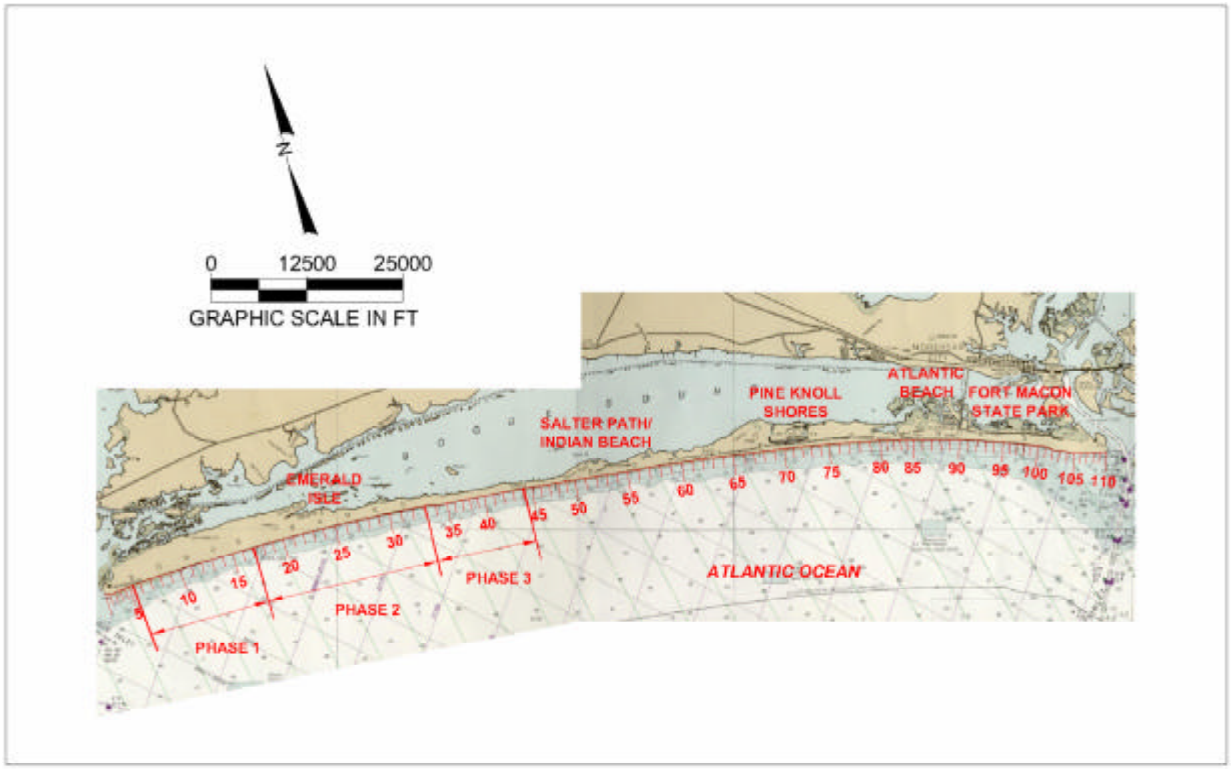

Figure 3. Limit of Phase 2 and Phase 3 Emerald Isle Beach Nourishment Project Map

An analysis of historic photographs indicates that the west end of Emerald Isle has been eroding at a rate of approximately 56 feet per year since 1984. If this rate continues, 30 to 50 structures could be lost or severely damaged during the next 5 to 10 years. In addition 300 to 600 feet of Inlet Drive could be lost as well as several side streets and the utilities serving the subdivision.

The design of the repositioned channel is based on detailed geomorphic analysis of the inlet and adjacent shorelines, conducted by Dr. William J. Cleary, University of North Carolina at Wilmington. The geomorphic analysis utilized an assortment of aerial photographs of the inlet covering the period from 1938 to 2001 with the primary emphasis on changes in the inlet and the adjacent shorelines between 1971 and 2001. The geomorphic analysis consists of evaluating the location of the channel relative to the west end of the Town of Emerald Isle, the orientation of the inlet's ebb tide delta channel, the configuration of the ebb tide delta, the shoreline changes on the west end of Bogue Banks and the east end of Bear Island and the changes in the interior marsh islands, primarily Dudley Island. Figure 4 shows the Bogue Inlet in 1978 when the channel was in a location similar to the proposed cut.