Figure 1-10 is a map of North Carolina with an overlay of the drainage basins. A vast and complex network of creeks, streams, and rivers move surface water off the uplands of the Appalachian, Piedmont, and Coastal Plain provinces towards the Atlantic Ocean. The drainage basins (outlined in red) are the regions whose run-off ends up in the rivers for which they are named. Many smaller streams also collect run-off from rain and carry it into the larger rivers and ultimately to the ocean.

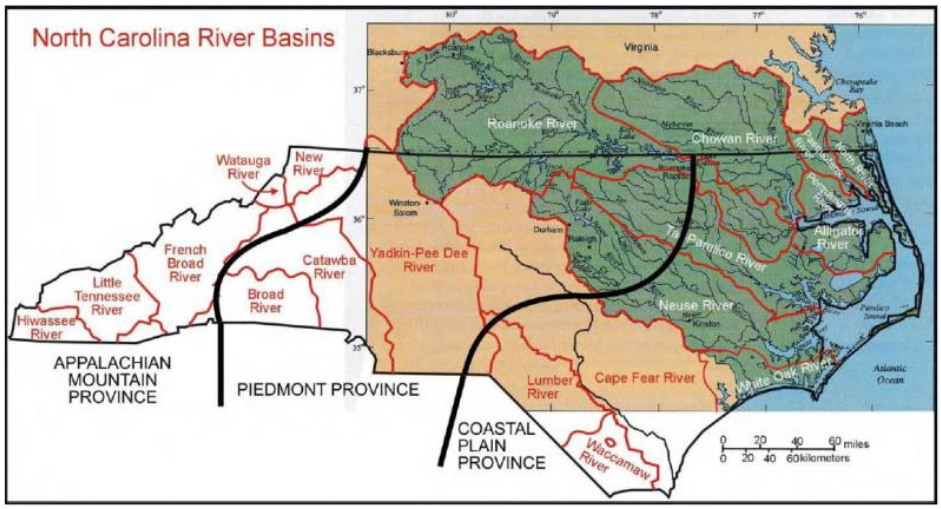

Figure 1-10. **Map of the three geologic provinces (outlined in black) and drainage basins (outlined in red). The river basins underlain by green color and with the blue drainages drawn in, flow to the Atlantic Ocean and produce the vast northeastern North Carolina coastal system. Figure 2-1-1, p. 17 in Riggs and Ames (2003).**

As the rivers that flow to the Atlantic Ocean approach sea level, a broad, low-sloping transition zone forms and connects the rivers to the ocean. This transition zone is called the estuarine system. Where the river's bottom drops below sea level, the river valleys become flooded and produce the drowned-river estuarine system. Thus, the estuaries occur between the freshwater river drainage system and the saltwater oceanic system, which are separated by the barrier island chain. The barrier islands function as a sand dam with a few inlets or outlets that allow the ultimate escape of fresh water into the Atlantic Ocean and the mixing of some ocean salt water into the estuaries. Thus, the estuaries are great mixing basins of fresh and salt water within the coastal zone. Figure 1-11 shows North Carolina's coastal zone with major towns and coastal features labeled.

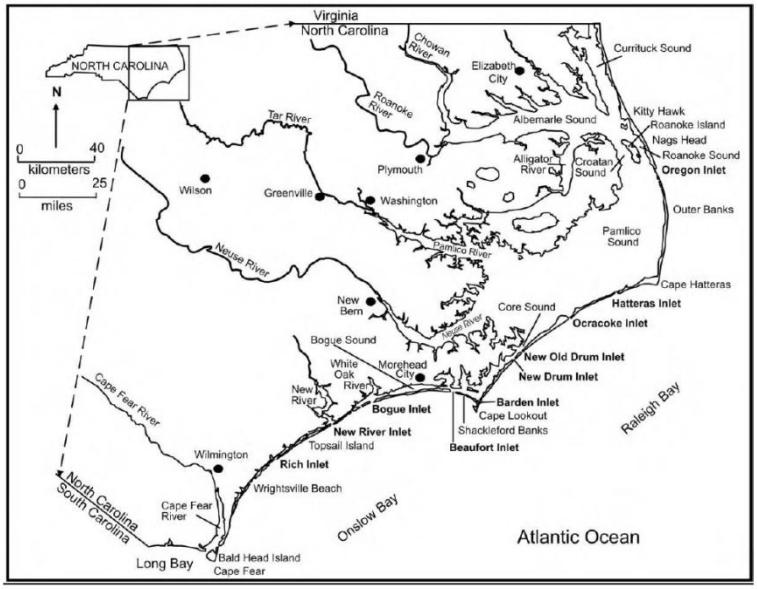

Figure 1-11. Location map shows major towns and coastal features for the North Carolina coastal system. Figure 2-1-2, p. 18 in Riggs and Ames (2003).