

10. GLOSSARY OF TECHNICAL TERMS

Aggradation. The geologic process by which streambeds and floodplains are raised in elevation by the deposition of material.

Alluvial. Deposited by running water.

Anadromous. Fish that leave freshwater and migrate to the ocean to grow, and return to freshwater to spawn.

Armoring. (a) The natural process of forming an erosion resistant layer of relatively large particles on the surface of the streambed. (b) The artificial application of various materials to strengthen streambanks against erosion.

Axial. The angle between the upper side of a leaf and its supporting branch or stem.

Bankfull Discharge. The discharge corresponding to the stage at which the natural channel is full. This flow has a recurrence interval of 1.5 to 4 years depending on the channel gradient and bank materials.

Bar. (a) Accumulation of alluvial material along the banks, midstream, or at the mouth of a stream or in the wakes of objects where a decrease in velocity induces deposition. (b) An alluvial deposit composed of sand, gravel, and other material that obstructs flow and induces deposition or transport.

Base flow. Can be defined as the volume of flow in a stream channel that is not derived from surface run-off. Base flow is characterized by low-flow regime (frequency, magnitude, and duration daily, seasonally, and yearly), by minimum low-flow events and in context of the size and complexity of the stream and its channel.

Bed load. Sediment moving along or near the streambed and frequently in contact with it.

Bed slope. The inclination of the channel bottom.

Bend. A change in the direction of a stream channel.

Benthic. Of or pertaining to animals and plants living on or within the substrate of a water body.

Berm. A levee, shelf, ledge or bench along a streambank that may extend laterally in the channel to partially obstruct flow, or parallel to the flow to contain the flow within its streambank. May be natural or constructed.

Best Management Practice. A practice used to reduce impacts from a particular land use.

Biotechnical approach. An applied science that combines structural, biological and ecological concepts to construct living structures for erosion, sediment and flood control.

Blanket. Material placed on a streambank to cover eroding soil.

Boulder. Sediment particle having a diameter greater than 256 mm (10 inches).

Brush layer. Live branch cuttings crisscrossed on trenches between successive benches of soil.

Brush mattress. A mattress-like covering that is placed on top of the soil. The covering material is living wood plant cuttings that are capable of rooting.

Buffer. A vegetated area of grass, shrubs or trees designed to capture and filter runoff from surrounding land uses.

Canopy. The overhead branches and leaves of riparian vegetation.

Canopy cover. Vegetation projecting over a stream, including crown cover (generally more than 3 feet above the water surface) and overhand (less than 3 feet above the water surface).

Channel. A natural or man-made waterway that continuously or periodically passes water.

Channel roughness. The irregularity of streambed materials sizes and channel form in plan and cross-section that causes resistance to flow.

Channel scour and fill. Erosion and sedimentation that occurs during relatively short periods of time; *degradation* and *aggradation* apply to similar processes that occur over a longer period of time.

Channel stability. A relative measure of the resistance of a stream or river to erosion. Stable reaches do not change markedly in appearance from year to year.

Check dam. A structure placed bank to bank downstream from a headcut.

Clay. Cohesive soil whose individual particles are not visible to the unaided human eye. Soil can be molded into a ball that will not crumble.

Cobble. Sediment particles larger than pebbles and smaller than boulders. Usually 64 - 256 mm (3 to 8 inches) in diameter.

Coir. A woven mat consisting of coconut fibers. Generally used for various soil erosion control practices such as surface slope protection and the construction of geogrids.

Cover. Anything that provides protection for fish and/or wildlife from predators or ameliorates adverse conditions of stream flow and/or seasonal changes in metabolic costs. May be instream structures such as rocks or logs, turbulence, and/or overhead vegetation. Anything that provides areas for escape, feeding, hiding, or resting.

Cribwall. A hollow structural wall used for bank and slope stabilization formed by mutually perpendicular and interlocking members (usually timber) into which live cuttings are inserted along with soil to stabilize roots.

CRLF. California Red legged frog.

Cross section. A vertical section of a stream channel or structure that provides a side view of the structure; a transect taken at right angles to flow direction.

Culvert. A sewer or drain crossing under a road or embankment.

Current. The flow of water through a stream channel.

Cutbank. The outside bank of a bend, often eroding and across the stream from a point bar.

D_{30} , D_{50} , D_{100} . The particle size for which 30, 50, and 100 percent of the sample is finer.

Debris. Any material, organic or inorganic, floating or submerged, moved by a flowing stream.

Deflectors. Structures used to deflect stream flow to a different location, usually away from an eroding bank.

Degradation. The long-term hydraulic process by which stream and river beds lower in elevation. It is the opposite of aggradation.

Deposition. The settlement of material out of the water column and onto the streambed or floodplain. Occurs when the flowing water is unable to transport the sediment load.

Development. A man-made change to improved or unimproved real estate. This includes, (not limited to) buildings and other structures, mining, dredging, filling, grading, paving, excavation, and drilling operations.

Dike (groin, spur, jetty, deflector). A structure designed (1) to reduce the water velocity as streamflow passes through so that sediment deposition occurs instead of erosion (permeable dike) or (2) to deflect erosive currents away from the streambank (impermeable dike).

Discharge. The volume of water passing through a channel during a given time, usually measured in cubic feet per second.

Dredge material. Soil excavated from a stream channel.

Encroachment. Any fill, structure, building, use, accessory use, or development in the floodplain or watercourse.

Energy dissipation. The loss of kinetic energy of moving water due to internal turbulence, boundary friction, change in flow direction, contraction or expansion.

Enhancement. Improvements to the existing conditions of the aquatic, terrestrial, and recreational resources.

Erosion. In the general sense, the wearing away of the land by wind and water. As used in this pamphlet, the removal of soil particles from a bank slope primarily due to water action.

ESA. Endangered Species Act

Failure. Collapse or slippage of a large mass of bank material into a stream.

Fascines. Sausage-like bundles of plant cuttings used to stabilize streambanks and other slopes (see *wattles*)

FEMA. Federal Emergency Management Agency. The agency which administers the NFIP at the federal level.

Fill material. Soil that is placed at a specified location. to bring the ground surface up to a desired elevation.

Filter. Layer of fabric, sand, gravel, or graded rock placed between the bank revetment or channel lining and soil for one or more of three purposes: to prevent the soil from moving through the revetment; to prevent the revetment from sinking into the soil; and to permit natural seepage from the streambank, thus preventing buildup of excessive groundwater pressure. If a filter is used by a landowner or local government, technical assistance should be obtained to properly match the filter with the soil.

Fine particles (or Fines). Silt and clay particles.

Fish habitat. The aquatic environment and the immediately surrounding terrestrial environment that meet the necessary biological and physical requirements of fish species during various life stages.

Flood. A general and temporary condition of partial or complete inundation of normally dry land areas.

Flood insurance rate map (FIRM). The official Flood Insurance Administration map which shows special hazard zones and risk areas of a community. This map is used for insurance rating purposes.

Floodplain. An area of land that would be covered with water during a flood. In connection with the Flood Insurance Program, the term usually refers to the 100-year floodplain. The term is identical to "flood hazard area".

Floodway. The river channel and overbank areas of riverine floodplains through which the base flood is discharged. This portion of the floodplain is where the highest flood velocities and greatest flood depths usually occur. Floodways are shown on the Flood Boundary and Floodway Maps (FBFM) prepared by FEMA for regular program communities. Upon the adoption of these maps by a community, the floodway(s) shown become “regulatory floodways” within which encroachment or obstructions must be prohibited.

Fluvial. Produced by moving water.

Fluvial geomorphology. The study of surface forms produced by the action of flowing water.

Freeboard. The vertical distance between the design water surface elevation and the elevation of the bank, levee or revetment that contains the water.

Gabion. A galvanized wire basket with a hinged top, intended to be filled with stones and used to stabilize banks or channel beds, to control erosion, and to prevent bed material from shifting. Generally not recommended for placement in gravel bed streams.

Geomorphology. The geologic study of the evolution and configuration of land forms.

Gradient. Slope calculated as the amount of vertical rise over horizontal run

Gravel. Soil particles ranging from 1/5 inch to 3 inches in diameter.

Groundwater table. The depth below the surface where the soil is saturated; that is the open spaces between the individual soil particles are filled with water. Above the groundwater table and below the ground surface the soil either has no water between particles or is partially saturated.

Habitat. The area or environment in which an organism lives.

Headcutting. The action of an upstream moving waterfall or locally steep channel bottom with rapidly flowing water through an otherwise placid stream. These conditions often indicate that a readjustment of a stream’s discharge and sediment load characteristics is taking place.

Headwater. The uppermost reaches of a stream or river.

Hydrology. The study of the properties, distribution and effects of water on the Earth’s surface, soil, and atmosphere.

Hydraulics. Water or other liquids in motion & actions.

Hydric soils. Soils found in saturated, anaerobic environments usually characterized by a gray or mottled appearance, often found in wetlands.

Impermeable material. A soil that has properties which prevent movement of water through the material.

Incised channel. A stream that has cut its channel into the bed of the valley.

Infiltration. The portion of rainfall that moves downward into the subsurface rock and soil.

Instream. The instream channel includes the channel bottom up to 10 feet minimum above the Ordinary High Water (OHW) mark, or the 2-year peak flow line.

Instream cover. (a) Areas of shelter in a stream channel that provide aquatic organisms protection from predators or competitors. (b) A place in which to rest and conserve energy due to a localized reduction in the force of the current.

Intermittent stream. A stream that has interrupted flow or does not flow continuously.

Joint planting. The process of placing live woody plant cuttings in the spaces between pieces of rock rip-rap. When placed properly, the cuttings are capable of rooting and growing.

Large woody debris. Any large piece of woody material that intrudes or is embedded in the stream channel. Also called large organic debris.

Live Stakes. Cuttings from living branches that are inserted into the soil to stabilize slopes and streambanks when the cuttings root and grow.

Maintenance. The *repair, care and upkeep* of a channel at a pre-existing or approved design condition, within a designated flow conveyance capacity.

Management, Modification, alteration and change, where necessary, of physical and biological site conditions in response to evolving goals, objectives and changing environmental conditions.

Manning’s “n”. The resistance coefficient in the Manning formula used in calculating water velocity and stream discharge. It is a proportionality coefficient that varies inversely as a function of flow.

Meander. A circuitous winding or bend in the river.

Mean sea level (MSL). The average height of the sea at all stages of the tide. Mean Sea Level is also referred to as “National Geodetic Vertical Datum” (NGVD).

Obstruction. Any structure or assembly of materials including fill above or below the surface of land or water, and any activity that might impede, retard or change flood flows.

OHW. Ordinary high water mark. See below.

One-hundred year flood. Another name for the base flood, the flood having a one-percent of occurring in any single year.

Ordinary high water mark. The mark along a streambank where the waters are common and usual. This mark is generally recognized by the difference in the character of the vegetation above and below the mark or the absence of vegetation below the mark.

Overbank flow. Water flowing over the top of bank.

Perennial stream. A stream that flow continually.

Point bar. A gravel or sand deposit on the inside of a river bend; an actively mobile river feature.

Pool. Deeper areas of a stream with slow-moving water, often used by larger fish for cover.

Pool-riffle ratio. The ratio of pool and riffle areas, or pool and riffle length in a given stream reach.

Program. San Luis Obispo Creek Stream Management and Maintenance Program
Reach. A relatively homogeneous length of stream having a similar sequence of characteristics.

Riffle. A shallow section in a stream where water is breaking over rocks or other partially submerged organic debris and producing surface agitation.

Riparian area. The area between a body of water and adjacent upland areas that is identified by distinctive soil and vegetative characteristics.

Riparian buffer. Trees and shrubs growing parallel to a stream that reduce the intrusion into the top bank area by humans, animals, and machinery. This vegetation also retards surface runoff down the bank slope and provides a root system which binds soil particles together.

Riparian vegetation. Vegetation growing along the banks

of streams and rivers or other bodies of water tolerant to or more dependent on water than plants further upslope.

Riparian zone. The vegetated zone adjacent to a stream or any other water body (from the Latin work ripa, pertaining to the bank of a river, pond or lake).

Rip-rap. A layer, facing, or protective mound of stones placed to prevent erosion, scour, or sloughing of a structure or embankment. Also refers to the stone used.

Roughness element. Any obstacles in a channel that deflect flow and change its velocity.

Run. The straight fast-moving section of a stream between riffles.

Salmonids. Fish of the family Salmonidae, including salmon, trout, char, whitefish, ciscoe, and grayling.

Sand. Mineral particles ranging from 0.0625 to 2 mm (0.0025 to 0.08 inch) diameter; 0.03 inch is the normal lower limit at which the unaided human eye can distinguish an individual particle.

Scour. Concentrated erosive action of flowing water in streams that removes material from the beds and banks.

Sediment discharge. Mass of sediment passing a stream cross-section at a defined unit of time.

Sediment load. The sediment transported through a channel by streamflow.

Sediment. Soil particles that have been transported and/or deposited by wind or water action.

Shear strength. The internal resistance of a body to shear stress. Typically includes frictional and cohesive components. Expresses the ability of soil to resist sliding.

Shear stress. The force per unit area tending to deform a material in the direction of flow.

Sheet erosion. The removal by surface runoff of a fairly uniform layer of soil from a bank slope.

Silt. Slightly cohesive to noncohesive soil composed of particles that are finer than sand but coarser than clay, commonly in the range of 0.004 to 0.0625 mm. Silt will crumble when rolled into a ball.

Sinuosity. A measure of the amount of a river's meandering; the ration of the river length to the valley length. A straight channel has a sinuosity of 1.0; a fully meandering river has a sinuosity of 2.0 or greater.

Slope. Vertical rise divided by horizontal run.

Sloughing (or sloughing off). Movement of a mass of soil down a bank into the channel (also called slumping). Sloughing is similar to a landslide.

Slumping. The collapse of slopes by undercutting.

Specifications. A detailed description of particulars, such as size of stone, quantity and quality of materials, contractor performance, terms, quality control, and equipment.

Stream. A body of running water moving over the Earth's surface in a channel or bed (also river).

Streambank. The portion of the channel cross section that restricts lateral movement of water at normal water levels

Streambank erosion. Removal of soil particles from a bank slope primarily due to water action. Climatic conditions, debris, chemical reactions, and changes in land and stream use may also lead to bank erosion.

Streambank failure. Collapse or slippage of a large mass of bank material into the channel.

Streambed. The substrate plane bounded by the stream banks over which water moves. Also called stream bottom. It is the area kept mostly or completely bare of vegetation by the wash of waters in the stream.

Streamflow. The movement of water through a stream channel.

Structural. Reducing flood hazards through physical means, such as dams, dikes, levees, or channelization of rivers or streams.

Structure. (a) Any object in the channel that affects water and sediment movement. (b) The diversity of physical habitat within a channel.

Substrate. The mineral or organic material that forms the bed of the stream.

Surface runoff. That portion of precipitation that moves over the ground toward a lower elevation and does not infiltrate the soil.

Thalweg. A line following the deepest part of the bed or channel of a stream.

Toe. The break in slope at the foot of a bank where the bank meets the bed.

Top of bank. The break in slope between the streambank and the surrounding upland terrain.

Transect. (a) A predetermined line along which vegetation occurrence or other characteristics such as canopy density are counted for monitoring purposes. (b) A channel cross-section.

Turbidity. Relative water quality conditions; measure of light passing through water affected by suspended material.

Upper bank. That portion of the streambank above the elevation of the average water level of the stream.

Vegetated geogrid. Soil wrapped with a geotextile fabric and with live woody plant cuttings placed in between each soil/geotextile wrap.

Velocity (of water in a stream). The distance that water can travel in a given direction during an interval of time.

Waters of the United States. Includes all dry land and water-covered areas below the ordinary high water marks on navigable and non-navigable streams.

Watershed. An area of land that drains into a particular river or body of water. Usually divided by topography.

Wattling. See fascines.

Wetlands. terrestrial and aquatic systems where the water table is usually at or near the surface or the land is covered by shallow water. Wetlands have one or more of the following three attributes: (a) At least periodically, the land supports predominantly hydrophytes; (b) The substrate is predominantly undrained hydric soil; and, (c) the substrate is nonsoils and is saturated with water or covered by shallow water at some time during the growing season of each year.

Woody debris. Coarse wood material such as twigs, branches, logs, trees, and roots that fall into streams.