



GLOSSARY OF TERMS

A

ACRE-FOOT: The quantity of water required to cover one acre to a depth of one foot; equal to 43,560 cubic feet, or approximately 325,851 gallons.

ALLUVIAL: Sediment deposited by flowing water, such as in a riverbed.

ALLUVIAL AQUIFER: Earth, sand, gravel or other rock or mineral materials laid down by flowing water, capable of yielding water to a well.

ANADROMOUS: Pertaining to fish that spend a part of their life cycle in the sea and return to freshwater streams to spawn.

APPLIED WATER DEMAND: The quantity of water that would be delivered for urban or agricultural applications if no conservation measures were in place.

AQUIFER: An underground layer of rock, sediment or soil, or a geological formation/unit that is filled or saturated with water in sufficient quantity to supply pumping wells.

ARID: A term describing a climate or region in which precipitation is so deficient in quantity or occurs so infrequently that intensive agricultural production is not possible without irrigation.

ARTIFICIAL RECHARGE: The addition of water to a groundwater reservoir by human activity, such as irrigation or induced infiltration from streams, wells, or recharge/spreading basins. See also GROUNDWATER RECHARGE, RECHARGE BASIN.

B

BEDROCK AQUIFER: A consolidated rock deposit or geological formation of sufficient hardness and lack of interconnected pore spaces, but which may contain a sufficient amount of joints or fractures capable of yielding minimal water to a well.

BENEFICIAL USES: Include fish, wildlife habitat, and education, scientific and recreational activities which are dependent upon adequate water flow through rivers, streams and wetlands. The Regional Water Quality Control Board's Basin 4A Plan categorizes beneficial uses per water quality standards.

BEST MANAGEMENT PRACTICE (BMP): An urban water conservation (water use efficiency) measure that the California Urban Water Conservation Coalition agrees to implement among member agencies. The BMP's are intended to reduce long-term urban water demand.

BRACKISH WATER: Water containing dissolved minerals in amounts that exceed normally acceptable standards for municipal, domestic, and irrigation uses. Considerably less saline than sea water.



C

CLIMATE CHANGE: Climate change refers to the buildup of man-made gases in the atmosphere that trap the sun's heat, causing changes in weather patterns on a global scale. The effects include changes in rainfall patterns, sea level rise, potential droughts, habitat loss, and heat stress.

CONFINED AQUIFER: A water-bearing subsurface stratum that is bounded above and below by formations of impermeable, or relatively impermeable, soil or rock.

CONJUNCTIVE USE: The operation of a groundwater basin in coordination with a surface water storage and conveyance system. The purpose is to recharge the basin during years of above-average water supply to provide storage that can be withdrawn during drier years when surface water supplies are below normal.

CONSERVATION: Urban water conservation or water use efficiency includes reductions realized from voluntary, more efficient, water use practices promoted through public education and from State-mandated requirements to install water-conserving fixtures in newly constructed and renovated buildings. Agricultural water conservation or agricultural water use efficiency, means reducing the amount of water applied in irrigation through measures that increase irrigation efficiency. See NET WATER CONSERVATION.

CRITICAL DRY PERIOD: A series of water-deficient years, usually an historical period, in which a full reservoir storage system at the beginning is drawn down (without any spill) to minimum storage at the end.

CRITICAL DRY YEAR: A dry year in which the full commitments for a dependable water supply cannot be met and deficiencies are imposed on water deliveries.

CRITICAL HABITAT: A specific geographic area(s) designated by the US Fish and Wildlife Service that contains features essential for the conservation of a threatened or endangered species and may require special management and protection. Critical habitat may include an area that is not currently occupied by the species but that will be needed for its recovery.

CUBIC FEET PER SECOND (cfs): A unit of measurement describing the flow of water. A cubic foot is the amount of water needed to fill a cube that is one foot on all sides, about 7.5 gallons.

D

DESALTING/DESALINATION: A process that converts sea water or brackish water to fresh water or an otherwise more usable condition through removal of dissolved solids.

DISTRIBUTION UNIFORMITY (DU): The ratio of the average low-quarter depth of irrigation water infiltrated to the average depth of irrigation water infiltrated, for the entire farm field, expressed as a percent.

DRAINAGE BASIN: The area of land from which water drains into a river; as, for example, the Sacramento River Basin, in which all land area drains into the Sacramento River. Also called "watershed".



DWR: California Department of Water Resources.

E

ECOSYSTEM: The interacting synergism of all living organisms in a particular environment; every plant, insect, aquatic animal, bird, or land species that forms a complex web of interdependency.

ECOSYSTEM SERVICES: Ecosystem services provide one approach for framing the values and benefits of open space. The Millennium Ecosystems Assessment (2005) has presented a scheme for classifying ecosystem services using four general categories: provisioning services such as food, water, timber, and fiber; regulating services that affect climate, floods, disease, wastes, and water quality; cultural services that provide recreational, aesthetic, and spiritual benefits; and supporting services such as soil formation, photosynthesis, and nutrient cycling.

EFFICIENT WATER MANAGEMENT PRACTICE (EWMP): An agricultural water conservation measure that water suppliers could implement. EWMPs are organized into three categories: 1) Irrigation Management Services; 2) Physical and Structural Improvements; and 3) Institutional Adjustments.

EFFLUENT: Waste water or other liquid, partially or completely treated or in its natural state, flowing from a treatment plant.

ESTUARY: The lower course of a river entering the sea influenced by tidal action where the tide meets the river current.

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

F

FIRM YIELD: The maximum annual supply of a given water development that is expected to be available on demand, with the understanding that lower yields will occur in accordance with a predetermined schedule or probability.

FOREBAY: A groundwater basin immediately upstream or upgradient from a larger basin or group of hydrologically connected basins. Also, a reservoir or pond situated at the intake of a pumping plant or power plant to stabilize water levels.

G

GROUNDWATER: Water that occurs beneath the land surface and completely fills all pore spaces of the alluvium or rock formation in which it is located.

GROUNDWATER BASIN: A groundwater reservoir, together with all the overlying land surface and underlying aquifers that contribute water to the reservoir.

GROUNDWATER MANAGEMENT: The planned and coordinated management of a groundwater basin or portion of a groundwater basin with a goal of long-term sustainability of the resource.



GROUNDWATER MINING: The withdrawal of water from an aquifer greatly in excess of replenishment; if continued, the underground supply will eventually be exhausted or the water table will 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 replenishes the basin over a period of years.

GROUNDWATER RECHARGE: Increases in groundwater quantities or levels by natural conditions or by human activity. See also ARTIFICIAL RECHARGE.

GROUNDWATER STORAGE CAPACITY: The space contained in a given volume of deposits. Under optimum use conditions, the usable groundwater storage capacity is the volume of water that can, within specified economic limitations, be alternately extracted and replaced in the reservoir. (Directly related to SAFE YIELD).

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.

H

HABITAT: An ecological or environmental area that is inhabited by a particular species of animal, plant, or other type of organism.

HABITAT CONNECTIVITY: The degree to which the landscape facilitates animal movement and other ecological flows.

HABITAT CONSERVATION: A land management practice that seeks to conserve, protect and restore habitat areas for native plants and animals, especially conservation reliant species, and prevent their extinction, fragmentation of their habitat, or reduction in range.

HABITAT CONSERVATION PLAN: A plan prepared under Section 10(a)(1)(B) of the federal Endangered Species Act to provide for the lawful take of a listed wildlife species by conserving the ecosystems upon which the listed species depend, ultimately contributing to their recovery.

HYDROLOGICAL: The distribution and cycle of surface and underground water.

HYDROLOGY: A science related to the occurrence and distribution of natural water on the earth including the annual volume and the monthly timing of runoff.

I

INSTREAM USE: Use of water that does not require diversion from its natural watercourse. For example, the use of water for navigation, recreation, fish and wildlife, esthetics, and scenic enjoyment.

INTEGRATED REGIONAL WATER MANAGEMENT (IRWM): Refers to the process of collaboration among diverse interests in planning and managing local water resources and addressing challenges.

INTEGRATION: The practice of combining and coordinating separate parts or elements into an efficiently functioning unit or unified whole.

IRRIGATION EFFICIENCY: The efficiency of water application. Computed by dividing evapotranspiration of applied water by applied water and converting the result to a percentage. Efficiency can be computed at three levels: farm, district, or basin.

IRRIGATION RETURN FLOW: Applied water that is not transpired, evaporated, or deep percolated into a groundwater basin, but that returns to a surface water supply.

L

LEACHING: The flushing of salts from the soil by the downward percolation of applied water.

M

M&I: Municipal and Industrial (water use); generally urban uses for human activities.

MILLIGRAMS PER LITER (MG/L): The mass (milligrams) of any substance dissolved in a standard volume (liter) of water. One liter of pure water has a mass of 1000 grams. For dilute solutions where water is the solvent medium, the numerical value of mg/l is very close to the mass ratio expressed in parts per million (ppm).

MINERALIZATION (OF GROUNDWATER): The addition of inorganic substances, usually dissolved from surface or aquifer material, to groundwater.

N

NATURALLY OCCURRING CONTAMINANTS (IN GROUNDWATER): A deleterious substance present in groundwater which is of natural origin, i.e., not caused by human activity.

NET WATER CONSERVATION: The difference between the amount of applied water conserved and the amount by which this conservation reduces usable return flows.

NET WATER DEMAND: The applied water demand less water saved through conservation efforts (= net applied water = actual water used).

NONPOINT SOURCE: A contributing factor to water pollution that cannot be traced to a specific source. See Point Source.

O

OVERDRAFT: Withdrawal of groundwater in excess of a basin's perennial yield. See also PROLONGED OVERDRAFT.

P

PARTS PER MILLION (PPM): A ratio of two substances, usually by mass, expressing the number of units of the designated substance present in one million parts of the mixture. For water solutions, parts per million is almost identical to the milligrams per liter.

PER-CAPITA WATER USE: The amount of water used by or introduced into the system of an urban water supplier divided by the total residential population; normally expressed in gallons per-capita-per-day (gpcd).



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.

PERENNIAL YIELD: "The rate at which water can be withdrawn perennially under specified operating conditions without producing an undesired result" (Todd, 1980). An undesired result is an adverse situation such as:

(1) a reduction of the yield of a water source; (2) development of uneconomic pumping lifts; (3) degradation of water quality; (4) interference with prior water rights; or (5) subsidence. Perennial yield is an estimate of the long-term average annual amount of water that can be withdrawn without inducing a long-term progressive drop in water level. The term "safe yield" is sometimes used in place of perennial yield, although the concepts behind the terms are not identical: the older concept of "safe yield" generally implies a fixed quantity equivalent to a basin's average annual natural recharge, while the "perennial yield" of a basin or system can vary over time with different operational factors and management goals.

PERMEABILITY: The capability of soil or other geologic formation to transmit water.

POINT SOURCE: Any discernable, confined and discrete conveyance site from which waste or polluted water is discharged into a water body, the source of which can be identified. See also Nonpoint Source.

POLLUTION (OF WATER): The alteration of the physical, chemical, or biological properties of water by the introduction of any substance into water that adversely affects any beneficial use of water.

POTABLE WATER: Water suitable for human consumption without undesirable health consequences. Drinkable. Meets Department of Health Service's drinking water requirements.

PROLONGED OVERDRAFT: Net extractions in excess of a basin's perennial yield, averaged over a period of ten or more years.

R

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

RECYCLED WATER: Urban wastewater that becomes suitable for a specific beneficial use as a result of treatment.

RESTORATION: The manipulation of the physical, chemical, or biological characteristics of a site with the goal of returning natural/historic functions to a former or degraded resource. Restoration is divided into two categories: re-establishment and rehabilitation.

REVERSE OSMOSIS: Method of removing salts from water by forcing water through a membrane.



RETURN FLOW: The portion of withdrawn water that is not consumed by evapotranspiration and returns instead to its source or to another body of water.

REUSE: The additional use of once-used water.

RIPARIAN: Lands adjacent to streams, rivers, lakes, and estuarine-marine shorelines. Riparian areas provide a variety of ecological functions and services and help improve or maintain local water quality.

RIPARIAN VEGETATION: Vegetation growing on the banks of a stream or other body of water.

RUNOFF: The surface flow of water from an area; the total volume of surface flow during a specified time.

RWQCB: California Regional Water Quality Control Board.

S

SAFE YIELD (GROUNDWATER): 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), electrical conductivity, or osmotic pressure. Where seawater is the major source of salt, salinity is often used to refer to the concentration of chlorides in the water. See also TDS.

SERIOUS OVERDRAFT: Prolonged overdraft that results, or would result, within ten years, in measurable, unmitigated adverse environmental or economic impacts, either long-term or permanent. Such impacts include but are not limited to seawater intrusion, other substantial quality degradation, land surface subsidence, substantial effects on riparian or other environmentally sensitive habitats, or unreasonable interference with the beneficial use of a basin's resources.

SEAWATER INTRUSION: Occurs when extractions exceed freshwater replenishment of groundwater basins and causes seawater to travel laterally inland into fresh water aquifers.

SECONDARY TREATMENT: In sewage treatment, the biological process of reducing suspended, colloidal, and dissolved organic matter in effluent from primary treatment systems. Secondary treatment is usually carried out through the use of trickling filters or by an activated sludge process.

SPREADING BASIN: See RECHARGE BASIN.

SPREADING GROUNDS: See RECHARGE BASIN.

STAKEHOLDER: Individuals or groups who can affect or be affected by an organization's activities; or individuals or groups with an interest or "stake" in what happens as a result of any



decision or action. Stakeholders do not necessarily use the products or receive the services of a program.

STORMWATER QUALITY: Storm water (runoff) – Water which is originated during a precipitation event which may collect and concentrate diffused pollutants and carry them to water courses causing degradation. Runoff in the urban environment, both storm-generated and dry weather flows, has been shown to be a significant source of pollutants to the surface waters of the nation. In California, the authority to regulate urban and storm water runoff under the NPDES system has been delegated by EPA to the State Water Resources Control Board and the nine Regional Water Quality Control Boards.

SWP: State Water Project.

SURFACE WATER: As defined under the California Surface Water Treatment Rule, CCR, Title 22, Section 64651.83, means “all water open to the atmosphere and subject to surface runoff...” and hence would include all lakes, rivers, streams and other water bodies. Surface water thus includes all groundwater sources that are deemed to be under the influence of surface water (i.e., springs, shallow wells, wells close to rivers), which must comply with the same level of treatment as surface water.

SUSTAINABLE GROUNDWATER MANAGEMENT ACT (SGMA): Legislation passed in 2014 that requires critically overdrafted groundwater basins and those designated by the state as high or medium priority due to excessive pumping and/or water quality degradation, to form a groundwater sustainability agency (GSA) and prepare a groundwater sustainability plan (GSP).

SWRCB: California State Water Resources Control Board.

T

TERTIARY TREATMENT: In sewage, the additional treatment of effluent beyond that of secondary treatment to obtain a very high quality of effluent.

TOTAL DISSOLVED SOLIDS (TDS): A quantitative measure of the residual minerals dissolved in water that remain after evaporation of a solution. Usually expressed in milligrams per liter (mg/l) or in parts per million (ppm). See also SALINITY.

TURBIDITY: A measure of cloudiness and suspended sediments in water. Water high in turbidity appears murky and contains sediments in suspension. Turbid water may also result in higher concentrations of contaminants and pathogens, that bond to the particles in the water.

W

WATER QUALITY: A term used to describe the chemical, physical, and biologic characteristics of water with respect to its suitability for a particular use.

WATER QUALITY STANDARDS: A law or regulation that consists of the beneficial designated use or uses of a water body or a segment of a water body and the water quality criteria that is necessary to protect the use or uses of that particular water body. Water quality standards also contain an anti-degradation policy. The water quality standard serves a twofold purpose: (a) it establishes the water quality goals for a specific water body and (b) it is the basis for establishing water quality-based treatment controls and strategies beyond the technology-



based levels of treatment required by sections 301(b) and 306 of the Clean Water Act, as amended by the Water Quality Act of 1987.

WATER RECLAMATION: The treatment of water of impaired quality, including brackish water and seawater, to produce a water of suitable quality for the intended use.

WATER RIGHT: A legally protected right, granted by law, to take possession of water occurring in a water supply and to divert the water and put it to beneficial uses.

WATERSHED: A land area that drains to a common waterway, such as a stream, lake, estuary, wetland, or ultimately the ocean.

WATERSHED MANAGEMENT: The study of the relevant characteristics of a watershed aimed at the sustainable distribution of its resources and the process of creating and implementing plans, programs, and projects to sustain and enhance watershed functions that affect the plant, animal, and human communities within a watershed boundary.

WATER TABLE: The surface of underground, gravity-controlled water.

WETLANDS: Lands transitional between terrestrial and aquatic systems where the water table is usually at or near the surface or the land is covered by shallow water. For purposes of this classification wetlands must have one or more of the following three attributes: (1) at least periodically, the land supports predominantly hydrophytes; (2) the substrate is predominantly undrained hydric soil; and (3) the substrate is nonsoil and is saturated with water or covered by shallow water at some time during the growing season of each year.