McKenzie Watershed Council

Large Woody Debris

What is it? Large woody debris consists of trees, logs, large limbs, boles, and root wads lodged in the river.

Why is it important? Large woody debris is important to the health of river systems because it defines and strengthens the character of a stream. Large woody debris alters a river's energy when it falls into the water. As water moves downstream it is unable to penetrate or erode large woody debris structures. The river loses energy, changes direction and ultimately alters the stream channel.

The reduction in a stream's energy allows gravel to drop during high flows creating gravel deposits used by spawning salmon. Shelter created by the material offers protection in high flows needed by many fish and insects, as well as protection from predators.

Large woody debris can also cause islands to form in river systems. As small material is trapped, finer matter filters sediment eventually creating islands used by plants, insects and other wildlife. In addition, the material surrounding the island provides the much needed nutrients to the stream ecosystem. Large woody material results in quality habitat for fish, insects, waterfowl, and small mammals. Another benefit of large woody debris is the addition of oxygen to the stream streams when water plungers over the debris.

Increased complexity is another benefit of large woody debris. Suspended material forces flood flows to scour pools beneath the debris. Deeps pools protect fish and other aquatic wildlife in both winter and summer conditions. Side channels can also be maintained by large woody debris by protecting banks where channels enter and leave a stream. Side channels are important components of a healthy river system. Protection of riparian vegetation occurs when the material absorbs the force of high flows.

Large woody material is the backbone of a healthy stream!