

Drought and Overpumping and Groundwater Decline

The water levels in aquifers is not often a constant. Groundwater levels first are dependent on recharge from infiltration of precipitation so when a drought hits the land surface it can impact the water levels below ground, too. Likewise, many aquifers, especially those which don't have abundant recharge, are affected by the amount of water being pumped out of local wells. Groundwater decline is a real and serious problem in many places of the Nation and the world. When rainfall is less than normal for several weeks, months, or years, the flow of streams and rivers declines, water levels in lakes and reservoirs fall, and the depth to water in wells increases. If dry weather persists and water-supply problems develop, the dry period can become a drought.

How important is groundwater?

Groundwater, which is found in aquifers below the surface of the Earth, is one of the Nation's most important natural resources. [Groundwater](#) is the source of about 33 percent of the water that county and city water departments supply to households and businesses ([public supply](#)). It provides drinking water for more than [97 percent of the rural population](#) who do not get their water delivered to them from a county/city water department or private water company.

How does the water level in my well change?

The water level in the aquifer that supplies a well does not always stay the same. Droughts, seasonal variations in rainfall, and pumping affect the height of the under groundwater levels. If a well is pumped at a faster rate than the aquifer around it is recharged by precipitation or other underground flow, then water levels in the well [can be lowered](#). This can happen during drought, due to the extreme deficit of rain. The water level in a well can also be lowered if other wells near it are withdrawing too much water.

What determines if a well will go dry?

A well is said to have gone dry when water levels drop below a pump intake. This does not mean that a dry well will never have water in it again, as the water level may come back through time as recharge increases. The water level in a well depends on a number of things, such as the depth of the well, the type (confined or unconfined) of aquifer the well taps, the amount of pumping that occurs in this aquifer, and the amount of recharge occurring.

Wells screened in unconfined water table aquifers are more directly influenced by the lack of rain than those screened in deeper confined aquifers. A deep well in a confined aquifer in an area with minimal pumping is less likely to go dry than a shallow, water-table well.

How do I find out if my well will go dry?

Wells screened in unconfined water table aquifers are more directly influenced by the lack of rain than those screened in deeper confined aquifers. This means that it may be more likely for the water level in wells screened in the water table to drop below the pump level and prevent water from being obtained. This does not mean that wells in a confined aquifer will not go dry, as they are also influenced by pumping rates, lack of recharge, and possibly by the pumpage rates of other wells near your or that access the same aquifer your well does.

I paid to have my own private water well installed, so why can't I use the water any way I want to?

If you own a water-table well and you pump excessive amounts of water from your well, there is a danger of your well going dry as consumption continues and groundwater levels fall. Since aquifers can be quite extensive, the usage of your well can influence other people miles away. Groundwater that supplies your well also feeds streams during periods of low flow, so pumping from your well may also cause the water levels in streams to be lower. You can view a map of the regional aquifer systems from the USGS Groundwater Atlas of the United States. More information on aquifers may be found in the USGS [Groundwater Web site](#).

Taken from the U.S. Geological Survey Water Science School
[U.S. Department of the Interior](#) | [U.S. Geological Survey](#)
URL: <http://water.usgs.gov/edu/droughtandgw.html>