

TPO News, Events and Opportunities



Upcoming Events

October 21, 10:00

Regular Tree Peace Meeting at
Crossroads (foot of old bridge)

October 24, 4:00 to 8:00.

Spooktacular Market
Middleton Park Complex
4610 E. Dolphin Drive. TPO
will have a booth with tree
seedlings to give-a-way and
educational materials.

November 4, 15 gallon Live
Oak Trees will be available for
a \$120 donation.

December 6, 12:00 to 4:00.

Middleton Park, OKI Holiday
Craft Market, Tree Peace will
have booth with one gallon
trees to give-a-way.

Oak Island Water Aquifers

Oak Island subsurface water aquifers primarily consist of the Castle Haynes aquifer and Surficial aquifers (Diagram 1, Diagram 2). An aquifer is an underground layer of rock, sand, or gravel that holds and can transmit water. The Castle Haynes formation consists of limestone and sandy-limestone rock, they slope underground towards the coast gaining depth, and they underly the Surficial units. The Castle Haynes aquifers -along with water from the Cape Fear blended surface water- supplies drinking water to Oak Island and surrounding municipalities. The Surficial units consists of unconsolidated sandy sediments (not rock) and extend from the top of Castle Haynes to the land surface. There is a confining layer of rock or clay type sediment on top of the Castle Haynes that restricts or prevents flow of ground water between adjacent aquifers. Most water wells drilled in the Surficial unit aquifers are used for irrigation wells and can potentially be utilized for potable water wells.

The Castle Haynes (Diagram 1, Diagram 2) water wells that service Oak Island, NC are located along the NC Highway 211 just north of the St. James, NC exits. Because Oak Island purchases its water supply from the Brunswick County Public Utilities its groundwater is managed at a county level through the NC211 Corridor Wellfield. The wellfield consists of 14 public community supply wells drilled to a depth of about 175 feet into the Castle Haynes Aquifer. The raw water extracted from these 14 wells is pumped to the NC211 Water Treatment Plant just south (across Rt. 211) of Generations Church.

Oak Island Water Aquifers (continued)

About Us

Tree Peace OKI is a 509 (c) (3) non profit incorporated in the State of North Carolina dedicated to promoting and educating about the value of trees to Oak Island, NC. We may endeavor to influence legislation for that purpose but we may not support any candidates or political parties.

Contact us

We meet the third Wednesday every month at 10:00 a.m. Message us on our Tree Peace OKI Facebook page.

Our Officers

Phil Dudley, President

Paula Byerly, Vice President

Eileen Soderberg, Treasurer

David Merkle, Secretary

Judy Reid, Events Coordinator

John Schweikart, Chief Information Officer

Ann White, Membership Chairperson

Join or Donate to Tree Peace OKI

at treepeaceoki.org

A one year membership is only \$20

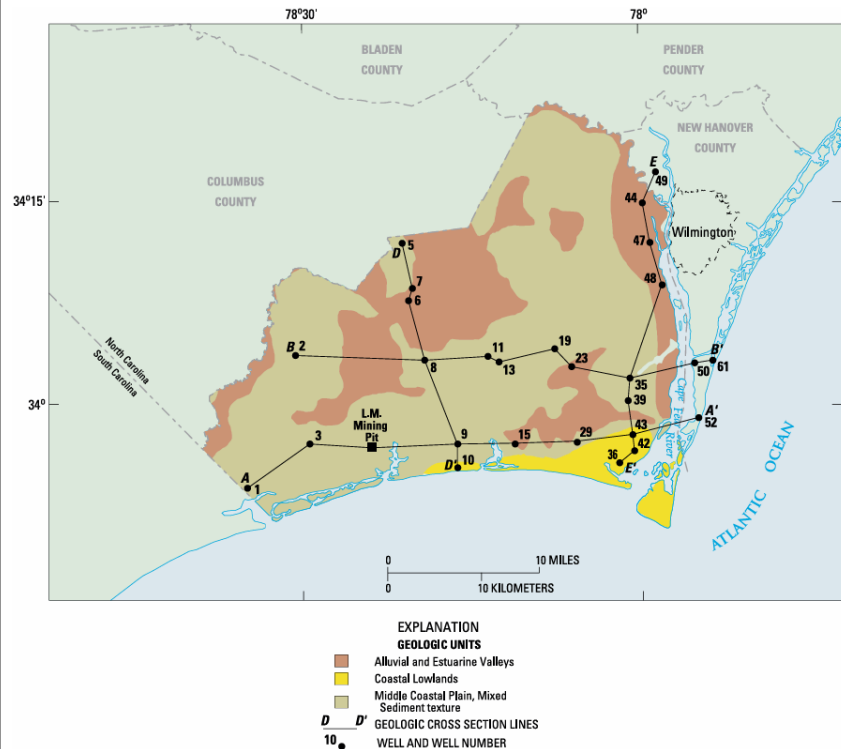


Diagram 1: Surficial geology/physiography of Brunswick County, North Carolina (modified from Ator and others, 2000), and locations of geologic sections A-A', (from Zarra, 1991).

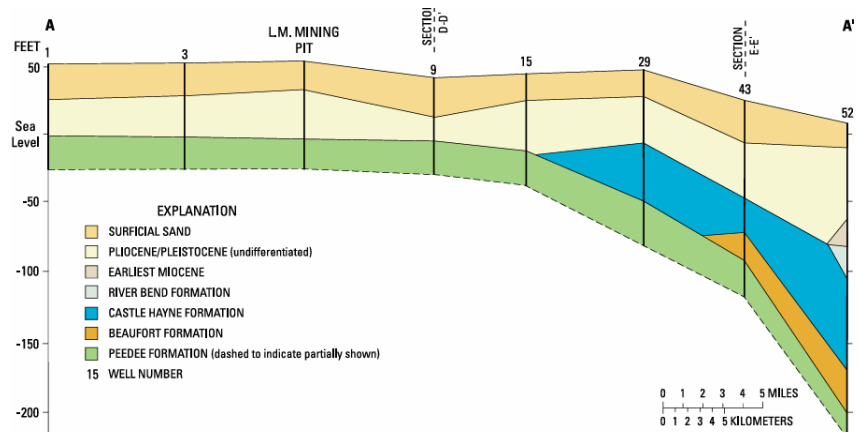


Diagram 2: Geologic cross-section runs west-east north of Castle Haynes well field (A-A'). The 14 Castle Haynes wells are located south of Monitoring well 29 (Green Circle/Box). Castle Haynes slopes deeper toward Oak Island which accounts for the depth of the associated water well.

Oak Island Water Aquifers (continued)

Surficial Aquifers (Diagram 1, Diagram 2) account for the shallow residential water wells that are used by residents for irrigation of landscape and trees, and potentially for potable residential water uses. Potable water is water that is safe enough to drink or for food preparations without risk of illness. Regardless of whether the water is used for watering plants or drinking, the wells must be evaluated for water quality and permitted by Brunswick County.

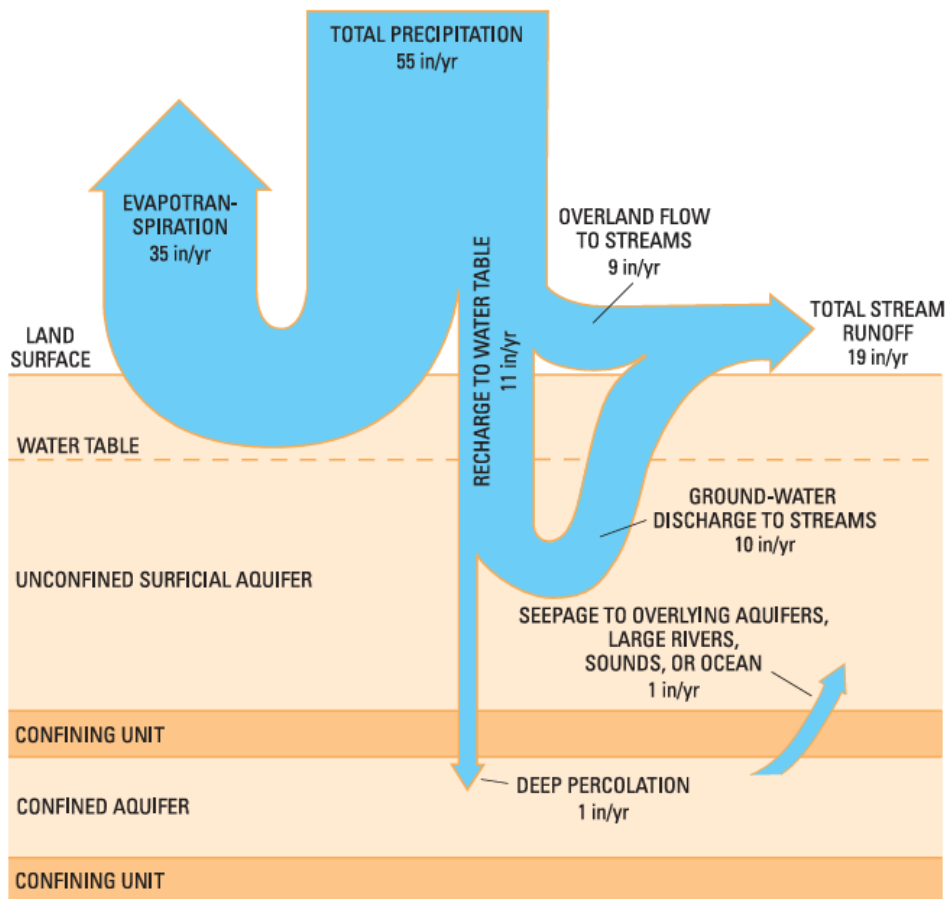


Diagram 3: Generalized average annual water budget for the Brunswick County, North Carolina, hydrologic system (modified from Giese and others, 1997).

Water Supply Budget is critical regarding the recharging of aquifers. There is a delicate balance between the available water supply, weather (rain), sediment permeability, and trees. About 20% or less of rainwater will be absorbed into the ground to potentially become a new water supply available to recharge (or refill) an aquifer (Diagram 3). There are two (2) extreme examples of this budget. In New York City -except for Central Park- practically all the trees were cut down and replaced by impermeable concrete and asphalt. Because there is a small percentage of the water budget in the form of rain going into the ground, most of that water is run-off. If that water is not adequately managed by the sewer systems, then that extra runoff periodically floods the subway systems to the point that the subway systems over 750 water pumps cannot keep the subway system dry.

Oak Island Water Aquifers (continued)

On the other extreme China has been pursuing a program -Great Green Wall- over the last about 50 years to reforest areas of their country. Since 1978 they have reforested about 15% of China with about 66 billion trees. Some areas of reforestation have caused water supplies to be depleted - aquifers and surface streams - because the trees are doing an excellent job of consuming the available water supplies from rain. These two extreme examples illustrate the importance of trees in managing storm water. Nature knows how to balance the water supply and forested areas that are well managed can keep storm water at bay.

In closing, Oak Island water aquifers are important for supplying drinking water and landscape irrigation to Oak Island and surrounding municipalities in southern coastal Brunswick County. The Town of Oak Island through the Uniform Development Ordinance is doing important work in managing permeable and impermeable surfaces, requiring rainwater capture and protections for and planting of trees. Trees help balance nature's water supplies.

Article Submitted by David Sonnenfeld, Geology MSc, Louisiana State University (Geaux Tigers!)

References:

Caveat: Some minor facts were referenced using Google AI.

Jason M. Fine and William L. Cunningham, 2001, Compilation of Water-Resources Data and Hydrogeologic Setting for Brunswick County, North Carolina, 1933–2000: U.S. GEOLOGICAL SURVEY Open-File Report 01–240, 141p.

M.D. winner, Jr., and R.W. Coble, 1996, Hydrogeologic Framework of the North Carolina Coastal Plain, Regional Aquifers-system analysis Northern Atlantic Coastal Plain, U.S. Geological Survey Professional Paper 1404-1, 106 p.

Stephen L. Harden, Jason M. Fine, and Timothy B. Spruill, 2003, Hydrogeology and Ground-Water Quality of Brunswick County, North Carolina: U.S. GEOLOGICAL SURVEY Water-Resources Investigations Report 03 – 4051, 23 p.

Weisman, Alan, 2022. The World Without Us. 426 p [28-30 p, NY subway systems].

Brunswick County Habitat for Humanity



Sue with homeowner on landscape day.

Sue and I enjoyed working with the Master Gardeners of Brunswick County on landscape day for a new home on September 15 in Leland and then returning on the 17th for the home dedication. BCHH is building an entire neighborhood of nine houses with a central common area with a playground and gazebo.

It is a heart-warming experience. Please attend a future landscape day and / or dedication as you are able.

We were surprised to learn that the proud youngster of the family has the same name as our grandson in Georgia, Ian. I am glad that I did not know his name until after being asked to speak on behalf of Tree Peace OKI because my allergies started to act up... (!)



Home dedication day.

Submitted by Phil Dudley

2026 Environmental Resource Fair

More than 20 vendors attended the Environmental Resource Fair on September 23 including Tree Peace OKI. Hosted by Ocean View Methodist Church the fair provides an educational forum and an opportunity to collaborate with other groups doing their part for environmental causes. There was a presentation by Roger Shew, Senior Lecturer of Geology with University of North Carolina at Wilmington Department of Earth and Ocean Sciences.

Judy Reids' 1,000 watt smile beaming out of the knot hole in the tree costume never fails to pull people over to talk about our mission to preserve and restore the tree canopy and provide education on why trees are so important to coastal living. Judy is on the Tree Peace OKI Board of Directors as our Events Coordinator and we appreciate her immensely!!



Recognizing our Sponsors!

Live Oak Level Sponsors



Julian Creek Artworks



Oak Island NC



The Kash family, a multi-generation Oak Island family has donated \$1,000.00 to continue our efforts to preserve and restore the tree canopy.

Magnolia Level Sponsors

Adam Powell, AAMS, Financial Advisor, EDWARD JONES
Better Beach Rentals and Sales

Yaupon Holly Level Sponsors

Pelican Pack and Ship

Francesca Slaughter, Realtor, Keller Williams Innovate

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Crossroads - A Gathering Place

Lowes Home Improvement