

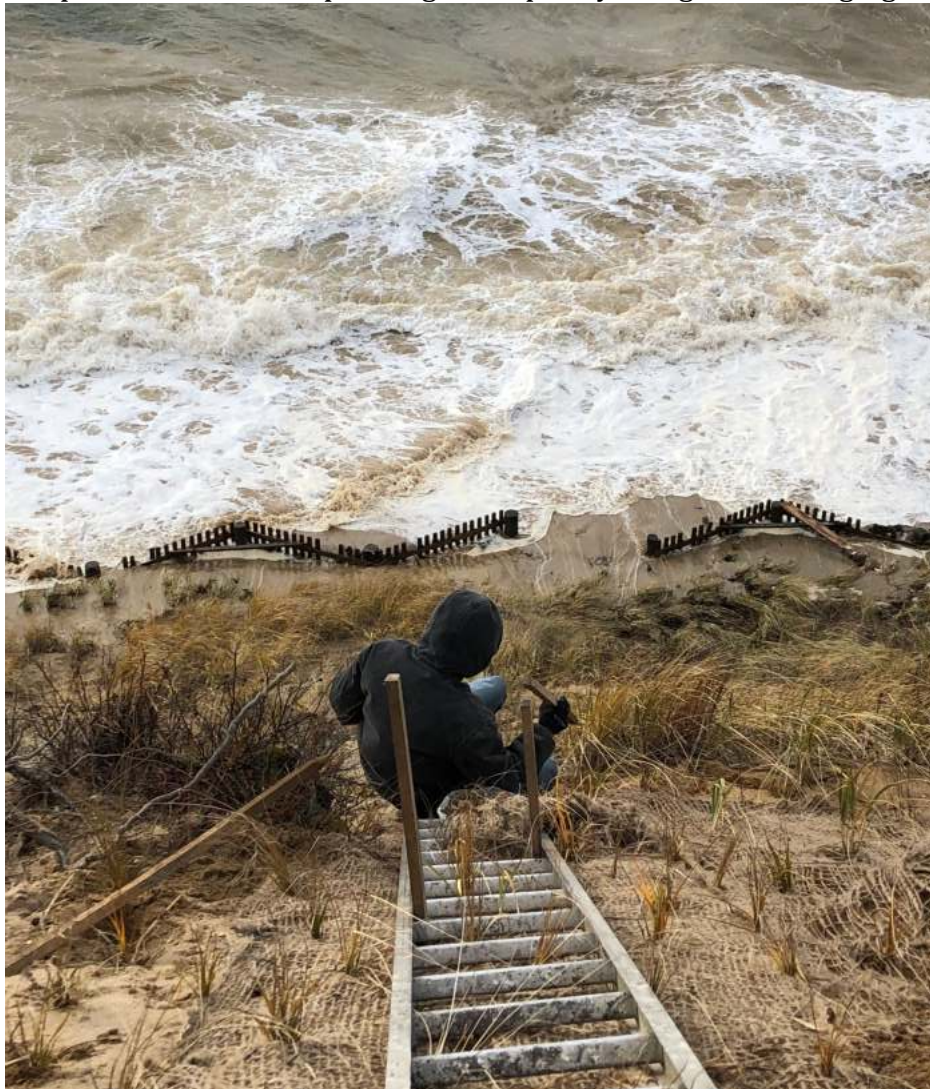
# SAFE HARBOR

ENVIRONMENTAL MANAGEMENT  
HABITAT RESTORATION



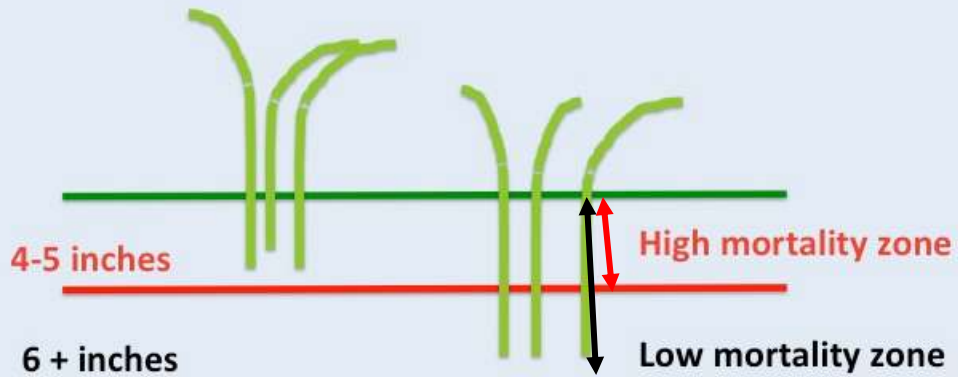
## **Planting Guidelines for American Beach Grass by Gordon Peabody, 2023**

Native American Beach grass, *Ammophila breviligulata*, collects and stabilizes sand by creating turbulence in the laminar, surface flow of wind transporting sand. Planting protocol should mimic the randomness of native vegetation, using holes 6 inches deep, spaced 10-12" on Dunes and 12-16" elsewhere. Three, bare root culms are placed in each hole and covered with sand. Overplanting or use of fertilizer should be discouraged. Survivorship depends on the new rootstock developing successful relationships with native micro organisms and pH. Plant Beach Grass in winter, when rootstock is dormant. Avoid high impact foot-contact if planting on slopes by using secure staging ladders.



***Image by G. Peabody. Coastal Bank stabilization project, Bayside, Truro, MA.***

## Planting Depth for American Beach Grass



Surface plantings subject roots to stressful fluctuations in temperature and moisture. Deeper plantings provide consistent conditions.



*Image by G. Peabody. Planting Beach Grass, High Risk Barrier Beach, Chatham, MA*



**Image by G. Peabody** Beach Grass (*Ammophila breviligulata*) survives natural stress, including over wash if properly planted. Stem count will double each year

### **CO-FACTORS AFFECTING SURVIVABILITY:**

1. Grass is dormant if planted between November and March.
2. Grass will “grow in” slowly, first by root stock and later stems.
3. We never use fertilizers with the beach grass plantings.
4. Fertilizer produces a 1 year success, visually but then grass goes into stress.
5. The roots must develop their own relationships with native micro organisms.
6. These provide roots with nutrients in a sustainable manner.
7. Fertilizers bypass this process and stress roots when the nutrients are gone.
8. The plants stress, sending out chemical signals which attract insects.
9. Control foot-traffic with non-prohibitive, stewardship signage.
10. Planting depth should provide consistent temperature and moisture.
11. Consistent conditions reduce thermal-moisture stresses.
12. Seasonal, land-sea surface temperature may contribute to condensation.
13. Plant above wrack line to minimize storm erosion losses.

### **FOR LATE SEASON PLANTINGS, CONSIDER THE FOLLOWING CONCEPTS:**

1. *Evapotranspiration losses from emergent leaves must be balanced by the rate of moisture replacement from emergent root system.*
2. *Nutrient needs from emergent stem photosynthesis, must also be balanced by rate of nutrient supply from emergent root systems.*
3. *Photo period emerges as the controlling variable.*
4. *It should be accepted that when air temperatures and photo periods increase, planting efforts may approach a failure threshold.*
5. Stems emerging at a faster rate than roots should be allowed to die off.
6. Watering is not generally recommended because you may not have sufficient root development to deliver the water to emergent stems.



***Images by G. Peabody.*** We use ladders to plant Beach Grass on slopes to avoid erosion.



**On exposed beaches, we will plant deeper and often use Biomimicry also**



## TRANSPLANTING AMERICAN BEACH GRASS



*Image by G. Peabody. Healthy Beach Grass is available on coastal construction sites.*

Empirically, any vegetation can be transplanted but pragmatically, ignoring seasonal conditions may create stress and reduce survivability. Successful transplants should follow established Beach Grass planting windows. In early spring, lengthening light exposure (photo-period) and warmer air temperatures, place maximum growth demands on vegetation. We don't want to disrespect the complicated relationship of root-stem linkage. Springtime demands, from enhanced transpiration and creation of new biomass, create commensurate challenges on root systems in the sub-surface rhizosphere. This is where rubber meets the road for all vegetation: native microorganisms develop and cling to micro diameter root hairs, where they facilitate transfer of moisture and process necessary nutrients into the plant system. Root systems must also maintain a functional intimacy with the rhizosphere to provide moisture sufficient to maintain turgor (functional rigidity) of the leaves and stems above ground. The recommended time to transfer vegetation is late winter/early spring. However, If late Beach Grass transplanting can be carefully done, there is a possibility of success if the geomass around roots is kept fairly intact.



***Image by G. Peabody*** Transplanting Beach Grass will be more successful if the geomass (containing micro-organisms; pH and nutrients) can be kept intact.



***Image by G. Peabody.*** Beach Grass can be stored over season if it is properly heeled in. Break open the bundles and plant stems deeper than normal.



***Image by G. Peabody* WHAT NOT TO DO, HOW NOT TO PLANT. NATURE IS RANDOM. WHY PLANT IN SYMETRY? WHY CREATE OPEN WIND CHANNELS WHERE NATURAL HABITAT WOULD BE RANDOMLY FILLED WITH STEMS?**



***Image by G. Peabody* American Beach Grass (*Ammophila breviligulata*), ready to be planted.**

**For more information, feel free to contact us 509-237-3724. Gordon Peabody.  
[gordonpeabody@gmail.com](mailto:gordonpeabody@gmail.com)      [www.SafeHarborEnv.com](http://www.SafeHarborEnv.com)**