

Napa County Comprehensive Groundwater Monitoring Program

presentation for



by

Vicki Kretsinger Grabert

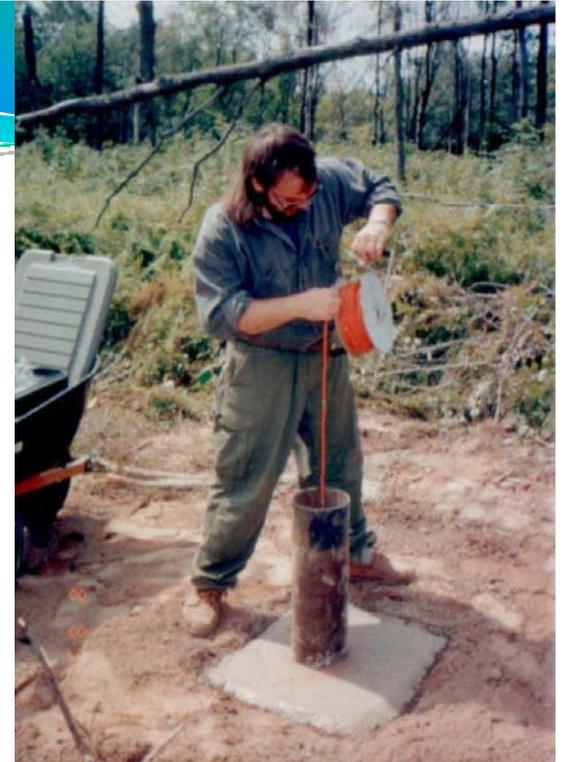
**Luhdorff & Scalmanini,
Consulting Engineers**

October 27, 2011



Presentation Overview

- **Purpose of Groundwater Program Study**
- **Program Study Components**
 - **Data Management System**
 - **Data Evaluation**
 - **County Model Review**
 - **Groundwater Conditions**
 - **Groundwater Planning & Review Ordinance/Permitting**
- **Recommendations**



Overall Program Study Purpose

- **Reconnaissance Level Evaluation**
 - Compile Readily Available Data
- **Assess Data Collection Procedures and Quality of Data**
- **Establish a Reporting Framework**
- **Evaluate Countywide GW Conditions**
- **Provide Recommendations Related to GW Monitoring Program and Planning Considerations**



Napa County Groundwater Conditions and Groundwater Monitoring Recommendations

*Prepared for:
Napa County
Department of Public Works*

FINAL REPORT
February, 2011



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CONSULTING ENGINEERS



Program Study Components

- Data Management System (DMS) [[Task 1 TM](#)]
- Evaluation of Data [[Task 2 TM](#)]
- Evaluation of County GW Model [[Task 3.2 TM](#)]
- Guidance on Precipitation and Streamflow Monitoring [[Task 3.3 TM](#)]
- Napa County Groundwater Conditions (Levels and Quality) [[Task 4, Report](#)]
- GW Planning Considerations and Review of Napa Co. Ordinance and Permit Process [[Task 5 TM](#)]
- Executive Summary [[in GRAC package](#)]

Available on Napa County web site at:
<http://www.countyofnapa.org/bos/grac>

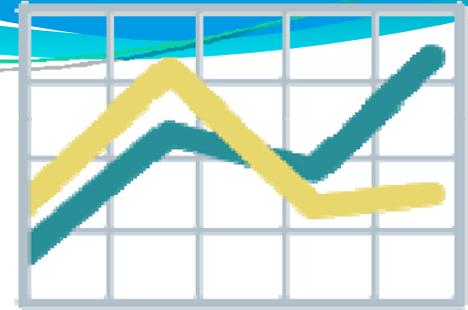
Data Management System



Purpose and Capabilities

- **Establish Central Repository for GW Data for Integrated Water Resources Management**
- **Ability to Expand Content**
- **Produce Tables & Figures for Evaluation of GW Conditions**
- **Linkage to Geographic Information Systems (GIS) based Software**
- **Linkage to Map Interface Tools for Access to Data**

Evaluation of Data



Historical Monitoring Data Distribution

- **Historical GW Monitoring Sites (pre-2005) Exceeds Current (2005 to Present) Sites by 50 Percent**
- **GW Quality Data More Spatially Distributed than Level Data**
- **GW Level Data Primarily Collected from Napa Valley Floor Subarea**

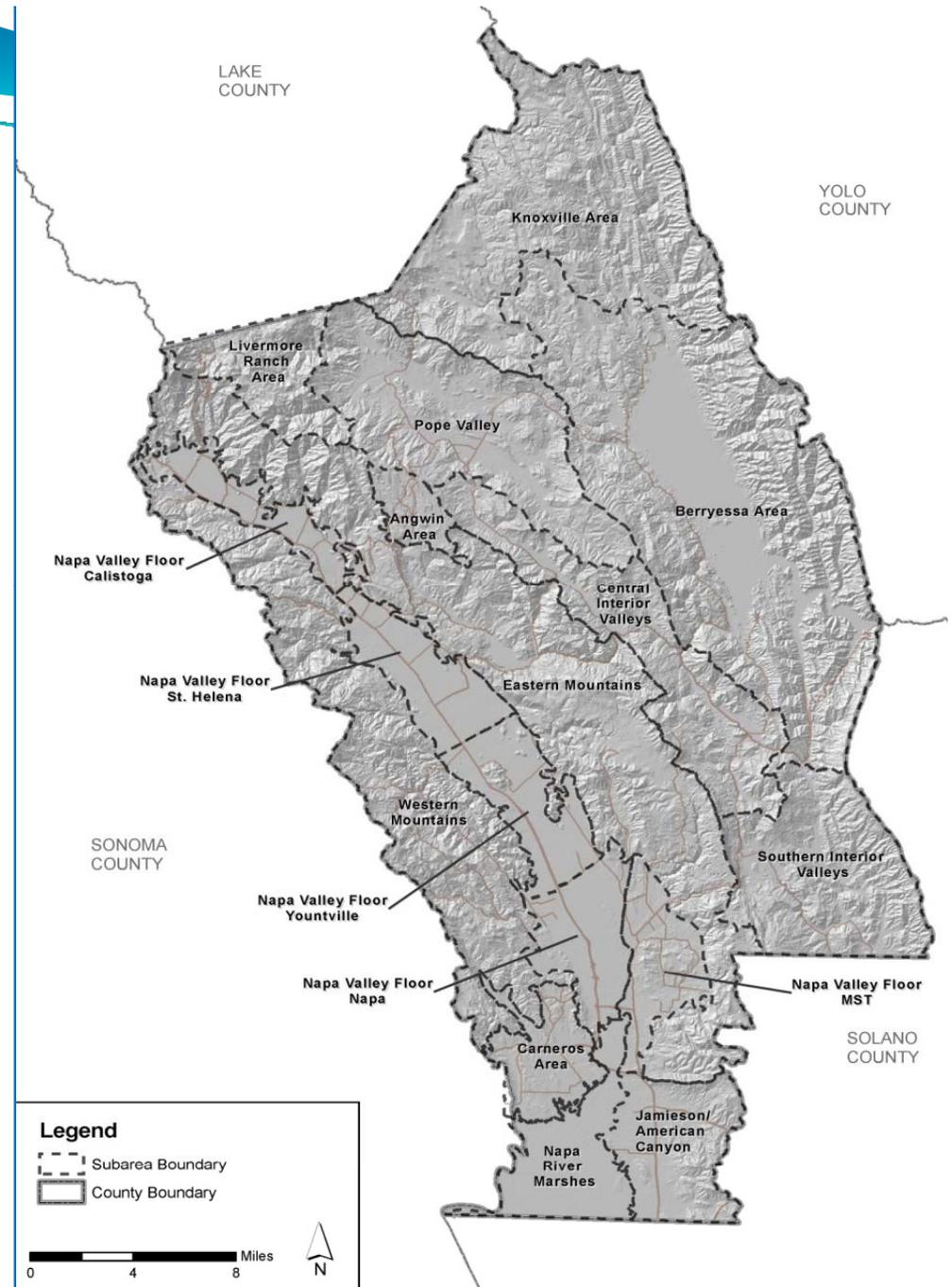
Evaluation of Data: Subareas

17 Subareas

- Napa Valley Floor includes 5 Subareas

Based on:

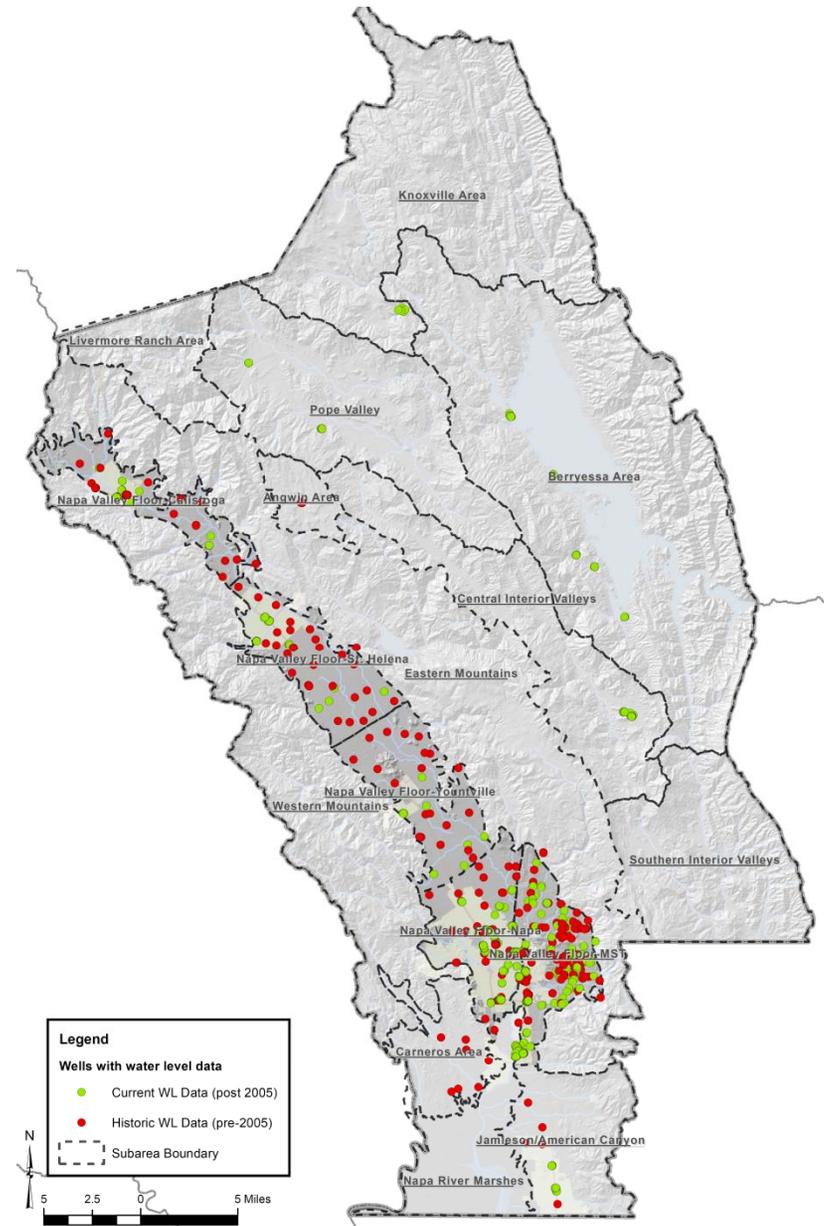
- Watershed Boundaries
- Groundwater Basins
- Planning Subareas



Evaluation of Data

Current Groundwater Monitoring

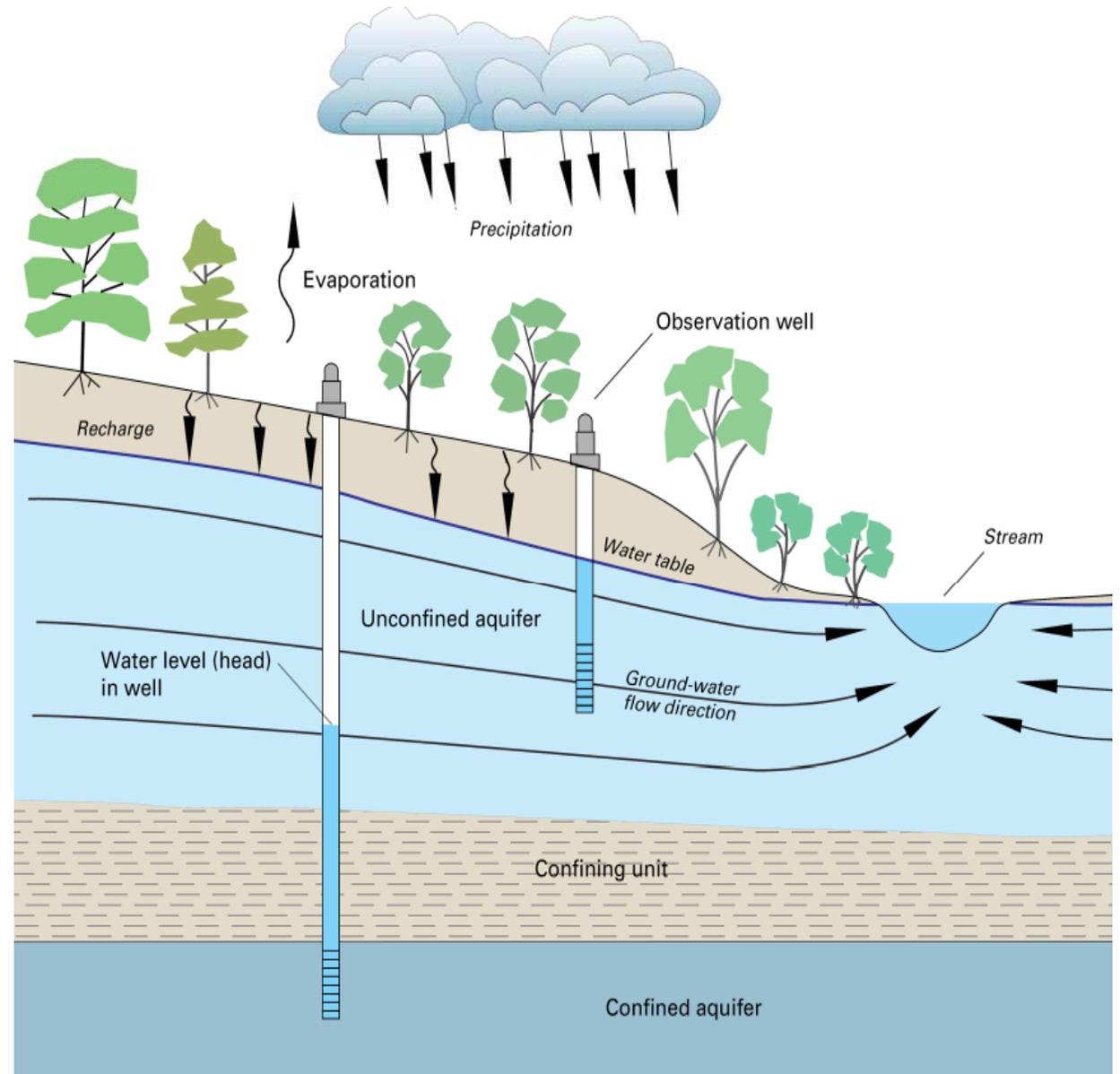
- GW Level Monitoring at 181 sites (compared to 382 historically)
- GW Quality Monitoring Sites at 182 sites (compared to 211 historically)
- Existing Data are Limited in Assigning Data to Specific Water-Bearing Aquifers



Evaluation of Data

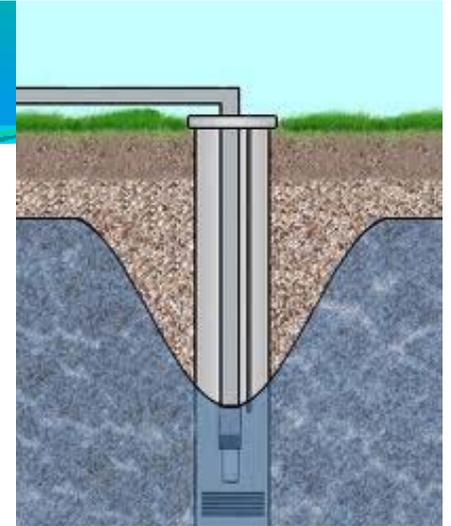
Aquifer-Specific Data Designation:

Necessary Due to Variation in GW Conditions



USGS. 2001. Circular 1217.

Evaluation of Data

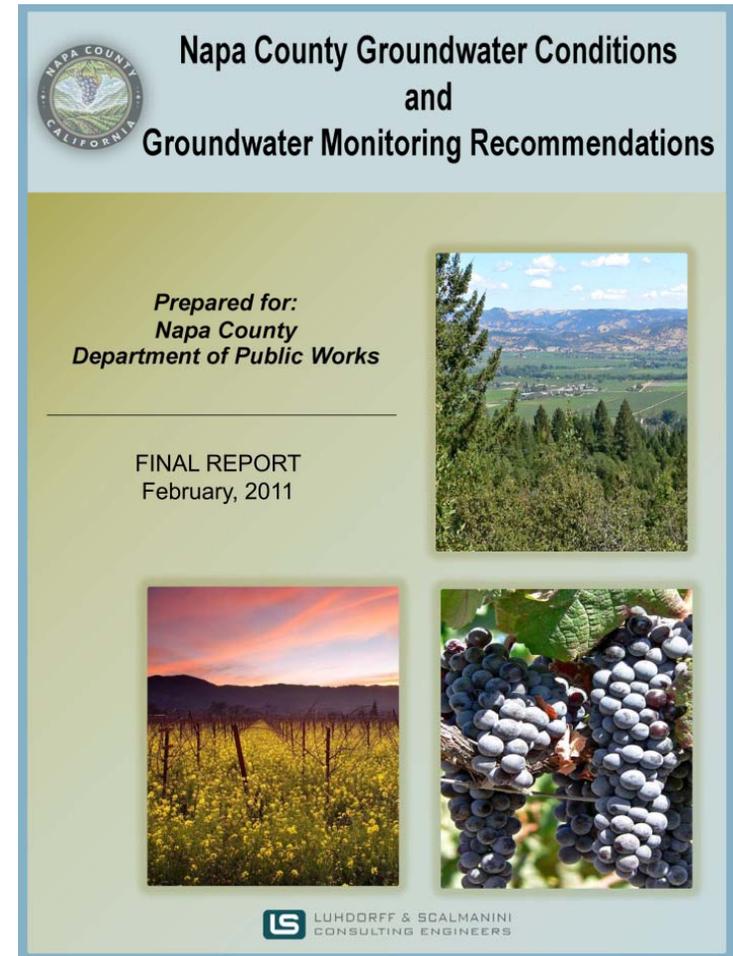


Data Quality Issues

- **GW Level Data Influenced by Pumping**
- **Changes in Wellhead Reference Elevations**
 - To Convert Measurements to Elevation
- **Anomalous Groundwater Quality Data**
- **Well Location Coordinates that Need Refinement**

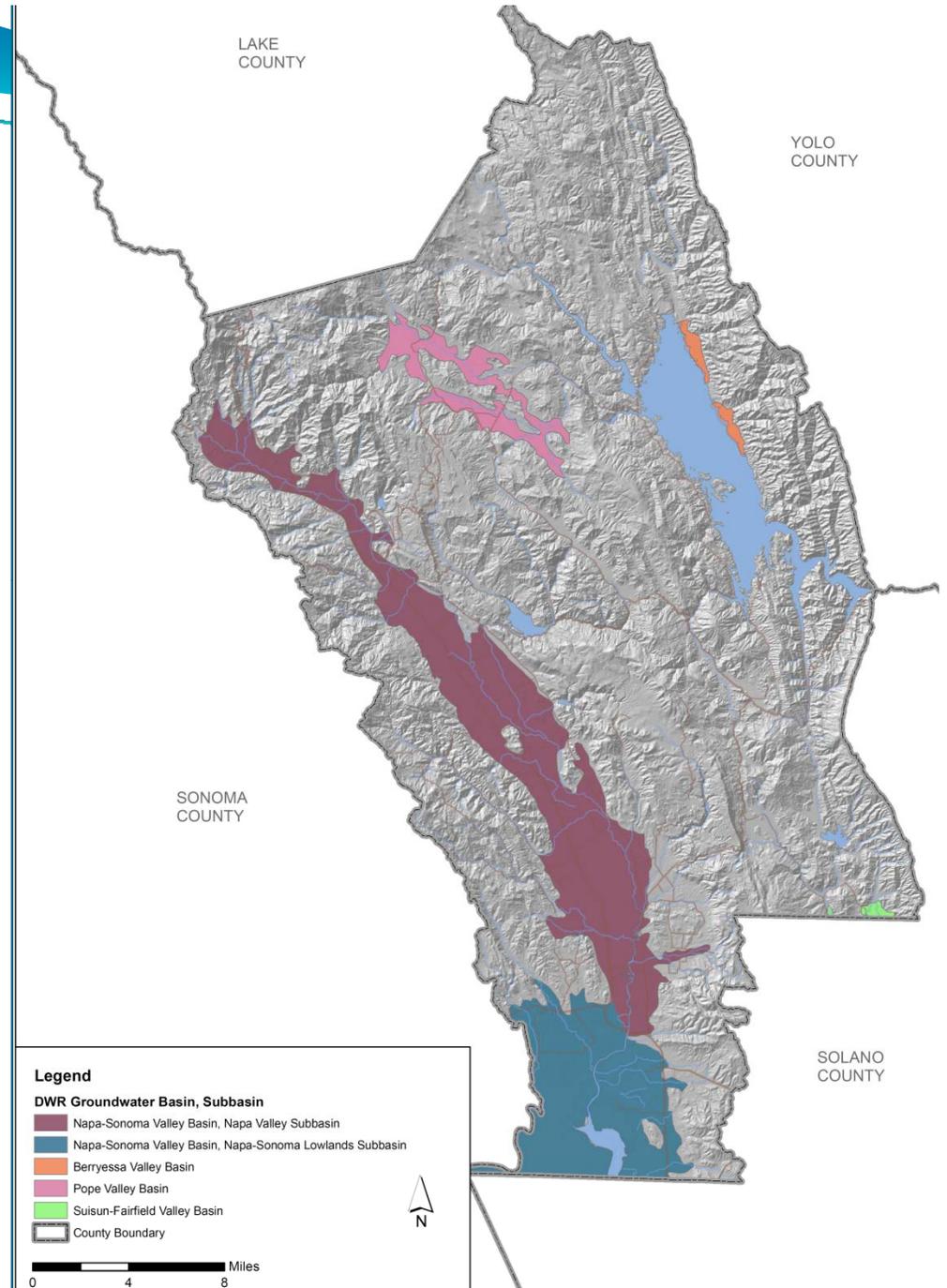
Napa Co. Groundwater Conditions Report

- Napa County GW Basins/Subbasins
- Geology
- Groundwater Conditions – Levels
- Groundwater Conditions - Quality



Groundwater Basins/Subbasins

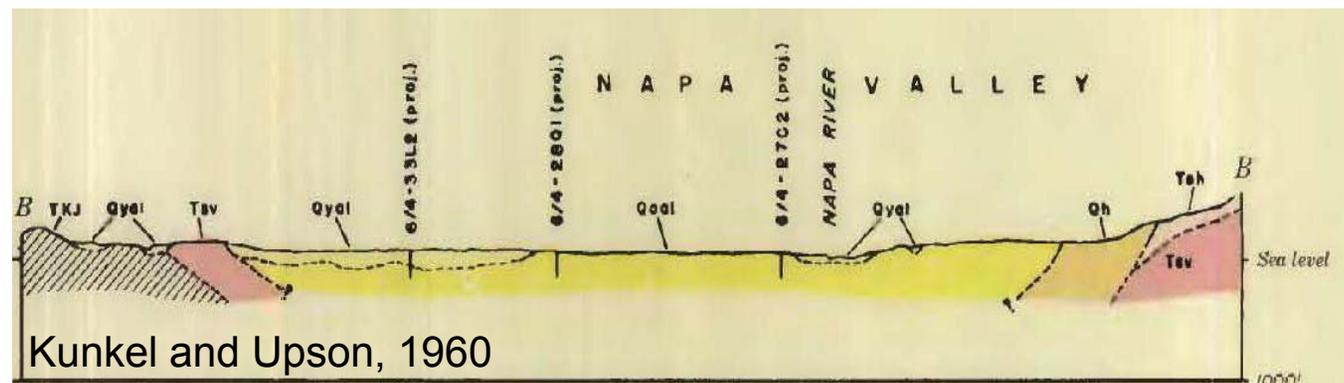
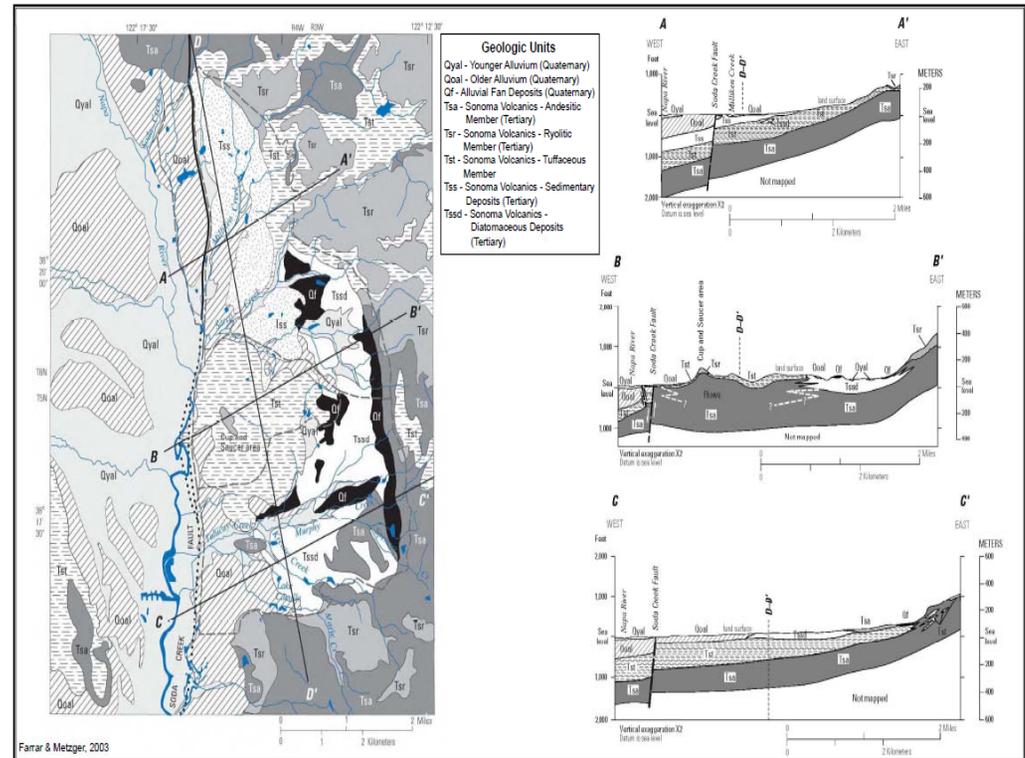
- **Napa-Sonoma Valley Basin**
 - Napa Valley Subbasin
 - Napa-Sonoma Lowlands Subbasin
- **Berryessa Valley Basin**
- **Pope Valley Basin**
- **Suisun-Fairfield Valley Basin**



Napa County Geology

Key Water Bearing Units

- Younger and Older Alluvium (Primarily in Napa Valley Floor)
- Sonoma Volcanics (Underlies Alluvium)

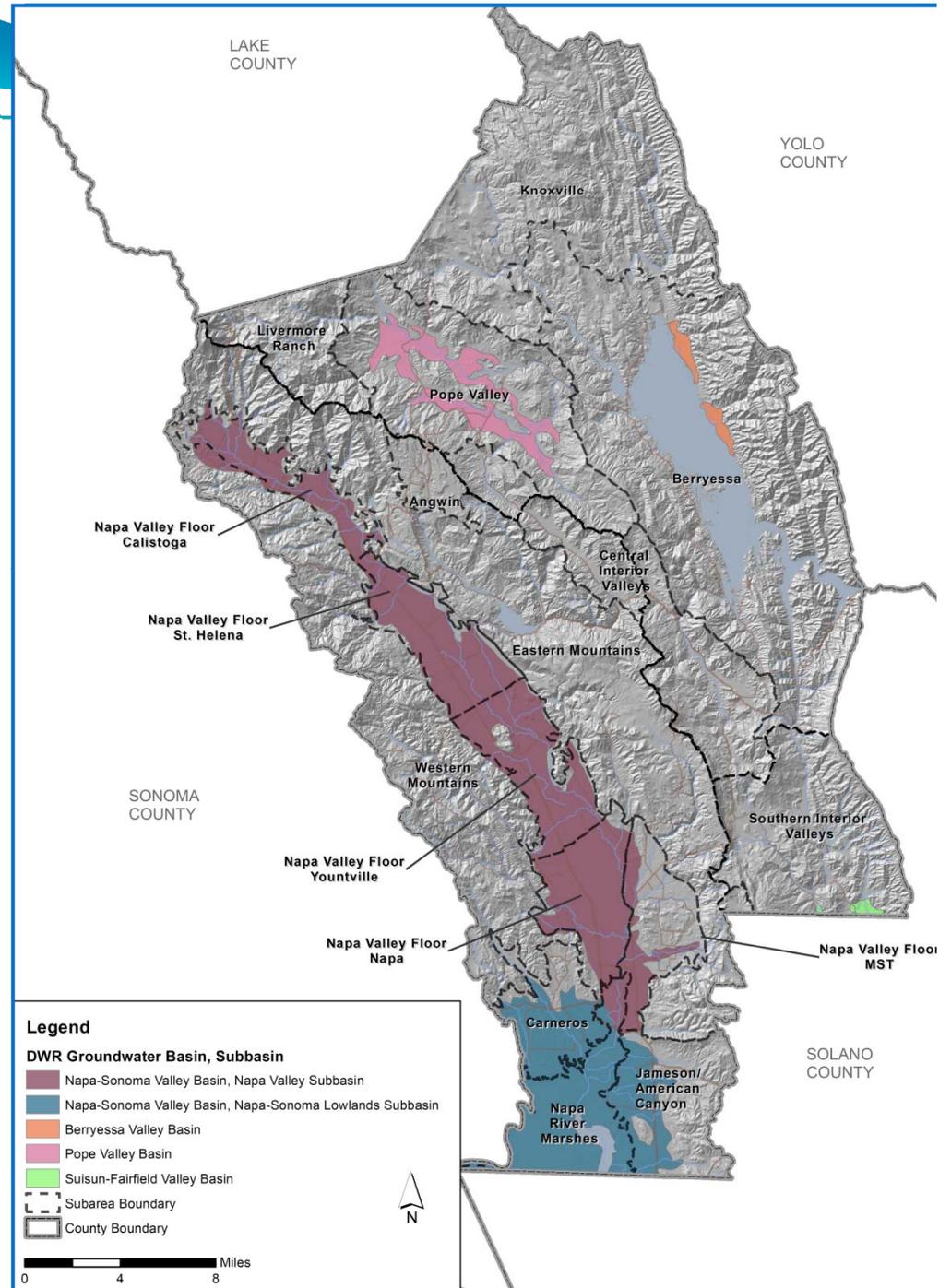


Groundwater Conditions: Levels and Quality

17 Subareas

- Napa Valley Floor includes 5 Subareas

DWR Groundwater Basins/Subbasins





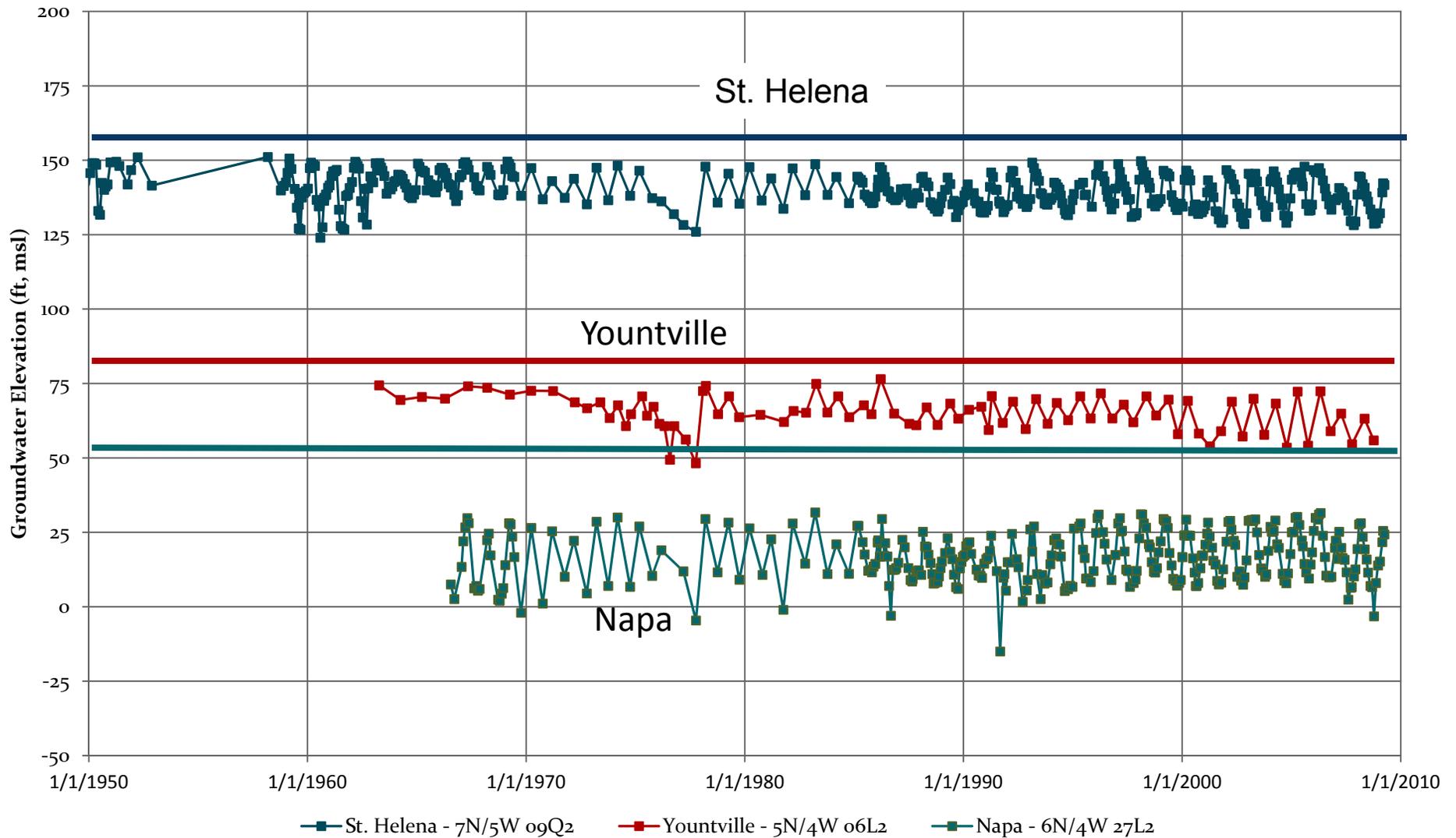
Summary of Groundwater Level Conditions

Napa Valley Floor

(Except for Milliken-Sarco-Tulucaay (MST))

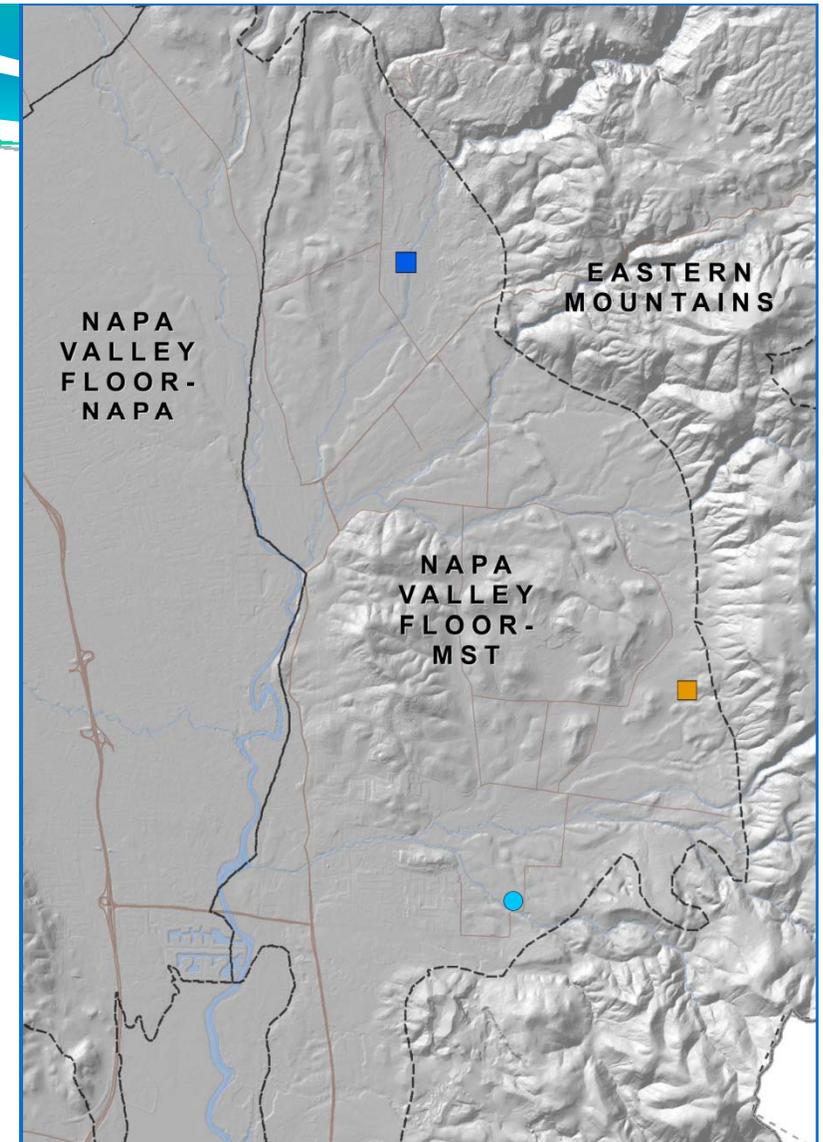
- **Generally Stable Long Term Trends**
 - St. Helena, Yountville, and Napa areas
- **Shallow Depth to Groundwater**
 - 10 to 30 feet Below Ground Surface

Groundwater Conditions - Levels



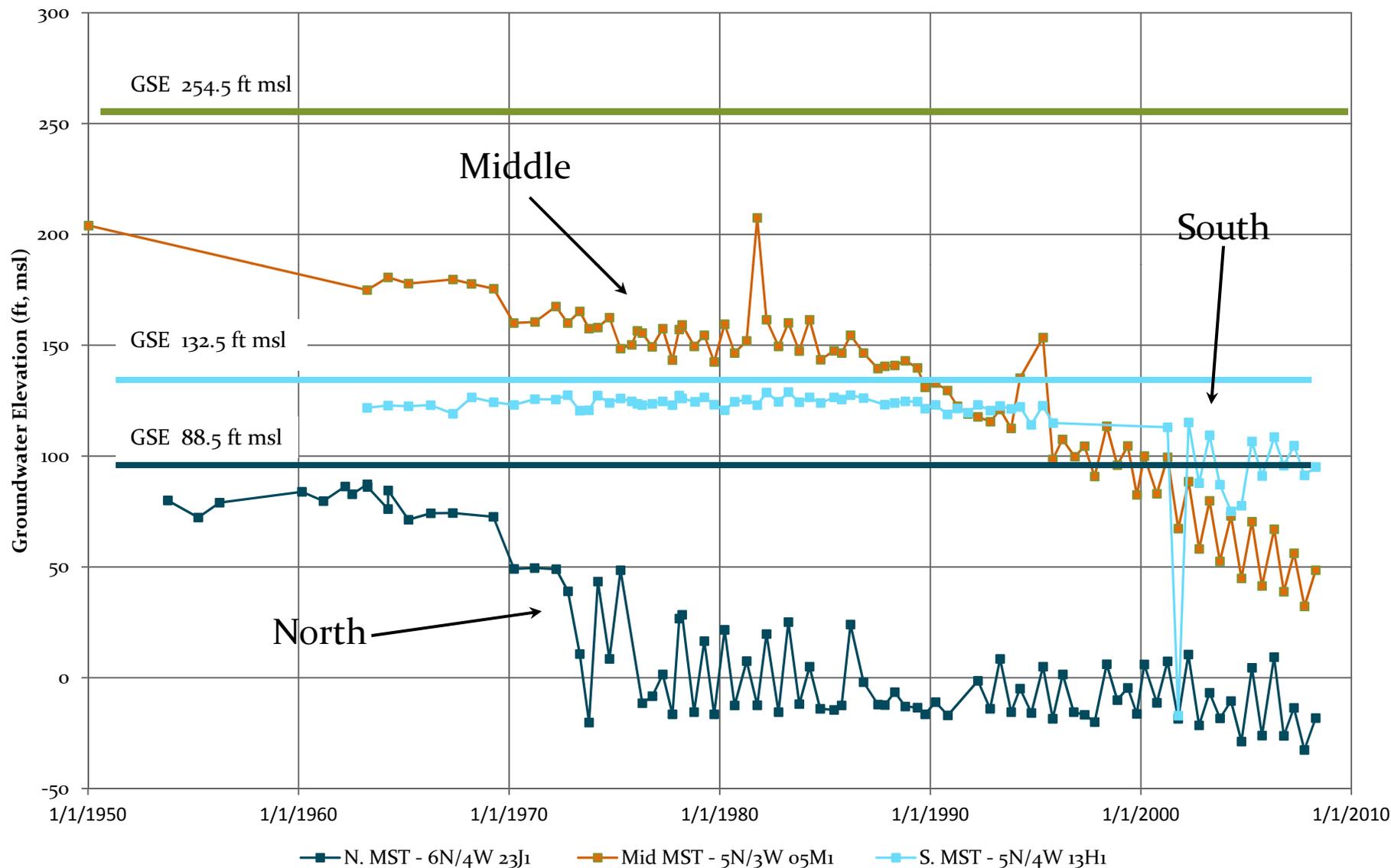
Groundwater Conditions: Levels in MST Subarea

- **Northern Area**
 - Decline in Late 1960s to 1970s, then Stable
- **Central Area**
 - General Long-Term Decline, Increase in Decline Since the 1990s
- **Southern Area**
 - Shallow Depth to Groundwater, Historical Stable Trends with Recent Decline



Locations of Hydrographs Next Slide

MST Subarea Groundwater Levels



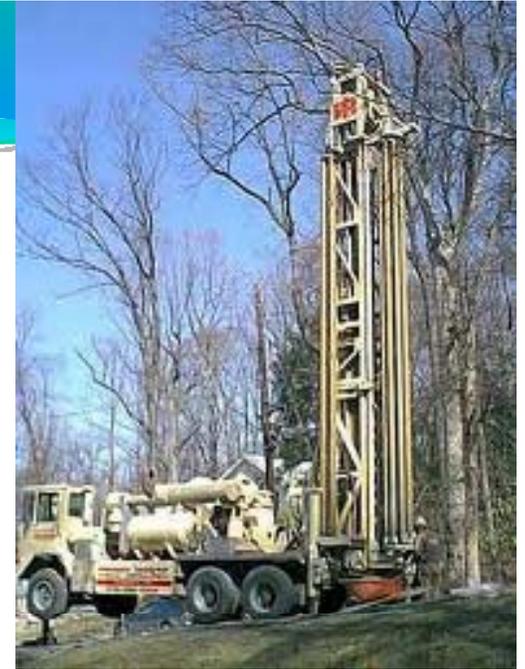
Groundwater Conditions - Quality

- **Generally Good GW Quality**
- **Selected Areas of Elevated Constituents**
- **Calistoga Area of the Napa Valley Floor**
 - Geothermal Influences
- **Southern Napa County**
 - Elevated Total Dissolved Solids and Chloride
- **Napa Valley Floor**
 - Scattered Nitrate



Groundwater Planning, Ordinance, and Well Permitting

- Overview of California GW Management (focus on SB1938)
- Review of Neighboring Counties GW Planning and Ordinances
- Connection to IRWMP
- Review of Napa GW Ordinance, Well Permitting, and Planning
 - Consistency with County Policies and Goals
- GW Sustainability Planning





Study Recommendations

- **Data Management System Update**
- **Calif. Statewide GW Elevation Monitoring (CASGEM) Program; Napa County**
- **Napa Countywide Monitoring Program**
- **Updated Hydrogeologic Conceptualization**
- **Groundwater Planning and Update County Ordinance/Well Permitting**



Data Management System

- **Implement Data Quality Control Protocols**
- **Ongoing DMS Updates**
- **DMS Compatibility with DWR Calif. Statewide GW Elevation Monitoring (CASGEM) Program**
- **Regularly Evaluate Countywide Data and Disseminate Information**

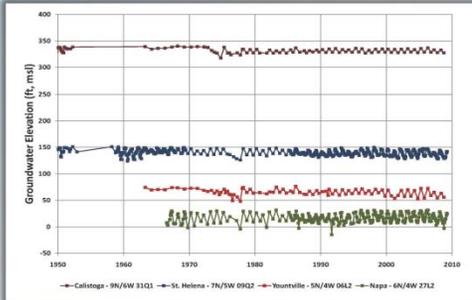
Napa County CASGEM Program

- Napa Co. Established as Lead Entity (12-10)
- Establish Subset of CASGEM Wells from Current County Monitoring Network
- Prepare and Submit CASGEM Network Plan



Napa County
California Statewide
Groundwater Elevation Monitoring
(CASGEM) Network Plan

September, 2011



Groundwater Elevation (ft., msl)

1950 1960 1970 1980 1990 2000 2010

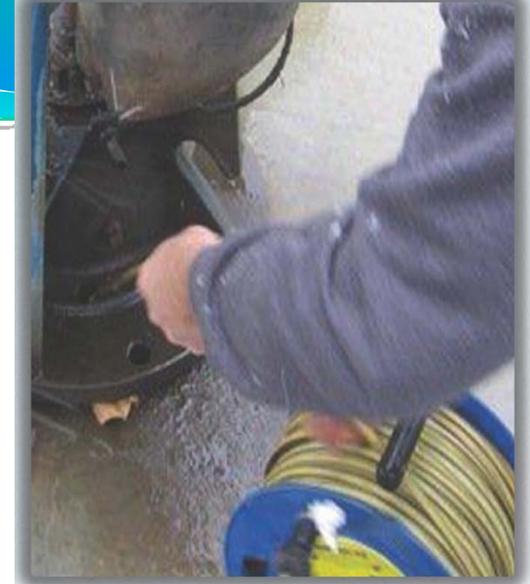
Callistoga - 9N/6W 31Q1 St. Helena - 7N/5W 09Q2 Yountville - 5N/4W 06L2 Napa - 6N/4W 27L2



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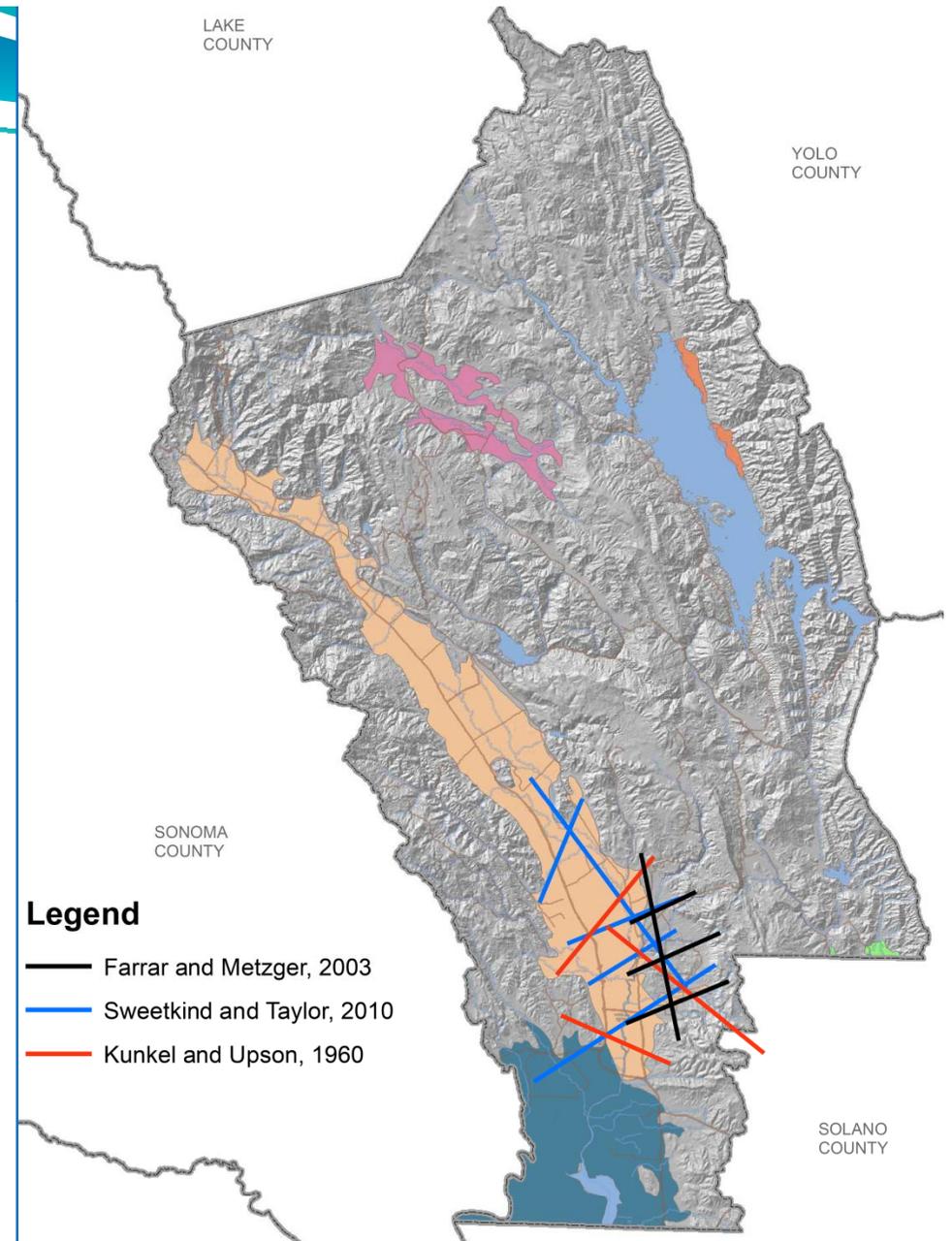
Groundwater Monitoring Program

- **Optimize and/or Expand GW Level and Quality Monitoring**
 - Identify and Address Data Gaps in Priority Subareas
 - Aquifer-Specific Monitoring
- **Ongoing Evaluation of GW Conditions**



Hydrogeologic Conceptualization

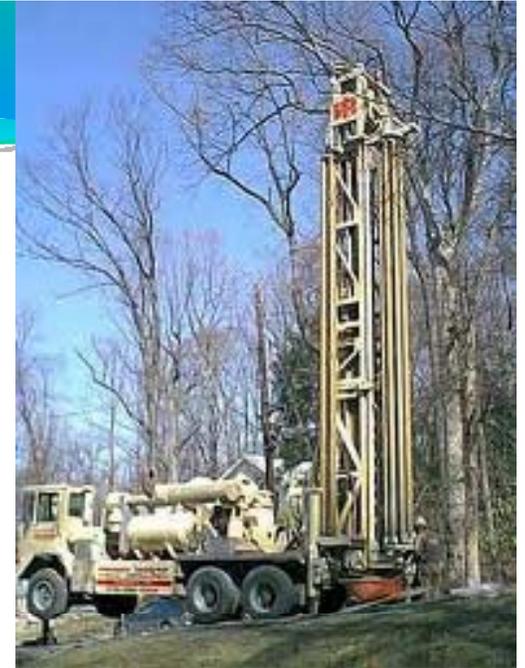
- Update with Decades of More Recent Geologic Data and Information
- Further Characterization of Areas of Groundwater Recharge (coordinate with AB 359)
- Investigate Groundwater and Surface Water Interactions



USGS Geologic Cross Section Locations

Groundwater Planning and Update County Ordinance/ Well Permitting

- **Recommended Code and Other Updates**
 - Ordinance and Well Permitting
- **Develop Groundwater Sustainability Planning**
 - Coordinated effort initiated with formation of GRAC



Discussion & Questions

