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North Carolina Groin Installation

North Carolina has a long history of protecting its beaches from hard structures. In 1985, the Coastal Resources Commission (CRC) banned coastal hard structures, written into law in 2003. After evaluating shoreline modifications along the New Jersey shore and many other examples, it was concluded that the unforeseen negative effects on beaches were virtually irreversible and the CRC decided to ban construction of such disputed engineering solutions. Included in this list are terminal groins, which are structures perpendicular to shore that are intended to slow or stop erosion.

Senate Bill 599 would allow exceptions to be made to the long-standing ban on terminal groins and similar projects. Experts have known for years the impacts of these structures. When a groin is installed, depending on the local oceanographic conditions, sand accumulates in the desired area and is reduced elsewhere, resulting in erosion at locations down-drift. Often the result is a need to construct more groins to mitigate the negative effects of the first.

Recently, movement to install a terminal groin at the north end of Figure 8 Island has spurred a heated debate. The groin proposed for Figure 8 Island is intended to trap sand and widen the beach in front of a dozen threatened homes. In the process, however, it will deprive adjacent down-drift (to the south) beaches of sand and accelerate erosion, as has been shown at many places before.



These figures show the proposed Figure 8 experimental groin and a similar groin already built at the Oregon Inlet. Although every groin will yield different results, the experience from Oregon Inlet provides

some guidance for what is likely to occur should the proposed Figure 8 groin be constructed. At the Oregon Inlet groin, erosion from the hard structure has required 7.7 million cubic yards of nourishment sand to be placed down-drift along Pea Island to counteract its shoreline





retreat. This is a large amount over 16 years and the current erosion rate is greater than the pre-groin natural erosion rates.

The short terminal groin on Bogue Banks has resulted in over 40 years of small scale beach renourishment projects. While this area is not comparable to the proposed Figure 8 project, the Bogue example provides regional data on the effects of hard structures to our shoreline. Since Figure 8 Island experiences a faster rate of sand transport than Bogue Banks, it is expected that post-groin erosion will occur more rapidly at Figure 8.

A variance to allow hard structures along the coast was already considered by the CRC. They determined that groins are difficult and expensive to remove and frequently cause more problems than they correct.

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