

## Terminology

For the purpose of assessing the aquatic functions of streams, the following definitions may assist the investigator in understanding:

**Active floodplain:** The land between the active channel at the bankfull elevation and the terraces that are flooded by stream water on a periodic basis. This is not synonymous with the FEMA flood zone designation.

**Aggradation:** The rising of a streambed due to sediment deposition.

**Alluvial and/or Alluvium:** Clay, silt, sand, gravel, or similar detrital material deposited by running water.

**Avoidance:** In the context of a stream, a project that will not affect stream stability.

**Back water pools:** A pool type formed by an eddy along channel margins downstream from obstructions such as bars, rootwads, or boulders, or resulting from backflooding upstream from an obstructive blockage. Backwater pools are sometimes separated from the channel by sand or gravel bars.

**Bankfull:** The water level, or stage, at which a stream, river or lake is at the top of its banks and any further rise would result in water moving into the flood plain. It may be identified by physical characteristics such as a clear, natural line impressed on the bank, shelving, changes in the character of soil, destruction of terrestrial vegetation, the presence of litter and debris, or other appropriate means that consider the characteristics of the surrounding areas.

**Bankfull bench:** A flat or shallowly sloped area above bankfull that slows high velocity flows during flows above bankfull.

**Bankfull Depth:** The average depth measured at Bankfull Discharge.

**Bankfull Discharge:** The dominant channel forming flow with a recurrence interval seldom outside the 1 to 2 year range.

**Bankfull Width:** Channel width at Bankfull Discharge.

**Base flow:** During most of the year, stream flow is composed of both groundwater discharge and land surface runoff. When groundwater provides the entire flow of a stream, baseflow conditions are said to exist.

**Branch packing:** Technique in which alternate layers of compacted backfill and live branches are used to restore voids, slumps, and holes in streambanks.

**Buffer:** An upland, wetland, and/or riparian area that protects and/or enhances aquatic resource functions associated with wetlands, rivers, streams, lakes, marine, and estuarine systems from disturbances associated with adjacent land uses.

**Channel Length:** Curvilinear distance measurement along the center of the channel.

**Channel Slope:** Change in elevation divided by the length of channel along a channel distance of 20-30 riffle/pool sequences or 2 meander lengths. valley slope/sinuosity.

**Condition:** The relative ability of an aquatic resource to support and maintain a community of organisms having a species composition, diversity, and functional organization comparable to reference aquatic resources in the region.

**Coir logs:** Tightly bound cylinders of coir fibers (Coconut Fiber) held together by coir fiber netting made from coir twine. They are generally available in 10 to 20 foot lengths and are 12 to 20 inches in diameter. They are excellent to use as a toe protection in areas of low velocity water flow. After installation, the coir fiber logs become saturated with water and vegetation can be planted directly on the logs.

**Coarse substrates:** Naturally occurring gravel (0.079 inches in smallest dimension) or larger particle sizes.

**Cross vanes:** Rock structures built below the water level to control the direction of flow within a stream. Various types of in-stream rock structures are used. One or more structures can be used to direct a stream's energy toward the center of the channel and relieve pressure on an eroding streambank.

**Deep pools:** Areas characterized by a smooth undisturbed surface, generally slow current, and deep enough to provide protective cover for fish (75-100% deeper than prevailing stream depth).

**Degradation:** The lowering of the streambed by scour and erosion.

**Dense macrophyte beds:** Beds of native emergent or submerged aquatic vegetation thick enough to provide invertebrate attachment and fish cover.

**Enhancement:** The manipulation of the physical, chemical, or biological characteristics of an aquatic resource to heighten, intensify, or improve a specific aquatic resource function(s). Enhancement results in the gain of selected aquatic resource function(s), but may also lead to a decline in other aquatic resource function(s). Enhancement does not result in a gain in aquatic resource area.

**Entrenchment Ratio:** The channel width at two times the Bankfull Depth divided by the channel width at Bankfull Width of Floodprone Area / Width Bankfull

**Ephemeral stream:** A stream with flowing water only during and for a short duration after, precipitation events in a typical year. Ephemeral streambeds are located above the water table year-round. Groundwater is not a source of water for the stream. Runoff from rainfall is the primary source of water for stream flow.

**Fascines:** A rough bundle of brushwood used for strengthening an earthen structure, or making a path across uneven or wet terrain. Typical uses are protecting the banks of streams from erosion, covering marshy ground and so on.

**FEMA Flood Zone Designations:** Flood zones are geographic areas that the FEMA has defined according to varying levels of flood risk.

**Flats:** Areas with still, unbroken surface, but a shallow, uniform bottom that are filled with aquatic vegetation.

**Floodplain:** A relatively flat alluvial feature adjacent to the stream channel that is formed during the present climate and receives flood flows.

**Flood-Prone Area:** A relatively flat lowland that borders a Stream and is covered by its waters at flood stage of twice the maximum Bankfull Depth.

**Flood-Prone Width:** The Stream width at a discharge level defined as twice the maximum Bankfull Depth.

**In-kind:** a resource of a similar structural and functional type to the impacted resource.

**Intermittent stream:** An intermittent stream has flowing water during certain times of the year, when groundwater provides water for stream flow. During dry periods, intermittent streams may not have flowing water. Runoff from rainfall is a supplemental source of water for stream flow.

**J hooks:** An upstream directed, gently sloping structure composed of natural materials. The structure can include a combination of boulders, logs and root wads and is located on the outside of stream bends where strong downwelling and upwelling currents, high boundary stress, and high velocity gradients generate high stress in the near-bank region. The structure is designed to reduce bank erosion by reducing near-bank slope, velocity, velocity gradient, stream power and shear stress.

**Knickpoint (See Nickpoint)**

**Logs/large woody debris:** Fallen trees or parts of trees that provide structure and attachment for aquatic macroinvertebrates and hiding places for fish.

**Low Flow:** Groundwater fed flow

**Live fascines:** Long bundles of live woody vegetation buried in a streambank in shallow trenches placed parallel to the flow of the stream (Figure 1). The plant bundles sprout and develop a root mass that will hold the soil in place and protect the streambank from erosion.

**Lunker structure:** An artificial structure constructed along the bank of a stream designed to mimic undercut banks and provide habitat for fish species. These structures are generally found in high gradient streams.

**Meander:** Curves deviating from a linear course. Components of Meander geometry include length, amplitude, and belt width.

**Meander Width Ratio:** Meander Belt Width divided by the Bankfull Width.

**Mid channel:** Landforms in a stream channel that begin to form when the discharge is low and the stream is forced to take the route of less resistance by flowing in locations of lowest elevation.

**Minimization:** In the context of streams, a project that will affect stream stability but includes design features that will maintain stability after normalization.

**Nickpoint (Knickpoint):** A term in geomorphology to describe a location in a river or channel where there is a sharp change in channel slope, such as a waterfall or lake, resulting from differential rates of erosion above and below the knickpoint.

**Off-site:** an area that is neither located on the same parcel of land as the impact site, nor on a parcel of land contiguous to the parcel containing the impact site.

**On-site:** an area located on the same parcel of land as the impact site, or on a parcel of land contiguous to the impact site.

**Out-of-kind:** means a resource of a different structural and functional type from the impacted resource.

**Overhanging vegetation:** Trees, shrubs, vines, or perennial herbaceous vegetation that hang immediately over the stream surface, providing shade and cover.

**Perennial Stream:** A stream that has flowing water year-round during a typical year. The water table is located above the streambed for most of the year. Groundwater is the primary source of water for stream flow. Runoff from rainfall is a supplemental source of water for stream flow.

**Plunge pools:** Plunge pools are formed where waterfalls over a boulder or log. The falling water scours out the streambed.

**Point Bar:** A point bar is a crescent-shaped depositional feature located on the inside of a stream bend or meander. Point bars are composed of well sorted sediment with a very gentle slope at an elevation below bankfull and very close to the baseflow water level.

**Pool:** Is a stretch of a river or stream in which the water depth is above average and the water velocity is quite below average.

**Re-establishment:** The manipulation of the physical, chemical, or biological characteristics of a site with the goal of returning natural/historic functions to a former aquatic resource. Re-establishment results in rebuilding a former aquatic resource and results in a gain in aquatic resource area and functions.

**Rehabilitation:** The manipulation of the physical, chemical, or biological characteristics of a site with the goal of repairing natural/historic functions to a degraded aquatic resource. Rehabilitation results in a gain in aquatic resource function, but does not result in a gain in aquatic resource area.

**Riffle:** A short, relatively shallow and coarse-bedded length of stream over which the stream flows at lower velocity and higher turbulence than it normally does in comparison to a pool. As a result of the lower velocity and heightened turbulence, small ripples are frequently found.

**Riparian buffer:** The zone of vegetation adjacent to streams, rivers, creeks or bayous, generally forested, that plays a key role in increasing water quality in associated streams.

**Rock weirs or rock vortex weirs:** A structure designed to serve as grade control and create a diversity of flow velocities, while still maintaining the bed load sediment transport regime of the stream. The weir points upstream with the legs angling downstream at anywhere from a 15 to 30 degree angle relative to the streambank. The legs are carried up the streambank to just above the bankfull elevation. The key component of the rock vortex weir is that the weir stones do not touch each other.

**Root wads:** Commonly refers to the trunk of a tree with the roots attached, and the soil or dirt removed so that the roots are exposed. Individual rootwads are placed in series and utilized to protect streambanks along meander bends. A revetment can consist of just one or two rootwads or up to 20 or more on larger streams and rivers.

**Run:** A somewhat smoothly flowing segment of the stream.

**Sinuosity:** Ratio of Channel Length to Valley Length or ratio of Valley Slope to Channel Slope.

**Streambed:** The substrate of the stream channel between the ordinary high water marks. The substrate may be bedrock or inorganic particles that range in size from clay to boulders. Wetlands contiguous to the streambed, but outside of the ordinary high water marks, are not considered part of the streambed.

**Step pools:** Consist of a series of structures designed to dissipate energy in steep gradient sections of a stream. They are often used where a large nick point has formed and is migrating headward or where a channel has degraded below a culvert or outfall. They are made of large rock in alternating short steep drops and longer low or reverse grade sections. There are various configurations and arrangements of rock that can be utilized. The requirement is that whatever the design configuration chosen it must be stable at all flows, the rock must be large enough to be essentially immobile, and the drops should be low enough to allow aquatic life to migrate upstream.

**Stream Assessment Reach:** A fixed-length segment of the stream being sampled.

**Terrace:** An abandoned Floodplain, due to river incision or downcutting, etc.

**Thalweg:** Longitudinal outline/trace/survey of a deepest part of riverbed from source to mouth (upstream/downstream). Line of steepest descent along the Stream.

**Thick rootwads:** Dense mats of roots (generally from trees) at or beneath the water surface forming structure for invertebrate attachment and fish cover.

**Transverse Bars:** A slightly submerged sand bar extending perpendicular to the shoreline.

**Undercut banks:** Eroded areas extending horizontally beneath the surface of the bank forming underwater pockets used by fish for hiding and protection.

**Wadeable Rivers:** A river is considered wadeable if it may be sampled in accordance with the procedure without a boat.

**Valley:** A depression on the earth surface drained by, and whose form is changed by, water under the attractive force of gravity, between two adjacent uplands.

**Valley Length:** Horizontal distance measured in the Thalweg of two cross sections in a linear depression between two adjacent uplands.

**Valley Slope:** Slope of a Valley for a given Reach where Valley and Reach intersect for some longer distance (several Meanders or step pools).