

Water Glossary

Accumulated overdraft: The amount of water necessary to be replaced in the intake area of the groundwater basin to prevent the landward movement of ocean water into the fresh groundwater body.

Acre-foot, AF: A common water industry unit of measurement. An acre-foot is 325,851 gallons, or the amount of water needed to cover one acre with water one foot deep. An acre-foot serves annual needs of two typical California families.

Advanced treatment: Additional treatment processes used to clean wastewater even further following primary and secondary treatment. Also known as tertiary treatment.

AFY: Acre-foot per year.

Alluvium: A stratified bed of sand, gravel, silt, and clay deposited by flowing water.

AMP: Allen McCulloch pipeline.

Annexation: The inclusion of land within a government agency's jurisdiction.

Annual overdraft: The quantity by which the production of water from the groundwater supplies during the water year exceeds the natural replenishment of such groundwater supplies during the same water year.

Aqueduct: A man-made canal or pipeline used to transport water.

Aquifer: An underground geologic formation of rock, soil or sediment that is naturally saturated with water; an aquifer stores groundwater.

Arid: Dry; deserts are arid places. Semi-arid places are almost as dry as a desert.

Artesian: An aquifer in which the water is under sufficient pressure to cause it to rise above the bottom of the overlying confining bed, if the opportunity is provided.

Artificial recharge: The addition of surface water to a groundwater reservoir by human activity, such as putting surface water into recharge basins. (See also: groundwater recharge and recharge basin.)

Base flow: The portion of river surface flow which remains after deduction of storm flow and/or purchased imported water.

Bay-Delta: The Sacramento-San Joaquin Bay-Delta is a unique natural resource of local, state and national significance. The Delta is home to more than 500,000 people; contains 500,000 acres of agriculture; provides habitat for 700 native plant and animal species; provides water for more than 25 million Californians and 3 million acres of agriculture; is traversed by energy, communications and transportation facilities vital to the economic health of California; and supports a \$400 billion economy.

BIA: Building Industry Association.

Biofouling: The formation of bacterial film (biofilm) on fragile reverse osmosis membrane surfaces.

Biosolids: Solid organic matter recovered from a sewage treatment process and used especially as fertilizer.

BMP: Best Management Practice. An engineered structure or management activity, or combination of these, that eliminates or reduces adverse environmental effects.

Brackish water: A mixture of freshwater and saltwater.

Brown Act: Ralph M. Brown Act enacted by the State legislature governing all meetings of legislative bodies. Also known as the Open Meeting requirements.

Canal: A ditch used to move water from one location to another.

CEQA: California Environmental Quality Act.

CERCLA: Comprehensive Environmental Response, Compensation and Liability Act. This federal law establishes the Superfund program for hazardous waste sites. It provides the legal basis for the United States EPA to regulate and clean up hazardous waste sites, and if appropriate, to seek financial compensation from entities responsible for the site.

CFS: Cubic feet per second.

Chloramines: A mixture of ammonia and chlorine used to purify water.

Clarify: To make clear or pure by separation and elimination of suspended solid material.

Coagulation: The clumping together of solids so they can more easily be settled out or filtered out of water. A chemical called aluminum sulfate (alum) is generally used to aid coagulation in water treatment and reclamation.

Coastkeepers: A non-profit organization dedicated to the protection and preservation of the marine habitats and watersheds of Orange County through programs of education, restoration, enforcement and advocacy.

Colored water: Groundwater extracted from the basin that is unsuitable for domestic use without treatment due to high color and odor exceeding drinking water standards.

Condensation: The process of water vapor (gas) changing into liquid water. An example of condensation can be seen in the tiny water droplets that form on the outside of a glass of iced tea as warmer air touches the cooler glass.

Confined aquifer: An aquifer that is bound above and below by dense layers of rock and contains water under pressure.

Conjunctive use: Storing imported water in a local aquifer, in conjunction with groundwater, for later retrieval and use.

Contaminate: To make unclean or impure by the addition of harmful substances.

Crisis:

1. **a:** The turning point for better or worse **b:** a paroxysmal attack of pain, distress, or disordered function **c:** an emotionally significant event or radical change of status in a person's life <a midlife *crisis*>
2. The decisive moment (as in a literary plot)
3. **a:** An unstable or crucial time or state of affairs in which a decisive change is impending; *especially* : one with the distinct possibility of a highly undesirable outcome <a financial *crisis*> **b:** a situation that has reached a critical phase

Dam: A barrier built across a river or stream to hold water.

Decompose: To separate into simpler compounds, substances or elements.

Deep percolation: The percolation of surface water through the ground beyond the lower limit of the root zone of plants into a groundwater aquifer.

Degraded water: Water within the groundwater basin that, in one characteristic or another, does not meet primary drinking water standards.

Delta: Where the rivers empty; an outlet from land to ocean, also where the rivers deposit sediment they carry forming landforms.

Delta Vision: Delta Vision is intended to identify a strategy for managing the Sacramento-San Joaquin Delta as a sustainable ecosystem that would continue to support environmental and economic functions that are critical to the people of California.

Demineralize: To reduce the concentrations of minerals from water by ion exchange, distillation, electro-dialysis, or reverse osmosis.

De-nitrification: The physical process of removing nitrate from water through reverse osmosis, microfiltration, or other means.

Desalting (or desalination): Removing salts from salt water by evaporation or distillation. Specific treatment processes, such as reverse osmosis or multi-stage flash distillation, to demineralize seawater or brackish (saline) waters for reuse. Also sometimes used in wastewater treatment to remove salts other pollutants.

Desilting: The physical process of removing suspended particles from water.

Dilute: To lessen the amount of a substance in water by adding more water.

Disinfection: Water treatment which destroys potentially harmful bacteria.

Drainage basin: The area of land from which water drains into a river, for example, the Sacramento River Basin, in which all land area drains into the Sacramento River. Also called catchment area, watershed, or river basin.

Drought: A prolonged period of below-average precipitation.

DPHS: California Department of Public Health Services. Regulates public water systems; oversees water recycling projects; permits water treatment devices; certifies drinking water treatment and distribution operators; supports and promotes water system security; provides support for small water systems and for improving technical, managerial, and financial (TMF) capacity; provides funding opportunities for water system improvements.

DVL: Diamond Valley Lake. Metropolitan's major reservoir near Hemet, in southwestern Riverside County.

DWR: California Department of Water Resources. Guides development/management of California's water resources; owns/operates State Water Project and other water facilities.

Endangered Species: A species of animal or plant threatened with extinction.

Endangered Species Act of 1973 (ESA): The most wide-ranging of the dozens of United States environmental laws passed in the 1970s. As stated in section 2 of the act, it was designed to protect critically imperiled species from extinction as a "consequence of economic growth and development untended by adequate concern and conservation.

Ecosystem: Where living and non-living things interact (coexist) in order to survive.

Effluent: Wastewater or other liquid, partially or completely treated or in its natural state, flowing from a treatment plant.

Evaporation: The process that changes water (liquid) into water vapor (gas).

Estuary: Where fresh water meets salt water.

Evapotranspiration: The quantity of water transpired (given off), retained in plant tissues, and evaporated from plant tissues and surrounding soil surface. Quantitatively, it is expressed in terms of depth of water per unit area during a specified period of time.

Filtration: The process of allowing water to pass through layers of a porous material such as sand, gravel or charcoal to trap solid particles. Filtration occurs in nature when rain water soaks into the ground and it passes through hundreds of feet of sand and gravel. This same natural process of filtration is duplicated in water and wastewater treatment plants, generally using sand and coal as the filter media.

Flocculation: A chemical process involving addition of a coagulant to assist in the removal of turbidity in water.

Forebay: A reservoir or pond situated at the intake of a pumping plant or power plant to stabilize water level; also, a portion of a groundwater basin where large quantities of surface water can recharge the basin through infiltration.

Gray water reuse: Reuse, generally without treatment, of domestic type wastewater for toilet flushing, garden irrigation and other non-potable uses. Excludes water from toilets, kitchen sinks, dishwashers, or water used for washing diapers.

Green Acres Project (GAP): A 7.5 million gallons per day (MGD) water reclamation project that serves tertiary treated recycled water to irrigation and industrial users in Costa Mesa, Fountain Valley, Huntington Beach, Newport Beach, and Santa Ana.

God Squad: A seven-member committee that is officially called the "Endangered Species Committee". Members consist of Secretary of the Interior, the Secretary of Agriculture, the Secretary of the Army, the Chairman of the Council of Economic Advisers, the Administrator of the National Oceanic and Atmospheric Administration and one individual from the affected state. The squad was established in 1978 by an amendment to the 1973 Endangered Species Act (ESA). It has only been called into action three times to deal with proposed federal agency actions that have been determined to cause "jeopardy" to any listed species. Such actions may receive an exemption from the ESA if five members of the committee determine that the action is of regional or national significance, that the benefits of the action clearly outweigh the benefits of conserving the species and that there are no reasonable and prudent alternatives to the action.

Groundwater: Water that has percolated into natural, underground aquifers; water in the ground, not water puddled on the ground.

Groundwater basin: A groundwater reservoir defined by the overlying land surface and the underlying aquifers that contain water stored in the reservoir. Boundaries of success-ively deeper aquifers may differ and make it difficult to define the limits of the basin.

Groundwater mining: The withdrawal of water from an aquifer in excess of recharge over a period of time. If continued, the underground supply would eventually be exhausted or the water table could drop below economically feasible pumping lifts.

Groundwater overdraft: The condition of a groundwater basin in which the amount of water withdrawn by pumping exceeds the amount of water that recharges the basin over a period of years during which water supply conditions approximate average.

Groundwater recharge: The action of increasing groundwater storage by natural conditions or by human activity. See also: Artificial recharge.

Ground Water Replenishment System (GWRS): A joint project of the Orange County Water District and the Orange County Sanitation District that will provide up to 100,000 acre-feet of reclaimed water annually. The high-quality water will be used to expand an existing underground seawater intrusion barrier and to replenish the groundwater basin underlying north and central Orange County.

Groundwater table: The upper surface of the zone of saturation (all pores of subsoil filled with water), except where the surface is formed by an impermeable body.

GPM: Gallons per minute.

Ground Water Replenishment System (GWRS): Orange County Water District's state-of-the-art, highly advanced, waste-water treatment facility.

Hydrologic balance: An accounting of all water inflow to, water outflow from, and changes in water storage within a hydrologic unit over a specified period.

Hydrologic cycle: The process of water constantly circulating from the ocean, to the atmosphere, to the earth in a form of precipitation, and finally returning to the ocean.

Imported water: Water that has originated from one hydrologic region and is transferred to another hydrologic region.

Inflatable rubber dams: Designed to replace temporary sand levees that wash out during heavy storm flow, the dams hold back high-volume river flows and divert the water into the off-river system for percolation.

Influent: Water or wastewater entering a treatment plant, or a particular stage of the treatment process.

Irrigation: Applying water to crops, lawns or other plants using pumps, pipes, hoses, sprinklers, etc.

Leach: To remove components from the soil by the action of water trickling through.

MAF: Million acre feet.

MCL: Maximum contaminant level set by EPA for a regulated substance in drinking water. According to health agencies, the maximum amount of a substance that can be present in water that's safe to drink and which looks, tastes and smells good.

MET: Metropolitan Water District of Southern California.

MGD: Million gallons per day.

Microfiltration: A physical separation process where tiny, hollow filaments members separate particles from water.

Microorganism: An animal or plant of microscopic size.

MWD: Metropolitan Water District of Southern California.

MWDOC: Municipal Water District of Orange County.

Non-point source pollution: Pollution that is so general or covers such a wide area that no single, localized source of the pollution can be identified.

OCBC: Orange County Business Council.

OCWD: Orange County Water District.

Opportunity:

1. A favorable juncture of circumstances.
2. A good chance for advancement or progress .

Organism: Any individual form of life, such as a plant, animal or bacterium.

Perched groundwater: Groundwater supported by a zone of material of low permeability located above an underlying main body of groundwater with which it is not hydrostatically connected.

Percolation: The downward movement of water through the soil or alluvium to the groundwater table.

Permeability: The capability of soil or other geologic formations to transmit water.

Point source: A specific site from which waste or polluted water is discharged into a water body, the source of which is identified. See also: non-point source.

Potable water: Suitable and safe for drinking.

PPB: Parts per billion.

Precipitation: Water from the atmosphere that falls to the ground as a liquid (rain) or a solid (snow, sleet, hail).

Primary treated water: First major treatment in a wastewater treatment facility, usually sedimentation but not biological oxidation.

Primary treatment: Removing solids and floating matter from wastewater using screening, skimming and sedimentation (settling by gravity).

Prior appropriation doctrine: Allocates water rights to the first party who diverts water from its natural source and applies the water to beneficial use. If at some point the first appropriator fails to use the water beneficially, another person may appropriate the water and gain rights to the water. The central principle is beneficial use, not land ownership.

Pumping Plant: A facility that lifts water up and over hills.

Recharge: The physical process where water naturally percolates or sinks into a groundwater basin.

Recharge basin: A surface facility, often a large pond, used to increase the infiltration of surface water into a groundwater basin.

Reclaimed wastewater: Wastewater that becomes suitable for a specific beneficial use as a result of treatment. See also: wastewater reclamation.

Reclamation project: A project where water is obtained from a sanitary district or system and which undergoes additional treatment for a variety of uses, including landscape irrigation, industrial uses, and groundwater recharge.

Recycling: A type of reuse, usually involving running a supply of water through a closed system again and again. Legislation in 1991 legally equates the term "recycled water" to reclaimed water.

Reservoir: A place where water is stored until it is needed. A reservoir can be an open lake or an enclosed storage tank.

Reverse osmosis: (RO) A method of removing salts or other ions from water by forcing water through a semi-permeable membrane.

Riparian: Of or on the banks of a stream, river, or other body of water.

RO: Reverse osmosis. See the listing under "reverse osmosis."

Runoff: Liquid water that travels over the surface of the Earth, moving downward due to gravity. Runoff is one way in which water that falls as precipitation returns to the ocean.

Safe Drinking Water Act (SDWA): The Safe Drinking Water Act (SDWA) was originally passed by Congress in 1974 to protect public health by regulating the nation's public drinking water supply. The law was amended in 1986 and 1996 and requires many actions to protect drinking water and its sources: rivers, lakes, reservoirs, springs, and ground water wells. (SDWA does not regulate private wells which serve fewer than 25 individuals.) SDWA authorizes the United States Environmental Protection Agency (US EPA) to set national health-based standards for drinking water to protect against both naturally-occurring and man-made contaminants that may be found in drinking water. US EPA, states, and water systems work together to make sure that these standards are met.

Safe yield: The maximum quantity of water that can be withdrawn from a groundwater basin over a long period of time without developing a condition of overdraft, sometimes referred to as sustained yield.

Salinity: Generally, the concentration of mineral salts dissolved in water. Salinity may be measured by weight (total dissolved solids - TDS), electrical conductivity, or osmotic pressure. Where seawater is known to be the major source of salt, salinity is often used to refer to the concentration of chlorides in the water.

SAWPA: Santa Ana Watershed Project Authority.

Seasonal storage: A three-part program offered by Metropolitan Water District of Southern California:

STSS (Short Term Seasonal Storage) financially encourages agencies with local groundwater production capabilities to produce a higher percentage of their demand in the summer from their local groundwater supplies, thus shifting a portion of their demand on the MWD system from the summer to winter;

LTSS (Long Term Seasonal Storage) financially encourages retail agencies to take and store additional amounts of MWD water above their normal annual demands for later use; Replenishment Water provides less expensive interruptible water that is generally available and used to increase the operating yield of groundwater basins.

Seawater intrusion: The movement of salt water into a body of fresh water. It can occur in either surface water or groundwater basins.

Seawater barrier: A physical facility or method of operation designed to prevent the intrusion of salt water into a body of freshwater.

Secondary treatment: The biological portion of wastewater treatment which uses the activated sludge process to further clean wastewater after primary treatment. Generally, a level of treatment that produces 85 percent removal efficiencies for biological oxygen demand and suspended solids. Usually carried out through the use of trickling filters or by the activated sludge process.

Sedimentation: The settling of solids in a body of water using gravity.

Settle: To clarify water by causing impurities/solid material to sink to a container's bottom.

Sewer: The system of pipes that carries wastewater from homes and businesses to a treatment plant or reclamation plant. Sewers are separate from storm drains, which is a system of drains and pipes that carry rain water from urban streets back to the ocean. Overwatering your yard can also cause water to run into the streets and into storm drains. Storm drain water is not treated before it is discharged.

SigAlert: Any unplanned event that causes the closing of one lane of traffic for 30 minutes or more, as opposed to a planned event, like road construction, which is planned.

Sludge: The solids that remain after wastewater treatment. This material is separated from the cleaned water, treated and composted into fertilizer. Also called biosolids.

Storm Drain: The system of pipes that carries rain water from urban streets back to the ocean. Overwatering your yard can also cause water to run into the streets and into storm drains. Storm drain water is not treated before it is discharged. Storm drains are separate from sewers, which is a separate system of pipes to carry wastewater from homes and businesses to a treatment plant or reclamation plant for cleaning.

Storm flow: Surface flow originating from precipitation and run-off which has not percolated to an underground basin.

SWP: State Water Project. An aqueduct system that delivers water from northern California to central and southern California.

TDS: Total dissolved solids. A quantitative measure of the residual minerals dissolved in water that remain after evaporation of a solution. Usually expressed in milligrams per liter.

Tertiary treatment: The treatment of wastewater beyond the secondary or biological stage. Normally implies the removal of nutrients, such as phosphorous and nitrogen, and a high percentage of suspended solids.

THM: Trihalomethanes. Any of several synthetic organic compounds formed when chlorine or bromine combine with organic materials in water.

TMA: Too many acronyms.

TMDL: Total maximum daily load; A quantitative assessment of water quality problems, contributing sources, and load reductions or control actions needed to restore and protect bodies of water.

Transpiration: The process in which plant tissues give off water vapor to the atmosphere as an essential physiological process.

Turbidity: Thick or opaque with matter in suspension; muddy water.

Ultraviolet light disinfection: A disinfection method for water that has received either secondary or tertiary treatment used as an alternative to chlorination.

VOC: Volatile organic compound; a chemical compound that evaporates readily at room temperature and contains carbon.

Wastewater: Water that has been previously used by a municipality, industry or agriculture and has suffered a loss of quality as a result.

Water Cycle: The continuous process of surface water (puddles, lakes, oceans) evaporating from the sun's heat to become water vapor (gas) in the atmosphere. Water condenses into clouds and then falls back to earth as rain or snow (precipitation). Some precipitation soaks into the ground (percolation) to replenish groundwater supplies in underground aquifers.

Water rights: A legally protected right to take possession of water occurring in a natural waterway and to divert that water for beneficial use.

Water-use Efficiency: The water requirements of a particular device, fixture, appliance, process, piece of equipment, or activity.

Water year (USGS): The period between October 1st of one calendar year to September 30th of the following calendar year.

Watermaster: A court appointed person(s) that has specific responsibilities to carry out court decisions pertaining to a river system or watershed.

Water Reclamation: The treatment of wastewater to make it suitable for a beneficial reuse, such as landscape irrigation. Also called water recycling.

Watershed: The total land area that from which water drains or flows to a river, stream, lake or other body of water.

Water table: The top level of water stored underground.

Weir box: A device to measure/control surface water flows in streams or between ponds.

Wellhead treatment: Water quality treatment of water being produced at the well site.

Wetland: Any area in which the water table stands near, at, or above the land surface for a portion of the year. Wetlands are characterized by plants adapted to wet soil conditions.

Xeriscape: Landscaping that requires minimal water.