

Preferred Shoreline Best Management Practices

Areas of Special Concern (Marinas - Canals - Industrial or Commercial with bulkhead or wharf – Other Unique Local Features, e.g. developed marsh & barrier islands) - The preferred shoreline best management practices within Areas of Special Concern will depend on the need for and limitations posed by navigation access or unique developed areas. Vegetation buffers should be included where possible. Revetments are preferred where erosion protection is necessary. Bulkheads should be limited to restricted navigation areas. Bulkhead replacement should be in same alignment or landward from original bulkhead.

No Action Needed – No specific actions are suitable for shoreline protection, e.g. boat ramps, undeveloped marsh & barrier islands.

Upland & Bank Areas:

Land Use Management – Where bank and/or shoreline approaches are extremely difficult to implement or limited in effectiveness due to existing land use conditions; reduce risk by modifying the upland land use. This may include relocating or elevating buildings, utilities, and other infrastructure and/or managing stormwater. All new construction should be located 100 feet or more from the top of bank. Actions may also include requesting zoning variances for relief from setback and other land use requirements or restrictions that may increase erosion risk.

Maintain/Enhance/Restore Riparian Buffer - Provide stabilization through maintaining, enhancing, or restoring the vegetation in the riparian buffer. The target area for riparian buffer should extend 100 feet back from the top of bank. Preferred approaches for riparian buffer management may include one or a combination of the following: Preserve existing riparian vegetation in the buffer area; manage vegetative cover by selectively removing and/or pruning dead, dying, and severely leaning trees as necessary; enhance the riparian area by planting appropriate vegetation or allowing for natural regeneration of small native trees and shrubs; replace waterfront lawns with a variety of native deep-rooted grasses, shrubs, and small trees and; remove invasive species, if present, and replace with native vegetation.

Along some shorelines, it may be appropriate to reduce the steepness of the bank slope to allow wave run-up and to improve growing conditions in order to sustain vegetation. Grading should only be conducted where essential and done as minimally as possible to achieve the necessary slope. Banks that are graded should be stabilized with a variety of native plants

placed at appropriate elevations. The feasibility to grade a bank may be limited by upland structures, existing shoreline defense structures, and/or adjacent property conditions. In certain cases, it may be beneficial to the tidal wetland ecosystem to remove existing structures, if possible, to achieve a properly graded and vegetated bank.

Tidal Wetland – Beach - Shoreline Areas:

Maintain/Enhance/Create Marsh - Provide stabilization through marsh vegetation; the target area for marsh buffer should extend from mid-tide to an elevation 1.5 times the tide range above mean low water (the upper limit of which may be observed by the presence of upland vegetation) , with wetland vegetation planted at appropriate elevations.

Preferred approaches for marsh buffer management may include one or a combination of the following: Provide or enhance wave attenuation by maintaining or widening existing marsh or planting new marsh which may require the placement of sand fill and/or fiber logs. Encourage both low and high marsh areas. Periodically monitor marsh for signs of damage and dead plants, especially after a storm and after installation. Marsh that is designed to allow for landward migration is preferred in order to accommodate sea level rise. A channelward design usually requires sand fill to create suitable elevations. Marsh management includes avoidance of using herbicides near marsh.

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Plant Marsh with Sill – Plant tidal marsh (or maintain/widen existing marsh) and construct a rock sill placed offshore from the marsh. The site-specific suitability for a sill must be determined, including bottom hardness, navigation conflicts, construction access limitations, orientation and available sunlight for marsh plants. If existing marsh is greater than 15 ft. wide, consider placing sill just offshore from marsh edge. If existing marsh is less than 15 ft. wide or absent, consider widening marsh by grading bank landward to accommodate sea level rise

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and/or providing sand fill channelward to increase marsh width and/or elevation and placing sill just offshore new marsh edge.

Maintain Beach OR Offshore Breakwaters with Beach Nourishment – Preserve existing wide sand beach if present, allow for dynamic sand movement for protection; nourish the beach by placing good quality sand along the beach shoreline that is similar to the native sand.

Use offshore breakwaters with beach nourishment only where additional protection is necessary. These are a series of large rock structures placed strategically offshore to maintain stable pocket beaches between the structures. The wide beaches provide most of the protection, so beach nourishment should be included; periodic beach re-nourishment may be needed. The site-specific suitability for offshore breakwaters with beach nourishment must be determined, seek expert advice.

Groin Field with Beach Nourishment – A series of several groins built parallel to each other along a beach shoreline. Established groin fields with wide beaches can be maintained with periodic beach nourishment; repair and replace individual groins as needed.

Revetment – A sloped structure constructed usually with riprap placed against the upland bank for erosion control. The size of a revetment should be determined by the wave height expected to strike the shoreline. The site-suitability for a revetment must be determined, including bank condition, tidal marsh presence, and construction access limitations.