

Fish Habitat Restoration Methods Concept Specification

Woody Debris Jams

Purpose:

- To remove excess branches, logs, and fallen trees that are hindering fish passage or altering the stream's hydrology.

Conditions Where Applicable:

- Instream debris clearing must be approved by an Adopt-A-Stream Biologist.
- Large woody debris (LWD) plays a role in the development of fish habitat and provides instream cover. Only excessive amounts of LWD should be removed because it may:
 - Become a barrier to fish migration.
 - Lower the water's oxygen content through decay.
 - Trap silt, creating build-ups leading to decreased flow or upstream flooding.
 - Cover and destroy clean gravel substrate.
 - Cause bank erosion.
 - Flood adjacent lands.

Advantages:

- Aesthetically pleasing.
- Can remove contaminants.
- Can prevent bank erosion.
- Can permit fish passage.

Disadvantages:

- Can remove important cover.
- Removal of large woody debris can destabilize the stream and lower the productivity of the fish habitat.

Design Criteria:

- Debris jams, which are not causing bank erosion and backup less than 40 cm of water, should be left.
- If the debris has remained in the watercourse for a long period of time, it may have become so deeply embedded that removing it would cause more damage than leaving it in place. Disturbing firmly embedded logs, branches, or other debris not only releases sediment into the water but may disrupt the fish habitat of which they have become a part. Generally this debris is left in place.
- Accumulations of gravel and cobble are not considered to be debris, even if they

originate from an upstream location in the watercourse or built up due to the debris jam.

- Generally firmly embedded logs, branches, or other debris is not removed because it not only releases sediment into the water but may disrupt the fish habitat of which they have become a part.
- Uprooted trees, which are securely fastened to the banks of a watercourse are not generally removed as the root systems prevent erosion of the bank. But if the tree top is catching debris it can be removed.

Implementation Steps:

- With the landowner's permission, woody debris may be placed in the riparian zone where it will not be washed back into the stream.
- Badly damaged or dead trees, which could fall into the watercourse, should be removed, but trees containing active nest cavities should be left.
- Trees leaning over the water such that the trunk is at an angle of 30° or less, measured from the water surface, should be considered for removal if they are unstable.
- Branches from overhanging trees which would catch debris floating in the watercourse should be trimmed.

References:

N.B. Department of Environment and Local Government. Watercourse Alterations Technical Guidelines.

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