

**IMPLEMENTATION OF AB 2222:
PRINCIPAL CONTAMINANTS AFFECTING
CALIFORNIA'S GROUNDWATER
USED FOR DRINKING WATER**

State Water Board Meeting
October 4, 2011
Item #7

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GAMA Program
State Water Resources Control Board



Presentation Overview

- AB 2222
- Summary of Findings
- Detailed Findings
- Take Home Messages

AB 2222

- Assembly Bill 2222 (Cal. Wat. Code § 10782, Stats. 2008, ch. 670)
- Requires 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

Groundwater Use in California

- 95% of Californian's get their drinking water from a public supply
 - Groundwater is a major source
- 5% of Californian's get their drinking water from: Private domestic wells and other "small" systems
 - Groundwater is typically the only source

Summary of Findings

- 98% of those served by public supply are delivered water that is in full compliance with CDPH drinking water standards
- 85% of those served by public supply rely on groundwater for at least part of their drinking water
 - 10% of these have been out of compliance at some point from 2002-2010
- Contaminated groundwater is typically treated for public supply
 - Some are served contaminated drinking water until a solution is found and funding is implemented

Summary of Findings (*cont.*)

- Treatment is costly and alternative water supplies may not be available
- Solutions to address contaminated groundwater supply are well known:
 - Pollution Prevention
 - Groundwater Cleanup
 - Provide clean drinking water
- Data gaps exist: water quality for private domestic wells and “small” systems; bacteria data from wells

Approach

- CDPH and State Water Board staff conducted a comprehensive evaluation of CDPH water quality data
 - All of the evaluated data is publicly available on GeoTracker GAMA
- Data evaluated from 2002 to 2010 – Most recent CDPH compliance cycle
- Also examined MCL compliance violation data
- Evaluated funding sources
- Researched potential solutions

Definitions

- **“Community”** is a “Community Public Water System”
 - At least 15 connections or serves the same 25+ people year-round
 - Communities that do not have readily available electronic data are not included: private domestic wells and “small” systems

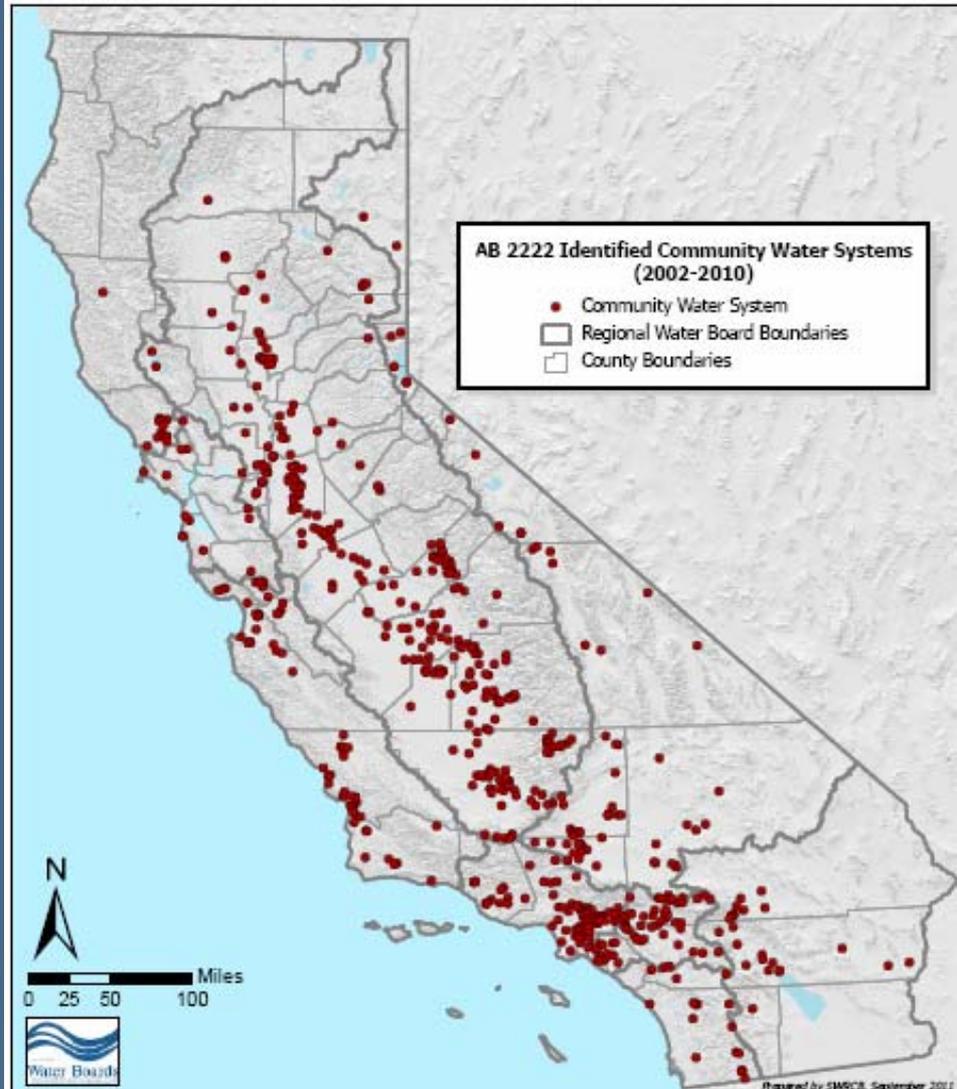
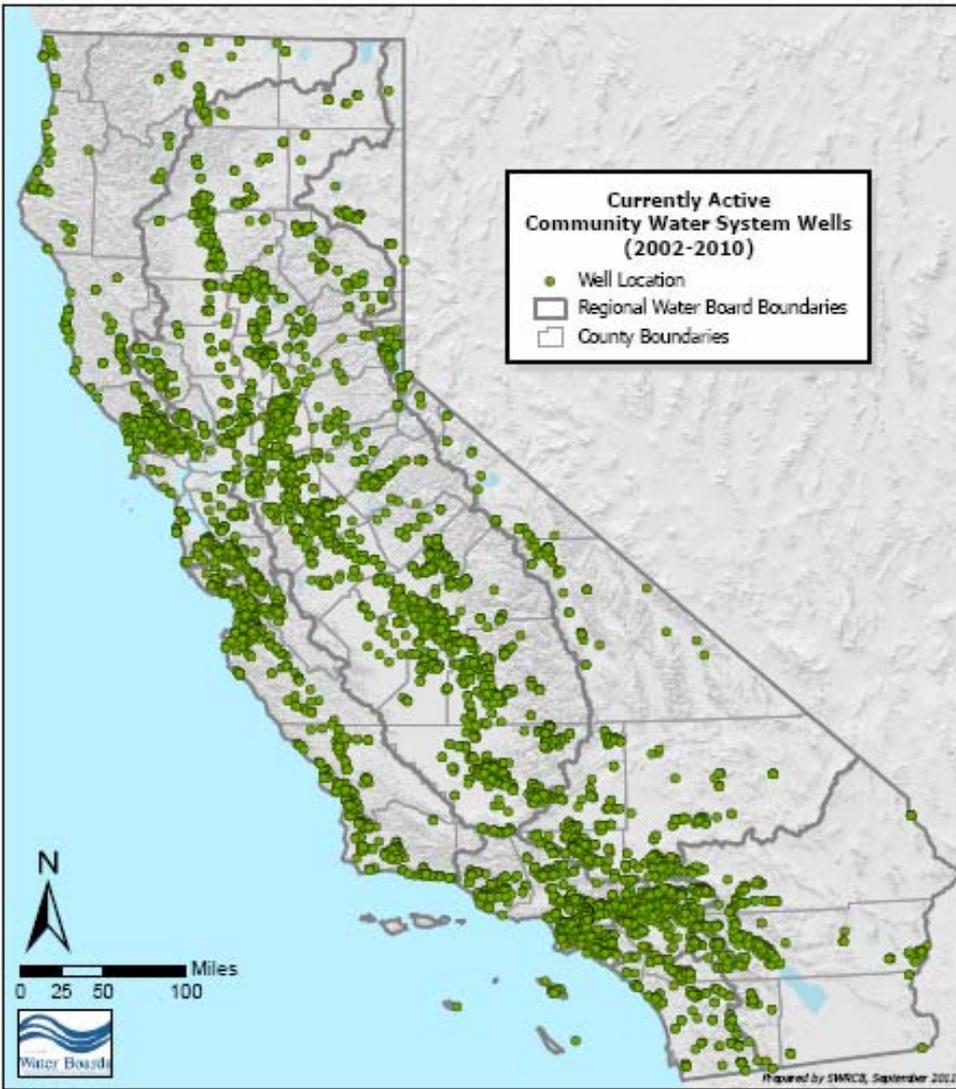
- **“Groundwater Reliant Community”** has at least one active groundwater source (well) as part of its drinking water supply.

Definitions

- A “**Principal Contaminant**” is a chemical detected above a Maximum Contaminant Level (MCL) two or more times between 2002 and 2010.

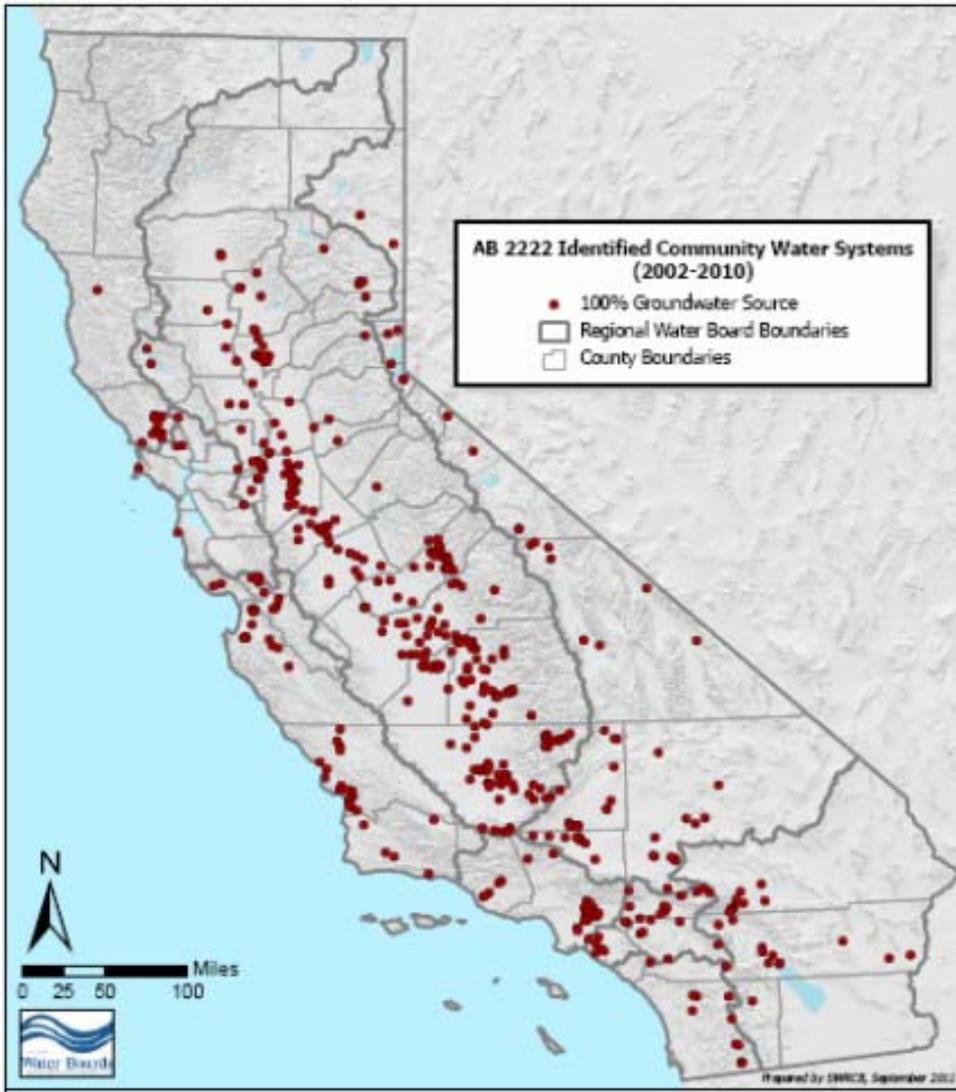
- A “**Community that Relies on Contaminated Groundwater**” has at least one well where a principal contaminant has been detected.
 - A community only needs to have one well with principal contaminants to meet this definition.
 - Referred to as:
“Identified Community Water Systems”

<u>Community Water System Type</u>	<u>Count</u>
Community Water Systems in California	3,035
Groundwater Reliant Systems	2,584
Identified Community Water Systems (with Principal Contaminants)	682

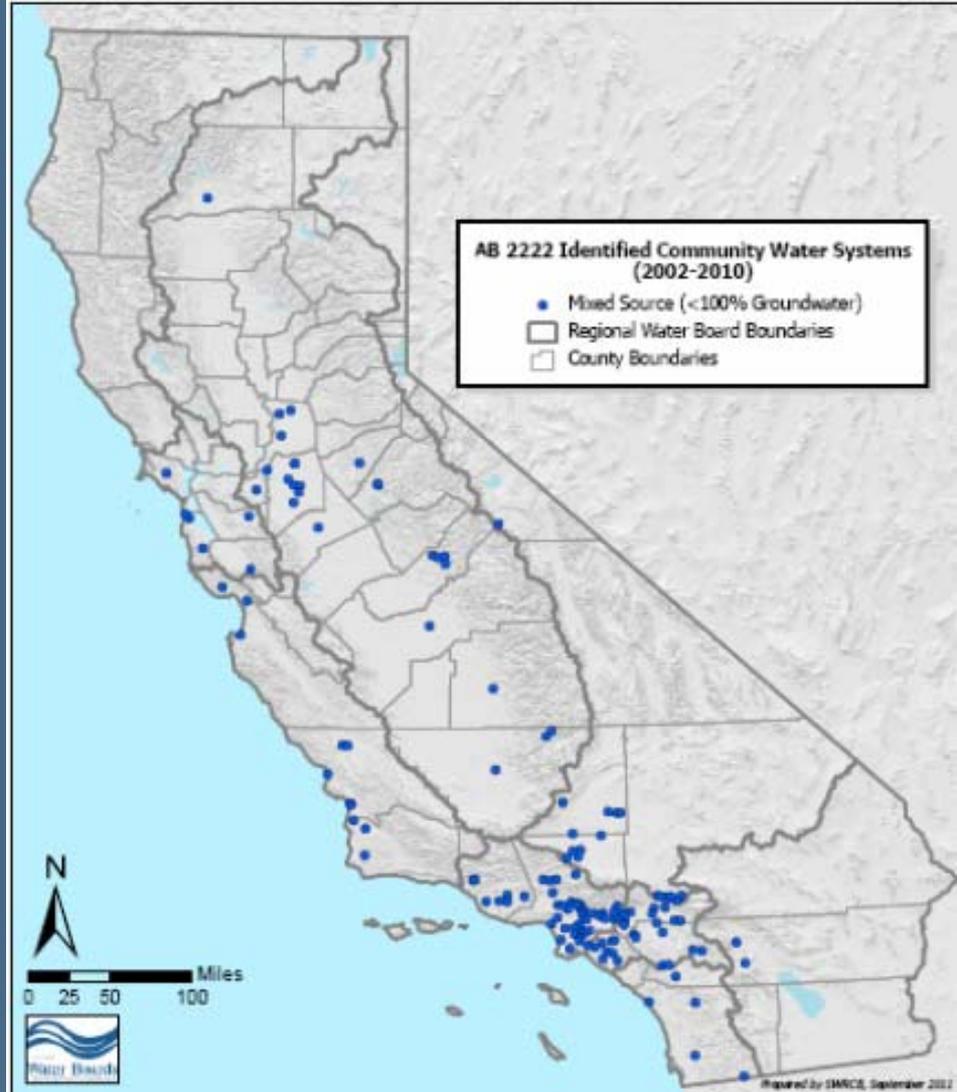


**2,584 Groundwater Reliant
Community Water Systems
(8,396 Wells)**

**682 Identified Community Water
Systems
(1,662 Wells)**



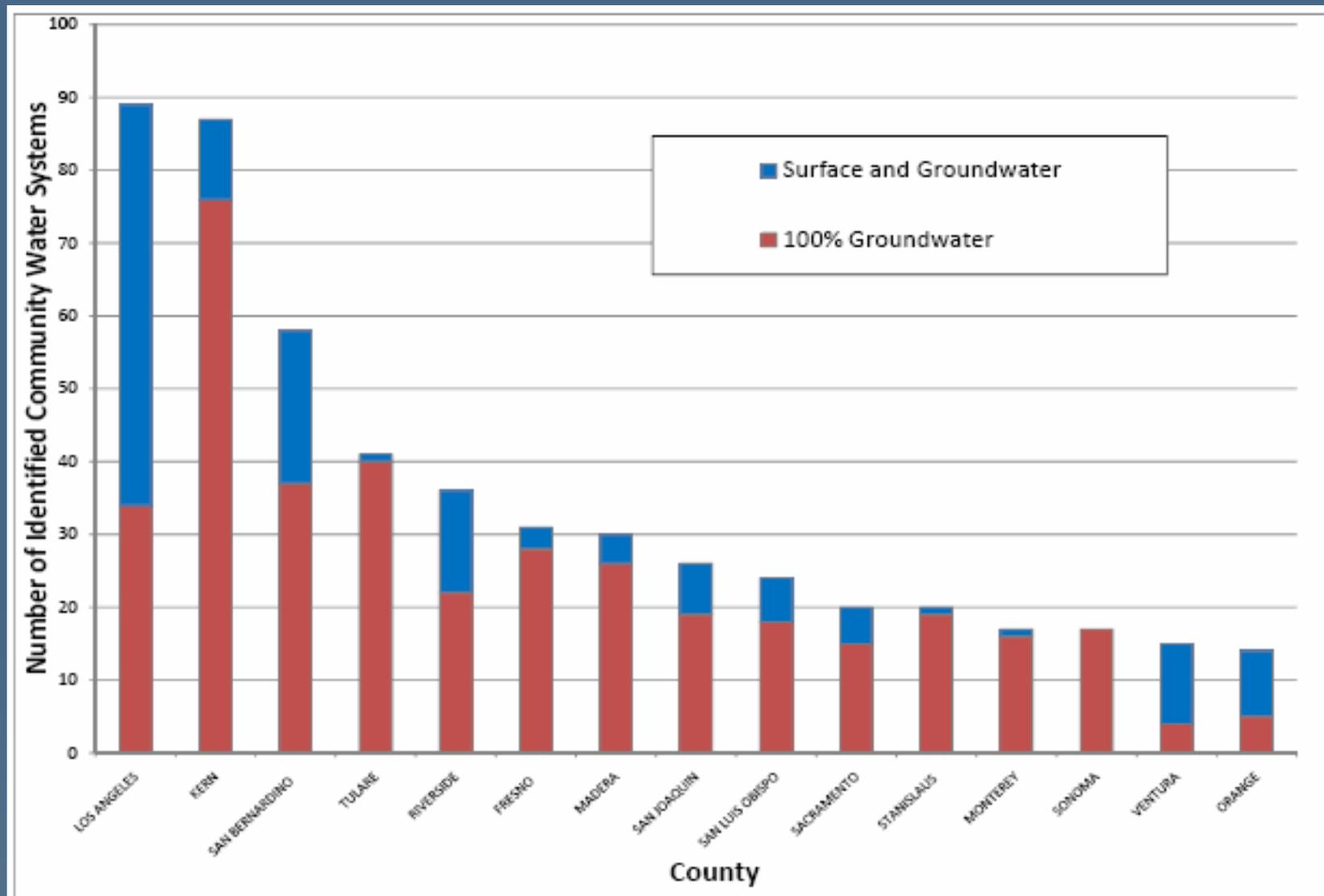
100% Reliant on Groundwater
(508 Systems)



Mixed Source
(174 Systems)

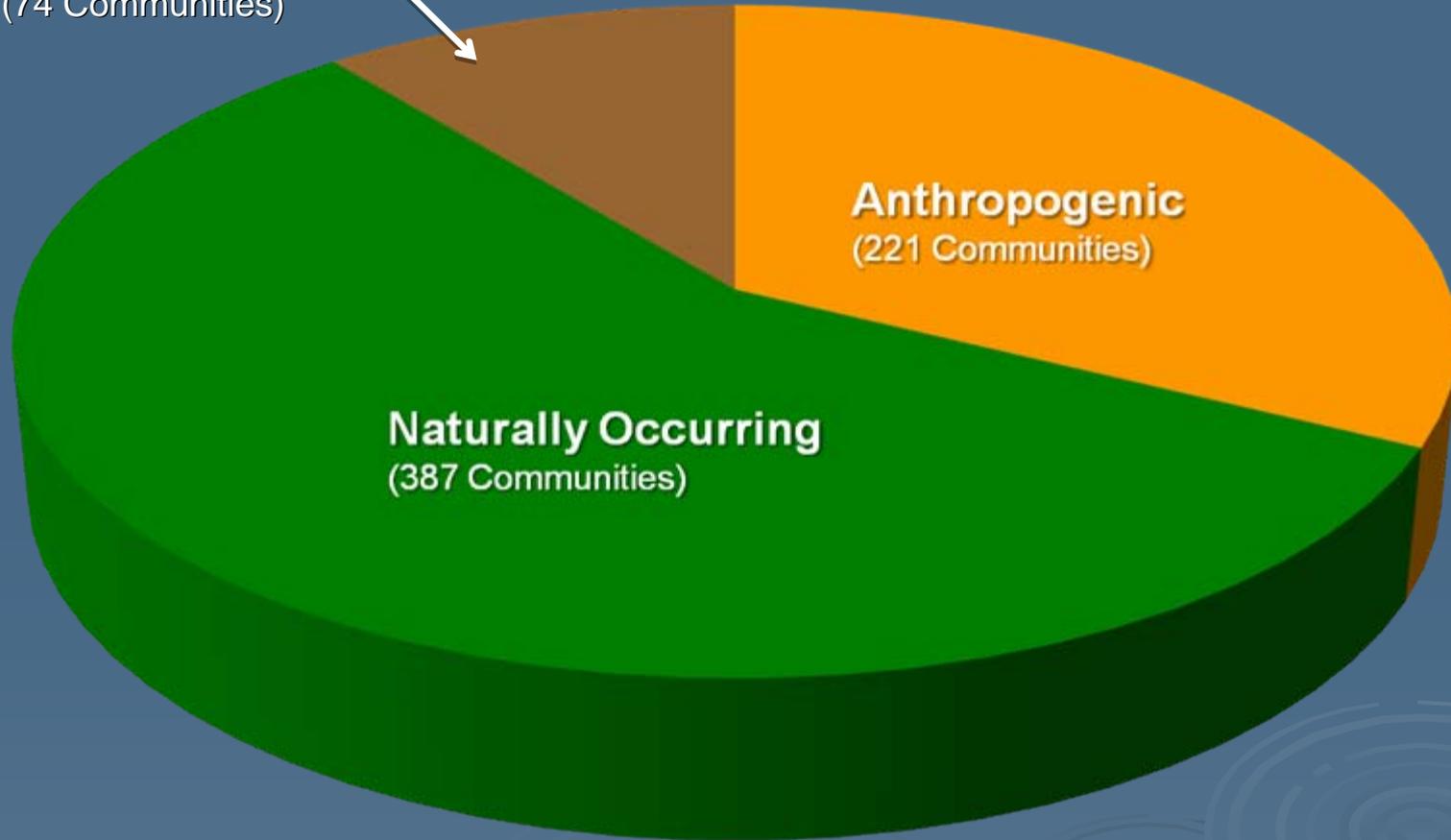
Groundwater Use in the 682 Identified Community Water Systems

Top 15 Counties with Identified Community Water Systems



Type of Contaminant in Identified Community Water Systems

**Naturally Occurring
and Anthropogenic**
(74 Communities)

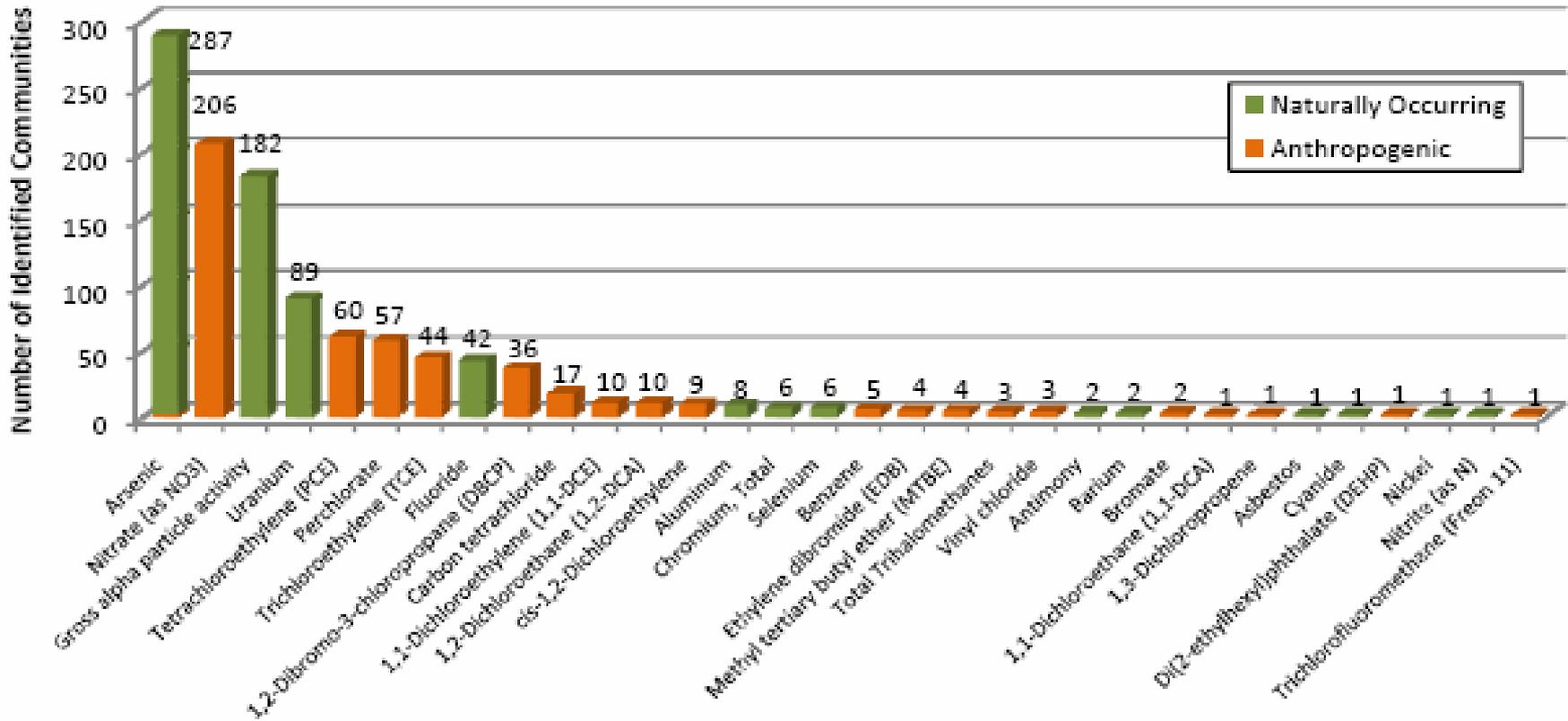


Anthropogenic
(221 Communities)

Naturally Occurring
(387 Communities)

Principal Contaminant Detections: Identified Communities

Two or More Detections Above the MCL
in Currently Active Wells
2002-2010

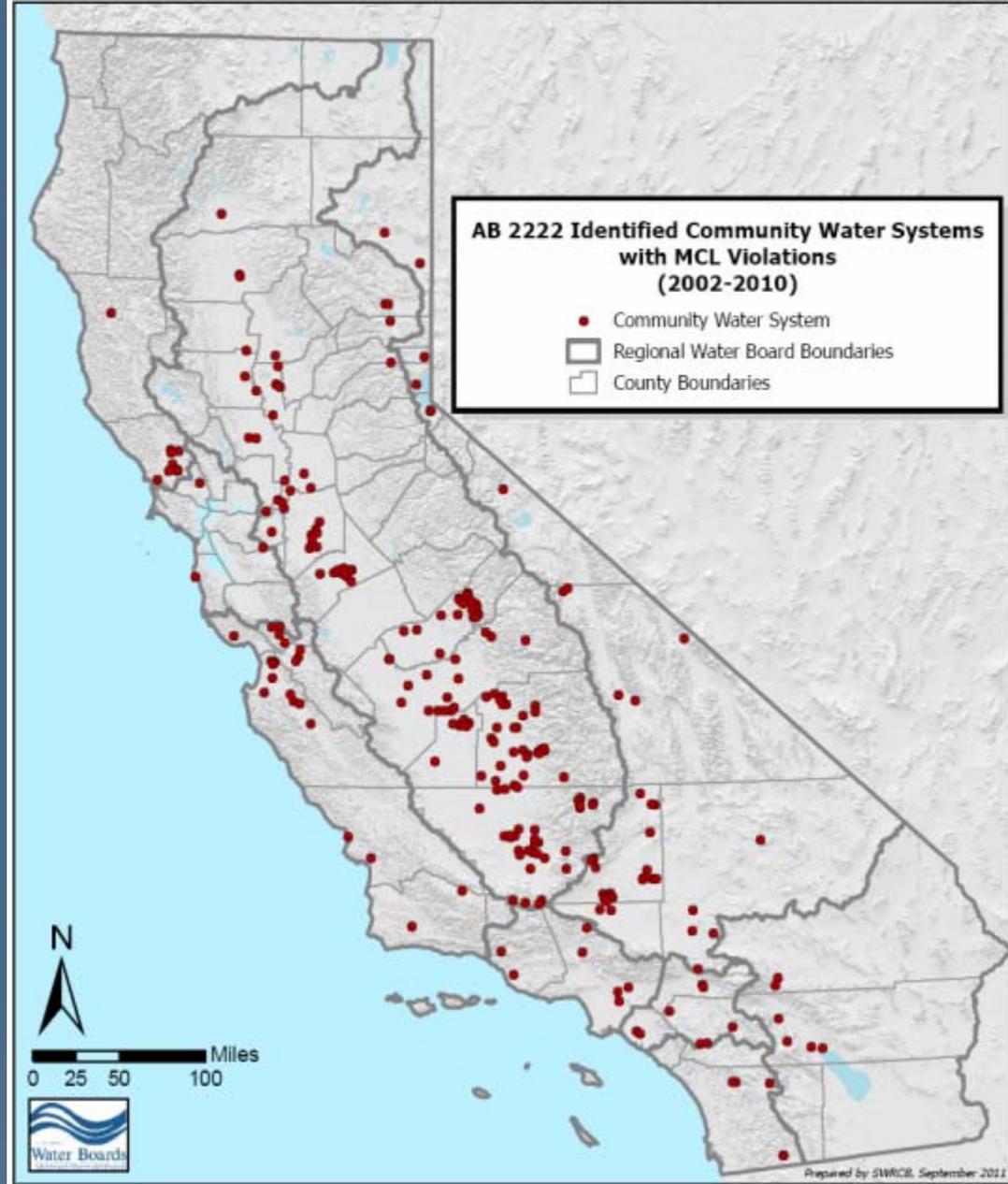


Identifying Communities that Need Assistance

- In addition to evaluating raw groundwater quality, we also evaluated the quality of the water delivered to the public: MCL violations
- Of the 682 identified community water systems with a principal contaminant in raw groundwater;
 - 265 had at least one MCL compliance violation for water delivered to public (2002 to 2010)
- Most common MCL violations issued were: arsenic, nitrate, uranium/gross alpha, and fluoride (naturally occurring)
- This was done to help identify vulnerable communities

Identified Community Water Systems that Have Had at Least One CDPH MCL Violation

(265 Systems)



Funding

- A limited number of funding options exist for communities with identified drinking water quality issues
 - The amount needed exceeds what is available
- 516 identified community water systems are known to be actively pursuing funding to address drinking water quality issues.
- Forty-two identified community water systems with MCL violations are not pursuing funding to address their drinking water quality issues (based on CDPH data).
- CDPH and local agencies are working with communities in need

Existing Drinking Water Infrastructure Funding Sources

- Safe Drinking Water State Revolving Fund
- Proposition 84 Integrated Regional Watershed Management Grants (DWR)
- Housing and Urban Development (Block Grants)
- US Department of Agriculture
- Fully Allocated
 - *American Recovery and Reinvestment Act of 2009 (ARRA)*
 - *Proposition 50*
 - *Proposition 84 (CDPH)*

Potential Solutions

➤ Pollution Prevention

- Continue and expand efforts
- Many areas already contaminated
- Naturally-occurring contaminants are problematic

➤ Cleanup of Contamination

- Often times not feasible or completely attainable

➤ Provide Safe Water to Communities in Need

Potential Solutions - Providing Safe Water

Solution	Obstacles
Consolidation with nearby water system	No system nearby, costs, institutional issues, water rights

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Potential Solutions - Providing Safe Water

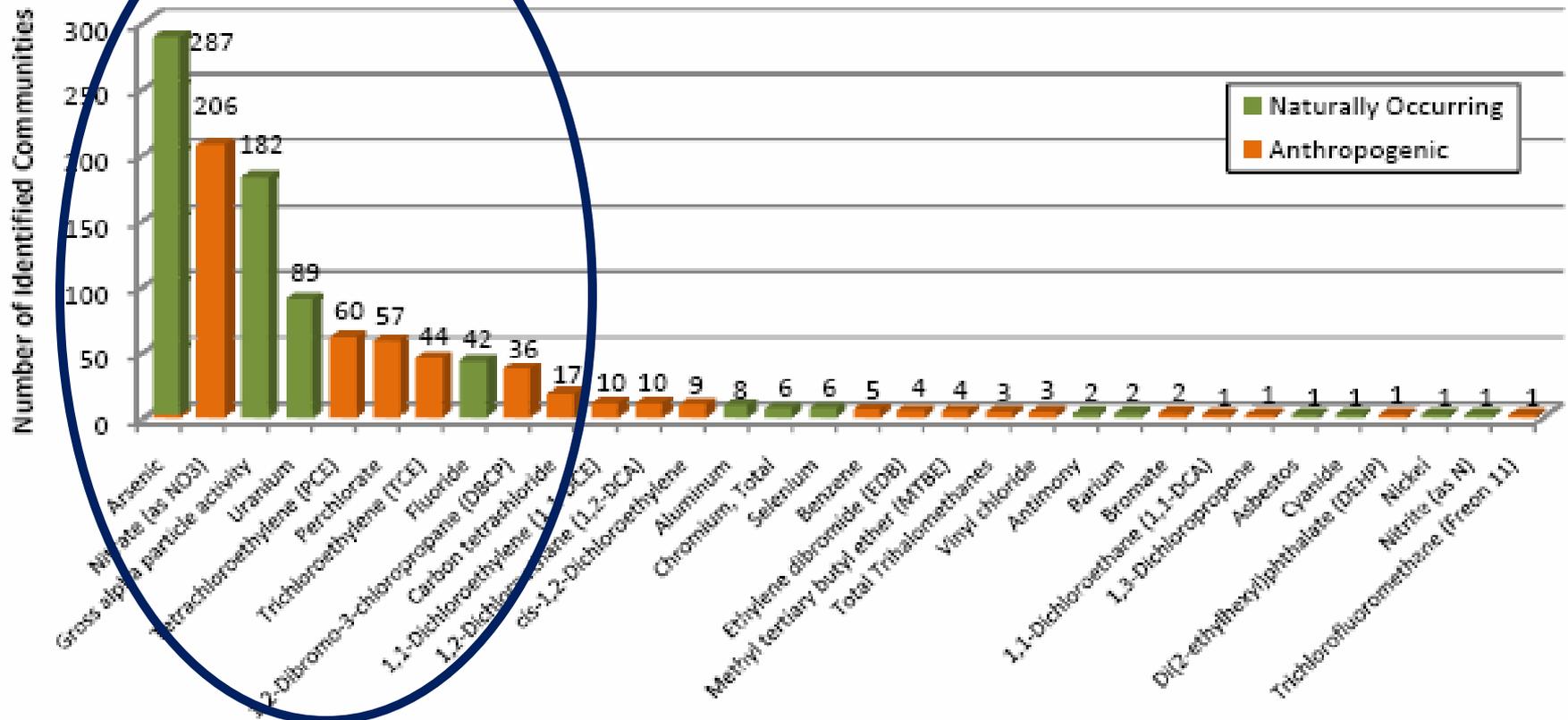
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Surface Water Diversions	No nearby source, cost, planning and infrastructure, maintenance, need CDPH approval, water rights
Well closure	Cost, reduced supply

Take Home Messages

- Nearly all Californians get safe drinking water
- Groundwater quality is an issue for 682 community water systems
 - Located statewide
 - Majority of identified communities are 100% reliant on groundwater
 - Does not include water quality for private domestic wells and “small” systems for which data is not readily available
- Potential solutions:
 - Continue pollution prevention and cleanup efforts
 - Initial focus on providing safe water to communities in need

Principal Contaminant Detections: Identified Communities

Two or More Detections Above the MCL
in Currently Active Wells
2002-2010



Of the most detected contaminants, Arsenic is naturally-occurring and Nitrate is anthropogenic; Naturally-occurring contaminants will remain a big challenge

Take Home Messages (cont.)

- Make funds available for communities in need
- Enhance coordinated efforts with the Water Boards and CDPH, such as AB 2222
- Continue programs that address groundwater issues: GAMA, Irrigated Lands, SBX2 1 Nitrate Pilot Study, Drinking Water Program
- Smaller water systems face bigger challenges
- Consolidation is the preferred solution for small water systems, but challenges exist

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