

The prospect of cheap, reliable, environmentally friendly power has intrigued North Carolinians for many years. Since 2007, Duke Energy in cooperation with the University of North Carolina, Chapel Hill has been investing in research and studies to evaluate the possibility of installing wind turbines off shore and/or in Pamlico Sound.

In an October, 2009 press release, Duke Energy stated, "In a pilot project designed to harness the power of the ocean breezes along North Carolina's coast, the University of North Carolina at Chapel Hill and Duke Energy announced they have signed a contract to place up to three demonstration wind turbines in the Pamlico Sound."
(<http://www.duke-energy.com/news/releases/2009100601.asp>)

In August, 2010 Catherine Kozak, writing for the Island Free Press, reported that "[w]ind turbines will not be on the horizon any time soon off Hatteras Island, but there could be a wind energy project to the south with an Outer Banks name.

"Last week, right after Duke Energy Carolinas made a surprise announcement that it was not going to pursue a wind demonstration project in Pamlico Sound, Apex Wind Energy Inc. of Charlottesville, Va., announced that it had applied for 24 lease units in 216 square miles off Morehead City to explore wind production.

"The proposal, the first federal application for a wind farm in North Carolina's offshore waters, will be known as the "Outer Banks Ocean Energy" project, or OBOE for short...."
(<http://islandfreepress.org/2010Archives/08.19.2010-DukeEnergyChangesFocusofCoastalWindDemonstrationProject.html>)

Although water-based wind turbines are part of a recent effort to harness the legendary breezes in eastern North Carolina, use of windmills along the state's outer coastal plain goes back nearly 300 years.

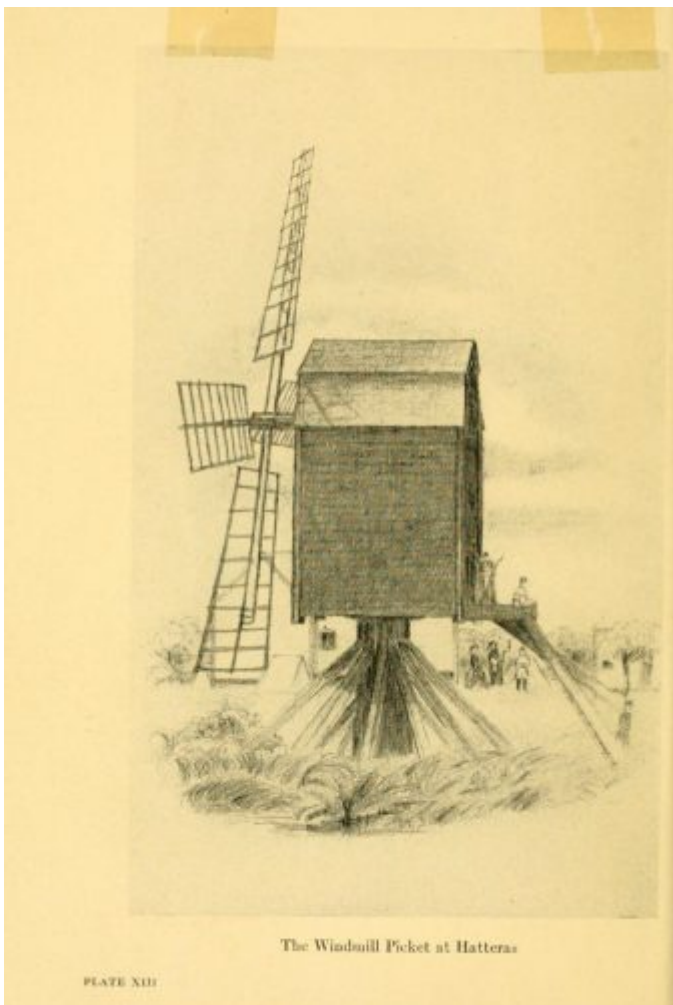
In 1715 the North Carolina General Assembly passed "An Act to Encourage the Building of Mills" in the state. The government agreed to provide two acres of land for anyone wishing to build a watermill, and one half acre for anyone planning to build a gristmill.

No one knows when or where the first windmill was built in North Carolina. However, a deed dated as early as 1748 mentions "Old Windmill Point" in Pasquotank County.

During the Union invasion of the Outer Banks in 1861 Charles Johnson, an enlisted soldier in the Union army, kept a diary. In his memoirs, The Long Roll, "being a Journal of the Civil War, as set down during the years 1861-1863," Johnson writes about Hatteras, saying,

“Everything on the Island seems to be devoid of paint - dwellings, barns and windmills, of which latter there are a greater number than I supposed were in existence in the whole country....”

Pencil Sketch of Hatteras Windmill by Charles Johnson:



Tucker R. Littleton, in a 1980 article in *The State* magazine (“When Windmills Whirled on the Tar Heel Coast”) documents 155 windmill sites in coastal North Carolina prior to 1900. The greatest number of these windmills dotted the coast in the mid nineteenth century. By 1920 not only were most of the windmills gone, but as Ben Dixon MacNeill wrote in a newspaper article in 1955, “Windmills, yes, there used to be windmills. But nobody, somehow, remembered very much about them.”

According to a map accompanying Littleton’s article, there were four windmills located in

Ocracoke village, although he does not specify where.

We do know, however, from an 1832 deed documenting a sale of property from William Howard to Elisha Chase, that there was a windmill on his property at “the Point” (Springer’s Point).

Oral tradition also indicates that Job Wahab (1802-1860) owned a windmill on his property on the western shore of Cackle Creek (Silver Lake Harbor), near the “Ditch” (the narrow channel connecting the harbor with Pamlico Sound). To this day, this area is called “Windmill Point.”

During this same period a “ditch bank” and foot path ran more or less parallel to, and northwest of, present-day “Lighthouse Road.” Older island residents remember this as the “Windmill Path.” The miller, Nathaniel Bragg, lived near where the old US Life Saving Service boathouse now sits, and his mill was nearby.

According to oral tradition, another windmill was located “Up Trent” near the sound shore.

Over time four windmills were also erected in Portsmouth village, and one on Shell Castle Island, between Ocracoke and Portsmouth.

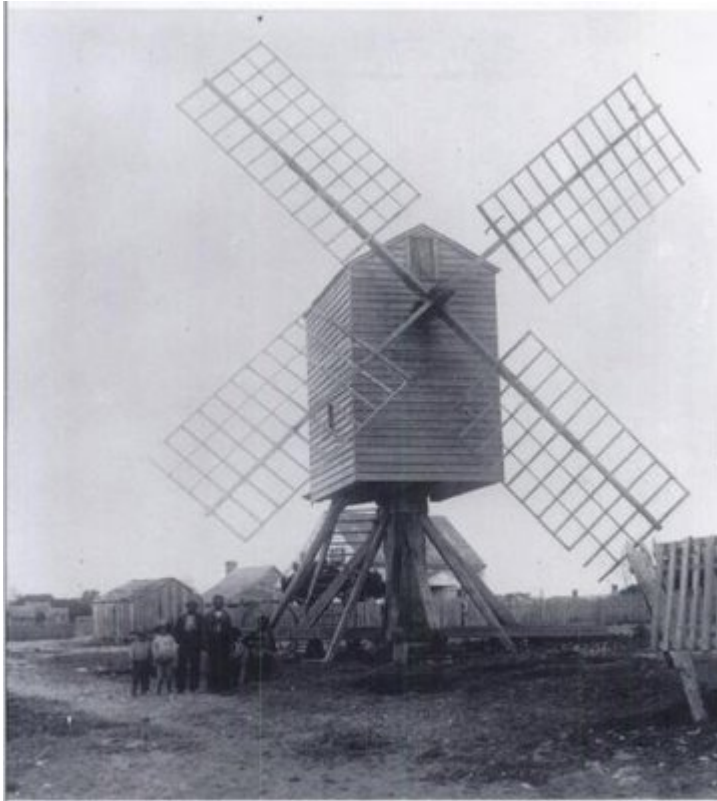
Ocracoke’s windmills, like every other mill on the Outer Banks, was a post mill. These mills, of German, not Dutch, design were developed in Europe in the twelfth century, and were brought to America by the British as early as 1621. Post mills consisted of a wooden house (the main body of the structure) that was mounted upon a 10’ - 12’ vertical post supported by diagonal braces. The typical house was about 10’ square, and 12 or more feet tall with a gable or gambrel roof.

Four external rectangular frames were affixed to a large cross attached to a horizontal axle protruding from the upper section of the house. These frames were covered with canvas sails that could be reefed to adjust the speed of revolution for varying wind velocities.

The entire structure could be rotated around the vertical post in order to harness changing winds by means of a 25’ - 30’ tail pole that was attached to the house. On the far end was a wheel that rested on the ground or on a circular metal or wooden track. By simply pushing the tail pole the windmill could be rotated to face wind coming from any direction.

A removable ladder provided access to the inner workings of the mill, a series of wooden wheels and cogs connected to the wind vanes, that turned the grinding stones.

A Typical Outer Banks Windmill:



No one today can be certain where the millstones came from. Some think they were imported from Martinique in the West Indies; others have suggested Europe, New England, or quarries in eastern North Carolina.

Ocracoke fishermen carried salted and fresh fish, clams, oysters, and other seafood to the mainland where they traded for corn which did not grow well on the sandy banks. The corn was then brought to the island miller. The miller, in turn, received a portion of the finished product...one half peck per bushel of corn.

New technologies that were developed during the Industrial Revolution contributed to the abandonment of Outer Banks windmills. The introduction of steam and internal combustion engines, cheaper transportation, and better access to goods from the mainland ensured that windmills were destined for extinction. In addition, wind, the very phenomenon that inspired the erection of windmills on the Outer Banks, contributed to their undoing. Over the years many mills were destroyed by storms and hurricanes. The memorable hurricane of August, 1899 which pummeled eastern North Carolina for three days with winds up to 150 miles per hour finished what modernity had started. By 1900 these relics of a time past were left to

deteriorate and collapse. Twenty years later hardly a trace of this technology remained.

The history of Outer Banks windmills would not be complete without recounting a tale told by MacNeill in his 1955 article. Sometime in the late 1800s Kinnakeet native, Bateman Miller, was reefing the sails on his windmill when his son, thinking his father had completed the task, released the brake and set the vanes to rotating. Although the noise of the great wooden gears prevented the son from hearing his father's entreaties as Bateman was lifted and rotated up and around, the uneven distribution of weight caused the windmill to shudder and tremble. Realizing that something was amiss, his son stopped the mill, allowing Bateman to climb down unharmed.

Today, the only public physical evidence of Ocracoke's four windmills is a photo of one of the island's windmills and one grinding stone in the yard of the Ocracoke Preservation Society Museum.

Photo Accompanying the Millstone at OPS:



Ocracoke Millstone, Donated to OPS by Paul & Irene Mosher:



Nevertheless, modern day visitors to the Outer Banks can view a faithful reproduction of an historic eastern North Carolina windmill at the reconstructed “Island Farm” on Roanoke Island (<http://www.theislandfarm.com>). There is a photo of the windmill at the bottom of this page: <http://www.theislandfarm.com/the-site/>

And who knows, one day travelers crossing Pamlico Sound by private boat or ferry may yet pass modern wind turbines anchored to the sea floor and providing the bulk of the energy for Ocracoke village.

References:

“When Windmills Whirled on the Tar Heel Coast” by Tucker R. Littleton, *The State*, October, 1980, Vol 48, No. 5.

“Wind Drove Their Mills,” by Ben Dixon MacNeill, *The News and Observer*, Raleigh, N.C., May 29, 1955

“Windmills,” pages 76-83 in *Seasoned by Salt* by Rodney Barfield, c. 1995, The University of North Carolina Press.

Personal interviews with Ocracoke natives, Blanche Howard Jolliff and Chester Lynn