

Guam Water Kids
Selected Glossary*

Aquifer – A geologic formation(s) that is water bearing. A geological formation or structure that stores and/or transmits water, such as to wells and springs. Use of the term is usually restricted to those water-bearing formations capable of yielding water in sufficient quantity to constitute a usable supply for people's uses. [This water is called groundwater.]

Atmosphere – The mass of air that surrounds the Earth.

Collection – In the context of the **water cycle**, when precipitation falls on land it may infiltrate (soak into) the ground and collect as groundwater. [On Guam, most of the water use by our population is from groundwater].

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. [Condensation is crucial to the **water cycle** because it is responsible for the formation of clouds which may produce precipitation.]

Desalination – The removal of salts from saline water to provide freshwater.

Drinkable – Freshwater that is pure enough for people to drink. (See also Freshwater).

Evaporation – The process of liquid water becoming water vapor, including vaporization from water surfaces, land surfaces, and snow fields, but not from leaf surfaces. (See also transpiration). [Evaporation is the primary pathway that water moves from the liquid state back into the **water cycle** as atmospheric water vapor.]

Evapotranspiration – The sum of evaporation and transpiration. (See also evaporation and transpiration).

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.

Groundwater – (1) Water that flows or seeps downward and saturates soil or rock, supplying springs and wells. (2) Water stored underground in rock crevices and in the pores of geologic materials that make up the Earth's crust. [Much of the fresh water resource is groundwater in the Northern Guam Lens Aquifer].

Groundwater recharge – Inflow of water to a groundwater reservoir from the surface. Infiltration of precipitation and its movement to the water table is one form of natural recharge. Also, the volume of water added by this process.

Infiltration – The process by which water on Earth's surface passes through the surface and is trapped underground. [Infiltration and Collection is one of the stages of the **water cycle**.]

Interception – The process and the amount of rain or snow stored on leaves and branches and eventually evaporated back to the air. Interception does not include the precipitation that reaches the ground by flowing down the trunks or stems of plants (stem flow) or dripping from twigs or leaves (throughfall).

Karst is a geological phenomenon that develops in limestone and other soluble rocks through the dissolving action of water. It is a collective term for the surface landscape and subsurface features that form in such rocks and include characteristic landforms such as caves, sinkholes, and springs. Typical of karst terrains is that existence of surface waters is limited and there are few to no rivers or lakes. Drainage is largely subterranean, through underground conduits and other voids. (See Limestone)

Northern Guam Lens Aquifer – A rock formation under northern Guam. [Most of the water that supplies the population of Guam comes from water wells that have been drilled into this aquifer.]

Limestone: A sedimentary rock consisting primarily of calcium carbonate in the form of the mineral calcite. Rainwater dissolves the limestone by the following reaction: $\text{Calcite} + \text{Carbonic acid} = \text{Calcium ions dissolved in ground water} + \text{Bicarbonate ions dissolved in ground water}$.

Ocean water – The water found in the oceans. Ocean water or sea water is not drinkable for humans. (See saltwater).

Percolation – The movement of water through the openings in rock or soil.

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 (unpermeable) material, such as clay, doesn't allow water to flow freely.

Pollutant – Something that pollutes or damages, air, soil, or water.

Pollution – Damage to the natural environment caused by harmful substances. Two designations for pollution are

Non-point Source Pollution (NPS pollution) – Pollution discharged over a wide land area, not from one specific location. [An example of NPS pollution is the contaminants that are carried into rivers and streams when rainwater washes off city streets, backyards or plowed fields. The runoff water can carry pesticides, household chemicals and other pollutants into the water as it flows to the ocean. *NPS pollutants come from sources that we as individuals have control over.*]

Point-source Pollution –Water pollution coming from a single point, such as a sewage-outflow pipe. Point Source Pollution is regulated by federal, state and local laws.

Porous – Having spaces or holes though which liquid or air may pass.

Precipitation – Water released from clouds in the form of rain, freezing rain, sleet, snow, or hail. It is the primary connection in the water cycle that provides for the delivery of atmospheric water to the Earth.

Public water use – Water supplied from a public-water supply and used for such purposes as firefighting, street washing, and municipal parks and swimming pools. [Water for fighting fires and the fire hydrant component of our water system is of key importance to Guam].

Resource – A natural, economic, or political asset that can be drawn upon when needed.

River – A natural flow of fresh water that flows towards an ocean, a lake or another river.

River system – All of the streams and small rivers that drain a watershed and flow into one main river.

Runoff – Runoff is the overland flow of water that occurs when excess water from precipitation or other sources flows over the earth's surface.

Salinity – Salinity is a measure of the amount of salt in a solution such as water.

Here are our parameters for saline water:

Fresh water - Less than 1,000 parts per million (ppm)

Slightly saline water - From 1,000 ppm to 3,000 ppm

Moderately saline water - From 3,000 ppm to 10,000 ppm
Highly saline water - From 10,000 ppm to 35,000 ppm

Saltwater – Salt water or seawater has characteristics similar to fresh water with some noticeable differences because of the salts that are dissolved in water. (See salinity)

Sediment – Soil created by wind and water erosion.

Storage – 1. Water artificially impounded in surface or underground reservoirs, for future use. 2. Water naturally detained in a drainage basin. The term "drainage basin storage" or simply "basin storage" is sometimes used to refer collectively to the amount of water in natural storage in a drainage basin.

Storm Drain – A drain or drain system that is designed to allow excess rain to dissipate from paved streets, parking lots, sidewalks, and roofs. Storm drains lead to the ocean and should never be used to dispose of garbage or harmful chemicals. [Outflow from storm drains has significant impact on Guam's coral. Avoiding pollution of our streets, gutters and drains is an important aspect of environmental education.]

Surface Water – Water that is on the Earth's surface, such as in a stream, river, natural lake, manmade reservoir, pond, or wetlands.

Transpiration – The 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. (See evapotranspiration.)

Ugum River and Ugum River Watershed – One of Guam's largest watersheds. Of note is that the Guam Waterworks Authority's pumping, treatment and storage facilities associated with the Ugum River supplies water to many of the homes in southern Guam. (See watershed).

Vapor – a substance that is in the form of a gas or that consists of very small drops or particles mixed with the air.

Vaporize – to change into a vapor or to cause (something) to change into a vapor.

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. [Guam Water Kids materials present this continuous movement of water on, above, and below the surface of the earth in four stages: evaporation, condensation, precipitation, infiltration & collection.] See also

Watershed – Also known as a drainage basin, a watershed is 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. For a map of drainage basins of southern Guam go to <http://south.hydroguam.net/map-hydrology-watersheds.php>

Wetlands – Wetland is a generic term for all the different kinds of wet habitats—implying that it is land that is wet for some period of time, but not necessarily permanently wet. Wetlands are called by numerous including swamp, marsh, and bog. Wetlands have numerous definitions and classifications in the United States as a result of their diversity. For the National Water Summary on Wetland Resources, go to <https://water.usgs.gov/nwsum/WSP2425/definitions.html>. [Guam’s wetlands are usually coastal lowlands along the shoreline. This water is a mixture of fresh water and seawater. Wetlands are important because they protect our shores from wave action, reduce the impact of floods, absorb pollutants and support a diverse range of animals and plants.]

*Sources

U.S. Geological Survey “Water Science Glossary of Terms”
<https://water.usgs.gov/edu/dictionary.html>

U.S. Geological Survey “Science in Your Watershed”
<https://water.usgs.gov/wsc/glossary.html#HYDROLOGICDEF>

WERI: Water and Environmental Research Institute of the Western Pacific
<http://south.hydroguam.net/background-glossary.php>

Additional notes pertaining to Guam Water Kids materials are included.