



Live Staking Vegetation

Bank stabilization

Lake friendly living
means using lakeshore
BEST MANAGEMENT
PRACTICES

BMP

Live Staking Vegetation:
Acceptable best management practice for addressing stormwater runoff from impervious surface under the Shoreland Protection Act (Chapter 49A of Title 10, § 1441 et seq.).

LAKE BENEFITS

Healthy vegetation in shoreland areas provides shade, stormwater filtering, food for aquatic organisms, and bank stability.

MATERIALS

Native lakeshore species can be collected from an approved site or purchased from a local plant nursery. Live stakes, like other plants, should be planted in areas with suitable soils, moisture and sunlight. See the Planting and Renaturalizing Areas BMP for a listing of live stake species and planting specifications.

Description: Live stakes are living woody plant cuttings capable of quickly rooting in moist soils. These vegetative cuttings are generally ½ - 2 inches in diameter and 1-3 feet long and large enough to be pushed down lightly as stakes. Live staking is most suitable for areas with low to moderate slopes. Since it may take two or more growing seasons for the plantings to become well established, live stakes should be installed in conjunction with temporary erosion control measures such as seeding and mulching.

Purpose: Live stakes make a good, low-cost source of plant materials for stabilizing banks and restoring shoreland vegetation. Healthy vegetation in shoreland areas provides shade, stormwater filtering, food for aquatic organisms, and bank stability.

How to:

Collecting Vegetative Cuttings. Most plants can not be reproduced by collecting and planting a vegetated cutting, but for those that can, cuttings should be collected from established/mature plants. This is a cost effective option that does not weaken the adult plant, but through pruning, is likely to invigorate it. Make sure to ask permission to take any cuttings from a mature plant that is growing on someone else's property. For best results, live stakes should be harvested and planted while the parent plant is dormant in late October until the ground is frozen, or in the spring before plants start to leaf-out. Northern counties should aim for spring plantings because the frost heaves plants that are not well established. When gathering live stakes, make sure part of the thick end of the branches are at least ½ inch in diameter (the larger the diameter the better).



Source: Maine DEP

1. Make a straight cut at the narrow end of the branch (toward the tip of the branch). At the thicker end (toward the trunk) cut the branch at an angle, so that it makes a point. This way you will know which end is up and it will also be easier to drive the stakes into the ground. If the wrong end of the branch is put in the ground the stake will die.



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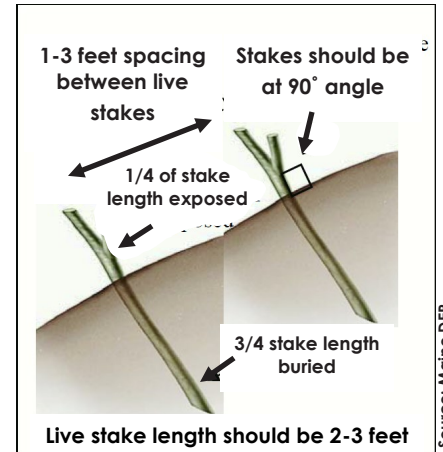
Bank stabilization

2. Once a cut has been made, remove all side branches and leaves. This helps prevent the stakes from drying out. Keep the cut slender side branches, or whips, intact. These whips can be used in the installation process.
3. To increase the survival rate of the stakes, it is best to plant within 24 hours of collection. Until the planting, keep the stakes damp by wrapping them in wet burlap sacks or soaking them in buckets of water. If the stakes are being planted on a hot day, make sure to store them in the shade.

Purchasing Vegetative Cuttings. Local nurseries may carry live stakes. When purchasing live stakes, ensure that the plant species are native to Vermont.

Planting.

1. The site should be prepared before planting the live stakes. Invasive species should be cut back. For a listing of noxious and nuisance species that can be removed from the shoreland without a permit, visit the Fact Sheet on [Noxious and Nuisance Plants](#) on the Shoreland Permitting web site. For how to control invasive species, visit the Fact Sheet on [Managing Invasive Species](#).
2. In conjunction with live staking, cover bare soil with annual grasses and hay mulch to hold the soil and help prevent weed establishment until the stakes are established.
3. Push (or use a rubber mallet) to carefully drive the pointed end of each live stake into the bank. If the stake doesn't go into the ground easily, use a metal rod to first create a hole the length of the stake.
4. Stakes should be planted at a 90° angle with ¼ of the stake (including a few buds) sticking out of the ground. When planting, leave 1-3 feet spacing between the individual stakes. If the stake will be shaded by surrounding vegetation, use longer stakes and leave one foot sticking above the ground. If a willow stake, in particular, gets too much shade, it will drop its new leaves and die.
5. The side branches, or whips, that were snipped off during the collection process will grow nicely if they are planted in very moist areas at the edges of a lakeshore. Push them into the ground as far as they will go without breaking.



Maintenance: To increase survival, the live stakes could be watered once a week during their first growing season. If a bank is severely eroded or steep it will need more stabilization than live staking. Contact the Lake Wise Program for more information and guidance.



Cornus sericea, Redosier dogwood
Height: 7-9 feet
Growth Rate: fast
Hardiness Zone: 2
Light: part to full sun
four season aesthetic value



Cornus racemosa, Grey dogwood
Height: 15 feet
Growth Rate: fast
Hardiness Zone: 2
Light: part to full sun
four season aesthetic value



Salix discolor, Pussy willow
Height: 10-15 feet
Growth Rate: fast
Hardiness Zone: 2
Light: full sun
four season aesthetic value