

SHORELINES – April 2017

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One Stop Carteret County Dredging & Beach Nourishment Update - Spring 2017

In all likelihood you will see a variety of dredges, pipe, support boats, and other ancillary equipment scattered across the County this Spring. Accordingly, below is a one-stop summary of the major navigation projects this equipment is working on in an attempt to demystify this dance of dredges.

(1) Morehead City Outer Harbor.

Funding Agent – U.S. Corps of Engineers.

Dredging & Delivery Methodology – Pipeline dredge with beach placement along Atlantic Beach.

Project Website - <http://www.carteretcountync.gov/724/IOP-2017---Project-Updates>

Narrative – The accompanying map depicts all the reaches and legs of the Morehead City Harbor Federal Navigation Project based on their shoaling characteristics, but for our purposes the Harbor can generally be divided into two macroscopic reaches – the inner harbor (predominantly located beside the shipping berths) and the outer harbor (just about everything else seaward).

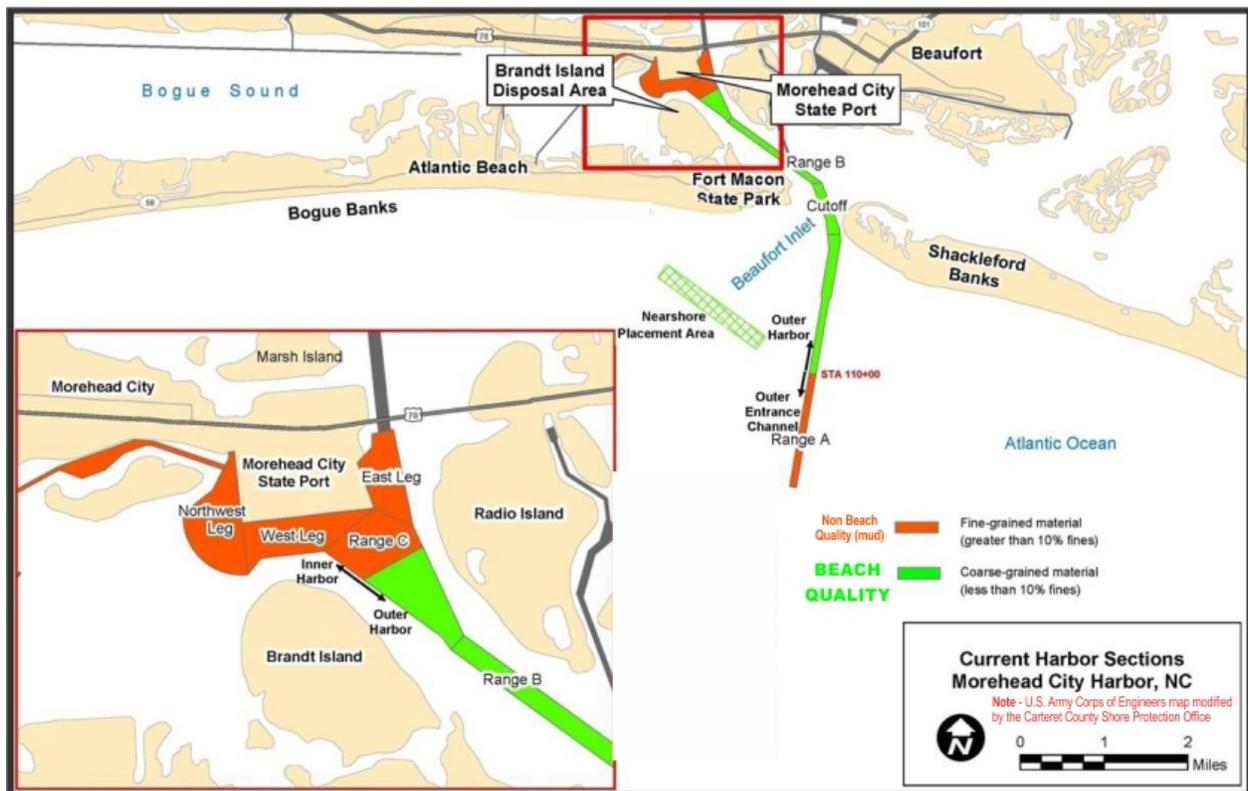


Fig. 1 – Site map depicting the various reaches and legs of the Morehead City Harbor Federal Navigation Project and general shoaling characteristics (grain size).

[Great Lakes Dredge & Dock](#) will be utilizing a cutterhead-suction pipeline dredge to maintain the outer harbor and concurrently pump the excavated shoal material to Atlantic Beach. A cutterhead-suction dredge utilizes a crane situated on a barge that positions the cutterhead, which looks like a gigantic drill bit, along the seafloor. The cutterhead agitates the sandy bottom, and the resulting slurry of sediment and water is subsequently suctioned into a long tube transitioning into a pipeline that can be extended to a specific target area (beach, upland disposal site, etc.). Figure 2 provides the geographic location of the Atlantic Beach nourishment zone.

The total estimated volume of shoal material to be excavated/dredged from the Morehead City Harbor is 500,000 cubic yards (cy) - mostly from the area known as the "[Cutoff](#)". As a mental image, a loaded dump truck can hold roughly 12 cy (wet) or possibly 15 cy (dry) of sand. The contract price is \$7,435,825 and the average fill density is expected to be close to 80 cy/ft = 500,000 cy/6,000 linear feet of beach. The environmental window for the effort closes on April 30, 2017, and the contractor is required to complete the project by this date.



Fig. 2 – Site map depicting the general footprint of the Morehead City Harbor Federal Navigation Project and beach placement zone of dredged material associated with the Spring 2017 Outer Harbor maintenance event.

(2) **Morehead City Inner Harbor.**

Funding Agent – U.S. Corps of Engineers.

Dredging & Delivery Methodology – Pipeline dredge with upland disposal to Brandt Island.

Narrative – The orange/yellow and green dredge you may see while crossing the Morehead City/Beaufort Bridge is Cottrell Contracting’s pipeline dredge, the [Rockbridge](#), which is working to maintain the “inner harbor” with the excavated shoal

material concurrently pumped to the upland disposal facility of Brandt Island. That's the big, tall island you can see looking across Bogue Sound from the downtown Morehead City waterfront and identified in Figures 1 and 2. The contract price is \$4,563,645 to dredge/dispose an estimated 1,000,000 cy of shoal material.

(3) Wainwright Slough.

Funding Agent – Carteret County & N.C. Division of Water Resources.

Dredging & Delivery Methodology – Pipeline dredge with open water/upland disposal to Wainwright Island.

Narrative – Wainwright Slough is generally located between Cedar Island and Core Banks and importantly, represents the only viable navigational thoroughfare for the Down East fishing industry connecting Core Sound to Pamlico Sound. Although the project was initially authorized by the federal government in the 1935 River and Harbor Act; maintenance funded by the U.S. Corps of Engineers has gone from routine, to sporadic, to none at all. Years of deferred maintenance reached a tipping point last year (2016) and consequently the County has developed and permitted a maintenance event project for this Spring.

The dredging event will entail 27,000 to 40,000 cy of material, which will be excavated by a pipeline dredge and used to reconstitute Wainwright Island, located <1,000 feet from the channel itself. King Dredging (Beaufort, N.C.) has been awarded the dredging contract, and when coupled with the above referenced permitting and planning work, equates to a ~\$670,000 total effort. The County has received a grant from the State's Shallow Draft Navigation Channel Dredging & Aquatic Weed Fund, which enables State reimbursement for all costs associated with the project using a "two for State – one by County" formula; or essentially a 67% State reimbursement. The State's Shallow Draft Fund is endowed by boater registration fees and the marine gas tax, providing an estimated \$19 million annually to be used on eligible projects. Wainwright Slough must be completed by an April 1st environmental window provided by the resource agencies.

(4) Bogue Inlet & Connector.

Funding Agent – Local Governments & N.C. Division of Water Resources.

Dredging & Delivery Methodology – Sidecast dredging.

Narrative - Going from one end of the County (Wainwright Slough) to the other, the "Bogue Inlet Project" is maintained by following the deep water at the time of maintenance and includes the "connector", which leads from the Atlantic Intracoastal Waterway near Cedar Point to the Inlet, and then of course the Inlet thalweg (deep water channel) itself – a.k.a. "Bogue Inlet". The connector and inlet were federally authorized in 1963 and 1983, respectively, and were funded and maintained on a very consistent basis by the U.S. Army Corps of Engineers using their two sidecast dredges, the *Fry* and the *Merritt*. However in the mid 2000s federal funding ceased and the sidecast dredge, *Fry* was decommissioned several years later. However since the mid 2000s, local governments from Carteret and Onslow Counties have partnered with the State to provide funding to the Corps of Engineers to continue sidecast maintenance.

The Corps of Engineers currently holds ~\$6,000 of local/State government funds from previous maintenance events coupled with an additional \$262,500 of local and State funds collected recently for Bogue Inlet. This totals \$268,500 which equates to ~17 dredging days at a \$15,000/10 hour day rate – likely one dredging

event tentatively scheduled to take place in late spring of this year (2017), which Emerald Isle is coordinating with the Corps.

The \$262,500 of local/State funds mentioned immediately above was collected last year (2016) via Carteret County (13%), Onslow County (13%), Emerald Isle (4%), Cedar Point (1%), Swansboro (1%), and Cape Carteret (1%) whose contributions were matched by the State's Shallow Draft Navigation Channel Dredging & Aquatic Weed Fund (67%). This was the fourth time local/State funds have been collected for Bogue Inlet (2006, 2011, 2014, 2016) covering several dredging events during that time. The Corps also received supplemental hurricane appropriations last decade augmenting local/State funding. The U.S. Coast Guard services the Aids To Navigation (ATON) – vernacular for navigation buoys; and will be contacted once the dredging event is completed to accurately position them.

(5) **Bulkhead Channel.**

Funding Agent – Local Governments & N.C. Division of Water Resources.

Dredging & Delivery Methodology – hopper dredging via the special use Corps of Engineers dredge, the [Murden](#).

Narrative – Classify this project as another once funded by the federal government but is now a local/State endeavor. Bulkhead Channel is graphically depicted on Figure 2 and is the dominant channel of egress and regress for the Town Beaufort. The Town of Beaufort is coordinating the next dredging event scheduled for the first week of April entailing 8 days of dredging with offshore disposal using the Corps of Engineer's special use dredge, the [Murden](#). The *Murden* is "hopper-esque", meaning the vessel uses drag heads to vacuum the shoal material from the seafloor and temporarily stores the material in the hopper of the vessel itself. Once full, the *Murden* can steam offshore and dump the material by opening and closing its split hull. The empty vessel can then return back to the channel and repeat the dredge, hold, and dump process.

The total cost for this Spring's event is ~\$213,000 with the State again contributing 2/3 (\$140,580) via the Shallow Draft Fund and the remaining locally generated (\$72,420). To this end and consistent with previous events, the Town of Beaufort is requesting roughly half of these local funds from the County (\$35,000) at the Board's regular March 20th monthly meeting. This will constitute the 9th time Bulkhead Channel has been dredged using local/State funding since 2011.