

# Groundwater Protection

## What You Need to Know

Many prospective water well owners know that groundwater is what will be pumped into their home, but they often don't know many more details after that. Several myths abound about groundwater as well, which often makes it seem mysterious to the uninformed. What follows are answers to several of the most popular groundwater questions as well as tips on protecting the drinking water source of 47 percent of the U.S. population.

### What is groundwater, and where does it come from?

Groundwater is the water that fills cracks, voids, and other openings in beds of rocks, sand, and soil. Each drop of rain that soaks into the soil moves downward, fills available space, and forms a large subsurface storage of water that interacts with any substance that comes in contact with it.

Many people believe that groundwater comes from rapidly moving underground rivers and lakes. However, that is not true.

### What is the relationship of groundwater to surface water?

Many streams and lakes are "windows" to the earth's water table. In large part, a stream represents water that has moved from the ground into the stream channel.

Most groundwater flows directly into streams, rivers, and lakes through streambeds or the bottom of lakes. On occasion, groundwater emerges out of an aquifer at a land surface—which makes a spring.

### Is groundwater plentiful?

It certainly is. About 98 percent of the available fresh water on Earth is groundwater. Every day, the United States uses about 76.4 billion gallons of this water for a variety of purposes. The amount of groundwater storage dwarfs the present surface water supply. At any given moment, it is 20 to 30 times greater than the amount of water in all the lakes, streams, and rivers of the United States combined.

### Are there things that citizens can do to protect groundwater?

Without a doubt. Unfortunately some people think since groundwater is underground there is nothing they can do to help ensure its quality, or they think only federal, state, and local agencies can determine protection. However, everyone can protect water quality to some degree.

### What is the best thing a well owner can do to protect groundwater?

The first step—and the best one—is for well owners to regularly monitor the water quality within their own wells. In fact, it is recommended that well owners have their wells checked at least once a year for bacteria or other unwanted constituents. Devices such as water softeners, reverse osmosis systems, and ion-exchange systems can be used to treat the water for in-home applications.

To reduce the possibility of nitrates in groundwater, well owners should have their septic tank cleaned and serviced every two years. This eliminates the opportunity for waste backing up and unwanted materials leaching into the soil.

### What else can be done to aid groundwater quality?

Everyone—including people who are not well owners—can aid in curbing nonpoint source pollution, which constitutes the majority of groundwater contamination. Nonpoint source pollution includes runoff of pesticides and herbicides, soil erosion, and street runoff.

The best practice to combat nonpoint source pollution is common sense. When mixing toxic chemicals such as motor oil, antifreeze, or fertilizers, do so with extreme caution. Avoid spilling the chemicals on the ground because they can penetrate the soil and enter the groundwater system.

The best place to mix chemicals is on cement to avoid groundwater infiltration or runoff into surface water caused by accidental spills. Also, when working with chemicals, read the directions and never go above the recommended mixing ratio or over-apply chemicals to gardens and fields.

### Where can I get more information?

For more information on your private water well, contact your local contractor. Also, visit the Web site of the National Ground Water Association, [www.ngwa.org](http://www.ngwa.org), and its site just for well owners, [www.wellowner.org](http://www.wellowner.org).



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