

Glossary of Terms:

Source: The U.S. Geological Survey. Some definitions have been simplified for easier understanding. This list is abbreviated and a more complete list may be found at: <http://ga.water.usgs.gov/edu/dictionary.html>

Alluvium: Deposits of clay, silt, sand, gravel, or other particulate material that has been deposited by a stream or other body of running water in a streambed, on a flood plain, on a delta, or at the base of a mountain.

Aquaculture: Farming of plants and animals that live in water, such as fish, shellfish, and algae.

Aquifer: A geological formation or structure that stores and/or carries water, such as to wells and springs,

Base flow: The sustained flow of a stream in the absence of direct runoff, including natural and human-induced stream flows. Natural base flow is sustained largely by ground-water discharges.

Benthic: Bottom-dwelling. Refers to animals that live on the bottom regions of waterways.

Condensation: The process of water vapor in the air turning into liquid water. Water drops on the outside of a cold glass of water are condensed water. Condensation is the opposite process of evaporation.

Consumptive use: That part of water withdrawn that is evaporated, taken up by plants and crops, consumed by humans or livestock, or otherwise removed from the immediate water environment. Also referred to as water consumed.

Cubic feet per second (cfs): A rate of the flow, in streams and rivers, for example. It is equal to a volume of water one foot high and one foot wide flowing a distance of one foot in one second. One "cfs" is equal to 7.48 gallons of water flowing each second.

Discharge: The volume of water that passes a given location within a given period of time. Usually expressed in cubic feet per second.

Domestic water use: Water used for household purposes, such as drinking, food preparation, bathing, washing clothes, dishes, and dogs, flushing toilets, and watering lawns and gardens. About 85% of domestic water is delivered to homes by a public-supply facility, such as a county water department. About 15% of the Nation's population supply their own water, mainly from wells.

Drainage basin: Land area where precipitation runs off into streams, rivers, lakes, and reservoirs. It is a land feature that can be identified by tracing a line along the highest elevations between two areas on a map, often a ridge. Large drainage basins, like the area that drains into the Mississippi River contain thousands of smaller drainage basins. Also called a "watershed."

Drip irrigation: A common irrigation method where pipes or tubes filled with water slowly drip onto crops. Drip irrigation is a low-pressure method of irrigation and less water is lost to evaporation than high-pressure spray irrigation.

Drawdown: A lowering of the ground-water surface caused by pumping.

Effluent: Water that flows from a sewage treatment plant after it has been treated.

Erosion: The process in which a material or area, such as a riverbank, is worn away by water or air, often due to the presence of abrasive particles in the stream.

E. coli: Escherichia coli. A type of bacteria that lives in the intestines of warm blooded animals and processes food into various forms of molecules, including vitamins. There are many strains of E. coli, some more dangerous than others, but levels of E. coli in waterways indicate contamination from animal waste that can reach levels dangerous for humans to swim or recreate there.

Estuary: A place where fresh and salt water mix, such as a bay, salt marsh, or where a river enters an ocean.

Evaporation: The process of liquid water becoming water vapor, including vaporization from water surfaces, land surfaces, and snow fields, but not from leaf surfaces.

Evapotranspiration: The sum of evaporation and transpiration.

Flood: An overflow of water onto lands that are used or usable by man and not normally covered by water. Floods have two essential characteristics: The coverage of land is temporary; and the land is adjacent to and covered by overflow from a river, stream, lake, or ocean.

Flood, 100-year: A 100-year flood does not refer to a flood that occurs once every 100 years, but to a flood level *with* a 1 percent chance of being equaled or exceeded in any given year.

Flood plain: A strip of relatively flat and normally dry land alongside a stream, river, or lake that is covered by water during a flood.

Flood stage: The elevation at which overflow of the natural banks of a stream or body of water begins in the area in which the elevation is measured.

Flowing well/spring: A well or spring that taps ground water under pressure so that water rises without pumping. If the water rises above the surface, it is known as a flowing well.

Freshwater: Water that contains less than 1,000 milligrams per liter (mg/L) of dissolved solids; generally, more than 500 mg/L of dissolved solids is undesirable for drinking and many industrial uses.

Gage height: The height of the water surface above a gage zero point. Gage height is often used interchangeably with the more general term, stage, although gage height is more appropriate when used with a gage reading.

Gaging station: A site on a stream, lake, reservoir or other body of water where observations and measures are obtained. The U.S. Geological Survey measures stream discharge at gaging stations.

Giardiasis: A disease that results from an infection by the protozoan parasite *Giardia Intestinalis*, caused by drinking water that is either not filtered or not chlorinated. The disorder is more prevalent in children than in adults and is characterized by abdominal discomfort, nausea, and alternating constipation and diarrhea.

Graywater: Wastewater from clothes washing machines, showers, bathtubs, hand washing, lavatories and sinks.

Ground water: (1) water that flows or seeps downward and saturates soil or rock, supplying springs and wells. The upper surface of the saturate zone is called the water table. (2) Water stored underground in rock crevices and in the pores of geologic materials that make up the Earth's crust.

Ground-water recharge: Inflow of water to a ground-water reservoir from the surface. Infiltration of precipitation and its movement to the water table is one form of natural recharge.

Hardness.: A water-quality indication of the concentration of alkaline salts in water, mainly calcium and magnesium. If the water you use is "hard" then more soap, detergent or shampoo is necessary to raise a lather.

Headwater(s): (1) The source and upper reaches of a stream; also the upper reaches of a reservoir. (2) The water upstream from a structure or point on a stream. (3) The small streams that come together to form a river. Also may be thought of as any and all parts of a river basin except the mainstream river and main tributaries.

Hydrologic cycle: The cyclic transfer of water vapor from the Earth's surface via evapotranspiration into the atmosphere, from the atmosphere via precipitation back to earth, and through runoff into streams, rivers, and lakes, and ultimately into the oceans.

Impermeable (or impervious) layer: A layer of solid material, such as rock, clay, or asphalt, which does not allow water to pass through.

Industrial water use: Water used for industrial purposes in such industries as steel, chemical, paper, and petroleum refining. Nationally, water for industrial uses comes mainly (80%) from self-supplied sources, such as a local wells or withdrawal points in a river, but some water comes from public-supplied sources, such as the county/city water department.

Infiltration: Flow of water from the land surface into the subsurface.

Injection well: Refers to a well constructed for the purpose of injecting treated wastewater directly into the ground. Wastewater is generally forced (pumped) into the well for dispersal or storage into a designated aquifer. Injection wells are generally drilled into aquifers that don't deliver drinking water, unused aquifers, or below freshwater levels.

Irrigation: The controlled application of water for agricultural purposes through manmade systems to supply water requirements not satisfied by rainfall.

Irrigation water use: Water application on lands to assist in the growing of crops and pastures or to maintain vegetative growth in recreational lands, such as parks and golf courses.

Karst: Characteristic topography which, in Virginia consists predominantly of sandstone and limestone and in which ground water has dissolved the limestone, creating caverns, sinkholes, and large channels for water flow. This landscape provides opportunities for large volumes of water to flow long distances quickly.

Leaching: The process by which soluble materials in the soil, such as salts, nutrients, pesticide chemicals or contaminants, are washed into a lower layer of soil or are dissolved and carried away by water.

Lentic waters: Ponds or lakes (standing water).

Lotic waters: Flowing waters, as in streams and rivers.

Macroinvertebrates: Animals without a backbone that are large enough to see with the naked eye. Generally taken to be larger than 1/2 millimeter (about the size of a pencil dot).

Maximum contaminant level (MCL): The designation given by the U.S. Environmental Protection Agency (EPA) to water-quality standards promulgated under the Safe Drinking Water Act. The MCL is the greatest amount of a contaminant that can be present in drinking water without causing a risk to human health.

Milligrams per liter (mg/l): A unit of the concentration of a substance in water or wastewater. It represents 0.001 gram of a constituent in 1 liter of water. It is approximately equal to one part per million (PPM).

Nephelometric turbidity unit (NTU): Unit of measure for the turbidity of water. Essentially, a measure of the cloudiness of water as measured by a nephelometer. Turbidity is based on the amount of light that is reflected off particles in the water.

Non-point source (NPS) pollution: Pollution discharged over a wide land area, not from one specific location. These are forms of diffuse pollution caused by sediment, nutrients, organic and toxic substances originating from land-use activities, which are carried to lakes and streams by surface runoff. Non-point source pollution is contamination that occurs when rainwater, snowmelt, or irrigation washes off plowed fields, city streets, or suburban backyards. As this runoff moves across the land surface, it picks up soil particles and pollutants, such as nutrients and pesticides.

Osmosis: The movement of water molecules through a thin membrane. The osmosis process occurs in our bodies and is also one method of [desalinating](#) saline water.

Outfall: The place where a sewer, drain, or stream discharges; the outlet or structure through which reclaimed water or treated effluent is finally discharged to a receiving water body.

Oxygen demand: The need for molecular oxygen to meet the needs of biological and chemical processes in water. Even though very little oxygen will dissolve in water, it is extremely important in biological and chemical processes.

pH: A measure of the relative acidity or alkalinity of water. Water with a pH of 7 is neutral; lower pH levels indicate increasing acidity, while pH levels higher than 7 indicate increasingly basic solutions

Particle size: The diameter, in millimeters, of suspended sediment or bed material.

Particle-size classifications are: [1] Clay—0.00024-0.004 millimeters (mm); [2] Silt—0.004-0.062 mm; [3] Sand—0.062-2.0 mm; and [4] Gravel—2.0-64.0 mm.

Pathogen: A disease-producing agent; usually applied to a living organism. Generally, any viruses, bacteria, or fungi that cause disease.

Peak flow: The maximum instantaneous discharge of a stream or river at a given location. It usually occurs at or near the time of maximum stage.

Percolation: (1) The movement of water through the openings in rock or soil. (2) The entrance of a portion of the streamflow into the channel materials to contribute to ground water replenishment.

Permeability: The ability of a material to allow the passage of a liquid, such as water through rocks. Permeable materials, such as gravel and sand, allow water to move quickly through them, whereas impermeable or impervious materials, such as clay, don't allow water to flow freely.

Point-source pollution: Water pollution coming from a single point, such as a sewage-outflow pipe.

Polychlorinated biphenyls (PCBs): A group of synthetic, toxic industrial chemical compounds once used in making paint and electrical transformers, which are chemically inert and not biodegradable. PCBs were frequently found in industrial wastes, and subsequently found their way into surface and ground waters. As a result of their persistence, they tend to accumulate in the environment. In terms of streams and rivers, PCBs are drawn to sediment, to which they attach and can remain virtually indefinitely. Although virtually banned in 1979 with the passage of the Toxic Substances Control Act, they continue to appear in the flesh of fish and other animals.

Porosity: A measure of the water-bearing capacity of subsurface rock. With respect to water movement, it is not just the total magnitude of porosity that is important, but the size of the voids and the extent to which they are interconnected, as the pores in a formation may be open, or interconnected, or closed and isolated. For example, clay may have a very high porosity with respect to potential water content, but it constitutes a poor medium as an aquifer because the pores are usually so small.

Potable water: Water of a quality suitable for drinking.

Precipitation: Rain, snow, hail, sleet, dew, and frost.

Recharge: Water added to an aquifer. For instance, rainfall that seeps into the ground.

Reclaimed wastewater: Treated wastewater that can be used for beneficial purposes, such as irrigating certain plants.

Recycled water: Water that is used more than one time before it passes back into the natural hydrologic system.

Return flow: (1) That part of a diverted flow that is not consumed and is returned to its original source or another body of water. (2) Drainage water from irrigated farmlands that re-enters the water system to be used further downstream.

Reverse osmosis: (1) (Desalination) The process of removing salts from water using a membrane. With reverse osmosis, the product water passes through a fine membrane that the salts are unable to pass through, while the salt waste (brine) is removed and disposed. (2) (Water Quality) An advanced method of water or wastewater treatment that relies on a semi-permeable membrane to separate waters from pollutants. An external force is used to reverse the normal osmotic process resulting in the solvent moving from a solution of higher concentration to one of lower concentration.

Riparian: Of, on or relating to the banks of a natural course of water such as a stream or river.

Riparian buffer: An area of vegetation (trees and shrubs) along the banks of a stream or river bank that protects the waterway by providing shade, stabilizing the banks, and promoting wildlife habitat.

Riparian water rights: The rights of an owner whose land abuts water. They differ from state to state and often depend on whether the water is a river, lake, or ocean. The doctrine of riparian rights is an old one, having its origins in English common law. Specifically, persons who own land adjacent to a stream have the right to make reasonable use of the stream.

River: A natural stream of water of considerable volume, larger than a brook or creek.

Runoff: That part of the precipitation, snow melt, or irrigation water that appears in uncontrolled surface streams, rivers, drains or sewers. Runoff may be classified according to speed of appearance after rainfall or melting snow as direct runoff or base runoff, and according to source as surface runoff, storm interflow, or ground-water runoff.

Sediment: Usually applied to material(s) suspended in water such as sand, silt or other particles, or recently deposited from suspension. In the plural the word is applied to all kinds of deposits from the waters of streams, lakes, or seas.

Sedimentary rock: Rock formed of sediment, and specifically: (1) sandstone and shale, formed of fragments of other rock transported from their sources and deposited in water; and (2) rocks formed by or from secretions of organisms, such as most limestone. Many sedimentary rocks show distinct layering, which is the result of different types of sediment being deposited in succession.

Sinkhole: A depression in the Earth's surface caused by dissolving of underlying limestone, salt, or gypsum. Drainage is provided through underground channels that may be enlarged by the collapse of a cavern roof.

Solute: A substance that is dissolved in another substance, thus forming a solution.

Solution: A mixture of a solvent and a solute.

Solvent: A substance that dissolves other substances, thus forming a solution. Water dissolves more substances than any other, and is known as the "universal solvent".

Specific conductance: A measure of the ability of water to conduct an electrical current as measured using a 1-cm cell and expressed in units of electrical conductance, i.e., Siemens per centimeter at 25 degrees Celsius. Specific conductance can be used for approximating the total dissolved solids content of water by testing its capacity to carry an electrical current. In water quality, specific conductance is used in ground water monitoring as an indication of the presence of ions of chemical substances that may have been released by a leaking landfill or other waste storage or disposal facility.

Spray irrigation: A common irrigation method where water is shot from high-pressure sprayers onto crops. Because water is shot high into the air onto crops, some water is lost to evaporation.

Spring: A water body formed when the side of a hill, a valley bottom or other excavation intersects a flowing body of groundwater at or below the local water table, below which the subsurface material is saturated with water.

Stream: A general term for a body of flowing water; natural water course containing water at least part of the year. In hydrology, it is generally applied to the water flowing in a natural channel as distinct from a canal.

Streamflow: The water discharge that occurs in a natural channel. A more general term than runoff, streamflow may be applied to discharge whether or not it is affected by diversion or regulation.

Subsidence: A dropping of the land surface as a result of ground water being pumped. Cracks and fissures can appear in the land. Subsidence is virtually an irreversible process.

Surface water: Water that is on the Earth's surface, such as in a stream, river, lake, or reservoir.

Suspended sediment: Very fine soil particles that remain in suspension in water for a considerable period of time without contact with the bottom. Such material remains in suspension due to the upward components of turbulence and currents and/or by suspension.

Suspended-sediment concentration: The ratio of the mass of dry sediment in a water-sediment mixture to the mass of the water-sediment mixture. Typically expressed in milligrams of dry sediment per liter of water-sediment mixture.

Suspended-sediment discharge: The quantity of suspended sediment passing a point in a stream over a specified period of time. When expressed in tons per day, it is computed by multiplying water discharge (in cubic feet per second) by the suspended-sediment concentration (in milligrams per liter) and by the factor 0.0027.

Suspended solids: Solids that are not in true solution and that can be removed by filtration. Such suspended solids usually contribute directly to turbidity. Defined in waste management, these are small particles of solid pollutants that resist separation by conventional methods.

Thermal pollution: A reduction in water quality caused by increasing its temperature, often due to disposal of waste heat from industrial or power generation processes. Thermally polluted water can harm the environment because plants and animals can have a hard time adapting to it.

Transmissibility: The capacity of a rock to transmit ground water under pressure. The coefficient of transmissibility is the rate of flow of water, at the prevailing water temperature, in gallons per day, through a vertical strip of the aquifer one foot wide, extending the full saturated height of the aquifer under a hydraulic gradient of 100-percent. A hydraulic gradient of 100-percent means a one foot drop in head in one foot of flow distance.

Transpiration: Process by which water that is absorbed by plants, usually through the roots, is evaporated into the atmosphere from the plant surface, such as leaf pores.

Tributary: A smaller river or stream that flows into a larger river or stream. Usually, a number of smaller tributaries merge to form a river.

Turbidity: The cloudiness of water. This is caused by particles that are suspended in water and cause light rays shining through the water to scatter.

Unsaturated zone: The zone immediately below the land surface where the pores contain both water and air, but are not totally saturated with water. These zones differ from an aquifer, where the pores are saturated with water.

Wastewater: Water that has been used in homes, industries, and businesses that is not for reuse unless it is treated.

Wastewater-treatment return flow: Water returned to the environment by wastewater-treatment facilities.

Water cycle: The circuit of water movement from the oceans to the atmosphere and to the Earth and return to the atmosphere through various stages or processes such as precipitation, interception, runoff, infiltration, percolation, storage, evaporation, and transportation.

Water quality: A term used to describe the chemical, physical, and biological characteristics of water, usually in respect to its suitability for a particular purpose.

Water table: The top of the water surface in the saturated part of an aquifer.

Watershed: The land area that drains water to a particular stream, river, or lake. It is a land feature that can be identified by tracing a line along the highest elevations between two areas on a map, often a ridge. Large watersheds, like the Mississippi River basin contain thousands of smaller watersheds.

Well: An artificial excavation put down by any method for the purposes of withdrawing water from the underground aquifers. A bored, drilled, or driven shaft, or a dug hole whose depth is greater than the largest surface dimension and whose purpose is to reach underground water supplies or oil, or to store or bury fluids below ground.

Withdrawal: Water removed from a ground- or surface-water source for a variety of uses by humans.