04-058
Maine Forest Service (MFS) Rule
Chapter 25
Standards for Placing Wood Into Stream Channels to Enhance Cold Water Fisheries Habitat

Effective Date: December 25, 2012

MAINE DEPARTMENT OF CONSERVATION
MAINE FOREST SERVICE

ADOPTED RULE: 2012-350

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058 BUREAU OF FORESTRY

Chapter 25: STANDARDS FOR PLACING WOOD INTO STREAM CHANNELS TO ENHANCE COLD WATER FISHERIES HABITAT

AUTHORITY. 12 M.R.S., §8867-C; Public Law 2011, chapter 599.

SUMMARY. This rule establishes standards for placing wood into stream channels under the supervision of a licensed forester for the purpose of enhancing cold water fisheries.

SECTION 1. PURPOSE

The purpose of this rule is to streamline the permitting process for implementing cold water fisheries habitat enhancement projects that involve adding wood to stream channels. Projects implemented under the supervision of Maine licensed foresters, who have been trained by the Bureau of Forestry in cooperation with the Department of Inland Fisheries and Wildlife (DIFW) in these techniques, and take place in stream reaches designated by DIFW or Department of Marine Resources (DMR) biologists as needing treatment, do not require a state permit or fee if consistent with a treatment plan developed by a DIWF or DMR fisheries biologist or their designee. The intent of the plan is to provide additional guidance to the forester implementing the treatment; the plan must be mutually agreed upon by the DIFW or DMR and the landowner or their agent. The treatment detailed in the plan must be consistent with standards in this rule.

SECTION 2. SCOPE AND APPLICABILITY

A. **SCOPE.** This rule establishes standards for adding wood to a river, stream or brook channel as defined in 38 MRSA §480-B(9). It does not govern federal lands.

B. APPLICABILITY. This rule applies to treatments where only wood will be placed below the bankfull elevation of the stream and that rely on the size of the wood for stability. Treatments that artificially anchor or cable wood, add boulders, or place fill material below the high water line or otherwise exceed or deviate from these standards, are not covered by this rule and require permitting.

SECTION 3. DEFINITIONS

For the purpose this rule, the following terms are defined as follows.

A. Atlantic salmon Areas: From the Androscoggin River northward along the Maine coast to the Dennys River, and wherever these fish occur in the estuarine and marine environment. The following impassable falls delimit the upstream extent of the freshwater range: Rumford Falls in the town of Rumford on the Androscoggin River; Snow Falls in the town of West Paris on the Little Androscoggin River; Grand Falls in Township 3 Range 4 BKP WKR, on the Dead River in the Kennebec Basin; the un-named falls (impounded by Indian Pond Dam) immediately above the Kennebec River Gorge in the town of Indian Stream Township on the Kennebec River; Big Niagara Falls on Nesowadnehunk Stream in Township 3 Range 10 WELS in the Penobscot Basin; Grand Pitch on Webster Brook in Trout Brook Township in the Penobscot Basin; and Grand Falls on the Passadumkeag River in Grand Falls Township in the Penobscot Basin.

B. Bankfull Elevation: The elevation of the stream banks at bankfull width.

C. Bankfull Width: Bankfull width is the width of the stream at the "Normal high water line" as defined in 38 MRSA §480-B.(6) to mean “that line along the shore of a great pond, river, stream, brook or other nontidal body of water which is apparent from visible markings, changes in the character of soils due to prolonged action of the water or from changes in vegetation and which distinguishes between predominantly aquatic and predominantly terrestrial land…”

D. Biologist: A fisheries biologist employed by the Maine Department of Inland Fisheries and Wildlife or Maine Department of Marine Resources, or other qualified person identified by those departments, who has attended a training in wood addition techniques including an introduction to timber harvesting techniques and forestry regulation.

E. Designated Reach: A section of stream that has been identified by DIFW or DMR as suitable for wood addition treatment and where a DIFW or DMR biologist or their designee has developed a treatment plan that has been mutually agreed upon by DMR or DIFW, and the landowner or their agent. The treatment detailed in the plan must be consistent with the standards in this rule.

F. Dispersal Flow: Stream flow forced around a piece of large wood and into the stream banks leading to bank erosion.

G. Key Piece: A piece of wood that will form the basis of a log jam structure and is of sufficient size to resist movement by bankfull flows.

H. Licensed Forester: Licensed forester means a forester licensed under 32 MRSA, chapter 76.

I. Meander: A meander is one of a series of freely developing sinuous curves or loops produced as the stream moves from side to side of its floodplain.

J. Meander bend: A meander bend is the convex side of a meander.

K. Stream channel: Stream channel means a channel between defined banks created by the action of surface water, which is characterized by the lack of terrestrial vegetation or by the presence of a bed, devoid of topsoil, containing waterborne deposits or exposed soil parent material or bedrock; and which is connected hydrologically with other water bodies. "Stream channel" does not include rills or gullies forming because of accelerated erosion in disturbed soils where the natural vegetative cover has been removed by human activity.

L. Wood: Wood refers to the stems and branches of trees either fully severed or partially attached to the stump. Wood may include uprooted trees if the root wad or disturbed soil is not in a position such that it will end up below the normal high water line. Wood does not include processed wood such as slabs, edgings, lumber or timbers, or logging debris including slash and material left from temporary stream crossings such as pole or brush fords, or other forest product refuse prohibited by 38 MRSA § 417 (1).

M. Wood Diameter: Wood diameter is the average diameter of the stem measured at the large end.

SECTION 4. TRAINING REQUIRED

Before a licensed forester can oversee the implementation of a wood addition project, they must have completed training in wood addition techniques approved by the Bureau of Forestry and the Department of Inland Fisheries and Wildlife. The Bureau of Forestry will maintain a list of foresters who have satisfactorily completed this training.

SECTION 5. DESIGINATED STREAM REACHES

A. Designating Reaches

Wood addition treatments completed under this rule may only take place in designated reaches. To be considered a designated reach, a DIFW or DMR biologist must have identified the stream reach as lacking desirable habitat features and as being suitable for wood addition treatment. Once designated, reaches remain designated for 4 years. If treatment is not undertaken in 4 years, the biologist must renew the designation before treatment can occur.

B. Plan Requirement

To be considered a designated reach a treatment plan must have been prepared by a DIFW or DMR biologist or their designee for that reach. The treatment detailed in the plan must be consistent with the standards in this rule. The plan must be mutually agreed upon and signed by the DIFW or DMR and the landowner or their agent and is intended to aid the forester implementing the treatment. The plan will include the beginning and ending coordinates of the treatment area, the number of pieces of wood to add and the average stream width. The biologist may also mark trees to be felled, but this is not required. The treatment detailed in the plan must be consistent with the standards in this rule.

C. List of designated reaches

The MFS will maintain a list of designated reaches.

SECTION 6. WOOD PLACEMENT STANDARDS

A. Key Pieces

1. Species

Decay resistant species, such as hemlock, tamarack, spruce, and cedar are preferred as the key pieces of wood.

2. Diameter

The minimum diameter required for a key piece of wood depends on the bankfull width of the stream and shall meet or exceed the requirements in Table 1.

Bankfull Width Feet	Minimum Diameter Inches
0 to 10	10
10 to 20	16
20 to 32	18
Over 32	22
Source: Oregon - Guide to Placement of Wood, Boulders and Gravel for Habitat Restoration	

Table 1. Bankfull widths and minimum diameter of logs to be considered key pieces.

3. Length

A. To be considered a key piece, a tree must be at least 1.5 times the bankfull width if the root wad is attached or 2.0 times the bankfull width if severed from the root wad. Key pieces may be shorter if they can be effectively secured against movement by bracing against or between standing trees, boulders or other naturally occurring stable objects (See Figure 3).

B. At least two key pieces must be used at each structure. Limbs and branches must be retained on key pieces to the extent possible.

B. Wood Loading Rate

Smaller pieces of wood should be placed in stream sections between the key pieces. The total number of pieces of wood per mile of treated stream reach shall not exceed 230. This number includes both existing pieces and pieces added during the wood addition treatment. 40-60% of these must be between 6" and 12" in diameter. The remainder must be greater than 12" in diameter.

C. Wood Orientation and Placement

Dispersal flow must be minimized either by placing the large wood relative to the bankfull elevation so flow passes either over or under the wood (Figures 1 (A) and (C)) or by reinforcing the bankfull sides by felling smaller trees (less than 6 inches in diameter) before the large wood is felled to protect banks from excessive erosion (Figure 2).

Figure 1. Types of flows that can be created when large wood is felled across the stream. The type of flow created by the large wood will be dependent on where the large wood is felled related to the bankfull width. If only the bottom of the large wood is within bankfull, flow will be forced under the log as shown in A. If the large wood is directly within bankfull, flow will be forced away from the large wood as shown in B. If the large wood is in or just above the summer average wetted channel bankfull flows will flow over the large wood as shown in C.

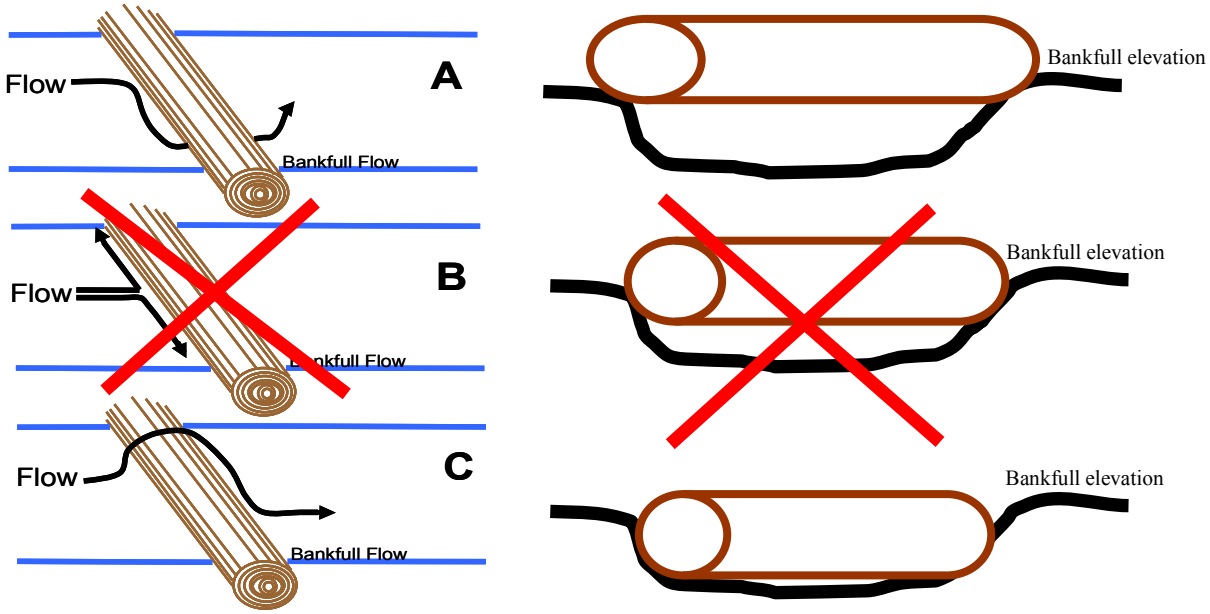
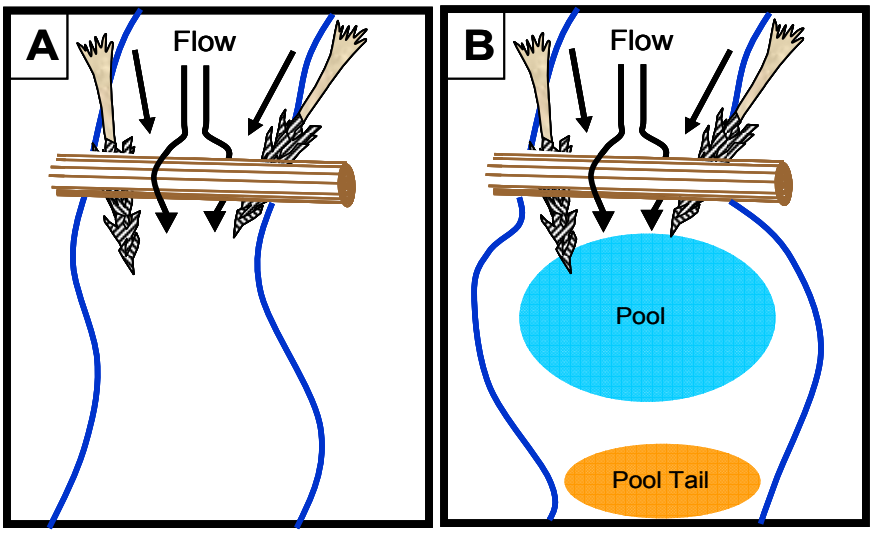


Figure 2. A) adding smaller wood on each side of the stream to concentrate flow over or under the large wood and protect banks from dispersal flow. B) over time a pool will likely form with the material moving down stream to form a pool tail/riffle habitat complex. Note this type of treatment is specifically for a stream identified by DIFW or DMR as having an over widened channel.



Wood movement is acceptable, but wood must be placed so that stable structures will eventually be formed around key pieces. Figures 3 and 4 provide examples of wood placement to form these structures. The weight of the log on the bank increases the stability and reduces downstream movement. Equipment can manipulate the logs to increase their stability by placing the wood between 2 standing trees that will lock the log in place by creating a pivot and stop point (Figure 3 panel A). In addition, one log can be placed on top of another so the weight of the top tree can pin the second tree (Figure 3 panel B). Complex structures with multiple logs with interlocking pieces of wood provide better habitat and mimic wood accumulation over time. Figure 4 provides some ideas on the configuration of the key pieces of wood in a restoration structure.

Figure 3. Panel A is single log placed between two standing trees to create a pivot and lock point. Panel B is an X pattern where the weight of the top log pins the bottom log to reduce the movement. Not shown is coarse wood (CW) or limbs that will create better habitat.

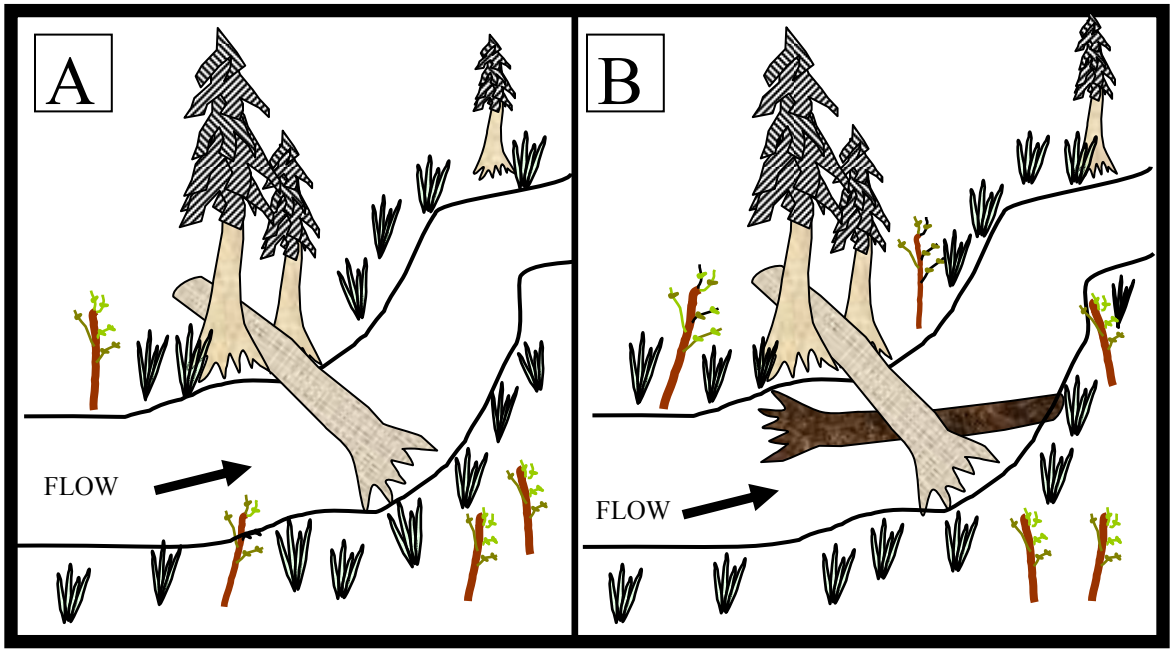
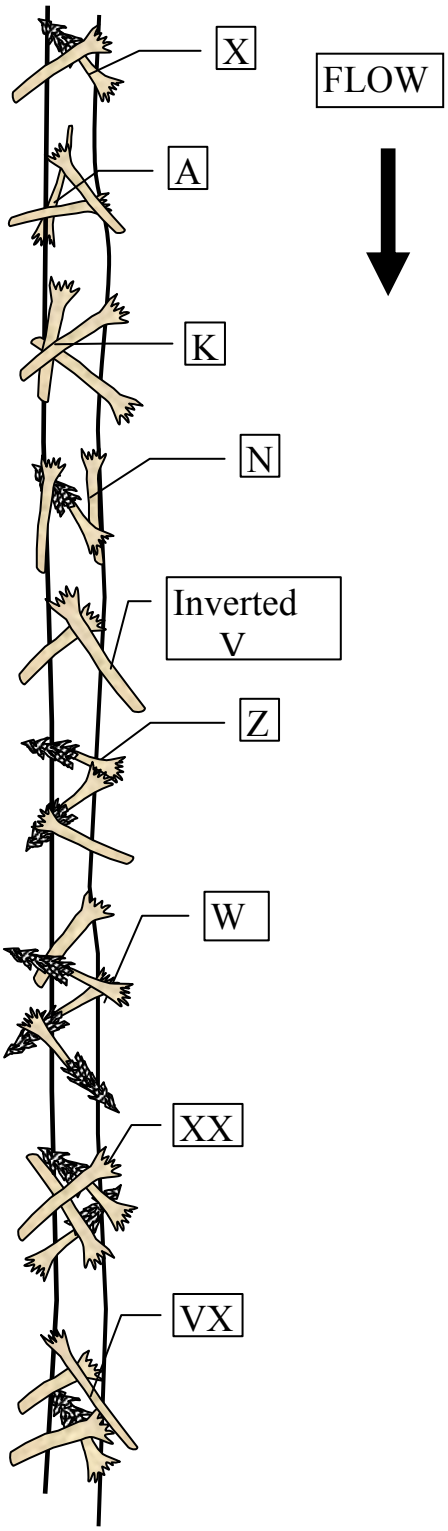


Figure 4. Showing typical plan view wood configurations and alphabet codes for use in describing them.



Large wood may be positioned in the stream in various configurations. The examples to the left are some patterns that can be used.

For stability, 2 of the logs must be twice as long as the bankfull channel width (1.5X if the root wad is attached) and meet the tree diameter criteria in the guidelines. Key pieces may be shorter if they can be effectively secured against movement by bracing against or between standing trees, boulders or other naturally occurring stable objects (See Figure 3).

The large wood can be placed between standing trees to increase the stability by preventing the logs from rotating down stream.

To increase hiding areas for juvenile fish, it is recommended that the limbs be in contact with the summer flow channel. Coarse wood can be added to the structure if the tree does not have limbs.

Simple patterns can be combined to form complex structures of 3-7 logs.

D. Residual Stand Condition

Trees felled for a wood addition treatment "count" toward the allowable removal under the requirements of 38 MRSA, § 438-D (shoreland zoning) or 12 MRSA, §8867-B (statewide standards for timber harvesting in shoreland areas), as applicable.

E. Soil Disturbance

Reasonable measures must be taken to avoid the occurrence of sediment entering the stream channel and the disturbance of stream banks. If, despite such precautions, disturbance occurs which could result in continuing sedimentation, these conditions must be immediately corrected with hay bales, siltation fence, water bars or other appropriate measures.

F. Downstream Infrastructure

Wood must not be placed where downstream infrastructure could be put at risk by wood movement. A minimum of 2 meander bends must be present between the end of the treatment area and any downstream road crossing.

SECTION 7. NOTIFICATION

A. Prior to implementing a wood addition project a licensed forester must submit a Forest Operations Notification form to the Bureau of Forestry. This submission must:

1. Have the appropriate box checked indicating that an in-stream wood addition project will be taking place.

2. Include a map showing the location of the treatment area. The map shall have sufficient detail for a person unfamiliar with the site to locate the treatment area.

3. Include a copy of the treatment plan previously prepared and signed by IFW, DMR or their designee and the landowner or their agent, for the designated stream reach. DMR must sign the form if the reach is in an Atlantic salmon area.

B. The Bureau of Forestry will provide copies of the Forest Operations Notification form, map and treatment plan to DIFW and DMR if the project is in an Atlantic salmon Area.

SECTION 8. RESPONSIBILITY

The licensed forester overseeing the wood addition treatment is responsible for complying with the standards in this rule.

SECTION 9. VIOLATIONS

Any person, including but not limited to a landowner, a landowner's agent or a contractor, who orders, contracts for, or conducts any activity in violation of this rule commits a civil violation, and is subject to the penalties located in12 MRSA, chapter 809.

SECTION 10. EFFECTIVE DATE

The effective date of this rule is December 25, 2012.

STATUTORY AUTHORITY:
AUTHORITY. 12 M.R.S., §8867-C; Public Law 2011, chapter 599.

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December 25, 2012 - filing 2012-350