

SHORELINES – June 2006

As presented to the *Island Review Magazine*.

De-mystified: Bogue Inlet, the inlet crossing, and the connecting channel

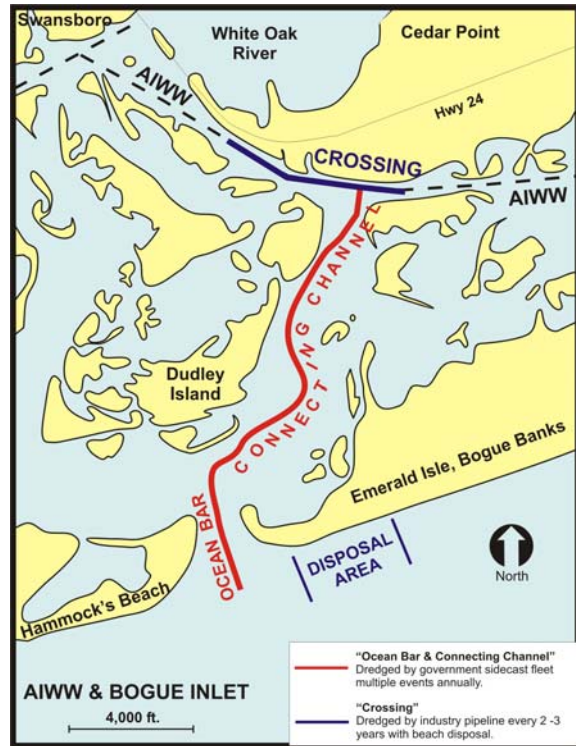
Although driving a boat from the Atlantic Intracoastal Waterway (AIWW) to and through Bogue Inlet might seem like a “straight shot” - the various dredging methodologies utilized to keep this thoroughfare navigable are as different as night and day. And let’s not forget the local vernacular associated with all the twists and turns that also adds another layer of complexity to the waterways. So this month, we’re going to de-mystify the names and maintenance patterns associated with this series of channels.

Maintenance activities at and near Bogue Inlet and the Atlantic Intracoastal Waterway (AIWW) are divided into two separate scopes of work. The actual navigation project associated with “Bogue Inlet” extends from the Atlantic Ocean through the **ocean bar** and traverses to the AIWW via the **connecting channel** depicted in the accompanying figure. The authorized channel dimensions fluctuate from -6 to -8 foot mean low water to widths ranging from 90 to 150 foot wide, with a total length estimated at 20,000 feet.

The Corps has traditionally maintained (dredged) the project utilizing the government fleet of side-cast dredges (*Merritt* and *Fry*) and their special use split-hull dredge that was utilized in the 1980s. The Corps is authorized to follow the deep water channel at the time maintenance activities are conducted. The area referred to as the ocean bar, which encompasses the most seaward 7,000 foot of the project, underwent significant modifications in 2005 as the Town of Emerald Isle and State of N.C. financed the repositioning of the inlet’s deep water channel, or thalweg, to a central position within the Bogue Inlet floodway, equidistant between Bogue Banks to the east and Bear Island (Hammock’s Beach State Park) to the west.

The side-cast dredge does not have the capability to place dredged material on the beach or in upland disposal sites, but rather “sprays” the shoal material approximately 100 – 150 foot to the port or starboard side (left or right) of the vessel and away from the channel. Consequently, maintenance work provides short-term navigation benefits with an expectation that repeated dredging will be necessary to keep the channel at safe navigable depths. The ocean bar and connecting channel are ideally dredging 2 - 4 times a year, contingent upon Federal funding and the availability of government-owned dredges.

For this current fiscal year (FY 2006) there was no Federal funding provided for Bogue Inlet. However Carteret County, Onslow County, and the Towns of Emerald Isle, Swansboro, Cape Carteret, and Cedar Point developed a dredging and financing proposal to maintain Bogue Inlet for the remainder of FY 2006 that includes a total of 40 days of maintenance dredging utilizing the Corps side-cast dredging fleet. The Corps daily cost estimate to operate a side-cast dredge is \$9,500 and thus the total maintenance effort is \$380,000. It is estimated that up to 3 comprehensive maintenance events can be conducted under the proposed 40-day work allowance. The local governments requested



SHORELINES – June 2006

As presented to the *Island Review Magazine*.

and have been awarded a \$285,000 grant from the State's Division of Water Resources, or 75% of the total cost for the maintenance effort. The local government portion is 25% collectively, or \$95,000.

The accompanying figure also depicts the area where the Bogue Inlet Project and the AIWW confluence, known as the ***inlet crossing***. Although the Corps has environmental clearances to utilize the government fleet to maintain this reach of the AIWW, they prefer to utilize industry pipeline dredges on a 1 - 3 year basis. Pipeline dredges have to pump the dredged material "somewhere" - this somewhere for the inlet crossing at Bogue is depicted as the ***disposal area*** in the accompanying figure, located along the westernmost oceanfront beach in Emerald Isle. The average dredged volume placed along the beach per event is approximately 38,000 cubic yards (~2,500 dump truck loads of material) and this scope of work is designated under the N.C. AIWW line item within the Corps funding accounts. The AIWW has an authorized depth of -12 foot mean low water with varying widths along the N.C. corridor.

There are several important differences in the dredging methodologies and accounting framework for the scopes of work at Bogue Inlet and its confluence with the AIWW. The ***ocean bar/connecting*** channel work is; (a) executed by the government side-cast fleet with no beach or upland disposal, (b) is performed 2 - 4 times a year, and (c) is under its own line item (Bogue Inlet) within the Corps accounting structure. Conversely, the ***inlet crossing*** work is; (a) executed by means of contract pipeline dredge with beach disposal, (b) is maintained infrequently every 1 – 3 years, and (c) is under a separate line item designated for the N.C. AIWW. Also, there are a total of eight inlet crossings across the State and this cluster of projects are usually maintained under a single dredging contract. The eight crossings include from north to south; Bogue, Bear to Brown, New River, Topsail Creek, Shinn Creek, Carolina Beach, Lockwoods Folly, and Shallotte inlet crossings. Because a pipeline dredge is used, the disposal area for each crossing involves an upland or beach target site.

The next cycle of inlet crossing maintenance work that includes concurrent beach nourishment is scheduled for this summer. In what is becoming an all too familiar story, the Corps did not receive adequate appropriations to dredge the eight inlet crossings in the State mentioned above, and by utilizing State and Local money, have developed a contingency plan to dredge 4 of the 8 crossings (Bogue, New River, Lockwoods Folly, and Shallotte). Without getting into the particulars; the Corps is furnishing \$2.3 million (60%), State \$750,000 (20%) and local governments across the State \$750,000 (20%). All of the commitments should be in place just about the time this edition of *Shorelines* goes to press.

And lastly, the Town of Emerald Isle has received regulatory clearances to place the dredged shoal material from the AIWW inlet crossing along the sand bags at the Point (westernmost tip of the Town) rather than the oceanfront disposal area traditionally utilized for inlet crossing work. This placement is envisioned to augment the sand accretion occurring at the Point in the wake of the 2005 Bogue Inlet realignment project (see figure below). While the placement of dredged material along the Point is perhaps not 100% necessary, it is a wiser use of the spoil that would otherwise be placed along the oceanfront beach of western Bogue Banks. Work at the Point and inlet crossing at Bogue should take place in July and August.

SHORELINES – June 2006
As presented to the *Island Review Magazine*.

