Management Strategy: Vegetation Management

This strategy focuses on improving marsh health by supporting vegetation growth. Healthy and diverse plant communities are critical to the maintenance and resilience of a marsh. Land managers can support the health of the vegetation on their marsh by practicing management techniques that actively restore plant populations or that remove materials that impede vegetation growth. Examples of these techniques include debris removal, native planting, snag management, and submerged aquatic vegetation restoration.

- **Remove debris that smothers vegetation**

Coastal wetlands can easily trap debris that washes in during high tide or during severe weather events.[1] Debris that gets stuck in a wetland can smother marsh vegetation and prevent plants from getting the solar energy and nutrients that they need to survive. Consequently, trapped debris can kill marsh vegetation and threaten the health of a wetland. A land manager can remedy the negative impact of debris on their marsh by cleaning up marine debris that gets trapped in the wetland. The effort and cost of a debris removal project will depend on the size and amount of the debris within a given marsh management area. Small sized debris, such as discarded plastics or lost fishing gear, can be cleaned by hand with the support of volunteers or hired crews, whereas larger debris, such as vessels, may require special equipment and permits. [2]

Figure 1. Volunteers cleaning up small debris at Seagirt Wetlands in Jamaica Bay, New York City. Source: NOAA Marine Debris Removal.

Between 2019 and 2022, the New York City Department of Parks and Recreation cleaned up the 441,000 pounds of debris that had collected in their Seagirt Avenue Wetlands in Jamaica Bay, Queens. [3] The project involved removing six vessels and coordinating 25 volunteers to remove smaller marine debris. The project was supported by a $150,000 award from the NOAA Marine Debris Program Removal Grant.

- **Native plantings**

This management technique involves planting native vegetation within a wetland to restore the health and resilience of a marsh. The roots of the planted vegetation will anchor the soil in place to prevent erosion and stabilize the wetland.[4] Likewise, the plants will store and collect pollutants from surface runoff and improve the water quality within the wetland. Native vegetation specifically will support greater biodiversity by providing food and habitat to native wildlife. Vegetation planting is a low-cost management technique, especially when volunteers can be leveraged to conduct the plantings and when low-cost plants, such as plug plants, can be used. For reference, native vegetation projects tend to cost less than $1,000 per linear foot of planted area.[5] One example of a vegetation planting project can be seen at the YMCA's Camp Letts in Edgewater, Maryland. With the help of volunteers, the camp planted 4,500 native marsh grasses along their exposed shoreline. [6]

Figure 2. Vegetation planting at Pivers Island, North Carolina. Source: NOAA Habitat Blueprint.

- **Managing snags in ghost forests**

This management technique involves cutting down snags, or individual dead trees, in ghost forests to facilitate the transition of the ghost forest to a salt marsh. As forested areas die back due to saltwater intrusion, more salt tolerant vegetation moves in, and the once forested areas tend to transition to salt marsh ecosystems.[7] The snags that remain in a ghost forest can disrupt the area's transition to salt marsh by creating depressions around the snags as the dead tree's roots sink. The depressions can then fill with salt water and erode the soil, which will lead the forest to transition to open water rather than the desired marsh ecosystem. A land manager can avoid this issue by cutting down and removing snags before they can create depressions in the ground. This technique will also increase the amount of light that reaches the understory to encourage marsh vegetation growth.

- **SAV Restoration**

This management technique refers to the restoration of submerged aquatic vegetation (SAV), or underwater grasses, in a coastal wetland or shallow marine waters.[9] SAV serves many of the same ecosystem services as above ground marsh vegetation in that it purifies the water, stabilizes sediments,

reduces storm impact, and provides important habitat and food for marine life. Restoration of submerged aquatic vegetation typically involves harvesting plants and/or collecting seeds from a healthy seagrass population, processing and checking seeds for viability, and then dispersing the collected seeds within a restoration area. [10] In addition to seed dispersal, restoration efforts can also involve transplanting adult plants to the restoration sites. In Maryland, a permit from the Department of Natural Resources is required for harvesting SAV or collecting seeds for any reason. SAV restoration is best suited for sites where SAV has previously grown or where nearby SAV beds exist. Moreover, submerged aquatic vegetation requires sufficient sunlight to grow, therefore it is important that the selected site receives low wave energy and has a low water depth. Refer to the small-scale SAV Restoration in the Chesapeake Bay guide for more information on site considerations and permitting requirements.

The Virginia Institute of Marine Sciences (VIMS) has successfully been restoring seagrass on the Virginia Eastern Shore since 1999. Over the course of 20 years, the SAV program at VIMS has restored 6,000 acres of eelgrass in Virginia's coastal bays using the seed dispersal method. [11] In 2013, VIMS' yearlong budget for their SAV project was $192,631 which included seed collection, seed processing and storage, seed dispersal, SAV monitoring, and further research.[12]

Figure 3. Eelgrass in south bay, Virginia. Source: Virginia Institute of Marine Science.

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