

## GLOSSARY

**Algae** — Any of various primitive, chiefly aquatic, one- or multi-celled, nonflowering plants that lack true stems, roots, and leaves, but usually contain chlorophyll. Algae convert carbon dioxide and inorganic nutrients, such as nitrogen and phosphorus, into organic matter through photosynthesis and form the basis of the marine food chain. Common algae include dinoflagellates, diatoms, seaweeds, and kelp.

**Algal bloom** — A condition which occurs when excessive nutrient levels and other physical and chemical conditions facilitate rapid growth of algae. Algal blooms may cause changes in water color. The decay of the algal bloom may reduce dissolved oxygen levels in the water.

**Anadromous** — Migrating upstream to freshwater streams to spawn.

**Anaerobic** — Any process that can occur without molecular oxygen; also applicable to organisms that can survive without free oxygen.

**Aquifer** — A subsurface water-bearing layer that will yield water in a usable quantity to a well or spring.

**Aquitard** — A subsurface semi-confining layer that can store ground water and also transmit it slowly from one aquifer to another.

**Bankfull height** — The flow in a stream that just fills the stream channel to the top of its banks and the point where the water begins to overflow onto a flood plain.

**Beneficial use** — The uses of a water resource that are protected by state laws called water quality standards. Uses include aquatic life, recreation, human consumption, and fish or wildlife habitat.

**Benthic** — Living in or on the bottom of a body of water.

**Benthos** — Collectively, all organisms living in, on, or near the bottom substrate in aquatic habitats (examples are oysters, clams, burrowing worms).

**Best management practices (BMPs)** — Management practices (such as nutrient management) or structural practices (such as terraces) designed to reduce the quantities of pollutants — such as sediment, nitrogen, phosphorus, and animal wastes — that are washed by rain and snow melt from farms into nearby receiving waters, such as lakes, creeks, streams, rivers, estuaries, and ground water.

**Coliform bacteria** — See Fecal coliform bacteria.

Conservation tillage — Any tillage and planting system that maintains at least 30% of the soil surface covered by residue after planting for the purpose of reducing soil erosion by water.

Controlled drainage — The use of surface and subsurface drainage and control structures to control the water table depth in a field.

Denitrification — The process by which nitrate-nitrogen is converted to nitrogen gas by soil microorganisms when soil oxygen is low or absent.

Designated use — A beneficial use type established by a state for each water resource and specified in water quality standards, whether or not it is being attained.

Detachment — The process of a soil particle, nutrient, or pesticide breaking free from its position in the soil.

Detritus — Fragments of plant material.

Diatoms — Any number of microscopic algae whose cell walls consist of two box-like parts or valves and contain silica.

Dinoflagellates — Unicellular biflagellate algae with thick cellulose plates.

Dissolved oxygen — The amount of oxygen present in the water column. More than 5 parts oxygen per million parts water is considered healthy; below 3 parts oxygen per million is generally stressful to aquatic organisms.

Drainage area — An area of land that drains to one point; watershed.

Drainage ditch — A ditch that is constructed in a field in order to allow agricultural fields to drain more quickly.

Erosion — Wearing away of rock or soil by the gradual detachment of soil or rock fragments by water, wind, ice, and other mechanical, chemical, or biological forces.

Estuary — A coastal water resource where fresh water from rivers mixes with salt water from the ocean.

Eutrophic — Usually refers to a nutrient-enriched, highly productive body of water.

Eutrophication — A process by which a water body becomes rich in dissolved nutrients, often leading to algal blooms, low dissolved oxygen, and changes in community composition. Eutrophication occurs naturally, but can be accelerated by human activities that increase nutrient inputs to the water body.

Fecal coliform — Bacteria from the colons of warm-blooded animals which are released in fecal material.

Flagellum — A long, thread-like organelle used by many microscopic organisms for locomotion and feeding.

Flashboard riser control structure — A structure made of corrugated steel that, when installed in a drainage ditch, allows the water level in the ditch to be controlled by the addition or removal of wooden boards.

Forested riparian buffer — Streamside forest that is used to control nonpoint source pollution and in particular, sediment and nutrients.

Ground water — The water that occurs beneath the earth's surface between saturated soil and rock and that supplies wells and springs.

Herbicide — A substance used to destroy or inhibit the growth of vegetation.

Impaired waters — Surface and ground waters that are negatively impacted by pollution resulting in decreased water quality.

Integrated pest management (IPM) — A systems approach that combines a wide array of crop production practices with careful monitoring of pests and their natural enemies. IPM practices include use of resistant varieties, timing of planting, cultivation, biological controls, and judicious use of pesticides to control pests. These IPM practices are used in greenhouses and on field crops. IPM systems anticipate and prevent pests from reaching economically damaging levels.

Interfluvium — The area between two adjacent streams flowing in the same direction.

Intermittent stream — A watercourse that flows only at certain times of the year, conveying water from springs or surface sources; also, a watercourse that does not flow continuously when water losses from evaporation or seepage exceed available stream flow.

Isopod — Aquatic crustacean with a flat, oval body and seven pairs of walking legs of similar size and form, each pair attached to the thorax.

Lake — A man-made impoundment or natural body of fresh water of considerable size, whose open-water and deep-bottom zones (no light penetration to bottom) are large compared to the shallow-water (shoreline) zone, which has light penetration to its bottom.

Land treatment — The whole range of BMPs implemented to control or reduce nonpoint source pollution.

Land use — The way land is developed and used in terms of the types of activities allowed (agriculture, residences, industries, etc.) and the size of buildings and structures permitted. Certain types of pollution problems are often associated with particular land uses, such as sedimentation from construction activities.

Loading — The influx of pollutants to a particular water body.

Macroinvertebrate — Any nonvertebrate organism that is large enough to be seen without the aid of a microscope.

Management BMPs — BMPs that primarily involve a change in management practices, such as changing the timing, method, and/or amount of the application of a potential pollutant in order to reduce the chance that it will contaminate water resources.

Mineralization — The conversion of humus and soil organic matter into inorganic substances by microbial breakdown.

Neurotoxin — A poisonous compound that acts on the nervous system.

Nitrate — A form of nitrogen which is readily available to both aquatic and terrestrial plants as a nutrient.

Nitrification — The oxidation of ammonia to nitrate and nitrite, yielding energy for decomposing organisms.

Nitrogen — An element that is a component of protein structures in living organisms.

No-till — The practice of leaving the soil undisturbed from harvest to planting except for nutrient injection. Planting or drilling is accomplished in a narrow seedbed or slot created by coulters, row cleaners, disk openers, in-row chisels, or rototillers. Weed control is accomplished primarily with herbicides.

Nonpoint source controls — General phrase used to refer to all methods employed to control or reduce nonpoint source pollution.

Nonpoint source pollution — Pollution originating from runoff from diffuse areas (land surface or atmosphere) having no well-defined source.

Nutrient management — A BMP designed to minimize the contamination of surface and ground water by limiting the amount of nutrients (usually nitrogen) applied to the soil to no more than the crop is expected to use. This may involve changing fertilizer application techniques, placement, rate, or timing. The term fertilizer includes both commercial fertilizers and manure.

Nutrients — Chemicals that are needed by plants and animals for growth (e.g., nitrogen, phosphorus). In water resources, if other physical and chemical conditions are optimal,

excessive amounts of nutrients can lead to degradation of water quality by promoting excessive growth, accumulation, and subsequent decay of plants, especially algae. Some nutrients can be toxic to animals at high concentrations.

Parts per million (ppm) — A volume unit of measurement; the number of parts of a substance in a million parts of another substance. For example, 10 ppm nitrate in water means 10 parts of nitrate in a million parts of water.

Perennial stream — A watercourse that flows throughout the year or most of the year (90%), in a well defined channel. Same as a live stream.

Pesticide — Any substance that is intended to prevent, destroy, repel, or mitigate any pest.

Pesticide management — A BMP designed to minimize contamination of soil, water, air, and nontarget organisms by controlling the amount, type, placement, method, and timing of pesticide application necessary for crop production.

pH — The negative log of the hydrogen ion concentration. A measure of the acidity or alkalinity of a solution.

Phosphorus — An element essential to the growth and development of plants, but which, in excess, can cause unhealthy conditions that threaten aquatic animals in surface waters.

Point source — Any confined and discrete conveyance from which pollutants are or may be discharged. These include pipes, ditches, channels, tunnels, conduits, wells, containers, and concentrated animal feeding operations.

Point source pollution — Water pollution that is discharged from a discrete location such as a pipe, tank, pit, or ditch.

Pollutant — A contaminant that adversely alters the physical, chemical, or biological properties of the environment. The term includes nutrients, sediment, pathogens, toxic metals, carcinogens, oxygen-demanding materials, and all other harmful substances. With reference to nonpoint sources, the term is sometimes used to apply to contaminants released in low concentrations from many activities which collectively degrade water quality. As defined in the federal Clean Water Act, pollutant means dredged spoil, solid waste, incinerator residue, sewage, garbage, sewage sludge, munitions, chemical wastes, biological materials, radioactive materials, heat, wrecked or discarded equipment, rock, sand, cellar dirt, and industrial, municipal, and agricultural waste discharged into water.

Reduction — Gain of an electron by an atom, ion, or molecule; a decrease in the oxidation state.

Riffles — Areas of a stream or river characterized by a rocky substrate and turbulent, fast-moving, shallow water.

Riparian — Relating to the bank or shoreline of a body of water.

River — A watercourse that flows at all times, receiving ground or surface water, for example, from other streams or rivers. The terms “river” and “stream” are often used interchangeably, depending on the size of the water resources and the region in which they are located.

Runoff — Water that is not absorbed by soil but rather drains off the land into bodies of water, either via surface or subsurface flows.

Sediment — Particles and/or clumps of particles of sand, clay, silt, and plant or animal matter carried in water.

Sedimentary rock — A type of rock formed by chemical precipitation or by sedimentation and cementation of mineral grains transported to a site of deposition by water, wind, or ice.

Sedimentation — Deposition of sediment.

Source control — A practice, method, or technology used to reduce pollution from a source such as best management practices or end-of-pipe treatment.

Structural BMPs — BMPs that require the construction or use of a structure such as a terrace, lagoon, or waste storage facility.

Subbasins — One of several basins that form a watershed.

Subirrigation — Utilization of subsurface drainage to irrigate crops through the use of capillary rise of water from the full drainage tiles upward through the soil into the rooting zone.

Subsurface drainage — The use of tiles or plastic tubing that is buried 3 to 5 feet deep at a spacing of 50 to 200 feet to drain the soil.

Subwatershed — A drainage area within a watershed.

Surface drainage — The use of open ditches that provide predominately surface drainage.

Suspended load — Sediment that is transported by suspension in the water column of a stream or river.

Suspended solids — Organic and inorganic particles, such as solids from wastewater, sand, clay, and mud, that are suspended and carried in water.

Targeting — The process of prioritizing pollutant sources for treatment with BMPs or a specific BMP to maximize the water quality benefits of the implemented BMPs.

Total Kjeldahl nitrogen (TKN) — An oxidative procedure that converts organic nitrogen forms to ammonia by digestion with an acid, catalyst, and heat.

Total Maximum Daily Load (TMDL) – A scientific report that calculates the maximum amount of a pollutant a water body can receive (known as the "loading capacity") without exceeding water-quality standards under the Clean Water Act (CWA).

Total suspended solids (TSS) — The weight of particles that are suspended in water. Suspended solids in water reduce light penetration in the water column, can clog the gills of fish and invertebrates, and are often associated with toxic contaminants because organics and metals tend to bind to particles. Total suspended solids are differentiated from total dissolved solids by a standardized filtration process, the dissolved portion passing through the filter.

Transport — The movement of a soil particle, nutrient, or pesticide from its original position. This movement may occur in water or air currents. Nutrients and pesticides can be transported to soil particles or dissolved in water.

Tributary — A stream or river that flows into a larger stream or river.

Turbidity — A measure of the amount of light intercepted by a given volume of water due to the presence of suspended and dissolved matter and microscopic biota. Increasing the turbidity of the water decreases the amount of light that penetrates the water column. High levels of turbidity are harmful to aquatic life.

Unsaturated flow — Underground water flow through soil or rock where the void spaces are filled both with water and air.

Vegetative filter strips — A strip or area of vegetation for removing sediment, organic matter, and other pollutants from runoff and wastewater.

Volatilization — The transport of a liquid substance by vaporization.

Water management — The practice of limiting the amount of water used in activities such as animal waste flushing systems or milking operations in order to reduce the amount of runoff and, therefore, decrease the probability of polluting nearby surface water.

Water quality standards — Established limits of certain chemical, physical, and biological parameters in a water body; water quality standards are established for the different designated uses of a water body.

Water table — The depth or level below which the ground is saturated with water.

Water table management — Control of the shallow ground water table through a combination of surface drainage, controlled drainage, or subirrigation.

Water table management systems — The practices of surface drainage, controlled drainage, or subirrigation that are used in combination to control water table depth. Used in conjunction, these practices can increase yield and decrease nutrient pollution.

Watershed — The area of land from which rainfall (and/or snow melt) drains into a single point. Watersheds are also sometimes referred to as drainage basins or drainage areas. Ridges of higher ground generally form the boundaries between watersheds. At these boundaries, rain falling on one side flows toward the low point of one watershed, while rain falling on the other side of the boundary flows toward the low point of a different watershed.

Wetland construction — A subset of wetland creation; creation of wetlands specifically for water quality improvement purposes, typically involving controlled outflow and a design that maximizes selected treatment functions. Creation of an engineered system to simulate the water purification function of natural wetlands for human use and benefits.

Wetland creation — The bringing into existence of a wetland, whether by accident or intentionally, where none existed previously, for purposes including mitigation, habitat provision, and water quality improvement.

Wetland enhancement — Modification of a natural or created wetland to enhance one or more functions, typically to the detriment of other functions.

Wetland restoration — Rehabilitation of previously existing wetland functions, from a more impaired to a less impaired or unimpaired state of overall function.

Wetlands — Areas that are inundated or saturated by surface or ground water at a frequency and duration sufficient to support, and that under normal circumstances do support, a prevalence of vegetation typically adapted for