

## **Fish Habitat Restoration Methods Concept Specification Half Logs / Instream Log Cover**

**Purpose:** To provide instream cover for juvenile and adult fish.

### **Conditions Where Applicable:**

- Instream location and sizing must be approved by an Adopt-A-Stream Biologist.
- Use in streams where instream cover for juvenile and adult fish is limiting.
- Use only in streams that are not prone to severe flooding and ice damage.
- Most suitable for medium to large streams (4 m to 10 m).
- Avoid streams with a shifting gravel and sand bottom.
- Use only in streams with firm substrate.
- Always locate these structures in pools.

### **Habitats Created:**

- Cover for juvenile and adult Trout and Salmon.
- Critical adult spawning cover for trout and Salmon.

### **Advantages:**

- Can be installed as a permanent or temporary structure.
- Inexpensive and easy to install.
- Can be placed alongside the bank or in open water.
- Can be constructed and dismantled very quickly.
- Can be adjusted with little effort for optimum success.

### **Disadvantages:**

- If not set in correct stream location, usefulness is reduced.
- Not suitable in streams with wide fluctuations in flow.
- If not installed properly will catch debris.
- The structure may be damaged by ice.

### **Design Criteria:**

- Must remain submerged to the level of the bottom of the logs to be effective.
- If it is to be used as permanent structure, then build during mid-summer to early fall.
- If built as temporary installation (i.e., to provide cover for spawning fish) it can be assembled in the late summer and dismantled in mid-December, and stored on site.

- For permanent sites set structure in mid pool at the edge of the main current but angled (30°) to the main current flow. If this does not prove effective adjust angle or location as required.
- For temporary locations (e.g. for spawning fish) logs can be placed along stream bank or in mid-stream and installed parallel to main current.

### Implementation Steps:

#### Concrete block construction

**Materials include:** Temporary log/concrete block style - 30 cm (12 in) concrete blocks, galvanized fencing wire (any gauge from 12-16) or heavy braided twine and green logs.

1. Obtain logs with diameters 15 to 20 cm. Remove all the branches and strip off the bark.
2. Place three concrete blocks at each end of the structure location and lay four logs on top.
3. Allow the logs to overlap the edge of blocks.
4. Situate smallest logs to outside edge, and use configurations the same as the half log cover structures.
5. Use galvanized wire or braided twine to lash logs in a crossover fashion to concrete blocks.
6. Staple the crossover points with fencing staples.
7. Sift the unit to desired position.
8. Place several large, flattened rocks on the top to hold logs down until they lose their buoyancy.
9. If shifting is a problem, move unit or secure using T-bar fence posts driven between logs and into substrate.

#### Half log wooden block style

**Materials include:** log approximately 30 cm diameter, one to two meters long, cut in half lengthwise, wooden blocks approximately 30 cm diameter. Length of logs used is variable depending on availability and size of shelter to be built. Suitable sized rebar 3/8 inch or larger.

1. Obtain logs with diameter of approximately 30 cm. Remove all the branches and strip off the bark.
2. Place wooden blocks centered approximately 30 cm from the end of the half log.
3. Shift to the desired location and pin in place with the rebar.

#### For both designs

1. Pack rocks in a sloped fashion at the head of the uppermost block and at the rear of the lower block. This is done to stabilize and anchor unit.
2. For temporary installations, when adult fish have left spawning area these units can be

taken out of the water and stored until the next spawning season.

**References:**

Bastien-Daigle, S., A. Vromans, and M. MacLean. 1991. A Guide for Fish Habitat Improvement in New Brunswick. Fisheries and Oceans Canada. Canadian Technical Report of Fisheries and Aquatic Sciences. 1786E : iv + 109 p.

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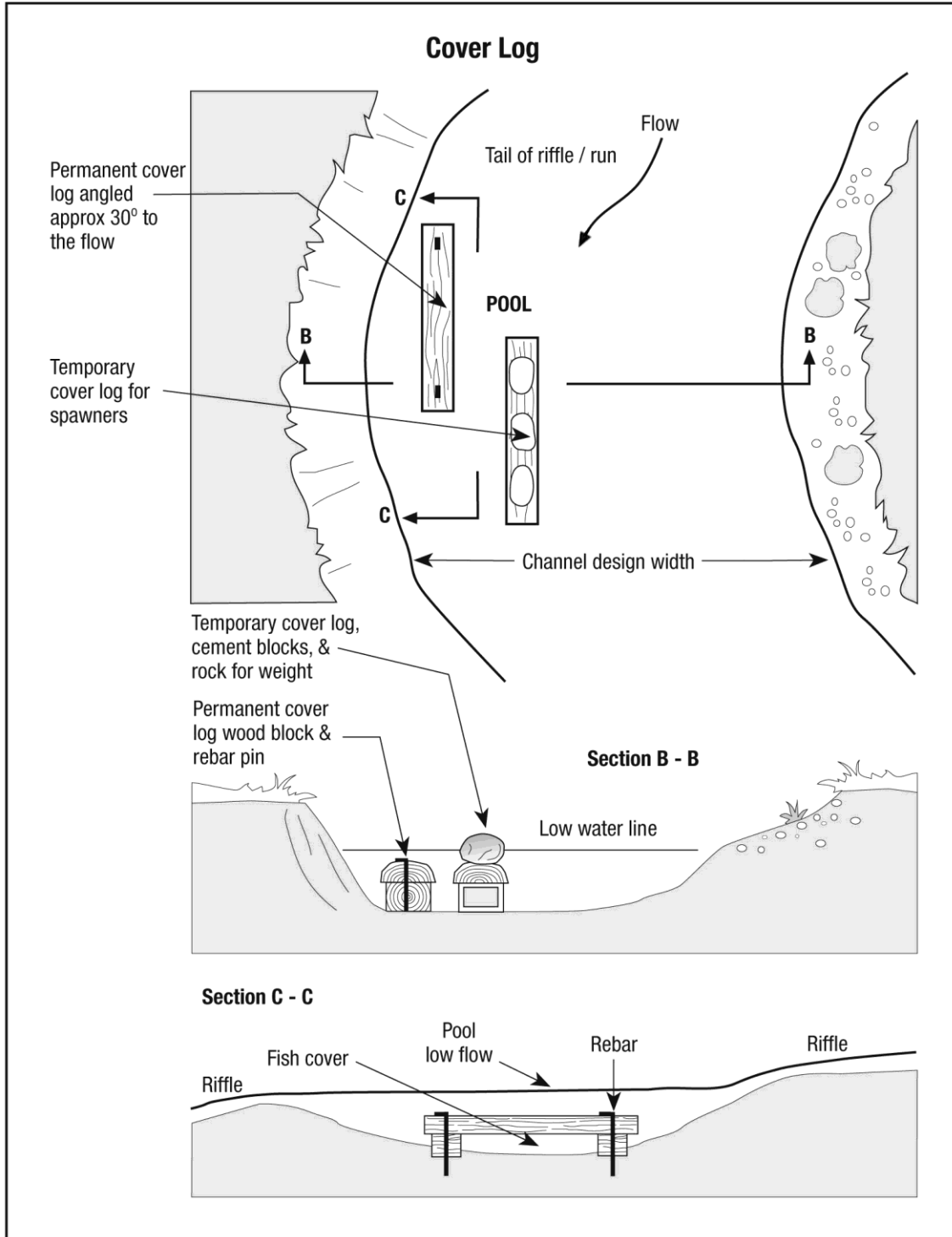


Figure 1. Conceptual drawings of temporary and permanent cover logs (Thaumas Environmental Consultants Ltd.).