Glossary

Terms defined in the context of the sentence in which they appear in this document may not be included in the glossary.

Adventitious roots. Additional roots that develop in some plants, such as willows and alders, as an adaptation to saturated or flooded conditions.

Aquatic resources (systems). Refers to ecological systems where the regular or occasional presence of water is the dominant factor determining the characteristics of the site. Aquatic systems are made up of wetlands, rivers, streams, lakes and other deepwater habitats.

Assessment methods. Methods that generate a number representing an estimate of the performance of a wetland function. The number generated is relative to a predetermined standard (e.g., level of function provided by reference wetlands). Numbers do not reflect an actual level of function performance (Hruby 1999). Examples include the Washington State Methods for Assessing Wetland Functions (WFAM) (Hruby et al. 1999 and 2000) and the HGM approach to wetland function assessment (Brinson et al. 1995).

Biological wetland. A biological wetland is a wetland that meets the three parameter criteria of either the 1987 Corps of Engineers Delineation Manual or the 1997 Washington State Wetlands Identification and Delineation Manual (WAC 173-22-035). Compare to jurisdictional wetland.

Bog. A unique type of wetland dominated by mosses that form organic peat. Bogs form in areas where the climate allows the accumulation of peat to exceed its decomposition. Bog hydrology is dominated by precipitation rather than surface inflow. The plant community is specialized to survive in the nutrient-poor and highly acidic conditions typical of bog systems.

Buffers or buffer areas. Vegetated areas adjacent to wetlands, or other aquatic resources, that can reduce impacts from adjacent land uses through various physical, chemical, and/or biological processes.

Canopy cover. The degree to which the foliage of the highest vegetation layer in a plant community blocks sunlight or obscures the sky.

Class. A grouping based on shared characteristics in a classification scheme. In the Cowardin et al. (1979) classification of wetlands a class is the third level in the 'taxonomy' of wetlands whereas in the Hydrogeomorphic Classification (Brinson 1993) it is the highest taxonomic unit.

Compensatory mitigation. The compensation stage of the mitigation sequence where impacts to the functions and values of wetlands are replaced through creation, restoration, or enhancement of other wetlands. Because regulatory requirements and policies tend to focus on the compensation stage, the term "mitigation" is often used to refer to compensation, which is just one part of the overall mitigation sequence. See *mitigation.*

Conductivity. A measure of the amount of dissolved constituents (ions) in water, based on the water's ability to conduct electricity. See *specific conductance*.

Connectivity. The structures on the landscape that facilitate movement of living organisms between patches or their habitat that are found across the landscape. The movement can occur either within the lifetime of an organism or over a period of generations. The purpose of facilitating movement is to maintain viable populations that allow species and communities of species to persist in time. Connectivity can be achieved via a continuous and linear habitat feature (as in a corridor) or discrete habitat patches comprised of but not limited to individual forests, wetlands, shrub lands, and shorelines.

Conservation easement. A restriction placed on a piece of property to protect the resources (natural or man-made) associated with the parcel. It restricts the type and amount of development that can take place on a parcel of land. For example, the landowner may sell or donate the development rights while retaining the ownership of the property. Easements are recorded on the property deed and are held in trust by a conservation easement "holder" such as a land trust or government agency. The holder polices the terms of the easement for the duration of its existence, which is usually into perpetuity.

Contingency plan. A plan outlining actions that would be triggered if monitoring of a project revealed a problem that would prevent the site from attaining its stated goals, objectives, and performance standards. Contingency plans should identify anticipated problems and the specific maintenance activity that would be implemented to rectify each problem.

Contributing basin. The geographic area from which surface water drains to a particular wetland.

Corixids. A group of aquatic insects commonly called "water boatmen."

Corridor: Corridors are areas that contain relatively undisturbed habitat and/or vegetation that maintain connections for wildlife throughout the landscape. Corridors usually represent linear habitats with the range of environmental functions necessary to permit the movement of animals between larger and more fully functioning habitats. Corridors can include but are not limited to, annual or seasonal migration corridors that connect wintering and breeding habitat, or intra-seasonal corridors that connect foraging and nesting habitat or breeding and dispersal habitat.

Cowardin classification. The first commonly used classification system for wetlands developed in 1979 by the U.S. Fish and Wildlife Service. The Cowardin system classifies wetlands based on water flow, substrate types, vegetation types, and dominant plant species.

Cumulative impacts. The incremental effect of an impact added to other past, present, and reasonably foreseeable future impacts.

Deed restriction (definition from legal dictionary). Clauses in a deed limiting the future uses of the property. Deed restrictions may impose a vast variety of limitations and conditions, for example, they may limit the density of buildings, dictate the types of structures that can be erected or prevent buildings from being used for specific purposes or even from being used at all.

Depressional wetland. A *class* of wetlands in the *hydrogeomorphic classification*. These are wetlands that occur in topographic depressions that exhibit closed contour interval(s) on three sides and elevations that are lower than the surrounding landscape.

Dioxin. A group of several hundred chemical compounds that share certain chemical structures and biological characteristics. They include the chlorinated dibenzo-*p*-dioxins (CDDs), chlorinated dibenzofurans (CDFs), and some polychlorinated biphenyls (PCBs). The term dioxin is also used to refer to a well-studied and toxic dioxin, 2, 3, 7, 8-tetrachlorodibenzo-*p*-dioxin (TCDD).

Disturbance. An event that disrupts the processes or structure of ecological systems. Disturbances may occur naturally (e.g., wildfires, storms, floods) or be caused by human actions (e.g., clearing land, building roads, altering stream channels). The effects of disturbances on ecological systems are controlled in large part by their intensity, duration, frequency, timing, and size and shape of area affected.

Ditch. Any channel that has been specifically dug to facilitate drainage.

Drainage systems. Often called basins, sub-basins, watersheds, or river basins depending on the size of the area. In this document, drainage systems are generally referred to using one of two terms: 1. *Watershed.* A geographic area of land bounded by topographic high points in which water drains to a common destination; and 2. *Contributing basin.* A geographic area from which surface water drains to a particular wetland.

Drawdown. A lowering of the ground-water surface caused by pumping.

Dytiscids. Predaceous diving beetles.

Ecoregion. Geographic regions where climatic conditions are similar and the ecosystems (including wetlands) are relatively homogeneous. Omernik and Gallant (1986) mapped the following ecoregions in Washington: Coast Range, Puget Lowland, Cascades, Eastern Cascades Slopes and Foothills, North Cascades, Columbia Plateau, Blue Mountains, and Northern Rockies.

Ecosystem. A loosely defined assemblage of co-occurring organisms and the geographic location which they inhabit. The term is an operational convenience defined by the user of the term for the convenience of description (Levin 2001). There is no basic geographic scale associated with the term ecosystem, and that also has to be defined by a user. For example, the term can be used to describe the micro-organisms co-occurring in a spoonful of soil (soil ecosystem) at one end of the scale to the ecosystem of the world that encompasses all organisms on the planet.

Ecotone. An area that is transitional between two different types of ecosystems and has some of the features of both. Wetlands are often characterized as being ecotones between aquatic and terrestrial ecosystems.

Edge. The boundary where habitats meet or where successional stages of plant communities come together.

Emergence trap. A device placed over the water or sediment in a wetland to capture flying aquatic insects as they emerge from their non-flying larval state into their winged adult form.

Environmental processes. The same as *landscape processes*.

Eutrophication. The undesirable overgrowth of vegetation caused by high concentrations of plant nutrients in bodies of water, especially nitrogen and phosphorous, often as a result of human activities.

Evapotranspiration. The combination of water that is evaporated from the surface and that is transpired from the leaves of plants as part of their metabolic process.

Fen. A type of wetland that is similar to a bog, containing accumulated peat. Fens support marsh-like vegetation including sedges and wildflowers. Fens differ from bogs in their plant communities, hydrology, and water chemistry. They are fed by groundwater and are not as acidic as bogs.

Flats. A class of wetlands in the *hydrogeomorphic classification*. These are wetlands that occur in topographically flat areas that are hydrologically isolated from surrounding ground or surface water. They are primarily maintained by precipitation.

Forb. Any herbaceous plant that is not a grass or sedge.

Forested wetland. A wetland *class* in the Cowardin classification where woody plants taller than 20 feet form the dominant cover. Shrubs often form a second layer beneath the forest canopy, with a layer of herbaceous plants growing beneath the shrubs.

Fragmentation. The breaking up of ecosystems into patches of habitat that are separated by areas altered by human land uses. Fragmentation always consists of both the reduction in the area of the original habitat and a change in spatial configuration of what remains.

Functions. The physical, biological, chemical, and geologic interactions among different components of the environment. See *wetland functions*.

Functional feeding group. A group of animals (aquatic insects, birds, etc) that feed in a similar way. For example, insects that scrape algae from rocks in a stream are called scrapers; those that shred leaf material are caked shredders; and those that filter small particles from the water column are filter feeders.

Furans. A chemical substance resulting from the manufacture of organic compounds, such as nylon.

Geomorphic setting. The topographic location of a site within the surrounding landscape and the geology that underlies it.

Geomorphology. The geologic composition and structure of a landscape—its topography, landforms, soils, and geology.

Hemipterans. A group of insects with straw-like, sucking mouth parts.

Herbaceous (stratum). A layer of non-woody vegetation, usually less than 6 feet (2 m) tall.

Hertz (Hz). A unit of frequency equal to one cycle per second.

Humic. Of or pertaining to humus, which consists of partially or wholly decayed plant matter.

Hydrodynamics. Refers to the movement of water and its capacity to do work. There are three qualitative categories of hydrodynamics: (1) vertical fluctuations of the water levels or water table, (2) unidirectional surface or near-surface flows that range from strong currents contained in channels to slow sheet flow down a slope, and (3) bidirectional flows resulting from tides or wind-driven currents in lakes.

Hydrogeomorphic (HGM) classification. A system used to classify wetlands based on the position of the wetland in the landscape (geomorphic setting), the water source for the wetland, and the flow and fluctuation of the water once in the wetland.

Hydroperiod. The pattern of water level fluctuations in a wetland. Includes the depth, frequency, duration, and timing of inundation or flooding. Patterns can be daily, monthly, seasonal, annual, or longer term.

Impact. Changes to the environment that are caused by human disturbances. Impacts can be either beneficial or detrimental to the ecosystem, environmental process, or species.

Interior (species). Animal species that require the conditions found on the interior of a habitat type and which are subject to disturbance in areas toward the edges of that habitat. For example, forest interior birds find optimum conditions within the center of a forested area where they are not subject to domestic pets, noise, severe weather, or other disturbances that penetrate the outer forest edge.

Jurisdictional wetland. A wetland that is regulated by the provisions of the law under the jurisdiction of one or more federal, state, or local agencies. Not all areas of the landscape that have the biological characteristics of wetlands are regulated or jurisdictional wetlands.

Lacustrine. Pertaining to lakes or lake shores.

Lacustrine (lake) fringe wetlands. A wetland *class* under the *hydrogeomorphic classification*. These are wetlands that occur at the margins of topographic depressions in which surface water is greater than 8 hectares (20 acres) and greater than 2 meters deep in western Washington and 3 meters in eastern Washington.

Landscape processes. Environmental factors that occur at larger geographic scales such as basins, sub-basins, and watersheds. Processes are dynamic and usually represent the movement of a basic environmental characteristic such as water, sediment, nutrients and chemicals, energy, or animals and plants. The interaction of landscape processes with the physical environment creates specific geographic locations where groundwater is recharged, flood waters are stored, stream water is oxygenated, pollutants are removed, and wetlands are created.

Landscape scale. The geographic scale that encompasses the broader landscape (i.e., large areas such as basins, sub-basins, watersheds, and habitat corridors). Also see *site scale* and *large scale*.

Large scale. Large in scope. This term is used specifically to indicate geographic areas that extend beyond the boundaries of an individual site, wetland, or resource. Please note that this term has the opposite meaning when it is used in cartography. Large scale maps are ones that cover a smaller geographic area than a small scale map.

Large woody debris (LWD). Large pieces of downed wood, such as logs, rootwads, and limbs, that are in or near a body of water. LWD provides habitat structure for fish and other aquatic organisms.

Lentic. Having slow moving or still water, such as a pond or lake (as compared to lotic – having running water, such as a river or stream).

Metapopulation. A group of local populations between which individuals can migrate.

Microbe. A microscopic organism, such as a bacterium.

Microhm. A unit of measure describing the resistance of a substance to electrical current.

MilliSiemens. A unit of measure for conductivity. See *specific conductance*.

Mitigation (or mitigation sequencing). Mitigation is a series of actions that requires addressing each action, or step, in a particular order. This sequence of steps is used to reduce the severity of negative impacts from activities that potentially affect wetlands. Mitigation involves the following: 1. Avoiding the impact altogether by not taking a certain action or parts of an action; 2. Minimizing impacts by limiting the degree or magnitude of the action and its implementation, by using appropriate technology, or by taking affirmative steps, such as project redesign, relocation, or timing, to avoid or reduce impacts; 3. Rectifying the impact by repairing, rehabilitating, or restoring the affected environment; 4. Reducing or eliminating the impact over time by preservation and maintenance operations during the life of the action; 5. Compensating for the impact by replacing, enhancing, or providing substitute resources or environments; and 6. Monitoring the required compensation and taking remedial action when necessary (WAC 197.11.768). See *compensatory mitigation*.

Natural Heritage (Wetlands) (as defined by the Natural Heritage Program of the Washington State Department of Natural Resources). Wetlands that are either high quality undisturbed wetlands or wetlands that support threatened, endangered, or sensitive plant species.

Niche. The area within a habitat occupied by an organism; the set of functional relationships of an organism or population to the environment it occupies.

PCBs. Polychlorinated biphenyls, a type of toxic chemical compound once widely used in electrical equipment. See *dioxin*.

Phreatic zone. The area above the groundwater table.

Redox (potential). Reduction-oxidation potential, or a measure of the potential movement of electrons in a system. Reduction refers to the chemical process whereby molecules of a substance gain an electron. Oxidation refers to loss of electrons. Measuring the redox potential of a wetland soil provides information about the types of chemical reactions that are occurring in the soil, and thus whether the soil is more aerobic (contains oxygen) or anaerobic (lacks oxygen).

Richness. The number of different species of organisms present in a community.

Riparian. The strip of land adjacent to a body of water that is transitional between the aquatic system and the upland. Some riparian areas contain wetlands.

Riverine wetlands. A *class* of wetlands in the *hydrogeomorphic classification*. Wetlands that occur in floodplains and riparian corridors in association with stream or river channels where there is frequent overbank flooding.

Rotifers. Minute organisms that live in fresh and salt water. A crown of hair-like structures (cilia) propels them through the water.

Roughness. The amount of friction or resistance a surface provides against water flow. For example, an area containing shrubs and downed branches has greater roughness than a mowed lawn.

Site processes. Environmental factors that occur within the wetland itself or within its buffer. The interactions of site processes with landscape processes define how a wetland functions.

Site scale. The geographic scale that encompasses the area within the boundary of a single wetland and its immediate surroundings. Also see *landscape scale*.

Slope wetlands. A *class* of wetlands in the *hydrogeomorphic classification***.** These are wetlands that occur on the slopes of hills or valleys. The principal water source is usually seepage from groundwater.

Specific conductance. A measure of electrical conductivity standardized to 25^{o}C. Use of specific conductance accounts for the fact that the conductivity of water changes as its temperature changes. It is measured in units of milliSiemens per centimeter.

Sub-basin. A smaller drainage basin that is part of a larger drainage basin or watershed. For example, the watershed of a large river may be composed of several sub-basins, one for each of the river's tributaries.

Temporal loss (of functions). The concept that there is a time lag between the loss of existing wetland functions through human or natural disturbance and the reestablishment of functions over time.

Tidal Fringe wetlands. A *class* of wetlands in the *hydrogeomorphic classification*. Wetlands that occur on continental margins where marine waters are greater than 2 meters deep and more than 8 hectares (20 acres) in size.

Trophic level. A concept used to describe feeding levels in a foodweb. Plants fill the first trophic level by utilizing sunlight to create carbohydrates and other compounds. Plants are consumed by plant-eating animals (herbivores) in the second trophic level, which in turn become food for predators in the next trophic level, and so on.

Values. See *wetland values***.**

Watershed. A geographic area of land bounded by topographic high points in which water drains to a common destination.

Wetland functions. The physical, biological, chemical, and geologic interactions among different components of the environment that occur within a wetland. Wetlands perform many valuable functions and these can be grouped into three categories: functions that improve water quality, functions that change the water regime in a watershed such as flood storage, and functions that provide habitat for plants and animals.

Wetland rating. Also called a wetland rating system. is a tool for dividing or grouping wetlands into groups that have similar needs for protection. One method used in Washington is the Washington State wetland rating systems (Hruby 2004a,b), which places wetlands in categories based on their rarity, sensitivity, our inability to replace them, and their functions.

Wetland Values. Wetland processes, characteristics, or attributes that are considered to benefit society.