

Appendix 1

Glossary of Terms

## Glossary of Terms

**adaptive management**--monitoring or assessing the progress toward meeting management objectives and incorporating what is learned into future conceptual models, management plans and actions, and monitoring. "Learning by doing," acknowledges that many management actions, e.g. restoration, are experiments.

**aerobic** – living in the presence of oxygen

**algae** – any large group of simple plants that contain chlorophyll; are not divisible into roots, stems, and leaves; do not produce seeds; and include the seaweeds and related freshwater land plants

**alluvial fan** - fan or wedge-shaped areas of deposition that range from several hundred meters to tens of kilometers across.

**anaerobic process** – biological decomposition of organic waste in the absence of air

**aqueduct**--a pipe, conduit, or channel designed to transport water from a remote source, usually by gravity.

**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.

**aquifer (confined)**--soil or rock below the land surface that is saturated with water. There are layers of impermeable material both above and below it and it is under pressure so that when the aquifer is penetrated by a well, the water will rise above the top of the aquifer.

**aquifer (unconfined)**--an aquifer whose upper water surface (water table) is at atmospheric pressure, and thus is able to rise and fall.

**artificial recharge**--an process where water is put back into ground-water storage from surface-water supplies such as irrigation, or induced infiltration from streams or wells.

**best management practices (BMPs)** – methods that have been determined to be the most effective, practical means of preventing or reducing pollution from nonpoint sources

**bioremediation** – the use of organisms such as bacteria and fungi to eat up pollutants and remove them

**biodegradable** – capable of being decomposed (broken down) by natural biological processes

**biodiversity** - full range of variety and variability within and among living organisms, their associations, and habitat-oriented ecological complexes. Term encompasses ecosystem, species, and landscape as well as intraspecific (genetic) levels of diversity.

**biotechnical bank stabilization** – a method of restoring damaged terrestrial and aquatic ecosystems, emphasizing the use of the physical properties of live plants, such as sheer resistance, tensile strength, and flexibility, to construct stabilizing structures such as live slope facines to protect and revegetate stream banks while maintaining flood protection.

**braided** - a network of smaller channels separated by small and often temporary islands called braid bars. Braided streams are common wherever a drastic reduction in stream gradient causes the rapid deposition of the stream's sediment load. Braided channels are also typical of river deltas. Usually a gravel or sand bed stream.

**carcinogenic** – describing a substance that tends to produce cancer

**catch basin** – a sedimentation area designed to remove pollutants from runoff before being discharged into a stream or pond

**Central Valley Project (CVP)** - Federally operated water management and conveyance system that provides water to agricultural, urban, and industrial users in California

**Central Valley Project Improvement Act (CVPIA)** - This federal legislation, signed into law on October 30, 1992, mandates major changes in the management of the federal Central Valley Project. The CVPIA puts fish and wildlife on an equal footing with agricultural, municipal, industrial, and hydropower users

**channelized** - river channel that has been straightened to accommodate development or facilitate drainage. stream banks often have been reinforced with material.

**coliforms** – bacteria found in the intestinal tract of warm blooded animals; used as indicators of fecal contamination in water

**commercial water use**--water used for motels, hotels, restaurants, office buildings, other commercial facilities, and institutions. Water for commercial uses comes both from public-supplied sources, such as a county water department, and self-supplied sources, such as local wells.

**conceptual model**--a descriptive picture or diagram of the relationships among key factors and processes within the watershed. Explicit statements of the hypothesized functional relationships underlying management decisions regarding environmental resources.

**confluence** - a flowing together; a joining of two or more streams.

**conjunctive use** - Integrated management of surface water and groundwater supplies to meet overall water supply and resource management objectives

**corridor** - a connection between adjacent and similar habitats large enough to allow the movement of propagules across all biological resources to pass; connection includes both core and edge habitat; a natural or restored connection for a population of organisms to use in order to breed and/or remain contiguous.

**cubic feet per second (cfs)**--a rate of the flow, in streams and rivers, for example. It is equal to a volume of water one foot high and one foot wide flowing a distance of one foot in one second. One "cfs" is equal to 7.48 gallons of water flowing each second. As an example, if your car's gas tank is 2 feet by 1 foot by 1 foot (2 cubic feet), then gas flowing at a rate of 1 cubic foot/second would fill the tank in two seconds.

**culvert** - a closed conduit used for the conveyance of surface drainage water under a roadway, railroad, canal, or other impediment.

**decision support system** -- a specific class of computerized information system that supports organizational decision-making activities. A properly designed DSS is an interactive software-based system intended to help decision makers compile useful information from raw data, documents, personal knowledge, and/or computer models to identify and prioritize problems and make decisions about how to best solve them.

**deposition** - geological process whereby material is added to a landform. This is the process by which wind, water, or ice create a sediment deposit through the laying down of granular material that has been eroded and transported from another geographical location.

**discharge**--the volume of water that passes a given location within a given period of time. Usually expressed in cubic feet per second.

**disturbance**--a change or cause of change in an ecosystem originating from natural or human sources. A natural disturbance could be fire or flood, a human-caused disturbance could be land development or logging.

**diversion** - The action of taking water out of a river system or changing the flow of water in a system for use in another location

**domestic water use**--water used for household purposes, such as drinking, food preparation, bathing, washing clothes, dishes, and dogs, flushing toilets, and watering lawns and gardens. About 85% of domestic water is delivered to homes by a public-supply facility, such as a county water department. About 15% of the Nation's population supply their own water, mainly from wells.

**drainage basin**-- land area where precipitation runs off into streams, rivers, lakes, and reservoirs upstream of a particular point; an area bounded by ridge tops. Large drainage basins, like the area that drains into the Mississippi River contain thousands of smaller drainage basins. Synonymous terms: watershed, catchment, basin.

**drawdown**--a lowering of the ground-water surface elevation caused by pumping.

**ecosystem**--a biological community together with the physical and chemical environment with which it interacts

**enhancement**-- in the context of restoration ecology: an improvement of a structural or functional attribute.

**erosion**--the process in which a earth material is transferred from one location on the earth's surface to another (e.g. a hillslope, a stream channel bed or bank, or a shoreline) by running

water, waves or wind (due to the presence of abrasive particles that act as tools to mechanically wear the surface).

**evapotranspiration** – combination of evaporation and transpiration of water into the atmosphere from living plants and soil

**exotic species** - nonnative species that have established viable populations within a community; species present within a community that did not exist there before the influence of human activities. Refers to a species that is foreign to a geographic area and usually alienated from its natural competitors and predators.

**flood**-- flow that exceeds the capacity of a channel. Floods have two essential characteristics: The inundation of land is temporary; and the land is adjacent to and inundated by overflow from a river, stream, lake, or ocean. A “flood pulse” is the process of flow stage increasing along a channel bank and carrying water, sediment, nutrients, and biota onto a flood plain—an essential component of riparian ecology.

**flood, 100-year**-- a flood level with a 1 percent chance of being equaled or exceeded in any given year. This is a statistical definition: and it does not imply that a flood with this recurrence interval will actually occur once every 100 years—it may occur twice or more within a 100-year period, or not at all. Moreover, the occurrence of such large floods alters the statistical relationship, since the period of flood record is short relative to the occurrence of large floods.

**floodplain**--a predominantly depositional landform created by active river processes. Relative to hillslopes, floodplains appear level, however sediment deposition and erosion creates topographic variation and habitat diversity as lower areas are ponded and higher areas remain drier. Floodplains are integral components of river systems, especially in lowland areas.

**fluvial** – produced by or found in a river or stream

**geographic information system (GIS)**--a tool used to collect, store, combine, analyze and present geographic data (e.g., computer software such as ArcView, ESRI Inc.).

**geomorphology**--the study of earth surface processes and landforms, including landslides on hillslopes or erosion and sedimentation in river systems.

**greywater** -- domestic wastewater that does not contain human wastes such as tub, shower, or washing machine water

**ground water**--(1) water that flows or seeps downward and saturates soil or rock, supplying springs and wells. The upper surface of the saturate zone is called the water table. (2) Water stored underground in rock crevices and in the pores of geologic materials that make up the Earth's crust

**habitats**--areas that provide specific conditions (e.g. landforms and processes, food, etc.) necessary to support plant, fish, and wildlife communities.

**headwaters** -- small streams that have no tributaries leading into them; the beginning of a stream network in the upper section of the watershed.

**hydrologic cycle**--the cyclic transfer of water vapor from the Earth's surface via evapotranspiration into the atmosphere, from the atmosphere via precipitation back to earth, and through runoff into streams, rivers, and lakes, and ultimately into the oceans.

**impaired** -- In the context of water bodies, waters that fail to meet applicable water quality standards as set forth by EPA and SWRCB

**impermeable layer**--a layer of solid material, such as rock or clay, which does not allow water to pass through.

**impervious surface**--usually a human-manufactured surface that water cannot penetrate (e.g., asphalt-covered street).

**infiltration**--flow of water from the land surface into the subsurface.

**integrated water management**--a way to maximize water quality and quantity to meet water needs for consumptive use and aquatic ecosystems by integrating water and land-use decision-making by local and regional agencies.

**invasive** - refers to a species, not previously present in a plant community, that aggressively increases in abundance due to ecosystem disturbance or because it is an exotic species alienated from its competitors and herbivores.

**locally native** - a species that has arrived and inhabited an area (watershed) naturally, without deliberate assistance by man, or would occur had it not been removed through past management (by man). Some species are only native in particular regions. Differences in characteristics and adaptation to conditions occur more locally -- hence 'locally native'.

**maximum contaminant level** – the highest content levels of certain substances allowable by law for a water source to be considered safe

**meandering** - the process by which a stream winds or snakes its way across a floodplain, continually changing its course by erosion and by the transportation and deposition of sediment.

**mitigation** - 1.) restoring, replacing, or creating ecological habitats (e.g. wetlands) in one area to compensate for loss of natural habitats in another area due to development. syn: compensatory restoration 2.) avoiding, minimizing, or reducing ecosystem losses.

**mitigation banks** - 1.) sites selected for habitat restoration or creation 2.) market-based banks that exchange "mitigation credits" on a development site for habitat restoration/creation requirements on another site.

**monitoring**--the periodic collection of information about a process (e.g., change in vegetation in response to disturbance) or attribute (e.g., water temperature) that may be an indicator of condition or management actions.

**municipal water system**--a water system that has at least five service connections or which regularly serves 25 individuals for 60 days; also called a public water system

**non-point source (NPS) pollution**--pollution discharged over a wide land area, not from one specific location. These are forms of diffuse pollution caused by sediment, nutrients, organic

and toxic substances originating from land-use activities, which are carried to lakes and streams by surface runoff. Non-point source pollution is contamination that occurs when rainwater, snowmelt, or irrigation washes off plowed fields, city streets, or suburban backyards. As this runoff moves across the land surface, it picks up soil particles and pollutants, such as nutrients and pesticides.

**peak flow**--the maximum instantaneous discharge of a stream or river at a given location.

**percolation**--the movement of water through the openings in rock or soil.

**permeability** - rate at which water will pass through soil. Determined by sizes of gaps between grains and cracks in the soil.

**phytoremediation** -- The use of plant materials to remove pollutants

**point-source pollution**--water pollution coming from a single point, such as a sewage-outflow pipe, or an individual landslide.

**potable water**--water of a quality suitable for drinking.

**precipitation**--rain, snow, hail, sleet, dew, and frost.

**recharge**--water added to an aquifer. For instance, rainfall that seeps into the ground.

**reclamation** - management techniques that attempt to reverse impacts to land caused by human disturbance and to bring back some form and function; altering an area to bring it to a healthy state similar to the original (predisturbance) ecosystem.

**rehabilitation**-- used primarily to indicate improvements of a visual nature to a natural resource; putting back into good condition or working order

**reservoir**--a pond, lake, or basin, either natural or artificial, for the storage, regulation, and control of water.

**restoration**--1) return of an ecosystem, or ecosystem process to a close approximation of its condition prior to human disturbance; 2) the renewal of a natural process (e.g., natural fire regimes) or feature (e.g., native fish species) through human actions; 3) recovery of processes that sustain ecosystem function.

**riparian**—the region of the landscape immediately adjacent to and influenced by a waterway with moving water, e.g. riparian vegetation is sustained by river processes.

**river**--a natural stream of water that carries sediment, nutrients and chemical constituents from the headwaters a watershed to the sea. Synonymous with stream.

**runoff** --that part of the precipitation, snow melt, or irrigation water that flows down hillslopes and or is discharged through subsurface processes to surface streams, or in urban areas, from streets, rooftops, or other impermeable areas to drains or sewers. Runoff may be classified according to source, speed of appearance after rainfall or melting snow, or pathway.

**sediment** – insoluble material suspended in water that consists mainly of particles derived from rocks, soil, and organic materials

**stakeholder**--someone who will be impacted socially, culturally, financially, physically, or in some other manner by a decision or decision process.

**storm drain** – a pipeline or conduit that carries stormwater or surface flows

**storm sewer**--a sewer that carries only surface runoff, street wash, and snow melt from the land. In a separate sewer system, storm sewers are completely separate from those that carry domestic and commercial wastewater (sanitary sewers).

**stream**-- a natural stream of water that carries sediment, nutrients and chemical constituents from the headwaters a watershed to the sea. Synonymous with river.

**stream bank** - the sloping ground that borders a stream and confines the water in the natural channel when the water level, or flow is normal.

**stream network** - branching system of tributary streams.

**streamflow**--the water discharge that occurs in a natural channel.

**surface water**--water that is on the Earth's surface, such as in a stream, river, lake, or reservoir.

**sustainable landscape** - a landscaping approach that seeks to minimize inflows to and outflows from a landscape. for example, a typical garden requires a number of resources for its construction - concrete, lumber, plants, compost, pvc irrigation pipe etc. Additional inputs are needed for the maintenance of the garden, such as water, fertilizer, fuel to operate power equipment, pesticides and herbicides. A garden also generates materials that may be harmful to the environment, such as lawn clippings, tree and shrub prunings (collectively referred to as "greenwaste"), polluted runoff of chemical-laden water and others. Sustainable landscaping attempts to reduce these inputs and outputs without sacrificing beauty, economy and ease of maintenance.

**swale** - a shallow troughlike depression acting to divert and direct water runoff after heavy rains.

**Total Maximum Daily Loads (TMDLs)**—the maximum amount of individual pollutants contributing to impairment of the “beneficial uses” of the waterbody allowed to enter a waterbody from watershed sources. Legally defined by EPA and local RWCB’s.

**transpiration** – direct transfer of water from the leaves of living plants or the skins of animals into the atmosphere

**tributary**--a smaller river or stream that flows into a larger river or stream. A three-dimensional network of tributaries join to form a watershed’s river system.

**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 such as precipitation, interception, runoff, infiltration, percolation, storage, evaporation, and transportation.

**water quality**--a term used to describe the chemical, physical, and biological characteristics of water, usually in respect to its suitability for a particular purpose.

**water table**--the top of the water surface in the saturated part of an aquifer.

**water use**--water that is used for a specific purpose, such as for domestic use, irrigation, or industrial processing. Water use pertains to human's interaction with and influence on the hydrologic cycle, and includes elements, such as water withdrawal from surface- and ground-water sources, water delivery to homes and businesses, consumptive use of water, water released from wastewater-treatment plants, water returned to the environment, and instream uses, such as using water to produce hydroelectric power.

**watershed**-- land area where precipitation runs off into streams, rivers, lakes, and reservoirs upstream of a particular point; an area bounded by ridge tops. Synonymous terms: catchment drainage basin.

**watershed assessment**--a process for analyzing a watershed's current condition and the likely causes of these conditions, usually resulting in a report documenting findings of the process.

**watershed health**-- 1) an index or estimate of the degree to which the generation and transport of water and its constituents within a watershed function in a relatively natural manner; 2) an index or estimate of the natural functioning of the watershed relative to a reference or historic condition.

**watershed management**--1) a multiple-step, iterative process consisting of watershed monitoring, assessment, planning, implementation, and evaluation; 2) a process for making decisions about activities that will affect the health of a watershed.

**watershed plan**--the product of a planning process at the watershed scale considering natural and human processes relevant at that scale (e.g., natural and artificial flows). Sometimes used synonymously with "watershed management plan". A watershed plan consists of an overall vision or set of goals for the watershed, a series of steps needed to achieve those goals, and detailed consideration of how to implement those steps.

**watershed restoration**-- reestablishing the structure and function of an ecosystem, including its natural diversity; a comprehensive, long-term program to return watershed health, processes, riparian ecosystems, and aquatic and terrestrial habitats to a close approximation of their condition prior to human disturbance.

**wetland**--an area of the landscape that is periodically or frequently inundated and containing soils, vegetation, and animals adapted to that condition.

**withdrawal**--water removed from a ground- or surface-water source for use.