



North Carolina Department of Environment and Natural Resources  
**Division of Coastal Management**

Michael F. Easley, Governor

**Charles S. Jones, Director**

William G. Ross Jr., Secretary

August 24, 2006

**MEMORANDUM**

**I&S-06-25**

**TO:** Implementation and Standards Committee

**FROM:** Bonnie Divito

**SUBJECT:** Estuarine Shoreline Stabilization Subcommittee and Biological and Physical Processes Work Group Update

At the November 2005 CRC meeting, staff asked the I&S committee to revisit the Commission's estuarine shoreline erosion control policy. As a result, Chairman Hackney appointed an Estuarine Shoreline Stabilization Subcommittee, which consists of CRC and CRAC members. They in turn, requested that the Estuarine Biological and Physical Processes Work Group be reassembled to provide scientific and technical support during the early stages of the process.

*The Estuarine Biological and Physical Processes Work Group Update*

The Estuarine Biological and Physical Processes Work Group, consisting of estuarine and engineering experts, was charged with making recommendations on appropriate shoreline stabilization methods for the different North Carolina shoreline types. Their final recommendations report is attached.

The Work Group did not conduct any research, but merely utilized prior research and best scientific judgment in developing this report. Beyond classification and measurement of shoreline recession rates, there has been little research that applies directly to shoreline stabilization methods in North Carolina. Therefore, the recommendations take into account the dynamic nature of the estuarine system and consider the benefits and impacts of various shoreline stabilization methods on the biological communities and physical processes.

The Work Group evaluated the ecological functions and values of the different North Carolina shoreline types and the habitat changes due to the physical impacts associated with each shoreline stabilization structure or method. The recommendations of shoreline stabilization methods are based upon the Work Group's stated goal of maintaining the current shoreline type and continuation of the current ecological functions and values. Based on these criteria, the lists of stabilization measures for each shoreline type represent a ranking of options, from the option with the least potential adverse impact to

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the existing system (ranking of 1), to the option with the greatest potential adverse impact to the system (maximum ranking of 8).

The recommendations for each of the shoreline types are different with a few consistent similarities. The number one recommendation for all estuarine shoreline types is land planning (leave the land in its natural state). The typical number two recommendation is to use vegetation control (the use of new wetland plantings or preserving existing wetland vegetation) because vegetation is a natural and environmentally beneficial stabilization method. Beach fill is usually the third recommended method because of its non-structural, non-hardening features, but only when it maintains the current shoreline type. Generally speaking, when shoreline hardening stabilization methods are proposed, the Work Group ranks sills as the most preferred option. In North Carolina, sills are small structures that are always constructed to support vegetation control (wetland plantings, or the conservation of existing wetland vegetation). Groins, breakwaters, sloped structures, and vertical structures vary in ranking and were determined to be shoreline type and site specific. On some shoreline types, groins, breakwaters, sloped structures and vertical structures are not recommended at all because their habitat exchanges or adverse impacts are too great.

*The Estuarine Shoreline Stabilization Subcommittee Update*

The Estuarine Shoreline Stabilization Subcommittee will meet (prior to the CRAC field trip) on September 20, 2006 at 12pm to review the recommendations of the Estuarine Biological and Physical Processes Work Group and determine the next steps in updating the estuarine shoreline stabilization rules.