

SHORELINES – August 2014

As presented to the *Island Review* magazine.

Beach Nourishment along Ft. Macon & Atlantic Beach

Beaufort Inlet and the ocean channel reach of the Morehead City Federal Navigation Project is maintained (“dredged”) on an annual basis by the U.S. Army Corps of Engineers via industry contractors. The disposal of the dredged material is currently done so under the auspices of a recurring 3-year cycle. Year 1 includes the direct placement of dredged sand along the beaches of Ft. Macon and Atlantic Beach, while years 2 and 3 are limited to offshore disposal. This approach was first codified in 2010-11 with an effort including the dredging and concurrent nourishment of 1,346,700 cubic yards along a 16,760 feet (3.17 miles) reach of shoreline that extended to the Circle in Atlantic Beach. A standard dump truck holds roughly 12 -15 cy of sand as mental image.

True to form “year 1” of the aforementioned cycle took place again this year (specifically from April 14 to May 22, 2014). This time because of funding issues and the Corps of Engineers decision-making process, 1,107,585 cy sand was placed along 9,500 feet (1.8 miles) of beach extending to ~1,500 feet west of the Tom Doe Regional Access (see Fig. 1). That’s 7,260 feet (1.37 miles) shorter and 239,115 cy less sand than 2010-11.

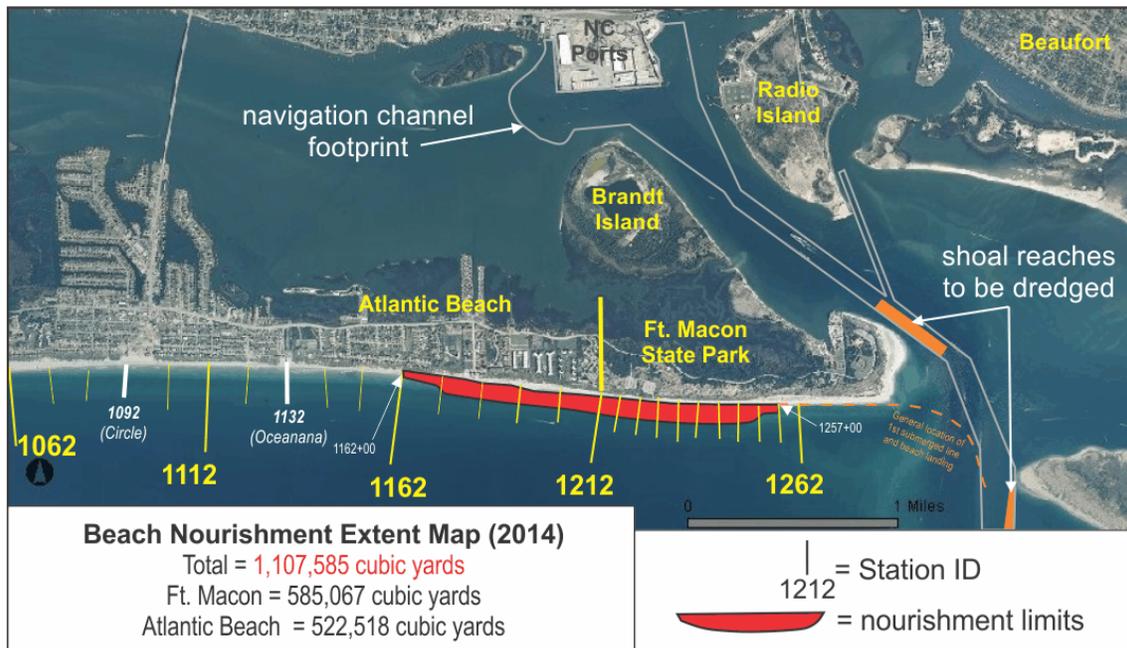


Figure 1 – Site map illustrating the scope of work completed for the Morehead City Harbor Federal Navigation Project From April 14 – May 22, 2014. Portions of the inlet proper termed the “cutoff” and the ocean bar or “Range A” were dredged and placed along the beaches of Ft. Macon and Atlantic Beach.

The maintenance of the Morehead City Harbor and management of the dredged shoal materials has been facing an uphill climb lately. The channel is authorized to -45 feet to enable safe passage of vessels in and out of the Port, yet federal funding has remained

static, or has even dropped in the past decade. This becomes even more problematic as the “toe” of Shackleford Banks (the west tip of the island) has been migrating into the Harbor channel. The channel itself cannot be moved – it literally takes an act of Congress to do so. This essentially means more and more sand is shoaling the channel, yet there are less financial resources to keep up.

Placement of dredged sand along the beaches is also an important component of the Harbor project. Without diving into an inordinate amount of detail, an “appropriate” amount of sand dredged from the channel needs to be placed on Bogue Banks (and in the correct areas) to replicate a natural system that has been altered by construction and maintenance of the channel. This requires good policy-making decisions and again, adequate funding. The importance of the nourishment component came in to play with the passage of Hurricane *Arthur* on July 3rd - just a little more than a month after the Harbor dredging/nourishment project was completed. Figure 2 is a depiction of the survey stations along Bogue Banks that we utilize to monitor and assess the beach coupled with a historical summary of beach nourishment. In the past year and a half 2,072,596 cy of sand have been placed along Bogue Banks providing a buffer for storms such as *Arthur* including the most recent Harbor dredging/nourishment project and last year’s 965,011 cy effort also depicted in figure 2.

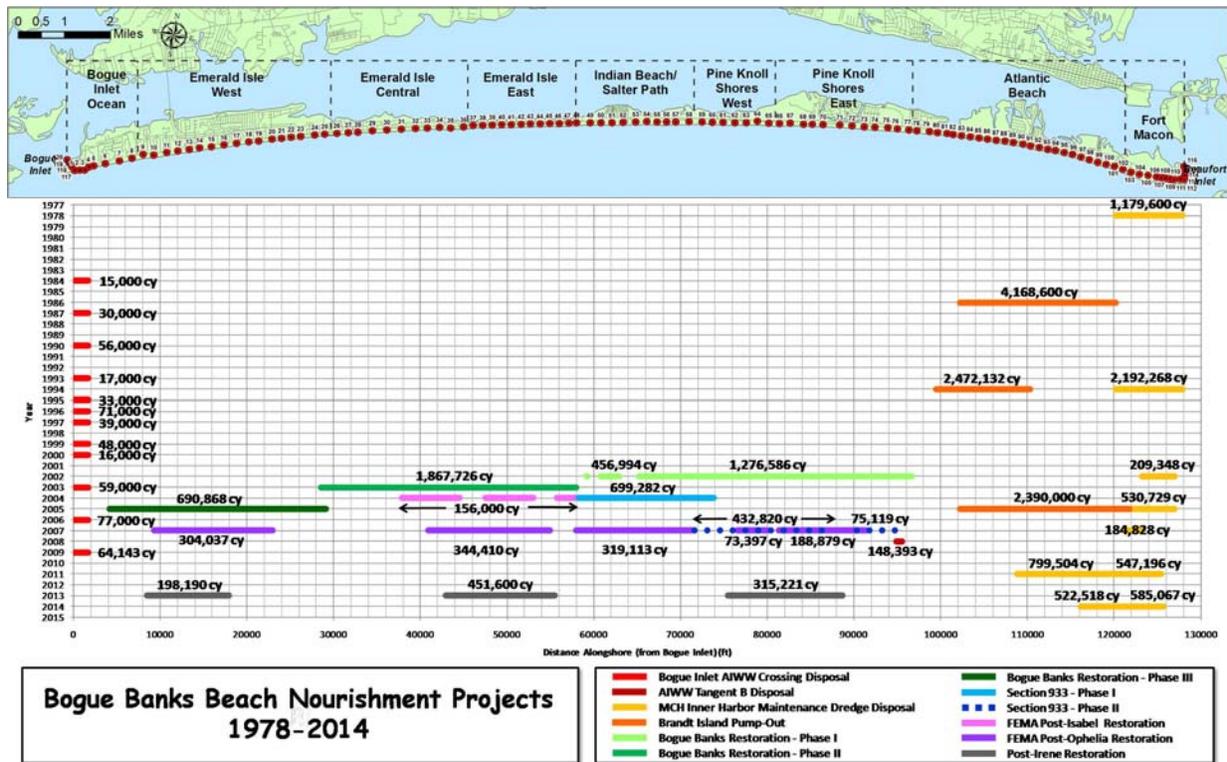


Fig. 2 – Graphic depiction of the beach monitoring/survey stations located along Bogue Banks (red dots), and the geographical extents and cubic yardage of historical beach nourishment events along the horizontal axis with time plotted on the vertical axis.