

## Natural Environments of the Tar-Pamlico River Basin

### Overview

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The Tar-Pamlico River Basin is the fourth largest river basin in North Carolina. It is one of only four river basins entirely located within North Carolina. The Tar River begins in Person, Granville and Vance counties and flows in a southeasterly direction. When the river gets to Washington, it becomes the Pamlico River. The river empties into the Pamlico Sound estuary.

The land in the Tar-Pamlico River Basin is used in several different ways. Approximately 7% is developed area, 28% agriculture and 55% wetlands and forested areas. The remaining 10% is open water (river, lakes, and estuary). There are about 2,500 miles of freshwater streams that have been mapped, almost 4,000 acres of freshwater reservoirs and lakes, about 663,500 acres of estuary, and 17 miles of coastline. Wetlands can be found throughout the whole basin.

There are no natural lakes in the Piedmont, but there are a few reservoirs (lakes made by damming up a river or stream). These reservoirs provide drinking water supplies and help control flood water. Streams in the Coastal Plain are slow-moving and many go through swamps. The swamp streams often stop flowing in the summer and are stained a dark tea-like color from decomposing leaves. Because of this dark color they are called "blackwater" streams. There are a few natural lakes in the Coastal Plain, among them Lake Mattamuskeet, which is the largest natural lake in North Carolina.

The Tar River is thought to be named for the longleaf pine forests that were once an important source of tar, turpentine and other naval stores used in building wooden ships. The river was used as a major transportation route to move these products to the coast. The river is an important drinking water source for communities including Louisburg, Rocky Mount, Tarboro and Greenville. The river's name changes to the Pamlico River in Washington and is thought to be named for a local Native American tribe. At Washington, the river widens. Wind tides sometimes push salty water up this far, although generally the water is fresh. Forty miles south of Washington, the river empties to the Pamlico Sound.

The Pamlico Sound is an estuary, where the freshwater of the Tar-Pamlico River mixes with the saltwater coming in from the ocean through inlets between the islands of the Outer Banks. This mixture of fresh and salt water is called brackish water. Estuaries are nurseries for many types of fish and provide excellent habitat for oyster reefs. Young fish and crab spend their early years living among the coastal marsh vegetation and the vegetation that grows at the bottom of the sound. The blue crab is one of the most popular species fished for commercially and recreationally in the Pamlico Sound. Oysters are also found in the Pamlico Sound, although they are not as plentiful as they used to be. Many people are working hard to restore the oyster population.

#### **ECOREGION**

*a large unit of land that contains similar soils, vegetation and landforms where similar types of ecosystems can be found.*

### Tar River Headwaters: Outer Piedmont

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The headwaters, or beginning, of the Tar River are in Person County. The river begins as a freshwater spring just east of Roxboro. The river then travels in a southeast direction toward Rocky Mount. This first part of the river is in an ecoregion\* called the **Outer Piedmont**. It is the most "hilly" land in the Tar-Pamlico Basin. In Granville County, just past highway 96, the river enters a narrow valley with rocky sides and boulders in the river called a gorge. After the gorge, the river slows down and widens and starts to meander, or

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bend and turn a lot. The bottom of the river here is made of rocks and gravel. Most land in this area used to be farms. Now there are mostly loblolly pine plantations or the trees are growing back into forests. In the Outer Piedmont ecoregion, the original forest was called an oak-hickory-pine forest. The trees you can find in these forests include white oak, southern red oak, post oak, mockernut hickory, pignut hickory, shortleaf pine and loblolly pine. The upper part of the Tar River is home to the endangered dwarf wedge mussel. The habitat of this mussel is muddy sand of streams and rivers. It requires water movement and good water quality. Poor water quality is causing the loss of this endangered mussel.

### Rolling Coastal Plain

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In Nash County, the Tar River enters an ecoregion called the **Rolling Coastal Plain**. The river is still rocky until it reaches Edgecombe County. Then the river soils turn to sand, silt and clay. This region is a mixture of cropland, pasture, pine plantation and forest. The natural vegetation used to be mostly longleaf pine with smaller areas of oak-hickory-pine forest with white oak, southern red oak, post oak, mockernut hickory and pignut hickory. Near where the river passes under I-95, it begins to widen because of the backup of water from the Tar River Dam. This reservoir, called the Tar River Reservoir, is a drinking water supply for Rocky Mount.

### Southeastern Floodplain

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After passing through Rocky Mount, the river enters an ecoregion called the **Southeastern Floodplains**. The water slows down and the floodplain spreads out. A floodplain is the land area next to a river onto which water will spread when there are large floods and the river overflows its banks. Here the soils are made of sand, clay and gravel that have been eroded from the Piedmont and carried by the river. In this region, you will find backwater ponds and swamps. The forests here are called oak bottomland hardwood forests (which include swamp chestnut oak, cherrybark oak, laurel oak, water oak, willow oak, sweetgum, green ash, shagbark hickory, bitternut hickory, water hickory and American elm). There are also some river swamp forests with bald cypress and water tupelo. Until it reaches Tarboro, this part of the river meanders a lot.

Around Tarboro, two large streams that began in Vance, Warren and Halifax Counties join the Tar River. These streams are called Swift Creek and Fishing Creek. Before the Civil War, Tarboro was a thriving town because it was the farthest point up the river that large boats could go. It was very difficult to travel through the dense forests and swamps over land, so rivers were a main transportation route. Boats carried supplies that were brought into the region from other towns along the coastline and carried wood, tar and other naval stores back down to the shipbuilders along the coast. From Tarboro to Pitt County, the river is much straighter. This is because the river was intentionally straightened and deepened by the federal government in the late 1800's to help larger boats get up to Tarboro.

### Mid Atlantic Coastal Plain

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Just before Greenville, the Tar River enters the **Mid Atlantic Coastal Plain** ecoregion. This region is low, flat and contains many swamps, marshes and estuaries. This region was once dominated by longleaf pine but is now mostly loblolly pine. The river's floodplain is similar to that near Tarboro, but you are more likely to see bald cypress and sweetgum swamps along with bottomland hardwood forests (with trees such as swamp chestnut oak, laurel oak, cherrybark oak, water oak and willow oak, green ash, red maple, and a variety of hickories). The soils in this region do not drain well so agriculture is primarily pine plantation with some areas of cropland.

(Adapted from *Ecoregions of North Carolina* by NRCS, USEPA, NCDENR and the *Tar-Pamlico River Basin Plan 2010* by NCDENR)

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### *Pamlico Lowlands*

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At Washington, the name of the river changes to the Pamlico River. This is also where the river enters a new ecoregion called the **Pamlico Lowlands**. The river widens because of the nearly level landscape. This area can be affected by wind tides which push saltier water up the river from the sound. Some major areas of cropland are found in the region growing corn, wheat, soybeans, and potatoes. Lake Mattamuskeet, the largest natural lake in North Carolina, provides valuable wintering areas for geese, swans, ducks, and other birds.

This region also contains a lot of swamp and peatlands. The soil here is dark reddish-brown and sometimes black in color and often contains logs and stumps from bald cypress and Atlantic white cedar trees. Pocosin lakes occur in some areas. The vegetation of the pocosins contains a thick shrub layer, along with pond pine, swamp red bay, and sweet bay. Swamp forests contain swamp tupelo, bald cypress, and Atlantic white cedar. The uplands used to contain longleaf pine but now primarily contain loblolly pine and a mixture of hickory and oaks similar to those named in areas above. Fire during drought periods, logging, and construction of drainage ditches has affected natural vegetation growth.

### *Barrier Islands and Coastal Marsh*

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The Pamlico River drains to the Pamlico Sound. The Pamlico Sound is one of the largest estuaries in the United States. It has more species than the Chesapeake Bay. It is the nursery for 90% of the seafood caught in North Carolina. The sound is protected and separated from the Atlantic Ocean by the **barrier islands** we call the Outer Banks. Wetlands around the edges of the sound and behind the barrier islands are called **coastal marshes**. Maritime forests can be found growing on the remains of ancient sand dunes along the barrier islands including Ocracoke and Hatteras Islands. These forests are adapted to sandy soil with few nutrients and can handle strong, salty winds. The maritime forests include live oak, laurel oak, loblolly pine, red cedar, yaupon holly, wax myrtle and dwarf palmetto.