NJ Department of Environmental Protection
Division of Watershed Management
PO Box 418
Trenton, NJ 08625-0418
609-984-0058

WATER RESOURCE PROTECTION PRACTICES

State of New Jersey
Christine Todd Whitman, Governor
Department of Environmental Protection
Robert C. Shinn, Jr., Commissioner

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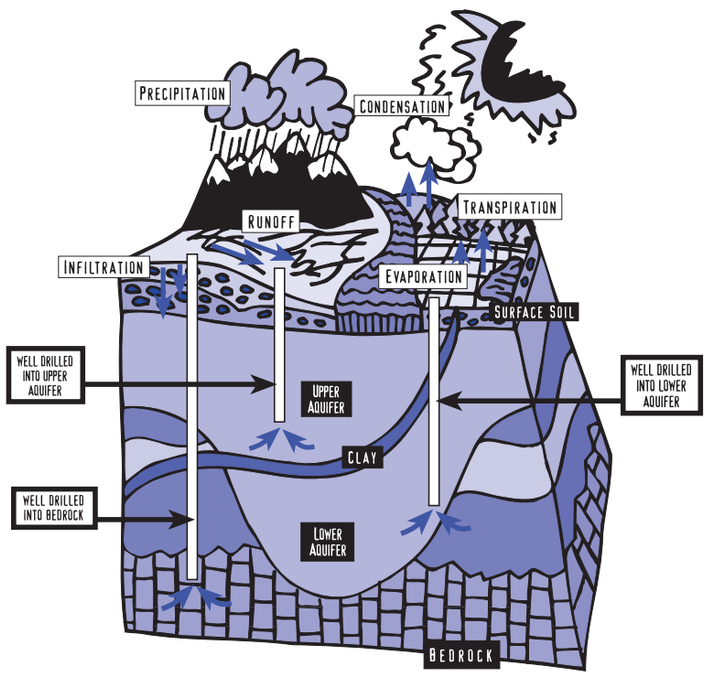
WHAT IS GROUND WATER?

Where does the water that rains on your home go? After it leaves your lawn, street or sidewalk, where is it headed? Does it wander into a wetlands? Does it puddle in your backyard? Does it zip down a sink hole? If it soaks into the ground, it becomes ground water.



A sizable amount of rainwater runoff seeps into the ground to become ground water. Ground water moves into water-filled layers of porous geologic formations called aquifers. If the aquifer is close to the surface, its ground water can flow into nearby waterways or wetlands, providing a base flow. Depending on your location, aquifers containing ground water can range from a few feet below the surface to several hundred feet underground. Aquifer recharge areas are locations where rainwater and other precipitation seeps into the earth's surface to enter an aquifer. Contrary to popular belief, aquifers are not flowing underground streams or lakes.

Ground water moves at an irregular pace, seeping from more porous soils, from shallow to deeper areas and from places where it enters the Earth's surface to where it is discharged or withdrawn. A system of more than 100 aquifers is scattered throughout New Jersey, covering 7,500 square miles.

WHY IS GROUND WATER IMPORTANT?

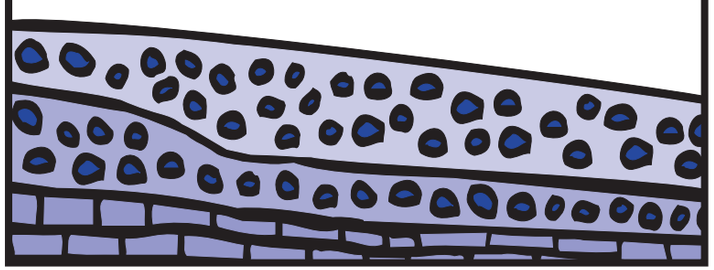
Ground water is the primary drinking water source for half of the state's population. Most of this water is obtained from individual domestic wells or public water supplies which tap into aquifers. New Jersey agriculture also depends on a steady supply of clean ground water for irrigation.

GROUND WATER COMPLICATIONS

Humans have an impact on ground water in a number of ways. One way people influence ground water is by changing where stormwater flows. By changing the contour of the land and adding impervious surfaces such as roads, parking lots and rooftops, people change how and where water goes. When it rains, the stormwater in a developed area is less able to soak into the ground because the land is now covered with roads, rooftops and parking lots. Less ground water will be recharged and more water will flow directly into streams and rivers.

Another way people affect ground water is by adding potential pollution sources. How the land above ground water is used by people, whether it is farms, houses or shopping centers, has a direct impact on ground water quality. As rain washes over a parking lot, it might pick up road salt and motor oil and carry these pollutants to a local aquifer. On a farm or suburban lawn, snow melt might soak fertilizers and pesticides into the ground.

When properly used, the amount of ground water pumped out for human purposes is less than what nature supplies to recharge the aquifer. If overused, more water is pumped out than is recharged. With less ground water in the aquifer, it becomes more difficult to use and more susceptible to pollution and salt water intrusion.

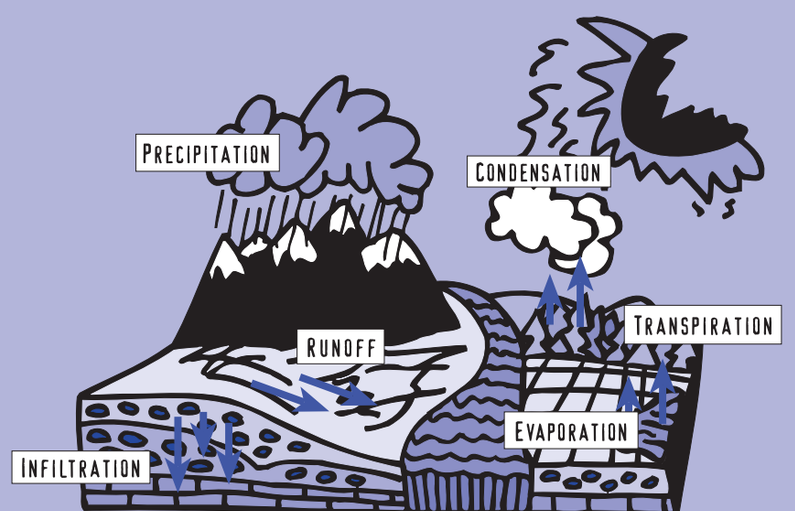


WATER CONSERVATION

Conserving water through efficient water use can help prevent pollution. Using less water reduces the runoff of agricultural pollutants pesticides and fertilizers. Diverting less water from waterways or aquifers leaves more water in streams or lakes, protecting existing ecosystems such as wetlands (which absorb certain types of pollution) and water supplies.

Water conservation can also save money by reducing pumping and treatment costs both before water reaches your home and after it leaves. Reduced water use may extend the life of existing sewage treatment facilities. It can also eliminate the need to develop a new water supply. New wells and reservoirs are expensive and time consuming to locate and build.

THE WATER CYCLE



For millions of years, water has been used. It is constantly being recycled and reused. It is important to understand how water moves through the Earth's water cycle, which is defined as the movement of water from the Earth's surface into the atmosphere and back to the Earth's surface again.

When it rains, the rainwater flows overland into waterways or is absorbed by the ground or plants. Water evaporates from land and water bodies, becoming water vapor in the atmosphere. Water is also released from trees and other plants through "transpiration." The water vapor from evaporation and transpiration forms clouds in the atmosphere which in turn provide precipitation (rain, hail, snow, sleet) to start the cycle over again. This process of water recycling, known as the water cycle, repeats itself continuously.