

Ripple Effect #83

What Is An Aquifer?

An aquifer is easier to understand in Latin than in English. "*Aqua*" means water, and "*fer*" refers to something that "has" or "contains." So "*aqua fer*" means something that contains water.

The container for an aquifer is underground – so to understand an aquifer, one has to understand ground water.

Ground water is simply runoff that enters the ground and fills spaces among sand grains or in cracks and crevices of rocks. Ground water is usually in motion--it flows in a natural underground channel until it reaches an area where it is stored underground ("confined" aquifer) or where it emerges naturally in a spring or a lake ("unconfined" aquifer).

When one of these saturated storage areas contains sufficient water to use as a supply for some use, we call it an aquifer. An aquifer can be several – or hundreds – of feet thick. It may lie just below the surface or hundreds of feet down. Whatever its size or depth, the top of an aquifer is called the water table. The water table can rise or fall depending on overall precipitation and withdrawals.

What are the benefits and drawbacks of depending on aquifers for our water supply? Well, unlike rivers that can run dry in a season, aquifers are a constant source of water supply during a season. If used extensively, however, aquifers can be drawn down to a point that needs re-supplying. If this happens, that re-supplying can take years.

Aquifers are safer from airborne pollutants than are surface waters, and, generally, seepage of pollutants into aquifers is slow. Once an aquifer is polluted, however, cleanup is difficult.

A third advantage is the natural filtering of water in aquifers as it moves through underground sand and rock, often for miles. A common drawback is that having been exposed to rock for so far and so long a time – water can remain in aquifer storage areas for hundreds of years – the water contains more dissolved solids and thus is "harder" than most surface water.

A final point, one of particular importance to the Red River Basin, is that in areas of high cultivation such as the Basin, aquifers face the potential of clogging up on excess sediments from cultivated fields. When soil runoff is not controlled and these sediments enter the ground, they fill the spaces in the sand and impede the two major functions of aquifers: the movement of underground waters and the storage of these waters.

With careful use and by reducing sources of pollution, ground water will be available for all of those who depend on it for their water supply.

Until the next Ripple Effect,

The Red River Basin Commission (RRBC)

The RRBC is a grassroots organization that is a chartered not-for-profit corporation under the provisions of Manitoba, North Dakota, Minnesota, and South Dakota law. Our offices in Moorhead, MN and Winnipeg, MB can be reached at 218-291-0422 and 204-982-7254, or you can check out our website at www.redriverbasincommission.org.

