GENERAL CHARACTER OF THE COAST.

Between Cape Hatteras and Charleston, three dangerous shoals extend seaward at right angles to the coast, namely, Diamond Shoals, Lookout Shoals, and Frying Pan Shoals. These shoals reach out from the shoreline to an average distance of twenty miles, and have an average width of 1.5 miles. A fourth shoal exists in the vicinity of Cape Romain, but of less extent and of less dangerous character than any of those just mentioned.

The prevailing winds on the North Carolina coast are from the northeast around to southeast and southwest. The attendant currents generally set directly on the three great shoals between Hatteras and Cape Fear, and it is in the vicinity of these shoals that practically all the maritime disasters on the coast of the Carolinas occur.

The treacherous currents along this stretch of coast are largely responsible for the sweeping of vessels upon the shoals. From Cape Lookout Bight to Frying Pan lightship, Capt. G. L. Carden, commanding the *Seminole,* has usually found it necessary to allow for at least five miles westerly set of current on a run of eighty-nine miles. Below Frying Pan, there is also a strong set into the bight, and this is especially noticeable in the run from Cape Fear Bar to the entrance of Winyah Bay.

According to Captain Carden, there is a safe rule for all navigators to follow on this station; that is, never get inside of ten fathoms, unless sure of one's position. The ten-fathom curve will carry one clear of all the great shoals from Hatteras to Romain. The same eminent authority said to the writer: "A stranger approaching this section of the coast will, on finding himself in thick weather inside of ten fathoms, do well to let go an anchor at once."

The end of Frying Pan Shoals is marked by our lightship, *Number 94,* and the present position of this craft is most advantageous to vessels making for the Cape Fear Bar. It is a fact that Cape Fear Light is not seen from the extreme end of Frying Pan Shoals, and it is the end of the spit which masters of ships are so anxious to determine. A gas buoy, 12 miles SE. by E. ¼ E. off Frying Pan lightship, marks the end of the broken ground. This gas buoy is a favorite mark for coasting vessels, and is also available for ships coming in from seaward, but before shaping into the Cape Fear, safe navigation demands that one should find the end of Frying Pan, and it is this useful function which the present lightship serves. From the Frying Pan lightship, two courses only are necessary, one to clear the Knuckle Buoy, and a second course direct to the Whistling Sea Buoy. Then from the sea buoy one has only to run right down to the bell buoy marking the commencement of the bar. Nowadays, crossing the Cape Fear Bar is a very different matter from what it was under the ten to twelve feet conditions of blockade-running days, when there were no lights, nor buoys, nor any guide save the lead, the line of breakers, and possibly an outline of shore.

Wilmington's approach from the sea is a magnificent thoroughfare, both across the two miles of bar and the twenty-seven miles of river stretch inland. The channel across the bar is well lighted and furnished with buoys. The prevailing winds being from northward to northeast, the Frying Pan Shoals and Cape Fear Spit protect the bar entrance during the major part of bad weather, making it a better entrance than the former New Inlet Channel, which led past Fort Fisher.

To maintain the magnificent thoroughfare of two miles of Cape Fear Bar, it is necessary for the engineers directing the river and harbor improvement to keep a suction dredge constantly employed upon the bar, as the currents are continually sweeping the sandy bottom into the ship channel, thereby endangering navigation, but as long as continued appropriations are available for this important aid, the work can be done effectively.

A project for the permanent maintenance of deep water by stone jetties, similar to those employed on Charleston Bar, has been discussed by our local Board of Commissioners of Navigation and Pilotage, and the matter has been taken up with the United States Corps of Engineers.

The Frying Pan Shoals must be rounded before a vessel can stand to the northward. The depth along the Frying Pan Spit varies from 7 to 14 feet, and the shoals extend in an unbroken line 10 miles south-southeast from Cape Fear. Following the same general direction of the primal shoal are numerous patches running out for a distance of 5½ miles farther. The depth over these patches varies from 10 to 24 feet. It is just beyond these patches that the Frying Pan lightship is anchored, and