

Sanctuary is Site for Seagrass Restoration Techniques

Alicia Farrer, Environmental Specialist

There are very few places in North America like the Florida Keys. One of the main attractions of this area is its bank barrier coral reef. Behind the glamorous glow of the coral is an equally important habitat that serves numerous crucial functions. It is a natural filter for sediments, a storm surge protector and a nursery for most of the recreationally and commercially important fish and shellfish species. It is the seagrass bed.

Monroe County is home to 54.6 percent of all Florida seagrass bed acreage, mostly in Florida Bay and the Florida Keys. It also has the highest percentage of moderate and severe scarring in the state. This scarring is due to the cumulative impact of vessel groundings throughout the Florida Keys. In 2001, approximately 500 boat groundings occurred in the Florida Keys National Marine Sanctuary, with about 60-70% of these taking place in seagrass beds.



Pearock is poured from a barge to fill a blowhole. Deeper scars and blowholes must be filled because seagrass plants will not grow downward, away from the sun. (Photo: Alicia Farrer)

A vessel grounding injury on a seagrass bed typically consists of three physical characteristics: propeller scars, blowholes and berms. Propeller scars are formed by the dredging effect of a turning propeller making contact with a shallow seagrass bed. When the captain uses the power of the engines in an attempt to free the vessel from the bank, a blowhole is formed from the force of propeller wash. This “technique” almost never works and the boat will usually require the help of a salvage professional. When the material ejected from the blowhole covers surrounding seagrass, it may create an elevated feature known as a berm, which often smothers healthy seagrass.

These injuries may never completely recover and have the potential to expand and merge with other injuries. However, there are restoration methods that enhance injury recovery and some methods may be used in conjunction with others, depending upon the site conditions.

NOAA’s Center for Coastal Fisheries and Habitat Research in Charleston, S.C. has been conducting research on seagrass restoration for 20 years. Ecosystem managers have applied this research in a seagrass restoration program in the sanctuary. Some of this past summer’s projects were funded by Florida’s Ocean Initiative, a comprehensive program focused on managing Florida’s marine resources.

The presence of numerous “t-shaped bird roosting stakes” placed close together on a banktop makes it easy to recognize a site that is being restored. These stakes serve as a platform for birds (most often cormorants) that defecate while roosting and provide excrement, rich in nutrients, for the water and sediment beneath the stakes. In combination with fertilization, planting faster-growing opportunistic species like *Halodule wrightii* (shoal grass) or *Syringodium filiforme* (manatee grass) serves as a temporary substitute for the climax species, *Thalassia testudinum* (turtle grass). This temporary substitution is referred to as “modified compressed succession.” After regrowth takes place, scientists will remove the bird stakes to prevent over-fertilization of the site.

The scarred seafloor can be returned to its original depth in the deeper blowholes and prop scars by filling the depression with pearock before transplanting. This helps stabilize the substrate to prevent further deterioration from erosion and to prepare the area for colonization by neighboring or transplanted seagrasses. The sediment fill, small limestone pearock from local quarries, is transported by barge to the site and placed into the blowhole or deep scar. Eventually, fine sediments settle out from the water column and fill the interstitial spaces of the pea rock, creating the desired habitat for new seagrass growth.

Seagrass transplants may be selectively removed from healthy seagrass beds located near the injury or from seagrass beds designated as donor sites. The plants are collected in a manner to ensure the bed is not degraded. The “planting unit” is made from seagrass picked by hand, bundled together and secured with galvanized wire. It is then inserted in a small hand dug hole in the sediment. In time and if the conditions hold, the transplants will establish themselves and begin to grow.

Note: This article appeared in the Fall 2005 issue of the newsletter of the Florida Keys National Marine Sanctuary, Sounding Line. For more information, visit: <http://floridakeys.noaa.gov>.