

7 Glossary

B

Baseline Monitoring: Data collection intended to define existing biological conditions and to set up a framework for long-term study.

Benthic: That portion of the aquatic environment inhabited by organisms which live permanently in or on the bottom.

Benthic Macroinvertebrate: An aquatic animal lacking a backbone and generally visible to the unaided eye.

Biomonitoring: The use of living organisms to assess environmental conditions.

C

Canopy Cover: The amount of cover provided by trees and shrubs.

Clean Water Act: A law enacted by the United States Congress in 1972 and enforced by the Environmental Protection Agency on the national level and the Georgia Environmental Protection Division on the local level. The Clean Water Act established three main goals: "zero discharge" also known as the elimination of polluting discharges to the nation's waters by 1985; "fishable and swimmable waters" also known as the restoration and protection of water quality and wildlife habitat; and "no toxins in toxic amounts" or the prohibition of the discharge of toxic pollutants in amounts that are toxic to the environment or life.

Coastal Plain: The physiographic province that lies along the Atlantic coast and extends inland to the Piedmont physiographic province. This area is generally characterized by low gradient, meandering streams with mobile sand/silt or gravel substrates.

Community: This is a group of organisms living together.

D

Dissolved Oxygen: The amount of oxygen freely available in water and necessary for aquatic life and the oxidation of organic materials.

E

***E. coli*:** A species of fecal coliform bacteria that is specific to fecal material from humans and other warm-blooded animals. The EPA states that *E. coli* is the best indicator of health risk from water contact in recreational waters.

Ecosystem: All of the component organisms of a community and their environment that, together, form an interacting system.

Electrofishing: Fish sampling method using electrical currents to temporarily stun fish to facilitate capture. Fish species help indicate stream water quality.

Embeddedness: Refers to the extent to which stream substrate (gravel, cobble, boulders and snags) is filled and/or covered with silt, sand, or mud.

F

Fecal Coliform Bacteria: A group of organisms common to the intestinal tracts of humans and of animals. The presence of fecal coliform bacteria in water is an indicator of pollution and of potentially dangerous bacterial contamination.

Fish Index of Biotic Integrity (F-IBI): A stream assessment tool that evaluates the biological integrity of streams based on various characteristics of the fish community at a site.

G

Genus: A taxonomic category.

Geographic Information System (GIS): A method of overlaying spatial land and land use data of different kinds. The data are referenced to a set of geographical coordinates and encoded in a computer software system. GIS is used by many localities to map utilities and sewer lines and to delineate zoning areas.

Glide: Section of a stream with a relatively high velocity and with little or no turbulence on the surface of the water.

H

Habitat: The environment in which an organism lives.

Habitat Generalists: Organisms that are not bound to one particular type of habitat in order to exist and thrive. Systems with degraded habitat are dominated by these organisms. These, therefore, make good indicators for assessing habitat quality.

I

Impervious Cover: A surface composed of any material that significantly impedes or prevents natural infiltration of water into soil (e.g. sidewalks, houses, parking lots, roofs, and streets).

Imperviousness: The percentage of impervious cover within a defined area.

Impoundment: A body of water contained by a barrier such as a dam.

Index of Biotic Integrity (IBI): A multi-parameter assessment tool that evaluates the biological integrity of stream ecosystems based on characteristics of the fish or benthic macroinvertebrate community at a site.

Intolerant Species: Populations of animals and/or plants that are adversely affected by low levels of degradation or disturbance to habitat and/or water quality.

M

Metric: A characteristic of a habitat or biological community structure that changes in some predictable way with increased disturbance or divergence from normal, natural conditions. Several metrics are aggregated to form the Index of Biological Integrity

N

Native Species: A species that exists naturally in an area. It is not introduced.

Nitrate: A form of nitrogen which is found in several different forms in terrestrial and aquatic ecosystems. Sources of nitrates include wastewater treatment plants; runoff from fertilized lawns and cropland; failing on-site septic systems; runoff from animal manure storage areas; and industrial discharges that contain corrosion inhibitors.

Non-native species: Species that have been introduced into an area by man. Typically these organisms disturb the ecosystem by out competing the native inhabitants. Usually the degree of ecosystem disturbance is directly related to the proportion of non-native species to the native inhabitants.

Nonpoint Source Pollution (NPS): Contaminants such as sediment, nitrogen, phosphorous, hydrocarbons, heavy metals, and other toxins whose sources cannot be pinpointed but rather are washed from the land surface in a diffuse manner by stormwater runoff.

O

Omnivores: An animal that feeds on a variety of foods. Typically, these organisms are more successful in degraded environments due to their diverse diet as opposed to species that have very specific diet dependencies.

P

Perennial Streams: A body of water that normally flows year-round in a defined channel or bed, and is capable, in the absence of pollution or other manmade stream disturbances, of supporting bottom dwelling aquatic animals.

Pervious: Any material that allows for the passage of liquid through it. Any surface area that allows infiltration.

pH: A term used to indicate the alkalinity or acidity of a substance as ranked on a scale from 1.0 to 14.0. Acidity increases as the pH gets lower.

Phosphate: A form of phosphorus, which is found in terrestrial and aquatic systems.

Physiographic Provinces: A region whose pattern of relief features or landforms differs significantly from that of adjacent regions.

Piedmont: This physiographic province bordered by the Atlantic Coastal Plain to the east and the Appalachian Mountains to the west and is generally characterized by rolling terrain with streams of moderate gradient and cobble/gravel substrates.

Point Source: Any discernible, confined conveyance, including but not limited to, any pipe, ditch, channel, tunnel, well, concentrated animal feeding operation, landfill leachate collection system, or floating craft from which pollutants are discharged. This term does not include return flows from irrigated agriculture or agricultural storm water runoff.

Pollutant: Any substance introduced to water that degrades its physical, chemical, or biological quality.

Pool: The reach of a stream between two *riffles*; a small and relatively deep body of quiet water in a stream or river. Natural streams often consist of a succession of pools and riffles.

Q

Quality Assurance/Quality Control (QA/QC): A system of procedures, checks, audits, and corrective actions to ensure that research design and performance, environmental monitoring and sampling, and other technical and reporting activities are of the highest achievable quality.

R

Rapid Bioassessment Protocol (RBP): A synthesis of techniques and methodologies for quickly assessing habitat and biological conditions in stream systems.

Reference Conditions: Conditions (i.e. habitat, chemical, biological) that reflect least impaired or best attainable conditions in a given area.

Reference Streams: Streams which exhibit highest quality or least impaired habitat conditions that are used as a standard to which all other streams are compared.

Resource Protection Area (RPA): That component of the Chesapeake Bay Preservation Area comprised of lands at or near the shoreline of water bodies that have an intrinsic water quality value due to the ecological and biological processes they perform or are sensitive to impacts which may result in significant degradation to the quality of state waters. Inversely, all other land outside RPAs within Fairfax County is considered Resource Management Areas (RMA).

Restoration: Improving conditions within a natural system so that its functional characteristics are comparable to its original, unaltered state.

Riffle: A reach of stream that is characterized by shallow, fast moving water broken by the presence of rocks and boulders.

Riparian Buffer: A transitional area around a stream, lake, or wetland left in a natural state to protect the water body from runoff pollution. Development is often restricted within such zones.

S

Specific Conductance: The ability of water to pass an electrical current while taking into account temperature and pressure, both factors which may affect the conductivity of a sample.

Stormwater Runoff: That portion of precipitation that is discharged across the land surface or through conveyances to one or more waterways.

Subwatershed: A defined land area within a watershed drained by a river, stream or drainage way, or system of connecting rivers, streams, or drainage ways such that all surface water within the area flows through a specific point.

T

Taxonomic: Relating to a category or group, such as a phylum, order, family, genus, or species within the Linnaeus biological classification system of nomenclature used to distinguish different levels of relationships between living organisms.

Tolerant Species: Animals and/or plants that can withstand high levels of degradation.

Total Maximum Daily Load (TMDL): The maximum levels of a particular pollutant that a water body can receive in a given day without violating pre-established water

quality standards. Total Maximum Daily Loads are the sum of point and nonpoint source loads.

Triassic Basin: This physiographic province is a subprovince of the Piedmont Upland. The geology consists largely of red sedimentary (sandstone, siltstone, shale, and conglomerate) rocks characterized by wide and gently rolling hilltops, with long gently sloping sideslopes and nearly level areas.

Trophic: This term is related to an animal's feeding preferences.

Turbidity: A measure of the suspended solids in a liquid.

V

Virginia Pollutant Discharge Elimination System (VPDES): Mandated by Congress under the Clean Water Act, a two-phased national program administered by the state of Virginia to address nonagricultural sources of non point-source pollution and prevent harmful pollutants from being washed into local water bodies via stormwater runoff.

W

Watershed: A discrete unit of land drained by a river, stream, drainage way or system of connecting rivers, streams or drainage ways such that all surface water within the area flows through a single outlet.

Wetland: Land that is saturated with water and which contains plants and animals that are adapted to living on, near, or in water. Wetlands have hydric soils and are usually located between a body of water and land.