

Napa County Groundwater Monitoring Plan 2012

presentation for



by

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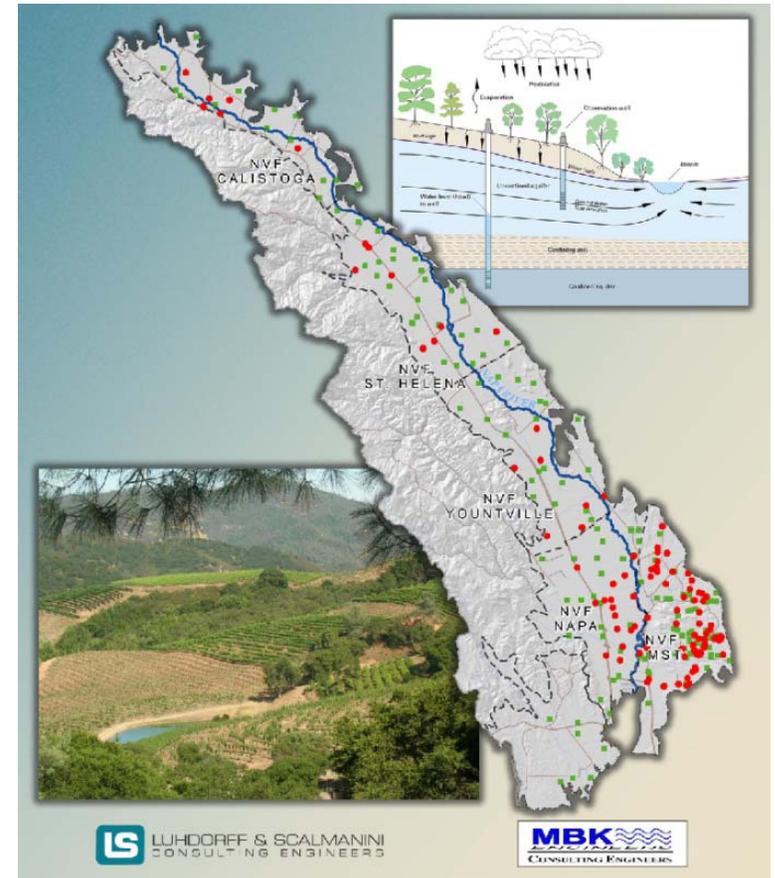
August 23, 2012

Agenda Item 5A



Presentation Overview

- GRAC Ad Hoc Meeting July 6
- GW Monitoring Plan Outline
- Groundwater Levels
 - Objectives & Priorities
 - Recommendations
- Groundwater Quality
 - Objectives & Priorities
 - Recommendations
- Confidentiality Procedures
- Next Steps





GRAC Ad Hoc Meeting July 6

Goals/Objectives and Priority Actions

- Global Monitoring Goals
 - Develop new/updated water balances
 - Improve understanding of GW storage capacity
 - ID recharge potential and/or areas of recharge contribution
 - Develop baseline data to improve understanding of factors related to GW level trends, incld. climate change

A key interest is establishing a GW monitoring network that facilitates overall understanding of GW resources in Napa County to avoid future problems.



GRAC Ad Hoc Meeting July 6 (cont.)

- **GW Monitoring Priorities**
 - Preliminary, relative prioritization of Subareas reviewed (includ. DWR draft ranking of basins)
 - Important: current County zoning, land use patterns, long-term growth restrictions, etc.
 - DWR's draft process does not address such factors
 - Ad Hoc group concludes:
 - Above factors need to be considered
 - Monitoring priorities should focus on baseline GW conditions in the Main NVF (include. MST) & Carneros Subarea



Groundwater Monitoring Plan 2012 Outline

- 1: Introduction
- 2: Hydrogeology of Napa County
- 3: GW Resources Goals and
Monitoring Objectives
- 4: GW Monitoring Network Design
and Development
- 5: GW Data Management
- 6: Reporting and Assessment

GW Level and Quality Monitoring Objectives

Overall Objectives

- Monitoring aligned with County water resources goals
- Address data gaps: provide infill, replacement, and/or project-specific monitoring as needed
- Coordinate with other entities on collection and incorporation of GW quality data in the DMS



GW Level Monitoring Objectives

- GW conditions, including local and regional water supply availability & reliability
- GW Budget: refine estimates of **GW inflows** (basin inflows, recharge, rainfall, streamflow, irrigation, etc.), **GW outflows** (pumping, ET, basin outflow, etc.) & **change in GW storage**
- Improve understanding of occurrence & movement of GW, trends, & factors related to trends
- Further evaluate SW-GW interaction



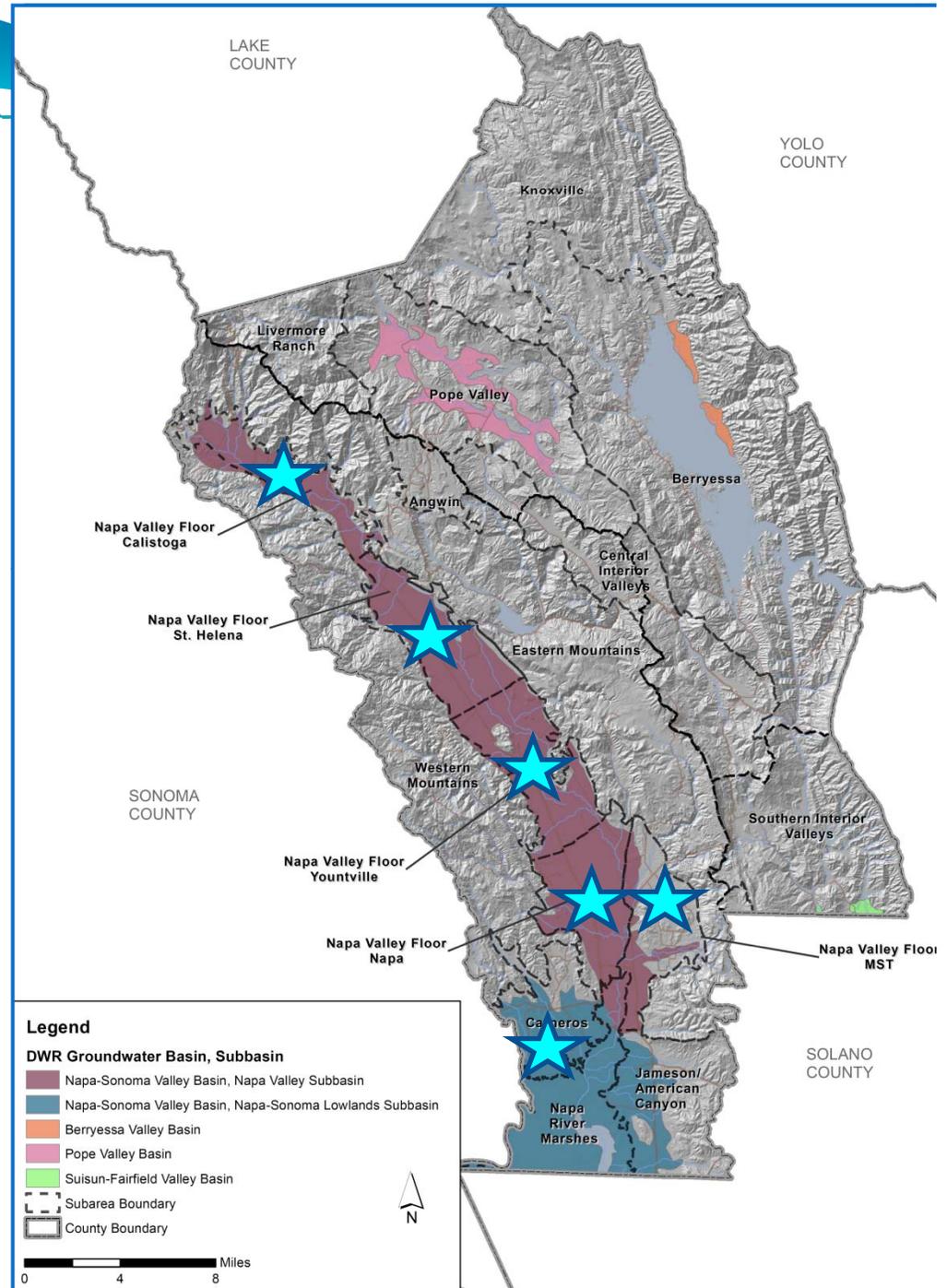
GW Level Monitoring: Priorities, Objectives, Recommendations

Subarea	No. Sites with Current Groundwater Level Data	Future GW Level Monitoring (Relative Priority)		Monitoring Needs	Recommend Addn'l Sites ²	Key Objectives ³
		H	E			
Napa Valley Floor-Calistoga	6	H	E	SP, SW	2+V	Conditions, Trends, Wtr Budget, SW
Napa Valley Floor-MST	28	H	R	SP, SW	V	Conditions, Trends, Wtr Budget, SW
Napa Valley Floor-Napa	19	H	R	SP, SW	2 SW, 4+V	Conditions, Trends, Wtr Budget, SW
Napa Valley Floor-St. Helena ⁴	7	H	E	SP, SW	2 SW, 3+V	Conditions, Trends, Wtr Budget, SW
Napa Valley Floor-Yountville	8	H	E	SP, SW	2 SW, 2+V	Conditions, Trends, Wtr Budget, SW
Carneros	5	H	E	B	1+V	Conditions, Trends, Wtr Budget, Saltwater
Jameson/American Canyon	1	M	E	B	3+V	Conditions, Trends, Wtr Budget, Saltwater
Napa River Marshes	1	M	E	SP, SW	1+V	Conditions, Trends, Wtr Budget, Saltwater
Angwin	0	M	E	B	1+V	Conditions, Trends, Wtr Budget
Berryessa	3	L	E	B	V	Conditions, Trends
Central Interior Valleys	1	L	E	B	V	Conditions, Trends
Eastern Mountains	0	L	E	B	V	Conditions, Trends
Knoxville	1	L	E	B	V	Conditions, Trends
Livermore Ranch	0	L	E	B	V	Conditions, Trends
Pope Valley	1	M	E	B	1+V	Conditions, Trends
Southern Interior Valleys	0	L	E	B	V	Conditions, Trends
Western Mountains	0	L	E	B	V	Conditions, Trends
Total	81				6 SW, 18+V	

(from Table 4-1)

GW Levels: Priority Subareas

- NVF-Calistoga
- NVF- St. Helena
- NVF- Yountville
- NVF-Napa
- NVF-MST
- Carneros

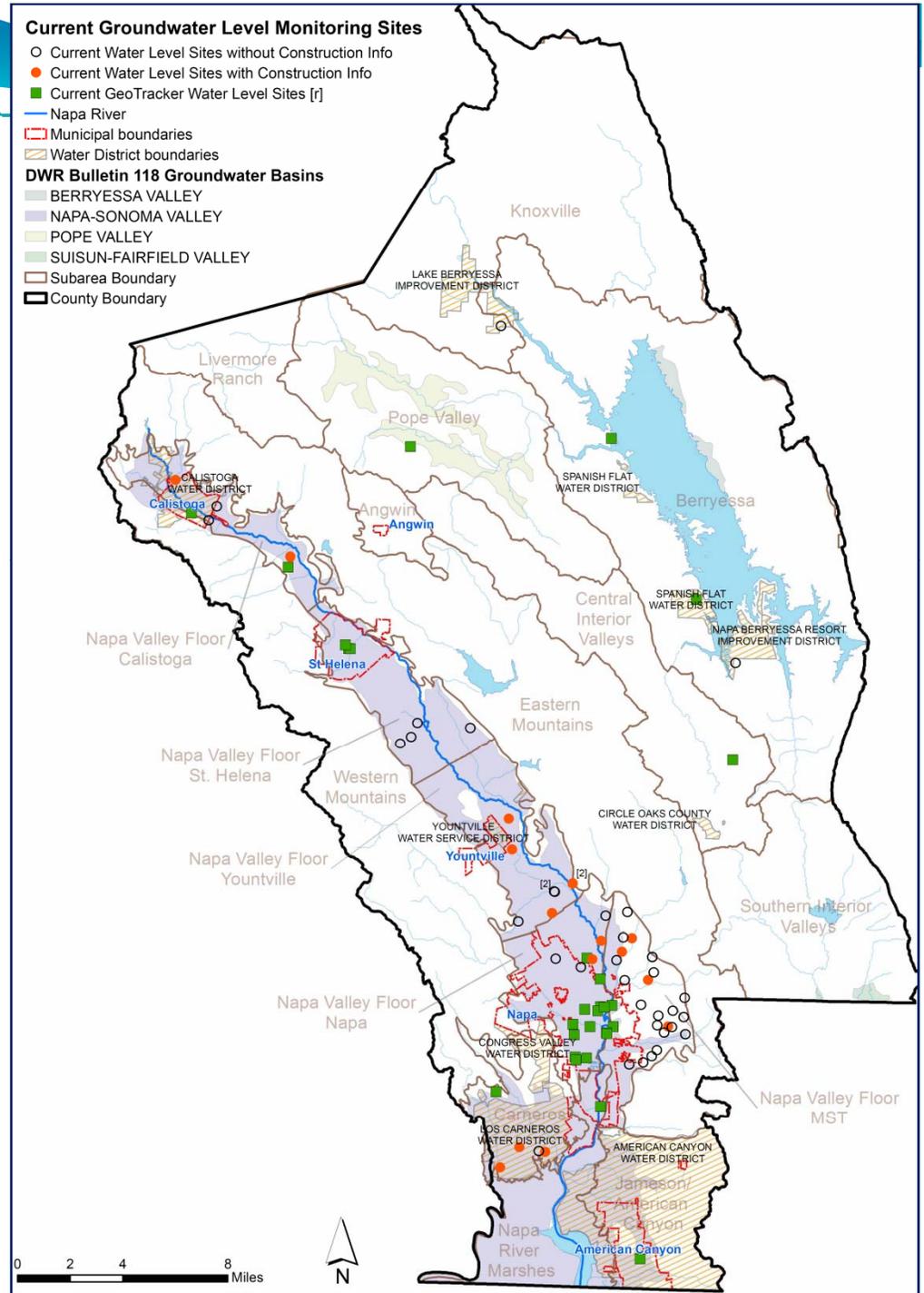


GW Levels: Priority Subareas

- NVF-Calistoga (E,SP,SW)
- NVF- St. Helena (E,SP,SW)
- NVF- Yountville (E,SP,SW)
- NVF-Napa (R,SP,SW)
- NVF-MST (R,SP,SW)
- Carneros (E,B)

81 Current Sites

E= Expand; R= Refine
 SP= Spatial Coverage; SW= SW/GW
 Interaction; B= Baseline

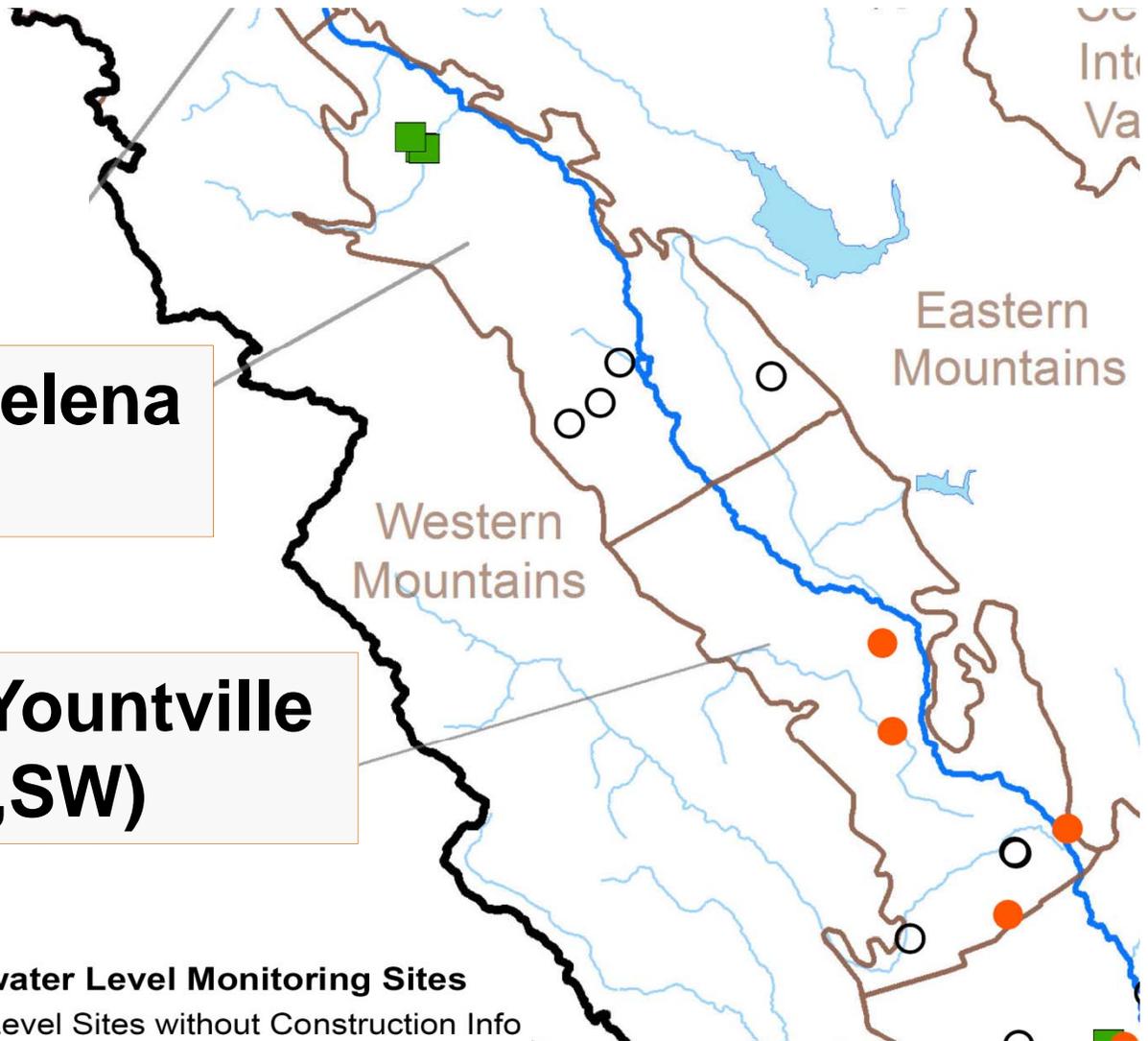


**NVF- St. Helena
(E,SP,SW)**

**NVF-Yountville
(E,SP,SW)**

Current Groundwater Level Monitoring Sites

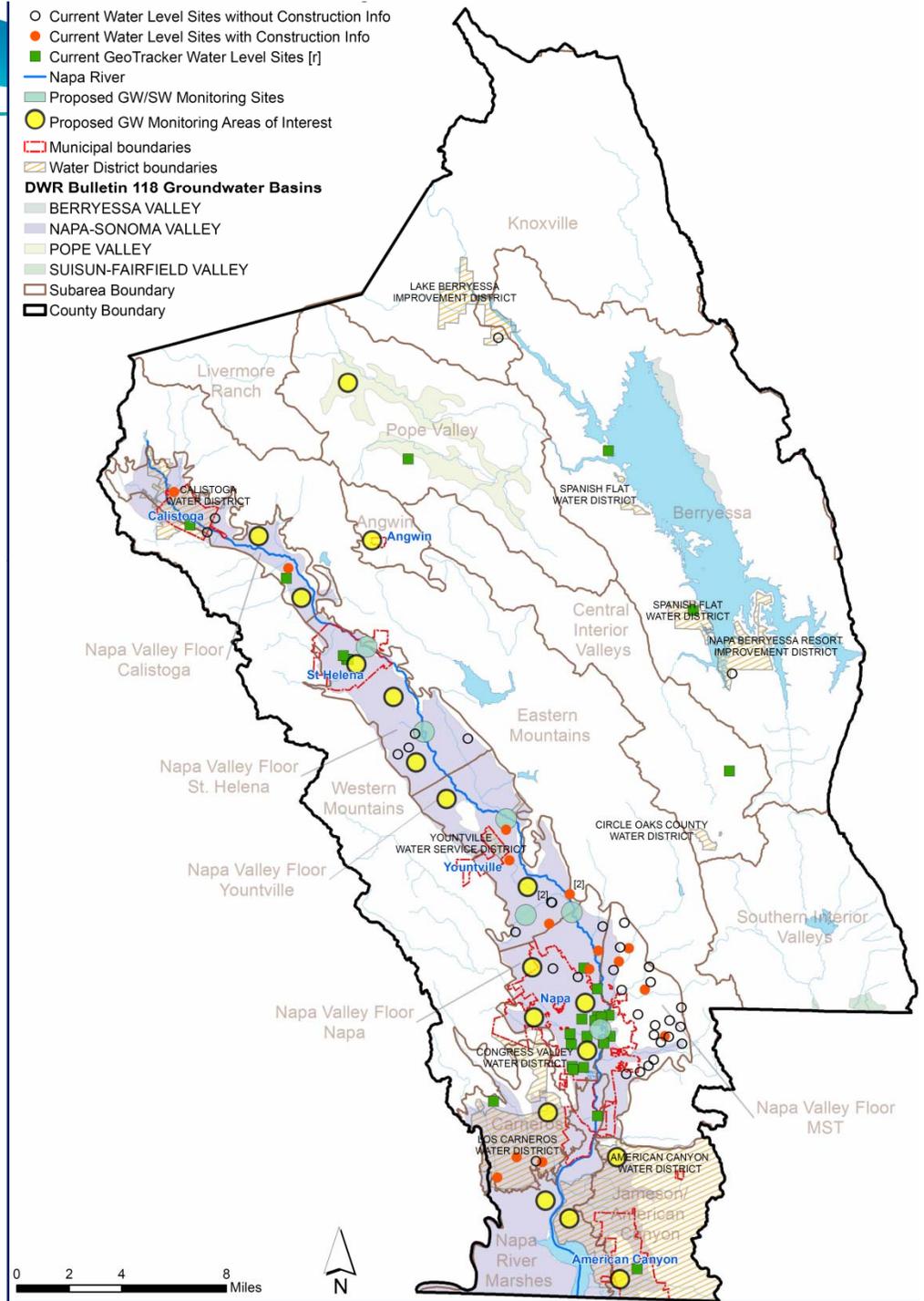
- Current Water Level Sites without Construction Info
- Current Water Level Sites with Construction Info
- Current GeoTracker Water Level Sites



Example Subareas: GW Levels & Data Gaps

GW Level Monitoring: Current & Recommended

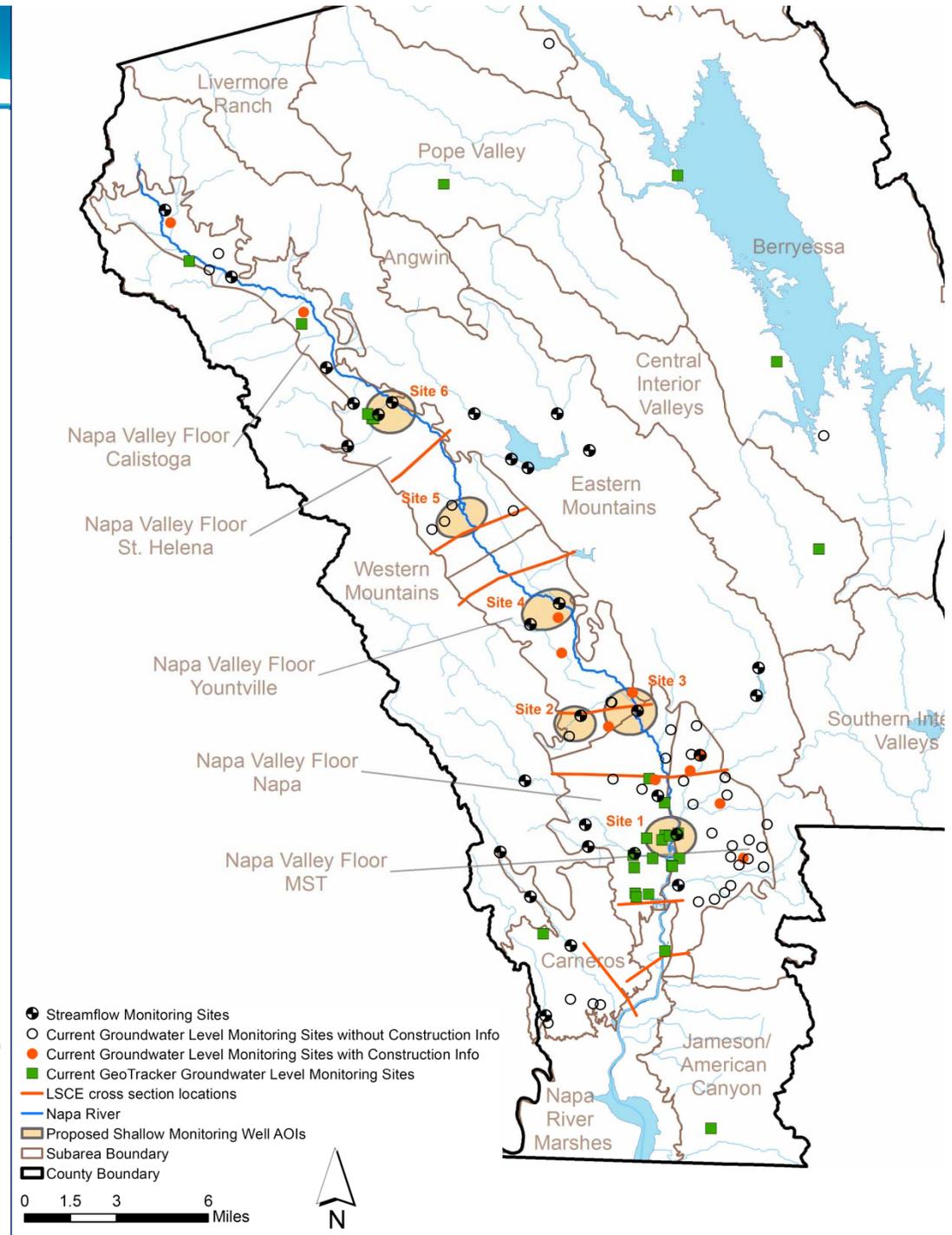
- Data Gaps
 - GW Conditions
 - Trends
 - Water Budget
 - SW/GW Interaction
- 18 addn'l areas proposed for GW level monitoring
- 6 addn'l areas proposed for evaluation of SW/GW interaction



SW/GW Related Recommendations

- Build on 2012 hydrogeologic conceptualization
- Examine SW/GW interrelationships
- Wells near streamflow monitoring sites
- Preferably near MWs with some prior WL record (and w/ well info)

Applied for DWR Grant July 2012



GW Quality Monitoring Objectives

- Evaluate GW quality conditions in Subareas; differences in WQ spatially between areas & vertically within a Subarea
- Assess changes & trends in GW quality, and corresponding factors for changes
- Establish baseline conditions in areas of potential saltwater intrusion (e.g., Carneros, Jameson/American Canyon and Napa River Marshes Subareas)
- Detect the occurrence of & factors attributable to natural (e.g., general minerals and trace metals) or other constituents



GW Quality Monitoring: Priorities, Objectives, Recommendations

Subarea	No. Sites with Current GW Quality Data	Future GW Quality Monitoring (Relative Priority)		Monitoring Needs	Recommend Addn'l Sites ²	Key Monitoring Objectives ³
		M	R			
Napa Valley Floor-Calistoga	20	M	R	SP,C	2+V	Conditions, Trends, Nat'l Constituents
Napa Valley Floor-MST	16	H	R	SP,C	V	Conditions Trends, Nat'l Constituents
Napa Valley Floor-Napa	21	M	R	SP,C	2 SW, 4+V	Conditions, Trends, Nat'l Constituents
Napa Valley Floor-St. Helena	31	M	R	SP,C	2 SW, 3+V	Conditions, Trends, Nat'l Constituents
Napa Valley Floor-Yountville	14	M	R	SP,C	2 SW, 2+V	Conditions, Trends, Nat'l Constituents
Carneros	9	H	R	SP,C	1+V	Conditions, Trends, Nat'l Constituents, Saltwater
Jameson/American Canyon	3	H	E	B,SP,C	3+V	Conditions, Trends, Nat'l Constituents, Saltwater
Napa River Marshes	6	M	E	B,SP,C	1+V	Conditions, Trends, Nat'l Constituents. Saltwater
Angwin	4	M	E	B,C	1+V	Conditions, Trends, Nat'l Constituents
Berryessa	6	L	E	B,C	V	Conditions, Trends, Nat'l Constituents

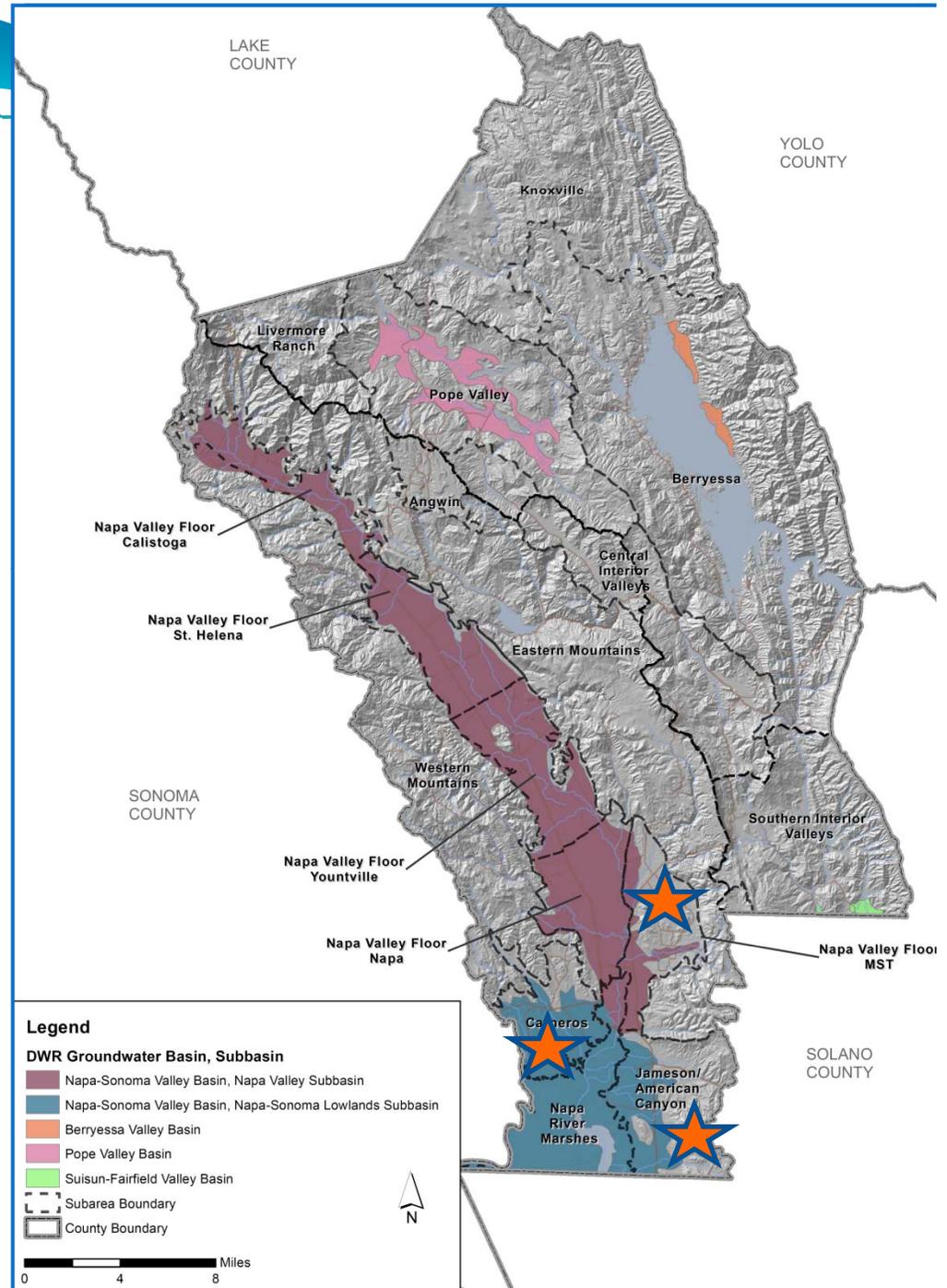
(from Table 4-2)

GW Quality Monitoring: Priorities, Objectives, Recommendations

Subarea	No. Sites with Current GW Quality Data	Future GW Quality Monitoring (Relative Priority)		Monitoring Needs	Recommend Addn'l Sites ²	Key Monitoring Objectives ³
		L	R			
Central Interior Valleys	6	L	R	B,SP,C	V	Conditions, Trends, Nat'l Constituents
Eastern Mountains	25	M	E	B,C	V	Conditions, Trends, Nat'l Constituents
Knoxville	0	L	E	B,C	V	Conditions, Trends, Nat'l Constituents
Livermore Ranch	0	L	E	B,C	V	Conditions, Trends, Nat'l Constituents
Pope Valley	6	L	E	B,C	1+V	Conditions, Trends, Nat'l Constituents
Southern Interior Valleys	0	L	E	B,C	V	Conditions, Trends, Nat'l Constituents
Western Mountains	10	L	R	B,C	V	Conditions, Trends, Nat'l Constituents
Total	177				6 SW, 18+V	

GW Quality: Priority Subareas

- NVF-MST
- Carneros
- Jameson/American Canyon

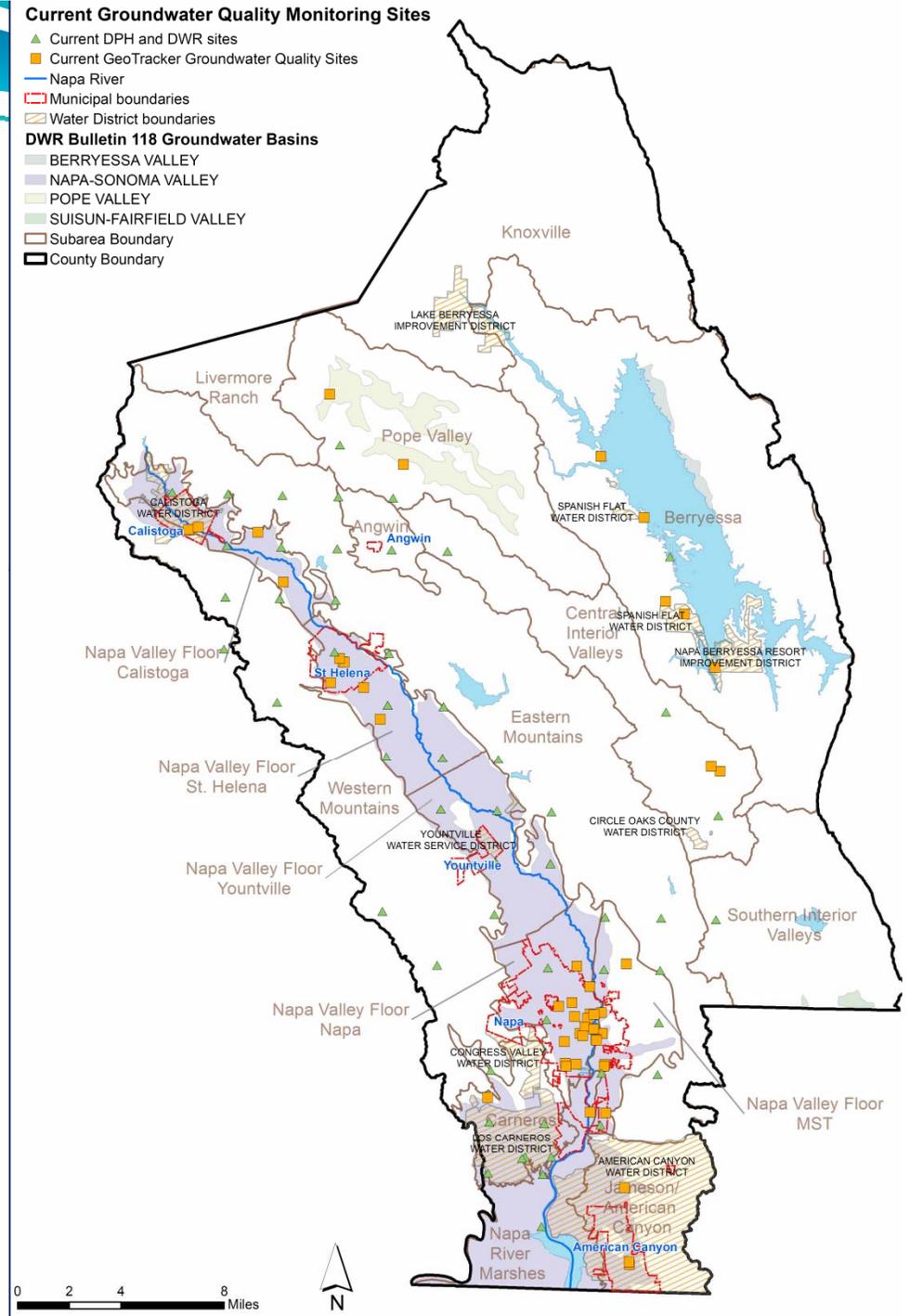


GW Quality: Priority Subareas

- NVF-MST (R,SP)
- Carneros (R, SP)
- Jameson/American Canyon (E,B,SP)
- Coordinate w/GW Level Monitoring

177 Current Sites

E= Expand; R= Refine
SP= Spatial Coverage; B= Baseline



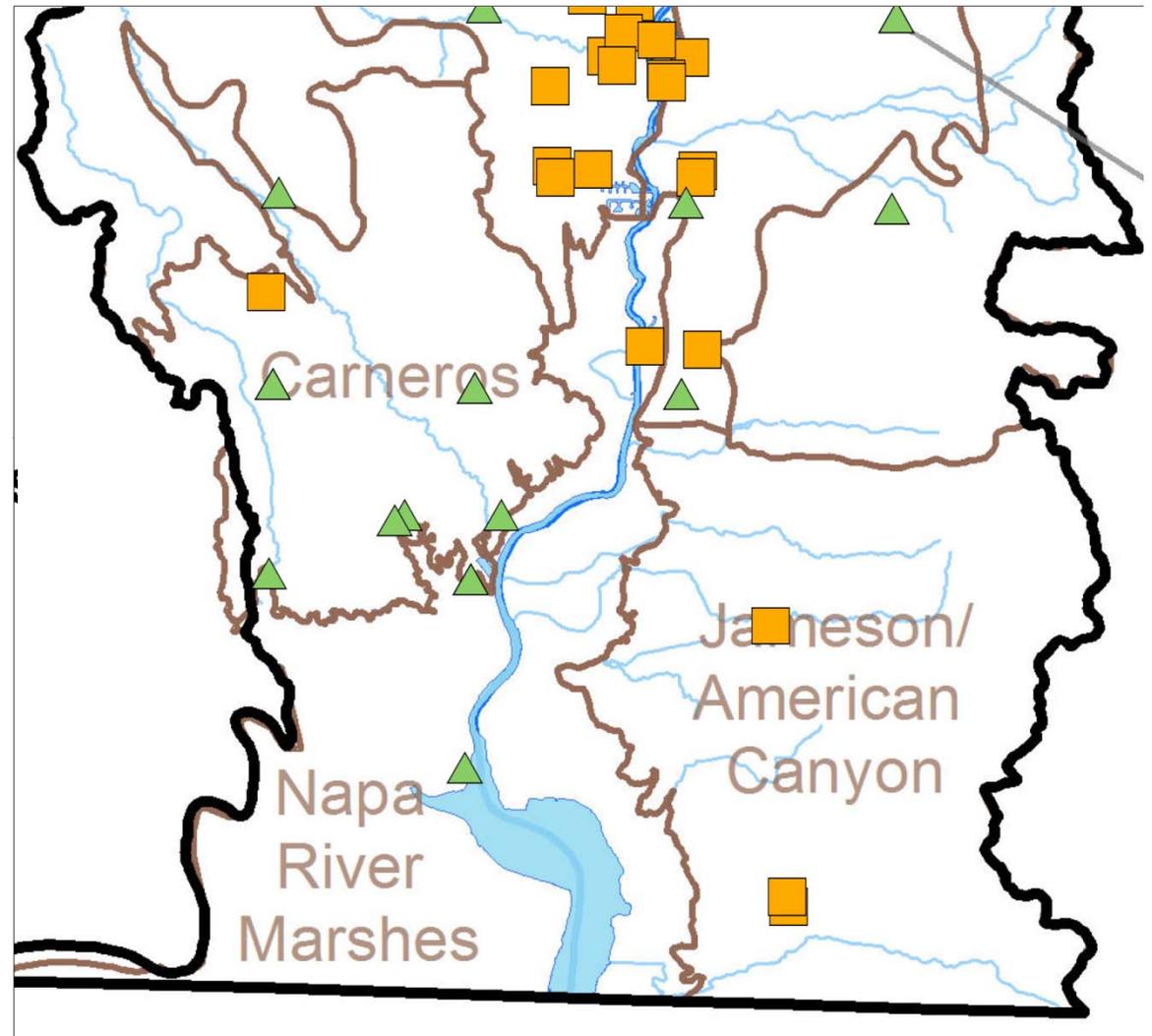


“New”/Current GW Quality Sites

- **GeoTracker-DPH Access Expanded**
- **Additional GW Quality Sites**
 - **Community systems**
 - **Vineyards**
 - **Schools**
- **Location +/- 1 mile**
- **Linking construction info to measured well**

Example Subarea: GW Quality

- Carneros (R, SP)
- Jameson/
American Canyon
(E,B,SP)

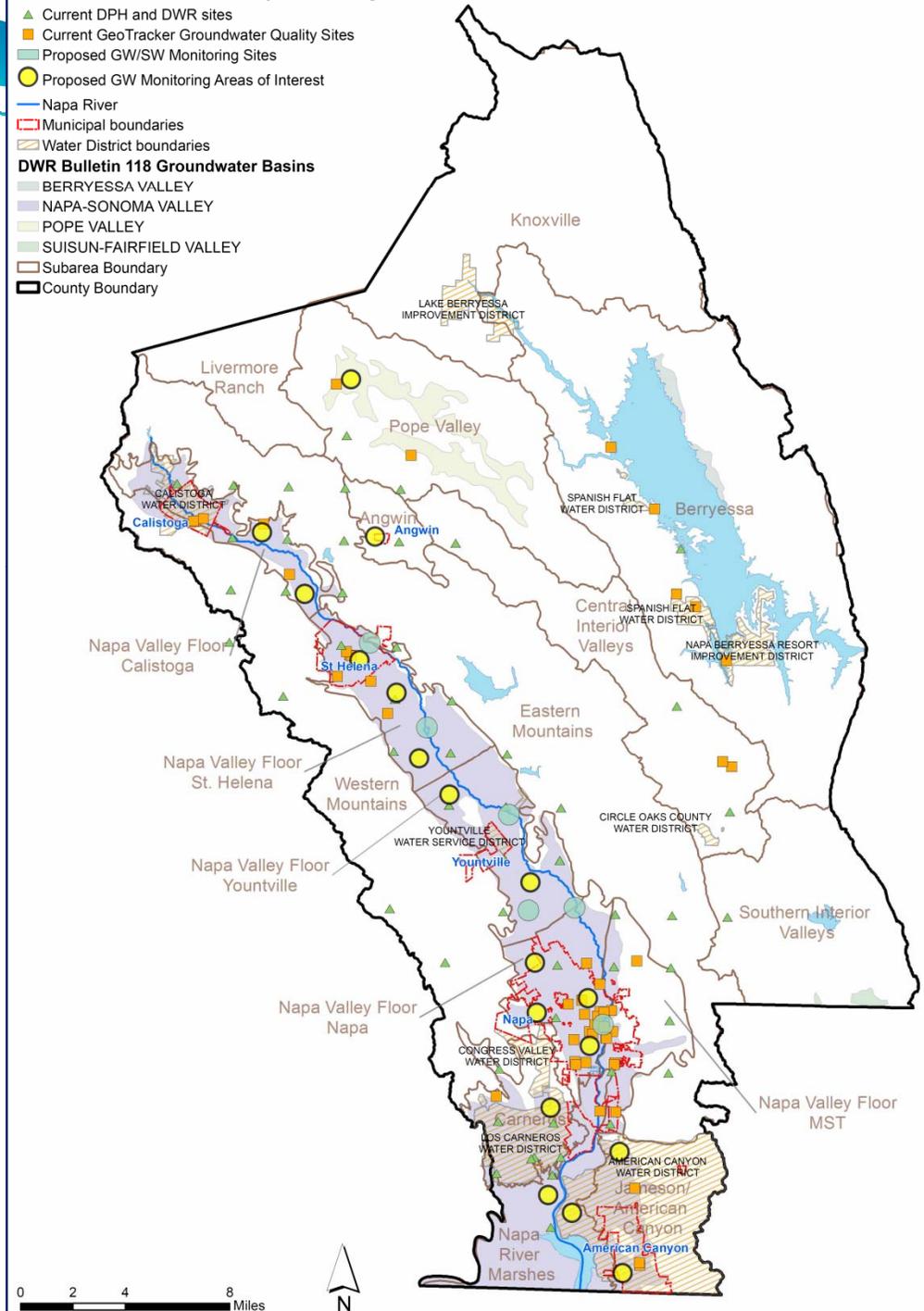


E= Expand; R= Refine
SP= Spatial Coverage; B= Baseline

GW Quality Monitoring: Current & Recommended

- Conditions
- Trends
- Natural Constituents
- Saltwater

Recommended GW Quality sites coordinated w/ areas proposed for addn'l GW level monitoring (18 ●, 6 ●)





GW Quality Parameters

- **Baseline (Initial Sampling Event)**
 - General Minerals: EC, TDS, pH, Na, K, Mg, Ca, Cl, SO₄, NO₃, F, Alkalinity, Hardness
 - Metals: Ag, Al, As, B, Ba, Be, Cd, Cr, Hex Cr, Cu, Fe, Hg, Mn, Ni, Pb, Sb, Se, Tl, V, Zn
- **Affirm Baseline (2nd Year)**
- **Annual**
 - TDS, NO₃, Cl
- **Future Triennial & 5-Year Analyses**
 - Triennial Gen Min & Metals 6 SW/GW Sites
 - 5-Year Gen Min & Metals ~18 Other Sites



GW Data Management

- Data Management System
- Data Management Procedures
 - Types of Data
 - Data Confidentiality Procedures
 - County Collected Data Entry & QA/QC
 - Data from Other Sources



Data Confidentiality Procedures

- **Confidential Data**

- Data to be held as confidential (as mandated by State law) includes drillers' reports unless permission received from well owner

- **Release of Data (tiered participation program)**

- Partial: Property owners wish to participate; use of data for public education and info for broader countywide GW monitoring effort
- Full: Property owners willing to provide info req'd by CASGEM program could become full participants in that program and/or the broader countywide GW monitoring effort

- **Reporting of Data**

- Discrete display in reports (large symbols)
- Names & addresses of well owners kept confidential – not shared



Groundwater Reporting

- Annual Update and Review of Monitoring Plan and Well Network
- Annual CASGEM Reporting
- Triennial Countywide Reporting



Napa County Groundwater Program

Next Steps

- Complete Final Draft Groundwater Monitoring Plan (October 2012)
- Report on Updated Hydrogeologic Characterization & Conceptualization (Fall 2012), including:
 - Geologic maps and cross sections
 - Recharge area map
 - Groundwater recharge estimate
 - Groundwater level monitoring recommendations



Thank You

**Discussion
&
Questions**