

LAKE SHORELINE STABILIZATION-BIOENGINEERING

Choosing the appropriate shoreline bank stabilization method that will work best for a particular site is the most difficult step for homeowners. It requires an understanding of the causes of shoreline erosion and the physical characteristics that make up the shoreline at a specific site. In some cases, shoreline erosion problems may be attributed to stabilization measures that were previously implemented by an adjoining neighboring property or a neighbor further up, down, or across the entire lake. Boat wakes from motorized watercraft generate significant unnatural wave energy that causes severe erosion along the natural shoreline.

Bioengineering is often called “soft-shore engineering” and is a method of using native plants, biodegradable products, and other natural materials (i.e., boulders, coir logs, large woody logs, and stumps) to recreate a stable natural shoreline environment. The goal of bioengineering is to create a more naturalistic shoreline environment while protecting adjacent land from waves and erosion. Biotechnical methods of shoreline stabilization combine structural and bioengineering methods. The structural and soft-shore shoreline techniques work together to dissipate wave energy and maintain valuable shoreline habitat. These designs can be aesthetically appealing and have longevity and sustainability if properly

designed and installed and cost less for products and maintenance than traditional hard armor such as retaining walls.

Selecting the types of plants to be used along the shoreline and/or within a vegetated buffer depends on a variety of factors including soil conditions (texture, pH, available nutrients, organic content), water availability, topography, exposure (wave action, water mist, wind), and sunlight/shade conditions.

Consulting with a local nursery, garden club, professional landscape contractor, and/or licensed landscape designer or architect is recommended before purchasing plants and installing plants on your property. Wetland plants will not survive on dry sunny sloped soil areas and, conversely, upland plants will not survive if planted in the water and/ or in wet soils. Understanding the site’s conditions is critical for successful implementation of any planting including vegetated buffer zones. Native plants should be used in all vegetated buffer zone areas.

To help homeowners select the right plant for the right place the following tables provide typical plant species that can be used within upland and wetland shorelines. These lists are based on commonly available plants, hardiness, and adaptability to varying site conditions.

PLANT LIST IDEAS:

Upland Shoreline Plants

Overstory

Sugar maple

White oak

Red oak

White pine

Understory canopy

Shadblow

Flowering dogwood

Common witch hazel

Shrubs

Mountain laurel

Sweet pepperbush

Red osier dogwood

Herbaceous

Maiden hair fern

Hay scented fern

Christmas fern

Wetland Shoreline Plants

Overstory

Red maple

Swamp white oak

Understory canopy

Pussy willow

Speckled alder

Shrubs

Common winterberry

High bush blueberry

Red osier dogwood

Herbaceous

Royal fern

Ostrich fern

Cinnamon fern

A **native plant** is a species that occurs naturally in a particular region, state, ecosystem, and habitat without direct or indirect human actions.

An **ornamental plant or cultivar** is a species that may occur naturally in another location but is selected for its unique attributes visually, structurally, or because it is easy for nurseries to mass produce.

Most native plants are green leaved during the growing season and have flowering and fruiting properties that may be quite colorful during the growing season. Over the past 25 years, the nursery trade has seen an influx of new hybrids and plant sports that are native but have been hybridized, modified or enhanced over their native parents.

Many of these hybrids and/or sports have become commercially available and are considered native ornamentals. The use of

native ornamentals is considered appropriate for vegetated buffer zones. However, it should be noted that some ornamentals may not grow as well as the true native species. Some examples of native ornamentals include variegated silky and/or red osier dogwood, variegated pagoda dogwoods, variegated flowering dogwoods, variegated false Solomon's seal, of which are native but are classified as ornamental. Using a combination of true native plants and native ornamental plants is appropriate for reestablishing vegetated buffer zones.