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NORTH CAROLINA
Environmental Quality

CRC-22-08

April 14, 2022

MEMORANDUM

TO: Coastal Resources Commission
FROM: Mike Lopazanski
SUBJECT: Estuarine Shoreline AEC & Stabilization Overview

Estuarine Shorelines are managed as part of an interrelated group of AECs under the broader category of the Estuarine and Ocean System. These AECs include Estuarine Waters, Coastal Wetlands, Public Trust Areas, Coastal Shorelines and Public Trust Shorelines. Coastal Shorelines and Public Trust Shorelines are delineated by the Inland Waters Boundary, a jurisdictional boundary as defined by the Division of Marine Fisheries and the Wildlife Resources Commission.

Public Trust Areas include all waters of the Atlantic Ocean from the mean high-water mark to the three-mile limit of state jurisdiction and all natural bodies of water subject to measurable lunar tides or wind influenced tides to the extent of Normal High or Normal Water Level.

Coastal Shorelines include Estuarine Shorelines to the extent of Normal High or Normal Water Level along non-ocean shorelines to the Inland Waters Boundary. Public Trust Shorelines extend from the Inland Waters Boundary upstream to the limits of navigability in the 20 coastal counties. The landward extend of the Coastal Shorelines AEC is 75 feet from Normal High or Normal Water Level, except where adjacent to waters delineated by the Environmental Management Commission as Outstanding Resource Waters, where the landward extent is 575 feet.

In these areas, property owner options for shoreline stabilization include bulkheads, riprap or sheetpile groins perpendicular to shore, sheetpile breakwaters, marsh toe riprap revetments, marsh sills, and vegetative planting.

The Coastal Resources Commission began a comprehensive review of the Estuarine Shoreline AEC in 1998. The following year, the CRC established the now familiar 30-foot buffer provisions in 7H.0209(d)(10). The CRC subsequently established an Estuarine Shoreline Stabilization Subcommittee to continue discussions related to shoreline stabilization. The Subcommittee developed a set of principles to guide future rule development related to shoreline stabilization to guide further discussion and policy/rule development (attached). These principles

included the need to match stabilization techniques to the site conditions and erosion forces present, ensure preservation of land and water resources, and to recognize public trust and private property rights. The Subcommittee was interested in developing standards for shoreline stabilization that included the usual “hardened measures,” as well as “soft measures” such vegetative plantings. These principles also include standards for existing stabilization projects, such as allow them to tie together on adjoining lots, allowing vertical structures in canals and basins, and allowing in-kind replacement. Additionally, there was a recognition that most shorelines erode, and the rates vary due to shoreline type and location.

Citing a need for additional research on the effects of stabilization methods on estuarine shorelines, the CRC convened an Estuarine Shoreline Biological and Physical Processes Work Group to develop science-based recommendations based upon the concepts/principles identified by the Stabilization Subcommittee. The Work Group finalized their report in 2006, recommending specific stabilization standards for the estuarine shoreline. The Work Group developed a hierarchy of stabilization methods based on shoreline type and aimed at maintaining its ecological functions. The stabilization methods range from vegetation planting, to sloped structures such as riprap, to vertical structures which include bulkheads, with the most recommended method across shoreline types being land planning (leave shoreline in natural state where possible). With regard to structural methods, sills were the most recommended across shoreline types.

Since that time, the Division has focused its efforts on marsh sills, and as you recall from the presentation at the February 2022 meeting, implementation of the Division’s Living Shoreline Initiative.

Currently, the most frequently employed shoreline stabilization methods along the coast are bulkheads and riprap structures. These structures can be permitted though either the Major Permit or General Permit processes. The specific use standards associated with these structures center on the siting of the structure relative to existing wetlands and the location of the normal high water. Under the General Permit (15A NCAC 7H .1100), the siting of bulkheads need to approximate the location of high water and be constructed landward of coastal wetlands. Backfill may be allowed. In the case of replacement, bulkhead alignments may be an average two feet not to exceed five feet waterward of the existing alignment.

Riprap structures are allowed a maximum of ten feet waterward of high water. If present, they should be sited landward of wetland vegetation. Riprap revetments are also allowed (15A NCAC 7H .2400) for the purposes of wetland protection. In these cases, the structure is allowed immediately waterward of the wetland escarpment, not exceeding six feet waterward of the escarpment at any point along its alignment. Additionally, the riprap revetment is not to exceed six inches above the adjacent wetland substrate.

Additional provisions allow for the siting of bulkheads as part of the reclamation of land lost in the previous year, in which case the bulkhead may be sited in its original position. There are also provisions within 15A NCAC 7H .0208(b)(7) for the siting of bulkheads below high water that require the property to have an identifiable erosion problem, causing applicants unreasonable hardship to have the project sited above high water.

Most recently, the Division has made strides in promoting living shorelines, partnering with resources agencies and non-profits to finalize the General Permit for Marsh Sills (15A NCAC 7H .2700). Like permits for other hardened stabilization methods, this permit focuses on the location if the structure relative to high water or existing wetlands. For the General Permit, these structures can be sited no more than 30 feet from high water or five feet from existing wetlands, whichever is greater. The primary difference between marsh sills and other hardened stabilization methos is that they maintain the water/land interface through incorporation of gaps in the structure and by limiting its height to 12 inches above NHW or NWL, or above the height of the adjacent wetlands.

Decisions concerning which stabilization method is utilized on a particular shoreline are left to the property owner. Division field staff do not advocate one strategy over another. However, as you may recall from the February meeting and the Division's Living Shoreline Strategy update, the Staff have been working to promote the utilization of living shoreline methods of stabilization through outreach and education including realtor/contractor workshops, and distribution of the *Weighing Your Options* guide to estuarine shoreline stabilization directly to property owners.

In 2020, the Virginia State Legislature passed a law directing the Virginia Marine Resources Commission (VMRC) to prioritize living shoreline methods of shoreline stabilization over traditional bulkheads and revetments, unless those methods are shown by the property owner to be unsuitable based on the best available science. The law also directs the VMRC to develop minimum standards to protect the State's coastal shorelines. DCM has reached out to the VMRC for a presentation on their coastal regulatory framework and experiences implementing rules and programs related to estuarine shoreline stabilization at your upcoming meeting.

I look forward to further discussing your rules and approaches to estuarine shoreline stabilization at the upcoming meeting in Manteo.