

GLOSSARY

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This is a partial list of the more commonly used words in Water and Environmental Science.

Absorbing to take in and make part of an existent whole. To take up like a sponge.

Adaptation the modification, over time, of the structure, function, or behavior of an organism, which enables it to be better, suited to its environment.

Aerator device that adds air or oxygen to something such as water.

Algae a plant or plantlike organism of any of several phyla, divisions, or classes of chiefly aquatic usually chlorophyll-containing nonvascular organisms of polyphyletic origin that usually include the green, yellow-green, brown, and red algae in the eukaryotes and the blue-green algae in the prokaryotes

Aquifer a natural underground reservoir of water. Gravel and rocks with high porosity can hold large volumes of water. Aquifers underlie many parts of the earth's surface..

Atmosphere the layer of gases surrounding Earth; composed mainly of nitrogen and oxygen.

Bacteria single celled microorganisms that are either free-living or grow on and derive nourishment from dead or decaying organic matter. Some bacteria cause disease in plants and animals.

Bog an area of soft, water-saturated ground with spongy, acidic substrate composed mostly of sphagnum moss and peat, and in which water-tolerant shrubs, herbs, and trees usually grow.

Boiling Point the temperature of a liquid to a gas by heating up to the boiling point

Capillary action the means by which water is drawn through tiny spaces in a material, such as soil, through the processes of adhesion and cohesion.

Climate the meteorological elements, including temperature, precipitation, and wind, that characterize the general conditions of the atmosphere over a period of time at any one place or region of Earth's surface. Earth has three climate zones: Polar, Temperate, and Tropical. Climate zones are further classified into ecosystems and biomes.

Cohesion the attraction of water molecules to each other as a result of hydrogen bonding.

Collection site a stream, lake, reservoir, or body of water fed by water drained from a watershed

Condensation the process by which a vapor becomes a liquid; the opposite of evaporation

Confined aquifer A water-saturated layer of soil or rock that is bounded above and below by impermeable layers.



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Conservation the use of water-saving methods to reduce the amount of water needed for homes, lawns, farming and industry, and thus increasing water supplies for optimum long-term economic and social benefits.

Consumptive use is the use of a resource that reduces the supply (e.g. removing water from a source such as a river or lake without returning an equal amount)/ Examples are the intake of water by plants, humans, and other animals and the incorporation of water into the products of industrial or food processing.

Contaminant any substance that when added to water (or another substance) makes it impure and unfit for consumption or use.

Control a standard for comparing, checking, or verifying the results of an experiment or activity.

Cubic feet per second (cfs)/ cubic meters per second (cms) units typically used in measuring stream flow that expresses rate of discharge.

Debris: 1: the remains of something broken down or destroyed
2: an accumulation of fragments of rock
3: something discarded: RUBBISH

Decomposition the breakdown or decay of organic matter through the digestive processes of microorganisms, macroinvertebrates, and scavengers.

Deforestation the removal of all trees from an area of land. Vast areas of the world have been deforested, principally as a result of the spread of agriculture, disease, urban sprawl, and lumber operations.

Depletion the loss of water from surface water reservoirs or ground water

Deposition the process of laying down sediment or accumulating layers of material carried in suspension.

Diffusion the movement of a substance from an area of high concentration to an area of low concentration.

Direct water uses is the uses of water that are apparent (e.g. washing, bathing, cooking).

Discharge an outflow of water from a stream, pipe, ground water system, or watershed.

Downstream the direction of a stream's current; in relation to water rights, refers to water uses or locations that are affected by upstream uses or locations.

Drought an extended period with little or no precipitation; often affects crop production and availability of water supplies.



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Ecology the study of the relationships of living things to one another and to the environment.

Ecosystem is a community of living organisms and their interrelated physical and chemical environment; also, a land area within a climate.

Energy the capacity to perform work, or the potential for power and activity.

Environment is all of the external factors, conditions, and influences that affect an organism or a biological community.

Erosion the wearing-down or washing away of the soil and land surface by the action of water, wind, or ice.

Evaporation the process by which the liquid form of water is turned into a gas and returns to the atmosphere. Water evaporates from all bodies of water or any wet surface when the air is warmer than the water.

Evapotranspiration is the loss of water from the soil through both evaporation and transpiration.

Filter: 1 a: a porous article or mass (as of paper or sand) through which a gas or liquid is passed to separate out matter in suspension b: something that has the effect of a filter
2: an apparatus containing a filter medium

Flocculation: transitive senses: to cause to aggregate into a flocculent mass
intransitive senses: to become flocculent

Flood any relatively high stream flow overtopping the natural or artificial banks of a stream.

Flood plain any normally dry land area that is susceptible to being inundated by water from any natural source; usually lowland adjacent to a stream or lake.

Fluoride:

Usage: often attributive

1: a compound of fluorine

Freezing Point the temperature at which a substance turns from a liquid into a solid; water is different from nearly all other substances because it is densest in liquid form at about 4° C., less dense in solid form a 0° Celcius or 32 ° Fahrenheit

Fresh Water water with less than 0.5 parts per thousand dissolved salts.



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Gas [gaseous] the state of water in which individual molecules are highly energized and move about freely; also known as vapor.

Gas the state of matter in which a substance has no definite shape and a volume defined largely by the size of its container (as well as temperature and pressure); molecules are widely separated and in constant random motion. Examples include water vapor and air (a mixture of gases).

Geyser a geothermal feature characterized by periodic eruptions of superheated water and steam.

Gradient A measure of a degree of incline; the steepness of a slope.

Gravity the natural force of attraction exerted by Earth on objects or materials on its surface that tends to draw them down toward its center.

Ground Water System all the components of subsurface materials that relate to water, including aquifers (confined and unconfined), zones of saturation, and water tables.

Groundwater water that has been absorbed into the soil and is contained in rock pores, cracks and crevices in rock formations, sand, gravel and other porous materials. Aquifers are one kind of groundwater. Water from wells or springs are ways of tapping groundwater.

Habitat the environment where a plant or animal grows or lives.

Headwaters the source of the stream.

Humidity the degree of moisture in the air.

Hydrogen bond a type of chemical bond caused by electromagnetic forces, occurring when the positive pole of one molecule (e.g. water) is attracted to and forms a bond with the negative pole of another molecule (e.g. another water molecule).

Hydrogen bonds weak bonds that form between small molecules (or within macromolecules), specifically involving an atom that has a partial negative charge, especially oxygen in water and in living things, and another atom (such as hydrogen) having a partial positive charge; results in “sticking together” of molecules.

Hydrologic Cycle See water cycle.

Hydrology the study of Earth’s waters, including water’s properties, circulation, principles and distribution.

Hypothesis a potential explanation for a condition or set of facts that can be tested through further investigation.



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Ice frozen water or water in its solid state; molecules move apart (compared to their close association in cold water) to form a latticework of hydrogen-bonded molecules, molecules vibrate in their fixed position.

Impermeable layer is a layer of material (e.g., clay) in an aquifer through which water does not pass.

Indirect water uses are uses of water that are not immediately apparent to the consumer. For example, a person indirectly uses water when driving a car because water was used in the production process of steel and other parts of the vehicle.

Instream flow the minimum amount of water required in a stream to maintain the existing aquatic resources and associated wildlife and riparian habitat.

Irrigation the controlled application of water to cropland, hay fields, and/or pasture to supplement that supplied by nature.

Levee an embankment or raised area that prevents water from moving from one place to another.

Liquid a state of water in which molecules move freely among themselves but do not separate like those in a gaseous state.

Meteorology the study of the atmosphere, including weather and climate.

Migration the periodic movement of animate things from one area to another, often in response to seasonal change.

Nonpoint-source a source of pollution in which wastes are not released at one specific, identifiable point but from a number of points or a general area that is difficult to identify and control. Water draining off of city streets and the pesticides and herbicides washed by rainfall from agricultural fields are a kind of nonpoint pollution.

Nonpolar molecules without an electrical charge like lipids that do not dissolve in water.

Nutrient substances used by plants and animals for growth.
occurs at 32 degrees Fahrenheit (0 degrees Celsius).

Overburden to place an excessive burden on

Parts per million (PPM)/parts per billion (PPB) units typically used in measuring the number of "parts" by weight of a substance in water; commonly used in representing pollutant concentrations

Percolation is the downward movement of water from the surface of the earth into below ground aquifers

Permeable capable of transmitting water (e.g., porous rock, sediment, or soil).



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Permeable Layer a layer of porous material (rock, soil, unconsolidated sediment); in an aquifer, the layer through which water freely passes as it moves through the ground.

pH a classification of acid or base materials on a scale of 0 to 14, with 7 representing neutrality; numbers less than 7 indicate increasing acidity, and numbers greater than 7 indicate increasing alkalinity (basic conditions).

Phosphate a salt of phosphoric acid

Photosynthesis the process through which green plants (and certain other organisms) produce simple sugars by combining carbon dioxide and water using light (sunlight) as an energy source and producing oxygen as a by-product. (Some forms of photosynthesis do not release oxygen.)

Point-source pollution any harmful substances deposited in the air or on water or land. Pollution threatens health of people, other animals, and plants, and diminishes the quality of the environment.

Polar having to do with, or characterized by possessing, oppositely charged electric poles.

Pollution an alteration in the character or quality of the environment, or any of its components that renders it less suited for certain uses. The alteration of the physical, chemical, or biological properties of water by the introduction of any substances that renders the water harmful to use.

Potential energy stored energy such as that found in water that is retained in a reservoir or kept from flowing downhill. When released (allowed to move), potential energy changes to kinetic energy.

Precipitations water vapor that condenses into clouds and falls on the land and water in the form of rain, snow, hail or sleet. Eighty-five percent of all precipitation falls into the ocean.

Rawwater H₂O (water) being in or nearly in the natural state: not processed or purified, not diluted or blended form

Saturate

1: to satisfy fully: SATIATE

2: to treat, furnish, or charge with something to the point where no more can be absorbed, dissolved, or retained

3 a: to fill completely with something that permeates or pervades b: to load to capacity

4: to cause to combine till there is no further tendency to combine
synonym see SOAK



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Runoff the amount of precipitation that falls on a body of land that runs off rather than soaking into the land. Runoff causes erosion and carries fertilizers, pesticides and other pollutants from the land into streams.

The measurement is equal to the discharge in a stream cross section one foot wide and one foot deep (or one meter wide and one meter deep), flowing with an average velocity of one foot (or meter) per second; 1 cfs = 44.8 gallons per minute (gpm); 1 cms = 1,000 liters per second.

Ridge lines points of higher ground that separate two adjacent streams or watersheds; also known as divides.

Riparian areas land areas directly influenced by a body of water; usually visible vegetation or other physical characteristics showing this water influence. Stream banks, lake borders, and marshes are typical riparian areas.

Salinization the condition in which the salt content of soil accumulates over time to above the normal level; occurs in some parts of the world where water containing high salt concentration evaporates from fields irrigated with standing water.

Salt Marsh low coastal grassland frequently inundated by the tide.

Salt Water -water that contains a relatively high percentage (over 0.5 parts per thousand) of salt minerals.

Sediment Fragmented organic or inorganic material derived from the weathering of soil, alluvial and rock materials; removed by erosion and transported by water, wind, ice, and gravity.

Soil the top layer of Earth's surface, containing unconsolidated rock and mineral particles mixed with organic material.

Solid the state of water in which molecules have limited movement.

Solution the mixture of a solute (a solid, liquid, or gas e.g.' sugar, alcohol, or carbon dioxide) with a solvent (e.g., water). The solute mixes thoroughly with the solvent and appears to become a part of the solvent.

Solvent a material such as water that dissolves another substance (the solute) to form a solution.

Stomata tiny pores in the epidermis or surface of plant leaves or stems through which gases and water vapor are exchanged with the environment.

Storm drain constructed opening in a road system through which runoff from the road surface flows into an underground sewer system.

Stream any body of running water moving under gravity's influence through clearly defined natural channels to progressively lower levels.



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Stream flow the discharge of water from a river.

Surface Tension the attraction among water molecules at the surface of a liquid; creates a skin-like barrier between air and underlying water molecules.

Surface Water – water above the surface of the land, including lakes, rivers, streams, ponds, flood water, and runoff.

Temporary Wetland a type of wetland in which water is present for a only part of the year, usually during the wet or rainy seasons (e.g., spring) also called vernal pools.

Transpiration the process by which water absorbed by plants (usually through the roots) is evaporated into the atmosphere from the plant surface (principally from the leaves).

Tributary a stream that contributes its water to another stream or body of water.

Unconfined aquifer an aquifer in which the upper boundary is the water table.

Upstream toward the source or upper part of a stream; against the current. In relation to water rights, refers to water uses or locations that affect water quality or quantity of downstream water uses or locations.

Wastewater is water that contains unwanted materials from homes, businesses, and industries; a mixture of water and dissolved or suspended substances.

Wastewater treatment any of the mechanical or chemical processes used to modify the quality of wastewater in order to make it more compatible or acceptable to humans and the environment.

Water (H₂O) an odorless, tasteless, colorless liquid made up of a combination of hydrogen and oxygen. Water forms streams, lakes and seas, and is a major constituent of all living matter.

Water cycle the paths water takes through its various states – vapor, liquid, and solid – as it moves throughout Earth's systems (oceans, atmosphere, groundwater, streams, etc.) Also known as the hydrologic cycle.

Water molecule the smallest unit of water; consists of two hydrogen atoms and an oxygen atom.

Water quality the chemical, physical, and biological characteristics of water with respect to its suitability for a particular use.

Water quality standard recommended or enforceable maximum contaminant levels of chemicals or materials (e.g. chlorobenzene, nitrate, iron, and arsenic) in water. These levels are established for water used by municipalities, industries, agriculture and recreationists.



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Watershed the land area from which surface runoff drains into a stream channel, lake, reservoir, or other body of water; also called a drainage basin.

Water Table the top of an unconfined aquifer; indicates the level below which soil and rock are saturated with water

Water treatment plants facilities that treat water to remove contaminants so that it can be safely used

Wetlands lands where water saturation is the dominant factor determining the nature of soil development and the types of plant and animal communities. Other common names for wetlands are sloughs, ponds, and marshes.

Xeriscaping a form of landscaping that utilizes a variety of indigenous and drought-tolerant plants, shrubs, and ground covers.

Xylem the supporting layer of tissue in vascular plants that conducts water and nutrients from the roots to other parts of a plant.

Zone of aeration the unsaturated surface layer of the ground in which some of the spaces between soil particles are filled with water and others are filled with air. Some of the water in the zone of aeration is lost to the atmosphere through evaporation.

Zone of saturation the part of a ground water system in which all of the spaces between soil and rock material are filled with water. Water found within the zone of saturation is called ground water. The water table is the top of the zone of saturation.



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