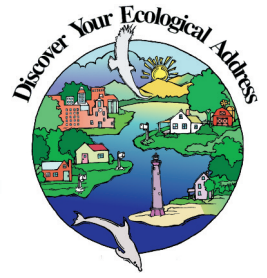
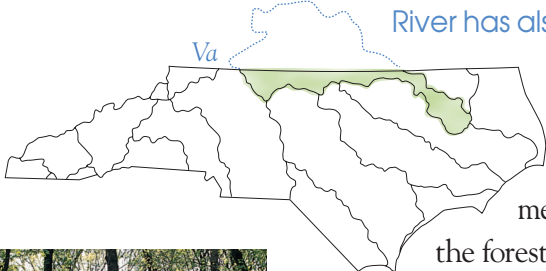


# ROANOKE RIVER BASIN



It was known as the “river of death” to Native Americans and early settlers because its spring floods claimed so many lives, but the mighty Roanoke

River has also been a giver of life.



As it flows to the Coastal Plain, it drains the rich lands of the mountains and Piedmont of Virginia and North Carolina, then carries sediment downstream and spreads a blanket of soil on the forest floor. This cycle has created fertile farmland for

cotton, corn, tobacco, peanuts and soybeans. Before the 400-mile river was dammed in the mid-1950s, it was an avenue for heavy springtime runs of striped bass, herring and other anadromous fish—fish that live in the ocean but swim upriver to spawn in the freshwater habitat where they were born. Striped bass, also called stripers and rocks, made the town of Weldon the “rockfish capital of the world.” Anadromous fish still return to the Roanoke but are limited to the river below the Roanoke Rapids Reservoir Dam.



MELISSA MCGAW, NCWRC

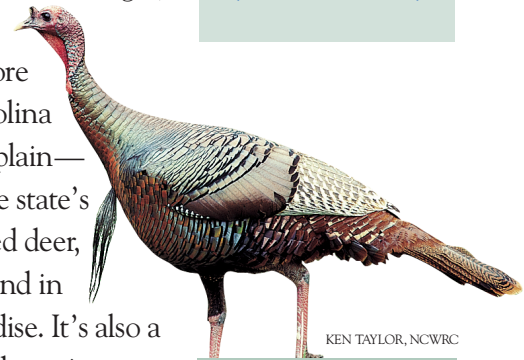
*Sunlight dapples the floor of a floodplain forest (left); a black bear takes a drink from the Roanoke (below).*



BILL LEA

In spite of population growth and other changes, the basin still contains ecological marvels. The Roanoke carries more water than any other North Carolina river. It also has the widest floodplain—up to five miles in places. With the state’s densest populations of white-tailed deer, wild turkey and black bear, the land in the lower basin is a hunter’s paradise. It’s also a birder’s heaven. At least 220 bird species are found in the Roanoke floodplain, including 88 resident species—the highest density of nesting birds anywhere in the state. More than 235 square miles of bottomland and cypress-tupelo forests lie along the lower Roanoke. Biologists consider the lower Roanoke to be the largest intact and least disturbed expanse of these ecosystems on the East Coast.

It’s no wonder then that so many partners—including conservation groups, government agencies and corporations—have joined forces to protect this place. The 21,000-acre



KEN TAYLOR, NCWRC

## profile:

Total miles of streams and rivers: 2,213

Total acres of lakes: 81,631

Total acres of estuary: 1,476

Municipalities within basin: 42

Counties within basin: 17

Size: 3,493 square miles

Population: 289,784 (2010 U.S. Census)

### Turkey Territory

When overhunting eliminated wild turkeys from most of North Carolina, the birds managed to hold on in the remote, productive reaches of the Roanoke River floodplain. Eventually, they became part of the stock for a state-wide restoration program. Wild turkeys now exist in all of North Carolina’s 100 counties.

### Spring Spawning

Striped bass migrate up the Roanoke River to spawn in early spring near Weldon. A single fish can release as many as 1 million eggs, which will float downstream to hatch near Hamilton. The larvae continue to float downriver, reaching “yolk-sac” stage near Williamston and “fin-fold” stage near Plymouth. Finally, a “young of the year,” or juvenile striper reaches the Albemarle Sound. Here it will spend the year feeding and growing.

*The brilliant prothonotary warbler is known locally as the “swamp canary.”*



MELISSA MCGAW, NCWRC



CARL V. GALIE JR.

Roanoke River National Wildlife Refuge is one of the finest examples of multiple collaborations. Established with The Nature Conservancy’s purchase of 10,626 acres in 1989, the refuge is now part of a 100,000-acre area protected by the Conservancy, the U.S. Fish and Wildlife Service, the N.C. Wildlife Resources Commission and landowners via conservation easements on their property. Most recently, the Georgia Pacific Corporation entered an agreement with the Conservancy to protect 21,000 acres. A nearly 137-mile corridor of protected land now stretches from Roanoke Rapids to the Albemarle Sound.

*Devil’s Gut Natural Area, on the lower Roanoke, contains centuries-old bald cypress and tupelo trees. The site is owned by the North Carolina chapter of The Nature Conservancy.*

The Roanoke River begins in the Blue Ridge Mountains of southwestern Virginia and ends where it meets the Albemarle Sound, part of the second largest estuary system in the United States (Albemarle-Pamlico). The North Carolina portion of the basin has two major parts: the Dan River and its tributaries in the western section and the Roanoke River and its tributaries in the eastern section. The Roanoke enters North Carolina through John H. Kerr Reservoir (“Kerr Lake”) and continues through Lake Gaston and Roanoke Rapids Lake before flowing freely as a river downstream of Weldon. As it flows from the foothills, across the “fall line” and to the flat Coastal Plain, the Roanoke River changes from narrow and lively to broad and slow.

The many rare species in the basin include the red-cockaded woodpecker, shortnose sturgeon and James spinymussel, which are all federally listed as endangered species. Nine other freshwater mussels are also listed as threatened or endangered by the state. A rare mammal, a



KEN TAYLOR, NCVRC

*The Sauratown Mountains at Hanging Rock*

coastal plain subspecies of the Rafinesque’s big-eared bat, is state-listed as threatened, as are the bald eagle, Wehrle’s salamander and bigeye jumrock (a fish). Three fish species, the rustyside sucker, cutlip minnow and orange madtom, are on the state’s endangered species list.

Hanging Rock State Park is located in the upper portion of the Roanoke River Basin. The most prominent feature of the park is its series of steep, quartzite-capped ridges dissected by Cascade and Indian creeks. Portions of these two streams were reclassified recently by the state as Outstanding Resource Waters and will receive special protection due to excellent water quality and rare aquatic species.



BILL LEA

*Great blue heron*

Frequent and serious flooding has defined the Roanoke River Basin and was relentless during the first half of the 20th century. After a devastating flood in August 1940, residents in the floodplain called on the U.S. Congress for help. A string of dams was planned to control flooding in the basin. In 1953, the John H. Kerr Dam was completed. Two more dams and reservoirs, Lake Gaston and Roanoke Rapids Lake, were completed in 1955 and 1963, respectively. The three lakes together submerge 82 miles of the Roanoke River between South Boston, Va., and Roanoke Rapids. The lakes are important sources of hydroelectric power as well as popular recreation areas. Flood control and other benefits upstream, however, have cost the

GEORGE HUMPHRIES



*Bald cypresses find anchor along the shore of Albemarle Sound.*



*A paddler skims the surface of Kerr Lake.*

COURTESY OF THE N.C. DIVISION OF TOURISM, FILM AND SPORTS DEVELOPMENT



CHARLES BRASWELL, JR.

*Moratock Park reflects on the Roanoke River near Williamston.*

river below. The amount and timing of water release from the dams have affected the web of life downstream. Fish, wildlife, trees and other plants have become adapted to seasonal fluctuations of high and low water. When these natural patterns are changed significantly for long periods of time, it affects both the health and diversity of plant and animal life in the floodplain. The challenge is managing the release of water from dams in a way that balances human needs with the needs of the entire ecosystem.

Altered flows, along with overfishing and habitat loss, contributed to a serious decline of the striped bass fishery in the 1980s and early 1990s. Thanks to strict harvesting regulations and managed releases of water from dams during the spawning season, the striper fishery on the Roanoke has recovered. Populations of hickory shad also have rebounded, although American shad are still in trouble.

Residents in the Roanoke River Basin face several challenges. The demand for water by consumers living in the basin is expected to increase as much as 55 percent by 2020. Thirsty outsiders have also tapped the Roanoke River Basin as a water source. In 1997, the City of Virginia Beach, Va., obtained the right to withdraw up to 60 million gallons of water each day from Lake Gaston following an



ILLUSTRATION BY DUANE RAVER

## THE Kudzu of the WATER

Hydrilla, originally from Asia, showed up in North Carolina waters more than 30 years ago. A small fragment of hydrilla can grow into a whole colony of plants and clog a waterway from top to bottom in just a few years, damaging fisheries and vegetation by creating a tangled web that smothers aquatic species and blocks sunlight. Once the weed becomes established in an area, boating and water recreation becomes nearly impossible. Though the plant can spread by natural causes, the most common cause of spreading is by human activities. Signs posted on public boat ramps advise boaters about the need to inspect boats, trailers and gear and to remove any sign of the weed before leaving the site. Eradicating the plant through the use of herbicides or by using a fish called grass carp is an expensive and lengthy process. Hydrilla has been a serious problem in the Roanoke River Basin since the 1990s. It is now spreading within the Chowan and beginning to colonize shoreline along the Albemarle Sound. Biologists fear that it could find its way into pristine lakes such as those in and around Pocosin Lakes National Wildlife Refuge.



*The sky paints an  
amber veneer on a  
peaceful Roanoke.*

involved and hotly contested Federal Energy Regulatory Commission approval process. Opponents contended that the withdrawal could cause reduced flows on the Roanoke River downstream, stressing the environment and economy. Urban areas in North Carolina, including Greensboro and the Triangle region, are also eyeing the Roanoke as a water supply source.

Destruction of aquatic habitat is the most prevalent water quality problem in the basin. It is caused in part by polluted stormwater runoff, which results from a variety of land-use practices including agriculture, forestry and construction. Moreover, high levels of dioxin, selenium and mercury have prompted several fish consumption advisories in the basin. In May 2011 the Roanoke River was placed on America's Most Endangered Rivers by the conservation organization American Rivers. Due to an expiring 30 year ban on uranium mining in Virginia, the river will be susceptible to a variety of pollution sources if the ban is not extended.

There are many groups working to protect the natural resources of the Roanoke River Basin. In an exciting public-private conservation effort in the basin, the Piedmont Land Conservancy worked with the N.C. Division of Parks and Recreation to acquire land for Mayo River State Park in Rockingham County. Opened in April of 2010, the 1,967 acre park offers plenty of opportunities for hiking, paddling and enjoying the scenic views of the Mayo River. To learn more about other conservation initiatives in the basin, see the resource list on the back page.

**Office of Environmental Education and Public Affairs, N.C. Department of Environmental Quality.** *Editor* Carla Burgess • *Designer* KC Schott, Red Gate Design • Special Thanks to the N.C. Wildlife Resources Commission, N.C. Division of Water Resources and N.C. Natural Heritage Program • Date: 2018 • 5,000 copies of this public document were printed at a cost of \$1,768 or \$0.354 per copy.



CARL V. GALIE JR.

## WHERE SHOULD I GO

What makes the Roanoke River Basin so special? See for yourself. Visit these Environmental Education Centers to discover more about your ecological address:

- Betsy-Jeff Penn 4-H Education Center
- Hanging Rock State Park
- Kerr Lake State Recreation Area
- Mayo Park
- Mayo River State Park
- Roanoke/Cashie River Center

For more information about Environmental Education Centers in North Carolina, check out the Office of Environmental Education and Public Affairs' website at [www.eenorthcarolina.org](http://www.eenorthcarolina.org).

## HOW CAN I HELP

You can gain a sense of community pride by learning more and helping to protect streams, rivers, lakes and estuaries in the Roanoke River Basin. The contacts listed below can help you do just that. To find out about local river organizations and conservation groups, contact your local soil and water conservation district.

**Albemarle-Pamlico National Estuary Program**  
[www.wapnep.org/](http://www.wapnep.org/)

**Clean Water Management Trust Fund**  
<https://cwmtf.nc.gov>

**North Carolina Association of Soil & Water Conservation Districts**  
<https://ncaswcd.org/>

**North Carolina Division of Water Resources Education Programs**  
<https://deq.nc.gov/about/divisions/water-resources/water-resources-training/public-involvement/project-wet>

**North Carolina Water Science Center**  
<http://nc.water.usgs.gov/>

**Roanoke River Basinwide Plan\***  
<https://deq.nc.gov/about/divisions/water-resources/planning/basin-planning>

*\*Basinwide water quality planning is a nonregulatory, watershed-based approach to restoring and protecting the quality of North Carolina's surface waters. The N.C. Division of Water Resources welcomes community input.*

To order additional brochures on any of North Carolina's 17 river basins, a general river basin booklet or a poster, fill out the online order form at [www.eenorthcarolina.org](http://www.eenorthcarolina.org).