

Groundwater Work Plan: Related Groundwater Monitoring Programs

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State Water Resources Control Board



Summary of Programs

- AB 2222 – Communities That Rely on a Contaminated Source for Drinking Water
- SBX2 1 – Recommendations Addressing Nitrate in Groundwater
- SB 4 – Groundwater Monitoring Program for Oil and Gas Production Areas

Groundwater Used for Drinking Water

- 95 percent receive drinking water from a public water supply:
 - Groundwater is a major source (85%)
 - Nearly all delivered water is in full compliance with CDPH drinking water standards
- 5 percent obtain drinking water from either a private domestic well or other small system (not regulated - < 15 connections)
 - Quality of groundwater is most often unknown and the only source of drinking water

AB 2222

- Required the Water Board to identify:
 - Communities that rely on contaminated groundwater as a primary source of drinking water
 - Principal contaminants and other constituents of concern affecting that groundwater and contamination levels
 - Potential solutions and funding sources to clean up or treat groundwater, or to provide alternative water supplies, to ensure the provision of safe drinking water to those communities

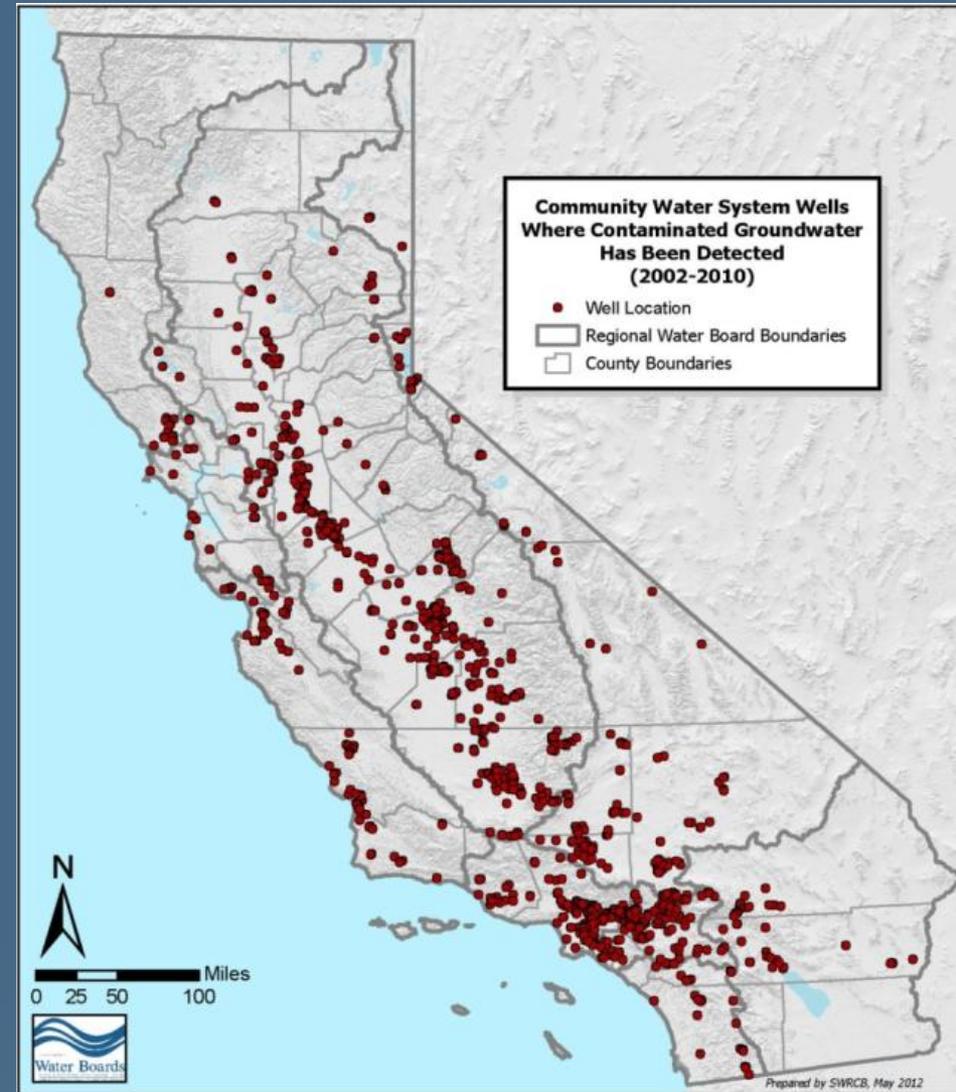
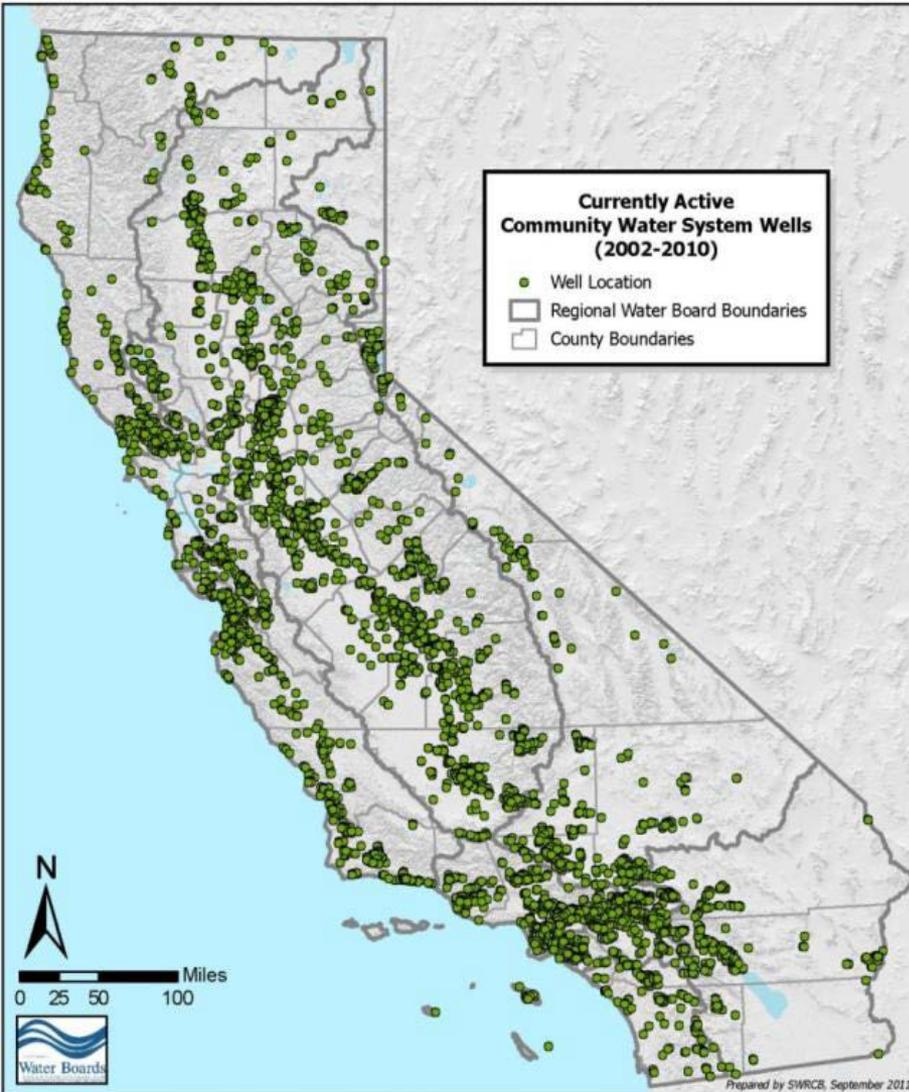
AB 2222 Approach

- Evaluated CDPH community water system water quality data
- Evaluated data for most recent CDPH compliance cycle
 - 2002 to 2010
- Looked at raw water quality from active wells
- All data used is available on GeoTracker GAMA information system
- Private domestic wells and other smaller systems were not included due to lack of available data

Summary of Findings

Community Water Systems in California	3,037
Groundwater Reliant Community Water Systems (at least one well)	2,584
Groundwater Reliant Community Water Systems with a Principal Contaminants*	680
Number of Identified Principal Contaminants	31

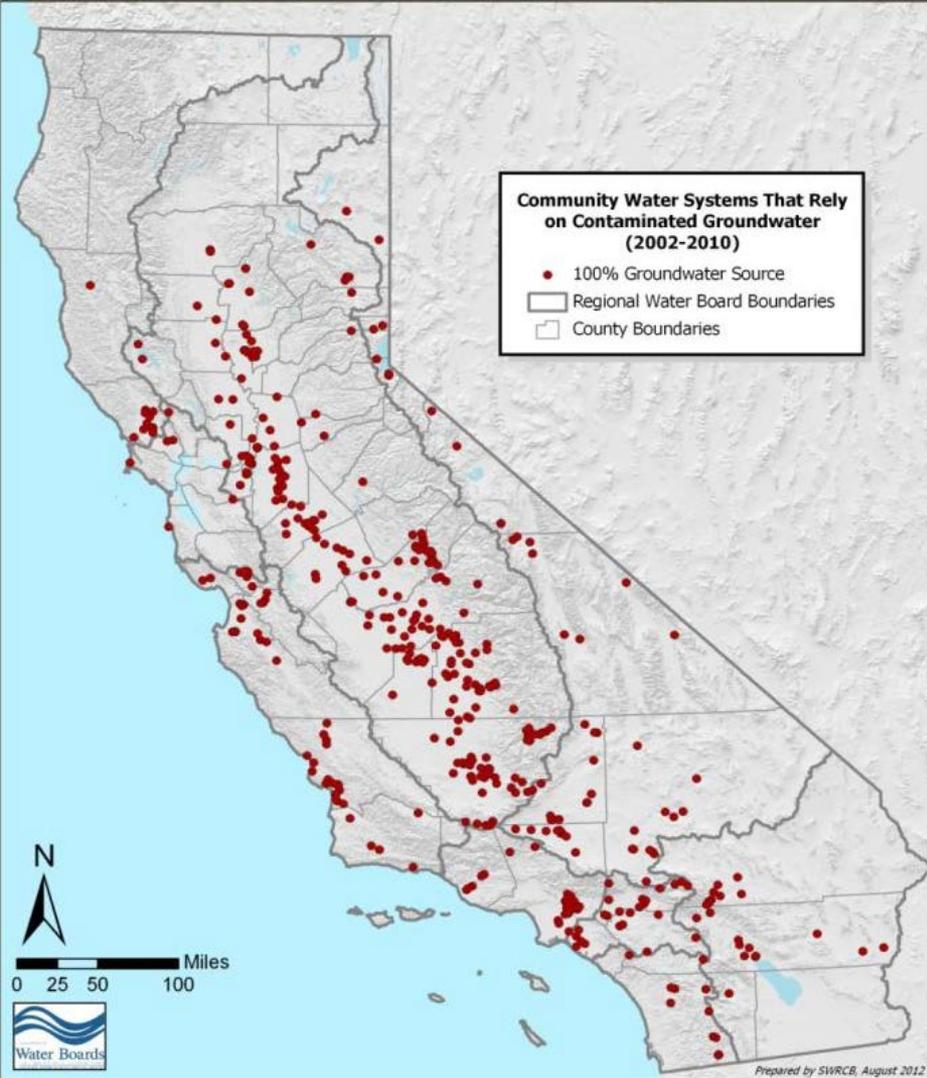
* Two detections above MCL, not necessarily water served



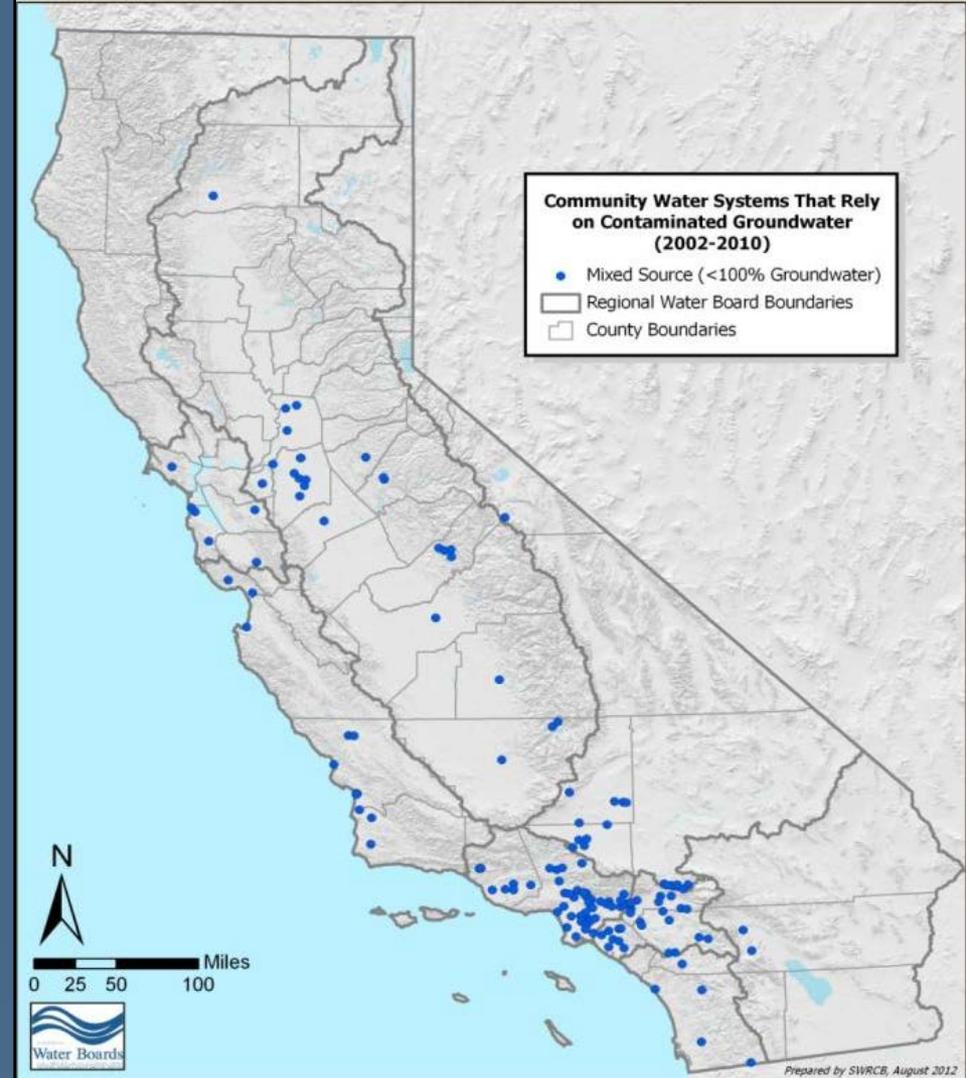
2,584 Groundwater Reliant Community Water Systems (8,396 Wells)

680 Community Water Systems that Rely on Contaminated Groundwater* (1,659 Wells)

* Two detections above MCL, not necessarily water served



100% Reliant on Groundwater
(506 Systems)

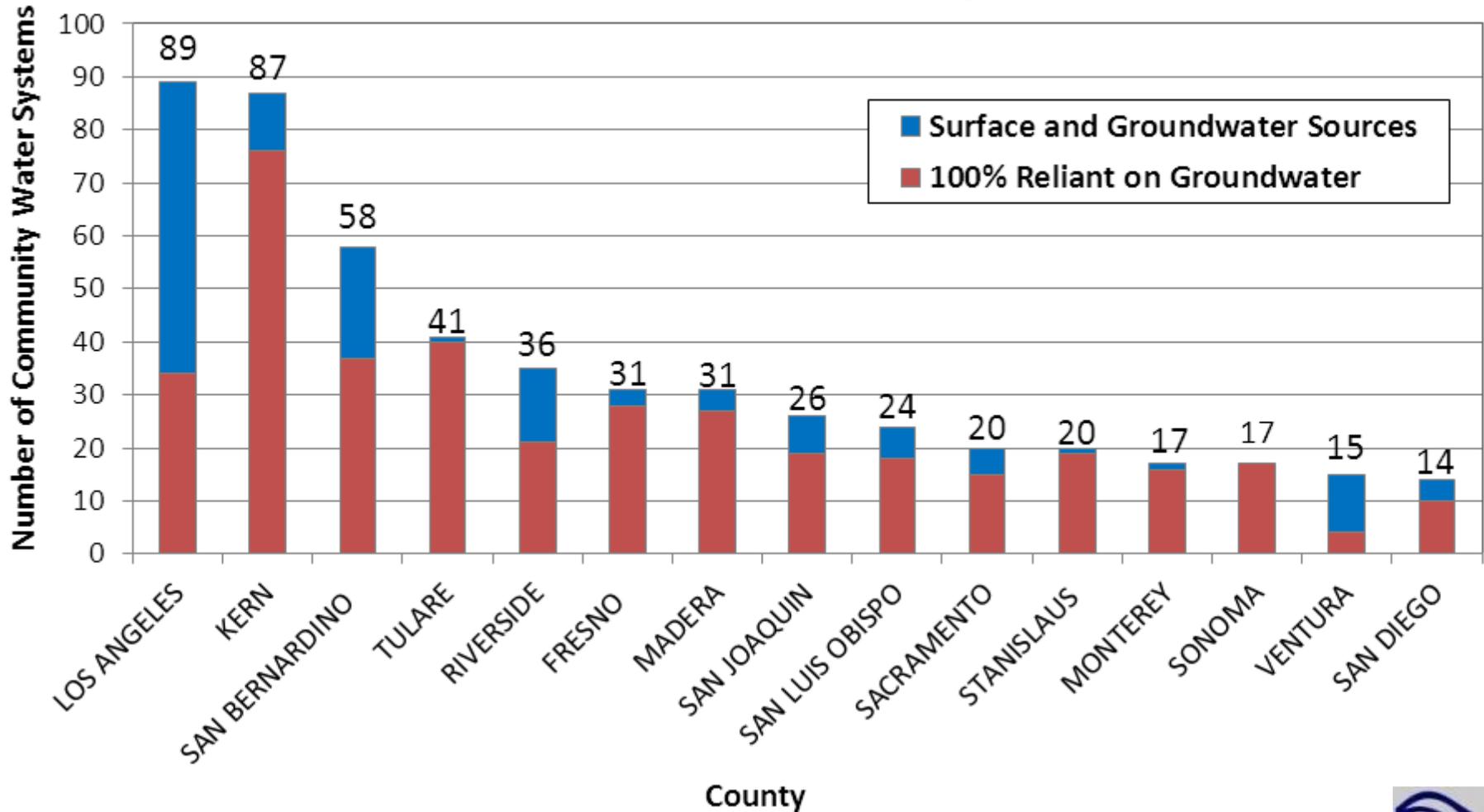


Mixed Source
(174 Systems)

Groundwater Use in the 680 Community Water Systems That Rely on Contaminated Groundwater

Top 15 Counties: Number of Community Water Systems that Rely on Contaminated Groundwater

Community Water Systems That Rely on Contaminated Groundwater as a Primary Source of Drinking Water

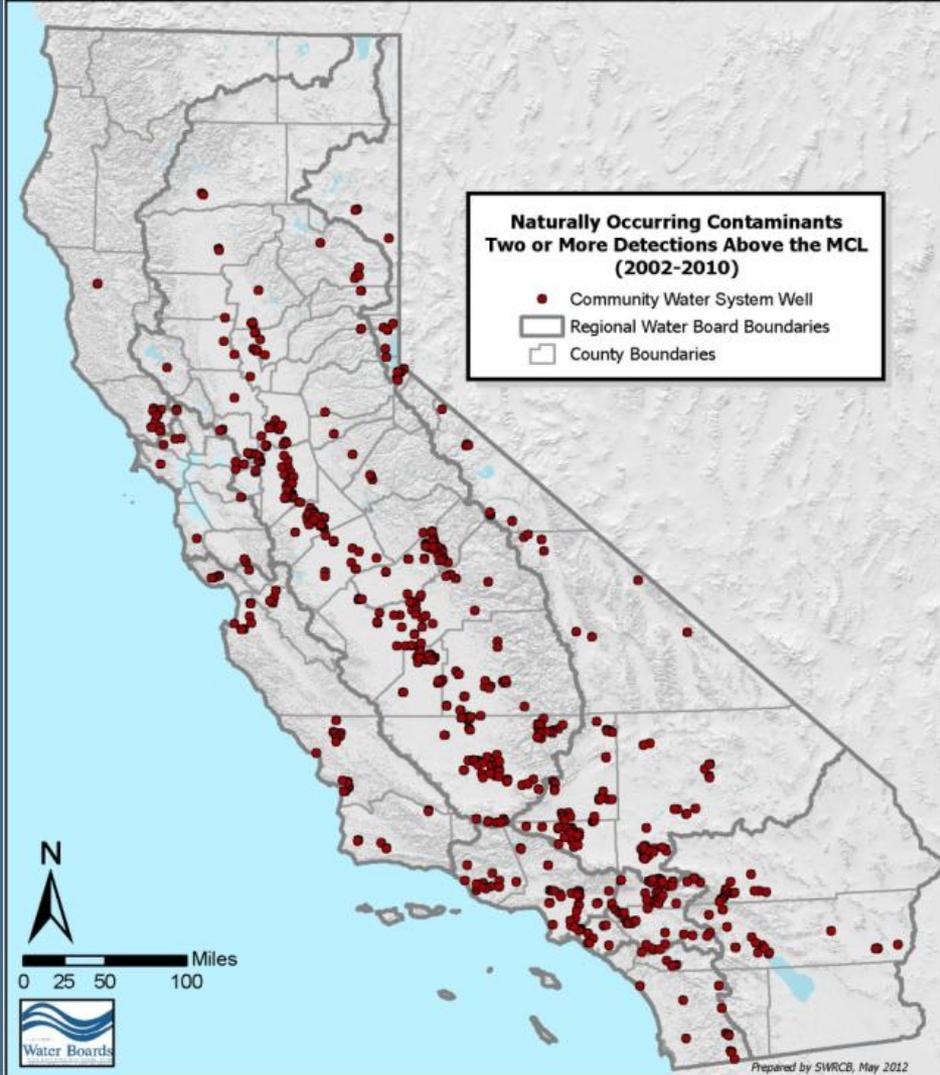


Overview of Contaminants

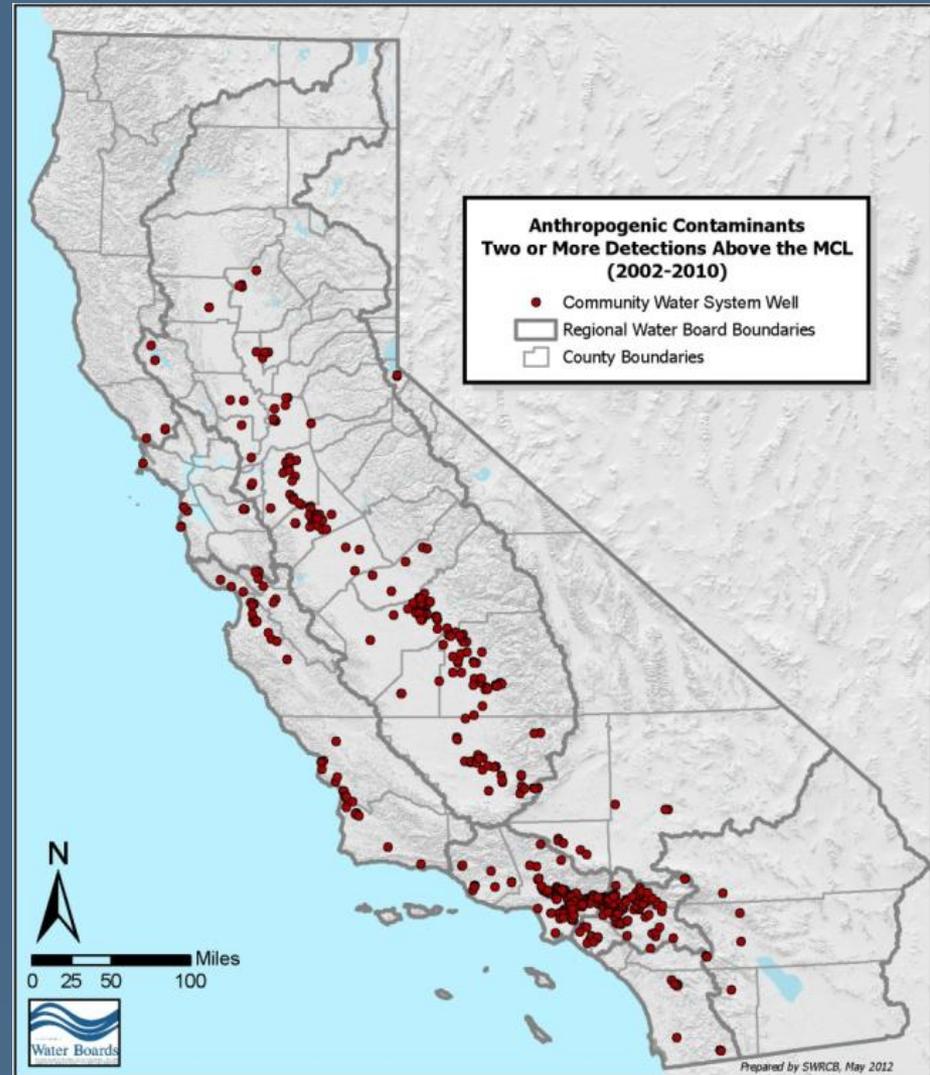
Ten Most Frequently Detected Principal Contaminants in Groundwater

Prin. Contaminant	No. of Wells/No. of CWS	Type of Contaminant
Arsenic	587/287	Naturally occurring
<u>Nitrate</u>	451/205	Anthropogenic nutrient*
Gross alpha activity	333/182	Naturally occurring
Perchlorate	179/57	Industrial/military use*
Tetrachloroethylene (PCE)	168/60	Solvent
Trichloroethylene (TCE)	159/44	Solvent
Uranium	157/89	Naturally occurring
1,2-dibromo-3-chloropropane (DBCP)	118/36	Legacy pesticide
Fluoride	79/41	Naturally occurring
Carbon tetrachloride	52/17	Solvent

* Also can be naturally occurring, but typically at levels below maximum contaminant level



**Naturally Occurring
Contaminants**



**Anthropogenic
Contaminants**

AB 2222 Take Home Messages

- Nearly all Californians get safe drinking water
- Groundwater quality is an issue for 680 community water systems
 - Majority are 100% reliant on groundwater
 - Most can treat their water
- Findings do not necessarily reflect the quality of water that is served to the public, since many community water systems treat their water prior to delivery

AB 2222 Take Home Messages

- Treatment is costly and alternative water supplies may not be available - smaller water systems and communities face bigger challenges
- In some cases contaminated water is served to the public until a solution is implemented
 - Treatment is unaffordable
 - Alternative water sources are not available
- There is a lack of water quality data for private domestic wells and other small unregulated systems (< 15 connections)

SBX2 1 – Recommendations for Nitrate in Groundwater

- Required development of “pilot projects” focusing on nitrate in groundwater in the Tulare Lake Basin and Salinas Valley and to submit a report to the Legislature on the scope and findings, including recommendations.
- SWRCB entered into agreement with UC Davis in 2010; UC Davis Report - March 2012.

Nitrate Pilot Study Key Findings

- Nitrate problems in groundwater will likely worsen for several decades.
- Agricultural fertilizers and animal wastes applied to cropland are the largest regional sources of nitrate in groundwater.
- Direct remediation of large groundwater basins is extremely costly and not technically feasible.
- Lack of groundwater data prevents effective and continuous assessment of this problem. A statewide effort is needed to integrate water-related data collection activities by many state and local agencies.

SBX2 1 - Water Board Recommendations Overview

- 15 recommendations based on input from UCD Report, public workshop, CDFA, Regional Boards, CDPH, GO Stakeholders
- Recommendations focus on:
 - Providing Safe Drinking Water
 - Monitoring, Assessment, and Notification
 - Nitrogen Tracking and Reporting
 - Protecting Groundwater

SBX2 1 - Early Implementation Actions

Early focus and action will be on the following recommendations:

- Identify nitrate high-risk areas to prioritize regulatory oversight and assistance efforts
- Convene a Task Force to identify outcomes and benefits of a nitrogen mass balance tracking system in nitrate high-risk areas (CDFA w/Water Boards input)
- Continue to provide technical assistance to CDFA in establishing a nitrogen management training and certification program
- Convene a panel of experts to assess existing agricultural nitrate control programs to ensure that ongoing efforts are protective of groundwater quality
- Evaluate all existing WDRs in nitrate high-risk areas

SB 4 – Oil and Gas Production Areas Groundwater Monitoring

- Becomes effective on January 1, 2014.
- Requires DOGGR to adopt rules and regulations specific to well stimulation (includes hydraulic fracturing)
 - Final regulations in place by January 1, 2015
 - Emergency interim regulations in place by January 1, 2014
- Oil and Gas Operators must submit groundwater monitoring plan with permit application
- Property owners within 1,500 feet of well to be stimulated may request to have their well or surface water tested

SB 4 – Oil and Gas Production Areas Groundwater Monitoring

- Requires Water Boards to:
 - Consult with DOGGR during development of DOGGR regulations.
 - Designate qualified third-party contractors to perform property owner requested water sampling.
 - Audit and review sampling and testing conducted by the third-party contractor(s)
 - Develop model criteria for groundwater monitoring by July 1, 2015.
 - Implement a regional groundwater monitoring program by January 1, 2016 – larger scale regional monitoring of oil and gas production areas

Summary of Identified Groundwater Monitoring Needs

➤ AB 2222 -

- Principal Contaminants are an issue for Community Water Systems in CA
- Most can treat their water
- Some communities serve contaminated water until a solution has been found
- Private domestic well and small unregulated water system quality is largely unknown

Summary of Identified Groundwater Monitoring Needs

➤ SBX2 1 –

- Nitrate will continue to be a large scale problem for decades
- Need to focus on providing safe drinking water
- Continued monitoring for nitrate in groundwater is needed to effectively address this issue

Summary of Identified Groundwater Monitoring Needs

➤ SB 4 –

- Public concern has lead to legislation requiring regulation of well stimulation activities – including groundwater monitoring
- Water Boards will develop model criteria for groundwater monitoring and implement a regional scale monitoring program by January 1, 2016.

Questions?

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