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SC WaterWays

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Shorescaping Freshwater Shorelines

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Shorescapes

South Carolina is blessed to have an abundance of water resources in the form of rivers, lakes, ponds and estuaries, and many residents own properties that adjoin these beautiful watercourses. This presents the waterfront owner with a unique opportunity to discover a largely unexplored form of gardening - SHORESCAPING. A shorescape is a landscaped shoreline that uses attractive plants to protect and beautify the waterfront. A well designed shorescape uses native plants to provide a functional solution to problems such as shoreline erosion, poor water quality, invasive weeds, and wildlife management. Also, like a flower bed in the yard, a shorescape that uses a mixture of flowering plants can serve as a waterfront garden that improves the appearance of the shoreline and adds value to the property. Luckily, there are many very attractive plants that are easy to grow, native to South Carolina, and suitable for use in a most shorescapes.

Before Planting

Before planting, you should consider carefully what your designated uses are for the body of water. For instance, residential stormwater ponds and recreational fish ponds need to have open shorelines with few trees so that they can be accessed easily for maintenance and use. On the other end of the spectrum, trees may be necessary for properties along rivers and large reservoirs to withstand the strong erosional forces present in these large systems. Also, the waterfront owner should consider how the waterway is used by neighbors and the community. Plants should not be placed in areas that may restrict recreational use or navigation. In the case of residential ponds, the community relies on the ponds to convey stormwater runoff from the neighborhood through a system of pipes and outfalls. The waterfront owner should be careful not to obstruct these conveyances which, if clogged, could cause flooding. In some cases, it is the responsibility of the home owners association to determine what plants are suitable for stormwater pond banks. For more information about protecting water resources, visit *www.clemson.edu/carolinaclear*.

Shorescaped pond bank in community near Myrtle Beach, SC.

Right Plant, Right Place

Knowing what to plant and where to plant them is the greatest challenge for designing a shorescape because the shoreline is an ecotone (an area of transition between two ecosystems). Waterfronts have four distinct zones which characterize the transition from water to land. Each zone is suitable to different plants based on the water needs of each plant. The following section provides descriptions of the planting zones and lists of plants suitable for each zone. When purchasing plants, check the scientific names and match them to the plants on this list. Many plant species share common names, but may differ from those described here.

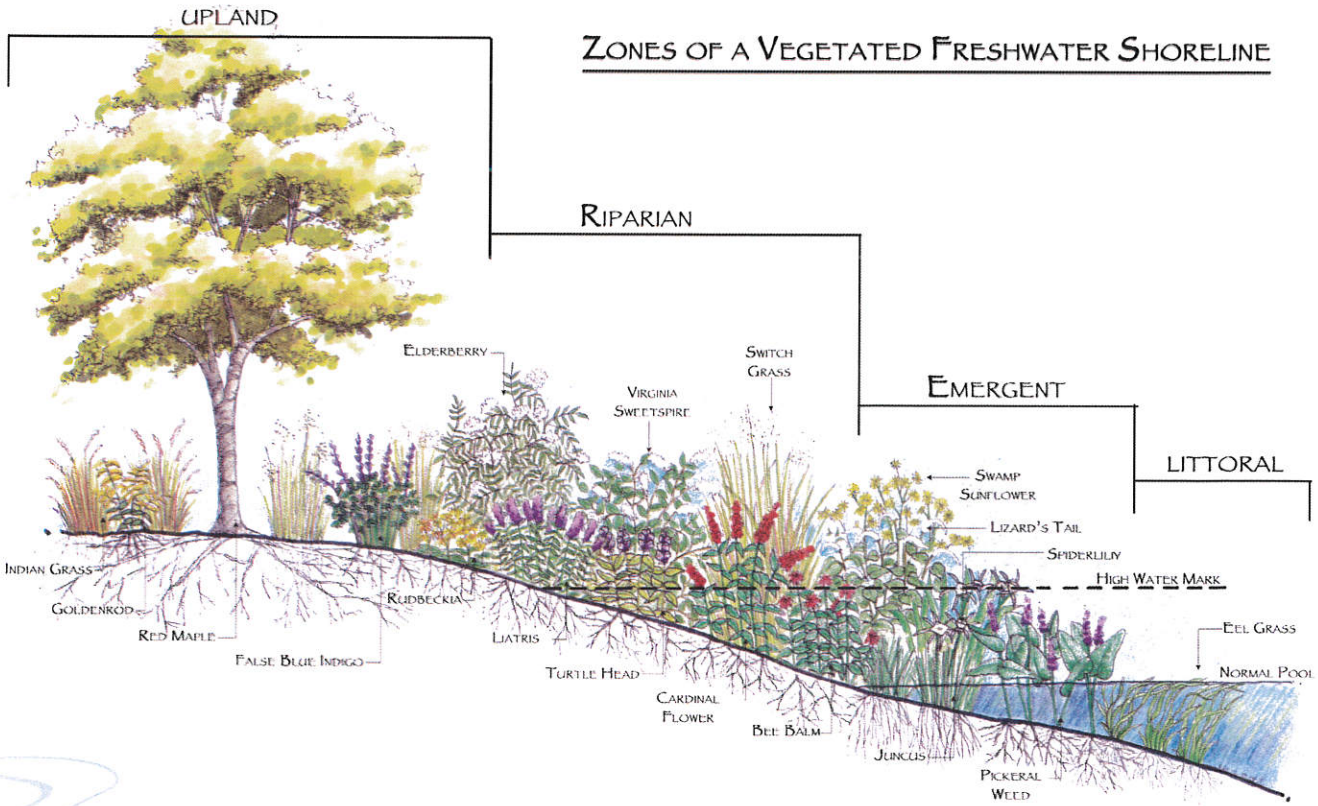
The Littoral Zone – the area below the water line that is too deep for emergent plants but still shallow enough that sunlight can penetrate through the water to the bottom. The littoral zone usually is 1 to 4 feet deep but may be deeper if the water is very clear. Many aquatic plants that grow in the littoral zone can be invasive, especially in shallow stormwater ponds, so it is important to manage submersed and floating-leaved vegetation to prevent clogged outfalls and fish kills.

Plants for the Littoral Zone:	Coontail	*Ceratophylum dimersum*
	Tape-grass	*Vallisneria americana*

The Emergent Zone – the part of the bank slope that lies below the water line but is shallow enough to allow emergent aquatic plants to root in the submerged soil and grow upward above the water's surface. The emergent zone is usually less than 12 inches deep. Avoid emergent plants that have a "creeping" lateral growth habit such as water primrose and alligatorweed. Vertical plants are easier to manage in the emergent zone.

Plants for the Emergent Zone:	Pickerelweed	*Pontederia cordata*
	Arrowheads	*Sagittaria latifolia, S. lancifolia*
	Arrow Arum	*Peltandra virginicus*
	Lizard's Tail	*Saururus cernuus*
	Alligator Flag	*Thalia geniculata**
	Golden Canna	*Canna flaccida**
	White Star Sedge	*Dichromena colorata**

**Special note* Many ponds have large populations of ducks and geese which can damage shoreline plants by trampling and grazing. Plants marked with an asterisk (*) are known to be resistant to waterfowl damage.*



The Riparian Zone – the part of the bank slope that lies above the water surface but where the soil remains permanently wet and saturated. The riparian zone often is inundated with water when pond levels rise during storms. Plants that thrive in this zone need moist soils and can withstand extended periods submerged under water but prefer to grow at or just above the water line.

Plants for the Riparian Zone:		
	Soft Rush	*Juncus effusus**
	Bulrush	*Scirpus spp.**
	Louisiana Iris	*Iris (hexagonae group)*
	Blue Flag	*Iris virginica*
	Spider Lily	*Hymenocallis palmeri*
	Mallow Hibiscus	*Hibiscus moscheutos**
	Swamp Sunflower	*Helianthus angustifolius**
	Cardinal Flower	*Lobelia cardinalis*
	Bog Lily	*Crinum americanum*
	River Oats	*Chasmanthium latifolium**
	White-top Sedge	*Dichromena colorata**
	Lizard's Tail	*Saururus cernuus**

The Upland Zone – the part of the bank slope above the riparian zone where soils do not stay permanently moist. This zone often is very dry because the slope forces water to runoff rather than seep into the ground. Upland zones with very steep slopes will need plants that are very drought tolerant. In most cases, the ornamental plants that are commonly used in the home landscape are useful in this zone. Residents that live next to stormwater ponds in residential neighborhoods should avoid planting trees and large shrubs on the bank slopes. Perennials and grasses are best in this zone.

Plants for the Upland Zone:

Native Grasses* (Weeping Love Grass, Big Bluestem, Muhly Grass, Switchgrass, Indian Grass)

Native Perennials (Butterfly Weed, False Indigo*, Tickseeds, Coneflower*, Hardy Ageratum, Blazing Star, Verbena*, Goldenrod)

Other Perennials (Sunflower Heliopsis, Daylily*, Bearded Iris*, Red Hot Poker, Lantana*, Lavender*, Creeping Phlox, Salvia, Stonecrop, Purple Heart)

Maintaining Your Shorescape

Pesticides and fertilizers should be avoided in a shorescape if possible because of the potential for runoff into the water. Weed control is best done by hand pulling. If herbicides are necessary, it is best to use herbicides that are labeled for aquatic use because they have less potential for causing water quality problems. Undesirable trees, vines, shrubs and tall weeds can be eliminated using a hack and squirt method which involves the application of a systemic herbicide directly to the cut stem of the undesirable plant. Mulch can be used in the upland zone but may be carried away by high water if it is placed in the riparian zone. Instead, space plants closely so that there is less potential for weeds to invade the shorescape. The crowns of plants in the shorescape need to be cut back and harvested once each year before the spring growing season begins. The mowed or cut plant material should not be left in place or allowed to wash into the water because it may cause water quality problems or block water flow.

Inlet pipes convey stormwater from paved surfaces to the pond.

Shorescapes Around Stormwater Ponds

Stormwater ponds in residential communities present a unique set of conditions that deserve special consideration. Stormwater ponds are designed to be open basins that capture stormwater runoff from roads, rooftops, and yards in the community 1) to moderate the storm surge and prevent flooding and 2) to trap and treat polluted runoff to protect water quality. To that end, stormwater ponds need to be free of obstructions such as large trees and shrubs on the banks and excessive submersed and floating vegetation that takes up space and impedes flow. Special attention also needs to be paid to preventing plants from growing over inlet pipes and outfalls. In addition to these functional concerns, many communities have concerns over the appearance of the pond banks, to the extent that the homeowners association restricts what can be planted on the bank slopes. To balance the functional and aesthetic needs of residential ponds, here is a short list of shoreline plants suitable for stormwater ponds throughout the state along with brief descriptions of each plant.

Shoreline Plants for Stormwater Ponds

Soft Rush - *Juncus effusus*

This extremely hardy perennial is one of the most versatile shoreline plants in North America. It is present in almost every state and is very easy to grow. It is common in almost every drainage basin in South Carolina from small ditches to the banks of large rivers. Its flowers are not exceptionally showy, but it makes up for that with its unique texture and vertical growth. It is perennial but retains its dark green color through most of the year, giving it an almost evergreen nature. It is very effective at reducing pond bank erosion.

Max. Water Depth: 3 inches
Growth Habit: Clumping
Wildlife Value: Moderate
Max. Height: 3-4 feet
Flower: Summer, green to brown
Light Need: Full sun

Arrowhead - *Sagittaria latifolia & S. lancifolia*

Also known as Duck Potato, this plant is very common in marshes and tidal wetlands of the coastal plain. It is easily recognized by its flowers and leaf shape. It grows quickly and spreads well in very shallow waters (<6 inches deep). Its cluster of white flowers on a spike is quite attractive, and flowering persists through most of the growing season. Newer cultivars have yellow flowers with burgundy centers.

Max. Water Depth: 12 inches
Growth Habit: Spreading by tubers
Wildlife Value: Very high
Max. Height: 3-4 feet
Flower: Summer, white/pale yellow
Light Need: Full sun

Arrow Arum - *Peltandra virginica*

Also known as the Tuckahoe, this plant is a wetland relative of the Peace Lily. The large arrow-shaped leaf of the Arum provides a safe alternative to elephant ear plants (*Colocasia* spp.) which can be invasive in small ponds. The leaves are large, dark green, glossy and distinctly arrow-shaped. The arrow arum is one of a few wetland plants that are tolerant of shade.

Max. Water Depth: 12 inches
Growth Habit: Slow spreading
Wildlife Value: Moderate

Max. Height: 2-3 feet
Flower: Early Summer, White/pale yellow turning to green
Light Need: Full sun to deep shade

Golden Canna - *Canna flaccida*

This extremely showy plant has been a landscaping favorite for a very long time. The dramatic yellow flowers stand-out and add a brilliant splash of color throughout the summer months. The broad, erect foliage gives a perfect backdrop to accentuate the flowers. This plant grows in clumps, spreads slowly and can be easily contained and managed.

Max. Water Depth: 12 inches
Growth Habit: Spreading by rhizomes
Wildlife Value: Moderate

Max. Height: 3-6 feet
Flower: Summer, brilliant yellow
Light Need: Full sun to part shade

Pickerelweed - *Pontederia cordata*

One of the most common and widespread wetland plants in South Carolina, this plant is arguably the most versatile shoreline plant available to the waterfront owner. The blue to purple flowers are unmatched in beauty and are very attractive to pollenators and hummingbirds. The erect, heart-shaped leaves are dark green and glossy and give the shoreline a very interesting texture. Newer varieties are now available with elongate leaves and white flowers for added variety.

Max. Water Depth: 30 inches
Growth Habit: Spreading by rhizomes
Wildlife Value: Moderate

Max. Height: 3-4 feet
Flower: Summer, blue/white
Light Need: Full sun

Swamp Mallow - *Hibiscus moscheutos*

This plant has the largest flower of any plant in this list and may hold its own as the showiest flower in any yard. Native plants have white/off-white blooms with burgundy centers, but several cultivars are available with varying shades of red and pink. This tall perennial develops woody stems, giving it a shrub-like appearance. This plant is closely related to other showy flowers in the landscape such as the Confederate Rose (*Hibiscus mutabilis*) and Rose of Sharon (*Hibiscus syriacus*).

Max. Water Depth: 6 inches
Growth Habit: Solitary, shrub-like
Wildlife Value: Poor

Max. Height: 7 feet
Flower: Summer, white with crimson center
Light Need: Full sun to part shade

Alligator Flag - *Thalia dealbata, T. geniculata*

Alligator Flag is very similar to the Cannas in many ways, but it stands apart by its narrower petioles, taller stature and unique purple flower spikes that extend well above the leaves. This plant works well to provide screening and vertical focal points along the waterfront, and it gives the waterfront a tropical appearance. It tends to grow in clumps and is easily managed.

Max. Water Depth: 36 inches
Growth Habit: Spreading by rhizomes
Wildlife Value: Moderate

Max. Height: 6-8 feet
Flower: Summer, purple/dark red
Light Need: Full sun

Swamp Sunflower - *Helianthus angustifolius*

This plant provides a huge splash of color late in the season when many other plants have stopped flowering. It is a very effective attractant for butterflies and often is used in upland gardens, but this plant also thrives in saturated soils and will grow well at the water's edge too. It has narrow leaves that give the shoreline a softer texture than many of the other plants listed here.

Max. Water Depth: 3 inches
Growth Habit: Solitary, shrub-like
Wildlife Value: High

Max. Height: 5-6 feet
Flower: Fall, brilliant yellow
Light Need: Full sun to part shade

Spiderlily - *Hymenocallis spp.*

There are few plants that have flowers as peculiar as the Spider Lilies which makes them stand-out among their fellow wetland plants. In the Catawba River, large shoals are populated by clumps of these plants. In the coastal plain a different species can be found dispersed across tidal freshwater wetlands. This plant spreads slowly and provides interesting variety to the waterfront.

Max. Water Depth: 6 inches
Growth Habit: Clumping
Wildlife Value: Moderate

Max. Height: 2-3 fee t
Flower: Summer, white
Light Need: Full sun

Bog Lily - *Crinum americanum*

This plant is often called the southern swamp lily, and it frequently occurs in similar habitats as the Marsh Spider Lily (*Hymenocallis crassifolia*) of the Coastal Plain. Its bloom is not as ornate as the spider lily, but it is fragrant and sweet smelling. Like the spider lily, this plant grows in clumps and does not spread rapidly, but it does work well to provide additional variety to the waterfront.

Max. Water Depth: 3 inches
Growth Habit: Clumping
Wildlife Value: Moderate

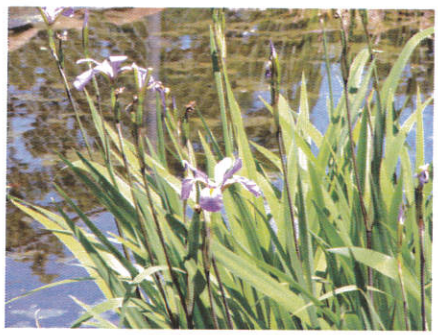
Max. Height: 2 feet
Flower: Summer, white/pink, fragrant
Light Need: Full sun

Louisiana Iris - *Iris spp. (Hexagonae group)*

These wetland relatives of the Bearded Iris, which is so well known among gardening enthusiasts, give the waterfront owner an opportunity to work with a plant that is more familiar than many of the other plants in this list. The Louisiana Irises actually are a group of five species: *Iris hexagona*, *I. fulva*, *I. brevacaulis*, *I. giganticaerulea*, and *I. nelsonii*. Although there is some variety in bloom color and size, all five species have very similar growth habits.

Max. Water Depth: 3 inches
Growth Habit: Spreading by rhizomes
Wildlife Value: Low

Max. Height: 2-3 feet
Flower: Spring, blue/pink/yellow
Light Need: Full sun



Blue Flag Iris – *Iris virginica*

Blue Flag Iris has become a favorite plant for use in constructed wetlands and rain gardens because of the plant's ability to withstand extended periods of drought while also thriving in saturated soils, once established. Blue Flag has a narrow blue flower and is common in roadside ditches and wetlands in the Atlantic Coastal Plain. Blooms and foliage are attractive additions to the waterfront.

Max. Water Depth: 6 inches
Growth Habit: Spreading by rhizomes
Wildlife Value: Low

Max. Height: 2 feet
Flower: Early summer, blue
Light Need: Full sun to part shade

Lizard's Tail - *Saururus cernuus*

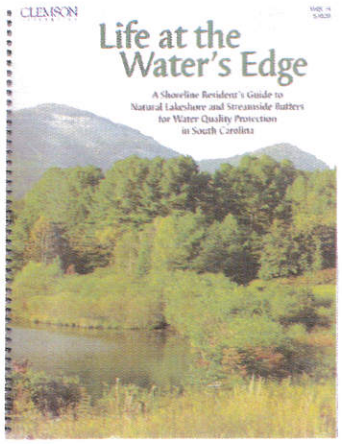
This interesting perennial is a very common inhabitant of the forested swamps in the coastal plain, but it is hardy enough to thrive in even the coldest of South Carolina's climates. Its bottle-brush like flower has a distinctive curl somewhat like the tail of a lizard, hence its common name. Having adapted to life in the forest understory, this wetland plant is one of the few species on this list that is tolerant of low light situations, which makes it suitable for pond banks that remain shaded most of the time.

Max. Water Depth: 8 inches
Growth Habit: Spreading by rhizomes
Fall, white
Wildlife Value: Low

Max. Height: 2-3 feet
Flower: Summer to mid

Light Need: Full sun to shade

For more detailed information about designing your waterfront to stop erosion, protect water quality, and beautify your shoreline, consider obtaining a copy of *Life at the Water's Edge*. *Life at the Water's Edge* has 150 pages of detailed information on the benefits and design of landscaped waterfronts. It includes more than 135 color photos and illustrations, a glossary of terms, an appendix of plants mentioned, and a plant list for South Carolina lakeshore and streamside buffers. This book can be purchased at your county Extension office or online from Clemson PSA Publishing at https://shopping.clemson.edu.



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