

HOMEOWNER TIP

Tips to save water:

A faucet dripping one drop of water per second will waste about 3,000 gallons of water a year. Check all your faucets and fix leaks quickly.

Pour some food coloring in your toilet tank. If the color shows up in the bowl when the toilet hasn't been used, there is a leak that needs to be fixed.

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WATER – PART 1 OF A 2 PART SERIES – THE FIRST H IN H₂O...

Water – it's as important to our survival as air. We assume there is an unlimited supply of quality water, or maybe we just never really think much about it; it's just there when we turn on the faucet.

But we can't take it for granted. The supply of quality water in our world is limited, and we should take that seriously.

This is the first of a two-part series on water which looks at information resources, quality, quantity, how we use water, conservation and a few anecdotes. We hope you find it interesting. In this issue of *YOUR HOME*, we will examine:

- How we use water
- Where most of it comes from
- How do we find it

The information that follows is gathered from various established, credible sources including the following:

- American Ground Water Trust (AGWT) – www.agwt.org
- Environmental Protection Agency (EPA) – www.epa.gov/ebtpages/water.html
- American Water Works Association (AWWA) – www.awwa.org

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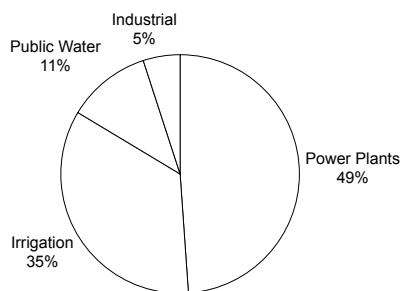


HOW WE USE WATER

- The average person consumes about 16,000 gallons of water in a lifetime.
- With normal activities (not including exercise), 35 percent of the water we consume is processed by our kidneys, 45 percent is exhaled through our lungs and 20 percent is lost to perspiration.
- About 130 million people in the U.S. get their water from ground water sources. *That's almost 50 percent of the population.*
- Of those, 40 million get their water from individual wells.
- In the U.S., lawns occupy more land area than any single agricultural crop. *That's worth noting since many of us irrigate our lawns.*
- 20 million homes in the U.S., about 20 percent of the population, have on-site waste water disposal systems. *That's important because improperly maintained systems can contaminate private water wells.*
- A few years ago, the top five states with the most homes with private wells were New York, Pennsylvania, North Carolina, Florida and Michigan.
- There are more than 160,000 public water systems in the U.S.

To put all this in perspective, note the following summary based on USGS (United States Geological Survey) data from 2000:

Daily Water Use



- Withdrawals from water sources totaled 408 billion gallons per day.
 - Seventy-nine percent of withdrawals were from surface water (lakes, etc.).
 - Eighty-five percent of withdrawals were fresh water.
- Thermoelectric power plants (those that use water for cooling) withdrew approximately 195 billion gallons per day, or 48 percent of the total.
- Irrigation withdrawals were 35 percent of the total and 40 percent fresh water, or 137 billion gallons per day.
- Public water supplies account for 11 percent of withdrawals, or 43 billion gallons per day.
- Industrial users account for 20 billion gallons per day, or 5 percent of the total.
- 43.5 million people had their own water supply and used about 3.5 billion gallons per day.
- In 1950, 62 percent of the population was served by public water supplies. In 2000, this grew to 85 percent.
- Worldwide, approximately one billion people do NOT have access to safe water for drinking, personal hygiene and domestic use, according to the World Health Organization (WHO).

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WHERE WE GET WATER

As noted above, 79 percent of withdrawals are from surface water (lakes, etc.). Many public water systems use water from lakes. Some, however, use groundwater wells. And the 43.5 million people noted who have their own water supply are typically relying on wells that tap into groundwater supplies.

Groundwater is water located below the ground surface, filling the voids in rocks, gravel, sand and various soils. Saturated regions of groundwater that receive, store and transmit water to wells are called aquifers.

Aquifers get their water from rain and melted snow. As the water migrates down into the soil, some of it is used by plants, some evaporates and the remainder finds its way to aquifers. This is part of what is known as the hydrological cycle, where water accumulates in the atmosphere, causes precipitation, which is returned to the atmosphere through evaporation and plant growth. That's a simple explanation, but it captures the essential concept of the hydrological cycle. In short, water is constantly moving from one place to another.

Groundwater produces water of satisfactory quality for drinking in most areas because the ground through which it passes filters it. However, it is important to test the quality of your water on a regular basis if you are getting it from a private well. Annual testing is recommended.

A spring is a point where groundwater flows out of the ground and is, thus, where the aquifer surface meets the ground surface.

Most households use 75 to 150 gallons of water per day per person. For a four-person household, that means you will need as much as 600 gallons of water a day for cooking, hygiene, cleaning, drinking, etc. A reasonable output for a private well is 3 to 5 gallons per minute, which will normally keep up with peak demand for an average household. Low-yield wells (for example, 1 gallon per minute) will work, but to handle peak demand will normally require supplementation by a storage tank. Local regulations, however, may dictate the minimum output of a well before an occupancy permit is granted.

Of course, today, we can buy our water in bottles. Bottled water is now the most popular commercial, non-alcoholic drink, more popular than soda or juice. Nutritionally, beating out soda is a good thing, but buying bottled water still strikes some as excessive, especially since some bottled water brands use public water systems as their source.

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There are other names we use for water as well, including tap water, groundwater, spring water, and:

- Seltzer – the word originates from the German town, Selters, where there is a mineral spring.
- Soda – from the Latin word “soda,” which describes naturally occurring spring water with sodium bicarbonate. The Latin word is derived from the Arab word “suda,” which means headache. Soda water was used to cure headaches.

HOW DO WE FIND IT?

Before we leave this topic, for those who have wondered about dowzers (those who seem to mystically find water using a forked stick), no scientific studies have demonstrated that it works. Sometimes called diviners, the activity is also referred to as water witching. Techniques and tools vary widely.

There are many books on the subject, one being *The Diving Hand*, published by Christopher Bird in 1979. An Internet search on dowsing will yield many resources, some more credible than others.

It is believed that the origin of dowsing was for divination: to divine the will of the gods, foretell the future and determine truth in trials. In the 15th century, the Germans are believed to have used dowsing to find metals. In the Middle Ages, dowsing was associated with the devil.

In 1518, Martin Luther declared that divining was a violation of the Bible’s First Commandment. Dowsing continues to be a controversial, intriguing and, sometimes, humorous subject.

The legitimacy of divining continues to be debated. As recent as August 3, 2007, an article in the Wall Street Journal explored the question on “Science vs. ‘Witchers’.”

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