OFFICE OF PUBLIC AFFAIRS FACTSHEET

Groundwater Fact Sheet

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California Uses More Groundwater Than Any State

California depends heavily on groundwater to meet its water supply needs. Groundwater, which largely comes from rain and snow that percolates through soil and rock, supplies approximately 40 percent of the state water supply. Groundwater use increases during drought conditions.

- Californians use more groundwater than any other state in the country, about 14 billion gallons per day. During recent dry years however, groundwater use increased to nearly 18 billion gallons per day.
- Approximately 31 million Californians get a portion of their drinking water from a public water system that relies on groundwater for at least part of their drinking water supply
- In addition, up to two million California residents are served either by the estimated 250,000 to 600,000 private domestic wells or by water systems serving fewer than 15 service connections.
- The availability of clean, fresh groundwater has been credited for making California the largest food and agricultural economy in the country.

The California Department of Water Resources estimates that the state's groundwater reserves equal more than 81 trillion gallons (could fill over 120 million Olympic-sized swimming pools), but not all of it can be used in its current form. That is because some of the groundwater is too salty, too polluted, or is too difficult to be extracted from the ground.

How Groundwater Quality Is Affected

Groundwater can be adversely affected by leaking septic tanks and other sources of pollution.

Most groundwater is brought to the surface by pumping it from a well. Groundwater quality can be contaminated by both naturally-occurring and man-made contaminants. Naturally-occurring chemicals typically come from dissolving rocks, soil, and decaying plant material.

Fertilizers and pesticides contaminate groundwater when applied or used incorrectly. Leaking underground storage tanks, human waste from leaking septic tanks (photo above), broken sewer pipes and wastewater systems, and contaminated irrigation water are also sources of contamination. All of these can result in contaminants entering groundwater including nitrate (fertilizers), salts, pesticides, pharmaceuticals, and bacteria.

Protecting Groundwater Quality

Groundwater use, quality, and regulation are the responsibility of state and local agencies, and every Californian. The State and Regional Water Boards protect and restore groundwater quality through specific programs and actions, including:

- Updating groundwater basin plans and integrated regional water management
- Regulating discharges to prevent contaminants from reaching groundwater
- Continuing the State Water Board's critical Groundwater Ambient Monitoring and Assessment (GAMA) Program to help better understand groundwater quality

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As part of the State Water Board's GAMA Program, scientists from Lawrence Livermore National Laboratory sample an agricultural supply well.

- Developing salinity management and control in the San Joaquin Valley (a long term threat to agriculture)
- Investigating and cleaning up over 10,000 leaking underground storage tank sites
- Addressing groundwater concerns with irrigated agriculture, septic tanks, wastewater treatment plants, industrial facilities, confined animal facilities, and water storage/reuse
- Remediation at thousands of cleanup sites, including military sites, abandoned mines, brownfields, and Superfund sites.
- Development and implementation of a recycled water policy.

For more information, please visit the following website: http://www.waterboards.ca.gov/water_issues/programs/outreach/groundwater.shtml

Drinking Water From Wells

Groundwater pumped from the over 14,000 active public supply wells provides part or all of the drinking water to over 80 percent of California residents. Over 6,000 wells have been shut down since the 1980s, many for water quality reasons. In addition, up to two million California residents are served either by the estimated 250,000 to 600,000 private domestic wells or by water systems serving fewer than 15 service connections. Unlike public drinking water systems, there are no federal or state regulations covering water quality served from private domestic wells.

Monitoring Groundwater

Monitoring is an important tool used for assessing groundwater quality and helping prevent groundwater contamination. Agencies and planning experts have used monitoring test results to manage groundwater and to make sure it is safe to use. The State Water Board's Groundwater Ambient Monitoring and Assessment (GAMA) Program tests water wells throughout the state to determine levels of naturally-occurring and man-made chemicals. The GAMA Program has four active projects: Priority Basin Project, Special Studies Project, Domestic Well Project, and GeoTracker GAMA groundwater information system:

- Priority Basin Project has sampled over 2,500 wells that provide over 95 percent of the groundwater used for public drinking water. The US Geological Survey is project's technical lead.
- Special Studies Project: focuses on issues at a project scale, including nitrate contamination from dairies and pharmaceuticals in groundwater. The project's technical lead is Lawrence Livermore National Laboratory.
- Domestic Well Project: State Water Board staff has sampled over 1,000 private domestic wells in six counties: Yuba, El Dorado, Tehama, Tulare, San Diego, and Monterey County.
- GeoTracker GAMA: an online groundwater information system that provides the public with access to over 200,000 wells with over 175 million analytical results, all on an interactive Google maps interface. Access GeoTracker GAMA at: http://www.waterboards.ca.gov/gama

These projects and others are key components in the Water Boards' efforts to enhance, protect, and restore California's vital groundwater resources.