



USE PLANTS TO FIGHT EROSION AT YOUR CAMP

By
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In Louisiana's eroding coastal marshes, it's common to see water lapping hungrily at the front steps of camps once surrounded by solid ground. "Most camps were originally built on banks and levees," says Michael Materne, plant specialist with the USDA Natural Resources Conservation Service (NRCS) at Louisiana State University. "But in an eroding environment, where marsh plants are no longer there to buffer wave action, tidal surges and wakes from boat traffic constantly hit the bank and undermine the land so it just sloughs off."

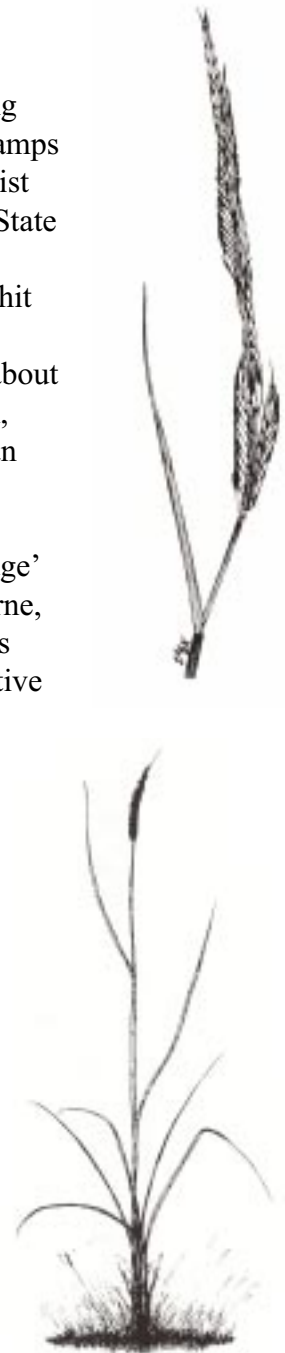
Though individual camp owners have little opportunity to do anything about subsidence and erosion in the interior marshes, they can help to prevent erosion, and actually rebuild land in the areas immediately around their camps. They can replace the lost shoreline plants needed to absorb the force of the wave energy before it can attack the banks near a camp.

"The kinds of plants that work best are stiff-stemmed species, called 'edge' plants, that grow in water. They should be planted at the shoreline," says Materne, whose work with the NRCS has involved replanting many types of coastal areas from marshes to island dunes. "Putting plants on top of a bank has little protective effect if the bank beneath them washes away. Even an enormous oak tree with its huge root system just tumbles into the water if the land around it is undermined."

As waves come against them, the stems of the edge plants break the water's force, reducing land-gobbling surges to gentle eddies. "There are only a few species of plants that can do that," says Materne, "and the selection depends on water salinity and depth."

In a salt or brackish marsh, the NRCS recommends planting smooth cordgrass (*Spartina alterniflora*), which Materne calls the ideal plant for erosion control. "This plant grows from the water's edge out to a depth of about 18 inches. It will spread upward toward the bank somewhat, but it grows best in standing water.

For freshwater habitats, giant cutgrass (*Zizaniopsis miliacea*) is recommended. It also grows in standing water, forming dense circular clumps that make an effective barrier to wave action. "The real advantage of both these plants," observes Materne, "is that they grow well in standing water, which is unusual for most plant species. They have stiff stems



and extensive root systems so they don't fall over when a wave hits them but just bend a bit." Both smooth cordgrass and giant cutgrass are perennials, native to Louisiana, and common to the habitats where they can be replanted.

Bullwhip (*Scirpus californicus*), also called giant bulrush, is another edge-zone plant that grows in standing water and can be used by landowners to replant shallow, interior lakes where wind-whipped waves eat away shorelines. As their banks erode, many small interior lakes and ponds gradually get wider, opening up into several hundred acres of shallow water. In these lakes, the NRCS has planted bullwhip either in hedge-like rows radiating out from a bank or in parallel lines away from the shore. As winds circulate the water, muddy bottom sediments and organic matter are churned up and suspended in the water. When the winds are broken by the rows of bullwhip, the suspended sediments drop out and start building up behind the plant barriers. Once the sediment accumulates to an elevation high enough to support plants, new vegetation grows. Over time, plant communities develop and a new marsh is formed.

"Smooth cordgrass and cutgrass act in the same way but in different habitats," says Materne. "Once wave or wind energy is broken, land can start building behind the plants. In time, eroded banks can be reclaimed. You achieve protection with these plants and also help to build land."

Materne emphasizes the advantage of living vegetation over rock or riprap bulkheads. "Rocks are static barriers. When the land starts to scour out behind them or from around their edges, rocks lose their effectiveness and you still have the erosion problem." Smooth cordgrass, on the other hand, is a perpetual living organism that maintains itself, spreading into new areas as sediments are deposited.

"Using plants allows you to continually reclaim more and more bank area. The more land that builds around smooth cordgrass, the more the plant grows out, so reclaiming is continual. It's a dynamic system as opposed to a static structure."

Materne says that wetland plants such as smooth cordgrass and giant cutgrass are available in containers from most commercial wetland nurseries. Nursery plants are usually healthy with well-established root systems, which is important for plant survival in a hostile environment. They are also commonly found in the wild, but Materne cautions against digging up and transplanting wild stock. "No matter how careful you are, it's not a good idea to rob Peter to pay Paul. In trying to solve one problem, you may create another."

Plants for shoreline protection should be planted in rows parallel to the shoreline, as close to each other as possible so that they will grow together quickly. "Spacing depends on how much material you have. With one-gallon containers, the most common size available, put them about three feet apart." Staggering the plants in either one or two rows works also. "The point is to get them to grow together as quickly as possible because otherwise their effectiveness is limited," says Materne.

Grasses should be planted at average or mean tideline. The upper and lower intertidal zone is their primary habitat. Using a shovel, plant each container of grass at the depth of the soil ball of the plant, or slightly deeper, so that a little soil is on the stems but the stems aren't buried. The plant should be deep enough so that the soil ball is well anchored but high enough so that the stems can bend with the wind. Single-stemmed plants can be placed in low-energy areas, but they have little root mass and take longer to establish dense stands.

Additional fertilization is optional because the natural fertility of Louisiana's coastal soils is usually adequate. "We sometimes add fertilizer in the form of an orchard tablet, which comes in boxes of 500 and are about ten cents each," says Materne. "These are slow-release tablets that we put in the soil next to the root ball at the time of planting."