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Improving Management of the State's Groundwater Resources

LEGISLATIVE ANALYST'S OFFICE

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Assembly Water, Parks and Wildlife Committee

Hon. Jared Huffman, Chair





Why Is Groundwater Relevant?



Groundwater Is a Major Contributor to the Water Supply.

- In dry years, groundwater makes up 40 percent of the developed water supply (30 percent in years with average precipitation).
- At least 43 percent of Californians obtain some portion of their drinking water annually from groundwater sources.



Improved Management of Groundwater Resources Is a Key Option for Addressing Projected Water Demand-Supply Imbalance.

- According to the Department of Water Resources (DWR), the current developed water supply will not be able to meet all of the future water demands from agricultural, urban, and environmental uses in dry years.
- Groundwater basins store excess water in wet years for later use in dry years.
- The DWR cites groundwater storage as a primary means to develop additional water supply capability in the near term, second only to urban water use efficiency.



Current Regulation and Management of Groundwater

- No Comprehensive, Statewide Regulation of Groundwater Use.***
 - The State Water Resources Control Board (SWRCB) administers water rights statewide by issuing and reviewing permits and licenses to applicants who wish to take water from the state's streams, rivers, and lakes (surface waters).
 - However, no statewide groundwater use permitting ("groundwater rights") system exists; entitlement to use groundwater is assumed to belong to the owner of the property overlying the groundwater basin.

- Patchwork of State and Local Rules Governs Proscribed Aspects of Groundwater.***
 - As shown in the figure, groundwater laws at the state level generally either: (1) support and encourage local management, or (2) protect and monitor groundwater quality.

Selected Key State Laws Governing Groundwater		
Law Name or Purpose	Support/Incentives for Local Management	Protect or Monitor Groundwater Quality
Porter-Cologne Water Quality Act (1969)		X
The Pesticide Contamination Prevention Act of 1985		X
Local Groundwater Management Act of 1992 (AB 3030)	X	
Local Groundwater Management Assistance Act of 2000 (AB 303)	X	
Groundwater Quality Monitoring Act of 2001		X
Amendment to Land Use Laws—2001 (SB 221)	X	
Amendment to the Urban Water Management Act—2001 (SB 610)	X	
Groundwater Management Water Code Amendment—2002 (SB 1938)	X	
Groundwater Monitoring—2009 (SBX7 6)	X	X



Current Regulation and Management of Groundwater

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- Some local governments have established ordinances to ensure the availability of water supplies to users within the local jurisdiction, often by limiting the transfer of groundwater out of the area.
- In other cases, courts adjudicate groundwater rights or local agencies develop and implement management plans.



Disparate State Agencies Are Responsible for Different Aspects of Groundwater Management. As shown in the figure below, many state agencies have roles and responsibilities related to groundwater management.

Many State Agencies Are Involved in Groundwater					
	Water Supply	Regulate to Protect Water Quality	Science and Monitoring	Cleanup	Local Financial Assistance
California Public Utilities Commission	X	X			
Department of Food and Agriculture			X		X
Department of Pesticide Regulation		X	X		
Department of Public Health		X	X		X
Department of Toxic Substances Control		X	X	X	X
Department of Water Resources	X		X		X
Integrated Waste Management Board		X			
Office of Environmental Health Hazard Assessment			X		
Pollution Control Financing Authority					X
State Water Resources Control Board		X	X	X	X

- The Department of Public Health monitors groundwater quality as part of its regulation of public drinking water systems and administers local assistance grants for groundwater supply projects.



Current Regulation and Management of Groundwater

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- The SWRCB monitors groundwater quality, issues permits for pollutant discharges that impact groundwater quality, and oversees and helps fund the cleanup of groundwater contamination.



Recent Legislation Adds Major, New Monitoring Requirements. Chapter 1, Statutes of 2009 (SBX7 6, Steinberg), part of the November 2009 water legislation package, takes an important step toward more comprehensive groundwater use regulation. Chapter 1 requires monitoring and public reporting of groundwater elevations in all groundwater basins in California. Local agencies perform the monitoring, then report to DWR which is then required to publicly report periodically on the status of groundwater throughout the state. The legislation does not require monitoring of groundwater volumes or extractions at the individual well level.



Issues and Challenges With Groundwater Management

☑ ***Disconnect Between Groundwater Law and Science.*** Current law does not acknowledge the physical connection between groundwater and surface waters:

- State water laws create three exclusive categories of waters: surface waters, subterranean streams, and percolating groundwater.
- Water rights are required only for withdrawals from surface waters or subterranean streams, but hydrological science demonstrates that groundwater withdrawals impact surface waters and vice versa, potentially creating water rights conflicts.

☑ ***The Contamination Problem.*** Contamination of groundwater affects water supply availability and increases costs:

- Contaminated groundwater usually results in the closure of a well, but statewide water supply projections do not always incorporate the loss of these water sources because contamination information can be compartmentalized within governmental entities.
- Replacing contaminated drinking water supplies can be expensive if no nearby alternative drinking water source can be found.

☑ ***Gaps in Groundwater Management Complicate Statewide Water Planning.***

- Lack of data on groundwater use and quality can lead to incorrect conclusions about groundwater availability, making it difficult to project the role of groundwater in meeting the state's water needs.
- Integrating nonstandardized and potentially conflicting data sources into supply projections is time-consuming and costly for DWR.
- Systemwide coordination cannot be accomplished solely through local management because groundwater flows cross political boundaries.



Recommended Next Steps to Improving Groundwater Management

LAO Recommendations. In our office’s March 24, 2010 report, *Liquid Assets: Improving Management of the State’s Groundwater Resources*, we made a number of recommendations, as summarized in the figure and outlined in more detail below:

LAO Recommendations for Improving Groundwater Management	
Problem	Recommendation
Monitoring not comprehensive statewide	Phase in a comprehensive monitoring system to allow the state to focus funding and technical assistance efforts to the areas in greatest need.
Current management efforts not necessarily focused on most challenged groundwater areas	Establish Active Management Areas where groundwater overdraft potential and/or extent of pollution problems are the highest.
Groundwater law does not reflect scientific reality	Bring science and law together by modernizing groundwater law to accurately reflect the physical interconnection of surface water and groundwater.
Groundwater use and rights unclear, leading to distribution and management issues	Consider establishing statewide groundwater permitting over a multiyear period based on data from expanded monitoring requirements. Maintain local control over implementation of state permit granted at either district or basin level to the extent possible.

- Phase In a Comprehensive Monitoring System.**
- Require local water districts to submit standardized extraction data from all groundwater wells.
 - Extraction data should be integrated into the California Water Plan, thereby facilitating water supply planning and management.



Recommended Next Steps to Improving Groundwater Management

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Establish Active Management Areas (AMAs), as in Most Other Western States.

- AMAs are groundwater management institutions with jurisdiction over groundwater basins (that may cross political boundaries) that are especially vulnerable to contamination or overdraft.
- An AMA documents and regulates all groundwater extractions and surface withdrawals, in accordance with specific rules designed to ensure the sustainability of the area's groundwater supply.



Remove the Legal Distinction Between Percolating Groundwater and Subterranean Streams.

- Bringing law in line with modern science could serve to reduce litigation costs for both private and public entities.



Consider Phasing In Statewide Groundwater Use Permitting.

- Groundwater use permitting would allow for more effective management if overdraft problems continue after implementation of previous three recommendations.
- Experience and knowledge gained from implementing previous recommendations should inform potential groundwater permitting system development.
- To the extent possible, provide for implementation of the state permit at the basin or water district level (not at the level of individuals as with surface water rights), thereby allowing local jurisdictions some discretion over how groundwater resources are managed and used within their jurisdictional boundaries.