WATERSHED GLOSSARY

Acre Feet – the amount of water required to cover an acre of land with water to a depth of one foot (325,900 gallons)

Aerobic – Living, active, or occurring only in the presence of oxygen.

Anadromous Species – Ascending rivers from the sea for breeding.

Anaerobic – living, active, occurring, or existing in the absence of free oxygen.

Anthropogenic – Effects or processes that are derived from human activity.

Aquatic Beds – Generally permanently flooded areas that are vegetated by plants growing principally on or below the water surface.

Aquatic Buffer – An area of land and water which is important to the integrity and quality of a stream, river, lake, wetland, or other body of water. An aquatic corridor usually consists of the actual body of water ("corridor" usually connotes a river or stream), the adjacent buffer, and a fringe of adjacent upland areas.

Artificially Flooded – Duration and amount of flooding is controlled by pumps or siphons in combination with dikes or dams.

Base Flow – The sustained portion of stream discharge that is drawn from natural storage sources and not affected by human activity or regulation.

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.

Best Management Practice (BMP) – Structural or nonstructural practice that is designed to minimize the impacts of change in land use on surface and groundwater systems.

Bioaccumulation – Process in which uptake of contaminants into biomass results in higher contaminant concentrations in organisms than in water or other compartments of habitat.

Biodiversity – Used interchangeably with taxa richness, the total assemblage of taxa groups present at a given location and time (Jones, Palmer, Motkaluk, Walters, 2002).

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

Bioretention Basin – See Rain Gardens.

Buffer – An area adjacent to a lake or estuarine shoreline, wetland edge, or streambank, where a) critically important ecological processes and water pollution control functions take place, and b) development may be restricted or prohibited for these reasons.

Channelization – Strengthening, widening, deepening, clearing, or lining of existing stream channels.

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 by the fifty states. The Clean Water Act established three main

goals: "zero discharge" or the elimination of polluting discharges to the nation's waters by 1985; "fishable and swimmable waters" or 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.

Cluster or Open Space Development – the use of designs which incorporate open space into a development site; these areas can be used for either passive or active recreational activity or preserved as naturally vegetated land.

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.

Combined Sewer Overflow – Discharge of a mixture of storm water and domestic waste, occurring when the flow capacity of a sewer system is exceeded during rainstorms.

Confluence – A flowing together of two or more streams.

Conservation Easements – A practice used to apply and enforce restrictions to preserve natural resources. Typically, a landowner will grant very specific rights concerning a parcel of land to a qualified recipient (e.g. public agency or non profit land conservancy organization). The easement gives the recipient the right to enforce the restrictions. The recipient does not assume ownership but does assume long-term responsibility for enforcement and stewardship of the easement. For example, a wildlife management agency may obtain easements in forested floodplains from private landowners that help them manage wildlife and fish.

Cyanide – Various compounds having the chemical group CN; one single atom of carbon (C) and one single atom of nitrogen (N). Cyanide is a carbon-based organic compound and it reacts readily with other carbon-based matter including living organisms.

Debris Flow – Rapidly moving landslide.

Denudation – Removal of all vegetation.

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

Diurnal – Of, relating to, or occurring in the daytime.

Doctrine of Prior Appropriation – In Oregon and other western states, water rights are determined under the appropriation doctrine. The Doctrine of Prior Appropriation is based on the concept of first in time, first in right.

Ecology – A branch of science concerned with the interrelationship of organisms and their environments.

Ecoregion – A physical area that is defined by ecological factors such as meteorology, elevation, plant and animal speciation, landscape aspect, and soils.

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

El Niño - About every 3 to 7 years, the ocean off the South American coast suddenly warms up. At the same time, temperatures in the western Pacific usually decrease. This phenomenon is known as an El Niño, or "warm event."

Electrofishing – Fish sampling method using electrical currents to temporarily stun fish to facilitate capture.

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

Emergent – Rising out of or as if out of a fluid.

Endangered Species – Species threatened with extinction

Endangered Species Act (ESA) – Endangered Species Act (ESA) regulates a wide range of activities affecting plants and animals designated as endangered or threatened. The Act was passed in 1973 and reauthorized in 1988. An endangered species is an animal or plant listed by regulation as being in danger of extinction. A threatened species is any animal or plant that is likely to become endangered within the foreseeable future. A species must be listed in the Federal Register as endangered or threatened for the provisions of the act to apply (Federal Endangered Species Act, 2003).

Endemic – Restricted or peculiar to a locality or region.

Erosion – The wearing away of the earth's surface by any natural process. The chief agent of erosion is running water; minor agents are glaciers, the wind, and waves breaking against the coast.

Estuary – Water passage where the tide meets a river current; an arm of the sea at the lower end of a river.

Eutrophication – The process by which a body of water becomes enriched in dissolved nutrients (as phosphates) that stimulate the growth of aquatic plant life usually resulting in the depletion of dissolved oxygen.

Evaporation – The process that involves the changing the state of water from a liquid to a vapor and the net transport of the vapor into the atmosphere.

Evapotranspiration – The combination of the processes of evaporation and transpiration. The process can dominate the water balance and control soil moisture content, groundwater recharge, and streamflow.

Family Biotic Index (FBI) – The general tolerance/intolerance of an assemblage that considers the numbers of individuals in each tolerance class at the family level taxonomic resolution.

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 Barrier – An obstacle in a stream or river, such as a dam or elevated culvert, that prevents the up and downstream movement of fish and other aquatic species.

Flood Plain – For a given flood event, that area of land adjoining a continuous water course which has been covered temporarily by water.

Fluvial Processes – Those processes that are created by the action of running water.

Gabion – A wire basket or cage that is filled with gravel and generally used to stabilize stream banks and improve degraded aquatic habitat.

Gaining Stream – A stream or segment of a stream where groundwater contributes to stream flow.

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.

Geomorphology – The study of landforms and the processes that are responsible for creating them.

Global Positional System (GPS) – Network of satellites that emit continuous location finding radio signals; GPS receivers use the signals from multiple satellites to determine their exact three-dimensional coordinates (latitude, longitude, and height).

Grab Sample – Simple water chemistry sampling procedure whereby practitioners manually fill sample containers for laboratory submission.

Groundwater – Water within the earth that supplies wells and springs.

Groundwater Discharge Area – An area where groundwater is flowing toward land surface. May result in the formation of springs, seeps, or baseflow.

Groundwater Flowpath – The movement of groundwater through geologic media along a preferred path.

Groundwater Recharge – Precipitation or surface water that enters the saturated zone.

Habitat – The environment in which an organism lives.

Half-Pounder – Steelhead trout that re-enter freshwater after only three or four months in saltwater. They mature for another eight months in the freshwater and then return to saltwater for the duration of their development. The immature steelhead are called “half pounders.”

Headwaters – The area where a stream begins; usually a network of small tributaries at least slightly elevated in comparison to the middle and lower reaches of the stream.

Heterogeneous – Consisting of dissimilar or diverse ingredients or constituents.

Homogeneous – Of the same or a similar kind or nature; of uniform structure or composition throughout.

Hydraulic Head – The sum of the elevation head, the pressure head, and the velocity head at a given point in an aquifer.

Hydric – Soils that in their undrained condition are saturated, flooded, or ponded long enough during the growing season to develop anaerobic conditions that favor the growth and regeneration of hydrophytic vegetation.

Hydrogeology – The science that examines the interrelationships of geologic materials and processes with water. Primarily emphasis is given to groundwater.

Hydrologic Cycle – Describes the continuum of the transfer of water from precipitation to surface water, groundwater, to storage and runoff, and its eventual return to the atmosphere by evapotranspiration.

Hydroperiod – The duration standing water remains in a depression that constitutes a wetland.

Hydrophytic – A perennial vascular aquatic plant having its overwintering buds under water; a plant growing in water or in soil too waterlogged for most plants to survive.

Hyporheic Zone – That area directly beneath a streambed that is a mixture of surface water and groundwater and is underlain by unmodified groundwater with physical and chemical characteristics considerably different from stream water.

Illicit Connections – Illegal and/or improper waste discharges into storm drainage systems and receiving waters.

Impacted Stream or Subwatershed – A very general, watershed imperviousness-based classification category for a subwatershed with 11 to 25% impervious cover. Urbanization is generally expected to lead to some impacts on stream quality, but the type and magnitude of these effects can vary significantly among different watersheds at similar levels of imperviousness.

Impaired Stream – An aquatic system in which the water quality is degraded to an extent such that resident biological communities lack the diversity and/or abundance that would otherwise be present.

Impervious Cover – A surface composed of any material that significantly impedes or prevents natural infiltration of water into soil (i.e. sidewalks, houses, parking lots…).

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 stream assessment tool that evaluates biological integrity based on characteristics of the fish and benthic assemblage at a site.

Indicator Species – An organism whose presence (or state of health) is used to identify a specific type of biotic community or changes occurring in the environment.

Infiltration – The portion of rainfall or surface runoff that moves downward into the subsurface rock and soil.

Infiltration Capacity – The maximum rate that water can infiltrate into a soil.

Infiltration Rate – The amount of water that soaks into soil over given period of time.

Instream Erosion – Erosion of stream banks caused by high flow rates.

Intermittently Flooded – The substrate is usually exposed and only flooded for variable periods without detectable seasonal periodicity (may be upland in some situations).

Intermittent Streams – Streams flowing temporarily or periodically rather than continuously throughout the year.

Intolerant Species – Populations of animals and/or plants that are adversely affected even at low levels of degradation.

"Jack" – Coho salmon that reach sexual maturity after only one summer at sea and return to freshwater the following fall, two years old.

La Niña – La Niña is the counterpart of El Niño and is referred to as "cold event". During La Niña conditions there is an increase in the east-west gradient, with western Pacific temperatures even warmer than average and eastern waters cooler. The result is an even stronger and more concentrated area of storms and clouds in the western Pacific.

Lacustrine – Wetland system associated with lakes.

Lentic – A non-flowing or standing body of fresh water, such as a lake or pond.

Limnetic – Deep water.

Losing Stream – A stream or segment of a stream where surface water recharges an underlying aquifer.

Macroinvertebrate – An animal without a backbone, large enough to be seen without magnification.

Mercury – Mercury is a highly toxic element that is found both naturally and as an anthropogenic contaminant. Elemental mercury [Hg(O)] can be converted to the more toxic form methymercury (CH_3Hg).

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.

Morphology – The form and structure of an organism or any of its parts.

Natal Streams – The stream a fish was born in.

National Pollutant Discharge Elimination System (NPDES) – Mandated by Congress under the Clean Water Act, a two-phased national program to address nonagricultural sources of stormwater discharge and prevent harmful pollutants from being washed into local water bodies by stormwater runoff.

Non-Point Source – Diffuse pollution sources that are not recognized to have a single point of origin.

Non-Point Source Pollution – Contaminants such as sediment, nitrogen and phosphorous, hydrocarbons, heavy metals, and toxins whose sources cannot be pinpointed but rather are washed from the land surface in a diffuse manner by stormwater runoff.

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.

Open Space – A portion of a site which is permanently set aside for public or private use and will not be developed. The space may be used for passive or active recreation, or may be reserved to protect or buffer natural areas.

Oregon Plan for Salmon and Watersheds – The purpose of the Oregon Plan for Salmon and Watersheds (the "Oregon Plan") as stated in the Plan and reaffirmed in this Executive Order is to restore Oregon's wild salmon and trout populations and fisheries to sustainable and productive levels that will provide substantial environmental, cultural, and economic benefits and to improve water quality. The Oregon Plan is a long-term, ongoing effort that began as a focused set of actions by state, local, tribal and private organizations and individuals in October of 1995 (EXECUTIVE ORDER NO. EO 99-01, 2003).

Outfall – Site of discrete water and/or effluent discharge.

Overland Flow – Precipitation that drains across the land surface and enters a stream or other surface water body.

Palustrine – Wetland system associated with nontidal, emergent vegetation.

Peak Discharge – Refers to a specific period of time when the discharge of a stream or river is at its highest point.

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.

Permanently Flooded – Flooded throughout the year in all years.

Photosynthesis – Synthesis of chemical compounds with the aid of radiant energy and especially light; formation of carbohydrates from carbon

dioxide and a source of hydrogen (as water) in the chlorophyll-containing tissues of plants exposed to light.

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

Piedmont Upland – 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 – Specific points of origin where pollutants are emitted.

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.

Rain Gardens – Water quality BMP engineered to filter the water quality volume through an engineered planting bed, consisting of a vegetated surface layer (vegetation, mulch, and ground cover), planting soil, and sand bed (optional), and into the in-situ material. Also called a Bioretention Basin.

Rapid Stream AssessmentTechnique (RSAT) – A stream monitoring protocol for visually assessing instream and localized watershed conditions.

Recurrence Interval – Expected or observed time intervals between hydrological events of a particular magnitude (i.e., 100-year flood event) described by stochastic or probabilistic models.

Redd – Steelhead trout nests, where eggs are deposited and develop.

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.

Resident Species – Not migratory.

Resource Management Area (RMA) – That component of the Chesapeake Bay Preservation Area that is not classified as the Resource Protection Area. RMAs include land types that, if improperly used or developed, have the potential for causing significant water quality degradation or for diminishing the functional value of the Resource Protection Area.

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 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. All other land outside RPAs within Fairfax County is considered RMAs.

Respiration – The chemical process in which cells convert sugars into energy.

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

Retrofit – The modification of stormwater management systems through the construction and/or enhancement of wet ponds, wetland plantings, or other BMPs designed to improve water quality.

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 waterbody from runoff pollution. Development is often restricted within such zones.

Riparian Zone – Relating to or living or located on the bank of a natural watercourse (as a river) or sometimes of a lake or a tidewater.

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

Salmonid – Any of a family (Salmonidae) of elongate bony fishes (as a salmon or trout) that have the last three vertebrae upturned.

Saturated – Surface water is seldom present, but the substrate is saturated to the surface for most of the growing season.

Saturated Zone – The zone in which the voids in the rock or soil are filled with water a pressure greater than atmospheric. The water table is the top of the saturated zone in an unconfined aquifer.

Seasonally Flooded – Flooded for extended periods in the growing season, but surface water is usually absent by the end of the growing season.

Sediment Transport – The movement of eroded mineral materials by flowing water.

Semipermanently Flooded – Flooded throughout the growing season in most years.

Seven-Day Moving Mean of Daily Maximum – The federal and Oregon state standard statistical measure of stream temperature.

Silt Fence – Temporary sediment barrier consisting of filter fabric, sometimes backed with wire mesh, attached to supporting posts and partially buried.

Spawning – To produce or deposit (eggs) -- used of an aquatic animal; to induce (fish) to spawn.

Species – A class of individuals having common attributes and designated by a common name; a logical division of a genus or more comprehensive class.

Stormwater "Hotspots" – Land uses or activities that generate highly contaminated runoff. Examples include fueling stations and airport de-icing facilities.

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

Stream Hydrograph – A graph showing discharge, stage, or velocity or other properties of water flow with respect to time. A hydrograph can be regarded an integral expression of the physiographic and climatic characteristics that govern the relations between rainfall and runoff of a particular drainage basin.

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.

Surface Water – Water flowing above the surface of the ground.

Temporarily Flooded – Flooded for only brief periods during the growing season, with the water table usually well below the soil surface for most of the season.

Threatened Species – Having an uncertain chance of continued survival; likely to become an endangered species.

303(d) Stream – Federal Clean Water Act (CWA) required list of water quality impaired or threatened waters found in each state.

Thelweg – The deepest part of a channel.

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 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 non-point source loads.

Transferable Development Rights (TDRs) – a form of incentive for developers in which the developer purchases the rights to an undeveloped piece of property in exchange for the right to increase the number of dwelling units on another site. Often used to concentrate development density in certain land areas.

Transpiration – The diffusion of water vapor from plant leaves to the atmosphere. Transpiration originates from water taken in through the roots of plants.

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

Unconfined Aquifer – An aquifer that is located close to land surface comprised of materials that have high permeability extending from land surface to the base of the aquifer. The top of an unconfined aquifer is commonly referred to as the water table. Also referred to as a water table aquifer.

Unconsolidated Bottom – Generally permanently flooded areas with bottom substrates consisting of at least 25% particles smaller than stones and less than 30% vegetative cover.

Unconsolidated Shore – Wetlands having unconsolidated substrates with less than 75% coverage by stones, boulders, and bedrock and less than 30% coverage by vegetation.

Unsaturated Zone – The zone between the land surface and the water table. It includes the root zone, intermediate zone, and capillary fringe. The pore spaces contain water as well as air and other gases.

Urban Runoff – Stormwater from city streets and adjacent domestic or commercial properties that carries non-point source pollutants of various kinds into the sewer systems and receiving waters.

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.

Watershed Restoration – Improving current conditions of watersheds to restore degraded fish habitat and provide long-term protection to aquatic and riparian resources.

Water Table – The surface of an unconfined aquifer at which the pore water pressure is atmospheric.

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.

Zoning – A set of local government regulations and requirements that govern the use, placement, spacing, and size of buildings and lots (as well as other types of land uses) within specific areas designated as zones primarily dedicated to certain land use types or patterns.