



Understanding Groundwater in Napa County and Ongoing Monitoring to Support Sustainability

May 15, 2015

By Vicki Kretsinger Grabert

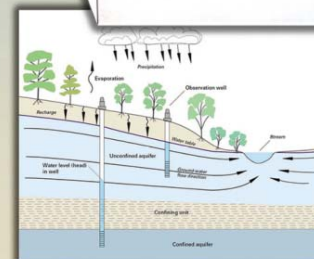
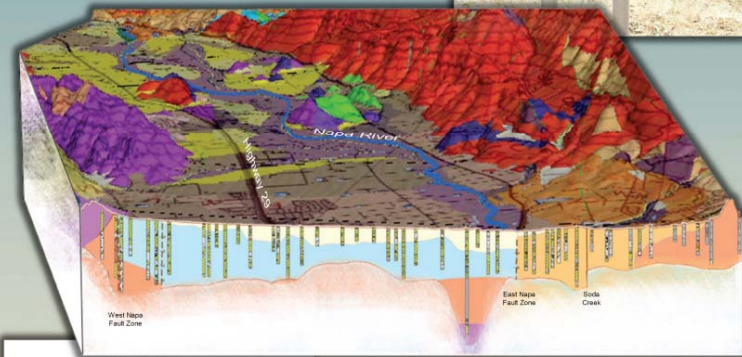


What Have We Learned?

- Regional geology affects groundwater availability
- Groundwater conditions have been broadly stable through 2014 in Napa Valley
- Data gaps identified
- SW/GW interaction needed further evaluation



Updated Hydrogeologic
Conceptualization and
Characterization
of Conditions



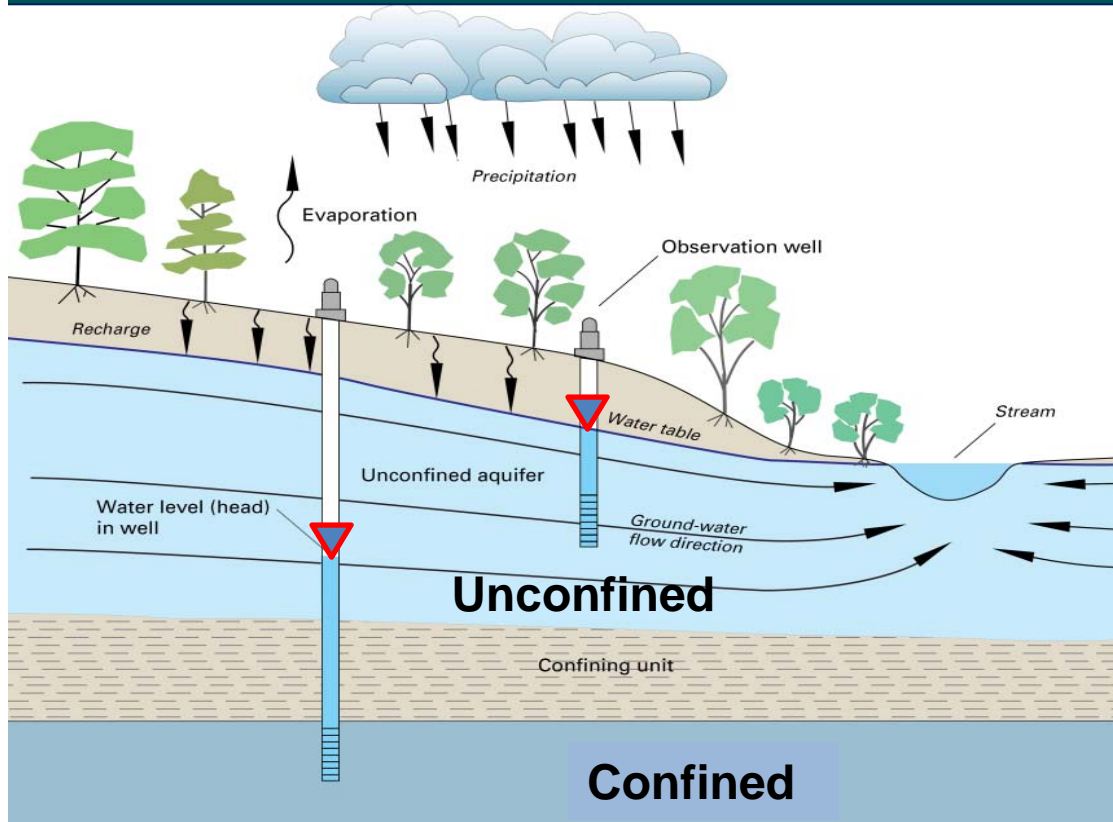
January, 2013

 LUHDORFF & SCALMANINI
CONSULTING ENGINEERS

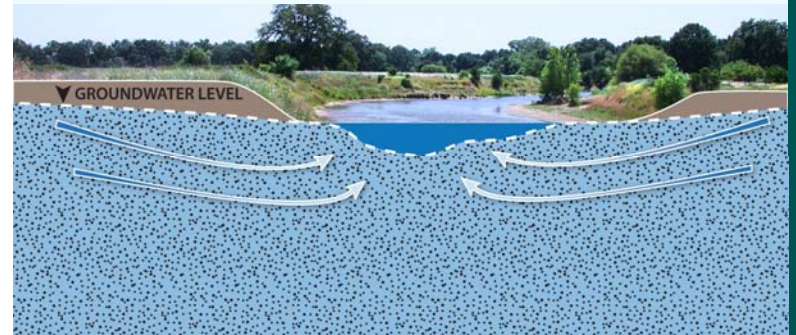
and

 MBK
ENGINEERS
CONSULTING ENGINEERS

GW Monitoring: SW/GW Interaction

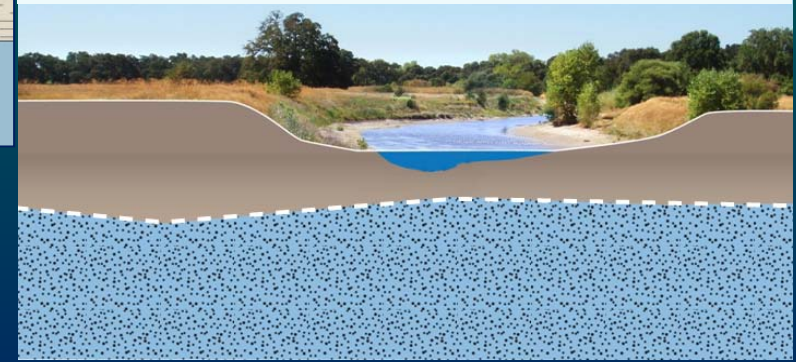


**Direct Connection
Maintains/Recharges
Stream**



Courtesy TNC

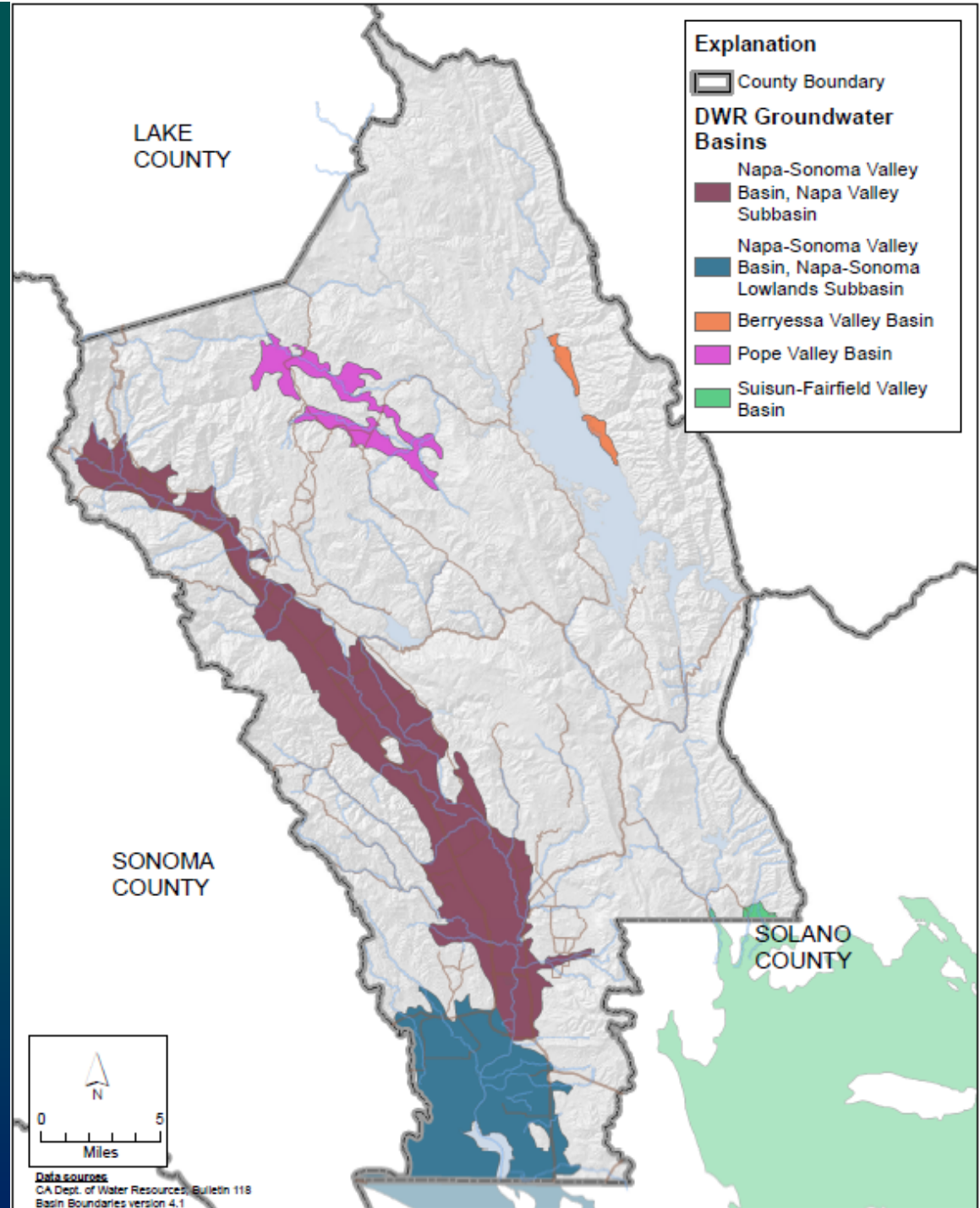
**Indirect Connection
Stream Seepage
Independent of GW Levels**



Courtesy TNC

Groundwater Basins

- Napa Sonoma Valley Basin
 - Napa Valley Subbasin
 - Napa-Sonoma Lowlands Subbasin
- Berryessa Valley Basin
- Pope Valley Basin
- Suisun-Fairfield Valley Basin



Cross Section Comparison

Figure 5-1a Cross Section B-B' From Kunkel and Upson (1960)

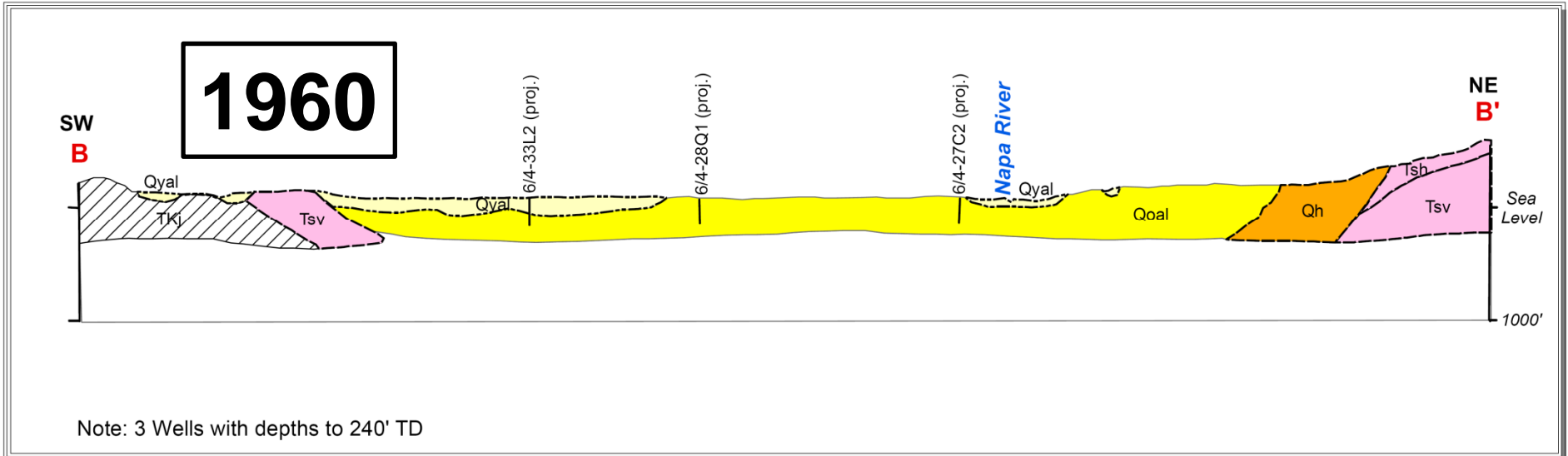
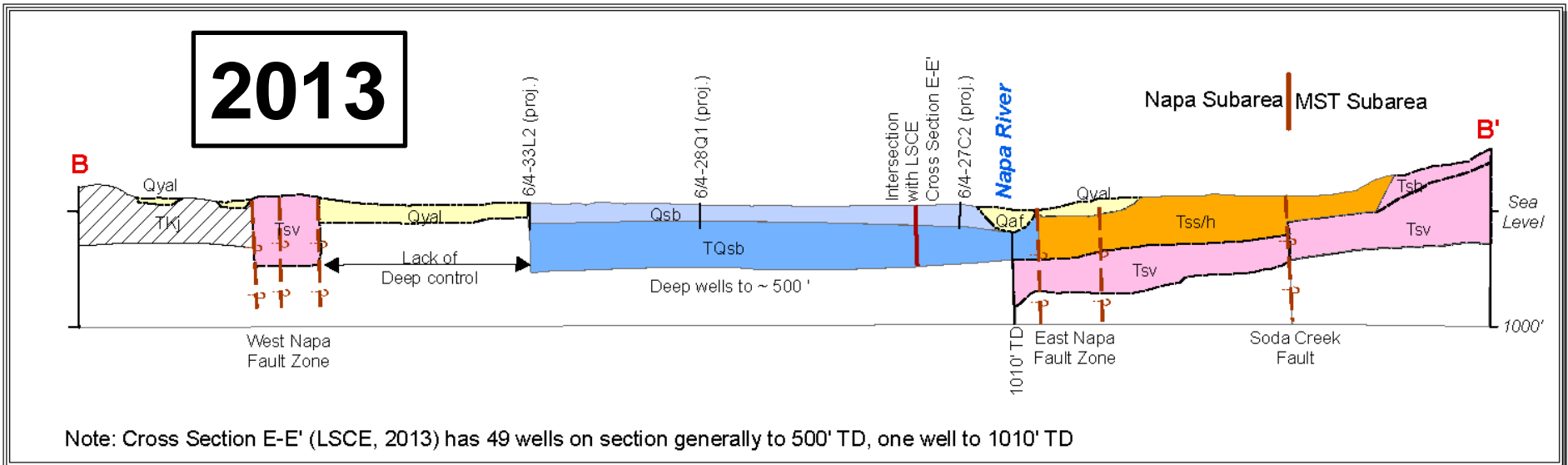
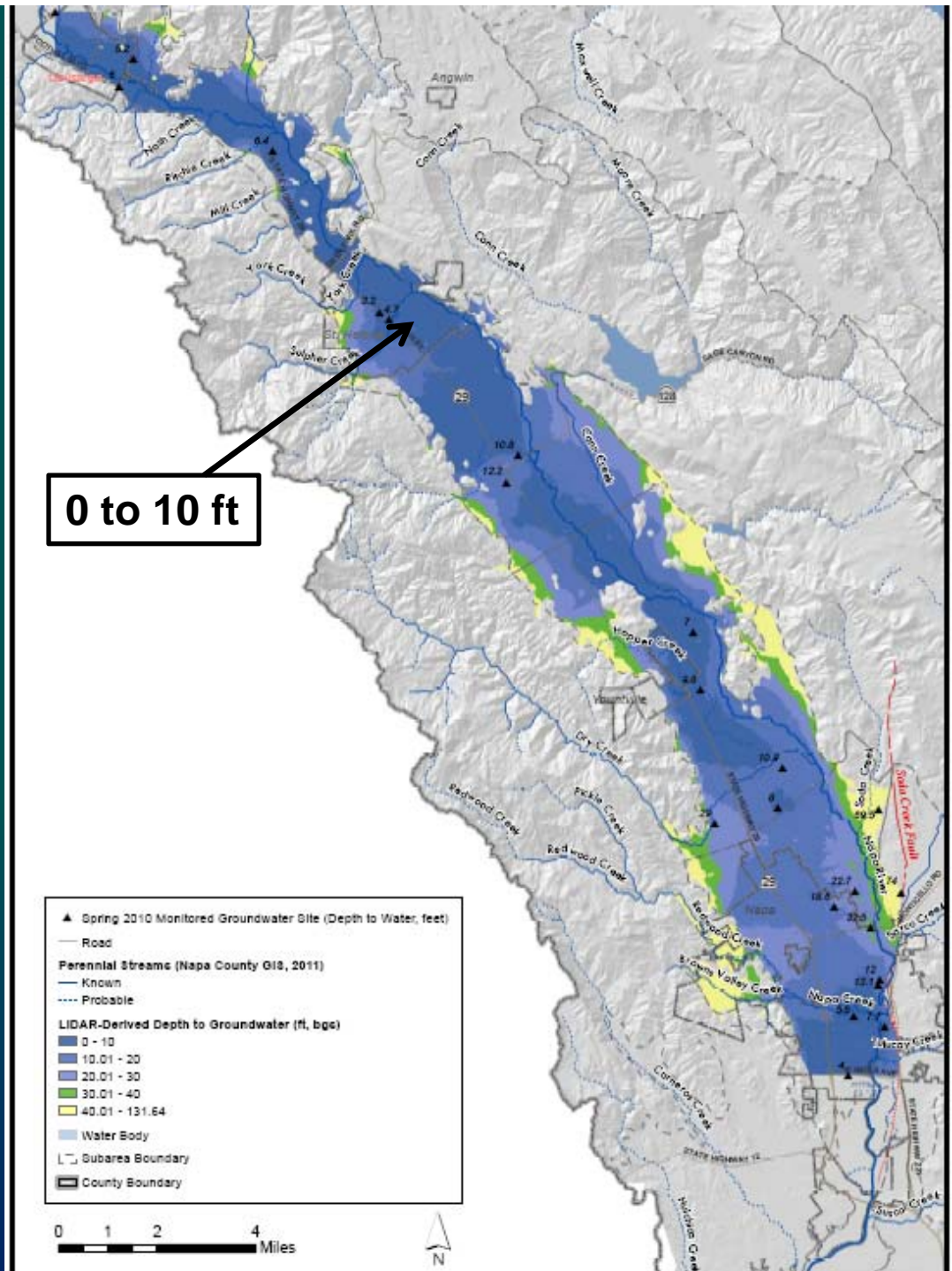
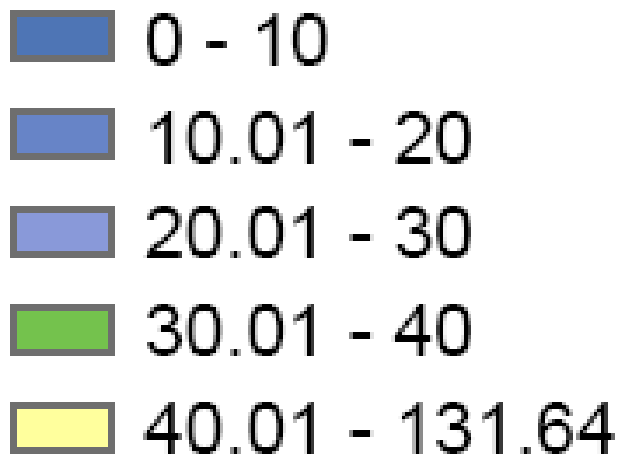


Figure 5-1b annotated Cross Section B-B', Schematic Geologic and Well Information From LSCE (2013)

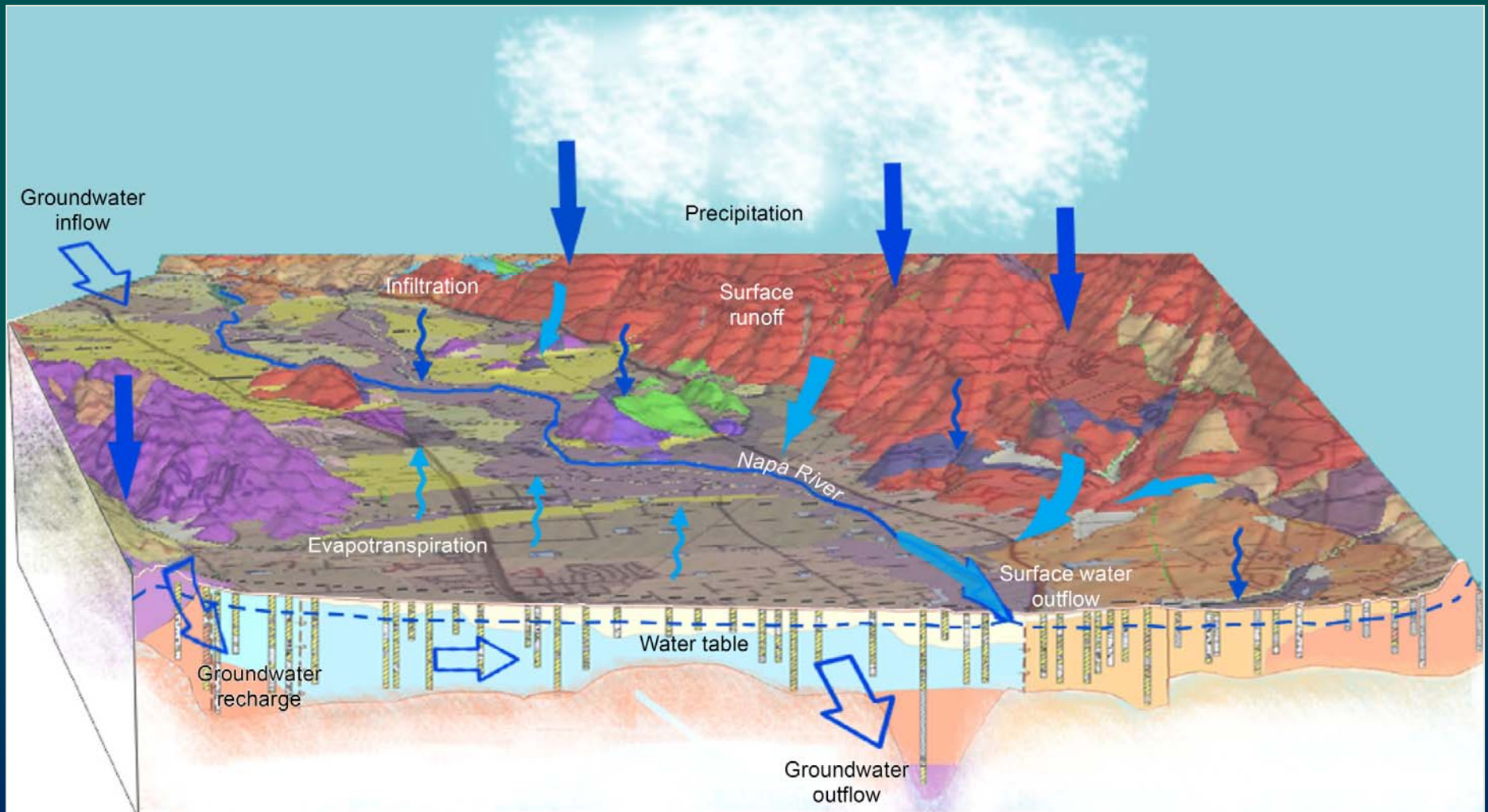


Depth to Groundwater

Feet below ground surface

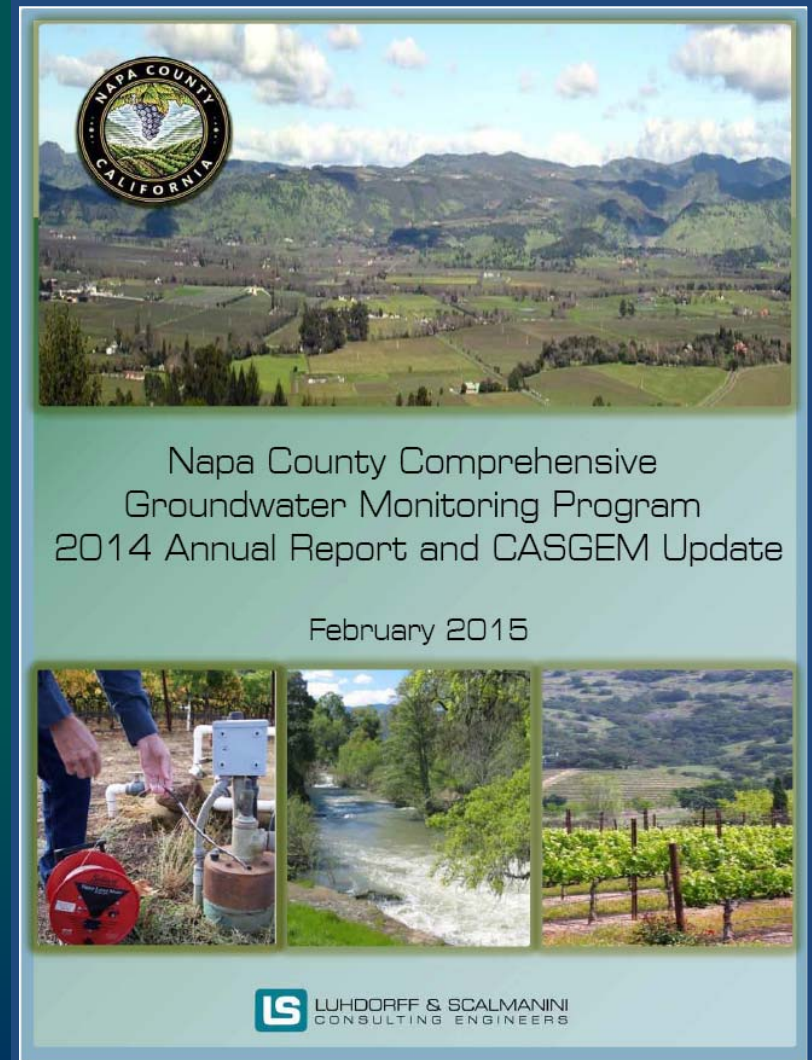


Updated Understanding of Water Balance, or Hydrogeologic Conceptualization

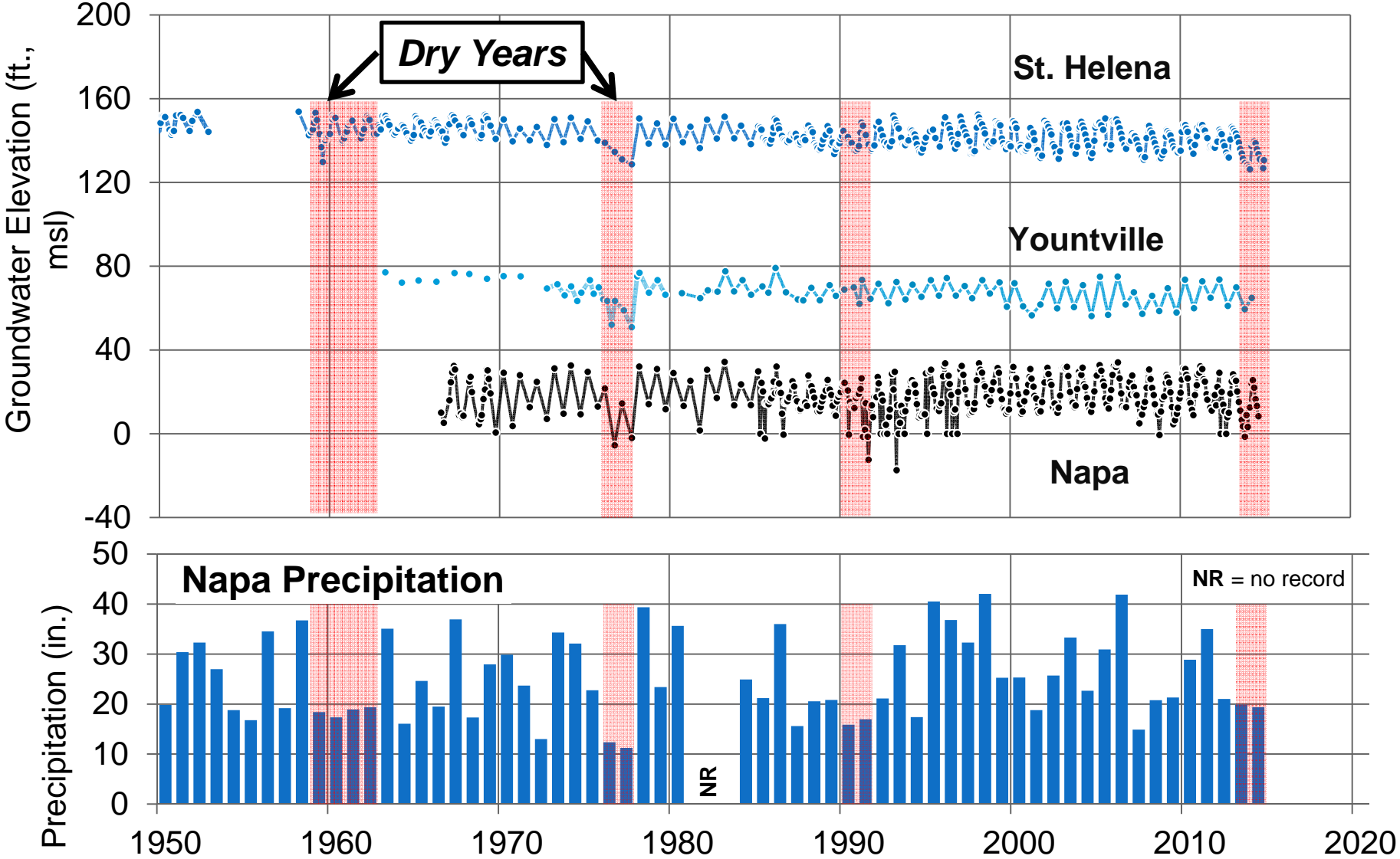


GROUNDWATER CONDITIONS

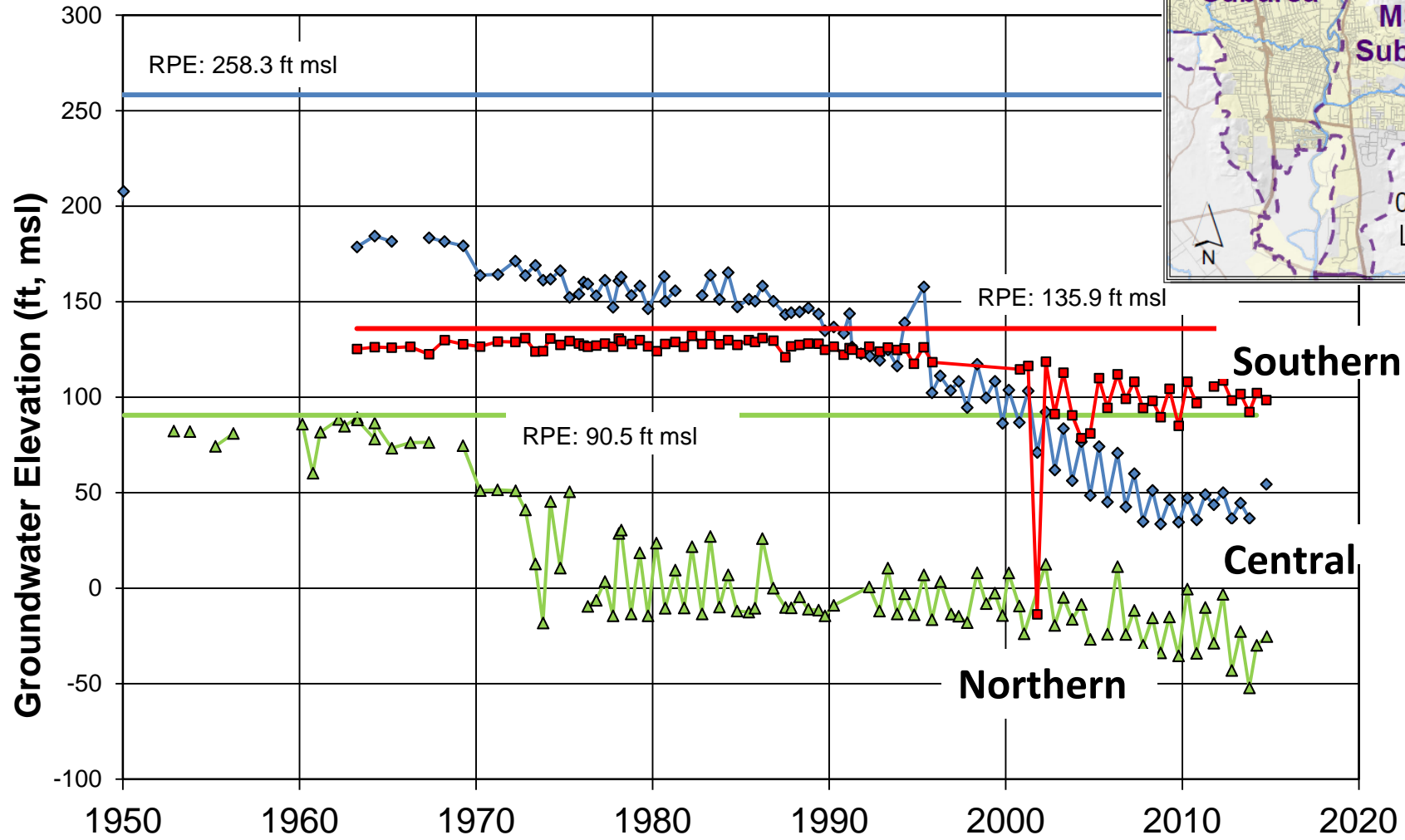
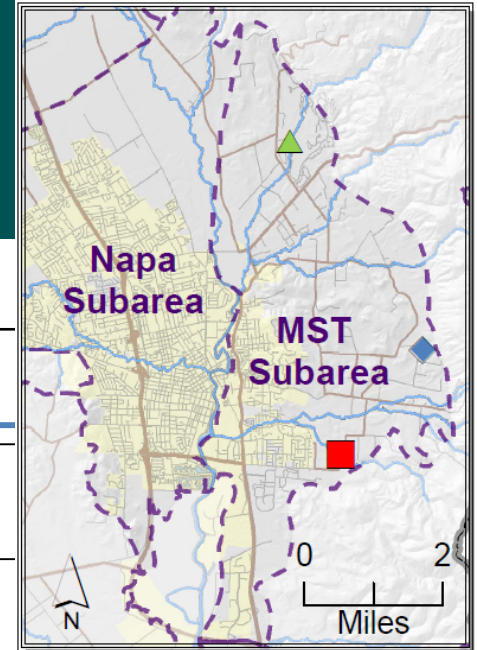
- Annual Report
- WICC Web Page
 - New GW content
- Public Outreach
and Education



Groundwater Conditions



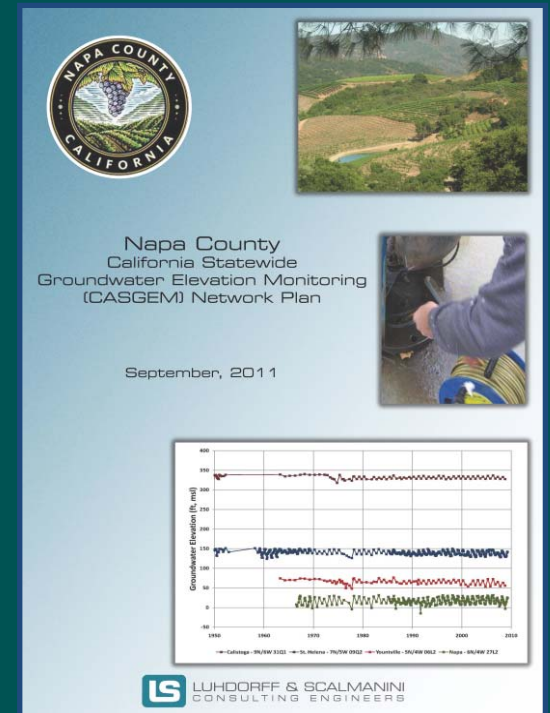
MST Subarea



RPE = Reference Point Elevation, msl = mean sea level
Elevation data are relative to the North American Vertical Datum of 1988.

What Else to Improve the Understanding of Groundwater?

- Napa County California Statewide Groundwater Elevation Monitoring (CASGEM) Plan (Sept 2011/2014 update)
- Groundwater Monitoring Plan (Jan 2013)
 - Addressing long-term monitoring Needs (18 Areas)
 - Recruited volunteered wells



Napa County Monitoring Network



Napa Co., 97
51 volunteer



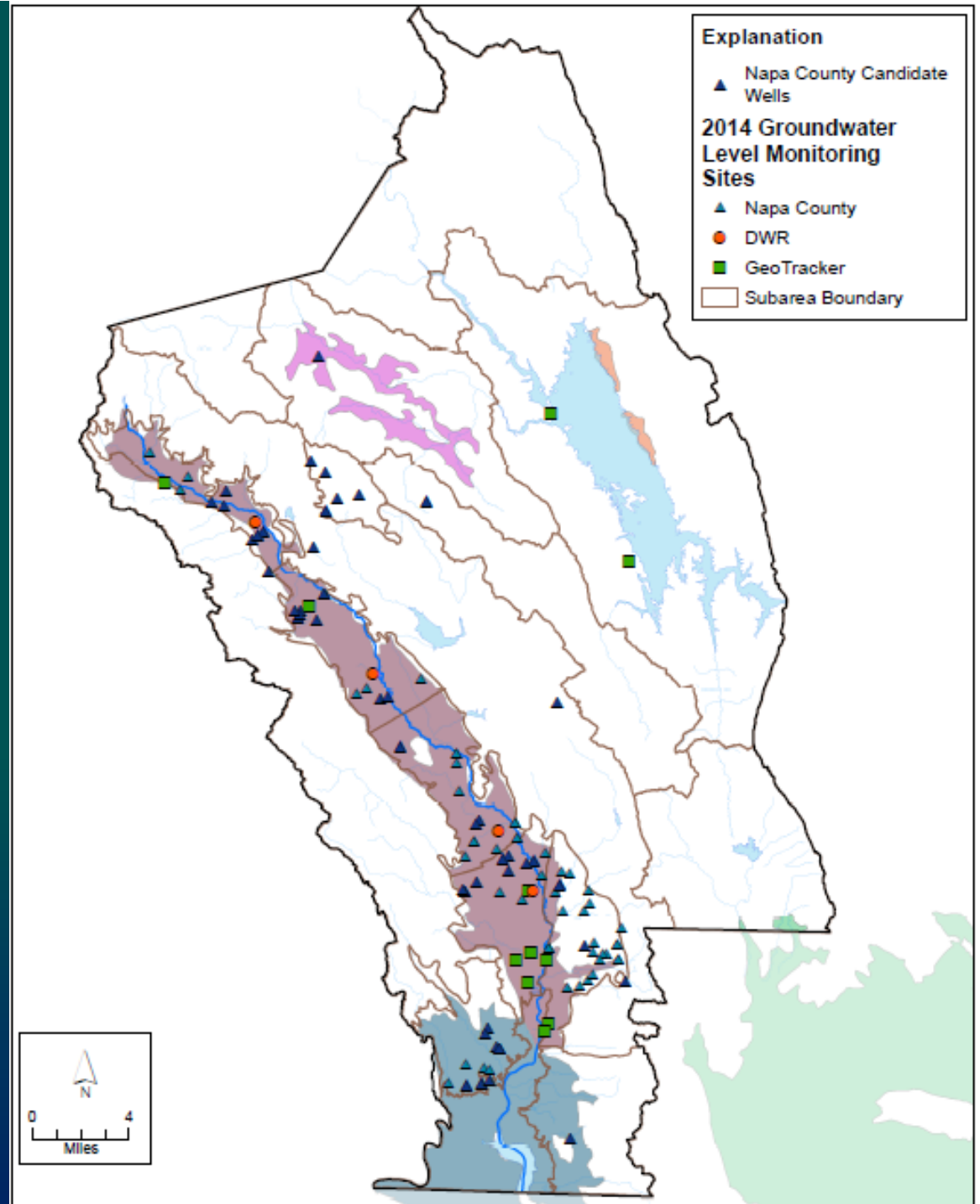
DWR, 4



GeoTracker, 14



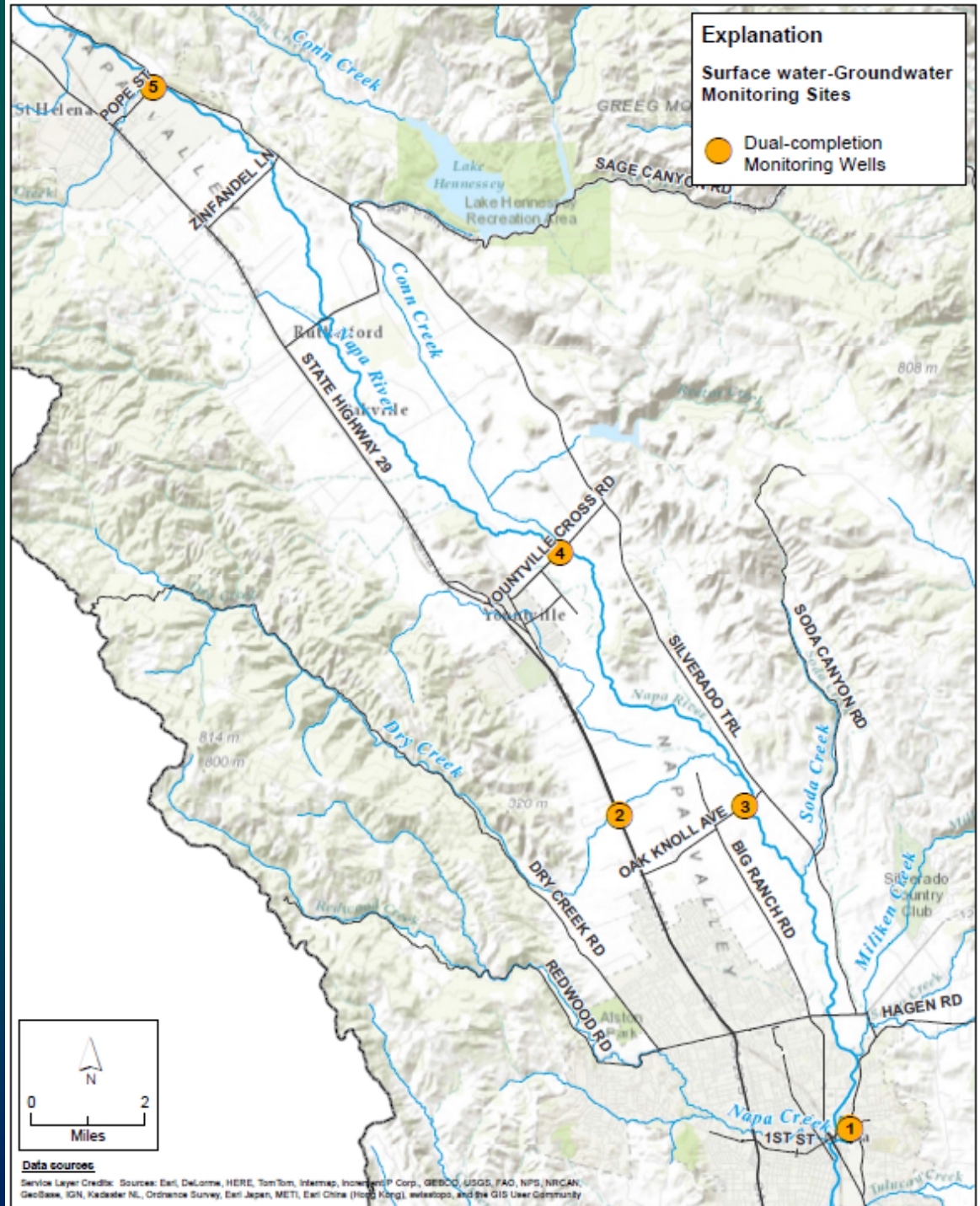
Total Wells
= 115 Sites



Surface Water/ Groundwater

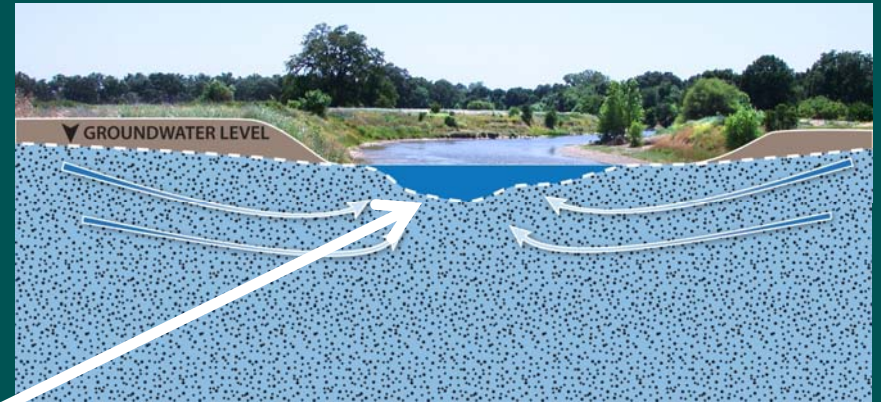
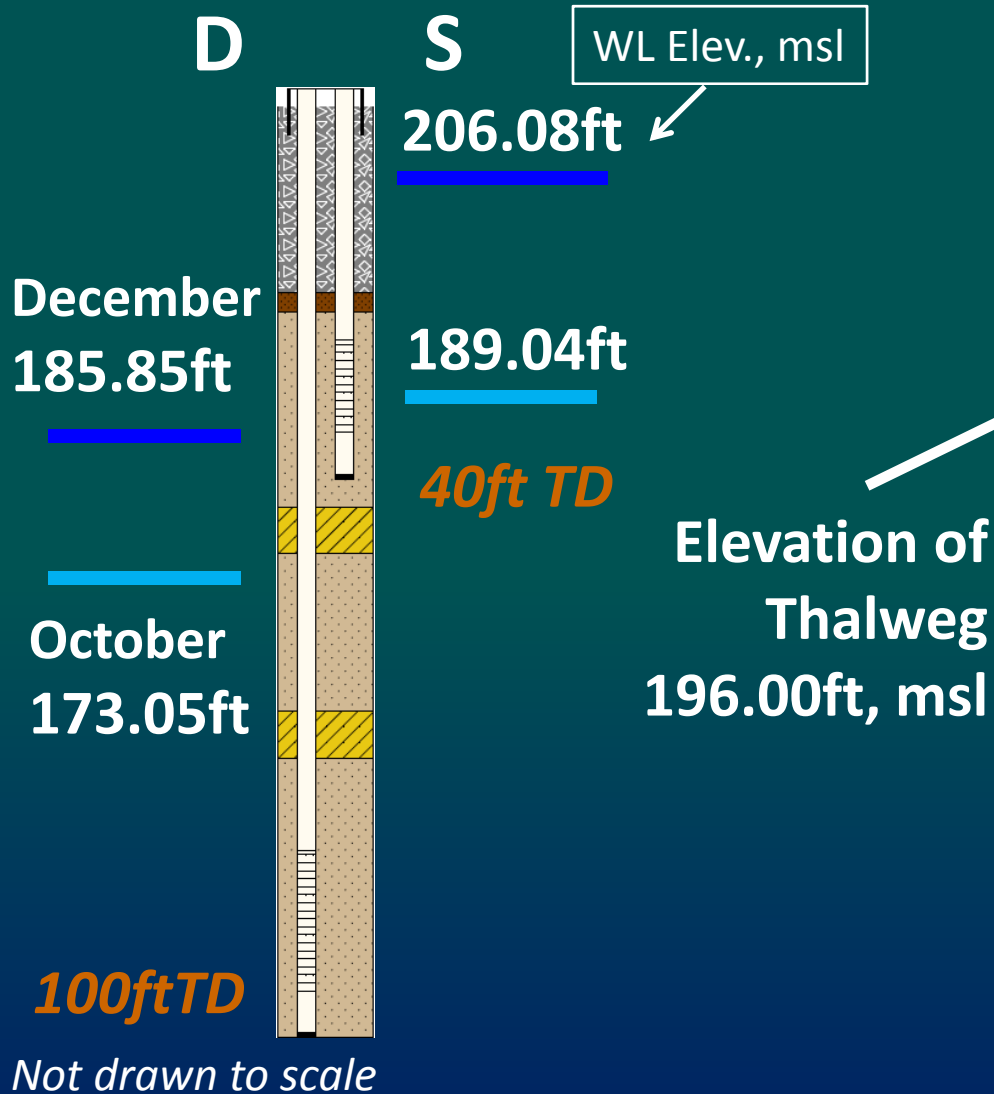
Monitoring at 5 Sites

- Shallow MWs each site
 - Levels & quality
- Stream gauge each site
 - Streamflow & quality
- Depths to water (when drilled) ranged from 16–34 ft

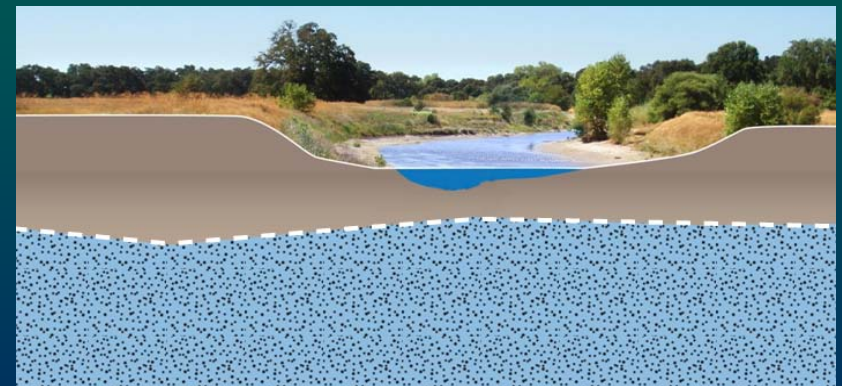


SW/GW Interaction:

Site 5: St. Helena, Oct. 2014 & Dec. 2014

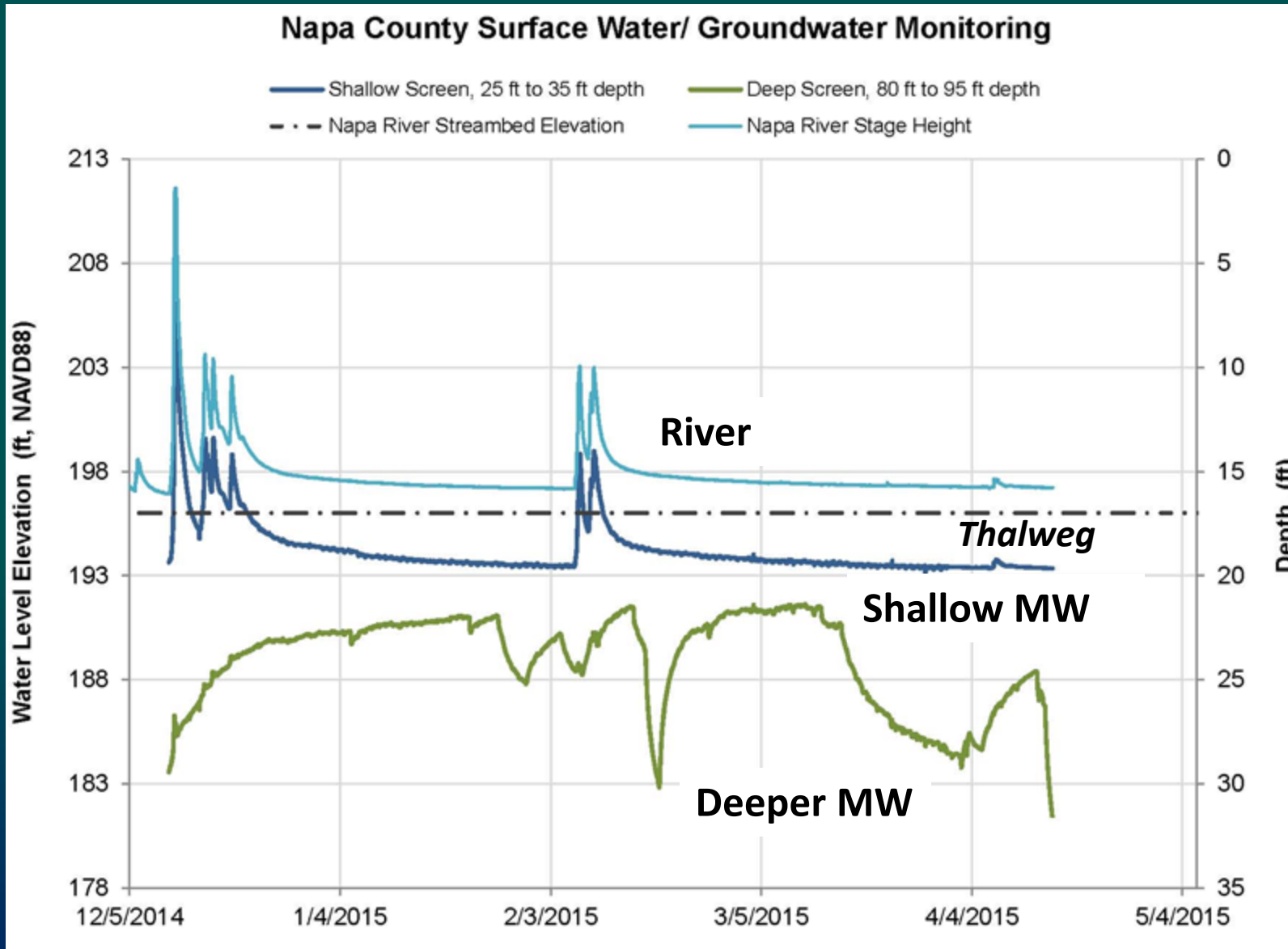


GW above in Dec. 2014

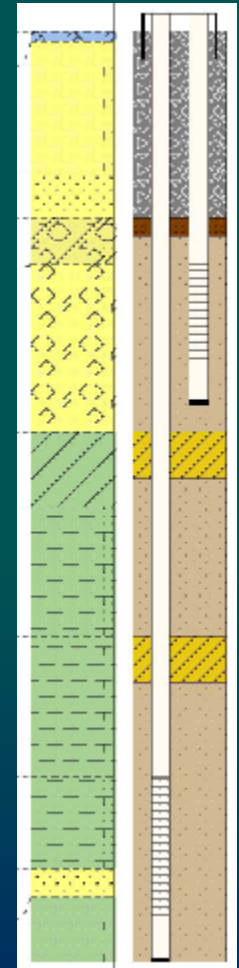


GW below in Oct. 2014

SW/GW Interaction



Not to Scale



What is Recommended to Support Water Resources Sustainability?

- Ongoing (and evolving) SW and GW monitoring
- Enhancing understanding of SW/GW interaction
- Conducting education and outreach
- Updating Water Availability Analysis (2015)
 - Water use
 - Mutual well interference
 - SW/GW interaction





Thank You