

Groundwater: An Essential Part of California's Water Budget

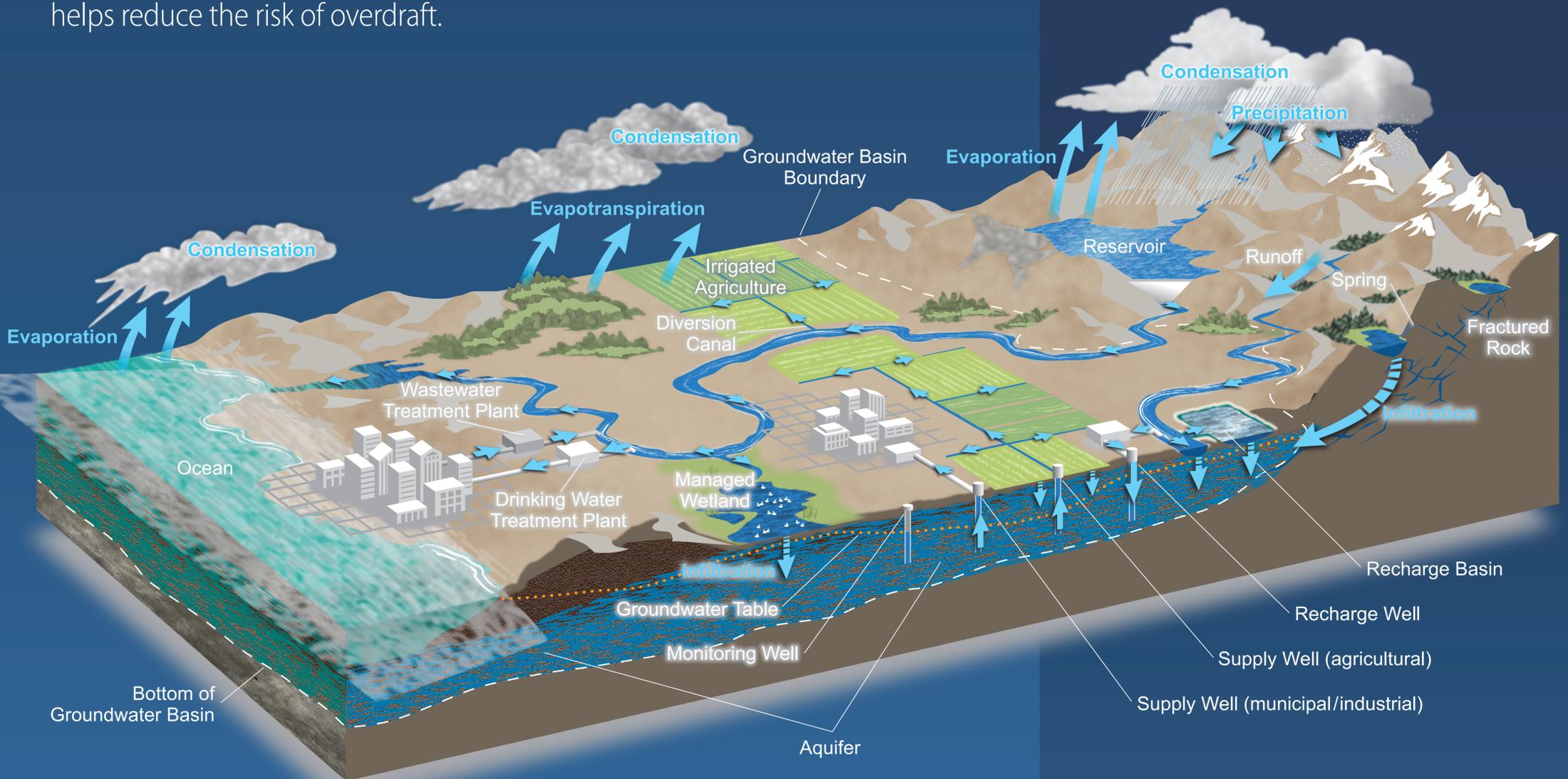
Groundwater is an essential part of California's economy and environment. Statewide, groundwater provides about 40-60% of our water supply. Some communities rely on groundwater for 100% of their water needs.

Responsible management of groundwater today helps ensure that enough remains for future generations. Excessive groundwater extraction – overdraft – lowers the water table, making it more difficult and expensive to pump and more susceptible to land subsidence and contamination. Conserving water helps reduce the risk of overdraft.

The (Ground)Water Cycle

Groundwater is an integral part of the water cycle. When precipitation falls, a portion infiltrates into the ground and moves downward through the soil, pooling in porous layers, until it reaches a layer that is saturated or impermeable.

From here, the water can take many paths. Groundwater may remain underground for hundreds or even thousands of years, quickly discharge into streams, or be pumped by wells for agricultural, industrial, or municipal uses.



Groundwater Vocabulary

Aquifer: Underground geologic formation that stores water in the open spaces between rock, sand, and gravel.

Condensation: The process by which water vapor (gas) in the air is changed into liquid water. Condensation is the part of the water cycle responsible for the formation of clouds.

Diversion Canal: A constructed waterway used to divert water from its natural course.

Evapotranspiration: The process by which liquid water moves from water bodies, soils, and other surfaces (evaporation) and plants (transpiration) to a gas or vapor form in the atmosphere.

Fractured Rock: Fractures in rock allow water to move underground and provide storage for groundwater.

Groundwater: The water found beneath the Earth's surface that fills spaces between rocks or sediment.

Groundwater Basin: An alluvial aquifer, or a stacked series of alluvial aquifers, with reasonably well-defined boundaries.

Groundwater Table: The upper surface of the saturated zone where groundwater lies. The zone below the water table is the aquifer.

Infiltration: The process by which water on the surface enters the soil.

Irrigated Agriculture: Agricultural crops that receive controlled amounts of surface water or groundwater; essential for farming in dry regions where rainfall cannot serve as a consistent source of water.

Managed Wetland: Wetland areas managed for specific purposes, for example, waterfowl food production.

Monitoring Well: Well used to monitor groundwater levels or quality.

Ocean: Salty body of water that covers more than 70 percent of the surface of our planet and holds over 97 percent of the Earth's water.

Overdraft: A situation that occurs when the amount of water withdrawn by groundwater pumping exceeds the amount of water that recharges the groundwater basin over a period of years. Overdraft can lead to adverse impacts, including increased extraction costs, need for well deepening or replacement, land subsidence, poor water quality, and environmental impacts.

Precipitation: Water in the form of rain, snow, sleet, or hail that falls to the ground.

Recharge Well/Basin: Constructed features to introduce water into the ground as a means of replenishing groundwater basins.

Reservoir: A natural or artificial lake used as a source of water, flood control, and recreation.

Runoff: Precipitation that does not infiltrate but makes its way across the Earth's surface.

Spring: A site where groundwater emerges at the ground surface.

Supply Well: Well used to supply groundwater for agricultural, municipal, or industrial uses.

Treatment Plant: Facility used to remove contaminants from drinking water and wastewater.

Water Cycle: A cycle of processes – including evaporation, condensation, and precipitation – through which water circulates between the Earth's oceans, atmosphere, and land.

For further information

DWR Groundwater Introduction:
<http://www.water.ca.gov/groundwater/>

Basic Groundwater Concepts (DWR Bulletin 118, 2003):
http://www.water.ca.gov/pubs/groundwater/bulletin_118/california%27s_groundwater_bulletin_118_-_update_2003_/bulletin118-chapter6.pdf

Basic Groundwater Concepts (DWR Bulletin 118 Interim Update 2016):
<http://www.water.ca.gov/groundwater/bulletin118/update.cfm>

Water Data Library (Groundwater Levels)
<http://www.water.ca.gov/waterdatalibrary/>

USGS, California Water Science Center
<http://ca.water.usgs.gov/>

Water Cycle
<http://water.usgs.gov/edu/watercycle.html>

Distribution of the World's Water
<http://water.usgs.gov/edu/earthwherewater.html>