

## Gabriola Streamkeepers

**Wetland and watercourse terms:** (not always observed)

If it's not here (or is too English-Canadian), try: <http://www.streamnet.org/glossarystream.html>.

Another resource is Appendix 3 of the [Streamkeepers Handbook](#).

For technical definitions, see [Canadian Wetland Classification System](#) (attached here in summary form). Also MacKenzie & Moran, *Wetlands of British Columbia*., BC Ministry of Forests.

- acidic: any water with a **pH** < 6.5 (more acidic than **neutral**); more formally: slightly acidic if pH 5.5–6.5, moderately acidic if pH 4.5–5.5, very acidic if pH < 4.5. Rich in H<sup>+</sup> ions.
- aerobic: environment containing oxygen. Associated with brown and sandy-coloured minerals.
- alkaline: any water with a **pH** > 7.4 (more alkaline than **neutral**). Often rich in HCO<sub>3</sub><sup>-</sup> ions.
- anaerobic: environment low in oxygen. Anaerobic conditions are often also **acidic**. Associated with blue-grey and greenish-coloured minerals.
- arm: channel that branches off from the main flow of a **river** and makes its own way to the sea. Also an elongated bay of a **lake**.
- backwater: the downstream entrance to a **slough** or seasonally dry **side-channel**. Also sometimes used to mean a shallow, less-important **channel** as in “backstreet”.
- baffle: man-made device to restrain the flow of water. Commonly with adjustable height, acting as a small **weir** on a **creek**, or as part of a larger **weir** on a **river**, or as a gate.
- bank: left and right as seen facing downstream.
- bar: an accumulation of sand, gravel, or rock in a **creek** or **river**.
- basin: place where water collects as a result of a depression in the surface or near-surface topography. Larger, usually much larger, than a **hollow**.
- bay: a large **pool** above a **weir** or other major obstruction.
- beach: sandy shore, sometimes loosely called the **strand**.
- benthic: relating to the bed of water bodies not including the water column (**limnic**).
- berm: an **embankment** but not necessarily man-made as is a **dike**.
- bleb: in the wetland context, a small bubble of gas rising to the surface. Uncommon usage.
- bog: a nutrient-poor **wetland** that, unlike a **fen**, is **acidic**. Any trees are conifers (on Gabriola usually Douglas-firs). A bog, unlike a **swamp**, rarely dries out.
- boil: a convex upwelling in a fast-flowing **creek** or **river**. A pillow.
- branch: technically an “anabranch”; a channel that leaves the main flow and rejoins it further downstream; a **side-channel**. The re-joining is “anastomosis”.
- brook: a rocky **creek**, a small fast-flowing **stream**. Not used much in Southern English.
- bryophyte: moss, liverwort, hornwort (a non-vascular plant).
- catchment (area): the area of land that is the source of all the precipitation that drains into a specific river or lake—a drainage basin. Catchment areas are delimited by **watersheds**.
- causeway: a raised path or road across or through land liable to flooding.
- channel: an umbrella term for any watercourse.
- chute: steep incline down which water flows rapidly and smoothly.
- conductivity: the electrical conductivity of water is an indication of its dissolved salt content, where salt can be marine, mineral salt from rocks, or a pollutant. Conductivity is a function of temperature and so it is customary to standardize measurements to what the conductivity would be specifically at 25°C. Most streams on Gabriola are sourced from rainwater runoff and are not polluted, so specific conductivity tends to be low, < 150 µS/cm.
- confluence: where two **streams** meet.

- creek: **stream** or small stream, a **brook**. More common than “stream” in North-American English. In English English, “creek” implies flowing directly into the sea or a lake.
- culvert: an underground (covered) **ditch**, commonly a pipe or arched masonry drain beneath a road or trail for the passage of water.
- cut: **channel** cut through a hill to provide a passage for water (or vehicles).
- dam: a barrier of sufficient height to prevent water from flowing over it. When man-made or built by beavers, used to maintain the upstream water level and regulate flow.
- datum: reference level for water-level measurement.
- de-ionized water: water that has all dissolved minerals removed. Generally purer than **demineralized water** and almost as pure as **distilled water**, but uncharged molecules, including organic molecules, may remain.
- demineralized water: water that has all the dissolved minerals that occur in natural water removed, but not necessarily completely free of all ions, particularly Na<sup>+</sup> ions.
- dike: an **embankment**, commonly constructed with earth to prevent flooding. In US English, a **levee**. In English English, a “dyke”.
- dissolved oxygen: essential for aquatic life. 0-2 mg/L: not enough oxygen to support life; 2-4 mg/L: only a few fish and aquatic insects can survive; 4-7 mg/L: good for many aquatic animals; 7-11 mg/L: very good for most stream fish.
- distilled water: pure or almost pure water, these days not necessarily produced by distillation.
- distributary: a **stream** that diverges from a larger stream and does not rejoin it further downstream.
- ditch: man-made drainage channel.
- draw: small watercourse with a V-shaped profile; no level banks.
- drawdown: decrease in water level that exposes normally submerged substrate.
- dugout: man-made small **pond**, for water storage or watering livestock.
- embankment: earthwork built to prevent flooding, keeping water out unlike a **dam** that keeps water in.
- ephemeral an ephemeral water body is one existing only after a particularly heavy downpour or snowfall in contrast to an **intermittent** water body that exists for a longer time during every wet season. Ephemeral creeks are sourced by **runoff**.
- estuarine: of sites where freshwater enters the sea, ranging from rarely-flooded inland estuarine meadows, to estuarine marshes flooded in winter storms, to regularly-flooded tidal flats.
- evapotranspiration: the combined loss of water due to evaporation and plant transpiration.
- fen: mainly-treeless **wetland** that, unlike a **bog**, is **neutral** or **alkaline**. A fen maintains its water level year-round, unlike a **marsh**.
- flume: a constriction in a channel, sometimes artificial, that includes a **chute**.
- forb: herb species excepting grass-like ones.
- fork: where the stream divides into two channels with roughly equal flows.
- form: depth of a stream (D) divided by its width (W), but sometimes used to mean depth of the channel divided by width of the channel irrespective of water level.
- form ratio: often **form**, but the term requires definition as it is sometimes defined and written as the depth:width ratio (D:W) and sometimes as the width:depth ratio (W:D).
- gleysol: on Gabriola, bluish-grey soil with a high clay-mineral content formed from weathering of glacial flour (silt) left behind by meltwater at the end of the last ice age. Practically all permanent bodies of standing water on Gabriola have a bed of impermeable gleysol.
- glide: calm stretch of shallow, smoothly flowing water.
- grade: **gradient**.

gradient:	the vertical drop divided by the horizontal distance, often expressed as a percentage, and sometimes expressed as a ratio. Somewhat confusingly, a 100% gradient is only a 45° <b>slope</b> , not a waterfall, which is why gradient is usually a measure of only gentle slopes.
gulch:	the deep part of a <b>gully</b> when dry, a ravine.
gully:	narrow <b>channel</b> with especially steep sides worn or incised by water.
gutter:	in modern usage, a small drainage watercourse in a manufactured channel.
gyttja:	<b>muck</b> especially rich in well-rotted peat.
hollow:	place where water collects as a result of a depression in the surface topography but smaller, usually much smaller, than a <b>basin</b> .
incised stream:	with a rectangular profile, widely regarded as being the unwelcome result of disturbance, but on Gabriola commonly a natural stream that has eroded lodgement till or organic soil down to bedrock and is flowing rapidly in a <b>gully</b> over a level bed of clay-rich sediment.
infiltration:	precipitation that is absorbed into the ground and does not contribute to <b>runoff</b> .
intermittent:	common technical term for a water body existing during the wet season, but not all year, and not being <b>ephemeral</b> . Sometimes called <b>seasonal</b> , wet season being implied. An intermittent creek is thus a <b>creek</b> that usually dries up every year in the dry season.
JTU:	Jackson turbidity unit. The lower the value the clearer the water. In scientific work the JTU has been replaced by the <b>NTU</b> (nephelometric turbidity unit) which is a metric unit that can be measured accurately with a meter. JTUs and <b>NTUs</b> are roughly the same. Clear streams have a JTU < 10; drinking water is in the range 1–5; values > 40 indicate poor quality.
lacustrine:	of a lake or substantial pond (a permanent waterbody too large to be called <b>palustrine</b> ).
lake:	body of permanent water, too large to be a <b>pond</b> , usually with an outflow stream, and deep enough to allow temperature stratification to develop. See <b>shallow-water wetland</b> .
ledge:	a natural underwater rock shelf, acting in a stream as would a <b>sill</b> .
levee:	technically, a natural elongate mound of sand and silt running parallel to the flow of the water. In US English, it can also mean a man-made <b>dike</b> .
limnic:	relating to the water column not including the bed ( <b>benthic</b> ) or surface.
littoral zone:	the shallow vegetated fringes of a pond or lake.
LWD:	“large woody debris”; sufficiently large to create a <b>pool</b> in a stream.
marsh:	poorly-drained <b>wetland meadow</b> dominated by grasses, rushes, and reeds. A similar wetland dominated by trees or large shrubs is a <b>swamp</b> . Marshes are usually neutral or alkaline. Late-season <b>drawdown</b> is more common in a marsh than a <b>fen</b> .
marshland:	region dominated by <b>marshes</b> .
meadow:	grassland that tends to be muddy or flooded, but only for a few weeks in the wet season.
mire:	low-lying <b>wetland</b> of deep, soft soil, or mud, often covered with algae.
muck:	a mix of silt, clay, and decaying organic material.
muskeg:	a <b>bog</b> of a type with only very slowly rotting vegetation usually found in areas of high rainfall and cooler summers than currently prevail on Gabriola. North-American English.
neutral:	water with a <b>pH</b> in the range 6.5–7.4 is usually regarded as being neutral, neither <b>acidic</b> nor <b>alkaline</b> .
NTU:	nephelometric turbidity unit, a measure of the scattering of light by suspended particles. Similar but older and less accurate <b>JTUs</b> are a measure of the opacity of a water column.
outflow, outlet, or overflow pipe:	a culvert being used as a <b>pond leveller</b> .
palustrine:	of a basin, depression, or small waterbody (too small to be called <b>lacustrine</b> ) with a continually high water table and poor drainage.

- parafluvial area: a parafluvial area (or zone) is the technical term for the inner part of a **riparian area** that seasonally floods, not including the **stream** itself.
- peat: partially-decayed, waterlogged vegetation, a term often only used when this is moss, though other species are technically not excluded.
- peatland: **acidic** and **anaerobic wetland** usually dominated by sphagnum moss. Once common on Gabriola when the climate was drier than now, but more likely to be a **bog**, **mire**, or **swamp** these days.
- perched: (of a culvert) with an outlet higher than the level of the water immediately downstream. (Of an aquifer), groundwater prevented from sinking down to the regional water table by an impermeable layer of soil or rock.
- perennial creek: one that runs year round, as distinct from an **intermittent creek**.
- pH: a measure of acidity, a number below 7.0 indicating more **acidic** than pure water. Most streams have a pH in the range 6.5–8.5. It is difficult to measure the pH of pure water because it can easily be varied by slight variations in its dissolved CO<sub>2</sub> content.
- pond: very small **lake** usually with no outflow stream, often a large **dugout**.
- pond leveller: culvert-sized pipe installed to limit water level rise in the wet season by draining off excess water, as does a **spillway**.
- ponding: the formation of discontinuous puddles and pools in the bed of a **stream** as it transitions between being a flowing watercourse, and one that is not flowing, or is completely dry.
- pool: a section of a **creek** that is relatively deep and slow moving; often alternating with **riffles**.
- precipitation: rainfall including the rainfall equivalent of snow, sleet, and hail. Gabriola Streamkeepers often record snow on the day it melts, not when it usually is when it falls.
- quagmire: **mire**, morass.
- race: a **rapid** downstream of an artificial obstruction.
- rapid: section of a flow of a **river** where the **gradient** is sufficiently high to form whitewater. Called a **rifle** in a **creek**, and a **race** if artificially created.
- RAR: “**riparian area** regulations”.
- reach: a homogeneous stretch of river or stream with physical end points. End points are often river bends, but other, on-the-spot, demarcations are commonly made in stream surveys.
- rifle: section of a **creek** where the water is relatively shallow and flows rapidly and turbulently; often alternating with **pools**.
- rill: gutter-sized or smaller channel eroded into fine sediment by surface runoff. Also more generally, a very small **stream**.
- riparian area: a riparian area (or zone) is the strip of vegetation along a stream that has a different composition and density from the vegetation on the adjoining higher ground.
- river: substantial perennial **stream** flowing for some distance with **tributaries**.
- riverlet: a small **river**. An ill-defined and rarely used term. Also **rivulet**.
- rivulet: most commonly a very small seasonal **stream**; however, occasionally a writer uses it to mean **riverlet**, a seasonal flow that is stronger than a stream, but not quite that of a **river**.
- run: flow, usually meaning natural flow, of a **river** or **stream**.
- runlet: civil engineering term for a small **stream**.
- runnel: like a **rill** but straighter.
- runoff: (sometimes “run-off”) unconfined surface flow after heavy rain.
- seasonal: **intermittent** when used in reference to a water body.
- seepage: groundwater seepage from minor fractures or bedding planes in cliffs and bluffs.

- shallow-water wetland: a technical classification for a wetland that is transitional between a **marsh** and a **lake**, seldom drying out in summer, and without a year-round outflow stream.
- side-channel: a **branch**, possibly seasonally dry like a **slough** but being bone-dry rather than marshy.
- sill: a wide horizontal obstruction over which water flows freely, commonly man-made. In regional English, the sill can mean the water that is flowing over the crest of a **weir**.
- slope: arctangent in degrees of the **gradient** when not expressed as a percentage. It is also the arcsine in degrees of the the vertical drop divided by the distance over the sloping surface which is somewhat greater than the horizontal distance. Also called an incline.
- slough: a **branch** that has been blocked, or is only open when the river is in flood, so as to become reedy and muddy. Sometimes historical usage for any **marsh** or **mire** in the form of a channel, but with little or no flow-through—in obsolete English English it could even mean a muddy cart rut. On the Pacific coast of North America (only), a slough sometimes means a mucky ocean inlet that is exposed at low tide.
- sluice: a man-made channel with means for controlling the flow, such as a gate, at its head. Sluice boxes are sluices with riffles used by gold miners.
- species pairs: two very rare species of freshwater sticklebacks that have evolved from a common marine ancestor since the end of the last ice age when sea level dropped and isolated them in freshwater. One of the two species, which are commonly found living together, has been found in Hoggan Lake on Gabriola.
- spillway: a channel releasing water from a **lake** or other similar body of water to prevent a massive, and possibly damaging, overflow in the wet season. Also a natural overflow **channel** across a raised path or a **berm** that lacks a **culvert**.
- spring: the usual meaning is an artesian flow of groundwater to the surface but historically on Gabriola it may mean a **swamp** in a depression; the emergence of a shallow **subsurface flow**; or **seepage** from a cliff.
- strand: sandy shore of a lake, river, or the sea, sometimes meaning only the dry fringe, on or below any high-water mark, as opposed to the whole **beach**.
- strand-line: line of floating debris left on a **beach** by high water (along the ocean by the tide).
- stream: flowing water confined by a bed and banks, smaller than a **river** but usually bigger than a small **creek** or **brook**. More common than “creek” in English English. An umbrella term for flowing water in scientific literature.
- streamlet: a small **stream**, a **rill**. An ill-defined and rarely used term. Also **rivulet**.
- subsurface flow: a flow of groundwater only a few metres below the surface, commonly over the surface of the bedrock but below the soil and regolith, often leading to a **spring**.
- swale: shallow, trough-like depression in otherwise level ground.
- swallet: where surface water goes underground (common in karst topography, but rare on Gabriola because the island has no limestone bedrock).
- swamp: **wetland** with some flooding by shallow water. A swamp generally has a large number of dry-land protrusions, covered by vegetation that tolerates periodical inundation. Trees are commonly present, unlike in a **marsh**, and the trees may be deciduous (on Gabriola usually alder), unlike in a **bog**. Swamps are usually **neutral** or **acidic**.
- thalweg the course of the deepest point of a stream or river, literally “the way to the valley”.
- torpedo ditch: ditch that is deep and narrow and funnels water too rapidly to provide good habitat.
- tributary: a **stream** or **river** that flows into a larger stream or river.
- waterbody: usually a geographical surface-water feature like a **river**, **lake**, or the sea, but sometimes extended to also include smaller, **intermittent**, and **ephemeral** surface-water features.
- watercourse: any channel with a seasonal or permanent flow of water.

- watershed: a boundary in high land that separates different **catchment** areas. The term is also used in US English to mean a **catchment** area or drainage basin.
- watershed area: deprecated term for **catchment area** when interpretation of the term **watershed** is unclear.
- waterway: a navigable **waterbody**.
- weir: man-made barrier across the width of a watercourse allowing water to flow freely over it unlike a **dam**. Constructed to maintain the upstream water level and regulate flow. A weir on a river may include a **baffle** for additional flow-control, and a lock for traffic.
- wetland: any area of seasonally or permanently saturated soil including small shallow lakes and ponds. No or little flow-through.
- wetted perimeter: a term used in stream morphometry. The cross-sectional outline of the water actually in a channel as opposed to the cross-sectional outline of the channel itself.

#### Additional terms for which there are no examples of usage locally

—braided, meandering, sinuous, and wandering rivers; cascades; wriggling channels.

#### Scottish and Northern English:

- beck upland **stream**.
- burn **stream**.
- carr **fen** overgrown with alders and willows.
- tarn small **lake** in the uplands.

#### English and Southern English:

- berm towing path along a canal.
- bourne & winterbourne **intermittent stream**.
- broad **lake** in a sluggish **river**.
- chalkstream very clear, fast-flowing **stream** from chalk hills (downs).
- dew pond circular **dugout**.
- drindle diminutive flow, especially one that is diminishing and will probably stop soon.
- eyot islet in a substantial **river**.
- fleet **channel** (often navigable) through **marshland**.
- mere a wide, shallow **lake**.

### Definitions used in the Canadian Wetland Classification System (NWWG 1988)

#### **Bog Wetland Class (Wb)**

Bogs are shrubby or treed, nutrient-poor peatlands with distinctive communities of ericaceous shrubs and hummock-forming sphagnum species adapted to highly acid and oxygen-poor soil conditions. Bogs develop in basins where peat accumulation has raised the wetland surface above groundwater flow, or, less commonly, where groundwater is very low in dissolved nutrients (e.g., flows from granitic parent material).

#### **Fen Wetland Class (Wf)**

Fens are peatlands where groundwater inflow maintains relatively high mineral content within the rooting zone. These sites are characterized by non-ericaceous shrubs, sedges, grasses, reeds, and brown mosses. Fens develop in basins, lake margins, river floodplains, and seepage slopes, where the watertable is usually at or just below the peat surface for most of the growing season.

#### **Marsh Wetland Class (Wm)**

A marsh is a shallowly flooded mineral wetland dominated by emergent grass-like vegetation. A fluctuating watertable is typical in marshes, with early-season high watertables dropping through the growing season. Exposure of the substrate in late season or during dry years is common. The substrate is usually mineral, but may have a well-decomposed organic veneer derived primarily from marsh emergents. Nutrient availability is high (eutrophic to hyper-eutrophic) due to circumneutral pH, water movement, and aeration of the substrate.

#### **Swamp Wetland Class (Ws)**

A swamp is a forested, treed, or tall-shrub, mineral wetland dominated by trees and broadleaf shrubs on sites with a flowing or fluctuating, semipermanent, near-surface watertable. Tall-shrub swamps are dense thickets, while forested swamps have large trees occurring on elevated microsites and lower cover of tall deciduous shrubs. Both types of swamps have abundant available nutrients from groundwater and often have surface standing water. Swamps may be underlain with peat but this is well decomposed, woody, and dark.

#### **Shallow Water Wetland Class (Ww)**

Aquatic wetlands are shallow waters dominated by rooted, submerged and floating aquatic plants. These communities are always associated with permanent still or slow-moving waterbodies such as shallow potholes or deeper ponds and lakes. Shallow-water sites are usually permanently flooded; rarely they may become exposed during extreme drought years. Shallow-water communities most commonly occur where standing water is less than 2 m deep in midsummer. Aquatic plants may root in mineral soils or in well-humified sedimentary peat.

#### **Alkaline/Saline Meadow Class (Ga)**

Alkaline/saline meadows are graminoid- or halophyte-dominated sites that occur in shallow, closed basins of dry inland climates where evaporation of standing waters leads to the progressive accumulation of salts. These conditions occur only in the driest climates of British Columbia. Interannual variation in hydrology is typical for these closed basin systems. But generally, after a brief period of inundation, a surface water table drops below the rooting zone for the growing season, resulting in a well-aerated rooting medium. This class was previously described and coded as Saline meadow Transition Class (Gs) in MacKenzie and Moran (2004). A halophyte subclass dominated by succulent species such as *Suaeda* spp. or *Salicornia* spp. is recognized.

#### **Low bench Flood Class (Fl)**

Low bench ecosystems occur on sites that are flooded for moderate periods (< 40 days) of the growing

season, conditions that limit the canopy to tall shrubs, especially willows and alders. Annual erosion and deposition of sediment generally limit understorey and humus development.

#### **Middle bench Flood Class (Fm)**

Middle bench ecosystems occur on sites briefly flooded (10-25 days) during freshet, allowing tree growth but limiting tree species to only flood-tolerant broadleaf species such as black cottonwood and red alder.

#### **High bench Flood Class (Fh)**

High bench ecosystems occur where flooding rivers produce lengthy subsurface flow in the rooting zone but only periodic, brief inundation. Surface flooding may occur from as frequently as several times annually to only during extreme flood years. These periods of flooding are generally not restrictive of plant species; plant communities are similar to adjacent upland forests on seepage sites. High bench Site Series are described in BEC field guides and are not presented in the Wetlands of British Columbia guide.

#### **Estuarine Marsh Class (Em)**

An estuarine marsh is an intertidal ecosystem that is flooded diurnally and has simple communities dominated by salt-tolerant emergent graminoids and succulents. These marshes occur in the middle to upper tidal zones of estuaries where saltwater influences predominate.

#### **Estuarine meadow Class (Ed)**

Estuarine meadows occur in the high intertidal and supratidal zones of estuaries, where tidal flooding occurs less frequently than daily and is tempered by freshwater mixing. Species composition is relatively diverse, typically with a mix of graminoids and forbs.

#### **Shrub-Carr Transition Class (Sc)**

A shrub-carr is a shrub-dominated ecosystem that develops on frostprone sites with moist or very moist soils. These sites are seasonally saturated but rarely inundated (see flood ecosystems) and may have watertables perched at depth. Shrub-carrs frequently border wetlands or occur in frost-prone hollows in cold and dry climatic regions. A strongly mounded soil surface is typical, and shrubs of 1-2 m occur mainly on these elevated microsites. These ecosystems are part of a Shrubland Group of terrestrial ecosystems.

#### **Alpine Wetland Class (Wa)**

Wet, high-elevation, high-latitude ecosystems occur that do not clearly fit any of the wetland classes of the Canadian Wetland Classification System (NWWG 1988). These ecosystems occur on seeps and saturated flats that have site characteristics similar to lower-elevation swamps, but because of the constraints of cold climate, they support low-stature vegetation dominated by dwarf willows, forbs, and/or mosses. Sites may be underlain with mineral or very thin organic horizons; peat formation is limited because of low rates of accumulation. Permafrost may occur in some cases. ◇