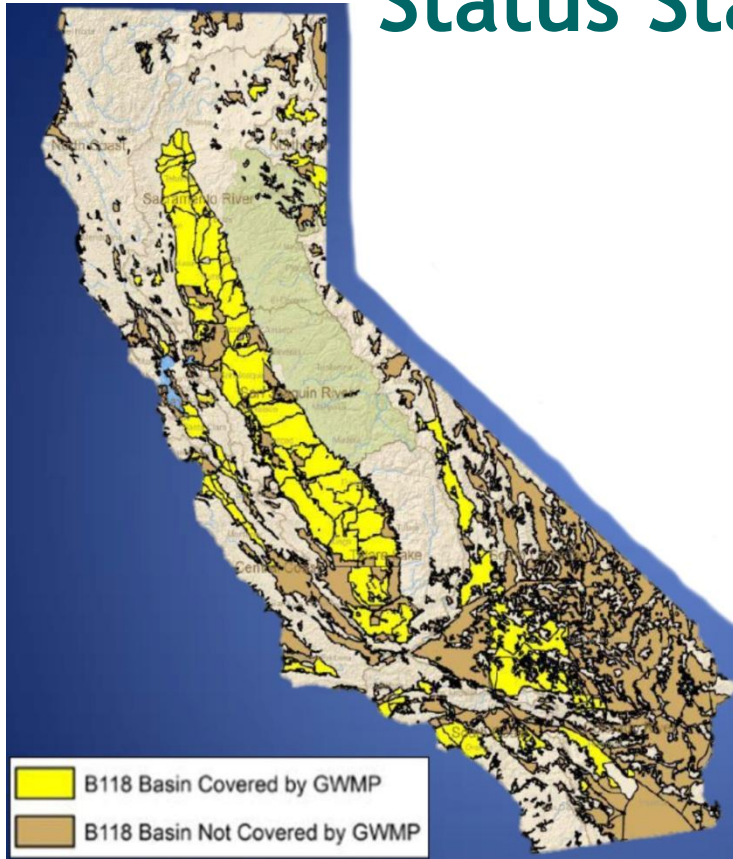


California Groundwater Management: Status Statewide and Sonoma Valley

Timothy K. Parker, PG, CEG, CHG,
Parker Groundwater

 **North Bay Watershed Association**

2014 Conference
**Water Resources Management:
What, Where and How?**



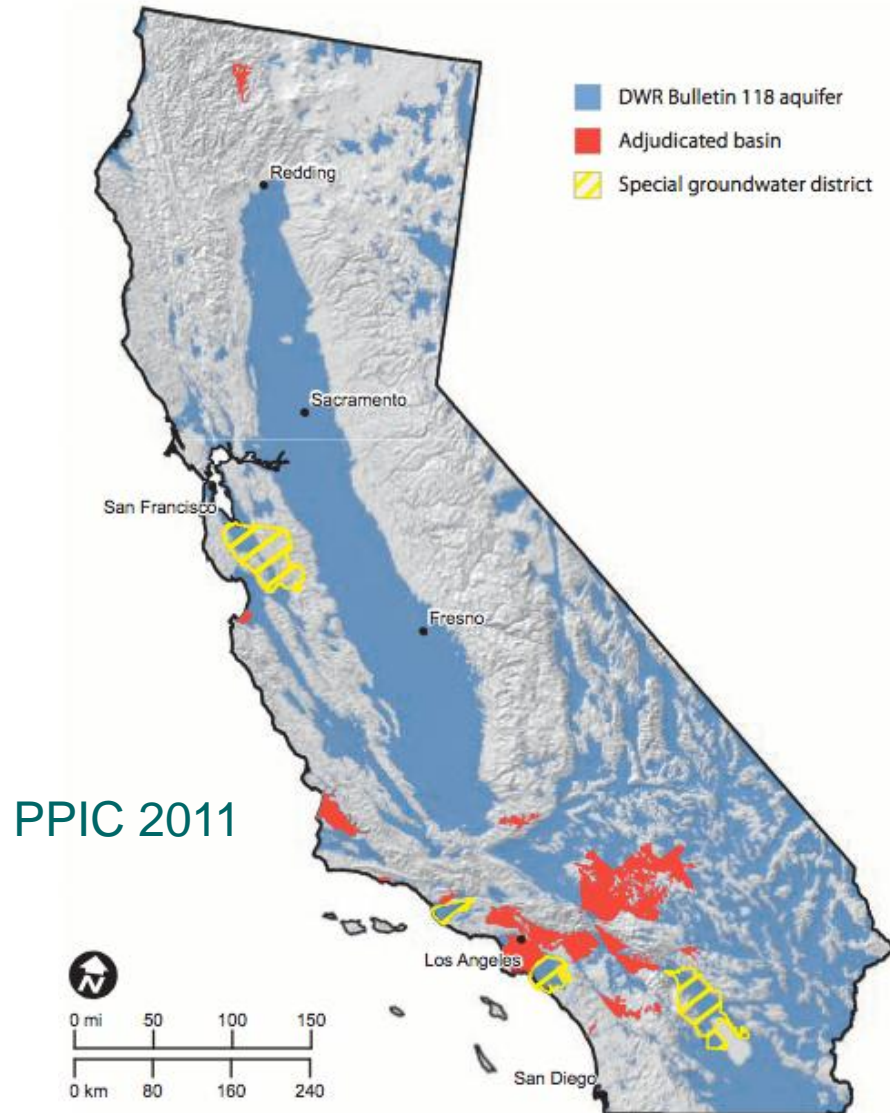
DWR 2013

Groundwater Management Plans

- 515 Groundwater Basins
- 61,900 square miles
- GWMP Coverage
- 119 Plans
- Area Coverage
- 25,900 square miles
- 42% of GW Basin area



Special Groundwater Districts & Adjudications



- 23 adjudicated basins
- 4 special groundwater districts

State of the State Water & Groundwater

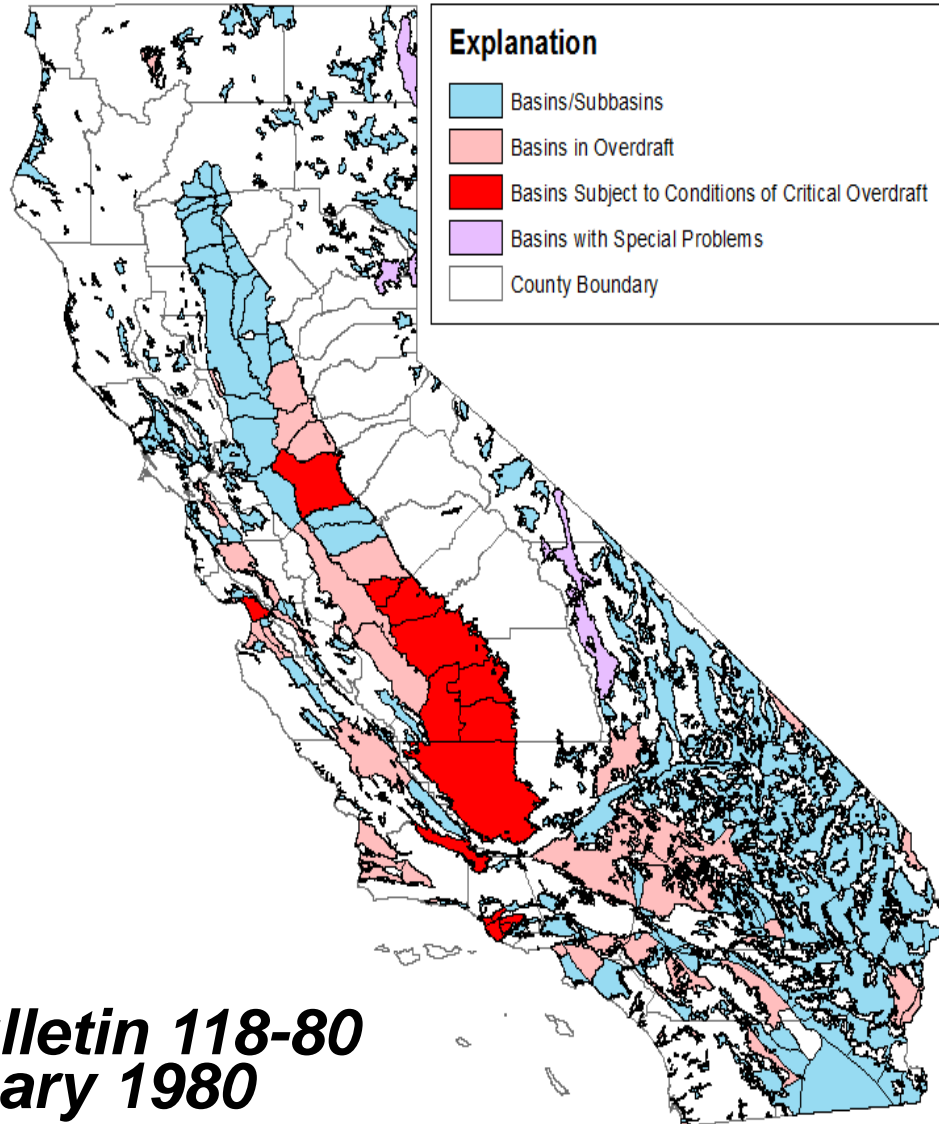
California Water Today



California's Growing Water Management Uncertainties

- Increasing demands – growing conflict between anthropogenic and ecologic water needs
- Climate Variability and Change
 - Periodic Droughts
 - Severe Floods
- More surface water storage limited
- Current major water infrastructure designed middle of the last century based on hydrology which was 'wet'
- Groundwater contamination growing
- Groundwater reservoirs still have great untapped potential
- Basins need to be refilled for a non-rainy day fund for future supply resiliency and reliability

Basins in Overdraft



***DWR Bulletin 118-80
January 1980***

Land Subsidence from Overdraft



- Began in the 1920's , and by 1970's
 - 0.3m exceeded over more than 13,500 km²
 - 8.5m locally
- Surface water deliveries with the completion of CVP Delta Mendota Canal in 1950's and SWP CA Aqueduct in 1970's and associated decrease in groundwater pumping and steady recovery of groundwater levels and compaction mitigated subsidence, but it was short-term
- Recent cutbacks on through-Delta deliveries due to increased environmental demands and droughts of 1976-77, 1987-1992, 2007-2009 and now have resulted in increased groundwater demands, increased declines in groundwater level and increasing compaction and subsidence

Legislative & Policy Initiatives

- Governor's Office of Planning and Research Activities
 - Depletion Discussions
- California Water Action Plan – Groundwater Actions
- State Water Resources Control Board Groundwater Management Workplan
- Move of Department of Public Health Drinking Water Program to SWRCB
- CASGEM Groundwater Basin Prioritization in Process
 - What's it Mean to You?
- SWRQCB Proposed **Budget Change Proposal** for Groundwater Resources Protection and Addressing Groundwater Depletion

Administration Actions to Improve Groundwater Management

- The Administration acknowledges the importance of state groundwater resources
 - *Drought has exacerbated groundwater situation*
- The Administration indicates time for a change –
 - ***Time to Fully Address Groundwater***
- The Administration is asking:
 1. What additional tools do local agencies need to help manage groundwater, and what barriers need to be overcome in areas where there are significant challenges; and
 2. At what time, and how, should the state step in when local agencies are not effectively managing groundwater resources?

Emergency Drought Legislation

- \$687.4 million to support drought relief
- Calls for the California Department of Public Health (DPH) to adopt new groundwater replenishment regulations by July 1, 2014, and for the State Water Resources Control Board and the DPH to work on additional measures to allow for the use of recycled water and storm water capture for increasing water supply availability
- Makes statutory changes to ensure existing water rights laws are followed, including streamlined authority to enforce water rights laws and increased penalties for illegally diverting water during droughts

Groundwater Management Bills

- **Assembly Bill 1739 - Dickinson**
 - Groundwater basin management; sustainability
 - Would require SWRCB
 - Establish a comprehensive monitoring program capable of assessing each groundwater basin in the state
 - Work with DWR to develop thresholds for sustainable management of priority groundwater basins
- **Senate Bill 1168 – Pavley**
 - Groundwater management plans
 - Would require local agency to establish water budget and sustainable yield

Administrative and Legislative Proposals - Where will we end up?

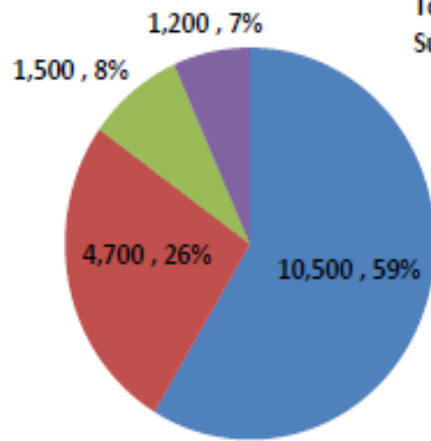


Sonoma Valley Groundwater Management Program



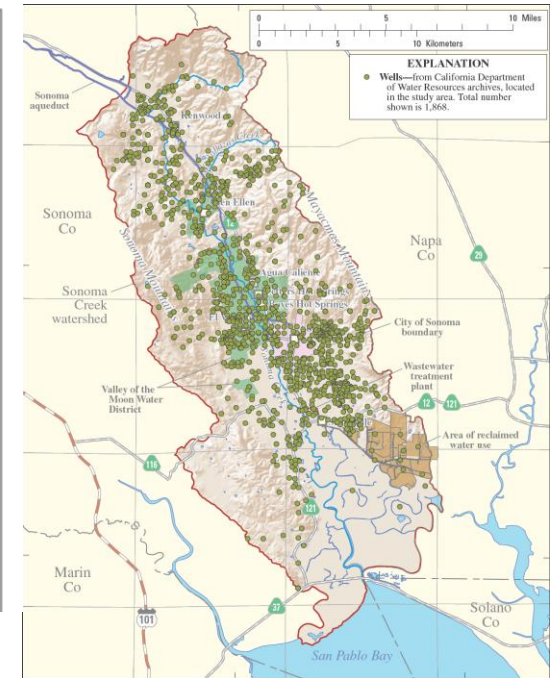
Sonoma Valley Water Use – Imported Water (26%) & Groundwater (59%) Play a Big Role

2012 Water Demands by Supply Sources (Acre-Feet)

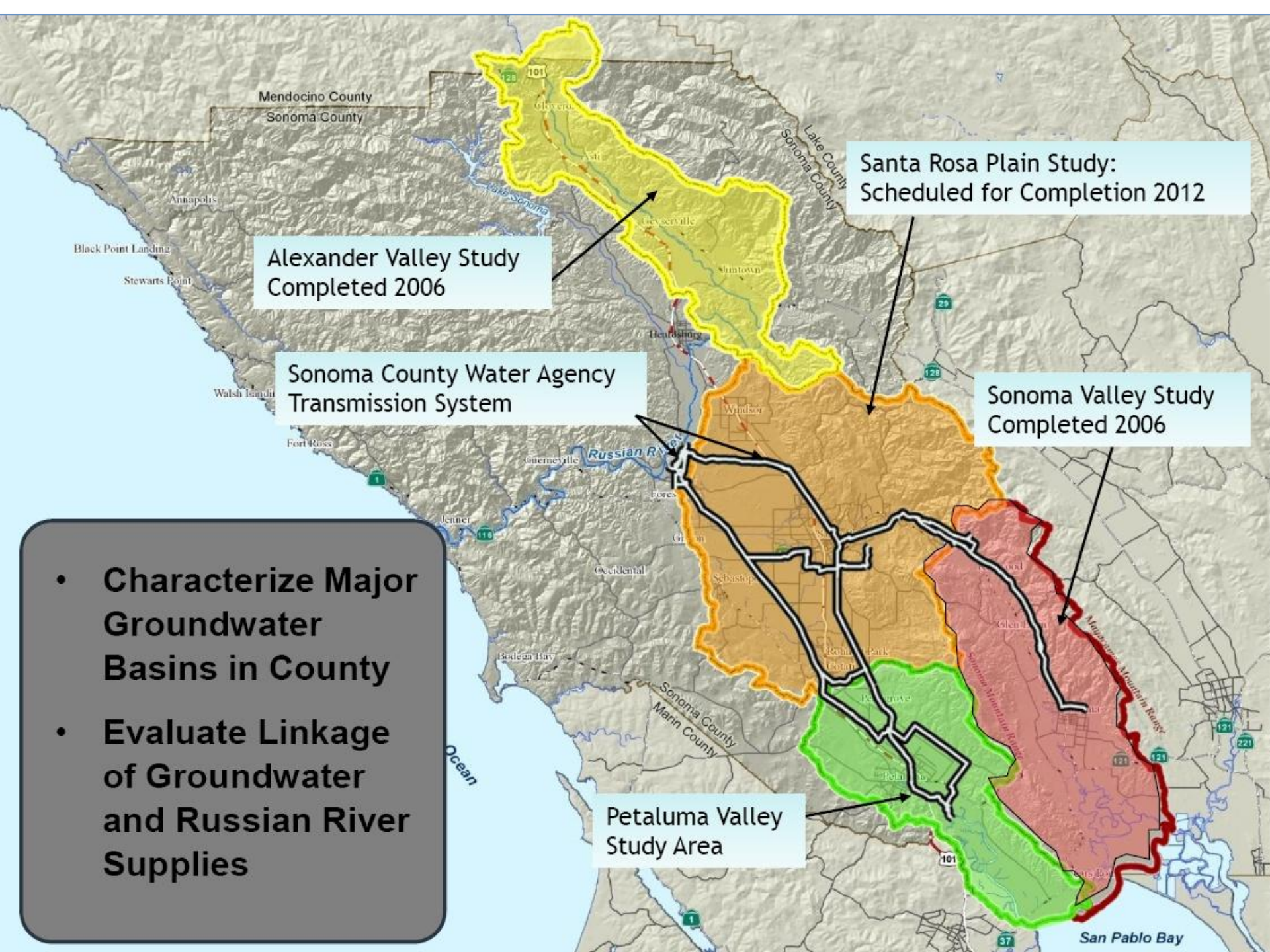


Total Estimated 2012 Water Supply of 17,900 Acre-Feet

- Local Groundwater
- Imported Water (Russian River)
- Local Surface Water
- Recycled Water



- Urban demand met mostly through imported Russian River water
- At least 2,200 permitted domestic and agricultural wells
- Recycled water (7%) & local surface water (8%)



Alexander Valley Study
Completed 2006

Sonoma County Water Agency
Transmission System

Santa Rosa Plain Study:
Scheduled for Completion 2012

Sonoma Valley Study
Completed 2006

Petaluma Valley
Study Area

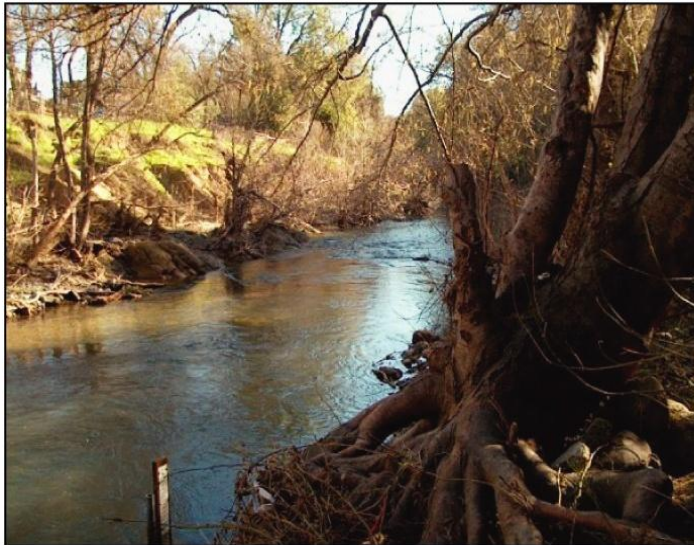
- Characterize Major Groundwater Basins in County
- Evaluate Linkage of Groundwater and Russian River Supplies

Water Agency/USGS Sonoma Valley Groundwater Study



In cooperation with the
SONOMA COUNTY WATER AGENCY

**Geohydrological Characterization, Water-Chemistry,
and Ground-Water Flow Simulation Model of the
Sonoma Valley Area, Sonoma County, California**



Scientific Investigations Report 2006-5092

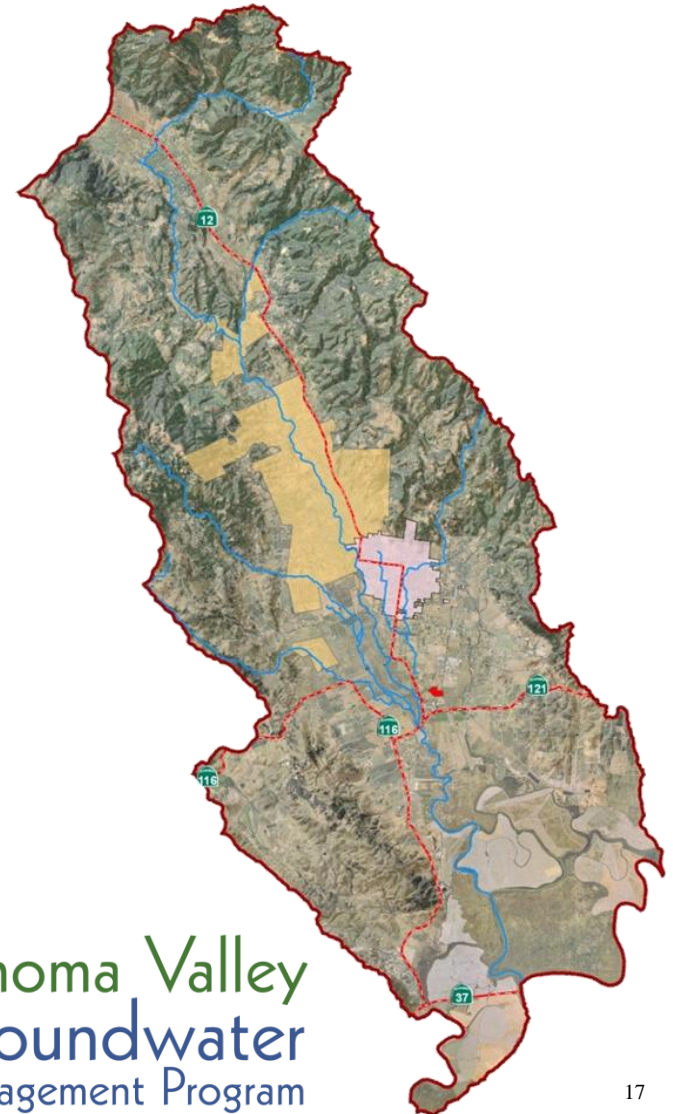
U.S. DEPARTMENT OF THE INTERIOR
U.S. GEOLOGICAL SURVEY

Key Findings:

- Increased pumping between 1975-2000
- Localized decline of groundwater levels
- Estimated storage decline of between 680 – 1,420 acre-ft per year
- Salinity issues in southern part of Valley
- Numerical Model - Evaluate data gaps & simulate future conditions

Overview of Sonoma Valley Groundwater Management Program

- Convened Stakeholder Group in June 2006
 - Agricultural alliances, environmental organizations, water purveyors, and residential groundwater users
- Groundwater Management Plan Adopted by Sonoma County Water Agency, City of Sonoma & Valley of the Moon Water District in Late 2007
 - Non-Regulatory and Collaborative Process
 - Letters of Support and Endorsement received from Mission Highlands Mutual Water Company, Sonoma County Water Coalition, Sonoma Ecology Center, and the Sonoma Valley Vintners & Growers Alliance
- Seventh Year of Implementation

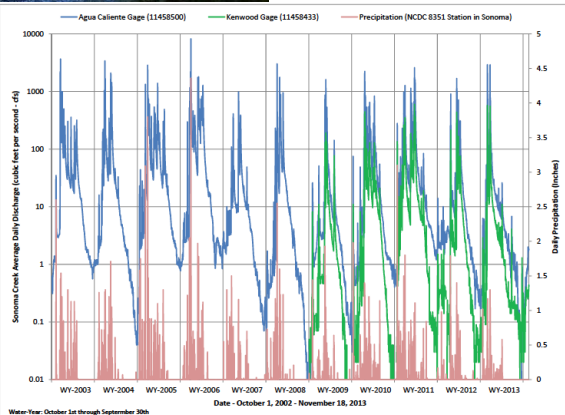
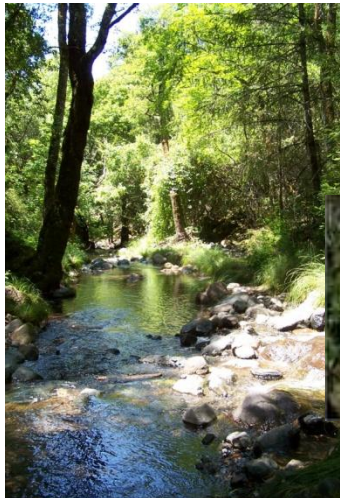


Basin Advisory Panel Recommended Management Strategies

- **CONSERVATION** of Urban, Non-Urban, & Agriculture
- **RECYCLED WATER** use to offset groundwater pumping
- **BANKING** Russian River water to recharge groundwater basin
- **STORMWATER** to recharge groundwater

Program Activities

Groundwater-Level and Streamflow Monitoring



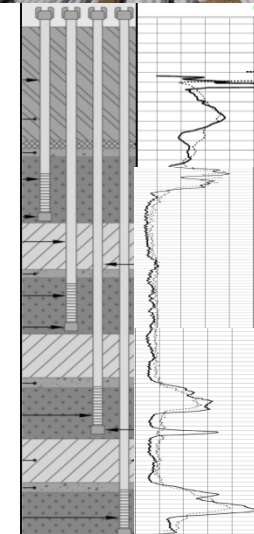
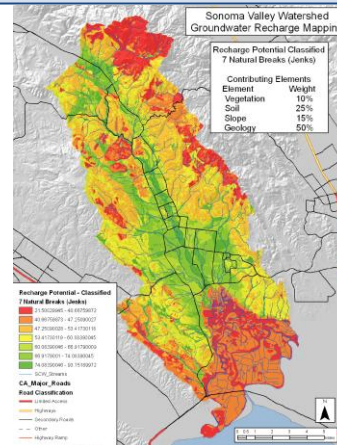
Involvement of Community Stakeholders



Monitoring Well Construction & Data Collection



Groundwater Recharge Mapping



Accomplishments to Date

- Stakeholder Involvement
 - Outreach and briefings
 - Communications
 - Media
- Monitoring Program
 - Coordinated data collection
 - Groundwater Levels
 - Focused Studies
 - High-Frequency Level Monitoring
 - Stream-gaging
 - Streamflow/Groundwater Interaction Monitoring
 - Rainfall Monitoring
 - New well installations
- Groundwater Sustainability
 - Stormwater Management Guide
 - Groundwater recharge mapping
 - Visits to possible recharge sites
 - Rural area water conservation assessments
 - Water conservation awards program
 - Recycled water enhancements
 - Stormwater management/groundwater recharge study
 - Groundwater Banking Feasibility Study
 - Groundwater Model Update

Partnerships: Recent State & Federal Funding

Recent Grants and Direct Funding for Sonoma Valley

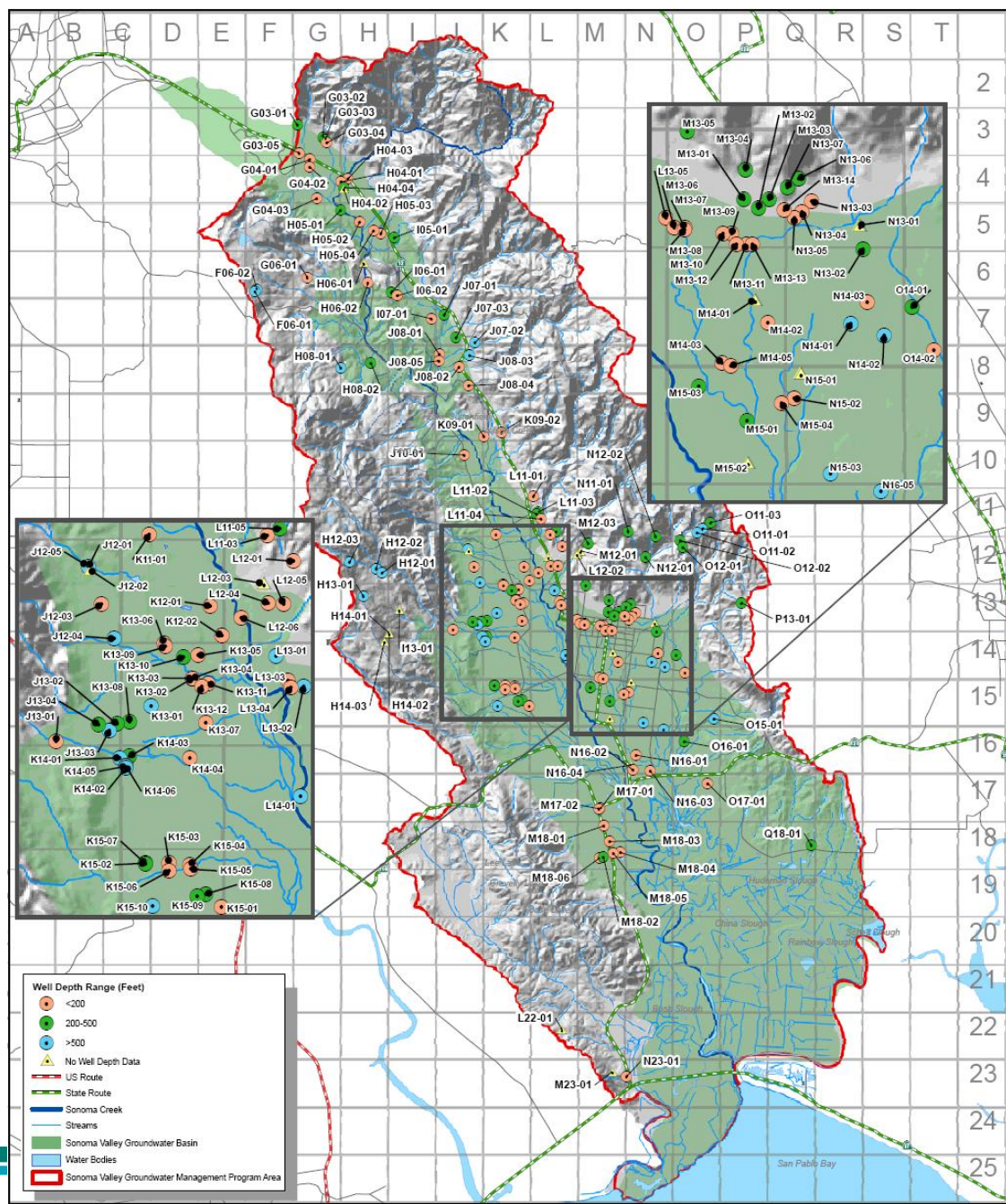
- Recycled Water >\$5M
- Conservation >\$0.2M
- Groundwater >\$1.3M
- Stormwater ~\$2M

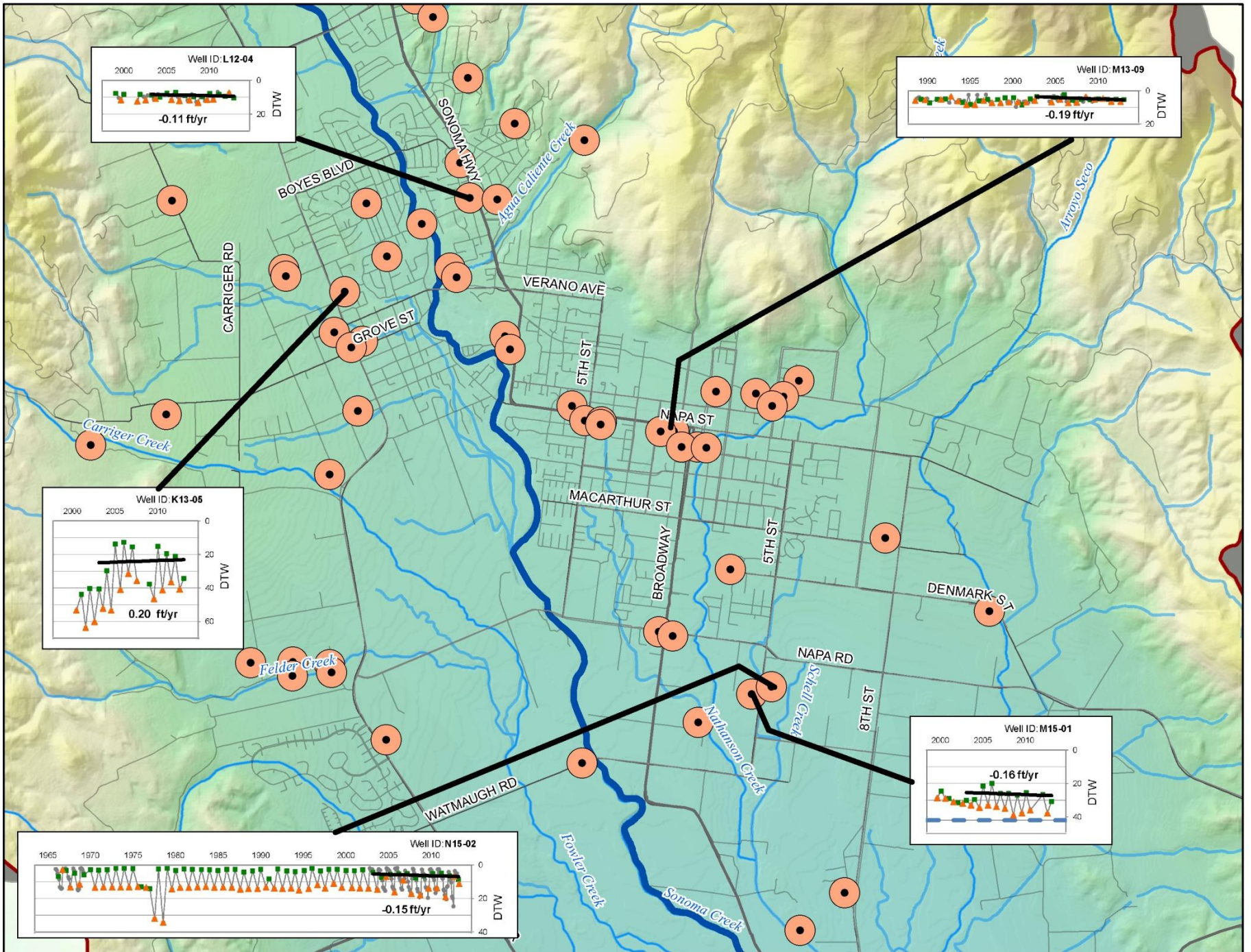
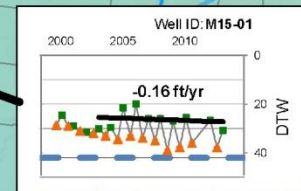
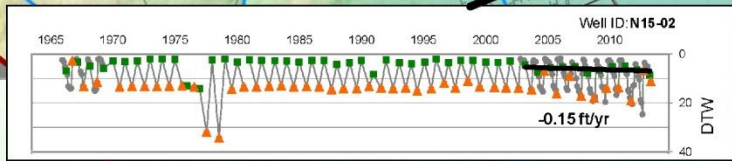
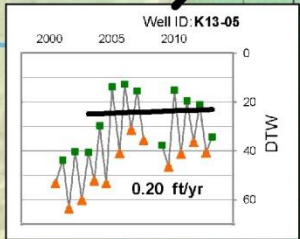
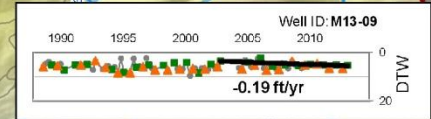
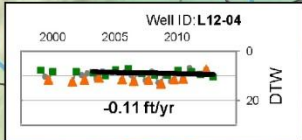
Funding of Groundwater Studies & Management

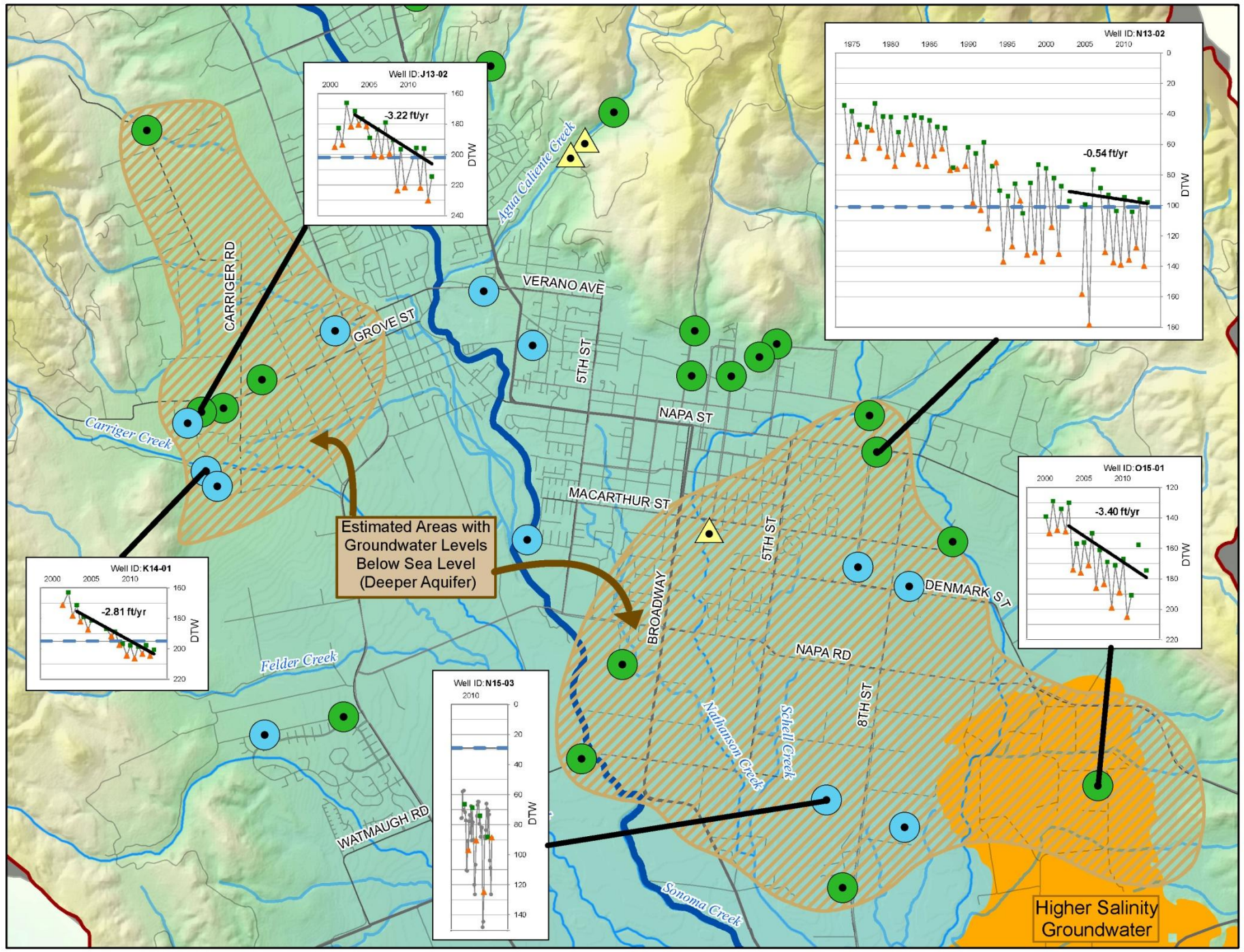
- SCWA & SVCSD \$1.215M
- Federal \$0.5M
- State \$0.425M
- City & VOMWD \$0.26M
- County & Open Space \$0.15M

Voluntary Groundwater-Level Monitoring

- **80** - New Wells since 2007
- **140** - Wells with Synchronized Monitoring
- Groundwater Levels Only
- Track and Assess Seasonal and Long-term Trends



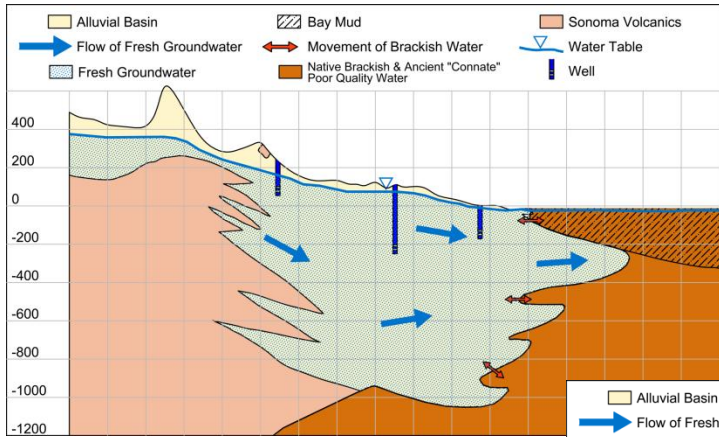




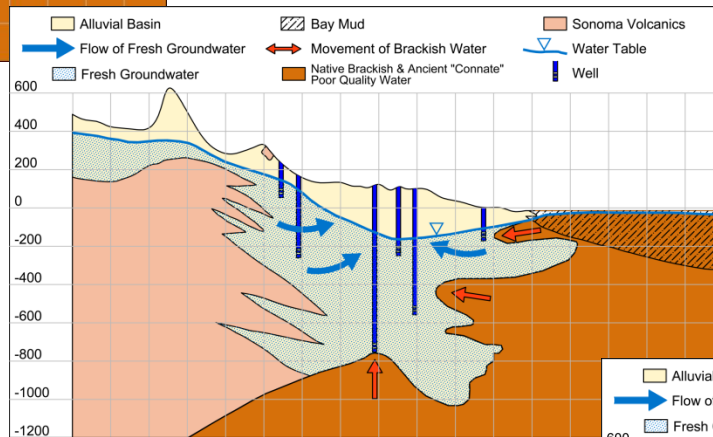
Estimated Areas with Groundwater Levels Below Sea Level (Deeper Aquifer)

Higher Salinity Groundwater

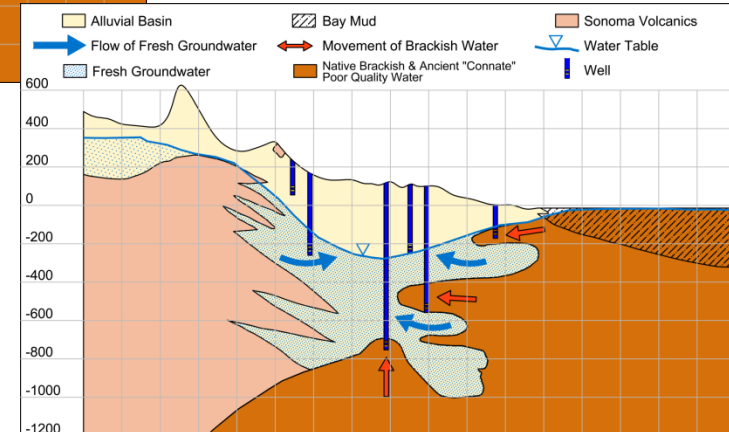
The Concern with Groundwater Declines and Salinity Intrusion



1950 Before Extensive Pumping

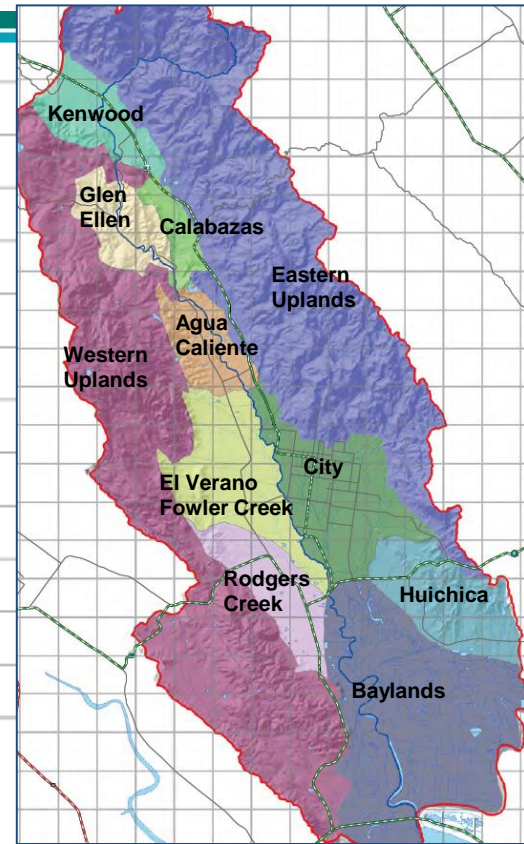
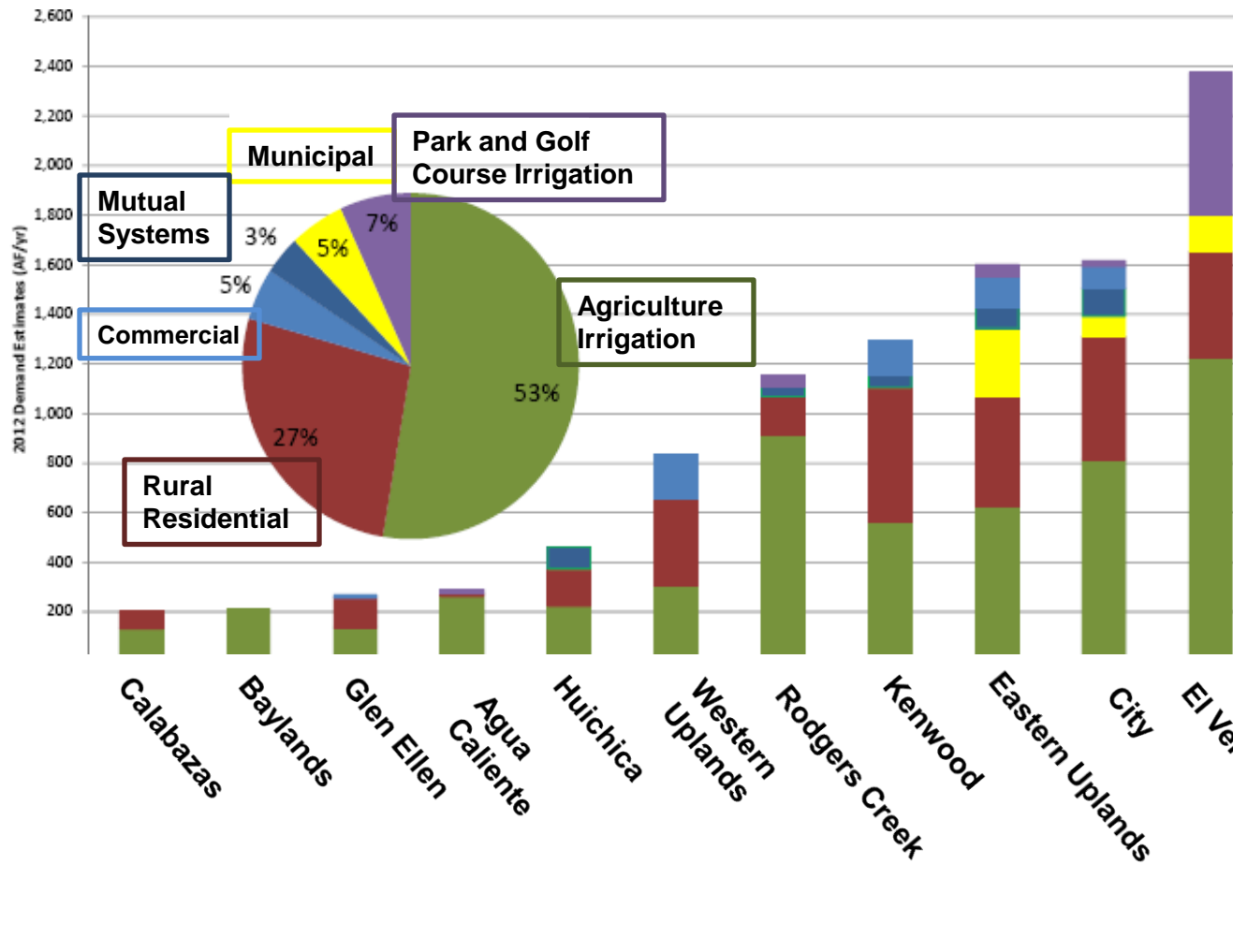


Today >100 feet of Groundwater Decline



Future With No Action?

Groundwater Use in Sonoma Valley



Groundwater Management Plan 5 Year Review

- Sets course of management plan for next 5 years.
- Does current plan adequately address groundwater issues (e.g., depletion zones & salinity)?
- Data & analysis presented in 5 year review indicates plan needs to be modified to address issues
- Public education & stakeholder effort (Alternatives Analysis) to review existing objectives & management programs to determine changes to plan
- Next step – Report goes to Water Agency Board mid-April



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