

Glossary of Groundwater Terms

Acre-foot (ac.ft.) - the volume of water required to cover 1 acre of land (43,560 square feet) to a depth of 1 foot. Equal to 325,851 gallons or 1,233 cubic meters.

Adjudication - a case that has been heard and decided by a judge.

Alluvial aquifer - generally shallow sand and gravel deposits laid down over time in a river channel or floodplain. The name “alluvial” refers to the loose, unlayered nature of the material – often silt, clay, sand, and gravel, deposited by running water in and around rivers.

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.

Beneficial use - the use of water for some domestic, agricultural, industrial, social, recreational or instream use. The State Water Quality Control Board lists 23 types of beneficial uses with water quality criteria for those uses established by the Regional Water Quality Control Boards. Water rights holders must demonstrate that the use is both reasonable and beneficial.

Closed basin - a basin whose topography prevents surface outflow of water. It is considered to be hydrologically closed if neither surface nor underground outflow of water can occur under average hydrologic conditions

Cone of depression – lowering of the water table when groundwater is pumped from a well, especially in the immediate circle around the pumping

Confined aquifer - an aquifer below the land surface that is saturated with water. Layers of impermeable material are both above and below the aquifer, causing it to be under pressure so that when the aquifer is penetrated by a well, the water will rise above the top of the aquifer.

Conjunctive use, conjunctive operation – the operation of a groundwater basin in combination with a surface water storage and conveyance system to maximize water supply. Water is stored in the groundwater basin for later use by intentionally recharging a basin when a water supply is available.

Consumptive use - that part of water withdrawn that is evaporated, transpired by plants, incorporated into products or crops, consumed by humans or livestock, or otherwise removed from the immediate water environment. Also referred to as water consumed.

Corcoran clay layer - a very clay-rich confining layer for parts of the San Joaquin Valley's aquifer system that was laid down by an ancient lake

Drawdown - a lowering of the groundwater surface caused by pumping.

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 (ET) - the quantity of water transpired (given off), retained in plant tissues, and evaporated from plant tissues and surrounding soil surfaces.

Extraction – the process of withdrawing groundwater from storage by pumping or other controlled means

Groundwater - water that occurs beneath the land surface and fills the pore spaces of the alluvium, soil, or rock formation in which it is situated. It excludes soil moisture, which refers to water held by capillary action in the upper unsaturated zones of soil or rock.

Groundwater basin - an alluvial aquifer or a stacked series of alluvial aquifers with reasonably well-defined boundaries in a lateral direction and having a definable bottom.

Groundwater mining - the process, deliberate or inadvertent, of extracting groundwater from a source at a rate in excess of the replenishment rate such that the groundwater level declines persistently, threatening exhaustion of the supply or at least a decline of pumping levels to uneconomic depths

Inflow – water that moves into a place

Nitrate contamination – one of the most common kinds of water contamination, because nitrates are used in fertilizer. High levels of nitrates in people can harm the respiratory and reproductive system, kidney, spleen, and thyroid. It is particularly harmful to infants

Outflow – water that leaves a place

Overdraft - over a period of years, more water is pumped from a groundwater basin than is replaced from all sources

Plume – a body of one fluid moving through another. Often used to refer to the migration or location of a body of contaminated water in an aquifer

Recharge - water added to an aquifer or the process of adding water to an aquifer. Ground water recharge occurs either naturally as the net gain from precipitation, or artificially as the result of human influence

Safe yield - the maximum quantity of water that can be continuously withdrawn from a groundwater basin without overdraft

Saline/seawater intrusion - the movement of salt water into a body of fresh water. It can occur in either surface water or groundwater bodies.

Surface supply - water supply obtained from streams, lakes, and reservoirs.

Sustainable yield- the maximum quantity of water, calculated over a base period representative of long-term conditions in the basin and including any temporary surplus, that can be withdrawn annually from a groundwater supply without causing an undesirable result.

Unconfined aquifer - a groundwater aquifer is said to be unconfined when its upper surface (water table) is open to the atmosphere through permeable material. As opposed to a confined aquifer, the water table in an unconfined aquifer system has no overlying impervious rock layer to separate it from the atmosphere.

Water budget - an accounting of the total groundwater and surface water entering and leaving a basin including the changes in the amount of water stored

Water transfer – conveyance of groundwater or surface water from one area to another that involves crossing a political or hydrologic boundary. A voluntary change in a point of diversion, place of use, or purpose of use that may involve a change in water rights. A long-term transfer shall be for any period in excess of one year.

Water market – a system through which water and water rights can be bought, sold, and leased. In California’s water market, buyers and sellers trade water through short-term leases, long-term leases, and permanent sales of their water rights.

Water year - the period from October 1 through the following September 30, inclusive

Sustainability goal - the existence and implementation of one or more groundwater sustainability plans that achieve sustainable groundwater management by identifying and causing the implementation of measures targeted to ensure that the applicable basin is operated within its sustainable yield

Measurable objectives – specific measures used to determine whether a basin is successful in achieving the sustainability goal and avoiding significant and unreasonable undesirable results

Minimum thresholds - a measurable quantitative target or condition set in order to avoid a significant and unreasonable undesirable result. The minimum threshold is the lowest level of the metric that cannot be crossed despite fluctuations due to dry and wet years

De minimis extractor - a person who extracts, for domestic purposes, two acre-feet or less per year

Chrome 6 (hexavalent chromium) – carcinogen, or cancer-causing particles that can be found in many public water and drinking water systems

Salinity - the saltiness or amount of salt dissolved in a body of water

TCP (1, 2, 3-trichloropropane) – a toxic chemical contaminating groundwater in cities and small communities across California

Total dissolved solids (TDS) – a measure of the combined content of all inorganic and organic substances contained in a liquid in molecular, ionized, or micro-granular suspended form. The principal application of TDS is in the study of water quality for streams, rivers and lakes, although TDS is not generally considered a primary pollutant (e.g. it is not deemed to be associated with health effects) it is used as an indication of aesthetic characteristics of drinking water and as an aggregate indicator of the presence of a broad array of chemical contaminants.

Undesirable results or sustainability indicators - one or more of the following effects caused by groundwater conditions occurring throughout the basin:

Surface water depletion - Reductions in flow or levels of surface water that is hydrologically connected to the basin such that the reduced surface water flow or levels have a significant and unreasonable adverse impact on beneficial uses of the surface water.

Reduction of storage/ chronic overdraft - The condition of a groundwater basin where the average annual amount of water extracted for a long-term period, generally 10 years or more, exceeds the long-term average annual supply of water to the basin, plus any temporary surplus. Overdraft during a period of drought is not sufficient to establish a condition of long-term overdraft if extractions and recharge are managed as necessary to ensure that reductions in groundwater levels or storage during a period of drought are offset by increases in groundwater levels or storage during other periods.

Degraded quality – lowered water quality, including the migration of contaminant plumes that impair water supplies

Seawater intrusion – the movement of saline water into freshwater aquifers, which can lead to contamination of drinking water sources and other consequences

Land subsidence - the lowering of the natural land surface due to groundwater (or oil and gas) extraction.

Lowering groundwater levels – the lowering of the elevation of the groundwater table, across a whole basin or locally