

STREAM STRESSORS, IMPACTS, AND RESTORATION **GLOSSARY**



Photo credit: Eiko Jones

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**PACIFIC SALMON
FOUNDATION**

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VOCABULARY

- Anadromous:** Anadromous fish spend part of their lives in salt water and part in freshwater. Salmon, for instance, are anadromous and start their lives in freshwater, then make their way to the ocean to grow up, then return to freshwater to spawn and complete their life cycle.
- Alevin:** Juvenile salmon that have just emerged from their egg sacks from the gravel beds of streams, rivers and creeks. Alevin will still have a yolk sac attached to their bodies for nutrients as they grow.
- Bankfull Width:** The width of the channel, measured from the level on either bank where the highest level of water would be found. This is essentially the width of the channel during a typical high flow event (i.e. after a big rainfall). The point on either bank is indicated by the start of permanent (rooted) vegetation like grasses, shrubs and trees.
- Cascade:** Freshwater flowing over a steep drop – a waterfall.
- Channel:** A wide strait or waterway between two landmasses that lie close to each other.
- Channelization** When the morphology of streams and other water courses are altered and straightened by human-made infrastructure.
- Culvert:** A structure that channels water, usually under obstructions like roads or bridges
- Ecological Restoration:** The process of assisting the recovery of an ecosystem that has been degraded, damaged, or destroyed.

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| Erosion: | Erosion occurs when sediment is picked up and transported away from a particular site. Erosion occurs naturally, but high erosion events can take away too much beneficial sediment, leaving behind only large rocks. |
| Estuary: | Areas where incoming fresh water (rivers) meet salt water (ocean). Estuaries are unique habitats, and are critical areas for juvenile salmon to grow before entering the open ocean and beginning their migration. |
| Fish-ways: | Human-made structures that help fish migrate past barriers like dams and other structures along the course of a river. Often, fish ways are stepped, allowing fish to get past areas that would be too steep for them to traverse on their own. Also known as fish ladders. |
| Fry: | Once the alevin lose their yolk sac, they must leave their gravel nests and enter the river to find food. These salmon that emerge from the gravel are called fry. Fry develop dark bars along the sides of their bodies called parr marks to better camouflage in their new environment. |
| Glide: | A stretch of a channel with smooth, laminar flow (no riffles or pools). |
| Gradient: | Refers to the slope of the channel. |
| Large Woody Debris (LWD): | Trees, logs, large branches or root wads that extend into the bankfull channel and influence the flow or shape of that watercourse. LWD is usually at least 2 meters in length and at least 10 cm thick. |
| Life Stage: | A life stage is a period of the life cycle where an organism has distinct physical characteristics and/or habitat requirements. An example of a salmon life stage is the 'fry' stage. |
| Live staking: | A restoration practice where cuttings are taken from fast growing tree species like red-osier dogwood and alder and planted directly in the streambanks. Once the cuttings start to root into the soil, they help to stabilize the banks, and their branches and foliage help to shade the stream. |

Mass Wasting: Natural and human-driven events of slope failure. I.e. stream banks and riparian slopes can fail during storms, high flow events, and when vegetation is removed.

Migration: A migration is a long journey that is completed as a normal part of a species life cycle. Salmon smolts travel many kilometers from the freshwater where they are born down to estuaries and out to the ocean. Some salmon species migrate long distances in the ocean as well as they grow. Once they're ready, they start their migration back up those same rivers to spawn.

Pool: A pool is a deep (relative to the average depth of the river) pocket of a river where the water flows at low velocity. A scour pool is a particular type of pool, where water flows against a partial channel obstruction like a piece of large wood, or the channel bank and the sediment buildup behind that structure gets washed out or eroded by the flow. A dammed pool occurs when there is an obstruction that extends across the entire channel width. The pool develops behind the obstruction, as the flow scours away sediment behind it.

Riffle: A relatively shallow area of a river, creek or stream where water flows over rocks near the surface. The flow of the water over these rocks is audible.

Riparian: The vegetated area adjacent to the channel. This riparian area provides many ecosystem functions like regulating the temperature of the channel by shading out the sun, adding organic matter and nutrients from falling leaves/branches, and contributing terrestrial invertebrates (insects) to the channel.

River: A large natural course of flowing freshwater that extends from inland to meet an ocean/sea at the coastline or lake or channelized fresh watercourse.

Runoff: Substances accumulating on land that are washed into waterways. E.g., agricultural pesticides and fertilizers, effluent from cars. When water

from rain, irrigation or even washing your car flows over paved surfaces, it collects all the materials including harmful chemicals from those surfaces as it flows into storm drains and directly into waterways.

- Secchi disk:** A tool to measure water turbidity.
- Sediment load:** The amount of eroded sediment or solid particles that are suspended and carried in a waterway.
- Smolt:** Fry transform into smolts when they are ready to begin their migration downstream into the open ocean. Smolts undergo physiological changes like losing their parr marks and slowly change to be more silver in colouring, as well as changing internally to prepare for the salt water environment.
- Spawning
Gravel/Redds:** Redds are the nests of spawning fish like Pacific salmon. Adult salmon select areas in their natal streams where the substrate (sediment) is suitable for them to lay their eggs. Depending on the species and their preferences for gravel size, water depth and water flow, we can describe their ideal spawning grounds and identify areas where there are appropriate beds of spawning gravel.
- Substrate:** In the video, we refer to the floor of the river and the substrate or 'bed materials' of which it is made up. The substrate is usually described as the type of material or size of sediment, e.g. sand, rock, cobble.
- Thalweg:** The deepest part of the channel, which also happens to be where the flow will be fastest. The thalweg is not always in the centre of the channel, and often is skewed to one side when channels bend or curve.
- Turbidity:** The measure of relative clarity in water. Reflects the amount of suspended particles in the water column.

- Velocity:** The speed at which something or someone travels. In this case, we refer to the stream velocity, or the speed at which the water is moving, usually measured in metres per second (m/s).
- Watershed:** The area over which freshwater drains over the landscape to reach its final destination (the ocean or sea).
- Wetted Width:** The width of the channel, measured from the point on either bank where the water level sits at the time it is recorded.
- Windfall:** Trees or other vegetation falling over during a high wind event - downed trees from windfall often end up in the river as large woody debris.



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