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# Wetland Ways



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Interim Guidelines for  
Wetland Protection and Conservation in British Columbia

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## Chapter Thirteen

# GLOSSARY

Cover photo: Judith Cullington



## CHAPTER 13: GLOSSARY

Definitions are derived from

- ♦ B.C. Ministry of Environment *Develop with Care* ([http://www.env.gov.bc.ca/wld/documents/bmp/devwithcare2006/develop\\_with\\_care\\_intro.html](http://www.env.gov.bc.ca/wld/documents/bmp/devwithcare2006/develop_with_care_intro.html));
- ♦ B.C. Ministry of Forests Wetlands Glossary ([http://www.for.gov.bc.ca/hre/becweb/Downloads/Downloads\\_Wetlands/A%20Glossary%20of%20Wetland%20Terminology.pdf](http://www.for.gov.bc.ca/hre/becweb/Downloads/Downloads_Wetlands/A%20Glossary%20of%20Wetland%20Terminology.pdf));
- ♦ Nowlan and Jeffries (1996) *Protecting British Columbia Wetlands: A citizen's guide* (<http://www.wcel.org/wcelpub/1996/11580/>); and,
- ♦ Ducks Unlimited website <http://www.ducks.ca/conserve/research/projects/climate/glossary.html>

**Aerobic:** occurring in the presence of free oxygen, either as a gas in the atmosphere or dissolved in water.

**Alkaline:** water or soil with a pH greater than 7.4; a relatively high concentration of available base cations.

**Anaerobic:** having little or no oxygen. Many wetland soils are anaerobic.

**Annual flood:** Flooding occurs at least once in most years.

**Appropriately qualified professional:** a scientist or technologist specializing in a relevant applied science or technology including, but not necessarily limited to, agronomy, forestry, biology, engineering, geomorphology, geology, hydrology, hydrogeology, or landscape architecture. This person must be registered with his or her appropriate professional organization in British Columbia, must act under that association's Code of Ethics, and must be subject to disciplinary action by that association. The professional who, through demonstrated suitable education, experience, accreditation, and knowledge relevant to the subject matter, may be reasonably relied on to provide advice within his or her area of expertise. (See also [qualified environmental professional](#) as defined in the Riparian Areas Regulation.)

**Aquatic ecosystem:** any body of water, such as a stream, lake, estuary, or wetland, and all of the organisms and non-living components within it functioning together as a natural system.

**Biodiversity:** the variety of life on earth in all its forms including genes, species, and ecosystems and the natural processes that link and maintain them.

**Bio-inventory:** a detailed site-level inventory focusing on biological and ecological values.

**Buffer:** an area of land that surrounds and protects an [environmentally valuable resource](#) from the adverse effects of activities on, or encroachment from, adjacent land.

**Closed basin or pond:** basin receives water from surrounding upland only, no inlet or outlet channel.



- Coastal ecosystem:** an ecosystem that exists along the interface of tidal salt water and the adjacent upland area. Examples of coastal ecosystems include shorelines, estuaries, and backshore areas.
- Conservation covenant:** a voluntary, written legal agreement in which a landowner promises to protect his or her land in specified ways. The covenant is attached to the title of land and binds future landowners to the terms of the covenant.
- Deleterious substance:** any substance that, if added to water, would degrade or alter the quality of the water such that it damages fish or fish habitat or becomes unsuitable for human consumption or any other purpose for which it is legally licensed (such as irrigation and livestock watering).
- Ecological integrity:** the quality of a natural ecosystem in which the natural ecological processes are sustained, with genetic, species, and ecosystem diversity assured for the future.
- Ecosystem:** a complete system of living organisms interacting with the soil, land, water, and nutrients that make up their environment. An ecosystem is the home of living things, including humans. An ecosystem can be any size—a log, pond, field, forest, or the earth’s biosphere—but it always functions as a whole unit. Ecosystems are commonly described according to the major type of vegetation—for example, old-growth forest or grassland ecosystem.
- Ecosystems at risk:** ecosystems that are [Threatened](#) or [Endangered](#).
- Ecosystem features:** the physical components of the ecosystem (such as snags and large woody debris) that help maintain the diversity and processes associated with a healthy ecosystem.
- Ecosystem functions:** the physical, chemical and biological processes that keep an ecosystem operating. Examples include infiltration of surface water, evapo-transpiration and nutrient cycling.
- Edge habitat:** the point at which dissimilar plant communities (different vegetation types, successional stages, or vegetative conditions) meet. Many species have adapted to the interface between the adjoining habitats.
- Edge species:** species that are adapted to living at the edge between two habitats, e.g., forest and grassland.
- Emergents:** upright plants rooted in water or exposed to seasonal flooding, emerging above water surface. Does not include some submergents which normally lie entirely underwater but have flowering parts which break the surface.
- Endangered:** a species designated by COSEWIC as facing imminent Extirpation or Extinction if limiting factors are not reversed.
- Enhancement:** modification of one or more physical, chemical, or biological features of wetlands to achieve specific goals within a degraded wetland.
- Environmentally valuable resources:** all features, places, and species whose presence enhances the biodiversity of the area. Environmentally valuable resources range in size from small patches to extensive landscape features, and can include rare or common habitats, plants and animals.



These areas require special management attention to protect fish and wildlife resources, other natural systems or processes, and/or historical, cultural, or scenic values. They include (but are not limited to): sensitive ecosystems identified for the area; remnants of any sensitive ecosystems; rare and endangered species and ecosystems; rocky outcroppings, caves, cliffs, and islands; old vacant buildings which may shelter bats or birds; large snags, veteran trees, and hollow trees; wetlands, seepages and vernal pools, even if only wet for a few months each year; riparian vegetation, including vegetated gullies; meadows and grasslands; winter ranges for ungulates (deer, bighorn sheep, etc.); snake or lizard dens; turtle nesting sites; raptor nest trees; heronries; wildlife travel corridors (including riparian corridors); wetlands or other areas of high amphibian use; areas of concentrated wildlife use; and fish spawning and/or rearing areas.

**Erosion:** the displacement of solids (soil, mud, rock, and other particles) by the agents of wind, water, ice, movement in response to gravity, or living organisms. Erosion is an intrinsic natural process, but in many places it is increased by poor land use practices include deforestation, overgrazing, and unmanaged construction activity. Excessive erosion can cause problems clogging fish gills, burying fish-spawning gravels, filling reservoirs with sediment, and reducing soil fertility and water quality. Land practices can limit erosion using techniques such as tree planting.

**Ephemeral:** seasonal. Usually in reference to a watercourse that does not flow year-round, or a wetland that is dry in summer months.

**Ephemeral wetlands:** depressional wetlands that temporarily hold water in the spring and early summer or after heavy rains. Periodically, these wetlands dry up, often in mid to late summer. They are isolated without a permanent inlet or outlet, but may overflow in times of high water. Ephemeral wetlands are free of fish, which allows for the successful breeding of certain amphibians and invertebrates. Ephemeral wetlands may also be referred to as ephemeral ponds, seasonal ponds, temporary ponds or vernal pools.<sup>1</sup>

**Estuary:** a partially enclosed body of water freely connected to the ocean within which sea water is diluted by mixing with freshwater and where tidal fluctuations affect stream water levels. The estuary is a dynamic system typified by brackish (mixed fresh and salt) water, variable and often high nutrient levels, and shallow water conditions. Marsh plants typically grow in an estuary's upper tidal zone, and eelgrass often grows in its lower tidal zones.

**Eutrophic:** very rich nutritional status with an abundant supply of nutrients

**Flood plain:** any area near a body of water that is (or was) periodically flooded by water.

**Forb:** any herb that is neither a grass, sedge nor rush.

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<sup>1</sup> Definition from US EPA <http://www.epa.gov/r5water/ephemeralwetlands/index.htm>



**Gleyed:** A soil condition resulting from prolonged soil saturation, which is manifested by the presence of bluish or greenish colours throughout the soil mass or in mottles (usually orange spots or streaks).

**Graminoid:** plants with a grass-like growth form including rushes (Juncaceae), grasses (Poaceae), and sedges (Cyperaceae).

**Groundwater:** water that moves through the soil and underlying geological strata.

**Groundwater recharge:** the movement of rainwater down through the soil and into the groundwater and aquifers beneath.

**Habitat:** the place where an organism lives, and/or the conditions of that place, including the soil, vegetation, water, and food.

**Herb:** Non-woody vascular plants.

**High water mark:** the visible mark left along the edge of a stream, wetland, lake, or other water body by the presence and action of high water levels in most years. The area below the high water mark includes the active floodplain.

**Humic:** highly decomposed organic material. Small amounts of fibre can be identified to botanical origin.

**Humus:** dead and decaying organic material at the soil surface.

**Hydric:** a site where water removed so slowly that water table is at or above the soil surface all year; or a gleysol or organic soil.

**Hydric soils:** soils which are sufficiently wet for all or part of the year such that soils are anaerobic (lacking in oxygen). Hydric soils are a key indicator of wetland habitat.

**Hydrology:** the science of water, its properties, and movement (water cycle) over and under land surfaces.

**Hydrological cycle:** the ongoing movement of water between the atmosphere, land, freshwater systems and oceans.

**Hydrophytic plant species:** any plant adapted for growing on permanently saturated soils deficient in oxygen.

**Impervious surface:** surfaces that prevent water from going into the ground, such as roofs, roads, parking lots, and compacted soils.

**Indicator:** variable or index (i.e., a value derived from parameters) that points to, provides information about and/or describes the state of the environment, and has a significance extending beyond that directly associated with any given parametric value. An indicator measures an aspect of a criterion. The term may encompass indicators of environmental pressures, conditions and responses, e.g., number of threatened or endangered species, population levels of selected species, etc.



**Invasive species:** plants, animals, and micro-organisms that colonize and take over the habitats of native species. Most invasive species are also alien (non-native) to the area and can become dominant because the natural controls (e.g., predators, disease) that kept their populations in check in their native environment do not occur in their new location.

**Occasional flooding:** flood interval greater than five years.

**Oligotrophic:** relatively poor in nutrients.

**Qualified environmental professional:** an applied scientist or technologist who is registered in good standing with an appropriate professional organization and who acts under its code of ethics and is subject to its disciplinary action. The professional must be acting within their area of expertise. This term is a legal definition in the Riparian Areas Regulation. (See also [appropriately qualified professional](#).)

**Peat:** partly decomposed plant material deposited under saturated soil conditions.

**Peatland:** a generic term including all types of peat-covered terrain. Many peatlands are a complex of swamps, bogs, and fens, sometimes called a ‘mire complex’.

**Preliminary site survey:** a simple review to determine if wetlands or environmentally valuable resources are present or likely to be present on or near a proposed development site.

**Rarely flooded:** flooding occurs only during extreme events.

**Riparian:** along the bank of a river or lake.

**Riparian assessment area:** for a stream, the 30 metre strip on both sides of the stream, measured from the high water mark, (b) for a ravine less than 60 metres wide, a strip on both sides of the stream measured from the high water mark to a point that is 30 metres beyond the top of the ravine bank, and for a ravine 60 metres wide or greater, a strip on both sides of the stream measured from the high water mark to a point that is 10 metres beyond the top of the ravine bank (Riparian Areas Regulation).

**Riparian ecosystem:** the area adjacent to a stream which may be subject to temporary, frequent, or seasonal inundation. The area supports plant species that are typical of an area of inundated or saturated soil conditions and that are distinct from plant species on freely drained adjacent upland sites. The riparian ecosystem is influenced by, and exerts an influence on, the associated aquatic ecosystem.

**Riparian protection area:** an area (a) adjacent to a stream that links aquatic to terrestrial ecosystems and includes both existing and potential riparian vegetation and existing and potential adjacent upland vegetation that exerts an influence on the stream, and (b) the size of which is determined according to the Riparian Areas Regulation on the basis of an assessment report provided by a qualified environmental professional in respect of a development proposal. Also called a ‘streamside protection and enhancement area’ (Riparian Areas Regulation).



- Riparian zone:** a transition zone between a wetland and the surrounding upland. The Riparian Zone is often referred to as the ribbon of life as it has many functions including: wildlife habitat, water filtering capabilities and erosion control.
- Saline:** the presence of soluble salts in the soil parent material. Salts are commonly visible as crystals or veins, or surface crusts but sometimes are not evident morphologically. The presence of salt-tolerant plants is a good indicator of excessive salts in the soil.
- Saturated:** a soil condition in which all voids (pore spaces) between soil particles are filled with water.
- Sediment:** material carried in suspension by a flowing body of water and which will ultimately settle to the bottom as water velocity decreases. Fine silt particles suspended in water are extremely difficult to remove.
- Sensitive ecosystems:** rare and/or fragile ecosystems that have been identified during a Sensitive Ecosystems Inventory.
- Sequestration:** storage.
- Shrub:** perennial plants usually with more than one low-branching woody stem and < 10 m tall.
- Site assessment:** A site assessment combines the results of mapping and bio-inventory work with a conservation evaluation based on those findings, providing information on the potential impact of a development and possible mitigation/compensation measures.
- Streamside Protection and Enhancement Area:** an area (a) adjacent to a stream that links aquatic to terrestrial ecosystems and includes both existing and potential riparian vegetation and existing and potential adjacent upland vegetation that exerts an influence on the stream, and (b) the size of which is determined according to this regulation on the basis of an assessment report provided by a qualified environmental professional in respect of a development proposal.
- Subhydryc:** soil moisture regime where water is removed slowly enough to keep water table at or near the surface for most of the year; permanent seepage 0 to 30 cm below surface.
- Succession:** the gradual replacement of one kind of ecosystem by another, e.g., a lake fills in to become a pond, the pond becomes a wetland, the wetland becomes forested.
- Threatened:** a species that is designated as COSEWIC as likely to become Endangered if limiting factors are not reversed.
- Top of bank:** the points closest to the natural boundary (or high water mark) of a watercourse where a break in slope occurs such that the grade beyond the break is flatter than 3:1 (horizontal: vertical) for a minimum of 15 metres measured perpendicularly from the watercourse. Small slopes beyond the initial break in slope that are steeper than 3:1 but are less than 1 metre in height can be included in the determination of the 15 metre distance from the top of bank. Where banks are not well defined (e.g., in the case of lakes, wetlands, or ponds), the top of the bank is equivalent to the natural boundary or seasonal high water mark.



- Vernal pool:** a temporary body of freshwater that is filled by spring rains and snowmelt but which dries up during the summer or fall. Many vernal pools are filled again by autumn rains and may persist throughout the winter.
- Very wet:** groundwater table at or above the ground surface throughout most of the growing season
- Water balance:** the rainfall runoff volume from a given site. The Water Balance Model provides a way to study the precipitation on a given site, and how different rainfall intensities will be handled under post-development conditions. Ideally, the water balance will be very similar before and after development, with most of the rainfall infiltrated on site.
- Watershed:** an area of land that contributes runoff to a specific delivery point, such as the mouth of a river. Large watersheds may be composed of many smaller sub-watersheds, each contributing runoff to various streams and rivers that ultimately combine at a common delivery point.
- Water table:** the upper level of groundwater. In a wetland, the water table is usually at or near the surface.
- Wet:** rooting-zone groundwater present during the growing season when water supply exceeds demand (groundwater table between 0 and 30 cm deep).
- Wetland:** land that is inundated or saturated by surface or groundwater at a frequency and duration sufficient to support vegetation that is typically adapted to saturated soil conditions. Types of wetlands include swamps, marshes, bogs, fens, vernal pools, and salt water marshes.
- Wetland complex:** consists of two or more palustrine basins occurring in close proximity; often but not always hydrologically linked.
- Wildlife:** any wild organism including wild mammals, birds, reptiles, amphibians, fishes, invertebrates, plants, fungi, algae, and bacteria.
- Wildlife corridors:** a travel corridor for wildlife. Wildlife corridors from very wide, natural corridors for large mammals, to 'sky corridors' that offer a safe flight path between feeding and resting places for birds, to smaller man-made corridors (such as urban trails or culverts under roads) that provide safe passage for smaller creatures. These corridors also provide year-round habitat for less mobile species.