

SHORELINES – January 2003
As presented to the Island Review Magazine.

LINES IN THE SAND

The winter season is perhaps the best time of year to walk on the beach and take in the sights of Bogue Banks. As the sun is setting and you're heading home for the evening, do you ever wonder where does the beach actually begin and end? What actually constitutes the many environments of the beach and where do these associated boundaries exist? This month we'll try to demystify terms such as the surf zone, the shoreface, berm, etc., and draw some imaginary "lines in the sand" that separates these various environments.

The seaward elements of Bogue Banks simply consist of the *Beach* and the *Shoreface*. Let's discuss the beach first. In technical terms, the beach really extends from the low tide line landward to the dune or another distinct change in topography or composition. For instance, the beach could extend from the low tide line to a rock bluff or seawall rather than to a dune. Within the beach area there also exists the *foreshore* and *backshore* environments. The backshore is essentially dry at all normal tides and extends from the toe, or base of the dune seaward to the high tide line. This dry sand platform usually coincides with what we call the berm. Actually, we can consider the backshore as simply the recreational beach where we often find ourselves lying on a blanket, playing volleyball, or sitting in a chair enjoying our favorite book. The backshore and the recreational opportunities associated with this environment are almost completely absent in the areas of most critical erosion along Bogue Banks. Beyond the backshore area of the beach is the foreshore area that extends from the seaward edge of the backshore (recreational beach) towards the low tide line. So as a quick summation, the "beach" consists of the backshore or otherwise known as the recreational beach, and the foreshore that is otherwise known as the intertidal zone.

On the other hand, the shoreface extends from the low tide line toward the great blue ocean to a depth where normal waves begin to react with the seafloor bottom. The seaward limit of the shoreface is usually just beyond the offshore bar in deeper water. As you may expect, the shoreface is a high-energy area and is the "mover and shaker" in both fair and foul weather conditions.

There are other zones that are related to wave dynamics that are also important to consider. Let's start as a wave approaches the coast. There is the *shoaling zone* where waves begin to feel the bottom of the seafloor and progress into the *breaker zone* that is often associated with the offshore bar. This is where sediments are usually first thrown in to suspension. A wave then enters the *surf zone*, changes shape and translates into a current. This zone can be accompanied by a stew of white water during storm events. And finally at the shoreline, the surf zone gives way to the *swash zone* where shallow sheets of water carry sediments in partial suspension towards the backshore (recreational beach) and rapidly back towards the ocean. That's a lot work for just one wave! Now imagine how the shape of our beach and shoreface respond to these processes day after day, and during storms. As we can see, our boundaries between these environments are truly lines in the sand that are constantly changing with the wind, waves, and tides.

SHORELINES – January 2003
As presented to the Island Review Magazine.

