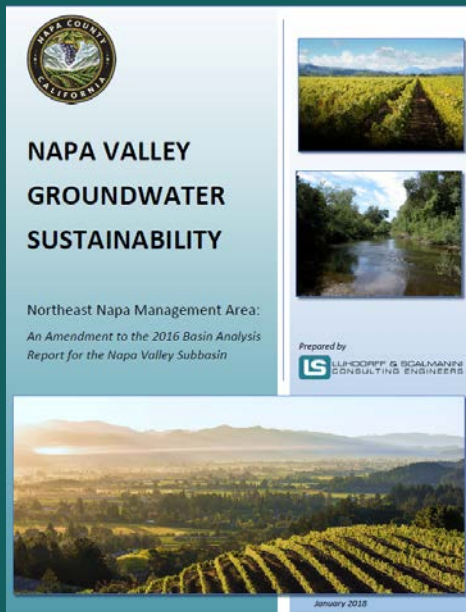




Napa Valley Subbasin Groundwater Sustainability Groundwater-Surface Water Interaction

By Vicki Kretsinger Grabert



June 7, 2018

GRA GSA SUMMIT

Napa County

GW Level Monitoring Program for Decades



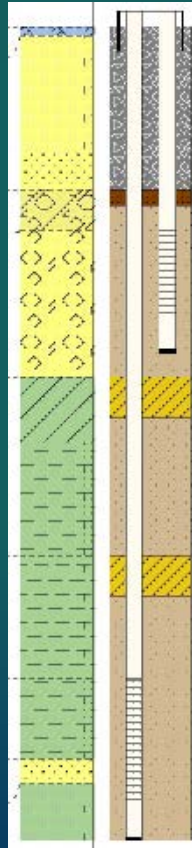
Napa Co., 96
(including 10
MWs at SW/GW
sites, screened at
approx. 40 ft and
100 ft; pre-SGMA)



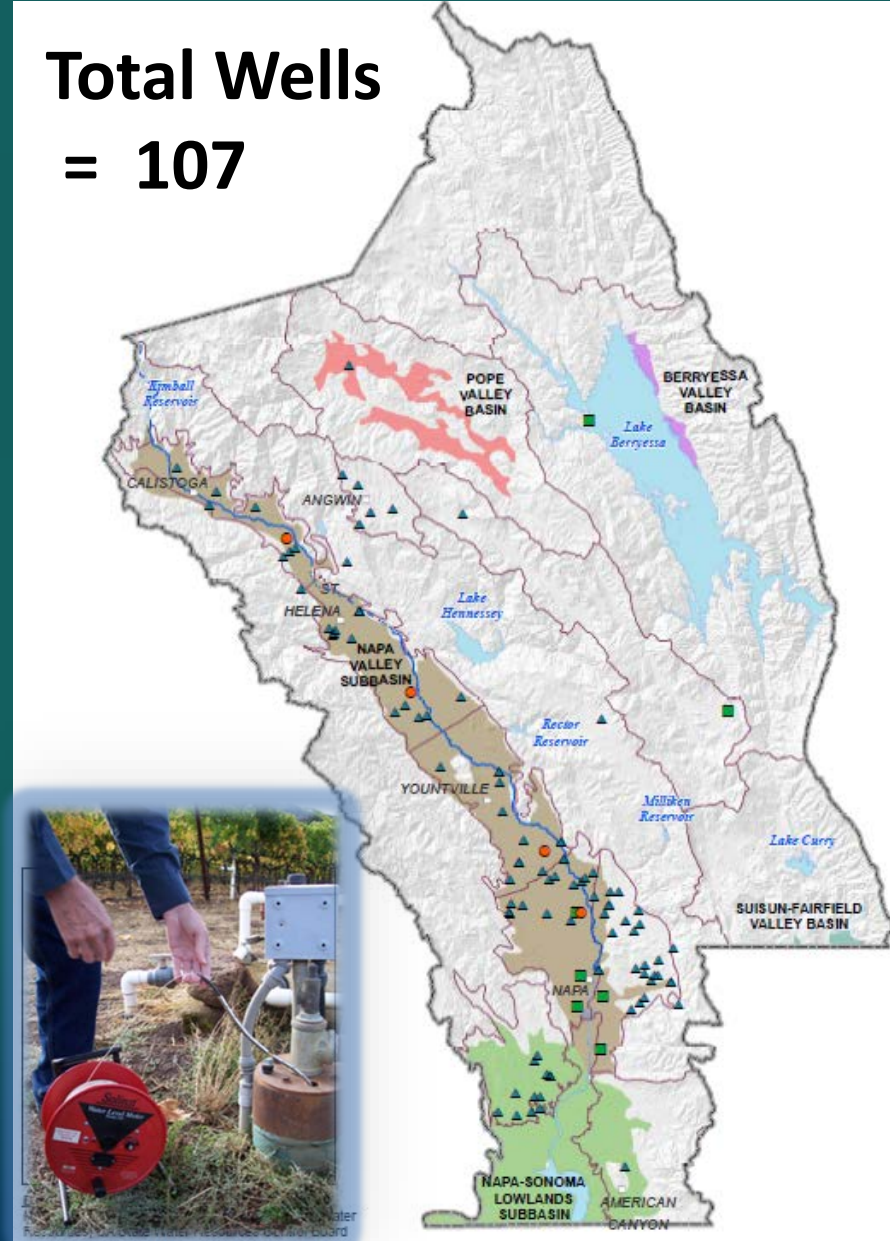
DWR, 4



GeoTracker, 7

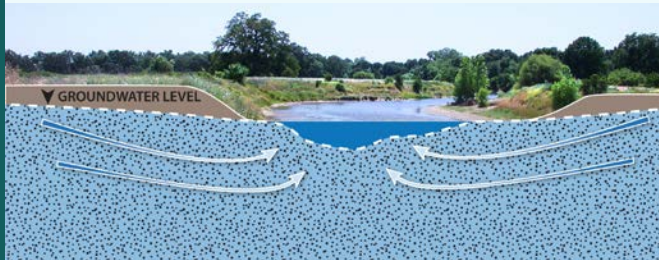


**Total Wells
= 107**

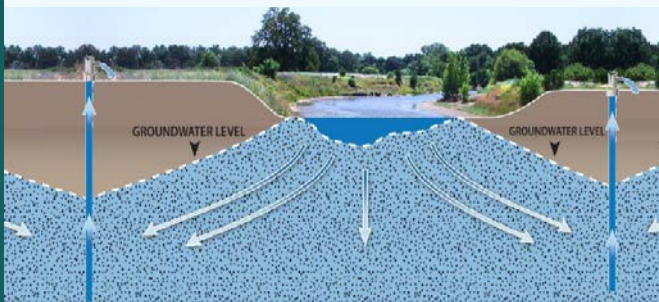


Subbasin Area = 45,928 acres

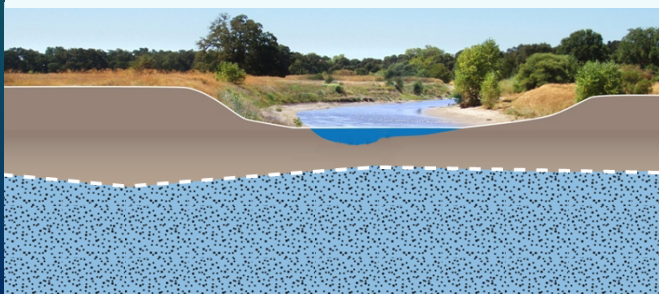
Groundwater Discharges to Stream (Baseflow)



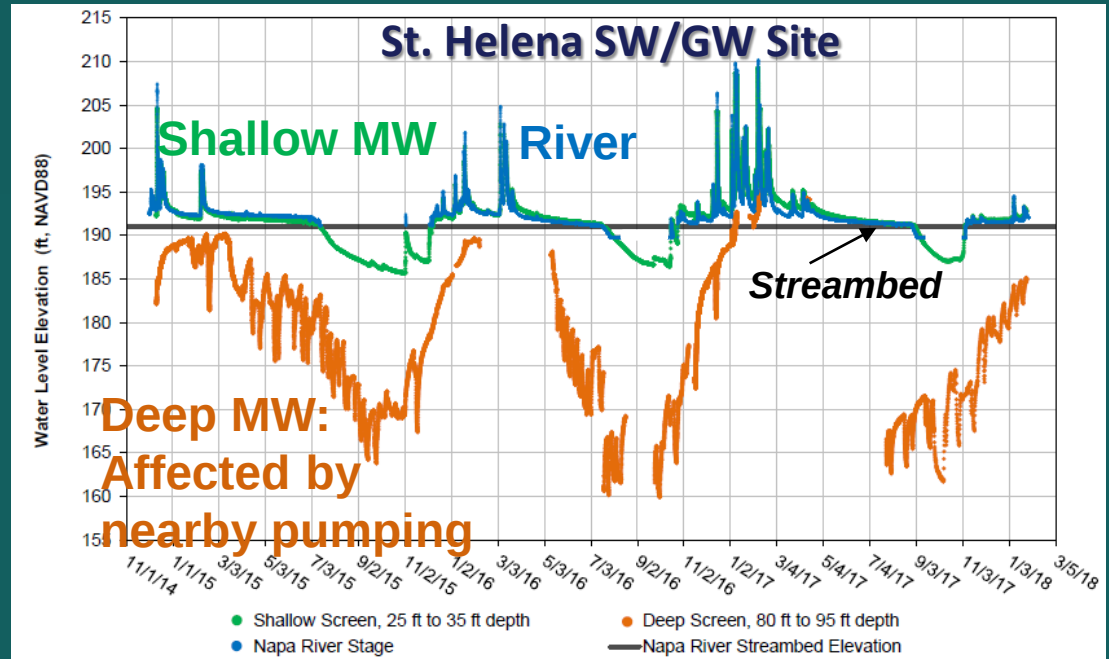
Stream Loses Water/ Recharge to Groundwater



Stream Seepage Independent of GW Levels



SW/GW Interaction

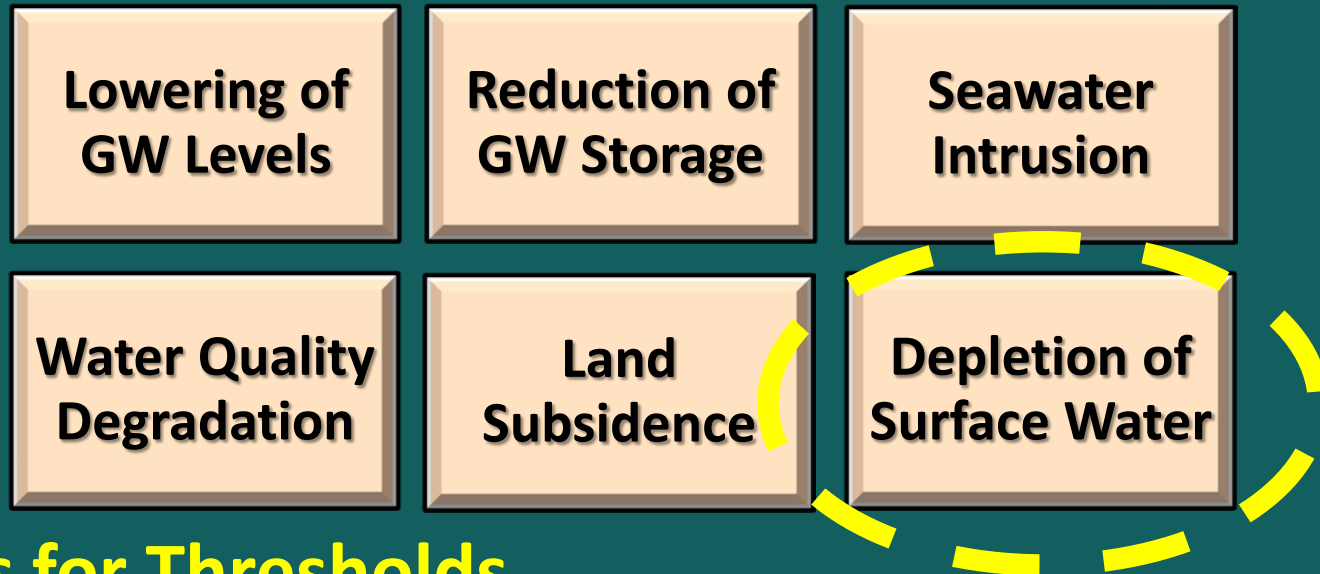


River and Shallow MW not exhibiting short-term pumping effects

Groundwater Sustainability Indicators

Not Causing Undesirable Results:

Means Avoiding Significant and Unreasonable...



Factors for Thresholds

- Dedicated MW facilities
- Used historical stream gage records to establish relationship between baseflow and fall GWLs
- More informative than annual streamflow depletion

**Napa Valley Subbasin
Hydrogeologically
Sensitive to this
Indicator**

Sustainability Indicators: Streamflow

Representative Monitoring Sites Well ID	Date Monitored	Measured Minimum 2017 Fall WLE (Feet, AMSL) ¹	STREAMFLOW DEPLETION	
			MINIMUM THRESHOLD (Fall GWE, Feet AMSL)	MEASURABLE OBJECTIVE (Fall GWE, Feet AMSL)
Napa County 214s-swgw1	10/22/2017	2	2	4
Napa County 215d-swgw1	11/6/2017	2	2	4
Napa County 216s-swgw2	11/7/2017	74	61	76
Napa County 217d-swgw2	10/30/2017	64	61	76
Napa County 218s-swgw3	11/17/2017	33	29	32
Napa County 219d-swgw3	10/24/2017	33	29	32
Napa County 220s-swgw4	10/31/2017	77	75	77
Napa County 221d-swgw4	10/25/2017	77	75	77
Napa County 222s-swgw5	10/15/2017	187	185	190
Napa County 223d-swgw5	9/26/2017	168	164	175

Example:
Fall GWL
Min.
Threshold

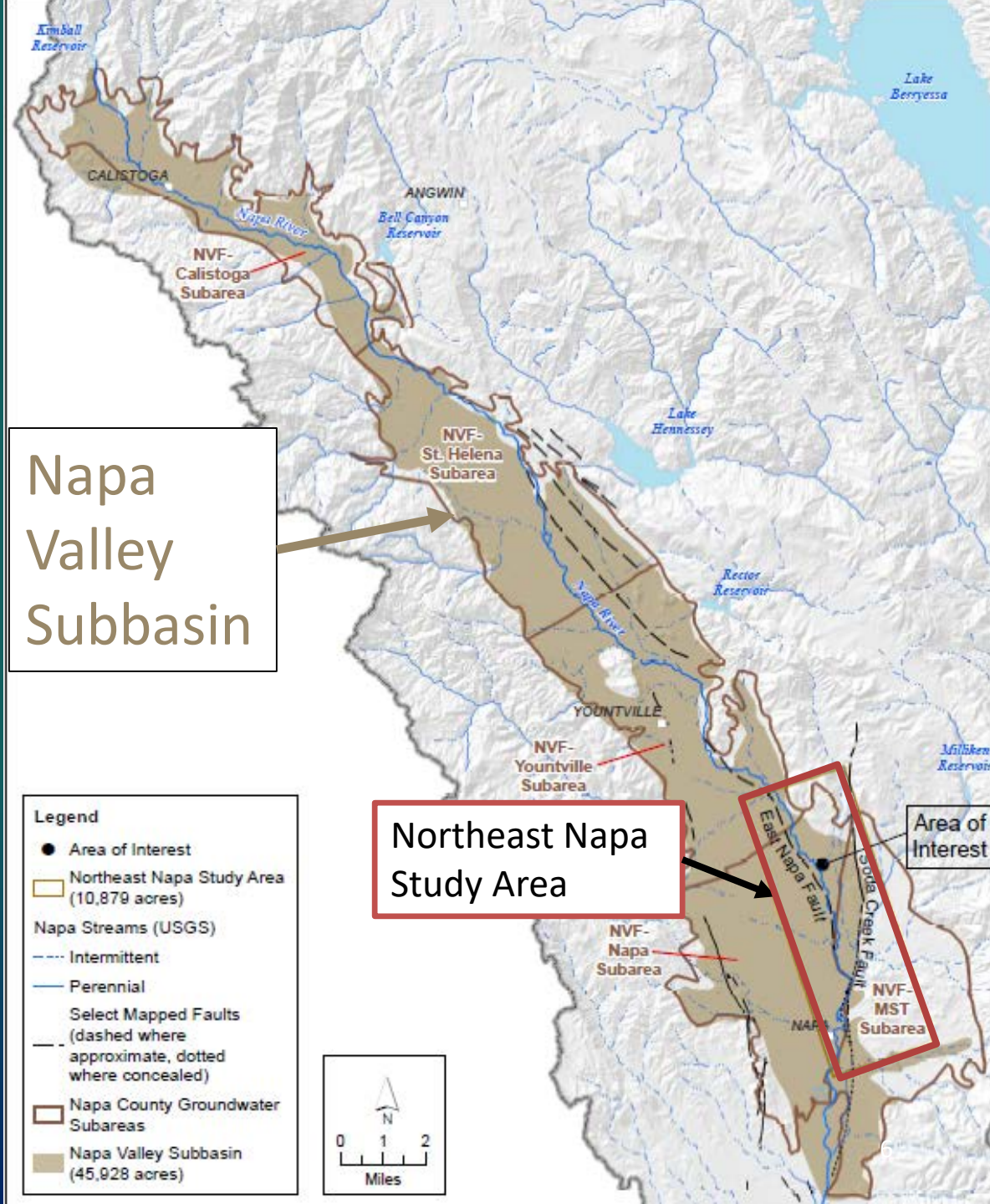
Fall 2017: All above Minimum Thresholds

Northeast Napa Management Area

Study and GW Model to Evaluate:

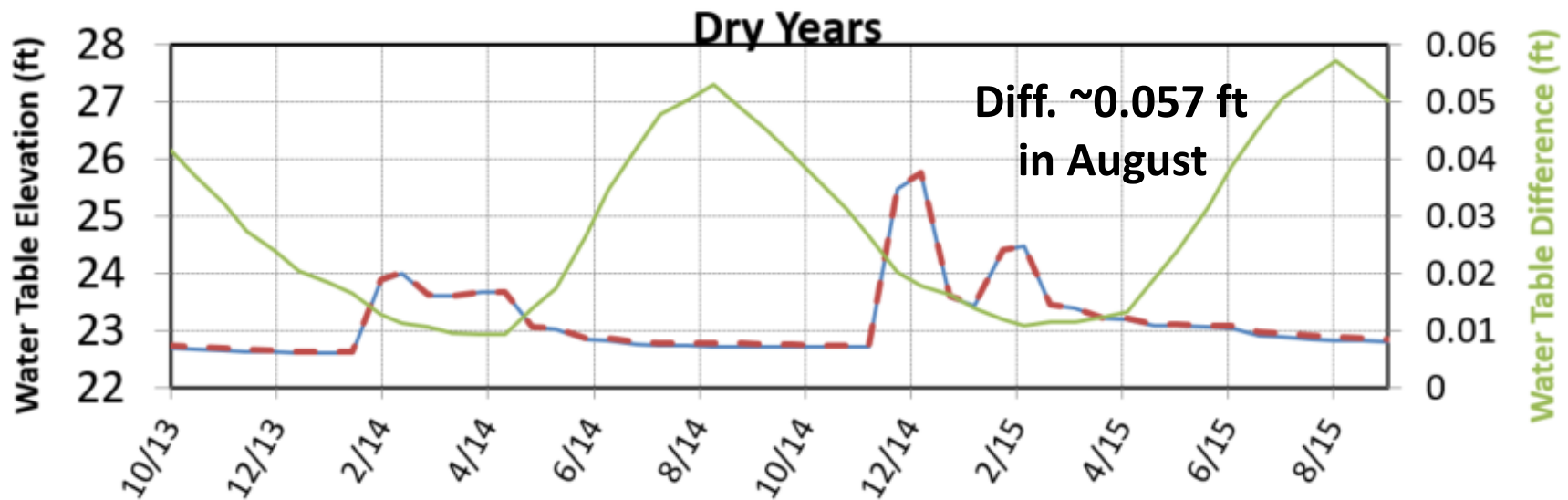
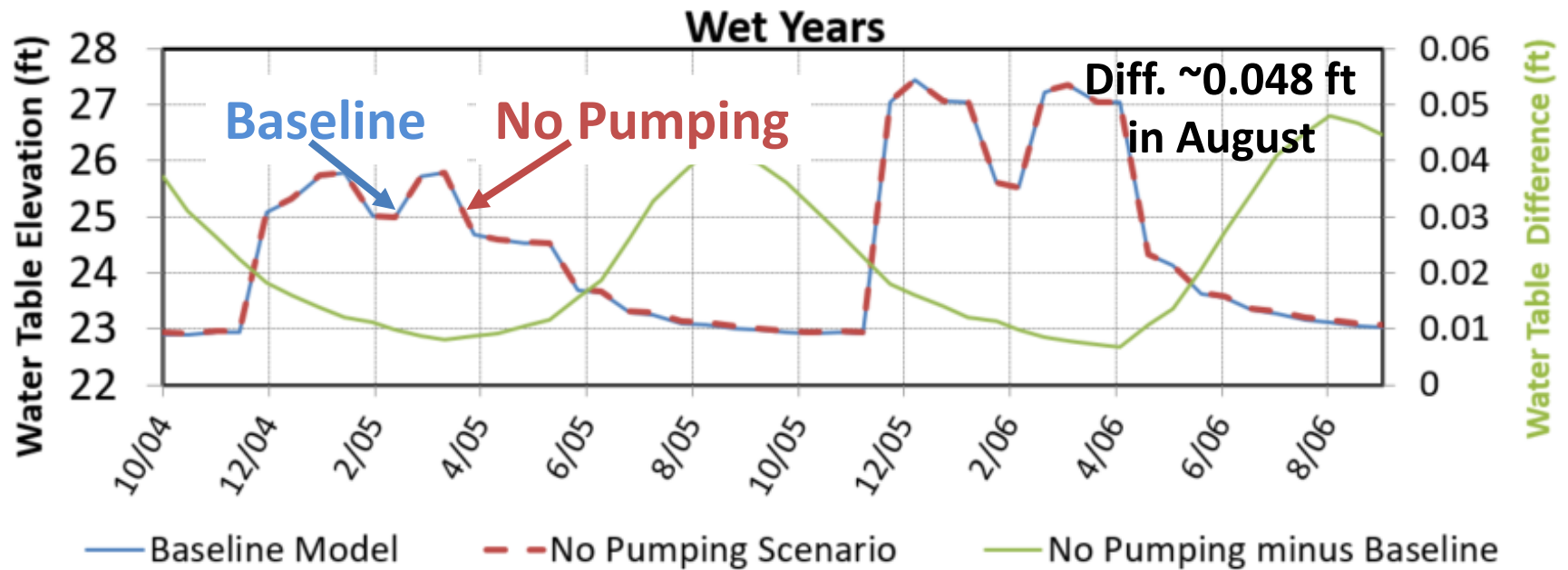
- Area with complex geologic factors
- Historical WL trends local area east of Napa River
- Mutual well interference
- Potential effects from outside Subbasin
- Potential effects of pumping on streamflow

Completed: Sept. 2017



Groundwater Model – Illustration of Climate Effects

Groundwater Table: Baseline vs. No Pumping



TAKEAWAYS:

- Dedicated MW facilities very important to understand GW system response to stresses
- Need comprehensive understanding of physical system to evaluate factors influencing streamflow
- Don't assume less pumping will significantly influence streamflow conditions
- Climatic effects can be a large driver for changed conditions

Thank You

