



## **Section 3**

Section three consists of vocabulary terms that should be used and learned when implementing the projects in sections one and two.

## **GLASSARY** Related Terms

**Accuracy** – a measure of how close repeated trials are to the desired target.

**Acid rain** – rain with a pH of less than 5.6; results from atmospheric moisture mixing with sulfur and nitrogen oxides emitted from burning fossil fuels; causes damage to buildings, car finishes, crops, forests, and aquatic life.

**Acidity** – a measure of the number of free hydrogen ions ( $H^+$ ) in a solution that can chemically react with other substances.

**Algae** – simple plants which do not grow true roots, stems, or leaves and which live mainly in water, providing a base for the food chain.

**Algal bloom** – a heavy growth of algae in and on a body of water as a result of high nitrate and phosphate concentrations from farm fertilizers and detergents.

**Alkalinity** – a measure of the negative ions that are available to react and neutralize free hydrogen ions. Some of most common of these include hydroxide ( $OH$ ), sulfate ( $SO_4$ ), phosphate ( $PO_4$ ), bicarbonate ( $HCO_3$ ) and carbonate ( $CO_3$ )

**Ambient** – pertaining to the current environmental condition.

**Assemblage** – the set of related organisms that represent a portion of a biological community (e.g., benthic macroinvertebrates).

**Benthic** – pertaining to the bottom (bed) of a water body.

Best Management Practices (BMPs) - an engineered structure or management activity, or combination of these that eliminates or reduces an adverse environmental effect of pollutants.

**Biochemical oxygen demand (BOD)** – The amount of oxygen consumed by microorganisms as they decompose organic materials in water.

**Biological criteria** – numerical values or narrative descriptions that depict the biological integrity of aquatic communities in that state. *May be listed in state water quality standards*

**Channel** - the section of the stream that contains the main flow.

**Channelization** - the straightening of a stream; this is often a result of human activity.

**Chemical constituents** - chemical components that are part of a whole.

**Clear cutting** – felling and removing all trees in a forest area.

**Cobble stone** – 2-10 inch size stones among which aquatic insects are commonly found.

**Combined sewer overflow (CSO)** - sewer systems in which sanitary waste and storm water are combined in heavy rains; this is especially common in older cities. The discharge from CSOs is typically untreated.

**Community** - the whole of the plant and animal population inhabiting a given area.

**Culvert** – a man-made closed passageway (such as a pipe) under roadways and embankments, which drains surface water and diverts natural flow.

**Designated uses** – state-established desirable uses that waters should support, such as fishing, swimming, and aquatic life. Listed in state water quality standards.

**Dissolved oxygen (DO)** – oxygen dissolved in water and available for living organisms to use for respiration.

**Distilled water** – water that has had most of its impurities removed.

**Dredge** – to remove sediments from the streambed to deepen or widen the channel.

**Effluent** – an out-flowing branch of a main stream or lake; waste material (i.e. liquid industrial refuse, sewage) discharged into the environment.

**Ecoregion** – geographic areas that are distinguished from others by ecological characteristics such as climate, soils, geology, and vegetation.

**Embeddedness** – the degree to which rocks in the streambed are surrounded by sediment.

**Emergent plants** – plants rooted underwater, but with their tops extending above the water.

**Erosion** – the wearing away of land by wind or water.

**Eutrophication** – the natural and artificial addition of nutrients to a waterbody, which may lead to depleted oxygen concentrations. Eutrophication is a natural process that is frequently accelerated and intensified by human activities.

**Floating plants** – plants that grow free-floating, rather than being attached to the stream bed.

**Flocculent (floc)** – a mass of particles that form into a clump as a result of a chemical reaction.

**Gabion:** a mesh “cage” containing earth or rocks placed into a stream to support the banks or slow the current.

**Glide/run** – section of a stream with a relatively high velocity and with little or no turbulence on the surface of the water.

**Fish kill** – the sudden death of fish due to the introduction of pollutants or the reduction of dissolved oxygen concentration in a water body.

**Floodplain** – a low area of land surrounding streams or rivers which holds the overflow of water during a flood.

**Flow** – the direction of movement of a stream or river.

**Groundwater** – a supply of fresh water under the earth's surface, which forms a natural reservoir.

**Headwaters** – the origins of a stream.

**Hypoxia** – depletion of dissolved oxygen in an aquatic system.

**Impairment** – degradation.

Impoundment – a body of water contained by a barrier, such as a dam.

**Landuses** – activities that take place on the land, such as construction, farming, or tree clearing.

**Leaching** – the process in which material in the soil (such as nutrients, pesticides, and chemicals) are washed into lower layers of soil or are dissolved and carried away by water.

**Macroinvertebrates** – organisms that lack a backbone and can be seen with the naked eye.

**Nonpoint source pollution** – pollution that cannot be traced to a specific point, but rather from many individual places (e.g., urban and agricultural runoff).

**NPDES** – National Pollutant Discharge Elimination System, a national program in which pollution dischargers such as factories and sewage treatment plants are given permits to discharge. These permits contain limits on the pollutants they are allowed to discharge.

**Nutrients** – substances which enhance the growth of plants and animals, such as phosphorous and nitrogen compounds.

**Orthophosphate** – inorganic phosphorus dissolved in water.

**Outfall** - the pipe through which industrial facilities and wastewater treatment plants discharge their effluent (wastewater) into a water body.

**Permeable** – porous; having openings through which liquid or gaseous substances can penetrate.

**Pesticide** – a chemical that kills insects and rodents. Pesticides can poison aquatic life when they reach surface waters through runoff.

**pH** – a numerical measure of the hydrogen ion concentration used to indicate the alkalinity or acidity of a substance. Measured on a scale of 1.0 (acidic) to 14.0 (basic); 7.0 is neutral.

**Phosphorus** – a nutrient that is essential for plants and animals.

**Photosynthesis** – the chemical reaction in plants that utilizes light energy from the sun to convert water and carbon dioxide into simple sugars. This reaction is facilitated by chlorophyll.

**Point source pollution** – a type of pollution that can be tracked down to a specific source such as a factory discharge pipe.

**Pollutant** – something that makes land, water or air dirty and unhealthful.

**Pool** – deeper portion of a stream where water flows more slowly than in neighboring, shallower portions.

**Precision** – a measure of how close repeated trials are to each other.

**Protocol** – defined procedure.

**Reagent** – a substance or chemical used to indicate the presence of a chemical or to induce a reaction to determine the chemical characteristics of a solution.

**Riffle** – a shallow area of a stream or river with a fast-moving current bubbling over rocks.

**Riparian** – of or pertaining to the banks of a body of water.

**Riparian zone** – the vegetated area on each bank of a body of water.

**Riprap** – rocks used on an embankment to protect against bank erosion.

**Runoff** – water, including rain and melted snow, which is not absorbed into the ground but instead flows across the land and eventually runs into streams and rivers. Runoff can pick up pollutants from the air and land, carrying them into the stream.

**Saturated** – inundated; filled to the point of capacity or beyond.

**Sediment** – soil, sand, and materials washed from land into waterways. Other pollutants may attach to sediment and be carried into stream.

**Sedimentation** – when soil particles (sediment) settle to the bottom of a waterway.

**Septic tank** – a domestic wastewater treatment system into which wastes are piped directly from the home; bacteria decompose the organic waste, sludge settles to the bottom of the tank, and the treated effluent flows out into the ground through drainage pipes.

**Sheen** – the glimmering effect that oil has on water as light is reflected more sharply off the surface.

**Silviculture** – forestry and the commercial farming of trees.

**Slumping** – sections of soil on a streambank that have come loose and slipped into the stream.

**Stagnation** – when there is little water movement and pollutants are trapped in the same area for a long period of time.

**Submergent plants** – plants that live and grow fully submerged under the water.

**Substrate** – refers to a surface. This includes the material comprising the streambed or the surfaces to which plants or animals may attach or upon which they live.

**Surface water** – precipitation which does not soak into the ground or return to the atmosphere by evaporation or transpiration, and which is stored in streams, lakes, wetlands, and reservoirs.

**Taxon (plural taxa)** – a level of classification within a scientific system that categorizes living organisms based on their physical characteristics.

**Taxonomic key** – a quick reference guide used to identify organisms. They are available in varying degrees of complexity and detail.

**Tolerance** – the ability to withstand a particular condition, e.g., pollution-tolerant indicates the ability to live in polluted waters.

**Toxic substances** – poisonous matter (either man-made or natural) which causes sickness, disease and/or death to plants or animals.

**Tributaries** – a body of water that drains into another, typically larger, body of water.

**Turbidity** – murkiness or cloudiness of water, indicating the presence of some suspended sediments, dissolved solids, natural or man-made chemicals, algae, etc.

**Undercutting** – a type of erosion, which occurs when fine soil is swept away by the action of the stream, especially around curves. The result is an unstable overhanging bank.



**Water cycle** – the cycle of the earth's water supply from the atmosphere to the earth and back which includes precipitation, transpiration, evaporation, runoff, infiltration, and storage in water bodies and groundwater.

**Water quality criteria** – maximum concentrations of pollutants that are acceptable, if those waters are to meet water quality standards. Listed in state water quality standards.

**Water quality standards** – written goals for state waters, established by each state and approved by EPA.

**Watershed** – land area from which water drains to a particular water body.

**Water table** – the upper level of groundwater.

**Waterway** – a natural or man-made route for water to run through (such as a river, stream, creek, or channel)

**Wetland** – an area of land that is regularly wet or flooded, such as a marsh or swamp.